

## TIME & PLACE DEVELOPMENT PTY LTD

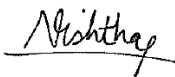


# Preliminary Site Investigation with limited sampling

101 North Steyne, Manly NSW

# Document Control

**Report Title:** Preliminary Site Investigation with limited sampling; 101 North Steyne, Manly NSW  
**Report No:** E26499.E01\_Rev0

| Copies                                                                             |                                            | Recipient                                                                           |            |
|------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------|------------|
| 1                                                                                  | Soft Copy (PDF – Secured, issued by email) | Time & Place Development Pty Ltd<br>PO Box R1699 Royal Exchange                     |            |
| 1                                                                                  | Original (Saved to Digital Archives)       | EI Australia Pty Ltd<br>Suite 6.01, 55 Miller Street,<br><b>Pymont NSW 2009</b>     |            |
| Author                                                                             |                                            | Technical Reviewer                                                                  |            |
|  |                                            |  |            |
| <b>Nishtha Joshi</b><br>Environmental Engineer                                     |                                            | <b>Sergio Raposeira</b><br>Senior Environmental Engineer<br>Project Manager         |            |
| Revision                                                                           | Details                                    | Date                                                                                | Amended By |
| 0                                                                                  | Original                                   | 30 October 2024                                                                     | -          |

© 2024 EI Australia (EI) ABN: 42 909 129 957  
This report is protected by copyright law and may only be reproduced, in electronic or hard copy format, if it is copied and distributed in full and with prior written permission by EI.

# Table of Contents

|                                                            | Page Number |
|------------------------------------------------------------|-------------|
| <b>EXECUTIVE SUMMARY</b>                                   | <b>I</b>    |
| <b>1. INTRODUCTION</b>                                     | <b>1</b>    |
| 1.1 Background and Purpose                                 | 1           |
| 1.2 Proposed Development                                   | 1           |
| 1.3 Regulatory Framework                                   | 1           |
| 1.4 Project Objectives                                     | 1           |
| 1.5 Scope of Works                                         | 2           |
| <b>2. SITE DESCRIPTION</b>                                 | <b>3</b>    |
| 2.1 Property Identification, Location and Physical Setting | 3           |
| 2.2 Local Land Use                                         | 3           |
| 2.3 Regional Setting                                       | 3           |
| 2.4 Groundwater Bore Records and Local Groundwater Use     | 4           |
| 2.5 Site Walkover Inspection                               | 5           |
| <b>3. SITE HISTORY AND SEARCHES</b>                        | <b>6</b>    |
| 3.1 Land Titles Information                                | 6           |
| 3.2 Historical Aerial Photography Review                   | 6           |
| 3.3 Council Information                                    | 7           |
| 3.4 NSW EPA Online Records                                 | 7           |
| <b>4. CONCEPTUAL SITE MODEL</b>                            | <b>8</b>    |
| 4.1 Rationale                                              | 8           |
| 4.2 Summary of Site History                                | 8           |
| 4.3 Predicted Subsurface Conditions                        | 8           |
| 4.4 Potential Contamination Sources                        | 8           |
| 4.5 Contaminants of Potential Concern                      | 8           |
| 4.6 Potential Receptors                                    | 10          |
| 4.7 Risk Assessment                                        | 10          |
| 4.8 Summary of the Conceptual Site Model                   | 11          |
| <b>5. METHODOLOGY</b>                                      | <b>13</b>   |
| 5.1 Sampling, Analytical and Quality Plan                  | 13          |
| 5.2 Data Quality Objectives                                | 13          |
| 5.3 Data Quality Indicators                                | 16          |
| 5.4 Sampling Rationale                                     | 16          |
| 5.5 Assessment Criteria                                    | 17          |
| 5.6 Soil Sampling Methodology                              | 18          |
| 5.7 Acid Sulfate Soil Sampling Methodology                 | 18          |
| 5.7.1 Intrusive Soil Profiling and Sampling                | 18          |
| 5.7.2 Laboratory Analysis                                  | 19          |
| 5.7.3 Adopted Criteria                                     | 19          |

|                                                                |           |
|----------------------------------------------------------------|-----------|
| <b>6. DATA QUALITY ASSESSMENT</b>                              | <b>20</b> |
| <b>7. RESULTS</b>                                              | <b>21</b> |
| 7.1 Soil                                                       | 21        |
| 7.1.1 <i>Sub-Surface Conditions</i>                            | 21        |
| 7.1.2 <i>Field Observations</i>                                | 21        |
| 7.1.3 <i>Laboratory Analytical Results</i>                     | 22        |
| 7.1 Acid Sulfate Soil Assessment                               | 23        |
| 7.1.1 <i>Field <math>pH_f</math> and <math>pH_{fox}</math></i> | 23        |
| 7.1.2 <i>Chromium Suite (SCr) Analysis</i>                     | 23        |
| <b>8. SITE CHARACTERISATION</b>                                | <b>24</b> |
| 8.1 Subsurface Conditions                                      | 24        |
| 8.2 Soil Impacts                                               | 24        |
| 8.2.1 <i>Human Health</i>                                      | 24        |
| 8.2.2 <i>Ecological</i>                                        | 24        |
| 8.3 Acid Sulfate Soils                                         | 24        |
| 8.4 Review of Conceptual Site Model                            | 25        |
| <i>Limitations, Uncertainties and Data Gaps</i>                | 25        |
| <b>9. CONCLUSION</b>                                           | <b>26</b> |
| <b>10. RECOMMENDATIONS</b>                                     | <b>27</b> |
| <b>11. STATEMENT OF LIMITATIONS</b>                            | <b>28</b> |
| <b>REFERENCES</b>                                              | <b>29</b> |
| <b>ABBREVIATIONS</b>                                           | <b>30</b> |

## Schedule of Tables

|           |                                                                   |    |
|-----------|-------------------------------------------------------------------|----|
| Table 2-1 | Site Identification                                               | 3  |
| Table 2-2 | Local Land Use                                                    | 3  |
| Table 2-3 | Regional Setting                                                  | 4  |
| Table 2-4 | Summary of Proximate Registered Groundwater Bores                 | 4  |
| Table 3-1 | Summary of Owner History                                          | 6  |
| Table 3-2 | Summary of Aerial Photograph Observations                         | 6  |
| Table 4-1 | Potential for PFAS Contamination                                  | 9  |
| Table 4-2 | Potential for Contamination by an Emerging or Controlled Chemical | 9  |
| Table 4-3 | Assessment of Potential Contamination Risk                        | 10 |
| Table 4-4 | Summary of the Conceptual Site Model                              | 12 |
| Table 5-1 | Summary of Project Data Quality Objectives                        | 13 |
| Table 5-2 | Data Quality Indicators                                           | 16 |
| Table 5-3 | Adopted Investigation Levels for Soil                             | 17 |
| Table 5-4 | Summary of Soil Sampling Methodology                              | 18 |
| Table 6-1 | Quality Assurance Process                                         | 20 |
| Table 7-1 | Generalised Sub-Surface Profile                                   | 21 |
| Table 7-2 | Summary of Soil Analytical Results                                | 22 |

## Appendices

### **APPENDIX A - FIGURES**

### **APPENDIX B - PROPOSED DEVELOPMENT**

### **APPENDIX C – RESULTS TABLES**

### **APPENDIX D - SITE PHOTOGRAPHS**

### **APPENDIX E - LAND TITLE INFORMATION**

### **APPENDIX F - GROUNDWATER BORE SEARCH**

### **APPENDIX G – BOREHOLE LOGS**

### **APPENDIX H – FIELD DATA SHEETS**

### **APPENDIX I – LABORATORY ANALYTICAL REPORTS**

### **APPENDIX J – QA/QC ASSESSMENT**

#### **J.1 Quality Assurance / Quality Control Program**

#### **J.2 Field QA/QC**

#### **J.3 Conclusion for the Field QA/QC**

#### **J.4 Laboratory QA/QC**

#### **J.5 Summary of Project QA/QC**

## Executive Summary

EI Australia (EI) was engaged by Time & Place Development Pty Ltd ('the client') to conduct a preliminary site investigation (PSI) of the property located at 101 North Steyne, Manly NSW ('the site').

The site is within the local government area (LGA) of Northern Beaches Council. It comprises one cadastral allotment, identified as Strata Plan 4518 and covers an area of approximately 640 m<sup>2</sup>.

The key findings of this PSI were as follows:

- The site comprised of a two storey residential building with no basement.
  - The building structures are generally in good to fair condition.
  - The building was occupied by tenanted residents at the time of inspection.
- The site is located in Medium Density Residential area. It is bordered by mostly residential properties and by Manly Beach to the east.
- The site and surrounding lands within close proximity were free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site and surrounding lands were not included on the *List of NSW Contaminated Sites Notified to the EPA*.
- A conceptual site model (CSM), and qualitative risk assessment was produced for the site, which identified potential contaminating sources and the likelihood for relevant exposure pathways during site redevelopment; Soil sampling and analysis was conducted at three borehole locations:
  - Boreholes were located within the assessable areas within the footprint of the proposed basement.
  - The general site geology encountered during the drilling of the soil investigation boreholes was a layer of silty sand filling, overlying marine soil (silty sand). Bedrock was not encountered to the depth of this investigation (10.0 mBGL).
  - No ash and slag was observed in any of the examined soils.
  - An assessment of soil samples against the adopted residential health based criteria (NEPM (2013) HIL-B/HSL-A&B) did not indicate any exceedance for potential contaminants (priority metals, TRH, BTEX, pesticides and PCBs), being the exception:
    - Carcinogenic PAHs (as B(α)P TEQ) within the fill layer at BH3. Impact was vertically delineated (natural sample reported a concentration below the laboratory limit of reporting) suggesting it is not widespread.
  - Asbestos was not identified (not present) within fill at any investigation location.

Based on the findings of this PSI, and with consideration of EI's Statement of Limitations (**Section 11**), it was concluded that the potential for widespread site contamination is low within the areas investigated, however data gaps remain. Recommendations outlined in **Section 10** should be implemented.

# 1. Introduction

## 1.1 Background and Purpose

EI Australia (EI) was engaged by Time & Place Development Pty Ltd ('the client') to conduct a preliminary site investigation (PSI) of the property located at 101 North Steyne, Manly NSW ('the site').

The site is located approximately 16 km north-east of Sydney Central Business District (CBD), as shown in Figure 1 (Appendix A), covering an area of approximately 640 m<sup>2</sup>, as shown on the survey plan attached in **Appendix B**. The site comprises one cadastral allotment, identified as Strata Plan 4518.

The site was designated for redevelopment and this PSI was completed in support of the corresponding development application to Northern Beaches Council. The aim was to appraise the environmental (potential contamination) condition of the land. It enables the client to meet obligations under the *Contaminated Land Management Act 1997* and *State Environmental Planning Policy (Resilience and Hazards) 2021*.

## 1.2 Proposed Development

Based on the proposed development plans (**Appendix B**), the proposed development proposed development involves the demolition of the existing site structures and the construction of a five-storey residential development overlying a single-level basement. The lowest basement level is proposed to have a Finished Floor Level (FFL) of between RL 2.160 to the west and 1.37m to the east, a car stacker is located along the eastern boundary of the basement with a FFL of -1.13m. A Bulk Excavation Level (BEL) ranging between RL 1.8m to the west and -2.0m to the east is assumed, which includes allowance for the construction of the basement slab. To achieve the BEL, excavation depths from 3.9m to 6.9m Below Existing Ground Level (BEGL) have been estimated. Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches. The basement extends up to all site boundaries.

## 1.3 Regulatory Framework

The following regulatory framework and guidelines were considered during this PSI:

- *Contaminated Land Management Act 1997* (the CLM Act 1997);
- *Protection of the Environment Operations Act 1997* (the POEO Act 1997);
- *Environmental Planning and Assessment Act 1979* (the EP&A Act 1979);
- *Manly Local Environmental Plan 2013*;
- NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Amendment Measure*;
- NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme*;
- NSW EPA (2020) *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*

## 1.4 Project Objectives

The objectives of this PSI were to:

- Evaluate the potential for site contamination on the basis of historical land uses, anecdotal and documentary evidence of possible pollutant sources.

- Provide a qualitative assessment of the environmental condition of the site, by appraising the potential for contamination on the basis of field observations, historical land uses and other documentary evidence; and
- Provide recommendations for further investigation of the site, should the potential for contamination be confirmed.

## 1.5 Scope of Works

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

- Review of relevant (hydro)geological and soil landscape maps for the project area;
- A search for groundwater bore records within 500 m radius of the site;
- A site walkover inspection;
- Review of site history, based on land titles records, aerial photographs (dating back to 1943) and property files archived by Northern Beaches Council;
- Searches of public registers maintained by the NSW Environment Protection Authority (NSW EPA) for statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*;
- A search of the *List of NSW Contaminated Sites Notified to the EPA*; and
- Data interpretation and reporting.

This PSI report was completed with reference to the NSW EPA (2020) *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*. It documents the investigation works, with discussion of the findings in regards to potential exposure pathways to human health and the environment. It concludes with statements concerning the potential for contamination to exist on the land and its suitability for the proposed residential use.

## 2. Site Description

### 2.1 Property Identification, Location and Physical Setting

The site identification details and associated information are presented in **Table 2-1**. The site locality and assessment area are shown in **Figures 1 and 2, Appendix A**.

**Table 2-1 Site Identification**

| Attribute                | Description                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Street Address           | 101 North Steyne, Manly NSW                                                                                                                                                                                                                                                                                                                                                                                  |
| Location and Description | The site is located approximately 16km north-east of the Sydney CBD, bound by North Steyne to the east, Pine Lane to the west, residential properties to the north, and to the south.                                                                                                                                                                                                                        |
| Geographical Coordinates | North-eastern corner of site (GDA2020-MGA56): <ul style="list-style-type: none"><li>▪ Easting: 341399.309</li><li>▪ Northing: 6259791.546</li></ul> (Source: <a href="http://maps.six.nsw.gov.au">http://maps.six.nsw.gov.au</a> )                                                                                                                                                                           |
| Area                     | Approximately 640 m <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                             |
| Lot and DP               | SP4518                                                                                                                                                                                                                                                                                                                                                                                                       |
| State Survey Marks       | Three permanent survey marks are situated within close proximity to the site: <ul style="list-style-type: none"><li>▪ PM624: on North Steyne (approximately 50m north-east);</li><li>▪ PM623 F: on North Steyne (approximately 60m south-east); and</li><li>▪ PM630: on Pine Street (approximately 93m south-west).</li></ul> (Source: <a href="http://maps.six.nsw.gov.au">http://maps.six.nsw.gov.au</a> ) |
| LGA                      | Northern Beaches Council                                                                                                                                                                                                                                                                                                                                                                                     |
| Parish                   | Manly Cove                                                                                                                                                                                                                                                                                                                                                                                                   |
| County                   | Cumberland                                                                                                                                                                                                                                                                                                                                                                                                   |
| Current Zoning           | R3 Medium Density Residential<br>( <i>Manly Local Environmental Plan 2013</i> )                                                                                                                                                                                                                                                                                                                              |

### 2.2 Local Land Use

The site is situated within an area of mixed use. The local sensitive receptors within close proximity (<250m) to the site are also identified in **Table 2-2**.

**Table 2-2 Local Land Use**

| Direction | Land Use Description   | Sensitive Receptor (and distance from site) |
|-----------|------------------------|---------------------------------------------|
| North     | Residential properties | Residential (immediately adjacent)          |
| South     | Residential properties | Residential (immediately adjacent)          |
| East      | Manly beach            | Manly beach (approximately 100m east)       |
| West      | Residential properties | Residential (approximately 35m west)        |

### 2.3 Regional Setting

The topography, (hydro)geology and soil landscape information is summarised in **Table 2-3**.

**Table 2-3 Regional Setting**

| Attribute                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Topography                    | The site is located within relatively flat topography with site levels varying from RL 6m. (Source: Mecone Mosaic <a href="https://meconemosaic.au/">https://meconemosaic.au/</a> )                                                                                                                                                                                                                                                                       |
| Drainage                      | Likely to be consistent with the general slope of the site, discharging into the dam and pits of the municipal stormwater collection system.                                                                                                                                                                                                                                                                                                              |
| Geology                       | The Sydney 1:100,000 Geological Series Sheet 9130 (Department of Mineral Resources, 1983) found the site was located within an area underlain by Holocene sediments which consists of coarse to fine quartz sand, with shell fragments and occasionally silt.                                                                                                                                                                                             |
| Soil Landscape                | In accordance with the NSW Department of Climate Change, Energy, the Environment and Water's <i>Soil Landscapes of Central and Eastern New South Wales</i> indicate that the site is within WOYWOY (ww) soil landscape which is level to gently undulating non-tidal beach ridges on marine sands.<br><br>Plains to rolling rises of Holocene sands mantling other soil materials or bedrock. Extensively cleared closed-scrub and low eucalypt woodland. |
| Acid Sulfate Soil (ASS) Risk  | With reference to the Sydney Heads Acid Sulfate Soil Risk Map (1:25,000 scale; Murphy, 1997), the subject land lies within the map class description of 'No known occurrence of acid sulfate soil materials'.                                                                                                                                                                                                                                             |
| Nearest Surface Water Feature | South Pacific ocean (approximately 280m east from the site).                                                                                                                                                                                                                                                                                                                                                                                              |

## 2.4 Groundwater Bore Records and Local Groundwater Use

An online search for groundwater bores registered with WaterNSW was conducted by EI on 10 September 2024 (Ref. <https://realtimedata.waternsw.com.au/water.stm>). The search revealed there were fourteen registered bores within a 500 m radius of the site, as summarised in **Table 2-4**.

**Table 2-4 Summary of Proximate Registered Groundwater Bores**

| Bore     | Date Drilled | Drilled Depth (m) | SWL ( m BGL) | Bore Purpose    | Approx. Distance from the site |
|----------|--------------|-------------------|--------------|-----------------|--------------------------------|
| GW109652 | 27/07/2008   | 6.00              | 2.70         | Monitoring Bore | 65m east                       |
| GW108848 | 18/05/2007   | 12.0              | -            | Domestic        | 85m south-west                 |
| GW106339 | 02/04/2004   | 7.50              | 5.50         | Recreation      | 130m north-east                |
| GW109320 | 10/09/2008   | 7.50              | 5.50         | Recreation      | 130m north-east                |
| GW108231 | 18/10/2006   | 7.70              | 4.50         | Domestic        | 260m north                     |
| GW108941 | 19/06/2008   | 10.00             | -            | Domestic        | 290m west                      |
| GW106839 | 05/02/2004   | 7.93              | 5.49         | Domestic        | 310m north                     |
| GW108919 | 17/06/2008   | 6.10              | 4.00         | Domestic        | 250m south-west                |
| GW111691 | 04/10/2010   | 9.00              | -            | Domestic        | 330m west                      |
| GW111499 | 31/01/2011   | 2.50              | -            | Domestic        | 340m north-west                |
| GW108424 | 04/02/2007   | 8.00              | -            | Domestic        | 390m north-west                |
| GW106151 | 18/06/2004   | 7.00              | 5.00         | Domestic        | 410m north                     |
| GW110630 | 04/01/2010   | 6.25              | 2.70         | Domestic        | 470m north-west                |

| Bore     | Date Drilled | Drilled Depth (m) | SWL ( m BGL) | Bore Purpose | Approx. Distance from the site |
|----------|--------------|-------------------|--------------|--------------|--------------------------------|
| GW108845 | 30/04/2007   | 12.00             | -            | Domestic     | 500m north-west                |

Note: “-“indicates value not recorded

In summary, the registered bores identified are authorized for monitoring bore, recreation and domestic use. The drilled bore depths ranged between 2.5 and 12 mBGL. The water table (as indicated by recorded standing water levels, SWL) in groundwater bore GW109652 (approximately 65m east of the site) was recorded at 2.70m BGL. More detailed information is presented in **Appendix E**.

## 2.5 Site Walkover Inspection

Observations were recorded during a walkover inspection of the site conducted on 26 September 2024. These observations are summarised below, with photographs taken during the inspection presented in **Appendix D**.

- The site is located in a residential area (medium density residential) bordered by residential properties to the north and south. Pine Lane adjacent to the site followed by residential properties to the west and North Steyne and Manly Beach to the east.
- At the time of the investigation, the site was occupied by a two-storey residential dwelling covering the eastern portion of the site (**Photograph 1**). Additionally:
  - The building structure was in good to fair condition and no basement below ground level.
  - Fibre cement sheeting (FCS) containing potential asbestos-containing materials (ACM) was not identified during the walkover.
  - Driveway and parking areas were covered in asphalt road base throughout. The pavement was in fair to good condition.
  - Some evidence of iron oxide discolouration was noted along the neighbouring property wall at southern border of the site (**Photograph 4**).
- Plants on site consisted of a small raised garden bed in the east of the site, mostly of small garden plants. Vegetation appeared healthy indicating no phytotoxicity occurring on site or on surrounding sites.
- No visual evidences of infrastructure associated with underground or above ground storage tanks (USTs/ASTs) were observed on the site.
- No olfactory indicators of contamination (i.e. suspicious odours) were detected during the inspection.
- The residential properties in proximity to the site were inclusive of underground basement levels, suggesting that in those properties the fill was excavated and disposed offsite during the construction.

## 3. Site History and Searches

### 3.1 Land Titles Information

An historical land titles search was conducted through InfoTrack Pty Ltd (InfoTrack). Copies of relevant documents resulting from this search are presented in **Appendix E**. A summary of the previous and current registered proprietors is presented in **Table 3-1**.

**Table 3-1 Summary of Owner History**

| Year                         | Registered Proprietor(s) and Occupations (where documented) |
|------------------------------|-------------------------------------------------------------|
| 1904 to 1962                 | Grace Mary Ann Spalding                                     |
| 1962 to 1962                 | James Hunter Stephenson<br>Olive Hill                       |
| 1962 to 1970                 | Marn-Lee Pty Limited                                        |
| 27.02.1970                   | Registration of Strata Plan No. 4518                        |
| 27.02.1970<br>(1970 to date) | # The Owners – Strata Plan No. 4518                         |

### 3.2 Historical Aerial Photography Review

The historical aerial photographs reviewed as part of this PSI were derived from on-line resources and included:

- **1943 to 2005:** available through Spatial Service NSW  
(<https://portal.spatial.nsw.gov.au/portal/apps/webappviewer/index.html>);
- **2017 to 2024:** provided by Google Earth.

A summary of the findings is given in **Table 3-2**.

**Table 3-2 Summary of Aerial Photograph Observations**

| Year            | Description of Site and Surroundings                                                                                                                                                     | Land Use    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1943            | The site appeared to be occupied by a residential property, consistent with the current structures.<br>Surrounding areas consisted of mixed residential and light commercial properties. | Residential |
| 1955            | The site appeared to be unchanged<br>Surrounding areas were largely unchanged.                                                                                                           | Residential |
| 1965            | The site has undergone redevelopment to what appears the now standing residential property<br>Surrounding areas were largely unchanged.                                                  | Residential |
| 1978            | The site appeared to be unchanged.<br>Residential property immediately south (adjacent) of the site has been redeveloped.                                                                | Residential |
| 1991            | The site appeared to be unchanged.<br>The property south of the site (approx. 20m south) has been redeveloped.                                                                           | Residential |
| 1994 to present | The site appeared to be unchanged.<br>Surrounding areas were largely unchanged.                                                                                                          | Residential |

### 3.3 Council Information

A search of site history records held by Northern Beaches Council in relation to the site were initiated on 29 August 2024. At the time of writing this report, a response from council had not been received.

### 3.4 NSW EPA Online Records

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

#### **Record of Notices Under Section 58 of CLM Act 1997**

An on-line search of the contaminated land public record was conducted on 10 September 2024. The contaminated land public record is a searchable database of:

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

The search confirmed that neither the site nor the surrounding lands within close proximity ( $\leq 250$  m) were subject to any regulatory notices relevant to the above legislations.

#### **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 10 September 2024. This list is maintained by the NSW EPA and includes properties on which contamination has been identified, but not deemed to be impacted significantly enough to warrant regulation.

The search confirmed that neither the site nor the surrounding lands within close proximity ( $\leq 250$  m), had been notified as contaminated to the NSW EPA.

#### **POEO Public Register**

A search of the *Protection of the Environment Operations Act 1997* public register was conducted on 10 September 2024. This public register contains records related to environmental protection licences, applications, notices, audits, pollution studies and reduction programs.

The search confirmed that neither the site nor the surrounding lands within close proximity ( $\leq 250$  m) were subject to any licensing agreements / notices / programs relevant to this legislation.

## 4. Conceptual Site Model

In accordance with the NEPC (2013) *Schedule B2 - Guideline on Site Characterisation*, a CSM was developed as part of the contamination appraisal, which assessed plausible linkages between potential contamination sources, migration pathways and receptors. It is hereby presented, taking into account the findings from EI's walkover inspection and the historical search information.

### 4.1 Rationale

The primary purpose of this PSI was to appraise the potential for contamination to exist on the site. If such a potential was suspected, the environmental and human-health risks associated with contamination were to be evaluated.

The potential for contamination was determined from a desktop study of collated information from historical searches and government-maintained databases, and a site walkover inspection. Professional judgement was then applied. This appraisal did not involve intrusive sampling and laboratory analysis of soil, soil vapour or groundwater.

### 4.2 Summary of Site History

Based on the available historical information, the site has been a residential property since the 1943 (at least) and site structures were largely unchanged since 1943.

Local surroundings consisted of predominantly residential properties to the north, south and west with the beach to the east of the site.

### 4.3 Predicted Subsurface Conditions

Based on the available map information (**Section 2.3**), the sub-surface conditions are expected to comprise a layer of shallow filling ( $\leq 0.7\text{m}$  thickness), overlying natural soils. Based off the ASS Risk map, the potential for ASS to be present on the site was considered to be very low.

### 4.4 Potential Contamination Sources

There was potential for contamination to exist on the site, due to the following sources:

- Imported fill materials of unknown origin and quality (used to grade the site);
- Weathering of exposed building fabrics containing hazardous substances (including bonded ACM, lead-based paints and metallic surfaces) or deposition of such in near-surface soils;
- Application of pesticides around building (footing) perimeters; and
- Leakage or atmospheric fallout from vehicles.

### 4.5 Contaminants of Potential Concern

#### **PFAS Assessment**

NSW EPA (2017) requires that PFAS are considered when investigating land contamination. An assessment of the probability for PFAS occurrence is provided in **Table 4-1**. This was based on considerations outlined in the *PFAS National Environmental Management Plan* (HEPA, 2020) and the EnRisk (2016) decision tree. In this instance, the potential for PFAS to be present on-site was deemed low and thus PFAS sampling / analysis of soil and water was considered unwarranted.

**Table 4-1 Potential for PFAS Contamination**

| Preliminary Screening                                                                                                                                                                              | Probability of Occurrence <sup>1</sup> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Is the past or present site activity listed in HEPA (2020) <sup>2</sup> as being an activity associated with PFAS contamination? If so, list activity.                                             | L                                      |
| Is the past or present off-site activity up-gradient or adjacent to the site listed in HEPA (2020) <sup>2</sup> as being an activity associated with PFAS contamination? If so, list activity.     | L                                      |
| Did fire training involving the use of suppressants occur on-site between 1970 and 2010?                                                                                                           | L                                      |
| Did fire training occur up-gradient of or adjacent to the site between 1970 and 2010? <sup>3</sup>                                                                                                 | L                                      |
| Have “fuel” fires ever occurred on-site between 1970 and 2010?<br>e.g. ignition of fuel (solvent, petrol, diesel, kero) tanks                                                                      | L                                      |
| Have PFAS been used in manufacturing or stored on-site? <sup>4</sup>                                                                                                                               | L                                      |
| Could PFAS have been imported to the site in fill material from a site with activity listed in HEPA (2020)?                                                                                        | L                                      |
| Could PFAS-contaminated groundwater or run-off have migrated on to the site?                                                                                                                       | L                                      |
| Is the site or adjacent sites listed in the NSW EPA PFAS Investigation Program? <sup>5</sup>                                                                                                       | L                                      |
| If the probability is medium or high in any of the rows, does the site analytical suite need to be optimised to include sampling and testing for PFAS in soil (including ASLP testing) and waters? | No                                     |

**Notes:**

<sup>1</sup> - Probability: L – low (documentation has been reviewed and there is no recorded instance or compelling rationale), M – moderate (documentation has been reviewed and there is potential for an instance with compelling rationale); H – high (all documentation has been reviewed and there is strong evidence of a recorded instance).

<sup>2</sup> - Activities listed in Appendix B of the HEPA (2020). Further information, refer to [https://www.oecd.org/env/ehs/risk-management/PFC\\_FINAL-Web.pdf](https://www.oecd.org/env/ehs/risk-management/PFC_FINAL-Web.pdf).

<sup>3</sup> - Runoff from up-gradient PFAS use may impact surface water, soil, sediment and groundwater.

<sup>4</sup> - PFAS is used wide range of industrial processes and consumer products, including in the manufacture of non-stick cookware, specialised garments and textiles, Scotchguard™ and similar products (used to protect fabric, furniture, leather and carpets from oils and stains), metal plating and in some types of fire-fighting foam (<https://www.nicnas.gov.au/chemical-information/factsheets/chemical-name/perfluorinated-chemicals-pfas>).

<sup>5</sup> - <https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program>

### Emerging Chemicals

The NSW EPA uses Chemical Control Orders (CCOs) as a primary legislative tool under the *Environmentally Hazardous Chemicals Act 1985* to manage chemicals of concern and limit their potential impact on the environment. Considerations for chemicals controlled by CCOs, and other potential emerging chemicals, are outlined in **Table 4-2**.

In this instance, the potential for an emerging chemical of concern to be present on-site was deemed low, with the exceptions of PCB and pesticides (in near-surface, imported fill).

**Table 4-2 Potential for Contamination by an Emerging or Controlled Chemical**

| Chemicals of Concern (CCO or emerging)                                                            | Decision                                                                                                        |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Were aluminium smelter wastes used or stored on site (CCO, 1986)?                                 | No                                                                                                              |
| Do dioxin contaminated wastes (CCO, 1986) have the potential to impact the site? <sup>1</sup>     | No                                                                                                              |
| Were organotin products (CCO, 1989) used or stored on site? <sup>2</sup>                          | No                                                                                                              |
| Were polychlorinated biphenyls (PCBs) used or PCB wastes (CCO, 1997) stored on-site? <sup>3</sup> | Possibility for PCBs to be present in imported fill                                                             |
| Were scheduled chemical or wastes (CCO, 2004) used or stored? <sup>4</sup>                        | Possibility for pesticides to have been applied to footings for termite control and/or present in imported fill |

| Chemicals of Concern (CCO or emerging)                                                                              | Decision |
|---------------------------------------------------------------------------------------------------------------------|----------|
| Are other emerging chemicals suspected? <sup>5</sup>                                                                | No       |
| If Yes to any questions, has site sampling suite been optimised to include sampling for these chemicals of concern? | Yes      |

Note 1 From burning of certain chemicals, smelting or chemical manufacturing or fire on or near the site.

Note 2 From anti-fouling paints used or removed at boat and ship yards and marinas.

Note 3 From older transformer oils and electrical capacitors

Note 4 Twenty-four mostly organochlorine pesticides and industrial by-products

Note 5 Other chemicals considered as emerging (e.g. 1, 4 dioxane; associated with some cVOC).

Based on the sources listed in **Section 4.4**, the contaminants of potential concern (COPC) for the site were considered to be:

- Priority Metals (PM) - arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc;
- Total Recoverable Hydrocarbons (TRH);
- The monocyclic aromatic hydrocarbons Benzene, Toluene, Ethylbenzene, Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Organochlorine and Organophosphorus Pesticides (OCP / OPP);
- Polychlorinated Biphenyls (PCB); and
- Asbestos.

#### 4.6 Potential Receptors

The following potential receptors of any site contamination were identified:

- Current site users/ occupiers;
- On-site demolition and construction workers (during future redevelopment);
- Users of the adjacent land during excavation and construction;
- Future site users, including intrusive (maintenance) workers; and
- Local groundwater.

#### 4.7 Risk Assessment

An assessment of the potential contamination risks for the site is outlined in **Table 4-3**.

**Table 4-3 Assessment of Potential Contamination Risk**

| Potential Source                                  | Impacted Medium                       | COPC                               | Risk of Contamination                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------|---------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Importation of fill of unknown origin and quality | Shallow soil                          | PM, TRH, BTEX, PAH, OCP, OPP, PCB  | <b>Low</b><br>Shallow filling was expected on the site.                                                                                                                                                                                                                                                                                                                                          |
| Hazardous building materials                      | Building fabrics<br>Near surface soil | PM (lead-based paint) and asbestos | <b>Low</b><br>Given the age of construction (1943 at least), hazardous building materials maybe present in the site structures, however good demolition practices can mitigate the risks related to asbestos presence.<br>A hazardous material survey (HMS) is recommended (Section 10) which requires identification of legacy asbestos and other materials within the building fabric on site. |

| Potential Source          | Impacted Medium | COPC                              | Risk of Contamination                                                                                                             |
|---------------------------|-----------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Application of pesticides | Soil            | PM (arsenic and copper), OCP, OPP | <b>Low</b><br>Limited accessible soil was observed during site inspection. If present impacts will only impact near surface soil. |
| Car parking               | Soil            | PM, TRH, BTEX, PAH                | <b>Low</b><br>Concrete hardstands were observed to be of good quality and no significant surface staining was identified.         |

#### 4.8 Summary of the Conceptual Site Model

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

**Table 4-4 Summary of the Conceptual Site Model**

| Potential Source                                          | Impacted Media | Contaminants of Potential Concern  | Transport Mechanism                                                                                                                          | Exposure Pathway                                                                                                                                               | Potential Receptor                                                                                                                                                                                                                                   |
|-----------------------------------------------------------|----------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application of pesticides                                 | Soil           | PM , OCP, OPP                      | Disturbance of surface and subsurface soils during site redevelopment, future site maintenance and future use of the site post redevelopment | <ul style="list-style-type: none"> <li>▪ Ingestion</li> <li>▪ Dermal contact</li> <li>▪ Inhalation of particulates</li> <li>▪ Inhalation of vapours</li> </ul> | <ul style="list-style-type: none"> <li>▪ Current site occupiers</li> <li>▪ Demolition / excavation / construction workers</li> <li>▪ Adjacent site users</li> <li>▪ Future site users</li> <li>▪ Ecological receptors in landscaped areas</li> </ul> |
| Imported landscape material of unknown origin and quality |                | PM, TRH, BTEX, PAH, OCP, OPP, PCB  | Atmospheric dispersion from soil to outdoor and indoor air spaces                                                                            |                                                                                                                                                                |                                                                                                                                                                                                                                                      |
| Hazardous building materials                              |                | Asbestos, Lead                     | Volatilisation of contamination from soil and diffusion to indoor air spaces.                                                                |                                                                                                                                                                |                                                                                                                                                                                                                                                      |
| Leaks from parked vehicles                                |                | PM, TRH, BTEX, PAH                 | Surface transfer in (stormwater) runoff                                                                                                      | <ul style="list-style-type: none"> <li>▪ Dermal contact</li> <li>▪ Ingestion</li> </ul>                                                                        |                                                                                                                                                                                                                                                      |
| Off-site migration                                        | Groundwater    | Dissolved PM, TRH, VOC (BTEX), PAH | Volatilisation of contamination from groundwater to indoor or outdoor air spaces (onsite and offsite)                                        | <ul style="list-style-type: none"> <li>▪ Inhalation of vapours</li> </ul>                                                                                      | <ul style="list-style-type: none"> <li>▪ Current and future site occupiers</li> <li>▪ Demolition, excavation and construction workers</li> <li>▪ Adjacent site users</li> <li>▪ Future intrusive workers</li> </ul>                                  |
|                                                           |                |                                    | Migration of dissolved phase impacts in groundwater via diffusion and advection                                                              | <ul style="list-style-type: none"> <li>▪ Biota uptake</li> </ul>                                                                                               |                                                                                                                                                                                                                                                      |

**Footnotes:**

The overall potential for contamination to exist on the site was deemed to be moderate

Source-Pathway-Receptor linkages considered to be potentially complete; although

Site workers during excavation and construction, as well as future building / service maintenance, are assumed to use personal protective equipment (PPE), as per SafeWork NSW regulations; hence, eliminating Source-Pathway-Receptor linkage

ASS parameters not considered to be of relevance for any future (detailed) site investigation



## 5. Methodology

### 5.1 Sampling, Analytical and Quality Plan

The sampling, analytical and quality plan (SAQP) ensures that the data collected during environmental works are representative and provided a robust basis for assessment decisions. The SAQP for this investigation included the following:

- Data quality objectives (DQOs), including a summary of the objectives of this investigation;
- Investigation methodology, including the media to be sampled, details of analytes and parameters to be monitored and a description of the rationale for intended sampling points;
- Sampling procedures (including sample handling, preservation and storage);
- Field screening methods;
- Laboratory analysis methods; and
- Analytical quality assurance / quality control (QA/QC).

### 5.2 Data Quality Objectives

In accordance with the NEPC (2013) *Schedule B2 Guideline on Site Characterisation*, the USEPA (2006) *Data Quality Assessment* and EPA (2017) *Guidelines for the NSW Site Auditor Scheme*, DQOs were developed by the EI investigation team, following the NEPM- / NSW EPA-endorsed, seven step process (**Table 5-1**). In doing so, the appropriate levels of data quantity and quality needed for the specific requirements of the project were established.

**Table 5-1 Summary of Project Data Quality Objectives**

| DQO Step                                                                                                                                                                                                   | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. State the Problem</b><br>Summarise the contamination problem that will require new environmental data, and identify the resources available to resolve the problem; develop a conceptual site model. | The site is to be redeveloped into a residential building ( <b>Section 1.2</b> ).<br>The proposed land use is equivalent to a generic NEPC (2013) setting of residential with minimal soil access.<br>The site history review ( <b>Section 3</b> ), and CSM considered there was a low potential for contamination ( <b>Section 4</b> ) to exist on the site. The site required a preliminary understanding involving a desktop study and limited intrusive investigation into the nature and degree of any soil contamination; in support of the development application to Northern Beaches Council and enable the developer to meet its obligations under State Environment Protection Policy (Resilience and Hazards) (2021) and the Contaminated Land Management Act 1997 (CLM Act).                                                                                                                                                                                                                                         |
| <b>2. Identify the Goal of the Study (Identify the decisions)</b><br>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 <b>Section 1.4</b> , the decisions for this PSI (with limited sampling) concerned the following questions: <ul style="list-style-type: none"><li>▪ Has the nature, extent and source of any soil and/or groundwater impacts onsite been defined?</li><li>▪ What impact do the local geological and hydrogeological conditions have on the fate and transport of any contaminants that may be present?</li><li>▪ Does the level of impact coupled with the fate and transport of potential contaminants represent an unacceptable risk to identified human and/or environmental receptors on- or off- site?</li><li>▪ Does the collected data provide sufficient information to allow the selection and design of an appropriate remedial strategy, if necessary?</li><li>▪ If the data does not provide sufficient information, what data gaps require closure to enable the suitability of the site to be determined, or selection and design of an appropriate remedial strategy?</li></ul> |

| DQO Step                                                                                                                                                                                                                                                             | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>3. Identify Information Inputs (Identify inputs to decision)</b><br>Identify the information needed to support any decision and specify which inputs require new environmental measurements.                                                                      | <p>Inputs to the decision making process included:</p> <ul style="list-style-type: none"><li>▪ The proposed development plans;</li><li>▪ National and NSW EPA guidelines endorsed under the <i>NSW Contaminated Land Management Act 1997</i>;</li><li>▪ National and NSW EPA guidelines published or endorsed in the absence of criteria;</li><li>▪ Observations obtained from an intrusive investigation in locations and to depths deemed appropriate for assessment purposes; and</li><li>▪ Laboratory analysis of selected soil samples as per <b>Section 5.4</b>.</li></ul> <p>At the end of the PSI, a decision had to be made regarding whether the environmental conditions were suitable for the proposed redevelopment, or if additional assessment / remedial works were required to make the site suitable.</p>                                                                                                                                                                                                                                                                                                                                                                               |
| <b>4. Define the Boundaries of the Study</b><br>Specify the spatial and temporal aspects of the environmental media that the data must represent to support decision.                                                                                                | <p><b>Lateral</b> – The investigation was conducted within the cadastral boundaries of the site, within the accessible locations.</p> <p><b>Vertical</b> – From the ground surface, down to the deepest depth of borehole drilling (10 mBGL).</p> <p><b>Temporal</b> – Results were valid on the day of data / sample collection and remain valid as long as no changes occur on site or contamination (if present) does not migrate on site or on to the site from off-site sources.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>5. Develop the Analytic Approach (Develop a decision rule)</b><br>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. | <p>The decision rules for the investigation are:</p> <ul style="list-style-type: none"><li>▪ What are the characteristics of soil are at the site?<ul style="list-style-type: none"><li>▸ Soil boreholes will be advanced to natural soil, sampled and logged to characterise underlying conditions.</li></ul></li><li>▪ Is the site suitable for the proposed land use?<ul style="list-style-type: none"><li>▸ If the concentrations of contaminants in the soil are below the relevant health-based and ecological criteria for the intended land use; then the site will be deemed suitable for the proposed development.</li></ul></li><li>▪ Is additional information required to determine the suitability of the site for its proposed use?<ul style="list-style-type: none"><li>▸ Should additional information be required as determined by the conceptual site model (CSM), then appropriate recommendations will be provided.</li></ul></li></ul> <p>Decision criteria for analytical data are defined by the Data Quality Indicators (DQI) in <b>Table 5-2</b>.</p>                                                                                                                           |
| <b>6. Specify Performance or Acceptance Criteria (Specify limits on decision errors)</b><br>Specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data.                 | <p>Specific limits for this project were in accordance with National and EPA guidance, and appropriate indicators of data quality and standard procedures for field sampling and handling. Laboratory test results were accepted if:</p> <ul style="list-style-type: none"><li>▪ All contracted laboratories were accredited by NATA for the analyses undertaken;</li><li>▪ All laboratory analytical data were within pre-determined assessment criteria, in accordance with laboratory QA/QC policies and DQOs;</li><li>▪ QA/QC results demonstrated acceptable reliability and representativeness of the data set; and</li><li>▪ Laboratory limits of reporting (LOR) were below the adopted assessment criteria for the tested COPC.</li></ul> <p>The principal decision rule for the investigation was:</p> <ul style="list-style-type: none"><li>▪ If the concentrations of chemicals in the soil / groundwater exceeded the adopted assessment criteria, then further investigation would be prudent to determine the extent of contaminant impacts on-site.</li><li>▪ Decision criteria for QC measures are defined by the Data Quality Indicators (DQIs) outlined in <b>Table 5-2</b>.</li></ul> |

| DQO Step                                                                                                                                                                                                                                | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>7. Develop the Detailed Plan for Obtaining Data (Optimise the design for obtaining data)</b></p> <p>Identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs.</p> | <p>In order to achieve the most resource-effective sampling and analysis design and generate data that satisfied the DQO:</p> <ul style="list-style-type: none"><li>▪ Preliminary investigation using desktop resources and public data bases, and site inspection;</li><li>▪ Limited soil sampling at 3 locations using a generally targeted pattern across the accessible area within the site boundary.</li><li>▪ An upper soil profile sample was collected at each borehole location and tested for the COPC, to assess the conditions of the fill layer, and impacts from activities at ground level.</li><li>▪ Further discrete, natural samples were analysed for primary metals, TRH, BTEX and PAHs. Samples were selected on field observations (including visual and olfactory evidence), giving consideration to the subsurface stratigraphy.</li><li>▪ 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).</li></ul> <p>During the PSI with limited sampling, written instructions were issued to guide field personnel in the required fieldwork activities. All field works were performed in accordance with NSW EPA guidelines and EI standard operating procedures (SOPs).</p> |

## 5.3 Data Quality Indicators

To ensure that the investigation data were of an acceptable quality, they were assessed against the quality indicators outlined in **Table 5-2**. Assessment of data quality is presented in **Section 6** and **Appendix J**.

**Table 5-2 Data Quality Indicators**

| QA/QC Component                                                                                                                  | Data Quality Indicator(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Precision</b><br>A quantitative measure of the variability (or reproducibility) of data                                       | Data precision was assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Precision was deemed acceptable if RPDs were found dominantly to be less than 30%. RPDs that exceeded this range were considered acceptable where: <ul style="list-style-type: none"> <li>Results were less than 10 times the limits of reporting (LOR);</li> <li>Results were less than 20 times the LOR and the RPD was less than 50%; or</li> <li>Heterogeneous materials or volatile compounds were encountered.</li> </ul>                                                                                                                                                                                                                                                       |
| <b>Accuracy</b><br>A quantitative measure of the closeness of reported data to the “true” value                                  | Data accuracy was assessed through the analysis of: <ul style="list-style-type: none"> <li>Split field duplicate sample sets;</li> <li>Field / method blanks, analysed for the analytes targeted in the primary samples;</li> <li>Matrix spike sample sets; and</li> <li>Laboratory control samples.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Representativeness</b><br>The confidence (expressed qualitatively) that data are representative of each medium present onsite | To ensure the data produced by the laboratory were representative of conditions encountered in the field, the following measures were taken: <ul style="list-style-type: none"> <li>Blank samples run in parallel with field samples, to confirm there were no unacceptable instances of laboratory artefacts;</li> <li>Review of RPDs for field and laboratory duplicates to provide an indication that the samples were generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and</li> <li>The appropriateness of collection methodologies, handling, storage, and preservation techniques was 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).</li> </ul> |
| <b>Completeness</b><br>A measure of the amount of useable data from a data collection activity                                   | Analytical data sets were considered complete upon confirmation that: <ul style="list-style-type: none"> <li>SOPs for sampling protocols were adhered to; and</li> <li>All chain of custody (COC) documentation was properly completed.</li> </ul> It could then be determined whether the generated data were sufficient for the purposes of the land use assessment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Comparability</b><br>The confidence that data are equivalent for each sampling event                                          | Given that several data sets from separate sampling episodes were required, issues of comparability were reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards on each data gathering activity. In addition the data were collected by experienced samplers and NATA-accredited laboratory methodologies will be employed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## 5.4 Sampling Rationale

With reference to the CSM and DQOs, the soil sampling and analytical plans were in accordance with the following rationale:

- The subject site occupies an area of 640 m<sup>2</sup>. According to NSW EPA (2022) Sampling Design, (Part 1, Table 2) the minimum number of systematic sampling locations is 8, but due to access constraint in the site only 3 sampling locations were conducted.
- Review of site history indicated general long term low density residential use. There is no history of heavy industrial activity at the property.

- For this investigation, opportunistic multiple level (fill and natural) soil sampling was undertaken at three boreholes, located across the proposed deep soil zone.

Opportunistic soil sampling at a reduced number of boreholes was considered sufficient to provide a preliminary overview of the potential contamination at the site.

## 5.5 Assessment Criteria

The assessment criteria adopted for this PSI were selected from available published guidelines that are endorsed by national or state regulatory authorities, with due consideration of the exposure scenario that is expected for the site, the likely exposure pathways, and the identified potential receptors. The adopted assessment criteria are outlined in **Table 5-3**.

For the purposes of this PSI with limited sampling, the adopted soil assessment criteria are referred to as the *Soil Investigation Levels* (SILs) and the adopted groundwater assessment criteria are referred to as *Groundwater Investigation Levels* (GILs).

**Table 5-3 Adopted Investigation Levels for Soil**

| Medium | Guidelines                                               | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Soil   | NEPC (2013) HILs, HSLs, EILs, ESLs and Management Limits | <p><b>Soil Health-based Investigation Levels (HILs)</b><br/>NEPC (2013) <i>HIL-B</i> thresholds for residential sites with limited accessible soils.</p> <p><b>Soil Health-based Screening Levels (HSLs)</b><br/>NEPC (2013) <i>HSL- A&amp;B</i> thresholds were applied for vapour intrusion, as low to high density residential.</p> <p><b>Asbestos Health Based Screening Levels:</b><br/>For asbestos in soil, the following criteria are applicable:</p> <ul style="list-style-type: none"> <li>▪ No visible asbestos on soil surface in all areas of the site.</li> </ul> <p><b>Ecological Investigation / Screening Levels (EILs / ESLs)</b><br/>Soil will be assessed against the NEPC 2013 EILs/ESLs for urban residential land use scenarios. Ecological criteria has been adopted to assess the potential impact to potential proposed areas of soil retainment, where plants could be exposed to soils, and where precipitation may result in subsurface infiltration and resulting leaching of contaminants.</p> <p><b>Management Limits for Petroleum Hydrocarbons</b><br/>Where the HSLs and ESLs for petroleum hydrocarbons were exceeded, sample results were also assessed against the NEPC (2013) <i>Management Limits</i> for the F1-F4 TRH fractions, to assess propensity for phase-separated hydrocarbons, fire and explosive hazards and adverse effects on buried infrastructure.</p> |

## 5.6 Soil Sampling Methodology

The soil sampling works conducted at the site are described in **Table 5-4**. Sampling locations are illustrated in **Figure 2, Appendix A**.

**Table 5-4 Summary of Soil Sampling Methodology**

| Activity/Item                           | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fieldwork                               | Conducted on 26 August and 8 October 2024. Comprised 3 borehole locations in accessible parts of the site. Prior to drilling, locations were surveyed by a contracted services locator, with assistance from <i>Dial-Before-You-Dig</i> plans.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Drilling Method                         | Test bores BH1 up to BH3 were advanced by auger (drill rig). The maximum drilling depth was 10 mBGL. Borehole logs are presented in <b>Appendix G</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Soil Logging                            | Drilled / examined soils were logged in the field in accordance with Australian Standard AS1726-2017. Soil was evaluated on a qualitative basis for visual and olfactory signs of contamination. Soil descriptions are included in the borehole logs ( <b>Appendix G</b> ).                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Soil Sampling                           | Soil samples were collected by dry grab method from the auger flights / bucket (the sampler wearing dedicated nitrile gloves) and placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars and zip-lock, plastic bags (the latter for in-field VOC/PID screening and asbestos samples). Blind and split field duplicates were prepared by collecting a bulk amount of soil and dividing (post mixing) into three separate glass jars.                                                                                                                                                                                                                                                             |
| Decontamination                         | Nitrile sampling gloves were replaced between each sampling location.<br>The auger flights and bucket were cleaned of all residual soil between each borehole location by washing with a mixture of Alconox and potable water (1/20) until free of all residual materials, then rinsed with water.                                                                                                                                                                                                                                                                                                                                                                                                               |
| Management of Soil Cuttings             | Soil cuttings were used to backfill the completed boreholes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Sample Preservation and Transport       | Sealed sample containers were stored in an insulated chilled chest (with frozen ice packs), whilst on-site and in transit to the contracted laboratories.<br>Chilled sample chests were transported to the primary laboratory (SGS Australia Pty Ltd (SGS)) using chain-of-custody (COC) procedures. Signed COC certificates and sample receipt advice (SRA) were provided by SGS for confirmation purposes ( <b>Appendix I</b> ).<br>Split (inter-laboratory) soil field duplicates were submitted to Envirolab Services Pty Ltd (Envirolab; the secondary laboratory) under strict COC conditions. Signed COC certificates and SRA were provided by Envirolab for confirmation purposes ( <b>Appendix I</b> ). |
| Laboratory Analysis and Quality Control | Soil samples were analysed by SGS and Envirolab for the COPCs. All samples were analysed within the required holding period, as documented in the corresponding laboratory reports ( <b>Appendix I</b> ).<br>In addition to the split (inter-laboratory) field duplicates (analysed by Envirolab), QC testing comprised one blind (intra-laboratory) field duplicate, an equipment rinsate blank, a laboratory-prepared trip spike soil sample and a laboratory-prepared trip blank soil sample, all analysed by SGS.                                                                                                                                                                                            |

## 5.7 Acid Sulfate Soil Sampling Methodology

### 5.7.1 Intrusive Soil Profiling and Sampling

EI conducted sub-surface soil profiling at three test boreholes, identified as BH1 to BH3 located across the site (**Appendix A, Figure 2**). The field work was completed on 26 September and 08 October 2024. Soil samples were collected for description and assessment of acid sulfate soil parameters.

All samples were transported under refrigerated conditions to SGS Australia Pty Ltd (SGS), using strict chain-of-custody (COC) procedures. Signed COC certificate and sample receipt advice (SRA) were provided by SGS for confirmation purposes (**Appendix D**).

### 5.7.2 Laboratory Analysis

To confirm the presence/absence of ASS, representative samples from one of the three boreholes were assigned for analysis of the parameters recommended in Section 2 *ASS Assessment Guidelines* of ASSMAC (1998) *Acid Sulfate Soil Manual*, Australian Standard AS4969:2009 *Analysis of Acid Sulfate Soil* (Standards Australia, 2009) and Section 6 *Chemical Analysis for Acidity Hazards* of Sullivan et al. (2018) *National Acid Sulfate Soils Guidance - National Acid Sulfate Soils Identification and Laboratory Methods Manual*:

- field pH ( $pH_f$ ; 16 samples);
- peroxide oxidation pH ( $pH_{fox}$ ; 16 samples); and
- Chromium suite (selected samples).

All laboratory analyses were conducted on discrete (un-composited) samples using NATA-registered methods. The detailed laboratory reports are provided in **Appendix I**. The results are summarised in **Appendix C, Table 2**.

### 5.7.3 Adopted Criteria

The soil analytical results were interpreted with respect to the screening and action criteria for ASS presented in Tables 2.3 and 4.4 from Section 2 *ASSs Assessment Guidelines* of ASSMAC (1998) *Acid Sulfate Soil Manual*.

Based on the details for the proposed development (**Section 1.2** and **Appendix B**), it was assumed that more than 1,000 tonnes coarse textured, sands to loamy sands would be disturbed; hence, the corresponding ASSMAC (1998) criteria from the above sources were:

- field pH ( $pH_f$ ): 4
- field peroxide oxidation pH ( $pH_{fox}$ ): 3

#### **Chromium Reducible Suite**

- Chromium reducible Sulfur ( $S_{cr}$ ):  $\geq 0.03\%$  w/w as sulfur

## 6. DATA QUALITY ASSESSMENT

The assessment of data quality is defined as the scientific and statistical evaluation of environmental results to determine if they meet the objectives of the project (USEPA, 2006). For this PSI, data quality assessment involved an evaluation of the compliance of the field (sampling) and laboratory procedures with established protocols, as well as the accuracy and precision of the associated results from the quality control measures. The findings are summarised in **Table 6-1** and discussed in detail in **Appendix- J**.

In summary, the overall quality of the analytical data from this PSI was considered to be of an acceptable standard for interpretive use and preparation of an updated CSM.

**Table 6-1 Quality Assurance Process**

| Stage         | Control                                                                                                                                                                 | Conformance<br>[Yes, Part, No] | Report Section(s)                      |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------|
| Preliminaries | DQOs and DQIs established                                                                                                                                               | Yes                            | See <b>Sections 5.2</b> and <b>5.3</b> |
| Field Work    | Suitable documentation of fieldwork observations including borehole logs and field notes.                                                                               | Yes                            | See <b>Appendix H</b>                  |
| Sampling Plan | Use of relevant and appropriate sampling plan (density, type, and location)                                                                                             | Yes                            | See <b>Section 5.4</b>                 |
|               | All media sampled and duplicates collected                                                                                                                              | Yes                            | See <b>Appendices I, J</b>             |
|               | Use of approved and appropriate sampling methods                                                                                                                        | Yes                            | See <b>Sections 5.6</b>                |
|               | Selection of soil samples according to field PID readings (where VOCs are present)                                                                                      | Yes                            | See <b>Section 7</b>                   |
|               | Preservation and storage of samples upon collection and during transport to laboratory                                                                                  | Yes                            | See <b>Sections 5.6</b>                |
|               | Appropriate field rinsate and trip blanks taken                                                                                                                         | Yes                            | See <b>Appendices I, J</b>             |
|               | Completed field and analytical laboratory sample COC procedures and documentation                                                                                       | Yes                            | <b>See Appendix J</b>                  |
| Laboratory    | Sample holding times within acceptable limits                                                                                                                           | Yes                            | See <b>Appendices I and J</b>          |
|               | Use of appropriate analytical procedures and NATA-accredited laboratories                                                                                               | Yes                            | See <b>Appendices I and J</b>          |
|               | LOR low enough to meet adopted criteria                                                                                                                                 | Yes                            | See <b>Appendices I and J</b>          |
|               | Laboratory blanks                                                                                                                                                       | Yes                            | See <b>Appendices I and J</b>          |
|               | Laboratory duplicates                                                                                                                                                   | Yes                            | See <b>Appendices I and J</b>          |
|               | Matrix spikes                                                                                                                                                           | Yes                            | See <b>Appendices I and J</b>          |
|               | Surrogates                                                                                                                                                              | Yes                            | See <b>Appendices I and J</b>          |
|               | Analytical results for replicated samples, including field and laboratory duplicates, expressed as RPD                                                                  | Yes                            | See <b>Appendices I and J</b>          |
|               | Checking for the occurrence of apparently unusual or anomalous results (e.g. laboratory results that appear to be inconsistent with field observations or measurements) | Yes                            | See <b>Appendices H, I</b>             |
| Reporting     | Report reviewed by senior staff to assess project meets NSW EPA guidelines and objectives                                                                               | Yes                            | See <b>Document Control</b>            |

## 7. RESULTS

### 7.1 Soil

#### 7.1.1 Sub-Surface Conditions

Based on the borehole logs (and excluding any hardstand), the sub-surface of the site was generalised as a layer of asphalt overlying silty sand fill (0.2 up to 0.7mBGL); overlying natural (marine), silty sand from 0.5m BGL to the extent of investigations at 10 m BGL.

More details encountered during the soil investigation by EI are provided in **Table 7-1** and borehole logs are presented in **Appendix G**.

**Table 7-1 Generalised Sub-Surface Profile**

| Layer   | Description                                                                              | Minimum - Maximum Depth (m BGL) |
|---------|------------------------------------------------------------------------------------------|---------------------------------|
| Fill    | ASPHALT                                                                                  | 0.0-0.2                         |
|         | Silty SAND: fine to medium grained, dark grey – grey, with sub angular gravels, No odour | 0.2-0.7                         |
| Marine  | Silty SAND; fine to medium grains, brown - pale brown, No odour.                         | 0.5-10.0 <sup>+</sup>           |
| Bedrock | Not encountered                                                                          | >10.0 <sup>+</sup>              |

#### 7.1.2 Field Observations

Soil samples were collected from the test bores at various depths ranging between 0.3 – 4.0 m BGL. All examined soils were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, asbestos fragments, ash, and charcoal) and the following observations were noted:

- No hydrocarbon odour was observed within any of the examined soils.
- No soil staining was observed in any of the examined soils.
- No fragments of potential asbestos containing materials (ACM) were observed within any of the examined soils.
- No ash and slag was observed in any of the examined soils.
- No evidence of actual or potential ASSs (sulphurous odours) was encountered in any of the examined soils.

### 7.1.3 Laboratory Analytical Results

A summary of the laboratory analytical results for the tested (representative) soil samples is presented in **Table 7-2**. More detailed tabulation is presented in **Table T-1, Appendix B**.

All results were found to comply with the adopted SILs applicable to residential (with accessible soils) settings.

**Table 7-2 Summary of Soil Analytical Results**

| Number of Primary Samples             | Analyte                          | Minimum Concentration (mg/kg) | Maximum Concentration (mg/kg) | Samples Exceeding SILs                          |
|---------------------------------------|----------------------------------|-------------------------------|-------------------------------|-------------------------------------------------|
| <b>Priority Metals (total)</b>        |                                  |                               |                               |                                                 |
| 8                                     | Arsenic                          | 3                             | 4                             | None                                            |
| 8                                     | Cadmium                          | <0.3                          | <0.3                          | None                                            |
| 8                                     | Chromium                         | 3.3                           | 6.2                           | None                                            |
| 8                                     | Copper                           | 0.6                           | 14                            | None                                            |
| 8                                     | Lead                             | 2                             | 280                           | None                                            |
| 8                                     | Mercury                          | <0.05                         | 0.08                          | None                                            |
| 8                                     | Nickel                           | <0.5                          | 12                            | None                                            |
| 8                                     | Zinc                             | 2.2                           | 190                           | None                                            |
| <b>PAHs</b>                           |                                  |                               |                               |                                                 |
| 8                                     | Naphthalene                      | <0.1                          | <0.1                          | None                                            |
| 8                                     | Benzo(α)pyrene                   | <0.1                          | 3.2                           | None                                            |
| 8                                     | Carcinogenic PAHs (as B(α)P TEQ) | <0.3                          | 4.6                           | <u>NEPM (2013) 4 mg/kg</u><br>▪ BH3 (4.6 mg/kg) |
| 8                                     | Total PAHs                       | <0.8                          | 33                            | None                                            |
| <b>VOCs (including BTEX) and TRHs</b> |                                  |                               |                               |                                                 |
| 8                                     | Benzene                          | <0.1                          | <0.1                          | None                                            |
| 8                                     | Toluene                          | <0.1                          | <0.1                          | None                                            |
| 8                                     | Ethyl benzene                    | <0.1                          | <0.1                          | None                                            |
| 8                                     | Total Xylenes                    | <0.3                          | <0.3                          | None                                            |
| 8                                     | F1 – TRHs                        | <25                           | <25                           | None                                            |
| 8                                     | F2 – TRHs                        | <25                           | <25                           | None                                            |
| 8                                     | F3 – TRHs                        | <90                           | 220                           | None                                            |
| 8                                     | F4 – TRHs                        | <120                          | <120                          | None                                            |
| <b>Pesticides</b>                     |                                  |                               |                               |                                                 |
| 4                                     | Total OCPs                       | <1                            | <1                            | None                                            |
| 4                                     | Total OPPs                       | <1.7                          | <1.7                          | None                                            |
| <b>PCB</b>                            |                                  |                               |                               |                                                 |
| 4                                     | Total PCBs                       | <1                            | <1                            | None                                            |
| <b>Asbestos</b>                       |                                  |                               |                               |                                                 |
| 4                                     | Asbestos                         | Not detected                  | Not detected                  | None                                            |

## 7.1 Acid Sulfate Soil Assessment

Laboratory analytical results for the tested soil samples are tabulated in **Appendix B, Table 2** and laboratory reports are presented in full in **Appendix I**.

### 7.1.1 Field $pH_f$ and $pH_{fox}$

The  $pH_f$  values ranged from pH 7.9 to pH 9.3, indicating neutral to moderately alkaline soils. All values were above 4, indicating an absence of actual ASS.

Results for the peroxide-oxidised samples ( $pH_{fox}$ ), which involved oxidation with 30% hydrogen peroxide prior to measurement, established there was minimal acid generating capacity in the fill and natural soils. All  $pH_{fox}$  readings (ranging from 6.0 up to 6.9) were above 3, the ASSMAC (1998) threshold indicative of the presence of potential ASS. The results of  $pH_f - pH_{fox}$  differences ranged from 1.9 up to 2.6 and therefore confirmatory testing was conducted on selected samples (highest differences and/or lower pH).

Various natural constituents other than sulfide (e.g. organic matter, iron and manganese minerals) are also able to react with the peroxide, leading to pH reduction. Indeed, such constituents, especially organic matter and iron minerals, were expected to be present in the examined soils, which may have accounted for the observed reduction in pH levels following oxidation (Sullivan *et al.*, 2018; ASSMAC, 1998; EPA, 1995). Further analysis via the Chromium suite was therefore required to confirm the presence / absence of any potential ASSs.

### 7.1.2 Chromium Suite (SCr) Analysis

- For the samples tested, results for the Titratable Actual Acidity (TAA) were below the limit of reporting.
- pH potassium chloride ( $pH_{KCl}$ ) ranged from 9.8 to 9.9, confirming there was low acid generating ability.
- Liming rate was below limit or reporting
- Chromium reducible sulfur (Scr) was reported to be less than the ASSMAC (1998) action criterion of 0.03% w/w S.

Based on the findings of the intrusive assessment, multiple lines of evidence indicate that actual ASS and potential ASS are not present in site soils to a maximum depth of investigation of 4.1 mbGL.

## 8. SITE CHARACTERISATION

### 8.1 Subsurface Conditions

Site observations determined that the sub-surface of the site was generalised as a layer of primarily silty sand filling (0.2 up to 0.7 mBGL); overlying natural (marine), silty sand from 0.5 to the extent of investigations at 10 mBGL. No bedrock was encountered during the investigation.

The potential for acid sulfate soil to be present on the site was very low based on the field observations and the analytical data.

It was evident that cut and filling had historically been used at the site. Such filling was in the form of silts and sands. It was observed during the investigation that sandstone boulders were contained, primarily within the silty sand fill.

### 8.2 Soil Impacts

Laboratory analytical results for the representative fill and natural soil samples from four investigation locations were compared to adopted soil investigation levels.

#### 8.2.1 Human Health

All borehole (fill and natural) samples were assessed against the adopted sensitive land use criteria (NEPC (2013) HIL-A/HSL-A&B), with all concentrations of potential contaminants of priority metals, TRH, BTEX, PAH, pesticides, and PCBs reported below the adopted human health criteria. Carcinogenic PAHs (as B (α) P TEQ) was reported above the HSL B limit of reporting in one of the fill sample at approximately 0.3 mBGL (BH3).

Results are summarised in **Table 7-2** and **Appendix C, Table 1**.

No asbestos containing material was observed on the ground surface during site inspection and no asbestos was detected (above the limit of reporting of 0.01%w/w) in collected fill samples.

Locations of samples are presented as **Appendix A, Figure A.2**.

#### 8.2.2 Ecological

Samples from boreholes within the proposed areas of soil retainment (i.e. all borehole samples) were assessed against the adopted ecological criteria, with concentrations of potential contaminants of priority metals, TRH, BTEX, PAH, pesticides and PCBs all reported below the adopted ecological criteria. Results are summarised in **Tables 7-2** and **Appendix C, Table 1**.

### 8.3 Acid Sulfate Soils

The laboratory analytical results indicated that unoxidised inorganic sulfides (i.e. potential ASSs), are not present in the examined soils. Based on multiple lines of evidence, the sub-surface of the site consisted of residual soils that displayed no visual or olfactory indicators of actual acid sulfates soil. The laboratory analytical testing confirmed that there was low potential for ASSs to be present on the site.

Based on multiple lines of evidence, PASS is likely not to be present on-site within silty sand at the depth of 0.5 mBGL to 4.1 mBGL .

The site therefore presents a low risk of the presence of ASSs and the potential for generation of acid sulfate soil conditions during the proposed development was regarded as negligible. The preparation of an acid sulfate soil management plan was considered as being unwarranted.

## 8.4 Review of Conceptual Site Model

On the basis of investigation findings, the CSM discussed in **Section 4** was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential on-site and off-site receptors.

### **Limitations, Uncertainties and Data Gaps**

At the time of the field works, the site was occupied by a residential building and substantially covered by either concrete hardstands or buildings. Soil sampling for environmental investigation was undertaken at three boreholes drilled by auger (drill rig) for an environmental investigation of the proposed main deep soil area.

The spatial distribution of soil sampling locations was targeted, and limited by existing infrastructure, as the site was still covered. The findings from limited soil sampling are preliminary and provide indication of the contamination status of the site. However the findings must not be considered as definitive.

With respect to site history and the limited works proposed for the redevelopment (**Section 1.2**) it is considered that the limited soil sampling completed is sufficient for the investigation.

Groundwater sampling could not be conducted because the monitoring wells were dry at the time of the groundwater sampling event.

## 9. Conclusion

The site identified as 101 North Steyne, Manly NSW was the subject of a PSI, the main objective being to appraise the potential for contamination. The key findings of this PSI were as follows:

- The site comprised of a two-storey residential building.
  - The building structures are generally in good condition.
  - The building was occupied by tenanted residents at the time of inspection.
- The site is located in Medium Density Residential area. It is bordered by mostly residential properties nearby.
- The site and surrounding lands within close proximity were free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site and surrounding lands were not included on the *List of NSW Contaminated Sites Notified to the EPA*.
- The site presents a low risk of the presence of ASSs and the potential for generation of acid sulfate soil conditions during the proposed development was regarded as negligible. The preparation of an acid sulfate soil management plan was considered as being unwarranted.
- A conceptual site model (CSM), and qualitative risk assessment was produced for the site, which identified potential contaminating sources and the likelihood for relevant exposure pathways during site redevelopment;
- Soil sampling and analysis was conducted at three borehole locations:
  - Boreholes were located within the assessable areas within the footprint of the proposed basement.
  - The general site geology encountered during the drilling of the soil investigation boreholes was a layer of silty sand filling, overlying marine soil (silty sand). Bedrock was not encountered to the depth of this investigation (10.0 mBGL).
  - No ash and slag was observed in any of the examined soils.
  - An assessment of soil samples against the adopted residential health based criteria (NEPM (2013) HIL-B/HSL-A&B) did not indicate any exceedance for potential contaminants (priority metals, TRH, BTEX, pesticides and PCBs), being the exception:
    - Carcinogenic PAHs (as B(α)P TEQ) within the fill layer at BH3. Impact was vertically delineated (natural sample reported a concentration below the laboratory limit of reporting) suggesting it is not widespread.
  - Asbestos was not identified (not present) within fill at any investigation location.

Based on the findings of this PSI, and with consideration of EI's Statement of Limitations (**Section 11**), it was concluded that the potential for widespread site contamination is low within the areas investigated, however data gaps remain. Recommendations outlined in **Section 10** should be implemented.

## 10. Recommendations

EI provides the following recommendations in relation to the proposed development:

- Before commencement of demolition works, a Hazardous Materials Survey (HMS) should be completed by a suitably qualified consultant, to confirm the presence and location of any hazardous materials within the existing building fabrics.
  - All identified hazardous materials must be appropriately managed (including asbestos fragments on the ground surface at various locations of the site), to maintain worker health and safety during demolition works and to prevent the spread of potentially hazardous substances onto the site and soil surfaces.
  - An asbestos clearance inspection and certificate should be completed by a suitably qualified professional (SafeWork NSW Licensed Asbestos Assessor) following the removal of all ACM.
  - Where clearance inspection indicates hazardous materials remain on the site, further delineation, removal and re-clearance inspection, must be undertaken.
- Following demolition works, a Detailed Site Investigation (DSI) should be undertaken to assess the nature and extent of any soil and/or groundwater contamination after demolition of the current residential building.
- Prior to off-site disposal of surplus site soil, all surplus soil material must be classified in accordance with the EPA (2014) *Waste Classification Guidelines*. Once appropriately classified, all waste materials are to be transported to EPA-licensed waste facilities by the appointed waste contractors.
- Any material that is imported to the site must be validated as suitable for the intended use, in accordance with EPA guidelines. In particular, imported filling/landscaping material must be certified as meeting the VENM classification, prior to importation.

EI emphasize that these recommendations can be managed through the development application process, in accordance with *State Environmental Planning Policy (Resilience and Hazards) 2021*.

## 11. Statement of Limitations

This report has been prepared for the exclusive use of Time & Place Development Pty Ltd, whom is the only intended beneficiary of EI's work. The scope of the investigation carried out for the purpose of this report is limited to that agreed with Time & Place Development Pty Ltd.

No other party should rely on this 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.

The conclusions presented in this report are based on a limited assessment of historical and current uses of the site. Due to the preliminary nature of this investigation, findings were based on actual samples collected and testing conducted (limited sampling). EI's assessment is necessarily based upon the results of the site investigation and the restricted program of surface and subsurface sampling, screening and chemical testing which was set out in the project proposal.

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.

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.

## References

- Ahern CR, Stone Y, and Blunden B (1998) *Acid Sulfate Soils Assessment Guidelines*, part of the *Acid Sulfate Soil SS Manual*, Acid Sulfate Soil Management Advisory Committee (ASSMAC), Wollongbar, NSW, Australia, 28 August 1998.
- Chapman GA and Murphy CL (1989) *Soil Landscapes of the Sydney 1:100 000 Sheet*, Soil Conservation Service of NSW, Sydney, September 1989.
- DMR (1983) *Sydney 1:100,000 Geological Series Sheet 9130*, Geological Survey of New South Wales, Department of Mineral Resources.
- DPIE (2022) *eSPADE v2.2 Portal*. NSW Department of Planning, Industry and Environment, Retrieved from [www.espade.environment.nsw.gov.au](http://www.espade.environment.nsw.gov.au)
- EnRisk (2016) *Proposed Decision Tree for Prioritising Sites Potentially Contaminated with PFASs*, Environmental Risk Services Pty Ltd, Environment Protection Authority of New South Wales, 25 February 2016.
- EPA (2014) *Waste Classification Guidelines - Part 1: Classifying Waste*, Environment Protection Authority of New South Wales, EPA 2014/0796, November 2014.
- EPA (2017) *Guidelines for the NSW Site Auditor Scheme* (3<sup>rd</sup> Edition), Environment Protection Authority of New South Wales, EPA 2017P0269, October 2017.
- HEPA (2020) *PFAS National Environmental Management Plan*, National Chemicals Working Group of the Heads of the EPAs Australia and New Zealand (HEPA), January 2020.
- Manly Local Environmental Plan 2013*
- Murphy CL (1997) *Acid Sulfate Soil Risk of the Sydney Heads* (Second Edition), Department of Land and Water Conservation, Sydney (supplied by the Sydney South Coast, Geographical Information Systems Unit).
- NEPC (2013) *Schedule B1 Guideline on Investigation Levels for Soil and Groundwater, Schedule B2 Guideline on Site Characterisation and Schedule B4 Guideline on Site-Specific Health Risk Assessments*, from the *National Environment Protection (Assessment of Site Contamination) Amendment Measure*, National Environment Protection Council, April 2013.
- NSW EPA (2014) *Waste Classification Guidelines - Part 1: Classifying Waste*, Environment Protection Authority of New South Wales, EPA 2014/0796, November 2014.
- NSW EPA (2017) *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme* (3<sup>rd</sup> Edition), Environment Protection Authority of New South Wales, EPA 2017P0269, October 2017.
- NSW EPA (2020) *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, Environment Protection Authority of New South Wales, EPA 2020P2233, April 2020.
- NSW (2021) *State Environmental Planning Policy (Resilience and Hazards) (2021)*, last modified 2 March 2022.

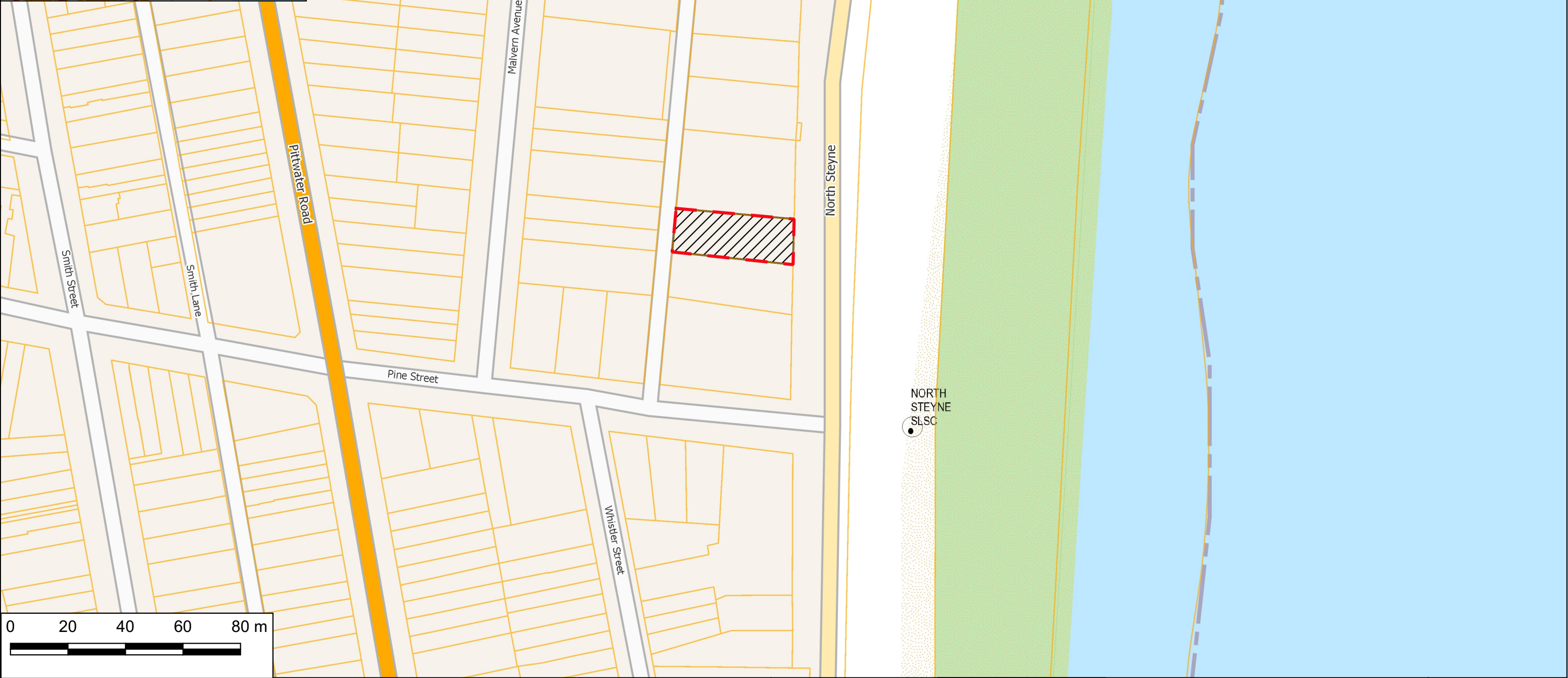
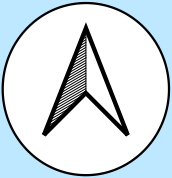
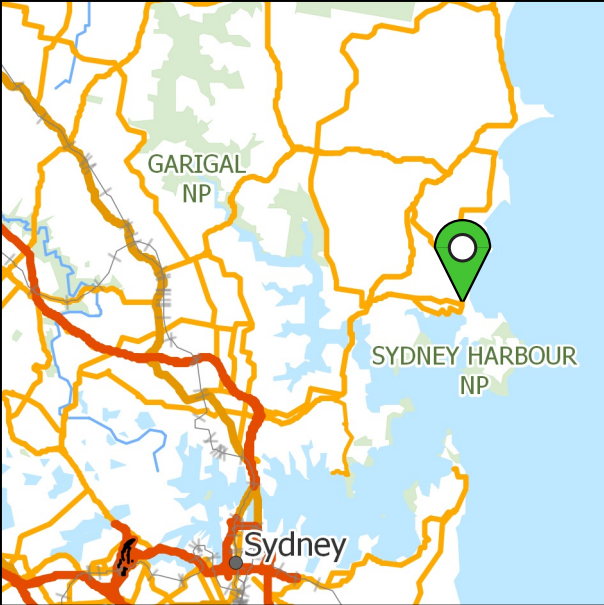
## Abbreviations

|         |                                                                             |
|---------|-----------------------------------------------------------------------------|
| ACM     | Asbestos-Containing Materials                                               |
| ASS     | Acid Sulfate Soils                                                          |
| AST     | Aboveground Storage Tank                                                    |
| BTEX    | Benzene, Toluene, Ethylbenzene, Xylene                                      |
| CBD     | Central Business District                                                   |
| CCO     | Chemical Control Order                                                      |
| CLM     | Contaminated Land Management                                                |
| COPC    | Contaminants of Potential Concern                                           |
| CSM     | Conceptual Site Model                                                       |
| DP      | Deposited Plan                                                              |
| EI      | EI Australia                                                                |
| NSW EPA | Environment Protection Authority (of New South Wales)                       |
| km      | Kilometres                                                                  |
| LEP     | Local Environmental Plan                                                    |
| LGA     | Local Government Area                                                       |
| m       | metres                                                                      |
| mAHD    | metres Australian Height Datum                                              |
| mBGL    | metres Below Ground Level                                                   |
| NEPC    | National Environmental Protection Council                                   |
| NEPM    | National Environmental Protection Measure                                   |
| NSW     | New South Wales                                                             |
| OCP     | Organochlorine Pesticides                                                   |
| OPP     | Organophosphorus Pesticides                                                 |
| PAH     | Polycyclic Aromatic Hydrocarbons                                            |
| PCB     | Polychlorinated Biphenyls                                                   |
| PFAS    | Per- and Poly-Fluoroalkyl Substances                                        |
| PM      | Priority Metals                                                             |
| POEO    | Protection of the Environment Operations                                    |
| PSI     | Preliminary Site Investigation                                              |
| TRH     | Total Recoverable Hydrocarbons (non-specific analysis of organic compounds) |
| UST     | Underground Storage Tank                                                    |
| VOC     | Volatile Organic Compounds                                                  |

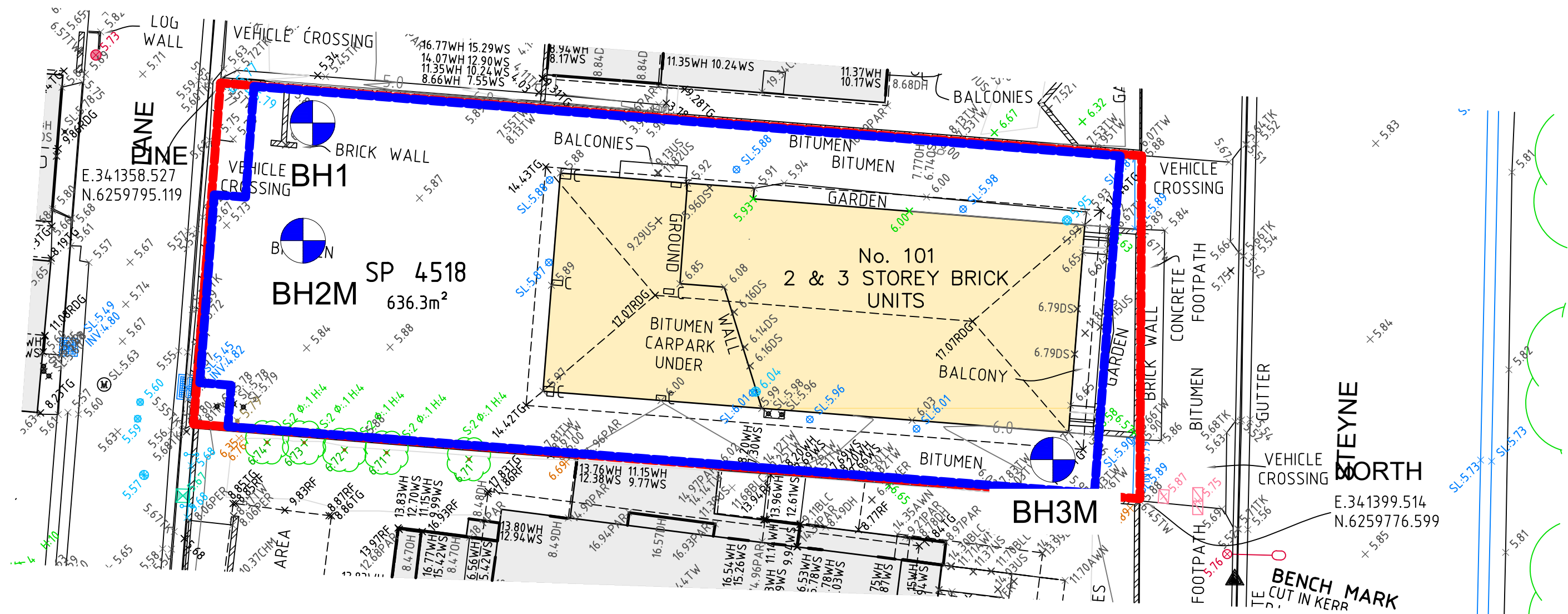
---

## Appendix A - Figures

---



|                                                                                                  |  |                                                                                                                                                                             |           |            |                                                                                                                            |                         |
|--------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>LEGEND. Note: All locations are approximate</b>                                               |  | <br>Suite 6.01, 55 Miller Street, PYRMONT 2009<br>Ph (02) 9516 0722 Fax (02) 9518 5088 | Drawn:    | M.C.       | <b>Time &amp; Place</b><br><br>Preliminary Site Investigaion<br><br>101 North Steyne, Manly, NSW<br><br>Site Locality Plan | Figure:<br><br><b>1</b> |
|  Site Boundary |  |                                                                                                                                                                             | Approved: |            |                                                                                                                            | Project: E26499.E01     |
|                                                                                                  |  |                                                                                                                                                                             | Date:     | 24/09/2024 |                                                                                                                            |                         |



**LEGEND (All Locations are Approximate)**

-  Borehole location
-  Site Boundary
-  Basement Boundary



|           |            |
|-----------|------------|
| Drawn:    | A.C.       |
| Approved: | S.R.       |
| Date:     | 24/10/2024 |

**Time and PPlace Pty Ltd**  
Preliminary Site Investigaion  
101 North Steyne Street, Manly NSW  
Test Location Plan

Figure:

2

Project: E26499.E01

Map Source:

---

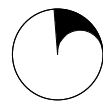
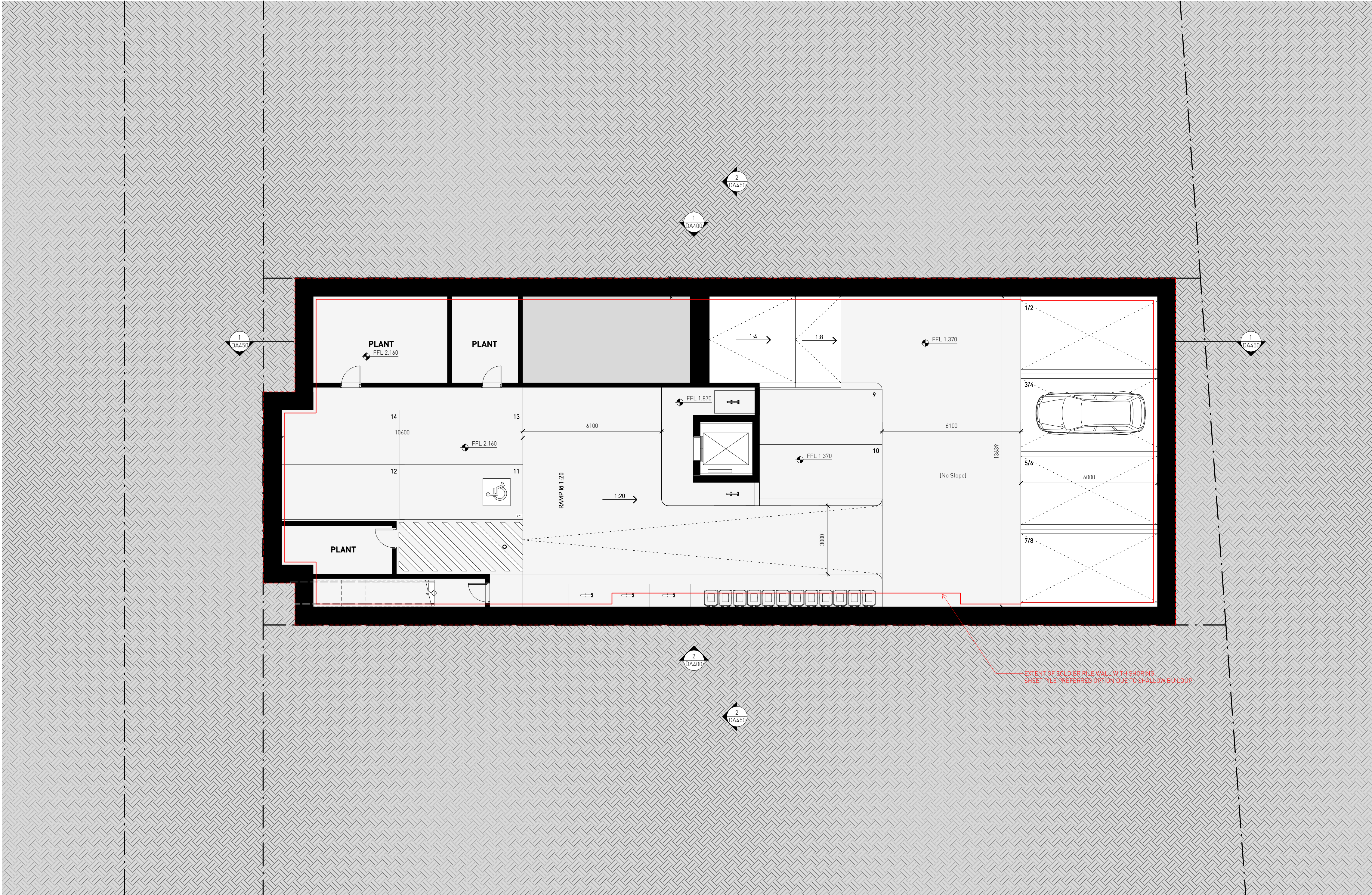
## Appendix B - Proposed Development

---

| LEGEND                                     |                                                                                   |
|--------------------------------------------|-----------------------------------------------------------------------------------|
| Stud / Partition                           |    |
| Concrete                                   |  |
| Block Work                                 |  |
| Brick Work                                 |  |
| To be Demolished                           |  |
| Existing / Retained<br>(Grey Shows Detail) |  |

| NOTES |                                                                             |
|-------|-----------------------------------------------------------------------------|
| 01    | All dimensions to be verified on site.                                      |
| 02    | Report any discrepancies or omissions to SDS prior to construction.         |
| 03    | All drawings to be read in conjunction with specification.                  |
| 04    | All drawings to be read in conjunction with consultants' drawings.          |
| 05    | All structure to structural engineer's details.                             |
| 06    | Refer to architect for ambiguous details or when clarification is required. |

| PRELIMINARY<br>NOT FOR CONSTRUCTION |                 |          |
|-------------------------------------|-----------------|----------|
| issue                               | reason          | date     |
| A                                   | FOR INFORMATION | 12.07.24 |
| B                                   | FOR INFORMATION | 01.08.24 |
| C                                   | FOR INFORMATION | 28.08.24 |
| D                                   | FOR INFORMATION | 10.09.24 |



2408 NORTH STEYNE 101  
L00 PLAN  
DA100 D

---

## Appendix C – Results Tables

---

Table 1 – Summary of Soil Test Results

| Sample ID                                                                         | Sampling Date                            | Priority Metals                  |         |                 |         |            |           |           |         | PAHs                             |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            | BTEX         |             |             |              | TRHs          |       |       |                                           | Total OCPs | Total OPPs | PCBs                                                   | Asbestos |                    |  |
|-----------------------------------------------------------------------------------|------------------------------------------|----------------------------------|---------|-----------------|---------|------------|-----------|-----------|---------|----------------------------------|-----------------|------------------------|-------------------------|--------------------------|------------------------|--------------------------|------------|----------------------|----------|----------------|--------------|----------------|------------|--------------|-------------|-------------|--------------|---------------|-------|-------|-------------------------------------------|------------|------------|--------------------------------------------------------|----------|--------------------|--|
|                                                                                   |                                          | As                               | Cd      | Cr <sup>#</sup> | Cu      | Pb         | Hg        | Ni        | Zn      | Carcinogenic PAHs (as B[a]P TEQ) | Benzo[a]pyrene  | Benzo[b]fluoranthene * | Dibenz[a,h]anthracene * | Indeno[1,2,3-cd]pyrene * | Benzo[k]fluoranthene * | Benzo[a,b]fluoranthene * | Chrysene * | Benzo[a]anthracene * | Pyrene * | Fluoranthene * | Anthracene * | Phenanthrene * | Total PAHs | Naphthalene  | Benzene     | Toluene     | Ethylbenzene | Total Xylenes | F1    | F2    | F3                                        |            |            |                                                        | F4       | Presence / absence |  |
| Fill                                                                              |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| BH1_0.2-0.3                                                                       | 26/09/2024                               | 3                                | <0.3    | 5.9             | 30      | 280        | 0.08      | 7.0       | 150     | 1.9                              | 1.3             | 0.9                    | 0.2                     | 0.9                      | 0.7                    | 1.5                      | 1.1        | 0.9                  | 2.2      | 2.2            | 0.3          | 0.6            | 13         | <0.1         | <0.1        | <0.1        | <0.1         | <0.3          | <25   | <25   | 160                                       | <120       | <1         | <1.7                                                   | <1       | No                 |  |
| BH2M_0.3-0.4                                                                      | 8/10/2024                                | 2                                | <0.3    | 1.7             | 2.7     | 16         | <0.05     | 0.7       | 7.8     | <0.3                             | <0.1            | <0.1                   | <0.1                    | <0.1                     | <0.1                   | <0.1                     | <0.1       | <0.1                 | 0.1      | 0.1            | <0.1         | <0.1           | <0.8       | <0.1         | <0.1        | <0.1        | <0.1         | <0.3          | <25   | <25   | <90                                       | <120       | <1         | <1.7                                                   | <1       | N.A.               |  |
| BH3M_0.3-0.4                                                                      |                                          | 3                                | <0.3    | 6.2             | 14      | 220        | <0.05     | 12        | 190     | 4.6                              | 3.2             | 1.3                    | 0.4                     | 1.5                      | 1.5                    | 3.5                      | 2.8        | 2.8                  | 6.3      | 6.2            | 0.9          | 1.5            | 33         | <0.1         | <0.1        | <0.1        | <0.1         | <0.3          | <25   | <25   | 220                                       | <120       | <1         | <1.7                                                   | <1       | N.A.               |  |
| Statistical Analysis                                                              |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| Maximum concentration                                                             |                                          | 3                                | <0.3    | 6.2             | 30      | 280        | 0.08      | 12        | 190     | 4.6                              | 3.2             | 1.3                    | 0.4                     | 1.5                      | 1.5                    | 3.5                      | 2.8        | 2.8                  | 6.3      | 6.2            | 0.9          | 1.5            | 33         | <0.1         | <0.1        | <0.1        | <0.1         | <0.3          | <25   | <25   | 220                                       | <120       | <1         | <1.7                                                   | <1       | No                 |  |
| Natural                                                                           |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| BH1_1.0-1.1                                                                       | 26/09/2024                               | 4                                | <0.3    | 3.0             | 0.6     | 2          | <0.05     | <0.5      | 2.2     | <0.3                             | <0.1            | <0.1                   | <0.1                    | <0.1                     | <0.1                   | <0.1                     | <0.1       | <0.1                 | <0.1     | <0.1           | <0.1         | <0.1           | <0.8       | <0.1         | <0.1        | <0.1        | <0.1         | <0.3          | <25   | <25   | <90                                       | <120       | N.A.       | N.A.                                                   | N.A.     | N.A.               |  |
| BH3M_0.9-1.0                                                                      | 8/10/2024                                | 4                                | <0.3    | 3.3             | <0.5    | 1          | <0.05     | <0.5      | <2      | <0.3                             | <0.1            | <0.1                   | <0.1                    | <0.1                     | <0.1                   | <0.1                     | <0.1       | <0.1                 | <0.1     | <0.1           | <0.1         | <0.1           | <0.8       | <0.1         | <0.1        | <0.1        | <0.1         | <0.3          | <25   | <25   | <90                                       | <120       | N.A.       | N.A.                                                   | N.A.     | N.A.               |  |
| Statistical Analysis                                                              |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| Maximum concentration                                                             |                                          | 4                                | <0.3    | 3.3             | 0.6     | 2          | <0.05     | <0.5      | 2.2     | <0.3                             | <0.1            | <0.1                   | <0.1                    | <0.1                     | <0.1                   | <0.1                     | <0.1       | <0.1                 | <0.1     | <0.1           | <0.1         | <0.1           | <0.8       | <0.1         | <0.1        | <0.1        | <0.1         | <0.3          | <25   | <25   | <90                                       | <120       | <1         | <1.7                                                   | <1       | NC                 |  |
| NEPM (2013) Criteria                                                              |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| HIL A - Residential with garden / accessible soil                                 |                                          | 100                              | 20      | 100 Cr(VI)      | 6,000   | 300        | 40        | 400       | 7,400   | 3                                |                 |                        |                         |                          |                        |                          |            |                      |          |                |              | 300            |            |              |             |             |              |               | 240   |       |                                           | 1          |            |                                                        |          |                    |  |
| HIL B - Residential with minimal soil access                                      |                                          | 500                              | 150     | 500 Cr(VI)      | 30,000  | 1,200      | 120       | 1,200     | 60,000  | 4                                |                 |                        |                         |                          |                        |                          |            |                      |          |                |              | 400            |            |              |             |             |              |               | 600   |       |                                           | 1          |            |                                                        |          |                    |  |
| HIL D - Commercial / Industrial                                                   |                                          | 3,000                            | 900     | 3,600 Cr(VI)    | 240,000 | 1,500      | 730       | 6,000     | 400,000 | 40                               |                 |                        |                         |                          |                        |                          |            |                      |          |                |              | 4,000          |            |              |             |             |              |               | 3,600 |       |                                           | 7          |            |                                                        |          |                    |  |
| HSL A & B - Low to high density residential<br>Soil texture classification – Sand |                                          | Source depths (0 m to <1 m. BGL) |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              | 3              | 0.5        | 160          | 55          | 40          | 45           | 110           |       |       |                                           |            |            |                                                        |          |                    |  |
|                                                                                   |                                          | Source depths (1 m to <2 m. BGL) |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              | NL             | 0.5        | 220          | NL          | 60          | 70           | 240           |       |       |                                           |            |            |                                                        |          |                    |  |
|                                                                                   |                                          | Source depths (2 m to <4 m. BGL) |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              | NL             | 0.5        | 310          | NL          | 95          | 110          | 440           |       |       |                                           |            |            |                                                        |          |                    |  |
|                                                                                   |                                          | Source depths (4 m + BGL)        |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              | NL             | 0.5        | 540          | NL          | 170         | 200          | NL            |       |       |                                           |            |            |                                                        |          |                    |  |
| EILs / ESLs - Urban residential and public open space <sup>1 2</sup>              |                                          | 100                              |         | 580             | 220     | 1,100      |           | 220       | 630     |                                  | 33 <sup>3</sup> |                        |                         |                          |                        |                          |            |                      |          |                |              |                | 170        | 65           | 105         | 125         | 45           | 180           | 120   | 1,300 | 5,600                                     | 180        |            |                                                        |          |                    |  |
| Management Limits – Residential, parkland and public open space <sup>1</sup>      |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              | 800           | 1,000 | 3,500 | 10,000                                    |            |            |                                                        |          |                    |  |
| (HEPA (2020)) PFAS <sup>10</sup>                                                  |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| HIL A - Residential with garden / accessible soil                                 |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| (HEPA (2020)) PFAS <sup>10</sup>                                                  |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| HIL B - Residential with minimal soil access                                      |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| NSW EPA (2014) Waste Classification Criteria                                      |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       |                                           |            |            |                                                        |          |                    |  |
| General Solid Waste                                                               | CT1 (mg/kg) <sup>4</sup>                 | 100                              | 20      | 100             |         | 100        | 4         | 40        |         | 0.8                              |                 |                        |                         |                          |                        |                          |            |                      |          |                | 200          |                | 10         | 288          | 600         | 1,000       |              |               |       |       | <50                                       | 250        | <50        | If detected material is Special Waste - Asbestos Waste |          |                    |  |
|                                                                                   | TCLP1 (mg/L) / SCC1 (mg/kg) <sup>6</sup> | 5 / 500                          | 1 / 100 | 5 / 1,900       |         | 5 / 1,500  | 0.2 / 50  | 2 / 1,050 |         | 0.04 / 10                        |                 |                        |                         |                          |                        |                          |            |                      |          |                | NR / 200     |                | 0.5 / 18   | 14.4 / 518   | 30 / 1,080  | 50 / 1,800  |              |               |       |       | NR / <50                                  | NR / 250   | NR / <50   |                                                        |          |                    |  |
| Restricted Solid Waste                                                            | CT2 (mg/kg) <sup>5</sup>                 | 400                              | 80      | 400             |         | 400        | 16        | 160       |         | 3.2                              |                 |                        |                         |                          |                        |                          |            |                      |          |                | 800          |                | 40         | 1,152        | 2,400       | 4,000       |              |               |       |       | NR                                        | 1,000      | NR         |                                                        |          |                    |  |
|                                                                                   | TCLP2 (mg/L) / SCC2 (mg/kg) <sup>7</sup> | 20 / 2,000                       | 4 / 400 | 20 / 7,600      |         | 20 / 6,000 | 0.8 / 200 | 8 / 4,200 |         | 0.16 / 23                        |                 |                        |                         |                          |                        |                          |            |                      |          |                | NR / 800     |                | 2 / 72     | 57.6 / 2,073 | 120 / 4,320 | 200 / 7,200 |              |               |       |       | NR / <50                                  | NR / 1,000 | NR / <50   |                                                        |          |                    |  |
| Special Waste / Scheduled Waste                                                   |                                          |                                  |         |                 |         |            |           |           |         |                                  |                 |                        |                         |                          |                        |                          |            |                      |          |                |              |                |            |              |             |             |              |               |       |       | > 2 mg/kg - Schedule d Waste <sup>8</sup> |            |            | > 2 mg/kg - PCB Waste <sup>9</sup>                     |          |                    |  |

Notes:

Highlighted values exceeded HIL / HSL

Highlighted waste classification criteria met

Results are recorded in mg/kg

HIL A

NEPC 1999 Amendment 2013 'HIL A' - Health based Residential with garden / accessible soil, also includes children's day care centres, preschools and primary schools.

HIL B

NEPC 1999 Amendment 2013 'HIL B' - Health based Residential with minimal opportunities for soil access including dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.

HSL A & B

NEPC 1999 Amendment 2013 'HSL A & B' Health Based Screening Levels applicable for vapour intrusion values applicable for low-high density residential settings.

EIL

Ecological Investigation Level for urban residential and public open space land use.

ESL

Ecology Screening Level for urban residential and public open space land use.

#

Thresholds are for Chromium VI.

\*

Only detected concentrations were tabulated

NA

Not Analysed

NC

Not calculated

NR

No reference criteria available in current regulatory tools.

1

As strata is predominantly clay, fine grained soil assessment criteria values were applied.

2

EIL criteria is derived from a site specific Added Contaminant Limit (ACL) with the Ambient Background Concentration (ABC) for a low traffic NSW suburb.

3

The ecological criteria for benzo(a)pyrene was sourced from CRC Care (2017) Technical Report No. 39 Risk-based management and remediation guidance for benzo(a)pyrene.

4

NSW EPA 2014 CT1 General Solid Waste Thresholds (without leachate test), in Waste Classification Guidelines, Table 1

5

NSW EPA 2014 CT2 Maximum values for Leachable concentration and specific contaminant concentration for Restricted Solid Waste Thresholds, Waste Classification Guidelines Table 1

6

NSW EPA 2014 TCLP1/SCC1 General Solid Waste Thresholds (leachable concentration and total concentration when used together), in Waste Classification Guidelines Table 2

7

NSW EPA 2014 TCLP2/SCC2 Restricted Solid Waste Thresholds (leachable concentration and total concentration when used together), in Waste Classification Guidelines Table 2

8

NSW EPA Scheduled Chemical Wastes Chemical Control Order 2004, Section 4.14

9

NSW EPA Polychlorinated Biphenyl (PCB) Chemical Control Order 1997. Where PCBs are reported at concentrations >2 mg/kg and <50 mg/kg, material is non-scheduled PCB waste. Where PCBs are reported at concentrations >50 mg/kg, material is scheduled PCB waste.

10

Value derived from the National Environmental Management Plan for PFAS - Soil Criteria for Investigation - Human Health Based Guidance Values for Residential with Garden / Accessible Soil Sites.

F1

F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.

F2

F2 subtract naphthalene from the >C10-C16 fraction.

F3

(>C16-C34)

F4

(>C34-C40)



---

## Appendix D - Site Photographs

---



**Photograph 2:** Main residence on the site, facing north.



**Photograph 2:** 101 North Steyne, facing west, towards Pine Lane.



**Photograph 3:** Southern driveway, facing East



**Photograph 4:** Iron oxide discolouration along southern site boundary

---

## Appendix E - Land Title Information

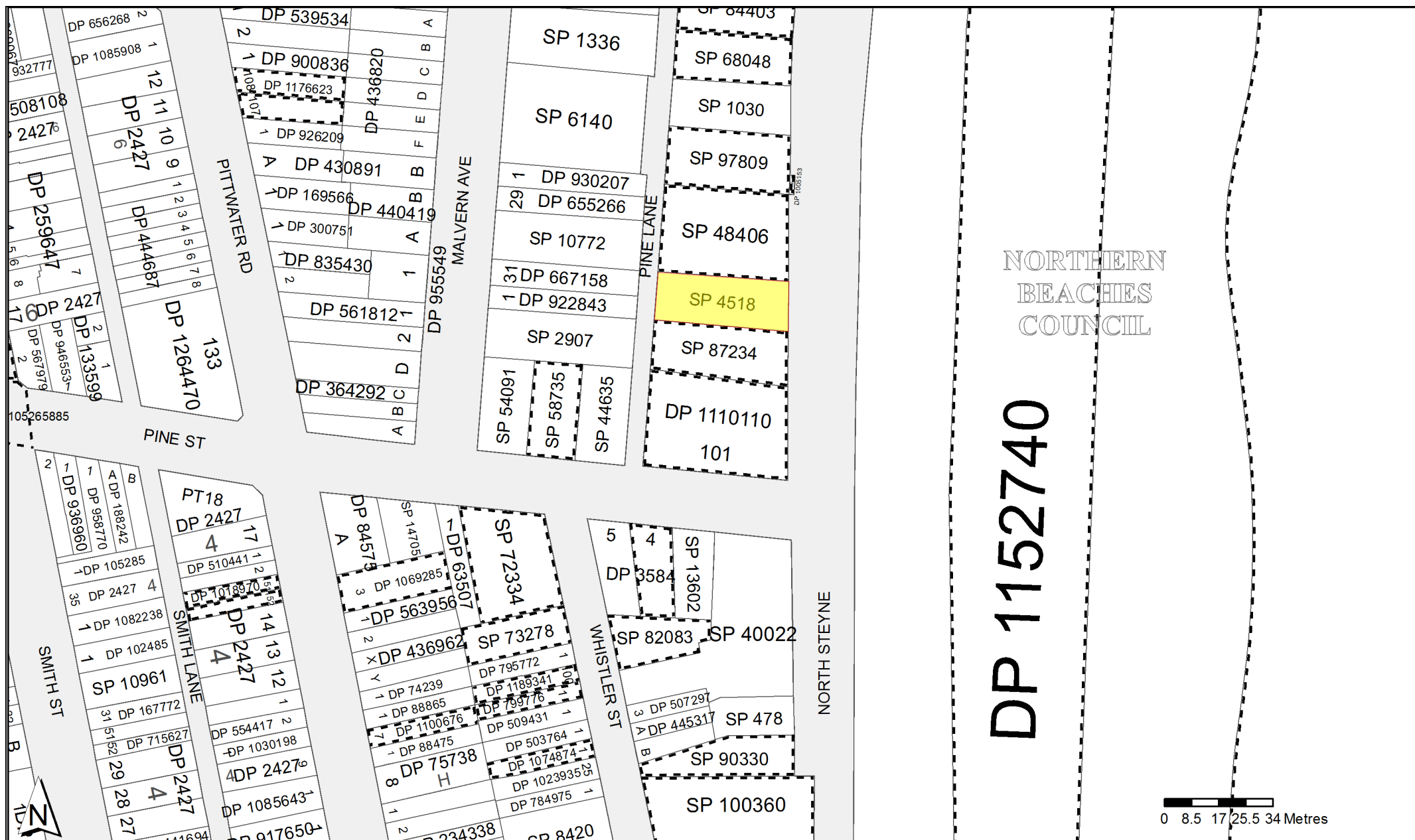
---

**Locality :** MANLY

**Parish : MANLY COVE**

**LGA : NORTHERN BEACHES**

**County :** CUMBERLAND



- (a) State if whole or part.  
(b) Refer to number of Lot, Allotment, or Portion and to the Deposited Plan, Town, or as the case may be.

Parcel comprises <sup>part</sup> ~~whole~~ of (b) Lot 4. Sec. I D.P. 2427

Reference to Title Vol. 1429 Fol. 21

Mun. ~~Shire/City~~ *Manly*

Locality *Manly*

Parish *Manly Cove*

County *Cumberland*

Scale 30 feet to an inch

STRATA PLAN 4518 (E)

Registered: 

*27-2-1970*

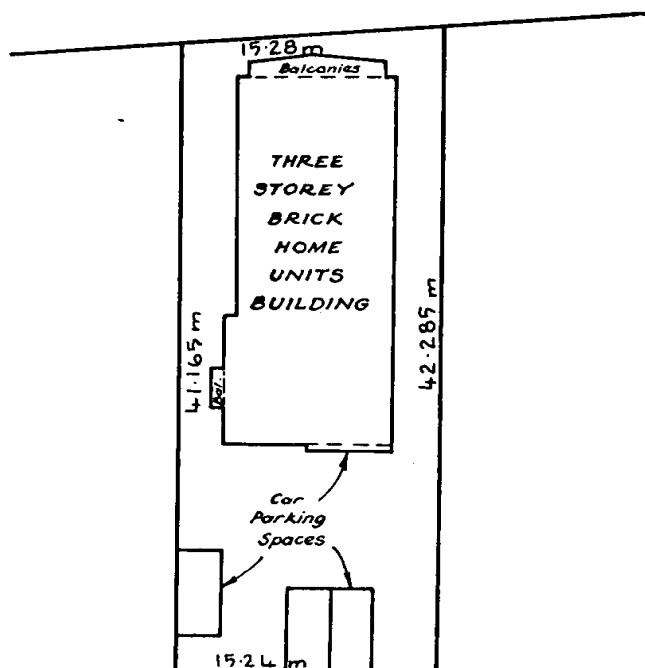
C.A.: N° 2339 of 15-9-1969

Ref Map: Manly Sh II

Last Plan: DP 2427

External surface boundaries of the parcel and location of the building in relation thereto to be delineated in space opposite.

NORTH STEYNE



PINE LANE

- (c) Additional lots should be shown in an annexure.

- (d) Delete if inappropriate.

| Schedule of Unit Entitlement(c) |                  | OFFICE USE ONLY   |      |
|---------------------------------|------------------|-------------------|------|
|                                 |                  | Current C's of T. |      |
| Lot No.                         | Unit Entitlement | Vol.              | Fol. |
| 1                               | 7                | 11277             | 175  |
| 2                               | 8                | 11277             | 176  |
| 3                               | 9                | 11277             | 177  |
| 4                               | 9                | 11277             | 178  |
| 5                               | 8                | 11277             | 179  |
| 6                               | 9                | 11277             | 180  |
| 7                               | 9                | 11277             | 181  |
| 8                               | 8                | 11277             | 182  |
| AGGREGATE                       | 67               |                   |      |

I, KELVIN WILSON ALEXANDER  
of BROOKVALE

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that:

(1) the building erected on the parcel described above is within the external boundaries of the parcel(d) subject to clause (2) of this certificate;

(d)(2) eaves or guttering of the building project beyond such external boundaries and an appropriate easement has been granted as an appurtenance of the parcel by registered Transfer No.

Dated 6.8.1969

Signature *Kel Wilson Alexander*

Approved by the Council for the purposes of the Conveyancing (Strata Titles) Act, 1961.

Date 15th September, 1969

Subdivision No. *12339*  
*[Signature]*  
Deputy Council Clerk

The address for service of notices on the body corporate is:—

*The Proprietors, Strata Plan N° 4518  
N° 101 North Steyne, Manly 2095*

# STRATA PLAN No. 4518

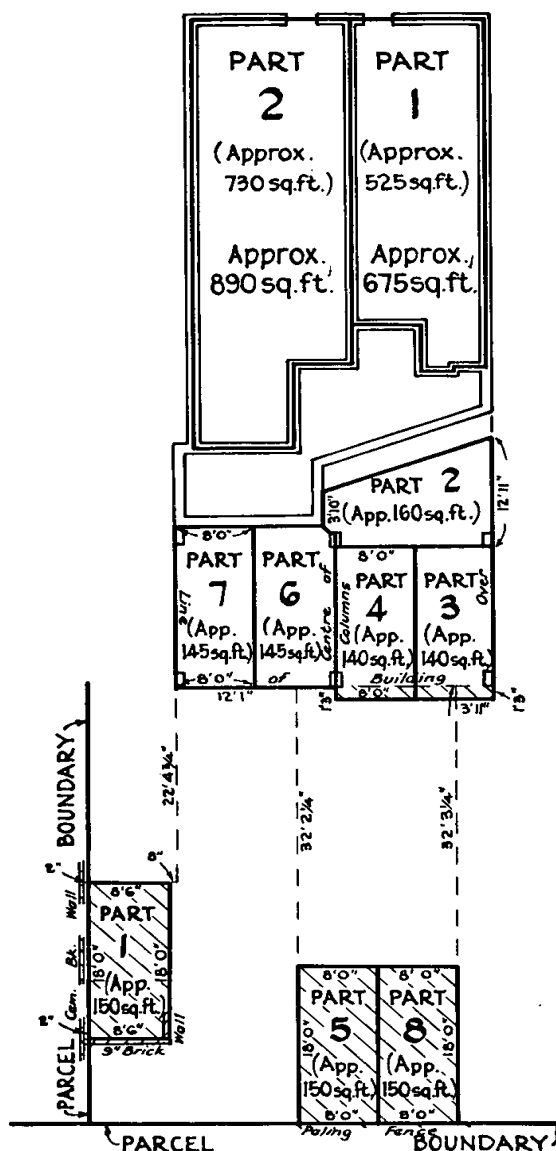
## Ground Floor

CONVERSION TABLE ADDED IN  
 REGISTRAR GENERAL'S DEPARTMENT

### STRATA PLAN 4518

| FEET | INCHES | METRES |
|------|--------|--------|
| -    | 2      | 0.05   |
| -    | 8      | 0.205  |
| -    | 9      | 0.23   |
| 1    | 3      | 0.38   |
| 3    | 10     | 1.17   |
| 3    | 11     | 1.195  |
| 8    | -      | 2.44   |
| 8    | 6      | 2.59   |
| 10   | 6      | 3.2    |
| 12   | 1      | 3.685  |
| 12   | 11     | 3.935  |
| 18   | -      | 5.485  |
| 22   | 4 3/4  | 6.825  |
| 32   | 2 1/4  | 9.81   |
| 32   | 3 1/4  | 9.835  |

| SQ FT | SQ M  |
|-------|-------|
| 140   | 13    |
| 144   | 13.4  |
| 145   | 13.5  |
| 150   | 13.9  |
| 160   | 14.9  |
| 525   | 48.8  |
| 655   | 60.9  |
| 675   | 62.7  |
| 730   | 67.8  |
| 775   | 72    |
| 805   | 74.8  |
| 820   | 76.2  |
| 890   | 82.7  |
| 915   | 85    |
| 920   | 85.5  |
| 960   | 89.2  |
| 965   | 89.7  |
| 9920  | 921.6 |



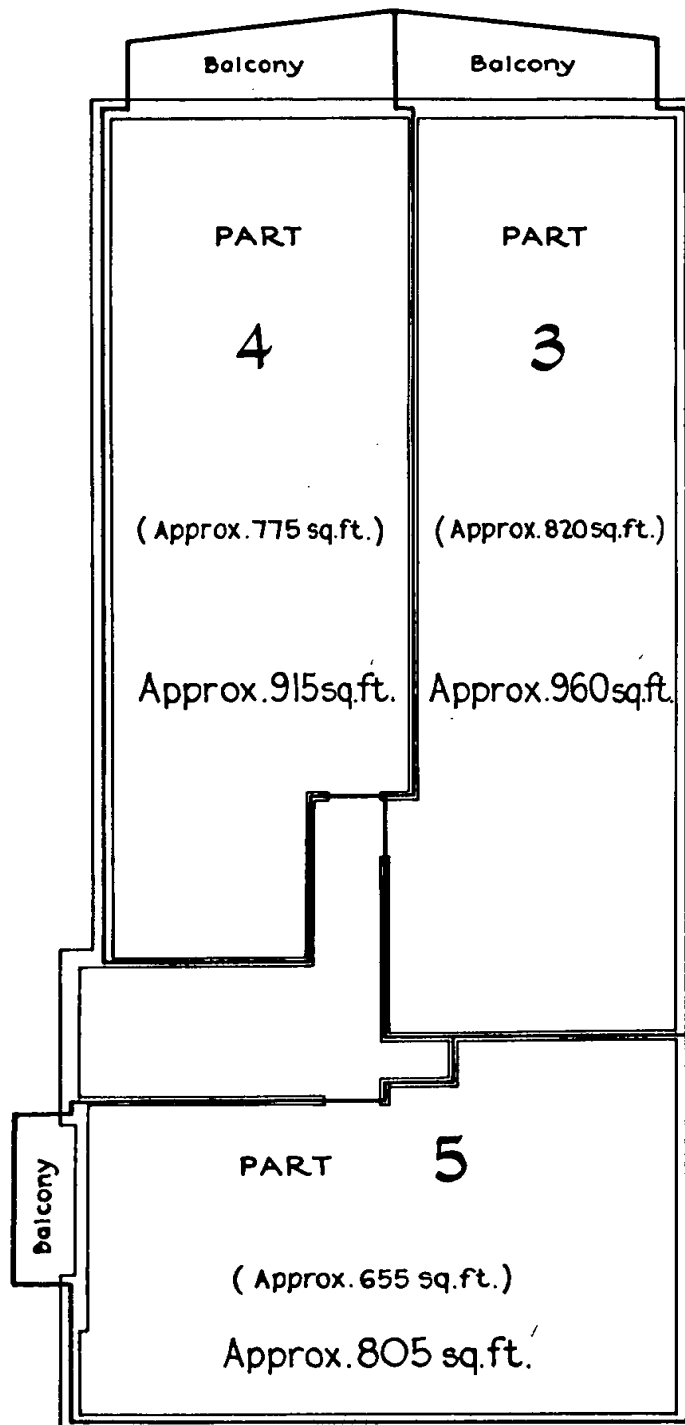
Parts 1, 5 & 8 and those sections of Parts 3 & 4 shown hatched hereon are not roofed and are therefore limited in height to 10'6" above the level of bitumen at their respective northwestern corners.

Scale: 16 feet to an inch

*[Signature]*  
 Deputy Council Clerk.

**STRATA PLAN No.4518**

*First Floor*

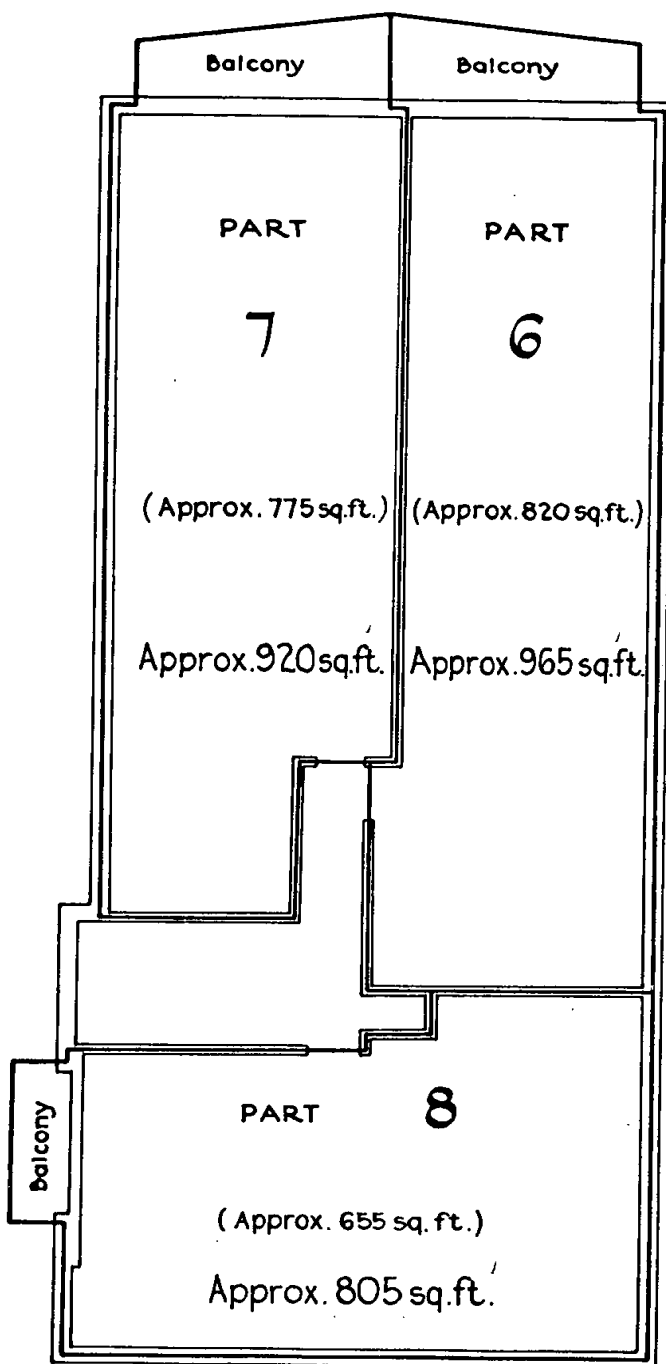


Scale: 8 feet to an inch

*[Signature]*  
Deputy Council Clerk.

**STRATA PLAN No.4518**

*Second Floor*



*Balconies hereon are not roofed and are therefore limited in height to 8'0" above the level of concrete at their respective northeastern corners.*

Scale: 8 feet to an inch

*[Signature]*  
Deputy Council Clerk.



FOLIO: CP/SP4518

| SEARCH DATE | TIME    | EDITION NO | DATE      |
|-------------|---------|------------|-----------|
| 10/9/2024   | 9:05 PM | 4          | 8/11/2023 |

LAND

THE COMMON PROPERTY IN THE STRATA SCHEME BASED ON STRATA PLAN 4518  
WITHIN THE PARCEL SHOWN IN THE TITLE DIAGRAM

AT MANLY  
LOCAL GOVERNMENT AREA NORTHERN BEACHES  
PARISH OF MANLY COVE COUNTY OF CUMBERLAND  
TITLE DIAGRAM SHEET 1 SP4518

FIRST SCHEDULE

THE OWNERS - STRATA PLAN NO. 4518

ADDRESS FOR SERVICE OF DOCUMENTS:

C/- 101 NORTH STEYNE  
MANLY  
NSW 2095

SECOND SCHEDULE (4 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 ATTENTION IS DIRECTED TO CLAUSE 3 SCHEDULE 4 STRATA SCHEMES  
(FREEHOLD DEVELOPMENT) ACT 1973 REGARDING BOUNDARIES BETWEEN  
LOTS AND COMMON PROPERTY IN STRATA SCHEMES REGISTERED BEFORE  
1-7-1974
- 3 AT583829 INITIAL PERIOD EXPIRED
- 4 AT583829 CONSOLIDATION OF REGISTERED BY-LAWS

SCHEDULE OF UNIT ENTITLEMENT (AGGREGATE: 67)

STRATA PLAN 4518

| LOT | ENT | LOT | ENT | LOT | ENT | LOT | ENT |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   | - 7 | 2   | - 8 | 3   | - 9 | 4   | - 9 |
| 5   | - 8 | 6   | - 9 | 7   | - 9 | 8   | - 8 |

NOTATIONS

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*

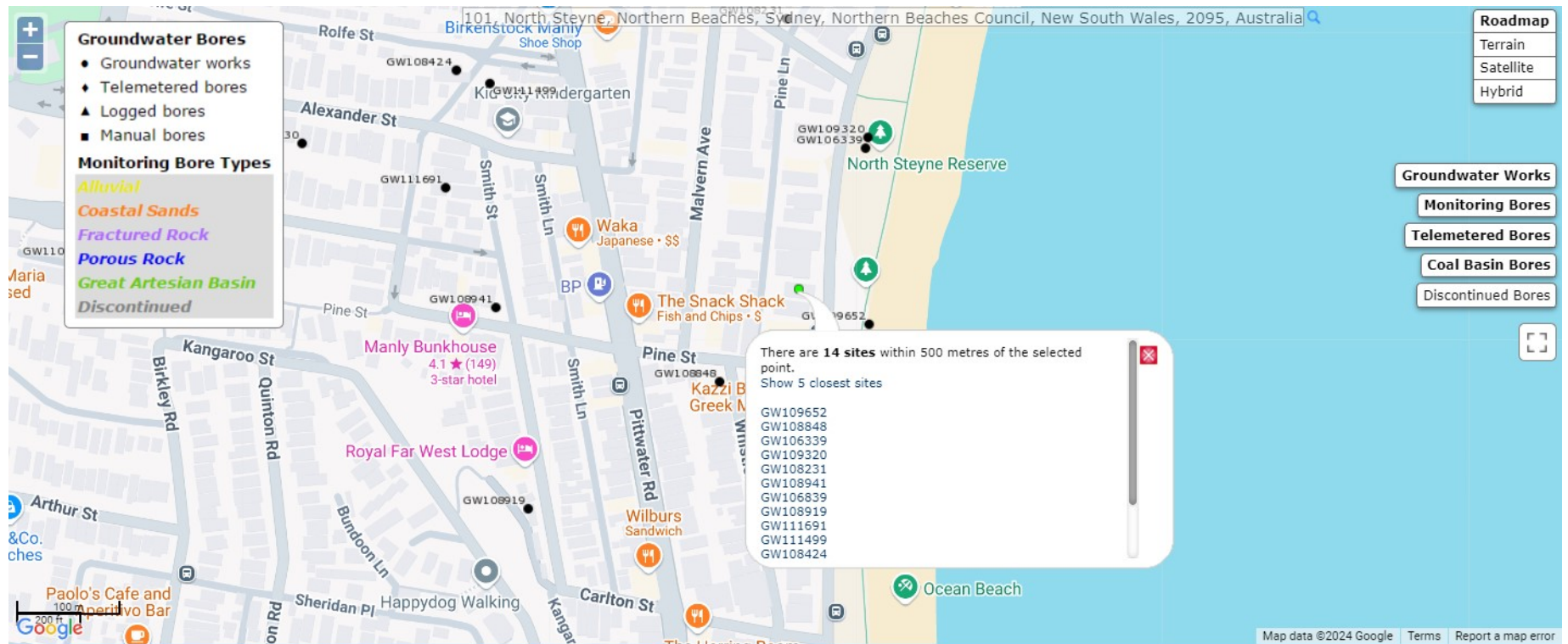
101 North Steyne, Manly

PRINTED ON 10/9/2024

---

## Appendix F - Groundwater Bore Search

---



---

## Appendix G – Borehole Logs

---



BOREHOLE LOG

BH ID: BH2M

|                     |                             |  |  |             |                                 |                      |
|---------------------|-----------------------------|--|--|-------------|---------------------------------|----------------------|
| Location            | 101 North Steyne, Manly     |  |  | Started     | 08 October 2024                 |                      |
| Client              | Time & Place                |  |  | Completed   | 08 October 2024                 |                      |
| Job No.             | E26499                      |  |  | Logged By   | RL                              | Date 08 October 2024 |
| Sheets              | 1 of 1                      |  |  | Review By   | Date                            |                      |
| Drilling Contractor | Geosense Drilling Engineers |  |  | Surface RL  | -                               |                      |
| Plant               | -                           |  |  | Inclination | 90°                             |                      |
|                     |                             |  |  | Northing    | 6259794.7032 (MGA 2020 Zone 56) |                      |
|                     |                             |  |  | Easting     | 341359.4927 (MGA 2020 Zone 56)  |                      |

| METHOD | GROUND WATER LEVELS | SAMPLES & FIELD TESTS | SAMPLE RECOVERY | DEPTH (m) | GRAPHIC LOG | RL (mAHD) | MATERIAL DESCRIPTION                                                                                        | MOISTURE CONDITION | CONSISTENCY / REL. DENSITY | MATERIAL ORIGIN & OBSERVATIONS |
|--------|---------------------|-----------------------|-----------------|-----------|-------------|-----------|-------------------------------------------------------------------------------------------------------------|--------------------|----------------------------|--------------------------------|
| AD/T   | ▽                   | BH2M_0.30-0.40        |                 | 0.00      |             |           | ASPHALT: 200mm thick                                                                                        | M                  |                            | ASPHALT                        |
|        |                     |                       |                 | 0.20      |             |           | FILL: Silty SAND: fine to medium grained, dark grey-grey, with sub-angular to sub-angular gravels, N9 odour |                    |                            | FILL                           |
|        |                     | BH2M_0.80-0.90        |                 | 0.50      |             |           | Silty SAND: fine to medium grained, brown-pale brown, No odour                                              |                    |                            | MARINE SOIL                    |
|        |                     |                       |                 | 1         |             |           |                                                                                                             |                    |                            |                                |
|        |                     |                       |                 | 2         |             |           |                                                                                                             |                    |                            |                                |
|        |                     |                       |                 | 3         |             |           |                                                                                                             |                    |                            |                                |
|        |                     |                       |                 | 4         |             |           |                                                                                                             |                    |                            |                                |
|        |                     |                       |                 | 5         |             |           |                                                                                                             |                    |                            |                                |
|        |                     |                       |                 | 6         |             |           |                                                                                                             | W                  |                            |                                |
|        |                     |                       |                 | 7         |             |           | Terminated at 7.00m. Target Depth Reached.                                                                  |                    |                            |                                |
|        |                     |                       |                 | 8         |             |           |                                                                                                             |                    |                            |                                |
|        |                     |                       |                 | 9         |             |           |                                                                                                             |                    |                            |                                |
|        |                     |                       |                 | 10        |             |           |                                                                                                             |                    |                            |                                |

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

# MONITORING WELL LOG

BH ID: BH2M

|          |                         |           |                 |      |                 |
|----------|-------------------------|-----------|-----------------|------|-----------------|
| Location | 101 North Steyne, Manly | Started   | 08 October 2024 |      |                 |
| Client   | Time & Place            | Completed | 08 October 2024 |      |                 |
| Job No.  | E26499                  | Logged By | RL              | Date | 08 October 2024 |
| Sheets   | 1 of 1                  | Review By |                 | Date |                 |

|                     |                             |             |     |          |                                 |
|---------------------|-----------------------------|-------------|-----|----------|---------------------------------|
| Drilling Contractor | Geosense Drilling Engineers | Surface RL  | -   | Northing | 6259794.7032 (MGA 2020 Zone 56) |
| Plant               | -                           | Inclination | 90° | Easting  | 341359.4927 (MGA 2020 Zone 56)  |

| WATER | SAMPLES & FIELD TESTS | DEPTH (m) | GRAPHIC LOG                                                                       | RL (mAHD) | MATERIAL DESCRIPTION                                                                                        | MOISTURE CONDITION | BACKFILL DETAILS           | STANDPIPE DETAILS                  |
|-------|-----------------------|-----------|-----------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------|--------------------|----------------------------|------------------------------------|
|       | BH2M_0.30-0.40        | 0.00      |  |           | ASPHALT: 200mm thick                                                                                        |                    |                            | Well Stickup =0.0m                 |
|       | BH2M_0.80-0.90        | 0.20      |  |           | FILL: Silty SAND: fine to medium grained, dark grey-grey, with sub-angular to sub-angular gravels, N9 odour |                    |                            |                                    |
|       |                       | 0.50      |  |           | Silty SAND: fine to medium grained, brown-pale brown, No odour                                              |                    |                            |                                    |
|       |                       | 1         |  |           |                                                                                                             |                    | Grout<br>0.00m - 1.50m     |                                    |
|       |                       | 2         |  |           |                                                                                                             |                    | Bentonite<br>1.50m - 2.50m | 0.0m - 3.0m<br>PVC casing (50mm Ø) |
|       |                       | 3         |  |           |                                                                                                             | M                  |                            |                                    |
|       |                       | 4         |  |           |                                                                                                             |                    |                            |                                    |
|       |                       | 5         |  |           |                                                                                                             |                    | Sand<br>2.50m - 6.00m      |                                    |
|       |                       | 6         |  |           |                                                                                                             |                    |                            | 3.0m - 6.0m<br>PVC screen (50mm Ø) |
|       |                       | 7         |  |           |                                                                                                             | W                  | Sand<br>6.00m - 7.00m      |                                    |
|       |                       | 8         |  |           |                                                                                                             |                    |                            |                                    |
|       |                       | 9         |  |           |                                                                                                             |                    |                            |                                    |
|       |                       | 10        |  |           |                                                                                                             |                    |                            |                                    |
|       |                       |           |                                                                                   |           | Terminated at 7.00m. Target Depth Reached.                                                                  |                    |                            |                                    |

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



BOREHOLE LOG

BH ID: BH3M

|          |                         |           |                 |
|----------|-------------------------|-----------|-----------------|
| Location | 101 North Steyne, Manly | Started   | 08 October 2024 |
| Client   | Time & Place            | Completed | 08 October 2024 |
| Job No.  | E26499                  | Logged By | RL      Date    |
| Sheets   | 1 of 2                  | Review By | Date            |

|                     |                             |             |     |          |                                 |
|---------------------|-----------------------------|-------------|-----|----------|---------------------------------|
| Drilling Contractor | Geosense Drilling Engineers | Surface RL  | -   | Northing | 6259777.9040 (MGA 2020 Zone 56) |
| Plant               | -                           | Inclination | 90° | Easting  | 341378.5083 (MGA 2020 Zone 56)  |

| METHOD | GROUND WATER LEVELS | SAMPLES & FIELD TESTS            | SAMPLE RECOVERY | DEPTH (m)    | GRAPHIC LOG | RL (mAHD) | MATERIAL DESCRIPTION                                                                                                                                           | MOISTURE CONDITION | CONSISTENCY / REL. DENSITY | MATERIAL ORIGIN & OBSERVATIONS |
|--------|---------------------|----------------------------------|-----------------|--------------|-------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------|--------------------------------|
| AD/T   |                     | BH3M_0.30-0.40<br>BH3M_0.40-0.50 |                 | 0.00<br>0.20 |             |           | ASPHALT: 200mm thick                                                                                                                                           |                    |                            | ASPHALT                        |
|        |                     |                                  |                 |              |             |           | FILL: Silty SAND: fine to medium grained, brown-grey, with fine to medium grained, sub-angular to angular gravels, with pale grey sandstone boulders, No odour |                    |                            | FILL                           |
|        |                     | BH3M_0.90-1.00<br>BH3M_0.90-1.00 |                 | 0.70<br>1    |             |           | SAND: fine to medium grained, brown, No odour                                                                                                                  |                    |                            | MARINE SOIL                    |
|        |                     | BH3M_1.40-1.50                   |                 |              |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     | BH3M_1.90-2.00                   |                 |              |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     | BH3M_2.40-2.50                   |                 |              |             |           |                                                                                                                                                                | M                  |                            |                                |
|        |                     | BH3M_2.90-3.00                   |                 |              |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     | BH3M_3.40-3.50                   |                 |              |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     | BH3M_3.90-4.00                   |                 |              |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     |                                  |                 | 4            |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     |                                  |                 | 5            |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     |                                  |                 | 6            |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     |                                  |                 | 7            |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     |                                  |                 | 8            |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     |                                  |                 | 9            |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     |                                  |                 | 10           |             |           |                                                                                                                                                                |                    |                            |                                |
|        |                     |                                  |                 |              |             |           |                                                                                                                                                                | W                  |                            |                                |

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



BOREHOLE LOG

BH ID: BH3M

|          |                         |           |                              |
|----------|-------------------------|-----------|------------------------------|
| Location | 101 North Steyne, Manly | Started   | 08 October 2024              |
| Client   | Time & Place            | Completed | 08 October 2024              |
| Job No.  | E26499                  | Logged By | RL                      Date |
| Sheets   | 2 of 2                  | Review By | Date                         |

|                     |                             |             |     |          |                                 |
|---------------------|-----------------------------|-------------|-----|----------|---------------------------------|
| Drilling Contractor | Geosense Drilling Engineers | Surface RL  | -   | Northing | 6259777.9040 (MGA 2020 Zone 56) |
| Plant               | -                           | Inclination | 90° | Easting  | 341378.5083 (MGA 2020 Zone 56)  |

| METHOD | GROUND WATER LEVELS | SAMPLES & FIELD TESTS | SAMPLE RECOVERY | DEPTH (m) | GRAPHIC LOG | RL (mAHD) | MATERIAL DESCRIPTION                        | MOISTURE CONDITION | CONSISTENCY / REL. DENSITY | MATERIAL ORIGIN & OBSERVATIONS |
|--------|---------------------|-----------------------|-----------------|-----------|-------------|-----------|---------------------------------------------|--------------------|----------------------------|--------------------------------|
|        |                     |                       |                 |           |             |           | Terminated at 10.00m. Target Depth Reached. |                    |                            |                                |
|        |                     |                       |                 | 11        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 12        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 13        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 14        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 15        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 16        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 17        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 18        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 19        |             |           |                                             |                    |                            |                                |
|        |                     |                       |                 | 20        |             |           |                                             |                    |                            |                                |

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

# MONITORING WELL LOG

BH ID: BH3M

|                 |                         |                  |                 |
|-----------------|-------------------------|------------------|-----------------|
| <b>Location</b> | 101 North Steyne, Manly | <b>Started</b>   | 08 October 2024 |
| <b>Client</b>   | Time & Place            | <b>Completed</b> | 08 October 2024 |
| <b>Job No.</b>  | E26499                  | <b>Logged By</b> | RL <b>Date</b>  |
| <b>Sheets</b>   | 1 of 2                  | <b>Review By</b> | <b>Date</b>     |

|                            |                             |                    |     |                 |                                 |
|----------------------------|-----------------------------|--------------------|-----|-----------------|---------------------------------|
| <b>Drilling Contractor</b> | Geosense Drilling Engineers | <b>Surface RL</b>  | -   | <b>Northing</b> | 6259777.9040 (MGA 2020 Zone 56) |
| <b>Plant</b>               | -                           | <b>Inclination</b> | 90° | <b>Easting</b>  | 341378.5083 (MGA 2020 Zone 56)  |

| WATER | SAMPLES & FIELD TESTS            | DEPTH (m) | GRAPHIC LOG                                                                       | RL (mAHD) | MATERIAL DESCRIPTION                                                                                                                                           | MOISTURE CONDITION | BACKFILL DETAILS           | STANDPIPE DETAILS                  |
|-------|----------------------------------|-----------|-----------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------|------------------------------------|
|       |                                  | 0.00      |  |           | ASPHALT: 200mm thick                                                                                                                                           |                    |                            |                                    |
|       | BH3M_0.30-0.40<br>BH3M_0.40-0.50 | 0.20      |  |           | FILL: Silty SAND: fine to medium grained, brown-grey, with fine to medium grained, sub-angular to angular gravels, with pale grey sandstone boulders, No odour |                    |                            |                                    |
|       | BH3M_0.90-1.00<br>BH3M_0.90-1.00 | 0.70      |                                                                                   |           | SAND: fine to medium grained, brown, No odour                                                                                                                  |                    | Grout<br>0.00m - 1.50m     | Well Stickup =0.0m                 |
|       | BH3M_1.40-1.50                   | 1         |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |
|       | BH3M_1.90-2.00                   | 2         |                                                                                   |           |                                                                                                                                                                | M                  | Bentonite<br>1.50m - 2.50m | 0.0m - 3.0m<br>PVC casing (50mm Ø) |
|       | BH3M_2.40-2.50                   |           |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |
|       | BH3M_2.90-3.00                   | 3         |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |
|       | BH3M_3.40-3.50                   |           |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |
|       | BH3M_3.90-4.00                   | 4         |                                                                                   |           |                                                                                                                                                                |                    | Sand<br>2.50m - 6.00m      | 3.0m - 6.0m<br>PVC screen (50mm Ø) |
|       |                                  | 5         |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |
|       |                                  | 6         |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |
|       |                                  | 7         |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |
|       |                                  | 8         |                                                                                   |           |                                                                                                                                                                | W                  | Sand<br>6.00m - 10.00m     |                                    |
|       |                                  | 9         |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |
|       |                                  | 10        |                                                                                   |           |                                                                                                                                                                |                    |                            |                                    |

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



# MONITORING WELL LOG

BH ID: BH3M

|          |                         |           |                 |
|----------|-------------------------|-----------|-----------------|
| Location | 101 North Steyne, Manly | Started   | 08 October 2024 |
| Client   | Time & Place            | Completed | 08 October 2024 |
| Job No.  | E26499                  | Logged By | RL      Date    |
| Sheets   | 2 of 2                  | Review By | Date            |

|                     |                             |             |     |          |                                 |
|---------------------|-----------------------------|-------------|-----|----------|---------------------------------|
| Drilling Contractor | Geosense Drilling Engineers | Surface RL  | -   | Northing | 6259777.9040 (MGA 2020 Zone 56) |
| Plant               | -                           | Inclination | 90° | Easting  | 341378.5083 (MGA 2020 Zone 56)  |

| WATER | SAMPLES & FIELD TESTS | DEPTH (m) | GRAPHIC LOG | RL (mAHD) | MATERIAL DESCRIPTION                        | MOISTURE CONDITION | BACKFILL DETAILS | STANDPIPE DETAILS |
|-------|-----------------------|-----------|-------------|-----------|---------------------------------------------|--------------------|------------------|-------------------|
|       |                       |           |             |           | Terminated at 10.00m. Target Depth Reached. |                    |                  |                   |
|       |                       | 11        |             |           |                                             |                    |                  |                   |
|       |                       | 12        |             |           |                                             |                    |                  |                   |
|       |                       | 13        |             |           |                                             |                    |                  |                   |
|       |                       | 14        |             |           |                                             |                    |                  |                   |
|       |                       | 15        |             |           |                                             |                    |                  |                   |
|       |                       | 16        |             |           |                                             |                    |                  |                   |
|       |                       | 17        |             |           |                                             |                    |                  |                   |
|       |                       | 18        |             |           |                                             |                    |                  |                   |
|       |                       | 19        |             |           |                                             |                    |                  |                   |
|       |                       | 20        |             |           |                                             |                    |                  |                   |

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

---

## Appendix H – Field Data Sheets

---

## OP 005a (Rev 2)



ABN 42 909 129 957

**E** [service@eiaustralia.com.au](mailto:service@eiaustralia.com.au)  
**W** [www.eiaustralia.com.au](http://www.eiaustralia.com.au)  
**T** 02 9516 0722

Site Address/Location: 101 North Steyne

|                      |                |
|----------------------|----------------|
| Climatic Conditions: | <i>raining</i> |
| Completed Works:     |                |

Completed Works: 1

GME and pump out test

Both wells have insufficient water to sample or perform pump out test

Signed by: \_\_\_\_\_

## WATER SAMPLING FIELD SHEET



| Site Address: 101 North Skyrail                                                                                                                                   |            | Job Number: E26499                                                  |           |            |            |           |            |                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------|-----------|------------|------------|-----------|------------|-------------------------------------------------|
| Client:                                                                                                                                                           |            | Date: 18/10/24                                                      |           |            |            |           |            |                                                 |
| Field Staff:                                                                                                                                                      |            | Sampling Location ID BH 2M                                          |           |            |            |           |            |                                                 |
| Well Location:                                                                                                                                                    |            | Round No:                                                           |           |            |            |           |            |                                                 |
| MEDIUM <input checked="" type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Stormwater <input type="checkbox"/> Other: |            |                                                                     |           |            |            |           |            |                                                 |
| <b>SAMPLING POINT INFO</b>                                                                                                                                        |            |                                                                     |           |            |            |           |            |                                                 |
| Well Installation Date:                                                                                                                                           |            | Stick up / down (m): ~0.1 (+ above ground - below ground)           |           |            |            |           |            |                                                 |
| Initial Well Depth (mBTOC):                                                                                                                                       |            | Screen Interval (mBTOC):                                            |           |            |            |           |            |                                                 |
| Previous Sampling Date:                                                                                                                                           |            | Previous SWL (mBTOC):                                               |           |            |            |           |            |                                                 |
| <b>PID READINGS</b>                                                                                                                                               |            |                                                                     |           |            |            |           |            |                                                 |
| PID Headspace (ppm): 0.1                                                                                                                                          |            | PID Background (ppm): 0                                             |           |            |            |           |            |                                                 |
| PID Breathing Space (ppm): 0                                                                                                                                      |            |                                                                     |           |            |            |           |            |                                                 |
| <b>PRE PURGE</b>                                                                                                                                                  |            |                                                                     |           |            |            |           |            |                                                 |
| Total Well Depth (mBTOC): 5.47                                                                                                                                    |            | Well Head Condition: Good                                           |           |            |            |           |            |                                                 |
| SWL (mBTOC):                                                                                                                                                      |            | Water Column (m):                                                   |           |            |            |           |            |                                                 |
| <b>PHASE SEPARATED HYDROCARBONS (PSH)</b>                                                                                                                         |            |                                                                     |           |            |            |           |            |                                                 |
| Depth to PSH (mBTOC):                                                                                                                                             |            | PSH Visually Confirmed (Bailer):                                    |           |            |            |           |            |                                                 |
| PSH Thickness (mm):                                                                                                                                               |            |                                                                     |           |            |            |           |            |                                                 |
| <b>Field Filtered</b>                                                                                                                                             |            |                                                                     |           |            |            |           |            |                                                 |
| Yes (0.45 µm) <input type="checkbox"/>                                                                                                                            |            | No <input type="checkbox"/> (Request lab 0.45 µm filter the sample) |           |            |            |           |            |                                                 |
| <b>PURGE AND SAMPLE</b>                                                                                                                                           |            |                                                                     |           |            |            |           |            |                                                 |
| Sampling Method <input type="checkbox"/> Bladder <input type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Other:        |            |                                                                     |           |            |            |           |            |                                                 |
| Depth of Pump Inlet (mBTOC):                                                                                                                                      |            | Fill Timer:                                                         |           |            |            |           |            |                                                 |
| Pump Pressure Regulator (psi):                                                                                                                                    |            | Discharge Timer:                                                    |           |            |            |           |            |                                                 |
| Weather Conditions:                                                                                                                                               |            | Cycle:                                                              |           |            |            |           |            |                                                 |
| Pump on time:                                                                                                                                                     |            | Pump off time:                                                      |           |            |            |           |            |                                                 |
| <b>WATER QUALITY PARAMETERS</b>                                                                                                                                   |            |                                                                     |           |            |            |           |            |                                                 |
| 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:<br>3 consecutive readings                                                                                                                    |            |                                                                     | ±0.2°C    | ±3%        | ±20mV      | ±10%      | ±0.2       |                                                 |
| <b>OTHER COMMENTS/OBSERVATIONS:</b>                                                                                                                               |            |                                                                     |           |            |            |           |            |                                                 |
| <b>SIGNATURE:</b>                                                                                                                                                 |            |                                                                     |           |            |            |           |            |                                                 |

# WATER SAMPLING FIELD SHEET



|                                                                                                                                                                   |            |                                                                     |           |            |            |           |            |                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------|-----------|------------|------------|-----------|------------|-------------------------------------------------|
| Site Address: 101 North Styal                                                                                                                                     |            | Job Number: E26499                                                  |           |            |            |           |            |                                                 |
| Client:                                                                                                                                                           |            | Date: 18/10/24                                                      |           |            |            |           |            |                                                 |
| Field Staff:                                                                                                                                                      |            | Sampling Location ID: BH3M                                          |           |            |            |           |            |                                                 |
| Well Location:                                                                                                                                                    |            | Round No:                                                           |           |            |            |           |            |                                                 |
| MEDIUM <input checked="" type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Stormwater <input type="checkbox"/> Other: |            |                                                                     |           |            |            |           |            |                                                 |
| <b>SAMPLING POINT INFO</b>                                                                                                                                        |            |                                                                     |           |            |            |           |            |                                                 |
| Well Installation Date:                                                                                                                                           |            | Stick up / down (m): -0.1 (+ above ground - below ground)           |           |            |            |           |            |                                                 |
| Initial Well Depth (mBTOC):                                                                                                                                       |            | Screen Interval (mBTOC):                                            |           |            |            |           |            |                                                 |
| Previous Sampling Date:                                                                                                                                           |            | Previous SWL (mBTOC):                                               |           |            |            |           |            |                                                 |
| <b>PID READINGS</b>                                                                                                                                               |            |                                                                     |           |            |            |           |            |                                                 |
| PID Headspace (ppm): 0                                                                                                                                            |            | PID Background (ppm): 0                                             |           |            |            |           |            |                                                 |
| PID Breathing Space (ppm): 0                                                                                                                                      |            |                                                                     |           |            |            |           |            |                                                 |
| <b>PRE PURGE</b>                                                                                                                                                  |            |                                                                     |           |            |            |           |            |                                                 |
| Total Well Depth (mBTOC): 5.32                                                                                                                                    |            | Well Head Condition: good                                           |           |            |            |           |            |                                                 |
| SWL (mBTOC):                                                                                                                                                      |            | Water Column (m):                                                   |           |            |            |           |            |                                                 |
| <b>PHASE SEPARATED HYDROCARBONS (PSH)</b>                                                                                                                         |            |                                                                     |           |            |            |           |            |                                                 |
| Depth to PSH (mBTOC):                                                                                                                                             |            | PSH Visually Confirmed (Bailer):                                    |           |            |            |           |            |                                                 |
| PSH Thickness (mm):                                                                                                                                               |            |                                                                     |           |            |            |           |            |                                                 |
| <b>Field Filtered</b>                                                                                                                                             |            |                                                                     |           |            |            |           |            |                                                 |
| Yes (0.45 µm) <input type="checkbox"/>                                                                                                                            |            | No <input type="checkbox"/> (Request lab 0.45 µm filter the sample) |           |            |            |           |            |                                                 |
| <b>PURGE AND SAMPLE</b>                                                                                                                                           |            |                                                                     |           |            |            |           |            |                                                 |
| Sampling Method <input type="checkbox"/> Bladder <input type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Other:        |            |                                                                     |           |            |            |           |            |                                                 |
| Depth of Pump Inlet (mBTOC):                                                                                                                                      |            | Fill Timer:                                                         |           |            |            |           |            |                                                 |
| Pump Pressure Regulator (psi):                                                                                                                                    |            | Discharge Timer:                                                    |           |            |            |           |            |                                                 |
| Weather Conditions:                                                                                                                                               |            | Cycle:                                                              |           |            |            |           |            |                                                 |
| Pump on time:                                                                                                                                                     |            | Pump off time:                                                      |           |            |            |           |            |                                                 |
| <b>WATER QUALITY PARAMETERS</b>                                                                                                                                   |            |                                                                     |           |            |            |           |            |                                                 |
| 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:<br>3 consecutive readings                                                                                                                    |            |                                                                     | ±0.2°C    | ±3%        | ±20mV      | ±10%      | ±0.2       |                                                 |
| OTHER COMMENTS/OBSERVATIONS: well dry                                                                                                                             |            |                                                                     |           |            |            |           |            |                                                 |
| SIGNATURE:                                                                                                                                                        |            |                                                                     |           |            |            |           |            |                                                 |

|                                 |                         |                                                                                     |          |
|---------------------------------|-------------------------|-------------------------------------------------------------------------------------|----------|
| Geotechnical Pump-Out Test Form |                         |  |          |
| Project Number:                 | E26499                  |                                                                                     |          |
| Client Contacts:                |                         | Date:                                                                               | 18/10/24 |
| Site Address/Location:          | 101 North Steyne, Manly | Time at ARRIVAL:                                                                    | 11       |
| Weather:                        | Raining                 | Time at DEPARTURE:                                                                  | 11:50    |
|                                 |                         | Sheets:                                                                             | of       |

**Health & Safety/Environmental Observations:****Field Work: (Describe site conditions, stage of works, take photographs)**

Notes:

| Well ID:       | Depth (mBTOC):      | Well ID:       | Depth (mBTOC):      |
|----------------|---------------------|----------------|---------------------|
| Stick-up (m):  | Stick-up (m):       | Stick-up (m):  | Stick-up (m):       |
| BH2M           | ~0.1                | BH3M           | ~0.1                |
| Time (minutes) | Water Level (mBTOC) | Time (minutes) | Water Level (mBTOC) |
| Before Test    |                     | Before Test    |                     |
| 0              | insufficient water  | 0              | insufficient        |
| 0.5            |                     | 0.5            | water to perform    |
| 1              | to perform          | 1              | pump out.           |
| 2              |                     | 2              |                     |
| 3              | pump out            | 3              |                     |
| 4              |                     | 4              |                     |
| 5              |                     | 5              |                     |
| 10             |                     | 10             |                     |
| 15             |                     | 15             |                     |
| 20             |                     | 20             |                     |
| 25             |                     | 25             |                     |
| 30             |                     | 30             |                     |
| 45             |                     | 45             |                     |
| 60             |                     | 60             |                     |
| Well ID:       | Depth (mBTOC):      | Well ID:       | Depth (mBTOC):      |
| Stick-up (m):  | Stick-up (m):       | Stick-up (m):  | Stick-up (m):       |
| Time (minutes) | Water Level (mBTOC) | Time (minutes) | Water Level (mBTOC) |
| Before Test    |                     | Before Test    |                     |
| 0              |                     | 0              |                     |
| 0.5            |                     | 0.5            |                     |
| 1              |                     | 1              |                     |
| 2              |                     | 2              |                     |
| 3              |                     | 3              |                     |
| 4              |                     | 4              |                     |
| 5              |                     | 5              |                     |
| 10             |                     | 10             |                     |
| 15             |                     | 15             |                     |
| 20             |                     | 20             |                     |
| 25             |                     | 25             |                     |
| 30             |                     | 30             |                     |
| 45             |                     | 45             |                     |
| 60             |                     | 60             |                     |

Field Staff Initials:

AL

Field Staff Signature:

/

---

## Appendix I – Laboratory Analytical Reports

---

## CLIENT DETAILS

Contact Matthew Chee  
Client EI AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009

Telephone 61 2 95160722  
Facsimile (Not specified)  
Email matthew.chee@eiaustralia.com.au

Project **E26499.E01 101 North Steyne, Manly**  
Order Number **E26499.E01**  
Samples 4

## LABORATORY DETAILS

Manager Shane McDermott  
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 **SE271788 R0**  
Date Received 27/9/2024  
Date Reported 4/10/2024

## COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.  
Asbestos analysed by Approved Identifier Yusuf Kuthpudin

## SIGNATORIES

**Akheeqar BENIAMREEN**  
Chemist

**Dong LIANG**  
Metals/Inorganics Team Leader

**Kamrul AHSAN**  
Senior Chemist

**Ly Kim HA**  
Organic Section Head

**Ravee SIVASUBRAMANIAM**  
Hygiene Team Leader

**Shane MCDERMOTT**  
Laboratory Manager

**Teresa NGUYEN**  
Organic Chemist



ANALYTICAL RESULTS

SE271788 R0

VOC's in Soil [AN433]    Tested: 1/10/2024

|                    |       |     | BH1_0.2-0.3  | BH1_1.0-1.1  | TB1          | TS1          |
|--------------------|-------|-----|--------------|--------------|--------------|--------------|
|                    |       |     | SOIL         | SOIL         | SOIL         | SOIL         |
|                    |       |     | -            | -            | -            | -            |
|                    |       |     | 26/9/2024    | 26/9/2024    | 26/9/2024    | 26/9/2024    |
|                    |       |     | SE271788.001 | SE271788.002 | SE271788.003 | SE271788.004 |
| PARAMETER          | UOM   | LOR |              |              |              |              |
| Benzene            | mg/kg | 0.1 | <0.1         | <0.1         | <0.1         | [94%]        |
| Toluene            | mg/kg | 0.1 | <0.1         | <0.1         | <0.1         | [103%]       |
| Ethylbenzene       | mg/kg | 0.1 | <0.1         | <0.1         | <0.1         | [104%]       |
| m/p-xylene         | mg/kg | 0.2 | <0.2         | <0.2         | <0.2         | [106%]       |
| o-xylene           | mg/kg | 0.1 | <0.1         | <0.1         | <0.1         | [105%]       |
| Total Xylenes*     | mg/kg | 0.3 | <0.3         | <0.3         | <0.3         | -            |
| Total BTEX*        | mg/kg | 0.6 | <0.6         | <0.6         | <0.6         | -            |
| Naphthalene (VOC)* | mg/kg | 0.1 | <0.1         | <0.1         | <0.1         | -            |



ANALYTICAL RESULTS

SE271788 R0

Volatile Petroleum Hydrocarbons in Soil [AN433]    Tested: 1/10/2024

|                            |       |     | BH1_0.2-0.3  | BH1_1.0-1.1  |
|----------------------------|-------|-----|--------------|--------------|
|                            |       |     | SOIL         | SOIL         |
|                            |       |     | -            | -            |
|                            |       |     | 26/9/2024    | 26/9/2024    |
| PARAMETER                  | UOM   | LOR | SE271788.001 | SE271788.002 |
| TRH C6-C9                  | mg/kg | 20  | <20          | <20          |
| Benzene (F0)               | mg/kg | 0.1 | <0.1         | <0.1         |
| TRH C6-C10                 | mg/kg | 25  | <25          | <25          |
| TRH C6-C10 minus BTEX (F1) | mg/kg | 25  | <25          | <25          |



ANALYTICAL RESULTS

SE271788 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403]    Tested: 1/10/2024

|                                 |       |     | BH1_0.2-0.3  | BH1_1.0-1.1  |
|---------------------------------|-------|-----|--------------|--------------|
|                                 |       |     | SOIL         | SOIL         |
|                                 |       |     | -            | -            |
|                                 |       |     | 26/9/2024    | 26/9/2024    |
| PARAMETER                       | UOM   | LOR | SE271788.001 | SE271788.002 |
| TRH C10-C14                     | mg/kg | 20  | <20          | <20          |
| TRH C15-C28                     | mg/kg | 45  | 91           | <45          |
| TRH C29-C36                     | mg/kg | 45  | 110          | <45          |
| TRH C37-C40                     | mg/kg | 100 | <100         | <100         |
| TRH >C10-C16                    | mg/kg | 25  | <25          | <25          |
| TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25  | <25          | <25          |
| TRH >C16-C34 (F3)               | mg/kg | 90  | 160          | <90          |
| TRH >C34-C40 (F4)               | mg/kg | 120 | <120         | <120         |
| TRH C10-C36 Total               | mg/kg | 110 | 200          | <110         |
| TRH >C10-C40 Total (F bands)    | mg/kg | 210 | <210         | <210         |

## PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420]    Tested: 1/10/2024

| PARAMETER                              | UOM         | LOR | BH1_0.2-0.3               | BH1_1.0-1.1               |
|----------------------------------------|-------------|-----|---------------------------|---------------------------|
|                                        |             |     | SOIL                      | SOIL                      |
|                                        |             |     | -                         | -                         |
|                                        |             |     | 26/9/2024<br>SE271788.001 | 26/9/2024<br>SE271788.002 |
| 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 | <b>0.3</b>                | <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 | <b>0.6</b>                | <0.1                      |
| Anthracene                             | mg/kg       | 0.1 | <b>0.3</b>                | <0.1                      |
| Fluoranthene                           | mg/kg       | 0.1 | <b>2.2</b>                | <0.1                      |
| Pyrene                                 | mg/kg       | 0.1 | <b>2.2</b>                | <0.1                      |
| Benzo(a)anthracene                     | mg/kg       | 0.1 | <b>0.9</b>                | <0.1                      |
| Chrysene                               | mg/kg       | 0.1 | <b>1.1</b>                | <0.1                      |
| Benzo(b&j)fluoranthene                 | mg/kg       | 0.1 | <b>1.5</b>                | <0.1                      |
| Benzo(k)fluoranthene                   | mg/kg       | 0.1 | <b>0.7</b>                | <0.1                      |
| Benzo(a)pyrene                         | mg/kg       | 0.1 | <b>1.3</b>                | <0.1                      |
| Indeno(1,2,3-cd)pyrene                 | mg/kg       | 0.1 | <b>0.9</b>                | <0.1                      |
| Dibenzo(ah)anthracene                  | mg/kg       | 0.1 | <b>0.2</b>                | <0.1                      |
| Benzo(ghi)perylene                     | mg/kg       | 0.1 | <b>0.9</b>                | <0.1                      |
| Carcinogenic PAHs, BaP TEQ <LOR=0*     | TEQ (mg/kg) | 0.2 | <b>1.9</b>                | <0.2                      |
| Carcinogenic PAHs, BaP TEQ <LOR=LOR*   | TEQ (mg/kg) | 0.3 | <b>1.9</b>                | <0.3                      |
| Carcinogenic PAHs, BaP TEQ <LOR=LOR/2* | TEQ (mg/kg) | 0.2 | <b>1.9</b>                | <0.2                      |
| Total PAH (18)                         | mg/kg       | 0.8 | <b>13</b>                 | <0.8                      |
| Total PAH (NEPM/WHO 16)                | mg/kg       | 0.8 | <b>13</b>                 | <0.8                      |

OC Pesticides in Soil [AN420]    Tested: 1/10/2024

|                         |       |     | BH1_0.2-0.3  |
|-------------------------|-------|-----|--------------|
|                         |       |     | SOIL         |
|                         |       |     | -            |
|                         |       |     | 26/9/2024    |
|                         |       |     | SE271788.001 |
| PARAMETER               | UOM   | LOR |              |
| Hexachlorobenzene (HCB) | mg/kg | 0.1 | <0.1         |
| Alpha BHC               | mg/kg | 0.1 | <0.1         |
| Lindane (gamma BHC)     | 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         |
| o,p'-DDE*               | mg/kg | 0.1 | <0.1         |
| Alpha Endosulfan        | mg/kg | 0.2 | <0.2         |
| Gamma Chlordane         | mg/kg | 0.1 | <0.1         |
| Alpha Chlordane         | mg/kg | 0.1 | <0.1         |
| trans-Nonachlor         | mg/kg | 0.1 | <0.1         |
| p,p'-DDE                | mg/kg | 0.1 | <0.1         |
| Dieldrin                | mg/kg | 0.2 | <0.2         |
| Endrin                  | mg/kg | 0.2 | <0.2         |
| o,p'-DDD*               | mg/kg | 0.1 | <0.1         |
| o,p'-DDT*               | mg/kg | 0.1 | <0.1         |
| Beta Endosulfan         | mg/kg | 0.2 | <0.2         |
| p,p'-DDD                | mg/kg | 0.1 | <0.1         |
| p,p'-DDT                | mg/kg | 0.1 | <0.1         |
| Endosulfan sulphate     | mg/kg | 0.1 | <0.1         |
| Endrin aldehyde         | mg/kg | 0.1 | <0.1         |
| Methoxychlor            | mg/kg | 0.1 | <0.1         |
| Endrin ketone           | mg/kg | 0.1 | <0.1         |
| Isodrin                 | mg/kg | 0.1 | <0.1         |
| Mirex                   | mg/kg | 0.1 | <0.1         |
| Total CLP OC Pesticides | mg/kg | 1   | <1           |
| Total OC VIC EPA        | mg/kg | 1   | <1           |



ANALYTICAL RESULTS

SE271788 R0

OP Pesticides in Soil [AN420]    Tested: 1/10/2024

|                                   |       |     | BH1_0.2-0.3  |
|-----------------------------------|-------|-----|--------------|
|                                   |       |     | SOIL         |
|                                   |       |     | -            |
|                                   |       |     | 26/9/2024    |
| PARAMETER                         | UOM   | LOR | SE271788.001 |
| 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         |
| Total OP Pesticides*              | mg/kg | 1.7 | <1.7         |



ANALYTICAL RESULTS

SE271788 R0

PCBs in Soil [AN420]    Tested: 1/10/2024

|                        |       |     | BH1_0.2-0.3  |
|------------------------|-------|-----|--------------|
|                        |       |     | SOIL         |
|                        |       |     | -            |
|                        |       |     | 26/9/2024    |
| PARAMETER              | UOM   | LOR | SE271788.001 |
| 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           |

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320]    Tested: 1/10/2024

| PARAMETER    | UOM   | LOR | BH1_0.2-0.3               | BH1_1.0-1.1               |
|--------------|-------|-----|---------------------------|---------------------------|
|              |       |     | SOIL                      | SOIL                      |
|              |       |     | -                         | -                         |
|              |       |     | 26/9/2024<br>SE271788.001 | 26/9/2024<br>SE271788.002 |
| Arsenic, As  | mg/kg | 1   | <b>3</b>                  | <b>4</b>                  |
| Cadmium, Cd  | mg/kg | 0.3 | <0.3                      | <0.3                      |
| Chromium, Cr | mg/kg | 0.5 | <b>5.9</b>                | <b>3.0</b>                |
| Copper, Cu   | mg/kg | 0.5 | <b>30</b>                 | <b>0.6</b>                |
| Lead, Pb     | mg/kg | 1   | <b>280</b>                | <b>2</b>                  |
| Nickel, Ni   | mg/kg | 0.5 | <b>7.0</b>                | <0.5                      |
| Zinc, Zn     | mg/kg | 2   | <b>150</b>                | <b>2.2</b>                |



ANALYTICAL RESULTS

SE271788 R0

Mercury in Soil [AN312]    Tested: 1/10/2024

|           |       |      | BH1_0.2-0.3  | BH1_1.0-1.1  |
|-----------|-------|------|--------------|--------------|
|           |       |      | SOIL         | SOIL         |
|           |       |      | -            | -            |
|           |       |      | 26/9/2024    | 26/9/2024    |
| PARAMETER | UOM   | LOR  | SE271788.001 | SE271788.002 |
| Mercury   | mg/kg | 0.05 | 0.08         | <0.05        |



ANALYTICAL RESULTS

SE271788 R0

Moisture Content [AN002]    Tested: 1/10/2024

|            |      |     | BH1_0.2-0.3  | BH1_1.0-1.1  | TB1          |
|------------|------|-----|--------------|--------------|--------------|
|            |      |     | SOIL         | SOIL         | SOIL         |
|            |      |     | -            | -            | -            |
|            |      |     | 26/9/2024    | 26/9/2024    | 26/9/2024    |
|            |      |     | SE271788.001 | SE271788.002 | SE271788.003 |
| PARAMETER  | UOM  | LOR |              |              |              |
| % Moisture | %w/w | 1   | 9.1          | 4.5          | <1.0         |



ANALYTICAL RESULTS

SE271788 R0

Fibre Identification in soil [AS4964/AN602]    Tested: 2/10/2024

|                   |         |      | BH1_0.2-0.3      |
|-------------------|---------|------|------------------|
|                   |         |      | SOIL             |
|                   |         |      | -                |
|                   |         |      | 26/9/2024        |
|                   |         |      | SE271788.001     |
| PARAMETER         | UOM     | LOR  |                  |
| Date Analysed*    | No unit | -    | 03/10/2024 00:00 |
| Asbestos Detected | No unit | -    | No               |
| Estimated Fibres* | %w/w    | 0.01 | <0.01            |

## METHOD

## METHODOLOGY SUMMARY

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AN002        | The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.                                                                                                                                                                                                                                                                                                                                                |
| AN040/AN320  | A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.                                                                                                                                                                                                                                                                                                                                                                           |
| AN040        | A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by AAS or ICP as per USEPA Method 200.8.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| AN312        | Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500                                                                                                                                                                                                     |
| AN403        | Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.   |
| AN403        | Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.                                                                                                                                                                                      |
| AN403        | The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.                                                                                                                                                                   |
| AN420        | (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).<br>Total PAH calculated from individual analyte detections at or above the limit of reporting.                                                                                                                                                                                                                                                                                                            |
| 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/AS4964 | 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/AS4964 | Fibres/material that cannot be unequivocally 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 | 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/reporting limit (RL) 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/AS4964

The sample can be reported "no asbestos found at the reporting limit (RL) 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.                   |
| **  | Indicative data, theoretical holding time exceeded.                | NVL | Not validated.                    | LOR | Limit of Reporting.                |
|     |                                                                    | IS  | Insufficient sample for analysis. | ↑↓  | Raised/lowered Limit of Reporting. |
| *** | Indicates that both * and ** apply.                                | LNR | Sample listed, but not received.  |     |                                    |

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

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

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

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

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

Note that in terms of units of radioactivity:

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

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

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

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or



## STATEMENT OF QA/QC PERFORMANCE

SE271788 R0

### CLIENT DETAILS

Contact **Matthew Chee**  
Client **EI AUSTRALIA**  
Address **SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009**

Telephone **61 2 95160722**  
Facsimile **(Not specified)**  
Email **matthew.chee@eiaustralia.com.au**

Project **E26499.E01 101 North Steyne, Manly**  
Order Number **E26499.E01**  
Samples **4**

### LABORATORY DETAILS

Manager **Shane McDermott**  
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 **SE271788 R0**  
Date Received **27 Sep 2024**  
Date Reported **04 Oct 2024**

### COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

|              |                                                                     |        |
|--------------|---------------------------------------------------------------------|--------|
| Duplicate    | Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES | 1 item |
| Matrix Spike | PAH (Polynuclear Aromatic Hydrocarbons) in Soil                     | 1 item |
|              | Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES | 1 item |

### SAMPLE SUMMARY

|                                        |            |                                 |          |
|----------------------------------------|------------|---------------------------------|----------|
| Sample counts by matrix                | 4 Soil     | Type of documentation received  | COC      |
| Date documentation received            | 27/9/2024  | Samples received in good order  | Yes      |
| Samples received without headspace     | Yes        | Sample temperature upon receipt | 13.6°C   |
| Sample container provider              | SGS        | Turnaround time requested       | Standard |
| Samples received in correct containers | Yes        | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes        |                                 |          |



## HOLDING TIME SUMMARY

SE271788 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

### Fibre Identification in soil

Method: ME-(AU)-[ENV]AS4964/AN602

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325581 | 26 Sep 2024 | 27 Sep 2024 | 26 Sep 2025    | 02 Oct 2024 | 26 Sep 2025  | 04 Oct 2024 |

### Mercury in Soil

Method: ME-(AU)-[ENV]AN312

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325522 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 01 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325522 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 01 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |

### Moisture Content

Method: ME-(AU)-[ENV]AN002

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325507 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 06 Oct 2024  | 03 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325507 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 06 Oct 2024  | 03 Oct 2024 |
| TB1         | SE271788.003 | LB325507 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 06 Oct 2024  | 03 Oct 2024 |

### OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 03 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 03 Oct 2024 |

### OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 04 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 04 Oct 2024 |

### 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    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 04 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 04 Oct 2024 |

### PCBs in Soil

Method: ME-(AU)-[ENV]AN420

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 03 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 03 Oct 2024 |

### Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN302

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325512 | 26 Sep 2024 | 27 Sep 2024 | 25 Mar 2025    | 01 Oct 2024 | 25 Mar 2025  | 03 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325512 | 26 Sep 2024 | 27 Sep 2024 | 25 Mar 2025    | 01 Oct 2024 | 25 Mar 2025  | 03 Oct 2024 |

### 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    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 03 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325500 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Nov 2024  | 03 Oct 2024 |

### VOC's in Soil

Method: ME-(AU)-[ENV]AN433

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325502 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Oct 2024  | 03 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325502 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Oct 2024  | 03 Oct 2024 |
| TB1         | SE271788.003 | LB325502 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Oct 2024  | 03 Oct 2024 |
| TS1         | SE271788.004 | LB325502 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Oct 2024  | 03 Oct 2024 |

### Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.2-0.3 | SE271788.001 | LB325502 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Oct 2024  | 03 Oct 2024 |
| BH1_1.0-1.1 | SE271788.002 | LB325502 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Oct 2024  | 03 Oct 2024 |
| TB1         | SE271788.003 | LB325502 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Oct 2024  | 03 Oct 2024 |
| TS1         | SE271788.004 | LB325502 | 26 Sep 2024 | 27 Sep 2024 | 10 Oct 2024    | 01 Oct 2024 | 10 Oct 2024  | 03 Oct 2024 |

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 identifier 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) | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 90         |

**OP Pesticides in Soil**

Method: ME-(AU)-[ENV]AN420

| Parameter                    | Sample Name | Sample Number | Units | Criteria  | Recovery % |
|------------------------------|-------------|---------------|-------|-----------|------------|
| 2-fluorobiphenyl (Surrogate) | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 103        |
| d14-p-terphenyl (Surrogate)  | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 100        |

**PAH (Polynuclear Aromatic Hydrocarbons) in Soil**

Method: ME-(AU)-[ENV]AN420

| Parameter                    | Sample Name | Sample Number | Units | Criteria  | Recovery % |
|------------------------------|-------------|---------------|-------|-----------|------------|
| 2-fluorobiphenyl (Surrogate) | BH1_0.2-0.3 | SE271788.001  | %     | 70 - 130% | 103        |
|                              | BH1_1.0-1.1 | SE271788.002  | %     | 70 - 130% | 111        |
| d14-p-terphenyl (Surrogate)  | BH1_0.2-0.3 | SE271788.001  | %     | 70 - 130% | 100        |
|                              | BH1_1.0-1.1 | SE271788.002  | %     | 70 - 130% | 111        |
| d5-nitrobenzene (Surrogate)  | BH1_0.2-0.3 | SE271788.001  | %     | 70 - 130% | 86         |
|                              | BH1_1.0-1.1 | SE271788.002  | %     | 70 - 130% | 94         |

**PCBs in Soil**

Method: ME-(AU)-[ENV]AN420

| Parameter        | Sample Name | Sample Number | Units | Criteria  | Recovery % |
|------------------|-------------|---------------|-------|-----------|------------|
| TCMX (Surrogate) | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 91         |

**VOC's in Soil**

Method: ME-(AU)-[ENV]AN433

| Parameter                         | Sample Name | Sample Number | Units | Criteria  | Recovery % |
|-----------------------------------|-------------|---------------|-------|-----------|------------|
| Bromofluorobenzene (Surrogate)    | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 93         |
|                                   | BH1_1.0-1.1 | SE271788.002  | %     | 60 - 130% | 92         |
|                                   | TB1         | SE271788.003  | %     | 60 - 130% | 94         |
|                                   | TS1         | SE271788.004  | %     | 60 - 130% | 98         |
| d4-1,2-dichloroethane (Surrogate) | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 102        |
|                                   | BH1_1.0-1.1 | SE271788.002  | %     | 60 - 130% | 99         |
|                                   | TB1         | SE271788.003  | %     | 60 - 130% | 107        |
|                                   | TS1         | SE271788.004  | %     | 60 - 130% | 104        |
| d8-toluene (Surrogate)            | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 101        |
|                                   | BH1_1.0-1.1 | SE271788.002  | %     | 60 - 130% | 98         |
|                                   | TB1         | SE271788.003  | %     | 60 - 130% | 105        |
|                                   | TS1         | SE271788.004  | %     | 60 - 130% | 104        |

**Volatile Petroleum Hydrocarbons in Soil**

Method: ME-(AU)-[ENV]AN433

| Parameter                         | Sample Name | Sample Number | Units | Criteria  | Recovery % |
|-----------------------------------|-------------|---------------|-------|-----------|------------|
| Bromofluorobenzene (Surrogate)    | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 93         |
|                                   | BH1_1.0-1.1 | SE271788.002  | %     | 60 - 130% | 92         |
| d4-1,2-dichloroethane (Surrogate) | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 102        |
|                                   | BH1_1.0-1.1 | SE271788.002  | %     | 60 - 130% | 99         |
| d8-toluene (Surrogate)            | BH1_0.2-0.3 | SE271788.001  | %     | 60 - 130% | 101        |
|                                   | BH1_1.0-1.1 | SE271788.002  | %     | 60 - 130% | 98         |

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)-ENVJAN312

| Sample Number | Parameter | Units | LOR  | Result |
|---------------|-----------|-------|------|--------|
| LB325522.001  | Mercury   | mg/kg | 0.05 | <0.05  |

**OC Pesticides in Soil**

Method: ME-(AU)-ENVJAN420

| Sample Number | Parameter                               | Units | LOR | Result |
|---------------|-----------------------------------------|-------|-----|--------|
| LB325500.001  | Alpha BHC                               | mg/kg | 0.1 | <0.1   |
|               | Hexachlorobenzene (HCB)                 | mg/kg | 0.1 | <0.1   |
|               | Beta BHC                                | mg/kg | 0.1 | <0.1   |
|               | Lindane (gamma BHC)                     | mg/kg | 0.1 | <0.1   |
|               | Delta BHC                               | mg/kg | 0.1 | <0.1   |
|               | Heptachlor                              | mg/kg | 0.1 | <0.1   |
|               | Aldrin                                  | mg/kg | 0.1 | <0.1   |
|               | Isodrin                                 | mg/kg | 0.1 | <0.1   |
|               | Heptachlor epoxide                      | mg/kg | 0.1 | <0.1   |
|               | Gamma Chlordane                         | mg/kg | 0.1 | <0.1   |
|               | Alpha Chlordane                         | mg/kg | 0.1 | <0.1   |
|               | Alpha Endosulfan                        | mg/kg | 0.2 | <0.2   |
|               | 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   |
|               | Endrin aldehyde                         | mg/kg | 0.1 | <0.1   |
|               | Endosulfan sulphate                     | mg/kg | 0.1 | <0.1   |
|               | p,p'-DDT                                | mg/kg | 0.1 | <0.1   |
| Surrogates    | Endrin ketone                           | mg/kg | 0.1 | <0.1   |
|               | Methoxychlor                            | mg/kg | 0.1 | <0.1   |
| Surrogates    | Mirex                                   | mg/kg | 0.1 | <0.1   |
|               | Tetrachloro-m-xylene (TCMX) (Surrogate) | %     | -   | 76     |

**OP Pesticides in Soil**

Method: ME-(AU)-ENVJAN420

| Sample Number | Parameter                         | Units | LOR | Result |
|---------------|-----------------------------------|-------|-----|--------|
| LB325500.001  | Azinphos-methyl (Guthion)         | mg/kg | 0.2 | <0.2   |
|               | Bromophos Ethyl                   | mg/kg | 0.2 | <0.2   |
|               | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | <0.2   |
|               | Diazinon (Dimpylate)              | mg/kg | 0.5 | <0.5   |
|               | Dichlorvos                        | mg/kg | 0.5 | <0.5   |
|               | Dimethoate                        | mg/kg | 0.5 | <0.5   |
|               | Ethion                            | mg/kg | 0.2 | <0.2   |
|               | Fenitrothion                      | mg/kg | 0.2 | <0.2   |
|               | Malathion                         | mg/kg | 0.2 | <0.2   |
|               | Methidathion                      | mg/kg | 0.5 | <0.5   |
|               | Parathion-ethyl (Parathion)       | mg/kg | 0.2 | <0.2   |
| Surrogates    | 2-fluorobiphenyl (Surrogate)      | %     | -   | 106    |
|               | d14-p-terphenyl (Surrogate)       | %     | -   | 109    |

**PAH (Polynuclear Aromatic Hydrocarbons) in Soil**

Method: ME-(AU)-ENVJAN420

| Sample Number | Parameter           | Units | LOR | Result |
|---------------|---------------------|-------|-----|--------|
| LB325500.001  | Naphthalene         | mg/kg | 0.1 | <0.1   |
|               | 2-methylnaphthalene | mg/kg | 0.1 | <0.1   |
|               | 1-methylnaphthalene | mg/kg | 0.1 | <0.1   |
|               | Acenaphthylene      | mg/kg | 0.1 | <0.1   |
|               | Acenaphthene        | mg/kg | 0.1 | <0.1   |
|               | Fluorene            | mg/kg | 0.1 | <0.1   |
|               | Phenanthrene        | mg/kg | 0.1 | <0.1   |
|               | Anthracene          | mg/kg | 0.1 | <0.1   |
|               | Fluoranthene        | mg/kg | 0.1 | <0.1   |
|               | Pyrene              | mg/kg | 0.1 | <0.1   |
|               | Benzo(a)anthracene  | mg/kg | 0.1 | <0.1   |
|               | Chrysene            | mg/kg | 0.1 | <0.1   |
|               | Benzo(a)pyrene      | mg/kg | 0.1 | <0.1   |
|               |                     |       |     |        |

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

**PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)**

Method: ME-(AU)-[ENV]AN420

| Sample Number | Parameter                    | Units | LOR | Result |
|---------------|------------------------------|-------|-----|--------|
| LB325500.001  | Indeno(1,2,3-cd)pyrene       | mg/kg | 0.1 | <0.1   |
|               | Dibenzo(ah)anthracene        | mg/kg | 0.1 | <0.1   |
|               | Benzo(ghi)perylene           | mg/kg | 0.1 | <0.1   |
|               | Total PAH (18)               | mg/kg | 0.8 | <0.8   |
|               | Surrogates                   |       |     |        |
|               | d5-nitrobenzene (Surrogate)  | %     | -   | 92     |
|               | 2-fluorobiphenyl (Surrogate) | %     | -   | 106    |
|               | d14-p-terphenyl (Surrogate)  | %     | -   | 109    |

**PCBs in Soil**

Method: ME-(AU)-[ENV]AN420

| Sample Number | Parameter              | Units | LOR | Result |
|---------------|------------------------|-------|-----|--------|
| LB325500.001  | 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    | TCMX (Surrogate)       | %     | -   | 77     |

**Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES**

Method: ME-(AU)-[ENV]AN040/AN320

| Sample Number | Parameter    | Units | LOR | Result |
|---------------|--------------|-------|-----|--------|
| LB325512.001  | Arsenic, As  | mg/kg | 1   | <1     |
|               | Cadmium, Cd  | mg/kg | 0.3 | <0.3   |
|               | Chromium, Cr | mg/kg | 0.5 | <0.5   |
|               | Copper, Cu   | mg/kg | 0.5 | <0.5   |
|               | Nickel, Ni   | mg/kg | 0.5 | <0.5   |
|               | Lead, Pb     | mg/kg | 1   | <1     |
|               | Zinc, Zn     | mg/kg | 2   | <2.0   |

**TRH (Total Recoverable Hydrocarbons) in Soil**

Method: ME-(AU)-[ENV]AN403

| Sample Number | Parameter         | Units | LOR | Result |
|---------------|-------------------|-------|-----|--------|
| LB325500.001  | 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 |
|---------------|----------------------------------|-----------------------------------|-------|-----|--------|
| LB325502.001  | Monocyclic Aromatic Hydrocarbons | Benzene                           | mg/kg | 0.1 | <0.1   |
|               |                                  | Toluene                           | mg/kg | 0.1 | <0.1   |
|               |                                  | Ethylbenzene                      | mg/kg | 0.1 | <0.1   |
|               |                                  | m/p-xylene                        | mg/kg | 0.2 | <0.2   |
|               |                                  | o-xylene                          | mg/kg | 0.1 | <0.1   |
|               | Polycyclic VOCs                  | Naphthalene (VOC)*                | mg/kg | 0.1 | <0.1   |
|               | Surrogates                       | d4-1,2-dichloroethane (Surrogate) | %     | -   | 104    |
|               |                                  | d8-toluene (Surrogate)            | %     | -   | 106    |
|               |                                  | Bromofluorobenzene (Surrogate)    | %     | -   | 96     |
|               | Totals                           | Total BTEX*                       | mg/kg | 0.6 | <0.6   |

**Volatile Petroleum Hydrocarbons in Soil**

Method: ME-(AU)-[ENV]AN433

| Sample Number | Parameter  | Units                             | LOR | Result |
|---------------|------------|-----------------------------------|-----|--------|
| LB325502.001  | TRH C6-C9  | mg/kg                             | 20  | <20    |
|               | Surrogates | d4-1,2-dichloroethane (Surrogate) | %   | -      |

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

#### Mercury in Soil

Method: ME-(AU)-[ENV]AN312

| Original     | Duplicate    | Parameter | Units | LOR  | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|-----------|-------|------|----------|-----------|------------|-------|
| SE271788.002 | LB325522.022 | Mercury   | mg/kg | 0.05 | <0.05    | <0.05     | 200        | 0     |
| SE271809.010 | LB325522.014 | Mercury   | mg/kg | 0.05 | <0.05    | <0.05     | 196        | 0     |

#### Moisture Content

Method: ME-(AU)-[ENV]AN002

| Original     | Duplicate    | Parameter  | Units | LOR | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|------------|-------|-----|----------|-----------|------------|-------|
| SE271788.002 | LB325507.020 | % Moisture | %w/w  | 1   | 4.5      | 4.7       | 52         | 4     |
| SE271809.010 | LB325507.011 | % Moisture | %w/w  | 1   | 21.3     | 21.6      | 35         | 2     |

#### OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

| Original     | Duplicate                               | Parameter               | Units | LOR | Original | Duplicate | Criteria % | RPD % |
|--------------|-----------------------------------------|-------------------------|-------|-----|----------|-----------|------------|-------|
| SE271854.001 | LB325500.024                            | Alpha BHC               | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Hexachlorobenzene (HCB) | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Beta BHC                | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Lindane (gamma BHC)     | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Delta BHC               | 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     |
|              |                                         | Isodrin                 | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Heptachlor epoxide      | mg/kg | 0.1 | <0.1     | <0.1      | 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     |
|              |                                         | Alpha Endosulfan        | mg/kg | 0.2 | <0.2     | <0.2      | 200        | 0     |
|              |                                         | o,p'-DDE*               | 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     |
|              |                                         | Beta Endosulfan         | mg/kg | 0.2 | <0.2     | <0.2      | 200        | 0     |
|              |                                         | o,p'-DDD*               | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | p,p'-DDD                | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Endrin aldehyde         | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Endosulfan sulphate     | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | o,p'-DDT*               | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | p,p'-DDT                | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Endrin ketone           | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Methoxychlor            | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Mirex                   | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | trans-Nonachlor         | mg/kg | 0.1 | <0.1     | <0.1      | 200        | 0     |
|              |                                         | Total CLP OC Pesticides | mg/kg | 1   | <1       | <1        | 200        | 0     |
|              |                                         | Total OC VIC EPA        | mg/kg | 1   | <1       | <1        | 200        | 0     |
| Surrogates   | Tetrachloro-m-xylene (TCMX) (Surrogate) |                         | mg/kg | -   | 0.13     | 0.12      | 30         | 8     |

#### OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

| Original     | Duplicate    | Parameter                         | Units | LOR | Original     | Duplicate    | Criteria % | RPD % |
|--------------|--------------|-----------------------------------|-------|-----|--------------|--------------|------------|-------|
| SE271854.001 | LB325500.024 | Azinphos-methyl (Guthion)         | mg/kg | 0.2 | 0            | 0            | 200        | 0     |
|              |              | Bromophos Ethyl                   | mg/kg | 0.2 | 0            | 0            | 200        | 0     |
|              |              | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | 0.0017559684 | 0.0012118828 | 200        | 0     |
|              |              | Diazinon (Dimpylate)              | mg/kg | 0.5 | 0.0071965416 | 0.0073232355 | 200        | 0     |
|              |              | Dichlorvos                        | mg/kg | 0.5 | 0            | 0            | 200        | 0     |
|              |              | Dimethoate                        | mg/kg | 0.5 | 0.0003026457 | 0.0007083547 | 200        | 0     |
|              |              | Ethion                            | mg/kg | 0.2 | 0.0004116217 | 0.0003007753 | 200        | 0     |
|              |              | Fenitrothion                      | mg/kg | 0.2 | 0.0004019816 | 0.0014953302 | 200        | 0     |
|              |              | Malathion                         | mg/kg | 0.2 | 0.0068530501 | 0.0074299880 | 200        | 0     |
|              |              | Methidathion                      | mg/kg | 0.5 | 0.0051191754 | 0.0054854579 | 200        | 0     |
|              |              | Parathion-ethyl (Parathion)       | mg/kg | 0.2 | 0            | 0            | 200        | 0     |
|              |              | Total OP Pesticides*              | mg/kg | 1.7 | 0            | 0            | 200        | 0     |
|              | Surrogates   | 2-fluorobiphenyl (Surrogate)      | mg/kg | -   | 0.5093577831 | 0.5257540750 | 30         | 3     |
|              |              | d14-p-terphenyl (Surrogate)       | mg/kg | -   | 0.5299166243 | 0.5300360633 | 30         | 0     |

#### PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

| Original | Duplicate | Parameter | Units | LOR |
|----------|-----------|-----------|-------|-----|
|----------|-----------|-----------|-------|-----|

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

#### PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

| Original     | Duplicate    | Parameter                              | Units | LOR | Original     | Duplicate    | Criteria % | RPD % |
|--------------|--------------|----------------------------------------|-------|-----|--------------|--------------|------------|-------|
| SE271788.002 | LB325500.022 | 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         | 200        | 0     |
|              |              | Pyrene                                 | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Benzo(a)anthracene                     | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Chrysene                               | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Benzo(b&j)fluoranthene                 | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Benzo(k)fluoranthene                   | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Benzo(a)pyrene                         | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Indeno(1,2,3-cd)pyrene                 | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Dibenzo(ah)anthracene                  | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Benzo(ghi)perylene                     | mg/kg | 0.1 | <0.1         | <0.1         | 200        | 0     |
|              |              | Carcinogenic PAHs, BaP TEQ <LOR=0*     | mg/kg | 0.2 | <0.2         | <0.2         | 200        | 0     |
|              |              | Carcinogenic PAHs, BaP TEQ <LOR=LOR/2* | mg/kg | 0.2 | <0.2         | <0.2         | 175        | 0     |
|              |              | Carcinogenic PAHs, BaP TEQ <LOR=LOR*   | mg/kg | 0.3 | <0.3         | <0.3         | 134        | 0     |
|              |              | Total PAH (18)                         | mg/kg | 0.8 | <0.8         | <0.8         | 200        | 0     |
|              |              | Surrogates                             |       |     |              |              |            |       |
|              |              | d5-nitrobenzene (Surrogate)            | mg/kg | -   | 0.5          | 0.5          | 30         | 2     |
|              |              | 2-fluorobiphenyl (Surrogate)           | mg/kg | -   | 0.6          | 0.5          | 30         | 3     |
|              |              | d14-p-terphenyl (Surrogate)            | mg/kg | -   | 0.6          | 0.5          | 30         | 4     |
| SE271854.001 | LB325500.024 | Naphthalene                            | mg/kg | 0.1 | 0.0007968680 | 0.0006047495 | 200        | 0     |
|              |              | 2-methylnaphthalene                    | mg/kg | 0.1 | 0.0002319344 | 0            | 200        | 0     |
|              |              | 1-methylnaphthalene                    | mg/kg | 0.1 | 0.0002258171 | 0.0002215985 | 200        | 0     |
|              |              | Acenaphthylene                         | mg/kg | 0.1 | 0            | 0.0003047375 | 200        | 0     |
|              |              | Acenaphthene                           | mg/kg | 0.1 | 0.0003839345 | 0.0002534819 | 200        | 0     |
|              |              | Fluorene                               | mg/kg | 0.1 | 0.0002214668 | 0.0002344274 | 200        | 0     |
|              |              | Phenanthrene                           | mg/kg | 0.1 | 0.0036818550 | 0.0035529841 | 200        | 0     |
|              |              | Anthracene                             | mg/kg | 0.1 | 0.0039635499 | 0.0036412061 | 200        | 0     |
|              |              | Fluoranthene                           | mg/kg | 0.1 | 0.0014994914 | 0.0016708521 | 200        | 0     |
|              |              | Pyrene                                 | mg/kg | 0.1 | 0.0017399475 | 0.0019715473 | 200        | 0     |
|              |              | Benzo(a)anthracene                     | mg/kg | 0.1 | 0.0045188457 | 0.0045659962 | 200        | 0     |
|              |              | Chrysene                               | mg/kg | 0.1 | 0.0013308313 | 0.0013148865 | 200        | 0     |
|              |              | Benzo(b&j)fluoranthene                 | mg/kg | 0.1 | 0.0023183877 | 0.0012950849 | 200        | 0     |
|              |              | Benzo(k)fluoranthene                   | mg/kg | 0.1 | 0.0025852195 | 0.0009287092 | 200        | 0     |
|              |              | Benzo(a)pyrene                         | mg/kg | 0.1 | 0.0011827856 | 0.0012309677 | 200        | 0     |
|              |              | Indeno(1,2,3-cd)pyrene                 | mg/kg | 0.1 | 0.0010494118 | 0.0009172162 | 200        | 0     |
|              |              | Dibenzo(ah)anthracene                  | mg/kg | 0.1 | 0            | 0            | 200        | 0     |
|              |              | Benzo(ghi)perylene                     | mg/kg | 0.1 | 0.0011256870 | 0.0010061095 | 200        | 0     |
|              |              | Carcinogenic PAHs, BaP TEQ <LOR=0*     | mg/kg | 0.2 | 0            | 0            | 200        | 0     |
|              |              | Carcinogenic PAHs, BaP TEQ <LOR=LOR/2* | mg/kg | 0.2 | 0.121        | 0.121        | 175        | 0     |
|              |              | Carcinogenic PAHs, BaP TEQ <LOR=LOR*   | mg/kg | 0.3 | 0.242        | 0.242        | 134        | 0     |
|              |              | Total PAH (18)                         | mg/kg | 0.8 | 0            | 0            | 200        | 0     |
|              |              | Surrogates                             |       |     |              |              |            |       |
|              |              | d5-nitrobenzene (Surrogate)            | mg/kg | -   | 0.4326631566 | 0.4325659158 | 30         | 0     |
|              |              | 2-fluorobiphenyl (Surrogate)           | mg/kg | -   | 0.5093577831 | 0.5257540750 | 30         | 3     |
|              |              | d14-p-terphenyl (Surrogate)            | mg/kg | -   | 0.5299166243 | 0.5300360633 | 30         | 0     |

#### PCBs in Soil

Method: ME-(AU)-ENVJAN420

| Original     | Duplicate    | Parameter     | Units | LOR | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|---------------|-------|-----|----------|-----------|------------|-------|
| SE271854.001 | LB325500.025 | 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     |

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

#### PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

| Original     | Duplicate    | Parameter              | Units | LOR | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|------------------------|-------|-----|----------|-----------|------------|-------|
| SE271854.001 | LB325500.025 | Arochlor 1268          | mg/kg | 0.2 | <0.2     | <0.2      | 200        | 0     |
|              |              | Total PCBs (Arochlors) | mg/kg | 1   | <1       | <1        | 200        | 0     |
|              | Surrogates   | TCMX (Surrogate)       | mg/kg | -   | 0        | 0         | 30         | 8     |

#### 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 % |
|--------------|--------------|--------------|-------|-----|----------|-----------|------------|-------|
| SE271788.002 | LB325512.022 | Arsenic, As  | mg/kg | 1   | 4        | 4         | 54         | 1     |
|              |              | Cadmium, Cd  | mg/kg | 0.3 | <0.3     | <0.3      | 200        | 0     |
|              |              | Chromium, Cr | mg/kg | 0.5 | 3.0      | 3.2       | 46         | 3     |
|              |              | Copper, Cu   | mg/kg | 0.5 | 0.6      | 0.8       | 102        | 29    |
|              |              | Nickel, Ni   | mg/kg | 0.5 | <0.5     | 0.5       | 131        | 4     |
|              |              | Lead, Pb     | mg/kg | 1   | 2        | 3         | 71         | 35    |
|              |              | Zinc, Zn     | mg/kg | 2   | 2.2      | 2.9       | 108        | 25    |
| SE271809.010 | LB325512.014 | Arsenic, As  | mg/kg | 1   | 8        | 7         | 43         | 16    |
|              |              | Cadmium, Cd  | mg/kg | 0.3 | <0.3     | <0.3      | 200        | 0     |
|              |              | Chromium, Cr | mg/kg | 0.5 | 8.7      | 10        | 35         | 15    |
|              |              | Copper, Cu   | mg/kg | 0.5 | 18       | 20        | 33         | 8     |
|              |              | Nickel, Ni   | mg/kg | 0.5 | 7.6      | 11        | 35         | 41 @  |
|              |              | Lead, Pb     | mg/kg | 1   | 14       | 17        | 36         | 19    |
|              |              | Zinc, Zn     | mg/kg | 2   | 34       | 44        | 35         | 25    |

#### TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

| Original     | Duplicate    | Parameter                       | Units | LOR | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|---------------------------------|-------|-----|----------|-----------|------------|-------|
| SE271788.002 | LB325500.022 | TRH C10-C14                     | mg/kg | 20  | <20      | <20       | 200        | 0     |
|              |              | TRH C15-C28                     | mg/kg | 45  | <45      | <45       | 200        | 0     |
|              |              | TRH C29-C36                     | mg/kg | 45  | <45      | <45       | 200        | 0     |
|              |              | TRH C37-C40                     | mg/kg | 100 | <100     | <100      | 200        | 0     |
|              |              | TRH C10-C36 Total               | mg/kg | 110 | <110     | <110      | 200        | 0     |
|              |              | TRH >C10-C40 Total (F bands)    | mg/kg | 210 | <210     | <210      | 200        | 0     |
|              | TRH F Bands  | TRH >C10-C16                    | mg/kg | 25  | <25      | <25       | 200        | 0     |
|              |              | TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25  | <25      | <25       | 200        | 0     |
|              |              | TRH >C16-C34 (F3)               | mg/kg | 90  | <90      | <90       | 200        | 0     |
|              |              | TRH >C34-C40 (F4)               | mg/kg | 120 | <120     | <120      | 200        | 0     |
| SE271854.001 | LB325500.024 | TRH C10-C14                     | mg/kg | 20  | <20      | <20       | 200        | 0     |
|              |              | TRH C15-C28                     | mg/kg | 45  | <45      | <45       | 200        | 0     |
|              |              | TRH C29-C36                     | mg/kg | 45  | <45      | <45       | 200        | 0     |
|              |              | TRH C37-C40                     | mg/kg | 100 | <100     | <100      | 200        | 0     |
|              |              | TRH C10-C36 Total               | mg/kg | 110 | <110     | <110      | 200        | 0     |
|              |              | TRH >C10-C40 Total (F bands)    | mg/kg | 210 | <210     | <210      | 200        | 0     |
|              | TRH F Bands  | TRH >C10-C16                    | mg/kg | 25  | <25      | <25       | 200        | 0     |
|              |              | TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25  | <25      | <25       | 200        | 0     |
|              |              | TRH >C16-C34 (F3)               | mg/kg | 90  | <90      | <90       | 200        | 0     |
|              |              | TRH >C34-C40 (F4)               | mg/kg | 120 | <120     | <120      | 200        | 0     |

#### VOC's in Soil

Method: ME-(AU)-[ENV]AN433

| Original     | Duplicate    |            | Parameter                         | Units              | LOR   | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|------------|-----------------------------------|--------------------|-------|----------|-----------|------------|-------|
| SE271788.002 | LB325502.024 | 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 (VOC)* | mg/kg | 0.1      | <0.1      | <0.1       | 200   |
|              |              | Surrogates | d4-1,2-dichloroethane (Surrogate) | mg/kg              | -     | 9.9      | 10.6      | 50         | 7     |
|              |              |            | d8-toluene (Surrogate)            | mg/kg              | -     | 9.8      | 10.3      | 50         | 5     |
|              |              |            | Bromofluorobenzene (Surrogate)    | mg/kg              | -     | 9.2      | 9.4       | 50         | 2     |
|              |              | Totals     | Total BTEX*                       | mg/kg              | 0.6   | <0.6     | <0.6      | 200        | 0     |
|              |              |            | Total Xylenes*                    | mg/kg              | 0.3   | <0.3     | <0.3      | 200        | 0     |
| SE271809.010 | LB325502.014 | 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     |

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

#### VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

| Original     | Duplicate    | Parameter  | Units                             | LOR   | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|------------|-----------------------------------|-------|----------|-----------|------------|-------|
| SE271809.010 | LB325502.014 | Polycyclic | Naphthalene (VOC)*                | mg/kg | 0.1      | <0.1      | 200        | 0     |
|              |              | Surrogates | d4-1,2-dichloroethane (Surrogate) | mg/kg | -        | 10.1      | 10.6       | 5     |
|              |              |            | d8-toluene (Surrogate)            | mg/kg | -        | 9.9       | 10.4       | 5     |
|              |              |            | Bromofluorobenzene (Surrogate)    | mg/kg | -        | 9.3       | 9.7        | 4     |
|              |              | Totals     | Total BTEX*                       | mg/kg | 0.6      | <0.6      | 200        | 0     |
|              |              |            | Total Xylenes*                    | mg/kg | 0.3      | <0.3      | 200        | 0     |

#### Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

| Original     | Duplicate    | Parameter   | Units                             | LOR   | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|-------------|-----------------------------------|-------|----------|-----------|------------|-------|
| SE271788.002 | LB325502.024 | TRH C6-C10  | mg/kg                             | 25    | <25      | <25       | 200        | 0     |
|              |              |             | mg/kg                             | 20    | <20      | <20       | 200        | 0     |
|              |              | Surrogates  | d4-1,2-dichloroethane (Surrogate) | mg/kg | -        | 9.9       | 10.6       | 7     |
|              |              |             | d8-toluene (Surrogate)            | mg/kg | -        | 9.8       | 10.3       | 5     |
|              |              |             | Bromofluorobenzene (Surrogate)    | mg/kg | -        | 9.2       | 9.4        | 2     |
|              |              | VPH F Bands | Benzene (F0)                      | mg/kg | 0.1      | <0.1      | 200        | 0     |
|              |              |             | TRH C6-C10 minus BTEX (F1)        | mg/kg | 25       | <25       | 200        | 0     |
| SE271809.010 | LB325502.014 | TRH C6-C10  | mg/kg                             | 25    | <25      | <25       | 200        | 0     |
|              |              |             | mg/kg                             | 20    | <20      | <20       | 200        | 0     |
|              |              | Surrogates  | d4-1,2-dichloroethane (Surrogate) | mg/kg | -        | 10.1      | 10.6       | 5     |
|              |              |             | d8-toluene (Surrogate)            | mg/kg | -        | 9.9       | 10.4       | 5     |
|              |              |             | Bromofluorobenzene (Surrogate)    | mg/kg | -        | 9.3       | 9.7        | 4     |
|              |              | VPH F Bands | Benzene (F0)                      | mg/kg | 0.1      | <0.1      | 200        | 0     |
|              |              |             | TRH C6-C10 minus BTEX (F1)        | mg/kg | 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 % |
|---------------|-----------|-------|------|--------|----------|------------|------------|
| LB325522.002  | Mercury   | mg/kg | 0.05 | 0.20   | 0.2      | 80 - 120   | 102        |

## OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

| Sample Number | Parameter  | Units                                   | LOR   | Result | Expected | Criteria % | Recovery % |
|---------------|------------|-----------------------------------------|-------|--------|----------|------------|------------|
| LB325500.002  | Delta BHC  | mg/kg                                   | 0.1   | 0.2    | 0.2      | 60 - 140   | 84         |
|               | Heptachlor | mg/kg                                   | 0.1   | 0.2    | 0.2      | 60 - 140   | 85         |
|               | Aldrin     | mg/kg                                   | 0.1   | 0.2    | 0.2      | 60 - 140   | 86         |
|               | Dieldrin   | mg/kg                                   | 0.2   | <0.2   | 0.2      | 60 - 140   | 81         |
|               | Endrin     | mg/kg                                   | 0.2   | <0.2   | 0.2      | 60 - 140   | 94         |
|               | p,p'-DDT   | mg/kg                                   | 0.1   | 0.2    | 0.2      | 60 - 140   | 91         |
|               | Surrogates | Tetrachloro-m-xylene (TCMX) (Surrogate) | mg/kg | -      | 0.13     | 0.15       | 40 - 130   |

## OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

| Sample Number | Parameter                         | Units | LOR | Result | Expected | Criteria % | Recovery % |
|---------------|-----------------------------------|-------|-----|--------|----------|------------|------------|
| LB325500.002  | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | 1.7    | 2        | 60 - 140   | 86         |
|               | Diazinon (Dimpylate)              | mg/kg | 0.5 | 1.8    | 2        | 60 - 140   | 92         |
|               | Dichlorvos                        | mg/kg | 0.5 | 1.2    | 2        | 60 - 140   | 60         |
|               | Ethion                            | mg/kg | 0.2 | 1.4    | 2        | 60 - 140   | 69         |
| Surrogates    | 2-fluorobiphenyl (Surrogate)      | mg/kg | -   | 0.5    | 0.5      | 40 - 130   | 109        |
|               | d14-p-terphenyl (Surrogate)       | mg/kg | -   | 0.5    | 0.5      | 40 - 130   | 96         |

## PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

| Sample Number | Parameter                    | Units | LOR | Result | Expected | Criteria % | Recovery % |
|---------------|------------------------------|-------|-----|--------|----------|------------|------------|
| LB325500.002  | Naphthalene                  | mg/kg | 0.1 | 3.9    | 4        | 60 - 140   | 97         |
|               | Acenaphthylene               | mg/kg | 0.1 | 3.9    | 4        | 60 - 140   | 98         |
|               | Acenaphthene                 | mg/kg | 0.1 | 3.9    | 4        | 60 - 140   | 97         |
|               | Phenanthrene                 | mg/kg | 0.1 | 4.0    | 4        | 60 - 140   | 100        |
|               | Anthracene                   | mg/kg | 0.1 | 4.1    | 4        | 60 - 140   | 103        |
|               | Fluoranthene                 | mg/kg | 0.1 | 3.8    | 4        | 60 - 140   | 96         |
|               | Pyrene                       | mg/kg | 0.1 | 3.9    | 4        | 60 - 140   | 99         |
|               | Benzo(a)pyrene               | mg/kg | 0.1 | 4.7    | 4        | 60 - 140   | 117        |
| Surrogates    | d5-nitrobenzene (Surrogate)  | mg/kg | -   | 0.4    | 0.5      | 40 - 130   | 88         |
|               | 2-fluorobiphenyl (Surrogate) | mg/kg | -   | 0.5    | 0.5      | 40 - 130   | 109        |
|               | d14-p-terphenyl (Surrogate)  | ma/ka | -   | 0.5    | 0.5      | 40 - 130   | 96         |

## PCBs in Soil

Method: ME-(AU)-[ENV]AN420

| Sample Number | Parameter     | Units | LOR | Result | Expected | Criteria % | Recovery % |
|---------------|---------------|-------|-----|--------|----------|------------|------------|
| LB325500.002  | Arochlor 1260 | mg/kg | 0.2 | 0.4    | 0.4      | 60 - 140   | 103        |

## 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 % |
|---------------|--------------|-------|-----|--------|----------|------------|------------|
| LB325512.002  | Arsenic, As  | mg/kg | 1   | 320    | 318.22   | 80 - 120   | 101        |
|               | Cadmium, Cd  | mg/kg | 0.3 | 4.1    | 4.81     | 70 - 130   | 86         |
|               | Chromium, Cr | mg/kg | 0.5 | 36     | 38.31    | 80 - 120   | 94         |
|               | Copper, Cu   | mg/kg | 0.5 | 290    | 290      | 80 - 120   | 99         |
|               | Nickel, Ni   | mg/kg | 0.5 | 190    | 187      | 80 - 120   | 101        |
|               | Lead, Pb     | mg/kg | 1   | 85     | 89.9     | 80 - 120   | 94         |
|               | Zinc, Zn     | mg/kg | 2   | 270    | 273      | 80 - 120   | 99         |

## TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

| Sample Number | Parameter   | Units             | LOR   | Result | Expected | Criteria % | Recovery % |     |
|---------------|-------------|-------------------|-------|--------|----------|------------|------------|-----|
| LB325500.002  | TRH C10-C14 | mg/kg             | 20    | 52     | 40       | 60 - 140   | 130        |     |
|               | TRH C15-C28 | mg/kg             | 45    | 52     | 40       | 60 - 140   | 130        |     |
|               | TRH C29-C36 | mg/kg             | 45    | <45    | 40       | 60 - 140   | 89         |     |
|               | TRH F Bands | TRH >C10-C16      | mg/kg | 25     | 50       | 40         | 60 - 140   | 125 |
|               |             | TRH >C16-C34 (F3) | mg/kg | 90     | <90      | 40         | 60 - 140   | 118 |
|               |             | TRH >C34-C40 (F4) | mg/kg | 120    | <120     | 20         | 60 - 140   | 83  |
|               |             |                   |       |        |          |            |            |     |

## VOC's in Soil

Method: ME-(AU)-[ENV]AN433

| Sample Number | Parameter | Units | LOR |
|---------------|-----------|-------|-----|
|---------------|-----------|-------|-----|

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

## VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

| Sample Number | Parameter  | Units        | LOR   | Result | Expected | Criteria % | Recovery % |
|---------------|------------|--------------|-------|--------|----------|------------|------------|
| LB325502.002  | Monocyclic | Benzene      | mg/kg | 0.1    | 4.7      | 5          | 60 - 140   |
|               | Aromatic   | Toluene      | mg/kg | 0.1    | 4.8      | 5          | 60 - 140   |
|               |            | Ethylbenzene | mg/kg | 0.1    | 4.7      | 5          | 60 - 140   |
|               |            | m/p-xylene   | mg/kg | 0.2    | 9.2      | 10         | 60 - 140   |
|               |            | o-xylene     | mg/kg | 0.1    | 4.8      | 5          | 60 - 140   |

## Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

| Sample Number | Parameter   | Units                      | LOR   | Result | Expected | Criteria % | Recovery % |
|---------------|-------------|----------------------------|-------|--------|----------|------------|------------|
| LB325502.002  | TRH C6-C10  | mg/kg                      | 25    | 80     | 92.5     | 60 - 140   | 87         |
|               | TRH C6-C9   | mg/kg                      | 20    | 72     | 80       | 60 - 140   | 90         |
|               | VPH F Bands | TRH C6-C10 minus BTEX (F1) | mg/kg | 25     | 52       | 62.5       | 60 - 140   |

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 identifier 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% |
|--------------|---------------|-----------|-------|------|--------|----------|-------|-----------|
| SE271809.001 | LB325522.004  | Mercury   | mg/kg | 0.05 | 0.23   | <0.05    | 0.2   | 99        |

## OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

| QC Sample    | Sample Number | Parameter                         | Units | LOR | Result | Original | Spike | Recovery% |
|--------------|---------------|-----------------------------------|-------|-----|--------|----------|-------|-----------|
| SE271809.001 | LB325500.004  | Azinphos-methyl (Guthion)         | mg/kg | 0.2 | <0.2   | <0.2     | -     | -         |
|              |               | Bromophos Ethyl                   | mg/kg | 0.2 | <0.2   | <0.2     | -     | -         |
|              |               | Chlorpyrifos (Chlorpyrifos Ethyl) | mg/kg | 0.2 | 2.2    | <0.2     | 2     | 111       |
|              |               | Diazinon (Dimpylate)              | mg/kg | 0.5 | 2.4    | <0.5     | 2     | 119       |
|              |               | Dichlorvos                        | mg/kg | 0.5 | 1.2    | <0.5     | 2     | 62        |
|              |               | Dimethoate                        | mg/kg | 0.5 | <0.5   | <0.5     | -     | -         |
|              |               | Ethion                            | mg/kg | 0.2 | 1.8    | <0.2     | 2     | 92        |
|              |               | Fenitrothion                      | mg/kg | 0.2 | <0.2   | <0.2     | -     | -         |
|              |               | Malathion                         | mg/kg | 0.2 | <0.2   | <0.2     | -     | -         |
|              |               | Methidathion                      | mg/kg | 0.5 | <0.5   | <0.5     | -     | -         |
|              |               | Parathion-ethyl (Parathion)       | mg/kg | 0.2 | <0.2   | <0.2     | -     | -         |
|              |               | Total OP Pesticides*              | mg/kg | 1.7 | 7.7    | <1.7     | -     | -         |
|              |               | 2-fluorobiphenyl (Surrogate)      | mg/kg | -   | 0.5    | 0.5      | -     | 107       |
|              |               | d14-p-terphenyl (Surrogate)       | mg/kg | -   | 0.5    | 0.5      | -     | 93        |

## PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

| QC Sample    | Sample Number | Parameter                              | Units       | LOR | Result | Original | Spike | Recovery% |
|--------------|---------------|----------------------------------------|-------------|-----|--------|----------|-------|-----------|
| SE271809.001 | LB325500.004  | Naphthalene                            | mg/kg       | 0.1 | 4.8    | <0.1     | 4     | 121       |
|              |               | 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 | 4.8    | <0.1     | 4     | 121       |
|              |               | Acenaphthene                           | mg/kg       | 0.1 | 4.8    | <0.1     | 4     | 119       |
|              |               | Fluorene                               | mg/kg       | 0.1 | <0.1   | <0.1     | -     | -         |
|              |               | Phenanthrene                           | mg/kg       | 0.1 | 5.1    | <0.1     | 4     | 126       |
|              |               | Anthracene                             | mg/kg       | 0.1 | 5.2    | <0.1     | 4     | 130       |
|              |               | Fluoranthene                           | mg/kg       | 0.1 | 5.0    | <0.1     | 4     | 122       |
|              |               | Pyrene                                 | mg/kg       | 0.1 | 4.9    | <0.1     | 4     | 120       |
|              |               | 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 | 5.7    | <0.1     | 4     | 143 ⑥     |
|              |               | 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 | 5.7    | <0.2     | -     | -         |
|              |               | Carcinogenic PAHs, BaP TEQ <LOR=LOR/2* | TEQ (mg/kg) | 0.2 | 5.8    | <0.2     | -     | -         |
|              |               | Carcinogenic PAHs, BaP TEQ <LOR=LOR*   | TEQ (mg/kg) | 0.3 | 5.9    | <0.3     | -     | -         |
|              |               | Total PAH (18)                         | mg/kg       | 0.8 | 40     | <0.8     | -     | -         |
|              |               | d5-nitrobenzene (Surrogate)            | mg/kg       | -   | 0.4    | 0.4      | -     | 88        |
|              |               | 2-fluorobiphenyl (Surrogate)           | mg/kg       | -   | 0.5    | 0.5      | -     | 107       |
|              |               | d14-p-terphenyl (Surrogate)            | mg/kg       | -   | 0.5    | 0.5      | -     | 93        |

## 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% |
|--------------|---------------|--------------|-------|-----|--------|----------|-------|-----------|
| SE271809.001 | LB325512.004  | Arsenic, As  | mg/kg | 1   | 49     | 6        | 50    | 87        |
|              |               | Cadmium, Cd  | mg/kg | 0.3 | 43     | <0.3     | 50    | 86        |
|              |               | Chromium, Cr | mg/kg | 0.5 | 51     | 12       | 50    | 78        |
|              |               | Copper, Cu   | mg/kg | 0.5 | 55     | 15       | 50    | 82        |
|              |               | Nickel, Ni   | mg/kg | 0.5 | 48     | 6.4      | 50    | 84        |
|              |               | Lead, Pb     | mg/kg | 1   | 54     | 18       | 50    | 72        |
|              |               | Zinc, Zn     | mg/kg | 2   | 76     | 69       | 50    | 14 ⑥      |

## TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

| 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 identifier 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% |
|--------------|---------------|---------------------------------|-------|-----|--------|----------|-------|-----------|
| SE271809.001 | LB325500.004  | TRH C10-C14                     | mg/kg | 20  | 53     | <20      | 40    | 117       |
|              |               | TRH C15-C28                     | mg/kg | 45  | 55     | <45      | 40    | 106       |
|              |               | TRH C29-C36                     | mg/kg | 45  | 47     | <45      | 40    | 99        |
|              |               | TRH C37-C40                     | mg/kg | 100 | <100   | <100     | -     | -         |
|              |               | TRH C10-C36 Total               | mg/kg | 110 | 150    | <110     | -     | -         |
|              |               | TRH >C10-C40 Total (F bands)    | mg/kg | 210 | <210   | <210     | -     | -         |
|              |               | TRH F                           | mg/kg | 25  | 53     | <25      | 40    | 112       |
|              |               | TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25  | 53     | <25      | -     | -         |
|              |               | TRH >C16-C34 (F3)               | mg/kg | 90  | <90    | <90      | 40    | 97        |
|              |               | 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% |
|--------------|---------------|------------|-----------------------------------|-------|--------|----------|-------|-----------|
| SE271809.001 | LB325502.004  | Monocyclic | Benzene                           | mg/kg | 0.1    | <0.1     | 5     | 76        |
|              |               | Aromatic   | Toluene                           | mg/kg | 0.1    | <0.1     | 5     | 93        |
|              |               |            | Ethylbenzene                      | mg/kg | 0.1    | <0.1     | 5     | 91        |
|              |               |            | m/p-xylene                        | mg/kg | 0.2    | <0.2     | 10    | 90        |
|              |               |            | o-xylene                          | mg/kg | 0.1    | <0.1     | 5     | 96        |
|              |               | Polycyclic | Naphthalene (VOC)*                | mg/kg | 0.1    | <0.1     | -     | -         |
|              |               | Surrogates | d4-1,2-dichloroethane (Surrogate) | mg/kg | -      | 7.9      | 9.0   | 79        |
|              |               |            | d8-toluene (Surrogate)            | mg/kg | -      | 7.7      | 8.8   | 77        |
|              |               |            | Bromofluorobenzene (Surrogate)    | mg/kg | -      | 8.5      | 8.7   | 85        |
|              |               | Totals     | Total BTEX*                       | mg/kg | 0.6    | <0.6     | -     | -         |
|              |               |            | Total Xylenes*                    | mg/kg | 0.3    | <0.3     | -     | -         |

#### Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

| QC Sample    | Sample Number | Parameter  | Units                             | LOR   | Result | Original | Spike | Recovery% |
|--------------|---------------|------------|-----------------------------------|-------|--------|----------|-------|-----------|
| SE271809.001 | LB325502.004  | TRH C6-C10 | mg/kg                             | 25    | 76     | <25      | 92.5  | 82        |
|              |               | TRH C6-C9  | mg/kg                             | 20    | 68     | <20      | 80    | 84        |
|              |               | Surrogates | d4-1,2-dichloroethane (Surrogate) | mg/kg | -      | 7.9      | 9.0   | 79        |
|              |               |            | d8-toluene (Surrogate)            | mg/kg | -      | 7.7      | 8.8   | 77        |
|              |               |            | Bromofluorobenzene (Surrogate)    | mg/kg | -      | 8.5      | 8.7   | 85        |
|              |               | VPH F      | Benzene (F0)                      | mg/kg | 0.1    | <0.1     | -     | -         |
|              |               | Bands      | TRH C6-C10 minus BTEX (F1)        | mg/kg | 25     | <25      | 62.5  | 78        |

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : [https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022\\_QA\\_QC\\_Plan.pdf](https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf)

- \* NATA accreditation does not cover the performance of this service .
- \*\* Indicative data, theoretical holding time exceeded.
- \*\*\* Indicates that both \* and \*\* apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.



## ANALYTICAL REPORT



Accreditation No. 2562

### CLIENT DETAILS

Contact **Matthew Chee**  
Client **EI AUSTRALIA**  
Address **SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009**

Telephone **61 2 95160722**  
Facsimile **(Not specified)**  
Email **matthew.chee@eiaustralia.com.au**

Project **E26499.E01 101 North Steyne, Manly**  
Order Number **E26499.E01**  
Samples **1**

### LABORATORY DETAILS

Manager **Shane McDermott**  
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 **SE271788 R0**  
Date Received **27 Sep 2024**  
Date Reported **04 Oct 2024**

### COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.  
Asbestos analysed by Approved Identifier Yusuf Kuthpudin

### SIGNATORIES

*S. Ravee*

Ravee SIVASUBRAMANIAM  
Hygiene Team Leader



ANALYTICAL REPORT

SE271788 R0

RESULTS

Fibre Identification in soil

Method AN602

| Laboratory Reference | Client Reference | Matrix | Sample Description     | Date Sampled | Date Analysed | Fibre Identification                                          | Est.%w/w* |
|----------------------|------------------|--------|------------------------|--------------|---------------|---------------------------------------------------------------|-----------|
| SE271788.001         | BH1_0.2-0.3      | Soil   | 235g Sand, Soil, Rocks | 26 Sep 2024  | 03 Oct 2024   | No Asbestos Found at RL of 0.1g/kg<br>Organic Fibres Detected | <0.01     |

## METHOD

## METHODOLOGY SUMMARY

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AN602/AS4964 | 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/AS4964 | Fibres/material that cannot be unequivocally 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 | 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/reporting limit (RL) 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/AS4964 | <p>The sample can be reported "no asbestos found at the reporting limit (RL) of 0.1 g/kg" (&lt;0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-</p> <ul style="list-style-type: none"> <li>(a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres);</li> <li>(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</li> <li>(c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.</li> </ul> |

## 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.                |
|             |   |                            | *** | - | Indicates that both * and ** apply.                                |

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

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

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.

Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.

Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

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

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

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

This test report shall not be reproduced, except in full.

|                                                                                                                                                                                                                                           |               |                |          |                                                                                |                                                                                                                    |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|----------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------|------------------------|-------|-------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------|------|------|----------|---------------------------------------------|----------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------|------------------|------------------|--------|---------------------------------|------|----------------------------|-----------------------------------|---------------------|---------------------|----------------------------|--------------------------------------------------------------------------------------------------|--|--|--|---|---|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Sheet 1 of 1                                                                                                                                                                                                                              |               |                |          |                                                                                | Sample Matrix                                                                                                      |       |                        |       | Analysis                                              |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            | Comments                          |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| Site:<br>101 North Steyne, Manly                                                                                                                                                                                                          |               |                |          | Project No:<br>E26499.E<br>01                                                  | SOIL                                                                                                               | WATER | 0.45 µm field filtered | OTHER | HM <sup>A</sup> /TRH/BTEX/PAHs<br>OCP/OP/PCB/Asbestos | HM <sup>A</sup> /TRH/BTEX/PAHs                                                 | HM <sup>A</sup> /TRH/BTEX | BTEX | VOCs | Asbestos | Asbestos Quantification                     | Excavated Natural Material (ENM) Suite | ENM Suite - Stockpile discrete (TRH/BTEX/PAHs) | ENM Suite - Stockpile composite (HM <sup>A</sup> /pH / EC / Foreign Materials) | Dewatering Suite | pH / pH peroxide | sPOCAS | Chromium Reducible Sulfur (CrS) | PFAS | pH / CEC (cation exchange) | pH / EC (electrical conductivity) | Sulphate / Chloride | Lead<br><b>HOLD</b> | TCLP HM <sup>B</sup> / PAH | HM <sup>A</sup><br>Arsenic<br>Cadmium<br>Chromium<br>Copper<br>Lead<br>Mercury<br>Nickel<br>Zinc |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| Laboratory:<br>SGS Australia<br>Unit 16, 33 Maddox Street,<br>ALEXANDRIA NSW 2015<br>P: 02 8594 0400 F: 02 8594 0499                                                                                                                      |               |                |          | HM <sup>B</sup><br>Arsenic<br>Cadmium<br>Chromium<br>Lead<br>Mercury<br>Nickel |                                                                                                                    |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| Sample ID                                                                                                                                                                                                                                 | Laboratory ID | Container Type | Sampling |                                                                                |                                                                                                                    |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
|                                                                                                                                                                                                                                           |               |                | Date     | Time                                                                           |                                                                                                                    |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| BH1_0.2-0.3                                                                                                                                                                                                                               | 1             | Jar + ZLB      | 26/9/24  |                                                                                |                                                                                                                    |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            | X                                                                                                |  |  |  | X |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Dewatering Suite<br>pH & EC<br>TDS / TDU<br>Hardness<br>Total Cyanide<br>Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)<br>TRH (F1, F2, F3, F4)<br>BTEX<br>PAH<br>Total Phenol |  |
| BH1-1.0-1.1                                                                                                                                                                                                                               | 2             | Jar + ZLB      | 26/9/24  |                                                                                |                                                                                                                    |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            | X                                                                                                |  |  |  |   | X |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| TB1                                                                                                                                                                                                                                       | 3             | VE             | 26/9/24  |                                                                                |                                                                                                                    |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            | X                                                                                                |  |  |  |   |   |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| TS1                                                                                                                                                                                                                                       | 4             | VE             | 26/9/24  |                                                                                | X                                                                                                                  |       |                        |       |                                                       |                                                                                |                           | X    |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| QR1                                                                                                                                                                                                                                       |               | VC; S          | 26/9/24  |                                                                                |                                                                                                                    | X     |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| QR Blank                                                                                                                                                                                                                                  |               | VC; S          | 26/9/24  |                                                                                |                                                                                                                    | X     |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| Container Type:<br>J = solvent washed, acid rinsed, Teflon sealed glass jar<br>S = solvent washed, acid rinsed glass bottle<br>P = natural HDPE plastic bottle<br>VC = glass vial, Teflon Septum<br>ZLB = Zip-Lock Bag      BB = Bulk Bag |               |                |          |                                                                                | Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures. |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                | Report with EI Waste Classification Table <input checked="" type="checkbox"/>  |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
| <br>Suite 6.01, 55 Miller Street,<br>PYRMONT NSW 2009<br>Ph: 9516 0722<br>lab@eiaustralia.com.au<br><br>COC June 2021 FORM v.5 - SGS                    |               |                |          |                                                                                | Sampler's Name (EI):<br>Print      Matthew Chee<br>Signature <i>Sergio R. Raposeira</i>                            |       |                        |       |                                                       | Received by (SGS):<br>Print <i>[Signature]</i><br>Signature <i>[Signature]</i> |                           |      |      |          | Sampler's Comments:<br>cc. Sergio Raposeira |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
|                                                                                                                                                                                                                                           |               |                |          |                                                                                | Date      26/09/2024                                                                                               |       |                        |       |                                                       | Date      27/09/24 @ 2.20                                                      |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |
|                                                                                                                                                                                                                                           |               |                |          |                                                                                | IMPORTANT:<br>Please e-mail laboratory results to: lab@eiaustralia.com.au                                          |       |                        |       |                                                       |                                                                                |                           |      |      |          |                                             |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |                     |                            |                                                                                                  |  |  |  |   |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                             |  |

SGS EHS Sydney COC  
**SE271788**





## SAMPLE RECEIPT ADVICE

SE271788

### CLIENT DETAILS

Contact Matthew Chee  
Client EIA AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009  
  
Telephone 61 2 95160722  
Facsimile (Not specified)  
Email matthew.chee@eiaustralia.com.au  
  
Project **E26499.E01 101 North Steyne, Manly**  
Order Number **E26499.E01**  
Samples 4

### LABORATORY DETAILS

Manager Shane McDermott  
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 27/9/2024  
Report Due Fri 4/10/2024  
SGS Reference **SE271788**

### SUBMISSION DETAILS

This is to confirm that 4 samples were received on Friday 27/9/2024. Results are expected to be ready by COB Friday 4/10/2024. Please quote SGS reference SE271788 when making enquiries. Refer below for details relating to sample integrity upon receipt.

|                                        |            |                                 |          |
|----------------------------------------|------------|---------------------------------|----------|
| Sample counts by matrix                | 4 Soil     | Type of documentation received  | COC      |
| Date documentation received            | 27/9/2024  | Samples received in good order  | Yes      |
| Samples received without headspace     | Yes        | Sample temperature upon receipt | 13.6°C   |
| Sample container provider              | SGS        | Turnaround time requested       | Standard |
| Samples received in correct containers | Yes        | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes        |                                 |          |

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](http://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

SE271788

CLIENT DETAILS

Client EI AUSTRALIA

Project E26499.E01 101 North Steyne, Manly

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 | BH1_0.2-0.3 | 30                    | 14                    | 26                                              | 11           | 7                                        | 10                                           | 11            | 7                                       |
| 002 | BH1_1.0-1.1 | -                     | -                     | 26                                              | -            | 7                                        | 10                                           | 11            | 7                                       |
| 003 | TB1         | -                     | -                     | -                                               | -            | -                                        | -                                            | 11            | -                                       |
| 004 | TS1         | -                     | -                     | -                                               | -            | -                                        | -                                            | 11            | -                                       |

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

SE271788

CLIENT DETAILS

Client EI AUSTRALIA

Project E26499.E01 101 North Steyne, Manly

SUMMARY OF ANALYSIS

| No. | Sample ID   | Fibre Identification in soil | Mercury in Soil | Moisture Content |
|-----|-------------|------------------------------|-----------------|------------------|
| 001 | BH1_0.2-0.3 | 3                            | 1               | 1                |
| 002 | BH1_1.0-1.1 | -                            | 1               | 1                |
| 003 | TB1         | -                            | -               | 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 .

## CLIENT DETAILS

Contact Sergio Raposeira  
Client EI AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009

Telephone 61 2 95160722  
Facsimile (Not specified)  
Email sergio.raposeira@eiaustralia.com.au

Project **E26499 101 North Steyne Manly**  
Order Number **E26499**  
Samples 7

## LABORATORY DETAILS

Manager Shane McDermott  
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 **SE272176 R0**  
Date Received 8/10/2024  
Date Reported 15/10/2024

## COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.  
Asbestos analysed by Approved Identifier Yusuf Kuthpudin

## SIGNATORIES



**Akheeqar BENIAMEEN**  
Chemist



**Dong LIANG**  
Metals/Inorganics Team Leader



**Kamrul AHSAN**  
Senior Chemist



**Ly Kim HA**  
Organic Section Head



**Shane MCDERMOTT**  
Laboratory Manager



**Teresa NGUYEN**  
Organic Chemist



**Yusuf KUTHPUDIN**  
Asbestos Analyst

VOC's in Soil [AN433]    Tested: 9/10/2024

| PARAMETER                                 | UOM   | LOR | BH2M_0.3-0.4              | BH3M_0.3-0.4              | BH3M_0.9-1.0              | QD1                       | QTS1                      |
|-------------------------------------------|-------|-----|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
|                                           |       |     | SOIL                      | SOIL                      | SOIL                      | SOIL                      | SOIL                      |
|                                           |       |     | 8/10/2024<br>SE272176.001 | 8/10/2024<br>SE272176.002 | 8/10/2024<br>SE272176.003 | 8/10/2024<br>SE272176.004 | 8/10/2024<br>SE272176.006 |
| Benzene                                   | mg/kg | 0.1 | <0.1                      | <0.1                      | <0.1                      | <0.1                      | [89%]                     |
| Toluene                                   | mg/kg | 0.1 | <0.1                      | <0.1                      | <0.1                      | <0.1                      | [88%]                     |
| Ethylbenzene                              | mg/kg | 0.1 | <0.1                      | <0.1                      | <0.1                      | <0.1                      | [101%]                    |
| m/p-xylene                                | mg/kg | 0.2 | <0.2                      | <0.2                      | <0.2                      | <0.2                      | [100%]                    |
| o-xylene                                  | mg/kg | 0.1 | <0.1                      | <0.1                      | <0.1                      | <0.1                      | [100%]                    |
| 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 (VOC)*                        | mg/kg | 0.1 | <0.1                      | <0.1                      | <0.1                      | <0.1                      | -                         |
| Dichlorodifluoromethane (CFC-12)          | mg/kg | 1   | <1                        | <1                        | -                         | -                         | -                         |
| Chloromethane                             | mg/kg | 1   | <1                        | <1                        | -                         | -                         | -                         |
| Vinyl chloride (Chloroethene)             | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Bromomethane                              | mg/kg | 1   | <1                        | <1                        | -                         | -                         | -                         |
| Chloroethane                              | mg/kg | 1   | <1                        | <1                        | -                         | -                         | -                         |
| Trichlorofluoromethane                    | mg/kg | 1   | <1                        | <1                        | -                         | -                         | -                         |
| Acetone (2-propanone)                     | mg/kg | 10  | <10                       | <10                       | -                         | -                         | -                         |
| Iodomethane                               | mg/kg | 5   | <5                        | <5                        | -                         | -                         | -                         |
| 1,1-dichloroethene                        | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Acrylonitrile                             | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Dichloromethane (Methylene chloride)      | mg/kg | 0.5 | <0.5                      | <0.5                      | -                         | -                         | -                         |
| Allyl chloride                            | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Carbon disulfide                          | mg/kg | 0.5 | <0.5                      | <0.5                      | -                         | -                         | -                         |
| trans-1,2-dichloroethene                  | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| MtBE (Methyl-tert-butyl ether)            | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,1-dichloroethane                        | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Vinyl acetate*                            | mg/kg | 10  | <10                       | <10                       | -                         | -                         | -                         |
| cis-1,2-dichloroethene                    | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Bromochloromethane                        | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Chloroform (THM)                          | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 2,2-dichloropropane                       | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,2-dichloroethane                        | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,1,1-trichloroethane                     | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,1-dichloropropene                       | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Carbon tetrachloride                      | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Dibromomethane                            | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,2-dichloropropane                       | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Trichloroethene (Trichloroethylene,TCE)   | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 2-nitropropane                            | mg/kg | 10  | <10                       | <10                       | -                         | -                         | -                         |
| Bromodichloromethane (THM)                | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| MIBK (4-methyl-2-pentanone)               | mg/kg | 1   | <1                        | <1                        | -                         | -                         | -                         |
| cis-1,3-dichloropropene                   | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| trans-1,3-dichloropropene                 | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,1,2-trichloroethane                     | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,3-dichloropropane                       | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Dibromochloromethane (THM)                | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 2-hexanone (MBK)                          | mg/kg | 5   | <5                        | <5                        | -                         | -                         | -                         |
| 1,2-dibromoethane (EDB)                   | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Tetrachloroethene (Perchloroethylene,PCE) | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,1,1,2-tetrachloroethane                 | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Chlorobenzene                             | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Bromoform (THM)                           | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Styrene (Vinyl benzene)                   | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,1,2,2-tetrachloroethane                 | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,2,3-trichloropropane                    | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| trans-1,4-dichloro-2-butene               | mg/kg | 1   | <1                        | <1                        | -                         | -                         | -                         |
| Isopropylbenzene (Cumene)                 | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Bromobenzene                              | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |

VOC's in Soil [AN433] Tested: 9/10/2024 (continued)

| PARAMETER                                     | UOM   | LOR | BH2M_0.3-0.4              | BH3M_0.3-0.4              | BH3M_0.9-1.0              | QD1                       | QTS1                      |
|-----------------------------------------------|-------|-----|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
|                                               |       |     | SOIL                      | SOIL                      | SOIL                      | SOIL                      | SOIL                      |
|                                               |       |     | 8/10/2024<br>SE272176.001 | 8/10/2024<br>SE272176.002 | 8/10/2024<br>SE272176.003 | 8/10/2024<br>SE272176.004 | 8/10/2024<br>SE272176.006 |
| n-propylbenzene                               | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 2-chlorotoluene                               | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 4-chlorotoluene                               | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,3,5-trimethylbenzene                        | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| tert-butylbenzene                             | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,2,4-trimethylbenzene                        | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| sec-butylbenzene                              | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,3-dichlorobenzene                           | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,4-dichlorobenzene                           | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| p-isopropyltoluene                            | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,2-dichlorobenzene                           | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| n-butylbenzene                                | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,2-dibromo-3-chloropropane                   | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,2,4-trichlorobenzene                        | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Hexachlorobutadiene                           | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| 1,2,3-trichlorobenzene                        | mg/kg | 0.1 | <0.1                      | <0.1                      | -                         | -                         | -                         |
| Total VOC*                                    | mg/kg | 24  | <24                       | <24                       | -                         | -                         | -                         |
| Total Volatile Chlorinated Hydrocarbons*      | mg/kg | 3   | <3.0                      | <3.0                      | -                         | -                         | -                         |
| Total Chlorinated Hydrocarbons VIC EPA*       | mg/kg | 1.8 | <1.8                      | <1.8                      | -                         | -                         | -                         |
| Total Other Chlorinated Hydrocarbons VIC EPA* | mg/kg | 1.8 | <1.8                      | <1.8                      | -                         | -                         | -                         |

VOC's in Soil [AN433] Tested: 9/10/2024 (continued)

|                                           |       |     | QTB1         |
|-------------------------------------------|-------|-----|--------------|
|                                           |       |     | SOIL         |
|                                           |       |     | -            |
|                                           |       |     | 8/10/2024    |
| PARAMETER                                 | UOM   | LOR | SE272176.007 |
| Benzene                                   | mg/kg | 0.1 | <0.1         |
| Toluene                                   | mg/kg | 0.1 | <0.1         |
| Ethylbenzene                              | mg/kg | 0.1 | <0.1         |
| m/p-xylene                                | mg/kg | 0.2 | <0.2         |
| o-xylene                                  | mg/kg | 0.1 | <0.1         |
| Total Xylenes*                            | mg/kg | 0.3 | <0.3         |
| Total BTEX*                               | mg/kg | 0.6 | <0.6         |
| Naphthalene (VOC)*                        | mg/kg | 0.1 | <0.1         |
| Dichlorodifluoromethane (CFC-12)          | mg/kg | 1   | -            |
| Chloromethane                             | mg/kg | 1   | -            |
| Vinyl chloride (Chloroethene)             | mg/kg | 0.1 | -            |
| Bromomethane                              | mg/kg | 1   | -            |
| Chloroethane                              | mg/kg | 1   | -            |
| Trichlorofluoromethane                    | mg/kg | 1   | -            |
| Acetone (2-propanone)                     | mg/kg | 10  | -            |
| Iodomethane                               | mg/kg | 5   | -            |
| 1,1-dichloroethene                        | mg/kg | 0.1 | -            |
| Acrylonitrile                             | mg/kg | 0.1 | -            |
| Dichloromethane (Methylene chloride)      | mg/kg | 0.5 | -            |
| Allyl chloride                            | mg/kg | 0.1 | -            |
| Carbon disulfide                          | mg/kg | 0.5 | -            |
| trans-1,2-dichloroethene                  | mg/kg | 0.1 | -            |
| MtBE (Methyl-tert-butyl ether)            | mg/kg | 0.1 | -            |
| 1,1-dichloroethane                        | mg/kg | 0.1 | -            |
| Vinyl acetate*                            | mg/kg | 10  | -            |
| cis-1,2-dichloroethene                    | mg/kg | 0.1 | -            |
| Bromochloromethane                        | mg/kg | 0.1 | -            |
| Chloroform (THM)                          | mg/kg | 0.1 | -            |
| 2,2-dichloropropane                       | mg/kg | 0.1 | -            |
| 1,2-dichloroethane                        | mg/kg | 0.1 | -            |
| 1,1,1-trichloroethane                     | mg/kg | 0.1 | -            |
| 1,1-dichloropropene                       | mg/kg | 0.1 | -            |
| Carbon tetrachloride                      | mg/kg | 0.1 | -            |
| Dibromomethane                            | mg/kg | 0.1 | -            |
| 1,2-dichloropropane                       | mg/kg | 0.1 | -            |
| Trichloroethene (Trichloroethylene,TCE)   | mg/kg | 0.1 | -            |
| 2-nitropropane                            | mg/kg | 10  | -            |
| Bromodichloromethane (THM)                | mg/kg | 0.1 | -            |
| MIBK (4-methyl-2-pentanone)               | mg/kg | 1   | -            |
| cis-1,3-dichloropropene                   | mg/kg | 0.1 | -            |
| trans-1,3-dichloropropene                 | mg/kg | 0.1 | -            |
| 1,1,2-trichloroethane                     | mg/kg | 0.1 | -            |
| 1,3-dichloropropane                       | mg/kg | 0.1 | -            |
| Dibromochloromethane (THM)                | mg/kg | 0.1 | -            |
| 2-hexanone (MBK)                          | mg/kg | 5   | -            |
| 1,2-dibromoethane (EDB)                   | mg/kg | 0.1 | -            |
| Tetrachloroethene (Perchloroethylene,PCE) | mg/kg | 0.1 | -            |
| 1,1,1,2-tetrachloroethane                 | mg/kg | 0.1 | -            |
| Chlorobenzene                             | mg/kg | 0.1 | -            |
| Bromoform (THM)                           | mg/kg | 0.1 | -            |
| Styrene (Vinyl benzene)                   | mg/kg | 0.1 | -            |
| 1,1,2,2-tetrachloroethane                 | mg/kg | 0.1 | -            |
| 1,2,3-trichloropropane                    | mg/kg | 0.1 | -            |
| trans-1,4-dichloro-2-butene               | mg/kg | 1   | -            |
| Isopropylbenzene (Cumene)                 | mg/kg | 0.1 | -            |
| Bromobenzene                              | mg/kg | 0.1 | -            |

VOC's in Soil [AN433]    Tested: 9/10/2024    (continued)

|                                               |       |     | QTB1         |
|-----------------------------------------------|-------|-----|--------------|
|                                               |       |     | SOIL         |
|                                               |       |     | -            |
|                                               |       |     | 8/10/2024    |
| PARAMETER                                     | UOM   | LOR | SE272176.007 |
| n-propylbenzene                               | mg/kg | 0.1 | -            |
| 2-chlorotoluene                               | mg/kg | 0.1 | -            |
| 4-chlorotoluene                               | mg/kg | 0.1 | -            |
| 1,3,5-trimethylbenzene                        | mg/kg | 0.1 | -            |
| tert-butylbenzene                             | mg/kg | 0.1 | -            |
| 1,2,4-trimethylbenzene                        | mg/kg | 0.1 | -            |
| sec-butylbenzene                              | mg/kg | 0.1 | -            |
| 1,3-dichlorobenzene                           | mg/kg | 0.1 | -            |
| 1,4-dichlorobenzene                           | mg/kg | 0.1 | -            |
| p-isopropyltoluene                            | mg/kg | 0.1 | -            |
| 1,2-dichlorobenzene                           | mg/kg | 0.1 | -            |
| n-butylbenzene                                | mg/kg | 0.1 | -            |
| 1,2-dibromo-3-chloropropane                   | mg/kg | 0.1 | -            |
| 1,2,4-trichlorobenzene                        | mg/kg | 0.1 | -            |
| Hexachlorobutadiene                           | mg/kg | 0.1 | -            |
| 1,2,3-trichlorobenzene                        | mg/kg | 0.1 | -            |
| Total VOC*                                    | mg/kg | 24  | -            |
| Total Volatile Chlorinated Hydrocarbons*      | mg/kg | 3   | -            |
| Total Chlorinated Hydrocarbons VIC EPA*       | mg/kg | 1.8 | -            |
| Total Other Chlorinated Hydrocarbons VIC EPA* | mg/kg | 1.8 | -            |

## Volatile Petroleum Hydrocarbons in Soil [AN433]    Tested: 9/10/2024

| PARAMETER                  | UOM   | LOR | BH2M_0.3-0.4 | BH3M_0.3-0.4 | BH3M_0.9-1.0 | QD1          |
|----------------------------|-------|-----|--------------|--------------|--------------|--------------|
|                            |       |     | SOIL         | SOIL         | SOIL         | SOIL         |
|                            |       |     | -            | -            | -            | -            |
|                            |       |     | 8/10/2024    | 8/10/2024    | 8/10/2024    | 8/10/2024    |
|                            |       |     | SE272176.001 | SE272176.002 | SE272176.003 | SE272176.004 |
| TRH C6-C9                  | mg/kg | 20  | <20          | <20          | <20          | <20          |
| Benzene (F0)               | mg/kg | 0.1 | <0.1         | <0.1         | <0.1         | <0.1         |
| TRH C6-C10                 | mg/kg | 25  | <25          | <25          | <25          | <25          |
| TRH C6-C10 minus BTEX (F1) | mg/kg | 25  | <25          | <25          | <25          | <25          |

TRH (Total Recoverable Hydrocarbons) in Soil [AN403]    Tested: 9/10/2024

| PARAMETER                       | UOM   | LOR | BH2M_0.3-0.4 | BH3M_0.3-0.4 | BH3M_0.9-1.0 | QD1          |
|---------------------------------|-------|-----|--------------|--------------|--------------|--------------|
|                                 |       |     | SOIL         | SOIL         | SOIL         | SOIL         |
|                                 |       |     | -            | -            | -            | -            |
|                                 |       |     | 8/10/2024    | 8/10/2024    | 8/10/2024    | 8/10/2024    |
|                                 |       |     | SE272176.001 | SE272176.002 | SE272176.003 | SE272176.004 |
| TRH C10-C14                     | mg/kg | 20  | <20          | <20          | <20          | <20          |
| TRH C15-C28                     | mg/kg | 45  | <45          | <b>140</b>   | <45          | <45          |
| TRH C29-C36                     | mg/kg | 45  | <45          | <b>120</b>   | <45          | <45          |
| TRH C37-C40                     | mg/kg | 100 | <100         | <100         | <100         | <100         |
| TRH >C10-C16                    | mg/kg | 25  | <25          | <25          | <25          | <25          |
| TRH >C10-C16 - Naphthalene (F2) | mg/kg | 25  | <25          | <25          | <25          | <25          |
| TRH >C16-C34 (F3)               | mg/kg | 90  | <90          | <b>220</b>   | <90          | <90          |
| TRH >C34-C40 (F4)               | mg/kg | 120 | <120         | <120         | <120         | <120         |
| TRH C10-C36 Total               | mg/kg | 110 | <110         | <b>260</b>   | <110         | <110         |
| TRH >C10-C40 Total (F bands)    | mg/kg | 210 | <210         | <b>220</b>   | <210         | <210         |

## PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420]    Tested: 9/10/2024

| PARAMETER                              | UOM         | LOR | BH2M_0.3-0.4                   | BH3M_0.3-0.4                   | BH3M_0.9-1.0                   |
|----------------------------------------|-------------|-----|--------------------------------|--------------------------------|--------------------------------|
|                                        |             |     | SOIL                           | SOIL                           | SOIL                           |
|                                        |             |     | -<br>8/10/2024<br>SE272176.001 | -<br>8/10/2024<br>SE272176.002 | -<br>8/10/2024<br>SE272176.003 |
| Naphthalene                            | mg/kg       | 0.1 | <0.1                           | <0.1                           | <0.1                           |
| 2-methylnaphthalene                    | mg/kg       | 0.1 | <0.1                           | <0.1                           | <0.1                           |
| 1-methylnaphthalene                    | mg/kg       | 0.1 | <0.1                           | <0.1                           | <0.1                           |
| Acenaphthylene                         | mg/kg       | 0.1 | <0.1                           | <b>1.0</b>                     | <0.1                           |
| Acenaphthene                           | mg/kg       | 0.1 | <0.1                           | <0.1                           | <0.1                           |
| Fluorene                               | mg/kg       | 0.1 | <0.1                           | <b>0.1</b>                     | <0.1                           |
| Phenanthrene                           | mg/kg       | 0.1 | <0.1                           | <b>1.5</b>                     | <0.1                           |
| Anthracene                             | mg/kg       | 0.1 | <0.1                           | <b>0.9</b>                     | <0.1                           |
| Fluoranthene                           | mg/kg       | 0.1 | <b>0.1</b>                     | <b>6.2</b>                     | <0.1                           |
| Pyrene                                 | mg/kg       | 0.1 | <b>0.1</b>                     | <b>6.3</b>                     | <0.1                           |
| Benzo(a)anthracene                     | mg/kg       | 0.1 | <0.1                           | <b>2.8</b>                     | <0.1                           |
| Chrysene                               | mg/kg       | 0.1 | <0.1                           | <b>2.8</b>                     | <0.1                           |
| Benzo(b&j)fluoranthene                 | mg/kg       | 0.1 | <0.1                           | <b>3.5</b>                     | <0.1                           |
| Benzo(k)fluoranthene                   | mg/kg       | 0.1 | <0.1                           | <b>1.5</b>                     | <0.1                           |
| Benzo(a)pyrene                         | mg/kg       | 0.1 | <0.1                           | <b>3.2</b>                     | <0.1                           |
| Indeno(1,2,3-cd)pyrene                 | mg/kg       | 0.1 | <0.1                           | <b>1.5</b>                     | <0.1                           |
| Dibenzo(ah)anthracene                  | mg/kg       | 0.1 | <0.1                           | <b>0.4</b>                     | <0.1                           |
| Benzo(ghi)perylene                     | mg/kg       | 0.1 | <0.1                           | <b>1.3</b>                     | <0.1                           |
| Carcinogenic PAHs, BaP TEQ <LOR=0*     | TEQ (mg/kg) | 0.2 | <0.2                           | <b>4.6</b>                     | <0.2                           |
| Carcinogenic PAHs, BaP TEQ <LOR=LOR*   | TEQ (mg/kg) | 0.3 | <0.3                           | <b>4.6</b>                     | <0.3                           |
| Carcinogenic PAHs, BaP TEQ <LOR=LOR/2* | TEQ (mg/kg) | 0.2 | <0.2                           | <b>4.6</b>                     | <0.2                           |
| Total PAH (18)                         | mg/kg       | 0.8 | <0.8                           | <b>33</b>                      | <0.8                           |
| Total PAH (NEPM/WHO 16)                | mg/kg       | 0.8 | <0.8                           | <b>33</b>                      | <0.8                           |

OC Pesticides in Soil [AN420]    Tested: 9/10/2024

| PARAMETER               | UOM   | LOR | BH2M_0.3-0.4                   | BH3M_0.3-0.4                   |
|-------------------------|-------|-----|--------------------------------|--------------------------------|
|                         |       |     | SOIL                           | SOIL                           |
|                         |       |     | -<br>8/10/2024<br>SE272176.001 | -<br>8/10/2024<br>SE272176.002 |
| Hexachlorobenzene (HCB) | mg/kg | 0.1 | <0.1                           | <0.1                           |
| Alpha BHC               | mg/kg | 0.1 | <0.1                           | <0.1                           |
| Lindane (gamma BHC)     | 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                             |
| Total OC VIC EPA        | mg/kg | 1   | <1                             | <1                             |



ANALYTICAL RESULTS

SE272176 R0

OP Pesticides in Soil [AN420]    Tested: 9/10/2024

|                                   |       |     | BH2M_0.3-0.4 | BH3M_0.3-0.4 |
|-----------------------------------|-------|-----|--------------|--------------|
|                                   |       |     | SOIL         | SOIL         |
|                                   |       |     | -            | -            |
|                                   |       |     | 8/10/2024    | 8/10/2024    |
| PARAMETER                         | UOM   | LOR | SE272176.001 | SE272176.002 |
| 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         |



ANALYTICAL RESULTS

SE272176 R0

PCBs in Soil [AN420]    Tested: 9/10/2024

|                        |       |     | BH2M_0.3-0.4 | BH3M_0.3-0.4 |
|------------------------|-------|-----|--------------|--------------|
|                        |       |     | SOIL         | SOIL         |
|                        |       |     | -            | -            |
|                        |       |     | 8/10/2024    | 8/10/2024    |
| PARAMETER              | UOM   | LOR | SE272176.001 | SE272176.002 |
| 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           |



ANALYTICAL RESULTS

SE272176 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320]    Tested: 9/10/2024

| PARAMETER    | UOM   | LOR | BH2M_0.3-0.4 | BH3M_0.3-0.4 | BH3M_0.9-1.0 | QD1          |
|--------------|-------|-----|--------------|--------------|--------------|--------------|
|              |       |     | SOIL         | SOIL         | SOIL         | SOIL         |
|              |       |     | -            | -            | -            | -            |
|              |       |     | 8/10/2024    | 8/10/2024    | 8/10/2024    | 8/10/2024    |
|              |       |     | SE272176.001 | SE272176.002 | SE272176.003 | SE272176.004 |
| Arsenic, As  | mg/kg | 1   | 2            | 3            | 4            | 2            |
| Cadmium, Cd  | mg/kg | 0.3 | <0.3         | <0.3         | <0.3         | <0.3         |
| Chromium, Cr | mg/kg | 0.5 | 1.7          | 6.2          | 3.3          | 1.3          |
| Copper, Cu   | mg/kg | 0.5 | 2.7          | 14           | <0.5         | 0.9          |
| Lead, Pb     | mg/kg | 1   | 16           | 220          | 1            | 3            |
| Nickel, Ni   | mg/kg | 0.5 | 0.7          | 12           | <0.5         | <0.5         |
| Zinc, Zn     | mg/kg | 2   | 7.8          | 190          | <2.0         | 3.0          |



ANALYTICAL RESULTS

SE272176 R0

Mercury in Soil [AN312]    Tested: 9/10/2024

|           |       |      | BH2M_0.3-0.4 | BH3M_0.3-0.4 | BH3M_0.9-1.0 | QD1          |
|-----------|-------|------|--------------|--------------|--------------|--------------|
|           |       |      | SOIL         | SOIL         | SOIL         | SOIL         |
|           |       |      | -            | -            | -            | -            |
|           |       |      | 8/10/2024    | 8/10/2024    | 8/10/2024    | 8/10/2024    |
| PARAMETER | UOM   | LOR  | SE272176.001 | SE272176.002 | SE272176.003 | SE272176.004 |
| Mercury   | mg/kg | 0.05 | <0.05        | <0.05        | <0.05        | <0.05        |



ANALYTICAL RESULTS

SE272176 R0

Moisture Content [AN002]    Tested: 9/10/2024

|            |      |     | BH2M_0.3-0.4 | BH3M_0.3-0.4 | BH3M_0.9-1.0 | QD1          | QTB1         |
|------------|------|-----|--------------|--------------|--------------|--------------|--------------|
|            |      |     | SOIL         | SOIL         | SOIL         | SOIL         | SOIL         |
|            |      |     | -            | -            | -            | -            | -            |
|            |      |     | 8/10/2024    | 8/10/2024    | 8/10/2024    | 8/10/2024    | 8/10/2024    |
| PARAMETER  | UOM  | LOR | SE272176.001 | SE272176.002 | SE272176.003 | SE272176.004 | SE272176.007 |
| % Moisture | %w/w | 1   | 2.5          | 6.4          | 4.9          | 2.2          | <1.0         |



ANALYTICAL RESULTS

SE272176 R0

Fibre Identification in soil [AS4964/AN602]    Tested: 11/10/2024

|                   |         |      | BH2M_0.3-0.4     | BH3M_0.3-0.4     |
|-------------------|---------|------|------------------|------------------|
|                   |         |      | SOIL             | SOIL             |
|                   |         |      | -                | -                |
|                   |         |      | 8/10/2024        | 8/10/2024        |
|                   |         |      | SE272176.001     | SE272176.002     |
| PARAMETER         | UOM     | LOR  |                  |                  |
| Date Analysed*    | No unit | -    | 14/10/2024 00:00 | 14/10/2024 00:00 |
| Asbestos Detected | No unit | -    | No               | No               |
| Estimated Fibres* | %w/w    | 0.01 | <0.01            | <0.01            |



ANALYTICAL RESULTS

SE272176 R0

VOCs in Water [AN433]    Tested: 14/10/2024

|                    |      |     | QR1          |
|--------------------|------|-----|--------------|
|                    |      |     | WATER        |
|                    |      |     | -            |
|                    |      |     | 8/10/2024    |
| PARAMETER          | UOM  | LOR | SE272176.005 |
| 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 (VOC)* | µg/L | 0.5 | <0.5         |

Volatile Petroleum Hydrocarbons in Water [AN433]    Tested: 14/10/2024

|                            |      |     | QR1          |
|----------------------------|------|-----|--------------|
|                            |      |     | WATER        |
|                            |      |     | -            |
|                            |      |     | 8/10/2024    |
|                            |      |     | SE272176.005 |
| PARAMETER                  | UOM  | LOR |              |
| 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          |



ANALYTICAL RESULTS

SE272176 R0

TRH (Total Recoverable Hydrocarbons) in Water [AN403]    Tested: 10/10/2024

|                                 |      |     | QR1          |
|---------------------------------|------|-----|--------------|
|                                 |      |     | WATER        |
|                                 |      |     | -            |
|                                 |      |     | 8/10/2024    |
| PARAMETER                       | UOM  | LOR | SE272176.005 |
| TRH C10-C14                     | µg/L | 50  | <b>73</b>    |
| TRH C15-C28                     | µg/L | 200 | <200         |
| TRH C29-C36                     | µg/L | 200 | <200         |
| TRH C37-C40                     | µg/L | 200 | <200         |
| TRH >C10-C16                    | µg/L | 60  | <b>85</b>    |
| TRH >C10-C16 - Naphthalene (F2) | µg/L | 60  | <b>85</b>    |
| TRH >C16-C34 (F3)               | µg/L | 500 | <500         |
| TRH >C34-C40 (F4)               | µg/L | 500 | <500         |
| TRH C10-C40                     | µg/L | 320 | <320         |



ANALYTICAL RESULTS

SE272176 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318]    Tested: 14/10/2024

|           |      |     | QR1          |
|-----------|------|-----|--------------|
|           |      |     | WATER        |
|           |      |     | -            |
|           |      |     | 8/10/2024    |
|           |      |     | SE272176.005 |
| PARAMETER | UOM  | LOR |              |
| Arsenic   | µg/L | 1   | <b>4</b>     |
| Cadmium   | µg/L | 0.1 | <b>0.6</b>   |
| Chromium  | µg/L | 1   | <b>24000</b> |
| Copper    | µg/L | 1   | <1           |
| Lead      | µg/L | 1   | <1           |
| Nickel    | µg/L | 1   | <b>3</b>     |
| Zinc      | µg/L | 5   | <b>17</b>    |



ANALYTICAL RESULTS

SE272176 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312]    Tested: 9/10/2024

|           |      |        | QR1          |
|-----------|------|--------|--------------|
|           |      |        | WATER        |
|           |      |        | -            |
|           |      |        | 8/10/2024    |
|           |      |        | SE272176.005 |
| PARAMETER | UOM  | LOR    |              |
| Mercury   | mg/L | 0.0001 | <0.0001      |

## METHOD

## METHODOLOGY SUMMARY

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AN002</b>              | 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.                                                                                                                                                                                                                                                                                                                                                |
| <b>AN020</b>              | Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>AN040/AN320</b>        | 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.                                                                                                                                                                                                                                                                                                                                                                           |
| <b>AN040</b>              | 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 AAS or ICP as per USEPA Method 200.8.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>AN311(Perth)/AN312</b> | 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.                                                                                                                                                                                                                                                                              |
| <b>AN312</b>              | 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                                                                                                                                                                                                     |
| <b>AN318</b>              | Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>AN403</b>              | 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.   |
| <b>AN403</b>              | Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .                                                                                                                                                                                     |
| <b>AN403</b>              | 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.                                                                                                                                                                   |
| <b>AN420</b>              | (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).<br>Total PAH calculated from individual analyte detections at or above the limit of reporting .                                                                                                                                                                                                                                                                                                           |
| <b>AN420</b>              | 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).                                                                                                                                                                                                                                                                                                                                                                 |
| <b>AN433</b>              | 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.                                                                                                                                                                                                                                                                          |
| <b>AN602/AS4964</b>       | 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. |
| <b>AN602/AS4964</b>       | Fibres/material that cannot be unequivocally 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>AN602/AS4964</b>       | 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/reporting limit (RL) 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/AS4964

The sample can be reported "no asbestos found at the reporting limit (RL) 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.                   |
| **  | Indicative data, theoretical holding time exceeded.                | NVL | Not validated.                    | LOR | Limit of Reporting.                |
|     |                                                                    | IS  | Insufficient sample for analysis. | ↑↓  | Raised/lowered Limit of Reporting. |
| *** | Indicates that both * and ** apply.                                | LNR | Sample listed, but not received.  |     |                                    |

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

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

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

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

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

Note that in terms of units of radioactivity:

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

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

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

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

This report must not be reproduced, except in full.

## CLIENT DETAILS

Contact Sergio Raposeira  
Client EI AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009

Telephone 61 2 95160722  
Facsimile (Not specified)  
Email sergio.raposeira@eiaustralia.com.au

Project **E26499 101 North Steyne Manly**  
Order Number **E26499**  
Samples 2

## LABORATORY DETAILS

Manager Shane McDermott  
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

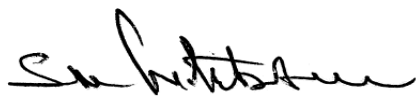
SGS Reference **SE272176 R0**  
Date Received 08 Oct 2024  
Date Reported 15 Oct 2024

## COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.  
Asbestos analysed by Approved Identifier Yusuf Kuthpudin

## SIGNATORIES



Yusuf KUTHPUDIN  
Asbestos Analyst

### RESULTS

Fibre Identification in soil

Method AN602

| Laboratory Reference | Client Reference | Matrix | Sample Description                        | Date Sampled | Date Analysed | Fibre Identification                                          | Est.%w/w* |
|----------------------|------------------|--------|-------------------------------------------|--------------|---------------|---------------------------------------------------------------|-----------|
| SE272176.001         | BH2M_0.3-0.4     | Soil   | 275g Sand, Soil, Rocks, Bitumen           | 08 Oct 2024  | 14 Oct 2024   | No Asbestos Found at RL of 0.1g/kg                            | <0.01     |
| SE272176.002         | BH3M_0.3-0.4     | Soil   | 233g Clay, Sand, Rocks, Bitumen, Concrete | 08 Oct 2024  | 14 Oct 2024   | No Asbestos Found at RL of 0.1g/kg<br>Organic Fibres Detected | <0.01     |

## METHOD

## METHODOLOGY SUMMARY

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AN602/AS4964 | 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/AS4964 | Fibres/material that cannot be unequivocally 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 | 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/reporting limit (RL) 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/AS4964 | <p>The sample can be reported "no asbestos found at the reporting limit (RL) of 0.1 g/kg" (&lt;0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-</p> <ul style="list-style-type: none"> <li>(a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres);</li> <li>(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</li> <li>(c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.</li> </ul> |

## 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.                |
|             |   |                            | *** | - | Indicates that both * and ** apply.                                |

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

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

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.

Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.

Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

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

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

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

This test report shall not be reproduced, except in full.

| Sheet <u>1</u> of <u>1</u>                                                                                               |               |                |          |                           | Sample Matrix |       |                        |       | Analysis                                                   |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   | Comments            |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
|--------------------------------------------------------------------------------------------------------------------------|---------------|----------------|----------|---------------------------|---------------|-------|------------------------|-------|------------------------------------------------------------|--------------------------------|---------------------------|------|------|----------|---------------------------------|------------------------------|----------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------|------------------|------------------|--------|---------------------------------|------|----------------------------|-----------------------------------|---------------------|-------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Site: <u>101 NORTH STEYNE, MANLY</u>                                                                                     |               |                |          | Project No: <u>E26459</u> |               |       |                        |       |                                                            |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| Laboratory: <b>SGS Australia</b><br>Unit 16, 33 Maddox Street,<br>ALEXANDRIA NSW 2015<br>P: 02 8594 0400 F: 02 8594 0499 |               |                |          |                           |               |       |                        |       |                                                            |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| Sample ID                                                                                                                | Laboratory ID | Container Type | Sampling |                           | SOIL          | WATER | 0.45 µm field filtered | OTHER | HM <sup>A</sup> /TRH/BTEX/PAHs<br>OC/OP/PCB/Asbestos /VOCs | HM <sup>A</sup> /TRH/BTEX/PAHs | HM <sup>A</sup> /TRH/BTEX | BTEX | VOCs | Asbestos | Asbestos Quantification (500ml) | Asbestos 10L field screening | Excavated Natural Material (ENM) Suite | ENM Suite - Stockpile discrete (TRH/BTEX/PAHs) | ENM Suite - Stockpile composite (HM <sup>A</sup> /pH / EC / Foreign Materials) | Dewatering Suite | pH / pH peroxide | sPOCAS | Chromium Reducible Sulfur (CrS) | PFAS | pH / CEC (cation exchange) | pH / EC (electrical conductivity) | Sulphate / Chloride | <u>Hold</u> | TCLP HM <sup>B</sup> / PAH | HM <sup>A</sup><br>Arsenic<br>Cadmium<br>Chromium<br>Copper<br>Lead<br>Mercury<br>Nickel<br>Zinc<br><br>HM <sup>B</sup><br>Arsenic<br>Cadmium<br>Chromium<br>Lead<br>Mercury<br>Nickel |                                                                                                                                                                             |  |
|                                                                                                                          |               |                | Date     | Time                      |               |       |                        |       |                                                            |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| BH2M-0304                                                                                                                | 1             | SIW            | 8/10/24  | AM                        | X             |       |                        |       | X                                                          |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        | Dewatering Suite<br>pH & EC<br>TDS / TDU<br>Hardness<br>Total Cyanide<br>Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)<br>TRH (F1, F2, F3, F4)<br>BTEX<br>PAH<br>Total Phenol |  |
| BH2M-0303                                                                                                                |               |                |          |                           |               |       |                        |       |                                                            |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   | X                   |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| BH3M-0304                                                                                                                | 2             |                |          |                           |               |       |                        |       | X                                                          |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| BH4M-0310                                                                                                                | 3             |                |          |                           |               |       |                        |       |                                                            | X                              |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| QD1                                                                                                                      | 4             | S              |          |                           |               |       |                        |       |                                                            |                                | X                         |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| QT1                                                                                                                      |               | S              |          |                           |               |       |                        |       |                                                            |                                | X                         |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| QR1                                                                                                                      | 5             | SIPVC          |          |                           |               | X     |                        |       |                                                            |                                | X                         |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| QPB1                                                                                                                     |               | SIPVC          |          |                           |               | X     |                        |       |                                                            |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   | X                   |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| QTS1                                                                                                                     | 6             | VC             |          |                           | X             |       |                        |       |                                                            |                                |                           | X    |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |
| QTB1                                                                                                                     | 7             | VC             |          |                           | X             |       |                        |       |                                                            |                                |                           | X    |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |             |                            |                                                                                                                                                                                        |                                                                                                                                                                             |  |

**SGS EHS Sydney COC**  
**SE272176**  


**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      BB = Bulk Bag

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

| Sampler's Name (EI): |                      | Received by (SGS): |                     |
|----------------------|----------------------|--------------------|---------------------|
| Print                | <u>Ricardo Lopez</u> | Print              | <u>[Signature]</u>  |
| Signature            | <u>[Signature]</u>   | Signature          | <u>[Signature]</u>  |
| Date                 | <u>8/10/24</u>       | Date               | <u>8.10.24 2:05</u> |

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

Report with EI Waste Classification Table ☐

Sampler's Comments:  
cc: Sergio Roposoira  
PLEASE SEND QT1 TO  
EnviroLab



Contamination | Remediation | Geotechnical

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

COC June 2021 FORM v.5 - SGS



## SAMPLE RECEIPT ADVICE

SE272176

### CLIENT DETAILS

Contact Sergio Raposeira  
Client EIAUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009  
  
Telephone 61 2 95160722  
Facsimile (Not specified)  
Email sergio.raposeira@eiaustralia.com.au  
  
Project **E26499 101 North Steyne Manly**  
Order Number **E26499**  
Samples 7

### LABORATORY DETAILS

Manager Shane McDermott  
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 8/10/2024  
Report Due Tue 15/10/2024  
SGS Reference **SE272176**

### SUBMISSION DETAILS

This is to confirm that 7 samples were received on Tuesday 8/10/2024. Results are expected to be ready by COB Tuesday 15/10/2024. Please quote SGS reference SE272176 when making enquiries. Refer below for details relating to sample integrity upon receipt.

|                                        |                 |                                 |          |
|----------------------------------------|-----------------|---------------------------------|----------|
| Sample counts by matrix                | 6 Soil, 1 Water | Type of documentation received  | COC      |
| Date documentation received            | 8/10/2024       | Samples received in good order  | Yes      |
| Samples received without headspace     | Yes             | Sample temperature upon receipt | 2.2°C    |
| Sample container provider              | SGS             | Turnaround time requested       | Standard |
| Samples received in correct containers | Yes             | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks      | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes             |                                 |          |

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

1 soil and 1 water samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.  
QT1 Forwarded to Envirolab.

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://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

SE272176

### CLIENT DETAILS

Client **EI AUSTRALIA**

Project **E26499 101 North Steyne Manly**

### 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 | BH2M_0.3-0.4 | 30                    | 14                    | 26                                              | 11           | 7                                        | 10                                           | 79            | 7                                       |
| 002 | BH3M_0.3-0.4 | 30                    | 14                    | 26                                              | 11           | 7                                        | 10                                           | 79            | 7                                       |
| 003 | BH3M_0.9-1.0 | -                     | -                     | 26                                              | -            | 7                                        | 10                                           | 11            | 7                                       |
| 004 | QD1          | -                     | -                     | -                                               | -            | 7                                        | 10                                           | 11            | 7                                       |
| 006 | QTS1         | -                     | -                     | -                                               | -            | -                                        | -                                            | 11            | -                                       |
| 007 | QTB1         | -                     | -                     | -                                               | -            | -                                        | -                                            | 11            | -                                       |

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

SE272176

### CLIENT DETAILS

Client **EI AUSTRALIA**

Project **E26499 101 North Steyne Manly**

### SUMMARY OF ANALYSIS

| No. | Sample ID    | Fibre Identification in soil | Mercury in Soil | Moisture Content |
|-----|--------------|------------------------------|-----------------|------------------|
| 001 | BH2M_0.3-0.4 | 3                            | 1               | 1                |
| 002 | BH3M_0.3-0.4 | 3                            | 1               | 1                |
| 003 | BH3M_0.9-1.0 | -                            | 1               | 1                |
| 004 | QD1          | -                            | 1               | 1                |
| 007 | QTB1         | -                            | -               | 1                |

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .



SAMPLE RECEIPT ADVICE

SE272176

CLIENT DETAILS

Client EI AUSTRALIA

Project E26499 101 North Steyne Manly

SUMMARY OF ANALYSIS

| No. | Sample ID | Mercury (dissolved) in Water | Trace Metals (Dissolved) in Water by ICPMS | TRH (Total Recoverable Hydrocarbons) in Water | VOCs in Water | Volatile Petroleum Hydrocarbons in Water |
|-----|-----------|------------------------------|--------------------------------------------|-----------------------------------------------|---------------|------------------------------------------|
| 005 | QR1       | 1                            | 7                                          | 9                                             | 11            | 7                                        |

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

## **CERTIFICATE OF ANALYSIS 363673**

### **Client Details**

|                  |                                                  |
|------------------|--------------------------------------------------|
| <b>Client</b>    | El Australia                                     |
| <b>Attention</b> | Ricardo Lopes                                    |
| <b>Address</b>   | Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009 |

### **Sample Details**

|                                             |                             |
|---------------------------------------------|-----------------------------|
| <b>Your Reference</b>                       | <b><u>E26499, Manly</u></b> |
| <b>Number of Samples</b>                    | 1 Soil                      |
| <b>Date samples received</b>                | 10/10/2024                  |
| <b>Date completed instructions received</b> | 10/10/2024                  |

### **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**

|                                                                                                             |            |
|-------------------------------------------------------------------------------------------------------------|------------|
| <b>Date results requested by</b>                                                                            | 17/10/2024 |
| <b>Date of Issue</b>                                                                                        | 15/10/2024 |
| NATA Accreditation Number 2901. This document shall not be reproduced except in full.                       |            |
| Accredited for compliance with ISO/IEC 17025 - Testing. <b>Tests not covered by NATA are denoted with *</b> |            |

#### **Results Approved By**

Dragana Tomas, Senior Chemist  
Giovanni Agosti, Group Technical Manager  
Timothy Toll, Senior Chemist

#### **Authorised By**

Nancy Zhang, Laboratory Manager

| vTRH(C6-C10)/BTEXN in Soil                           |       |            |
|------------------------------------------------------|-------|------------|
| Our Reference                                        |       | 363673-1   |
| Your Reference                                       | UNITS | QT1        |
| Date Sampled                                         |       | 08/10/2024 |
| Type of sample                                       |       | Soil       |
| Date extracted                                       | -     | 11/10/2024 |
| Date analysed                                        | -     | 14/10/2024 |
| TRH C <sub>6</sub> - C <sub>9</sub>                  | mg/kg | <25        |
| TRH C <sub>6</sub> - C <sub>10</sub>                 | mg/kg | <25        |
| vTRH C <sub>6</sub> - C <sub>10</sub> 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                       | %     | 98         |

| svTRH (C10-C40) in Soil                                     |       |            |
|-------------------------------------------------------------|-------|------------|
| Our Reference                                               |       | 363673-1   |
| Your Reference                                              | UNITS | QT1        |
| Date Sampled                                                |       | 08/10/2024 |
| Type of sample                                              |       | Soil       |
| Date extracted                                              | -     | 11/10/2024 |
| Date analysed                                               | -     | 12/10/2024 |
| TRH C <sub>10</sub> - C <sub>14</sub>                       | mg/kg | <50        |
| TRH C <sub>15</sub> - C <sub>28</sub>                       | mg/kg | <100       |
| TRH C <sub>29</sub> - C <sub>36</sub>                       | mg/kg | <100       |
| Total +ve TRH (C10-C36)                                     | mg/kg | <50        |
| TRH >C <sub>10</sub> -C <sub>16</sub>                       | mg/kg | <50        |
| TRH >C <sub>10</sub> -C <sub>16</sub> less Naphthalene (F2) | mg/kg | <50        |
| TRH >C <sub>16</sub> -C <sub>34</sub>                       | mg/kg | <100       |
| TRH >C <sub>34</sub> -C <sub>40</sub>                       | mg/kg | <100       |
| Total +ve TRH (>C10-C40)                                    | mg/kg | <50        |
| Surrogate o-Terphenyl                                       | %     | 82         |

| Acid Extractable metals in soil |       |            |
|---------------------------------|-------|------------|
| Our Reference                   |       | 363673-1   |
| Your Reference                  | UNITS | QT1        |
| Date Sampled                    |       | 08/10/2024 |
| Type of sample                  |       | Soil       |
| Date prepared                   | -     | 11/10/2024 |
| Date analysed                   | -     | 14/10/2024 |
| Arsenic                         | mg/kg | <4         |
| Cadmium                         | mg/kg | <0.4       |
| Chromium                        | mg/kg | 1          |
| Copper                          | mg/kg | 1          |
| Lead                            | mg/kg | 4          |
| Mercury                         | mg/kg | <0.1       |
| Nickel                          | mg/kg | <1         |
| Zinc                            | mg/kg | 3          |

| Moisture       |       |            |
|----------------|-------|------------|
| Our Reference  | UNITS | 363673-1   |
| Your Reference |       | QT1        |
| Date Sampled   |       | 08/10/2024 |
| Type of sample |       | Soil       |
| Date prepared  | -     | 11/10/2024 |
| Date analysed  | -     | 14/10/2024 |
| Moisture       | %     | 2.0        |

| Method ID         | Methodology Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inorg-008</b>  | Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Metals-020</b> | Determination of various metals by ICP-AES.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Metals-021</b> | Determination of Mercury by Cold Vapour AAS.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Org-020</b>    | 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.                                                                                                                                                                                            |
| <b>Org-020</b>    | Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.<br><br>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.<br><br>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). |
| <b>Org-023</b>    | Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Org-023</b>    | 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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.                                                                                                                                                                                                                            |
| <b>Org-023</b>    | 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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.<br><br>Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.                                                  |

| QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil |       |     |         |            |      | Duplicate |      | Spike Recovery % |            |      |
|---------------------------------------------|-------|-----|---------|------------|------|-----------|------|------------------|------------|------|
| Test Description                            | Units | PQL | Method  | Blank      | #    | Base      | Dup. | RPD              | LCS-3      | [NT] |
| Date extracted                              | -     |     |         | 11/10/2024 | [NT] | [NT]      | [NT] | [NT]             | 11/10/2024 | [NT] |
| Date analysed                               | -     |     |         | 14/10/2024 | [NT] | [NT]      | [NT] | [NT]             | 14/10/2024 | [NT] |
| TRH C <sub>6</sub> - C <sub>9</sub>         | mg/kg | 25  | Org-023 | <25        | [NT] | [NT]      | [NT] | [NT]             | 90         | [NT] |
| TRH C <sub>6</sub> - C <sub>10</sub>        | mg/kg | 25  | Org-023 | <25        | [NT] | [NT]      | [NT] | [NT]             | 90         | [NT] |
| Benzene                                     | mg/kg | 0.2 | Org-023 | <0.2       | [NT] | [NT]      | [NT] | [NT]             | 88         | [NT] |
| Toluene                                     | mg/kg | 0.5 | Org-023 | <0.5       | [NT] | [NT]      | [NT] | [NT]             | 91         | [NT] |
| Ethylbenzene                                | mg/kg | 1   | Org-023 | <1         | [NT] | [NT]      | [NT] | [NT]             | 87         | [NT] |
| m+p-xylene                                  | mg/kg | 2   | Org-023 | <2         | [NT] | [NT]      | [NT] | [NT]             | 93         | [NT] |
| o-Xylene                                    | mg/kg | 1   | Org-023 | <1         | [NT] | [NT]      | [NT] | [NT]             | 92         | [NT] |
| Naphthalene                                 | mg/kg | 1   | Org-023 | <1         | [NT] | [NT]      | [NT] | [NT]             | [NT]       | [NT] |
| Surrogate aaa-Trifluorotoluene              | %     |     | Org-023 | 100        | [NT] | [NT]      | [NT] | [NT]             | 95         | [NT] |

| QUALITY CONTROL: svTRH (C10-C40) in Soil |       |     |         |            | Duplicate |      |      | Spike Recovery % |            |      |
|------------------------------------------|-------|-----|---------|------------|-----------|------|------|------------------|------------|------|
| Test Description                         | Units | PQL | Method  | Blank      | #         | Base | Dup. | RPD              | LCS-3      | [NT] |
| Date extracted                           | -     |     |         | 11/10/2024 | [NT]      | [NT] | [NT] | [NT]             | 11/10/2024 | [NT] |
| Date analysed                            | -     |     |         | 11/10/2024 | [NT]      | [NT] | [NT] | [NT]             | 11/10/2024 | [NT] |
| TRH C <sub>10</sub> - C <sub>14</sub>    | mg/kg | 50  | Org-020 | <50        | [NT]      | [NT] | [NT] | [NT]             | 96         | [NT] |
| TRH C <sub>15</sub> - C <sub>28</sub>    | mg/kg | 100 | Org-020 | <100       | [NT]      | [NT] | [NT] | [NT]             | 92         | [NT] |
| TRH C <sub>29</sub> - C <sub>36</sub>    | mg/kg | 100 | Org-020 | <100       | [NT]      | [NT] | [NT] | [NT]             | 86         | [NT] |
| TRH >C <sub>10</sub> -C <sub>16</sub>    | mg/kg | 50  | Org-020 | <50        | [NT]      | [NT] | [NT] | [NT]             | 96         | [NT] |
| TRH >C <sub>16</sub> -C <sub>34</sub>    | mg/kg | 100 | Org-020 | <100       | [NT]      | [NT] | [NT] | [NT]             | 92         | [NT] |
| TRH >C <sub>34</sub> -C <sub>40</sub>    | mg/kg | 100 | Org-020 | <100       | [NT]      | [NT] | [NT] | [NT]             | 86         | [NT] |
| Surrogate o-Terphenyl                    | %     |     | Org-020 | 85         | [NT]      | [NT] | [NT] | [NT]             | 82         | [NT] |

| QUALITY CONTROL: Acid Extractable metals in soil |       |     |            |            | Duplicate |      |      | Spike Recovery % |            |      |
|--------------------------------------------------|-------|-----|------------|------------|-----------|------|------|------------------|------------|------|
| Test Description                                 | Units | PQL | Method     | Blank      | #         | Base | Dup. | RPD              | LCS-3      | [NT] |
| Date prepared                                    | -     |     |            | 11/10/2024 | [NT]      | [NT] | [NT] | [NT]             | 11/10/2024 | [NT] |
| Date analysed                                    | -     |     |            | 14/10/2024 | [NT]      | [NT] | [NT] | [NT]             | 14/10/2024 | [NT] |
| Arsenic                                          | mg/kg | 4   | Metals-020 | <4         | [NT]      | [NT] | [NT] | [NT]             | 112        | [NT] |
| Cadmium                                          | mg/kg | 0.4 | Metals-020 | <0.4       | [NT]      | [NT] | [NT] | [NT]             | 101        | [NT] |
| Chromium                                         | mg/kg | 1   | Metals-020 | <1         | [NT]      | [NT] | [NT] | [NT]             | 103        | [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]             | 103        | [NT] |
| Mercury                                          | mg/kg | 0.1 | Metals-021 | <0.1       | [NT]      | [NT] | [NT] | [NT]             | 117        | [NT] |
| Nickel                                           | mg/kg | 1   | Metals-020 | <1         | [NT]      | [NT] | [NT] | [NT]             | 102        | [NT] |
| Zinc                                             | mg/kg | 1   | Metals-020 | <1         | [NT]      | [NT] | [NT] | [NT]             | 102        | [NT] |

**Result Definitions**

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

## Quality Control Definitions

|                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Blank</b>                                                                                                                                                                                                                                                   | 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.           |
| <b>Duplicate</b>                                                                                                                                                                                                                                               | 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.                                                 |
| <b>Matrix Spike</b>                                                                                                                                                                                                                                            | 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. |
| <b>LCS (Laboratory Control Sample)</b>                                                                                                                                                                                                                         | 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.                                |
| <b>Surrogate Spike</b>                                                                                                                                                                                                                                         | Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.                          |
| Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.     |                                                                                                                                                                                                                                  |
| The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016. |                                                                                                                                                                                                                                  |
| Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2                                                                                                                         |                                                                                                                                                                                                                                  |

## Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

[illegible]

## CLIENT DETAILS

**Contact** Matthew Chee  
**Client** EI AUSTRALIA  
**Address** SUITE 6.01  
 55 MILLER STREET  
 PYRMONT NSW 2009  
  
**Telephone** 61 2 95160722  
**Facsimile** (Not specified)  
**Email** matthew.chee@eiaustralia.com.au  
  
**Project** **E26499 101 North Steyne, Manly -Addition**  
**Order Number** **E26499**  
**Samples** 8

## LABORATORY DETAILS

**Manager** Shane McDermott  
**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** **SE271787A R0**  
**Date Received** 9/10/2024  
**Date Reported** 16/10/2024

## COMMENTS

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

## SIGNATORIES



ANALYTICAL RESULTS

SE271787A R0

Moisture Content [AN002]    Tested: 16/10/2024

|            |      |     | BH1_2-2.1     | BH1_3.5-3.6   |
|------------|------|-----|---------------|---------------|
|            |      |     | SOIL          | SOIL          |
|            |      |     | -             | -             |
|            |      |     | 26/9/2024     | 26/9/2024     |
|            |      |     | SE271787A.004 | SE271787A.007 |
| PARAMETER  | UOM  | LOR |               |               |
| % Moisture | %w/w | 0.5 | 6.3           | 4.9           |

TAA (Titratable Actual Acidity) [AN219]    Tested: 16/10/2024

| PARAMETER                                                   | UOM                                  | LOR   | BH1_2-2.1                               | BH1_3.5-3.6                             |
|-------------------------------------------------------------|--------------------------------------|-------|-----------------------------------------|-----------------------------------------|
|                                                             |                                      |       | SOIL<br>-<br>26/9/2024<br>SE271787A.004 | SOIL<br>-<br>26/9/2024<br>SE271787A.007 |
| pH KCl*                                                     | pH Units                             | -     | <b>9.9</b>                              | <b>9.8</b>                              |
| Titratable Actual Acidity                                   | kg H <sub>2</sub> SO <sub>4</sub> /T | 0.25  | <0.25                                   | <0.25                                   |
| Titratable Actual Acidity (TAA) moles H <sup>+</sup> /tonne | moles H <sup>+</sup> /T              | 5     | <5                                      | <5                                      |
| Titratable Actual Acidity (TAA) S%w/w                       | %w/w S                               | 0.01  | <0.01                                   | <0.01                                   |
| Sulphur (SKCl)                                              | %w/w                                 | 0.005 | -                                       | -                                       |



ANALYTICAL RESULTS

SE271787A R0

Chromium Reducible Sulfur (CRS) [AN217]    Tested: 16/10/2024

|                                 |            |       | BH1_2-2.1     | BH1_3.5-3.6   |
|---------------------------------|------------|-------|---------------|---------------|
|                                 |            |       | SOIL          | SOIL          |
|                                 |            |       | -             | -             |
|                                 |            |       | 26/9/2024     | 26/9/2024     |
|                                 |            |       | SE271787A.004 | SE271787A.007 |
| PARAMETER                       | UOM        | LOR   |               |               |
| Chromium Reducible Sulfur (Scr) | %          | 0.005 | <0.005        | <0.005        |
| Chromium Reducible Sulfur (Scr) | moles H+/T | 5     | <5            | <5            |

Acid Neutralising Capacity (ANC) [AN214]    Tested: 16/10/2024

| PARAMETER                                                                    | UOM                                  | LOR   | BH1_2-2.1                  | BH1_3.5-3.6                |
|------------------------------------------------------------------------------|--------------------------------------|-------|----------------------------|----------------------------|
|                                                                              |                                      |       | SOIL                       | SOIL                       |
|                                                                              |                                      |       | -                          | -                          |
|                                                                              |                                      |       | 26/9/2024<br>SE271787A.004 | 26/9/2024<br>SE271787A.007 |
| Acid Neutralisation Capacity (ANCBT) as % CaCO <sub>3</sub>                  | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>                  | <b>12</b>                  |
| Acid Neutralisation Capacity (ANCBT) as kg H <sub>2</sub> SO <sub>4</sub> /t | kg H <sub>2</sub> SO <sub>4</sub> /t | 0.1   | <b>120</b>                 | <b>120</b>                 |
| ANC as % CaCO <sub>3</sub>                                                   | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>                  | <b>12</b>                  |
| Lime Equivalence                                                             | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>                  | <b>12</b>                  |
| Acid Neutralisation Capacity (ANCBT) as acidity units                        | moles H <sup>+</sup> /T              | 3     | <b>2400</b>                | <b>2400</b>                |
| Acid Neutralisation Capacity (ANCBT) as % S                                  | %w/w S                               | 0.005 | <b>3.9</b>                 | <b>3.9</b>                 |

## Chromium Suite Net Acidity Calculations [AN220]    Tested: 16/10/2024

| PARAMETER                    | UOM                     | LOR   | BH1_2-2.1                  | BH1_3.5-3.6                |
|------------------------------|-------------------------|-------|----------------------------|----------------------------|
|                              |                         |       | SOIL                       | SOIL                       |
|                              |                         |       | -                          | -                          |
|                              |                         |       | 26/9/2024<br>SE271787A.004 | 26/9/2024<br>SE271787A.007 |
| s-Net Acidity                | %w/w S                  | 0.005 | <0.005                     | <0.005                     |
| a-Net Acidity                | moles H+/T              | 5     | <5                         | <5                         |
| Liming Rate*                 | kg CaCO <sub>3</sub> /T | 0.1   | <0.1                       | <0.1                       |
| Verification s-Net Acidity*  | %w/w S                  | -20   | <b>-2.6</b>                | <b>-2.6</b>                |
| a-Net Acidity without ANCBT* | moles H+/T              | 5     | <5                         | <5                         |
| Liming Rate without ANCBT*   | kg CaCO <sub>3</sub> /T | 0.1   | <0.1                       | <0.1                       |
| s-Net Acidity without ANC    | %w/w S                  | 0.005 | <0.005                     | <0.005                     |

## 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.

### AN014

This method is for the determination of soluble sulfate (SO<sub>4</sub>-S) by extraction with hydrochloric acid. Sulphides should not react and would normally be expelled. Sulfate as Sulfur is determined by ICP.

### AN214

Acid Neutralising Capacity (ANC) or Neutralising Value (NV): The crushed or as received sample is reacted with excess normal acid (HCl) and then back titrated with standard sodium hydroxide to determine the acid consumed. The result is expressed as kg H<sub>2</sub>SO<sub>4</sub>/tonne or %CaCO<sub>3</sub>. Based on AS4969-13.

### AN217

Dried pulped sample is mixed with acid and chromium metal in a rapid distillation unit to produce hydrogen sulfide (H<sub>2</sub>S) which is collected and titrated with iodine (I<sub>2</sub>(aq)) to measure SCR.

### AN219

Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.

### AN220

Chromium Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.

## FOOTNOTES

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

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

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

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

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

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

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

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

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

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

This report must not be reproduced, except in full.



## STATEMENT OF QA/QC PERFORMANCE

SE271787A R0

### CLIENT DETAILS

Contact **Matthew Chee**  
Client **EI AUSTRALIA**  
Address **SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009**

Telephone **61 2 95160722**  
Facsimile **(Not specified)**  
Email **matthew.chee@eiaustralia.com.au**

Project **E26499 101 North Steyne, Manly -Addition**  
Order Number **E26499**  
Samples **8**

### LABORATORY DETAILS

Manager **Shane McDermott**  
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 **SE271787A R0**  
Date Received **09 Oct 2024**  
Date Reported **16 Oct 2024**

### COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

### SAMPLE SUMMARY

|                                        |                  |                                 |          |
|----------------------------------------|------------------|---------------------------------|----------|
| Sample counts by matrix                | 2 Soil           | Type of documentation received  | Email    |
| Date documentation received            | 9/10/2024@2:03pm | Samples received in good order  | Yes      |
| Samples received without headspace     | N/A              | Sample temperature upon receipt | 13.6°C   |
| Sample container provider              | SGS              | Turnaround time requested       | Standard |
| Samples received in correct containers | Yes              | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks       | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes              |                                 |          |

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

No holding time data is available for this job.

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 identifier 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.

No method blanks were required for this job.

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

No duplicates were required for this job.

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.

No laboratory control standards were required for this job.

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 identifier 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 are calculated as Relative Percent Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : [https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022\\_QA\\_QC\\_Plan.pdf](https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf)

- \* NATA accreditation does not cover the performance of this service.
- \*\* Indicative data, theoretical holding time exceeded.
- \*\*\* Indicates that both \* and \*\* apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.

## CLIENT DETAILS

**Contact** Admin  
**Client** SGS I&E EHS SYDNEY  
**Address** 52010.000.120500.10.AU201  
 16/33 MADDOX STREET  
 ALEXANDRIA NSW 2015  
  
**Telephone** 0285940400  
**Facsimile** 0285940499  
**Email** au.environmental.sydney@sgs.com  
  
**Project** **E26499 101 North Steyne, Manly -Addition**  
**Order Number** **SE271787A**  
**Samples** 2

## LABORATORY DETAILS

**Manager** Jon Dicker  
**Laboratory** SGS Cairns Environmental  
**Address** Unit 2, 58 Comport St  
 Portsmith QLD 4870  
  
**Telephone** +61 07 4035 5111  
**Facsimile** +61 07 4035 5122  
**Email** AU.Environmental.Cairns@sgs.com  
  
**SGS Reference** **CE177870 R0**  
**Date Received** 11 Oct 2024  
**Date Reported** 15 Oct 2024

## COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146)

## SIGNATORIES



Jon DICKER  
Manager Northern QLD



Maristela GANZAN  
Quality Manager

Sample Number CE177870.004  
Sample Matrix Soil  
Sample Date 26 Sep 2024  
Sample Name SE271787A.004

Parameter Units LOR

Moisture Content Method: AN002 Tested: 11/10/2024

|            |      |     |            |
|------------|------|-----|------------|
| % Moisture | %w/w | 0.5 | <b>6.3</b> |
|------------|------|-----|------------|

TAA (Titratable Actual Acidity) Method: AN219 Tested: 15/10/2024

|                                                             |                                      |       |            |
|-------------------------------------------------------------|--------------------------------------|-------|------------|
| pH KCl                                                      | pH Units                             | -     | <b>9.9</b> |
| Titratable Actual Acidity                                   | kg H <sub>2</sub> SO <sub>4</sub> /T | 0.25  | <0.25      |
| Titratable Actual Acidity (TAA) moles H <sup>+</sup> /tonne | moles H <sup>+</sup> /T              | 5     | <5         |
| Titratable Actual Acidity (TAA) S%w/w                       | %w/w S                               | 0.01  | <0.01      |
| Sulphur (SKCl)                                              | %w/w                                 | 0.005 | -          |

Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 15/10/2024

|                                 |                         |       |        |
|---------------------------------|-------------------------|-------|--------|
| Chromium Reducible Sulfur (Scr) | %                       | 0.005 | <0.005 |
| Chromium Reducible Sulfur (Scr) | moles H <sup>+</sup> /T | 5     | <5     |

Acid Neutralising Capacity (ANC) Method: AN214 Tested: 15/10/2024

|                                                                              |                                      |       |             |
|------------------------------------------------------------------------------|--------------------------------------|-------|-------------|
| ANC as % CaCO <sub>3</sub>                                                   | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>   |
| Lime Equivalence                                                             | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>   |
| Acid Neutralisation Capacity (ANCBT) as % CaCO <sub>3</sub>                  | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>   |
| Acid Neutralisation Capacity (ANCBT) as kg H <sub>2</sub> SO <sub>4</sub> /t | kg H <sub>2</sub> SO <sub>4</sub> /T | 0.1   | <b>120</b>  |
| Acid Neutralisation Capacity (ANCBT) as acidity units                        | moles H <sup>+</sup> /T              | 3     | <b>2400</b> |
| Acid Neutralisation Capacity (ANCBT) as % S                                  | %w/w S                               | 0.005 | <b>3.9</b>  |

Chromium Suite Net Acidity Calculations Method: AN220 Tested: 15/10/2024

|                             |                         |       |             |
|-----------------------------|-------------------------|-------|-------------|
| s-Net Acidity               | %w/w S                  | 0.005 | <0.005      |
| s-Net Acidity without ANC   | %w/w S                  | 0.005 | <0.005      |
| a-Net Acidity               | moles H <sup>+</sup> /T | 5     | <5          |
| Liming Rate                 | kg CaCO <sub>3</sub> /T | 0.1   | <0.1        |
| Verification s-Net Acidity  | %w/w S                  | -20   | <b>-2.6</b> |
| a-Net Acidity without ANCBT | moles H <sup>+</sup> /T | 5     | <5          |
| Liming Rate without ANCBT   | kg CaCO <sub>3</sub> /T | 0.1   | <0.1        |

Sample Number CE177870.007  
Sample Matrix Soil  
Sample Date 26 Sep 2024  
Sample Name SE271787A.007

Parameter Units LOR

**Moisture Content** Method: AN002 Tested: 11/10/2024

|            |      |     |            |
|------------|------|-----|------------|
| % Moisture | %w/w | 0.5 | <b>4.9</b> |
|------------|------|-----|------------|

**TAA (Titratable Actual Acidity)** Method: AN219 Tested: 15/10/2024

|                                                             |                                      |       |            |
|-------------------------------------------------------------|--------------------------------------|-------|------------|
| pH KCl                                                      | pH Units                             | -     | <b>9.8</b> |
| Titratable Actual Acidity                                   | kg H <sub>2</sub> SO <sub>4</sub> /T | 0.25  | <0.25      |
| Titratable Actual Acidity (TAA) moles H <sup>+</sup> /tonne | moles H <sup>+</sup> /T              | 5     | <5         |
| Titratable Actual Acidity (TAA) S%w/w                       | %w/w S                               | 0.01  | <0.01      |
| Sulphur (SKCl)                                              | %w/w                                 | 0.005 | -          |

**Chromium Reducible Sulfur (CRS)** Method: AN217 Tested: 15/10/2024

|                                 |                         |       |        |
|---------------------------------|-------------------------|-------|--------|
| Chromium Reducible Sulfur (Scr) | %                       | 0.005 | <0.005 |
| Chromium Reducible Sulfur (Scr) | moles H <sup>+</sup> /T | 5     | <5     |

**Acid Neutralising Capacity (ANC)** Method: AN214 Tested: 15/10/2024

|                                                                              |                                      |       |             |
|------------------------------------------------------------------------------|--------------------------------------|-------|-------------|
| ANC as % CaCO <sub>3</sub>                                                   | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>   |
| Lime Equivalence                                                             | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>   |
| Acid Neutralisation Capacity (ANCBT) as % CaCO <sub>3</sub>                  | % CaCO <sub>3</sub>                  | 0.1   | <b>12</b>   |
| Acid Neutralisation Capacity (ANCBT) as kg H <sub>2</sub> SO <sub>4</sub> /t | kg H <sub>2</sub> SO <sub>4</sub> /T | 0.1   | <b>120</b>  |
| Acid Neutralisation Capacity (ANCBT) as acidity units                        | moles H <sup>+</sup> /T              | 3     | <b>2400</b> |
| Acid Neutralisation Capacity (ANCBT) as % S                                  | %w/w S                               | 0.005 | <b>3.9</b>  |

**Chromium Suite Net Acidity Calculations** Method: AN220 Tested: 15/10/2024

|                             |                         |       |             |
|-----------------------------|-------------------------|-------|-------------|
| s-Net Acidity               | %w/w S                  | 0.005 | <0.005      |
| s-Net Acidity without ANC   | %w/w S                  | 0.005 | <0.005      |
| a-Net Acidity               | moles H <sup>+</sup> /T | 5     | <5          |
| Liming Rate                 | kg CaCO <sub>3</sub> /T | 0.1   | <0.1        |
| Verification s-Net Acidity  | %w/w S                  | -20   | <b>-2.6</b> |
| a-Net Acidity without ANCBT | moles H <sup>+</sup> /T | 5     | <5          |
| Liming Rate without ANCBT   | kg CaCO <sub>3</sub> /T | 0.1   | <0.1        |

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

**Chromium Reducible Sulfur (CRS)** Method: ME-(AU)-[ENV]AN217

| Parameter                       | QC<br>Reference | Units      | LOR   | MB     | DUP %RPD | LCS<br>%Recovery |
|---------------------------------|-----------------|------------|-------|--------|----------|------------------|
| Chromium Reducible Sulfur (Scr) | LB133440        | %          | 0.005 | <0.005 | 0%       | 111%             |
| Chromium Reducible Sulfur (Scr) | LB133440        | moles H+/T | 5     | <5     |          |                  |

**TAA (Titratable Actual Acidity)** Method: ME-(AU)-[ENV]AN219

| Parameter                                      | QC<br>Reference | Units      | LOR  | MB    | DUP %RPD | LCS<br>%Recovery |
|------------------------------------------------|-----------------|------------|------|-------|----------|------------------|
| pH KCl                                         | LB133496        | pH Units   | -    | 5.8   | 0%       | 98%              |
| Titratable Actual Acidity                      | LB133496        | kg H2SO4/T | 0.25 | <0.25 | 0 - 4%   | NA               |
| Titratable Actual Acidity (TAA) moles H+/tonne | LB133496        | moles H+/T | 5    | <5    | 0 - 4%   | 105%             |
| Titratable Actual Acidity (TAA) S%/w/w         | LB133496        | %w/w S     | 0.01 | <0.01 | 0 - 4%   | 106%             |

## 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.

AN214

Acid Neutralising Capacity (ANC) or Neutralising Value (NV): The crushed or as received sample is reacted with excess normal acid (HCl) and then back titrated with standard sodium hydroxide to determine the acid consumed. The result is expressed as kg H<sub>2</sub>SO<sub>4</sub>/tonne or %CaCO<sub>3</sub>. Based on AS4969-13.

AN217

Dried pulped sample is mixed with acid and chromium metal in a rapid distillation unit to produce hydrogen sulfide (H<sub>2</sub>S) which is collected and titrated with iodine (I<sub>2</sub>(aq)) to measure SCR.

AN219

Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.

AN220

Chromium Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.

## FOOTNOTES

|     |                                                                    |     |                                              |
|-----|--------------------------------------------------------------------|-----|----------------------------------------------|
| IS  | Insufficient sample for analysis.                                  | LOR | Limit of Reporting                           |
| LNR | Sample listed, but not received.                                   | ↑↓  | Raised or Lowered Limit of Reporting         |
| *   | NATA accreditation does not cover the performance of this service. | QFH | QC result is above the upper tolerance       |
| **  | Indicative data, theoretical holding time exceeded.                | QFL | QC result is below the lower tolerance       |
| *** | Indicates that both * and ** apply.                                | -   | The sample was not analysed for this analyte |
|     |                                                                    | NVL | Not Validated                                |

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

Solid samples expressed on a dry weight basis.

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

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

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

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

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

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

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

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This report must not be reproduced, except in full.

## Yin, Emily (Alexandria)

---

**From:** AU.Environmental.Sydney, AU (Sydney)  
**Sent:** Wednesday, 9 October 2024 2:05 PM  
**To:** AU.SampleReceipt.Sydney, AU (Sydney)  
**Cc:** AU.Environmental.Sydney, AU (Sydney)  
**Subject:** FW: [EXTERNAL] E26499 - Manly - Chromium Reducible Sulfur (CrS)

FYA

*Rita Azzi*

**Industries and Environment**

Client Services Representative

**SGS Australia Pty Ltd**

Unit 16, 33 Maddox Street

Alexandria, NSW, 2015

Phone: +61 (0)2 8594 0400

Direct: +61 (0)2 8594 3309

E-mail: [Rita.azzi@sgs.com](mailto:Rita.azzi@sgs.com)

General E-mail : [au.environmental.sydney@sgs.com](mailto:au.environmental.sydney@sgs.com)

Web: [www.au.sgs.com](http://www.au.sgs.com)

**SGS EHS Alexandria Laboratory**



**SE271787A COC**

Received: 09 – Oct – 2024

**Working Monday to friday : 10 to 6pm**

---

**From:** Sergio Raposeira - EIAustralia <[sergio.raposeira@eiaustralia.com.au](mailto:sergio.raposeira@eiaustralia.com.au)>  
**Sent:** Wednesday, October 9, 2024 2:03 PM  
**To:** AU.Environmental.Sydney, AU (Sydney) <[AU.Environmental.Sydney@sgs.com](mailto:AU.Environmental.Sydney@sgs.com)>  
**Subject:** [EXTERNAL] E26499 - Manly - Chromium Reducible Sulfur (CrS)

\*\*\* WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments.

\*\*\*

---

Good afternoon SGS,

Can we test Chromium Reducible Sulfur (CrS) on the following samples:

Batch SE271787, samples:

- BH1\_2-2.1
- BH1\_3.5-3.6

Should you have any queries, please do not hesitate to contact me.

Best Regards

**Yin, Emily (Alexandria)**

---

**From:** Sergio Raposeira - EIAustralia <sergio.raposeira@eiaustralia.com.au>  
**Sent:** Wednesday, 9 October 2024 2:30 PM  
**To:** AU.Environmental.Sydney, AU (Sydney)  
**Cc:** AU.SampleReceipt.Sydney, AU (Sydney)  
**Subject:** RE: [EXTERNAL] E26499 - Manly - Chromium Reducible Sulfur (CrS)

\*\*\* WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments.  
\*\*\*

---

Hi Rita,  
Standard TAT is fine.

Should you have any queries, please do not hesitate to contact me.

Best Regards

**Sergio Raposeira**  
BSc (Env), MSc  
**Environmental Engineer**  
T 02 9516 0722 M 04 8451 9661  
E [sergio.raposeira@eiaustralia.com.au](mailto:sergio.raposeira@eiaustralia.com.au)  
Suite 6.01, 55 Miller Street  
Pyrmont, NSW 2009  
[www.eiaustralia.com.au](http://www.eiaustralia.com.au)



**Environmental | Geotechnical | Structural | Civil | Hazardous Materials**

EI Australia is a proud member of the Australian Contaminated Land Consultants Association and the Australian Geomechanics Society.

CONFIDENTIALITY - This email contains confidential and privileged information.  
If you are not the intended recipient, our apologies - please destroy it and notify us so that we can appropriately re-address it.  
Disclosure, copying, distribution or use of the contents of this email is strictly prohibited.

Please consider the environment before printing this email.

---

**From:** AU.Environmental.Sydney, AU (Sydney) [mailto:AU.Environmental.Sydney@sgs.com]  
**Sent:** Wednesday, 9 October 2024 2:15 PM  
**To:** Sergio Raposeira - EIAustralia  
**Cc:** AU.Environmental.Sydney, AU (Sydney); AU.SampleReceipt.Sydney, AU (Sydney)  
**Subject:** RE: [EXTERNAL] E26499 - Manly - Chromium Reducible Sulfur (CrS)

**Caution:** This email originated from outside your organization and might have suspicious subject or content. PLEASE DO NOT CLICK ANY LINKS AND/OR OPEN ANY ATTACHMENTS UNLESS YOU CAN CONFIRM THE SENDER.

Hi Sergio,

Thanks for your request , we will get this booked as A job , when did you need the results by , the earliest possible 2-3 days TAT .

# PRM

CONNOTE:

**JKDZ00084308**



TO: Sample Receipt (Fiona)  
SGS Cairns  
Unit 2, 58 Comport Street  
PORTSMITH, QLD, 4870

PH: 0740355111

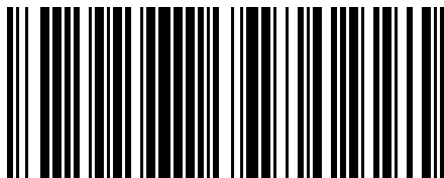
**PORTSMITH**

**4870**

**AU**

**CNS**

**CNS**



**PRM4870CNS**



FROM: SGS Alexandria CONTACT: PH: 0285940400  
Unit 16, 33 Maddox Street  
ALEXANDRIA, NSW, 2015

**120500.AU201**

**1KG SACHEL**

Date: 09/10/2024

UNIT: SAT

ITEM: 1 of 1

WEIGHT: 1

CUBIC: 0.004



Article ID: JKDZ00084308FPP00001

POWERED BY  
**www.MachShip.com**



## SAMPLE RECEIPT ADVICE

SE271787A

### CLIENT DETAILS

Contact Matthew Chee  
Client EIA AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009  
  
Telephone 61 2 95160722  
Facsimile (Not specified)  
Email matthew.chee@eiaustralia.com.au  
  
Project **E26499 101 North Steyne, Manly -Addition**  
Order Number **E26499**  
Samples 8

### LABORATORY DETAILS

Manager Shane McDermott  
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 9/10/2024  
Report Due Wed 16/10/2024  
SGS Reference **SE271787A**

### SUBMISSION DETAILS

This is to confirm that 8 samples were received on Wednesday 9/10/2024. Results are expected to be ready by COB Wednesday 16/10/2024. Please quote SGS reference SE271787A when making enquiries. Refer below for details relating to sample integrity upon receipt.

|                                        |                  |                                 |          |
|----------------------------------------|------------------|---------------------------------|----------|
| Sample counts by matrix                | 2 Soil           | Type of documentation received  | Email    |
| Date documentation received            | 9/10/2024@2:03pm | Samples received in good order  | Yes      |
| Samples received without headspace     | N/A              | Sample temperature upon receipt | 13.6°C   |
| Sample container provider              | SGS              | Turnaround time requested       | Standard |
| Samples received in correct containers | Yes              | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks       | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes              |                                 |          |

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

Chromium Reducible Sulfur subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146.

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://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

SE271787A

CLIENT DETAILS

Client EI AUSTRALIA

Project E26499 101 North Steyne, Manly -Addition

SUMMARY OF ANALYSIS

| No. | Sample ID   | Acid Neutralising Capacity (ANC) | Chromium Reducible Sulfur (CRS) | Chromium Suite Net Acidity Calculations | HCl Extractable S, Ca and Mg in Soil/Solids ICP OES | Moisture Content | TAA (Titratable Actual Acidity) |
|-----|-------------|----------------------------------|---------------------------------|-----------------------------------------|-----------------------------------------------------|------------------|---------------------------------|
| 004 | BH1_2-2.1   | 6                                | 2                               | 7                                       | 1                                                   | 1                | 5                               |
| 007 | BH1_3.5-3.6 | 6                                | 2                               | 7                                       | 1                                                   | 1                | 5                               |

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

**COC#: SE271787A**

Ship to: XML

Client: EL AUSTRALIA 12269923 11762409

|                                 |                           |
|---------------------------------|---------------------------|
| Due date: 15/10/2024 2:03:53 PM | Send Results to: AUJENVSE |
|---------------------------------|---------------------------|

Carrier:

Airbill #:

SGS Alexandria Environmental  
SE271787A SUBCON  
Received: 09 - Oct - 2024

## CLIENT DETAILS

**Contact** Matthew Chee  
**Client** EI AUSTRALIA  
**Address** SUITE 6.01  
 55 MILLER STREET  
 PYRMONT NSW 2009  
  
**Telephone** 61 2 95160722  
**Facsimile** (Not specified)  
**Email** matthew.chee@eiaustralia.com.au  
  
**Project** **E26499 101 North Steyne, Manly**  
**Order Number** **E26499**  
**Samples** 8

## LABORATORY DETAILS

**Manager** Shane McDermott  
**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** **SE271787 R0**  
**Date Received** 27/9/2024  
**Date Reported** 3/10/2024

## COMMENTS

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

## SIGNATORIES



**Ying Ying ZHANG**  
 Laboratory Technician

Field pH for Acid Sulphate Soil [AN104]    Tested: 2/10/2024

| PARAMETER              | UOM      | LOR | BH1_0.5-0.6               | BH1_1-1.1                 | BH1_1.4-1.5               | BH1_2-2.1                 | BH1_2.5-2.6               |
|------------------------|----------|-----|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
|                        |          |     | SOIL                      | SOIL                      | SOIL                      | SOIL                      | SOIL                      |
|                        |          |     | -                         | -                         | -                         | -                         | -                         |
|                        |          |     | 26/9/2024<br>SE271787.001 | 26/9/2024<br>SE271787.002 | 26/9/2024<br>SE271787.003 | 26/9/2024<br>SE271787.004 | 26/9/2024<br>SE271787.005 |
| pHf                    | pH Units | -   | 8.6                       | 7.9                       | 8.5                       | 9.0                       | 9.0                       |
| pHfox                  | pH Units | -   | 6.1                       | 6.0                       | 6.3                       | 6.5                       | 6.6                       |
| Reaction Rate (pHfox)* | No unit  | -   | 2                         | 2                         | 2                         | 2                         | 2                         |
| pH Difference*         | pH Units | -10 | 2.4                       | 1.9                       | 2.2                       | 2.5                       | 2.4                       |

| PARAMETER              | UOM      | LOR | BH1-2.9-3                 | BH1_3.5-3.6               | BH1_4-4.1                 |
|------------------------|----------|-----|---------------------------|---------------------------|---------------------------|
|                        |          |     | SOIL                      | SOIL                      | SOIL                      |
|                        |          |     | -                         | -                         | -                         |
|                        |          |     | 26/9/2024<br>SE271787.006 | 26/9/2024<br>SE271787.007 | 26/9/2024<br>SE271787.008 |
| pHf                    | pH Units | -   | 9.2                       | 9.1                       | 9.0                       |
| pHfox                  | pH Units | -   | 6.6                       | 6.5                       | 6.5                       |
| Reaction Rate (pHfox)* | No unit  | -   | 2                         | 2                         | 2                         |
| pH Difference*         | pH Units | -10 | 2.6                       | 2.5                       | 2.5                       |

## METHOD

## METHODOLOGY SUMMARY

### AN104

pHF is determined on an extract of approximately 2g of as received sample in approximately 10 mL of deionised water with pH determined after standing 30 minutes.

### AN104

pHFox is determined on an extract of approximately 2g of as received sample with a few mLs of 30% hydrogen peroxide (adjusted to pH 4.5 to 5.5) with the extract reaction being rated from slight to extreme, with pH determined after reaction is complete and extract has cooled. Referenced to ASS Laboratory Methods Guidelines , method 23Af-Bf, 2004.

- 0 No Reaction
- 1 Slight Reaction
- 2 Moderate Reaction
- 3 Strong/High Reaction
- 4 Extreme/Vigorous Reaction (gas evolution and heat generation)

## FOOTNOTES

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

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

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

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

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

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

Note that in terms of units of radioactivity:

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

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

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

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This report must not be reproduced, except in full.



## STATEMENT OF QA/QC PERFORMANCE

SE271787 R0

### CLIENT DETAILS

Contact **Matthew Chee**  
Client **EI AUSTRALIA**  
Address **SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009**

Telephone **61 2 95160722**  
Facsimile **(Not specified)**  
Email **matthew.chee@eiaustralia.com.au**

Project **E26499 101 North Steyne, Manly**  
Order Number **E26499**  
Samples **8**

### LABORATORY DETAILS

Manager **Shane McDermott**  
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 **SE271787 R0**  
Date Received **27 Sep 2024**  
Date Reported **03 Oct 2024**

### COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

### SAMPLE SUMMARY

|                                        |            |                                 |          |
|----------------------------------------|------------|---------------------------------|----------|
| Sample counts by matrix                | 8 Soil     | Type of documentation received  | COC      |
| Date documentation received            | 27/9/2024  | Samples received in good order  | Yes      |
| Samples received without headspace     | N/A        | Sample temperature upon receipt | 13.6°C   |
| Sample container provider              | SGS        | Turnaround time requested       | Standard |
| Samples received in correct containers | Yes        | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes        |                                 |          |

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

### Field pH for Acid Sulphate Soil

Method: ME-(AU)-ENVJAN104

| Sample Name | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|-------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH1_0.5-0.6 | SE271787.001 | LB325605 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 02 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |
| BH1_1-1.1   | SE271787.002 | LB325605 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 02 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |
| BH1_1.4-1.5 | SE271787.003 | LB325605 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 02 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |
| BH1_2-2.1   | SE271787.004 | LB325605 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 02 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |
| BH1_2.5-2.6 | SE271787.005 | LB325605 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 02 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |
| BH1-2.9-3   | SE271787.006 | LB325605 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 02 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |
| BH1_3.5-3.6 | SE271787.007 | LB325605 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 02 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |
| BH1_4-4.1   | SE271787.008 | LB325605 | 26 Sep 2024 | 27 Sep 2024 | 24 Oct 2024    | 02 Oct 2024 | 24 Oct 2024  | 03 Oct 2024 |

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 identifier 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.

No method blanks were required for this job.

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

## Field pH for Acid Sulphate Soil

Method: ME-(AU)-[ENV]AN104

| Original     | Duplicate    | Parameter | Units    | LOR | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|-----------|----------|-----|----------|-----------|------------|-------|
| SE271787.005 | LB325605.012 | pHf       | pH Units | -   | 9.0      | 9.1       | 30         | 1     |
|              |              | pHfox     | pH Units | -   | 6.6      | 6.5       | 30         | 0     |
| SE271787.008 | LB325605.016 | pHf       | pH Units | -   | 9.0      | 9.0       | 30         | 0     |
|              |              | pHfox     | pH Units | -   | 6.5      | 6.5       | 30         | 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.

| 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 identifier 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 are calculated as Relative Percent Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : [https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022\\_QA\\_QC\\_Plan.pdf](https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf)

- \* NATA accreditation does not cover the performance of this service .
- \*\* Indicative data, theoretical holding time exceeded.
- \*\*\* Indicates that both \* and \*\* apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.

| Sheet <u>1</u> of <u>1</u>                                                                                                                                                                                                                       |               |                |                                              |      | Sample Matrix                                                                                                      |       |                        | Analysis |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                |                  |                  |        |                                 |      | Comments                   |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|----------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------|-------|------------------------|----------|-------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------|------|------|----------|--------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------|------------------|------------------|--------|---------------------------------|------|----------------------------|-----------------------------------|---------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site:<br>101 North Steyne, Manly                                                                                                                                                                                                                 |               |                | Project No:<br>E26499.0<br><del>02-101</del> |      | SOIL                                                                                                               | WATER | 0.45 µm field filtered | OTHER    | HM <sup>A</sup> /TRH/BTEX/PAHS<br>OCP/OP/PCB/Asbestos | HM <sup>A</sup> /TRH/BTEX/PAHS                                                                 | HM <sup>A</sup> /TRH/BTEX | BTEX | VOCs | Asbestos | Asbestos Quantification                    | Excavated Natural Material (ENM) Suite                                        | ENM Suite - Stockpile discrete (TRH/BTEX/PAHS) | ENM Suite - Stockpile composite (HM <sup>A</sup> /pH / EC / Foreign Materials) | Dewatering Suite | pH / pH peroxide | sPOCAS | Chromium Reducible Sulfur (CrS) | PFAS | pH / CEC (cation exchange) | pH / EC (electrical conductivity) | Sulphate / Chloride | Lead | TCLP HM <sup>B</sup> / PAH                                                                                                                                                                                                                                                                                                                                                                                                    | <b>HM<sup>A</sup></b><br>Arsenic<br>Cadmium<br>Chromium<br>Copper<br>Lead<br>Mercury<br>Nickel<br>Zinc<br><br><b>HM<sup>B</sup></b><br>Arsenic<br>Cadmium<br>Chromium<br>Lead<br>Mercury<br>Nickel |
| Sample ID                                                                                                                                                                                                                                        | Laboratory ID | Container Type | Sampling                                     |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                  |               |                | Date                                         | Time |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
| BH1_0.5-0.6                                                                                                                                                                                                                                      | 1             | ZLB            | 26/9/24                                      |      | X                                                                                                                  |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                | X                |                  |        |                                 |      |                            |                                   |                     |      | <b>Dewatering Suite</b><br>pH & EC<br>TDS / TDU<br>Hardness<br>Total Cyanide<br>Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)<br>TRH (F1, F2, F3, F4)<br>BTEX<br>PAH<br>Total Phenol<br><br><b>LABORATORY TURNAROUND</b><br><input checked="" type="checkbox"/> Standard<br><input type="checkbox"/> 24 Hours<br><input type="checkbox"/> 48 Hours<br><input type="checkbox"/> 72 Hours<br><input type="checkbox"/> Other _____ |                                                                                                                                                                                                    |
| BH1_1-1.1                                                                                                                                                                                                                                        | 2             | LLB            | 26/9/24                                      |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                | X                |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
| BH1_1.4-1.5                                                                                                                                                                                                                                      | 3             | ZLB            |                                              |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                | X                |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
| BH1_2-2.1                                                                                                                                                                                                                                        | 4             | ZLB            |                                              |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                | X                |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
| BH1_2.5-2.6                                                                                                                                                                                                                                      | 5             | ZLB            |                                              |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                | X                |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
| BH1_2.9-3                                                                                                                                                                                                                                        | 6             | ZLB            |                                              |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                | X                |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
| BH1_3.5-3.6                                                                                                                                                                                                                                      | 7             | ZLB            |                                              |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                | X                |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
| BH1_4-4.1                                                                                                                                                                                                                                        | 8             | ZLB            |                                              |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                | X                |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
| <b>Container Type:</b><br>J = solvent washed, acid rinsed, Teflon sealed glass jar<br>S = solvent washed, acid rinsed glass bottle<br>P = natural HDPE plastic bottle<br>VC = glass vial, Teflon Septum<br>ZLB = Zip-Lock Bag      BB = Bulk Bag |               |                |                                              |      | Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures. |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            | Report with EI Waste Classification Table <input checked="" type="checkbox"/> |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
|  Suite 6.01, 55 Miller Street,<br>PYRMONT NSW 2009<br>Ph: 9516 0722<br>lab@eiaustralia.com.au<br>COC June 2021 FORM v.5 - SGS                                  |               |                |                                              |      | Sampler's Name (EI):<br>Print Mathew Chee<br>Signature <i>Mathew Chee</i>                                          |       |                        |          |                                                       | Received by (SGS):<br>Print <i>CC Sergio Raposeira</i><br>Signature <i>CC Sergio Raposeira</i> |                           |      |      |          | Sampler's Comments:<br>CC Sergio Raposeira |                                                                               |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                  |               |                |                                              |      | Date 26/09/2024                                                                                                    |       |                        |          |                                                       | Date 26.9.24 3:00                                                                              |                           |      |      |          |                                            |                                                                               |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                  |               |                |                                              |      | <b>IMPORTANT:</b><br>Please e-mail laboratory results to: lab@eiaustralia.com.au                                   |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                  |               |                |                                              |      |                                                                                                                    |       |                        |          |                                                       |                                                                                                |                           |      |      |          |                                            |                                                                               |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |

SGS EHS Sydney COC  
**SE271787**





## SAMPLE RECEIPT ADVICE

SE271787

### CLIENT DETAILS

Contact Matthew Chee  
Client EIA AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009  
  
Telephone 61 2 95160722  
Facsimile (Not specified)  
Email matthew.chee@eiaustralia.com.au  
  
Project **E26499 101 North Steyne, Manly**  
Order Number **E26499**  
Samples 8

### LABORATORY DETAILS

Manager Shane McDermott  
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 27/9/2024  
Report Due Fri 4/10/2024  
SGS Reference **SE271787**

### SUBMISSION DETAILS

This is to confirm that 8 samples were received on Friday 27/9/2024. Results are expected to be ready by COB Friday 4/10/2024. Please quote SGS reference SE271787 when making enquiries. Refer below for details relating to sample integrity upon receipt.

|                                        |            |                                 |          |
|----------------------------------------|------------|---------------------------------|----------|
| Sample counts by matrix                | 8 Soil     | Type of documentation received  | COC      |
| Date documentation received            | 27/9/2024  | Samples received in good order  | Yes      |
| Samples received without headspace     | N/A        | Sample temperature upon receipt | 13.6°C   |
| Sample container provider              | SGS        | Turnaround time requested       | Standard |
| Samples received in correct containers | Yes        | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes        |                                 |          |

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](http://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

SE271787

CLIENT DETAILS

Client EI AUSTRALIA

Project E26499 101 North Steyne, Manly

SUMMARY OF ANALYSIS

| No. | Sample ID   | Field pH for Acid Sulphate Soil |
|-----|-------------|---------------------------------|
| 001 | BH1_0.5-0.6 | 4                               |
| 002 | BH1_1-1.1   | 4                               |
| 003 | BH1_1.4-1.5 | 4                               |
| 004 | BH1_2-2.1   | 4                               |
| 005 | BH1_2.5-2.6 | 4                               |
| 006 | BH1-2.9-3   | 4                               |
| 007 | BH1_3.5-3.6 | 4                               |
| 008 | BH1_4-4.1   | 4                               |

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 .

## CLIENT DETAILS

**Contact** Sergio Raposeira  
**Client** EI AUSTRALIA  
**Address** SUITE 6.01  
 55 MILLER STREET  
 PYRMONT NSW 2009  
  
**Telephone** 61 2 95160722  
**Facsimile** (Not specified)  
**Email** sergio.raposeira@eiaustralia.com.au  
  
**Project** **E26499 101 North Steyne, Manly**  
**Order Number** **E26499**  
**Samples** 8

## LABORATORY DETAILS

**Manager** Shane McDermott  
**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** **SE272177 R0**  
**Date Received** 8/10/2024  
**Date Reported** 9/10/2024

## COMMENTS

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

## SIGNATORIES



**Dong LIANG**  
 Metals/Inorganics Team Leader

Field pH for Acid Sulphate Soil [AN104] Tested: 8/10/2024

|                        |          |     | BH3M_0.4-0.5 | BH3M_0.9-1.0 | BH3M_1.4-1.5 | BH3M_1.9-2.0 | BH3M_2.4-2.5 |
|------------------------|----------|-----|--------------|--------------|--------------|--------------|--------------|
|                        |          |     | SOIL         | SOIL         | SOIL         | SOIL         | SOIL         |
|                        |          |     | -            | -            | -            | -            | -            |
|                        |          |     | 8/10/2024    | 8/10/2024    | 8/10/2024    | 8/10/2024    | 8/10/2024    |
| PARAMETER              | UOM      | LOR | SE272177.001 | SE272177.002 | SE272177.003 | SE272177.004 | SE272177.005 |
| pHf                    | pH Units | -   | 9.0          | 9.2          | 9.3          | 9.2          | 9.2          |
| pHfox                  | pH Units | -   | 6.7          | 6.7          | 6.8          | 6.7          | 6.7          |
| Reaction Rate (pHfox)* | No unit  | -   | 0            | 0            | 0            | 0            | 0            |
| pH Difference*         | pH Units | -10 | 2.3          | 2.5          | 2.5          | 2.5          | 2.5          |

|                        |          |     | BH3M_2.9-3.0 | BH3M_3.4-3.5 | BH3M_3.9-4.0 |
|------------------------|----------|-----|--------------|--------------|--------------|
|                        |          |     | SOIL         | SOIL         | SOIL         |
|                        |          |     | -            | -            | -            |
|                        |          |     | 8/10/2024    | 8/10/2024    | 8/10/2024    |
| PARAMETER              | UOM      | LOR | SE272177.006 | SE272177.007 | SE272177.008 |
| pHf                    | pH Units | -   | 9.3          | 9.1          | 9.2          |
| pHfox                  | pH Units | -   | 6.8          | 6.9          | 6.7          |
| Reaction Rate (pHfox)* | No unit  | -   | 0            | 0            | 0            |
| pH Difference*         | pH Units | -10 | 2.5          | 2.3          | 2.4          |

## METHOD

## METHODOLOGY SUMMARY

### AN104

pHF is determined on an extract of approximately 2g of as received sample in approximately 10 mL of deionised water with pH determined after standing 30 minutes.

### AN104

pHFox is determined on an extract of approximately 2g of as received sample with a few mLs of 30% hydrogen peroxide (adjusted to pH 4.5 to 5.5) with the extract reaction being rated from slight to extreme, with pH determined after reaction is complete and extract has cooled. Referenced to ASS Laboratory Methods Guidelines, method 23Af-Bf, 2004.

- 0 No Reaction
- 1 Slight Reaction
- 2 Moderate Reaction
- 3 Strong/High Reaction
- 4 Extreme/Vigorous Reaction (gas evolution and heat generation)

## FOOTNOTES

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

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

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

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

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

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

Note that in terms of units of radioactivity:

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

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

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

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or



## STATEMENT OF QA/QC PERFORMANCE

SE272177 R0

### CLIENT DETAILS

Contact Sergio Raposeira  
Client EI AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009  
  
Telephone 61 2 95160722  
Facsimile (Not specified)  
Email sergio.raposeira@eiaustralia.com.au  
  
Project **E26499 101 North Steyne, Manly**  
Order Number **E26499**  
Samples 8

### LABORATORY DETAILS

Manager Shane McDermott  
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 **SE272177 R0**  
Date Received 08 Oct 2024  
Date Reported 09 Oct 2024

### COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

### SAMPLE SUMMARY

|                                        |            |                                 |          |
|----------------------------------------|------------|---------------------------------|----------|
| Sample counts by matrix                | 8 Soil     | Type of documentation received  | COC      |
| Date documentation received            | 8/10/2024  | Samples received in good order  | Yes      |
| Samples received without headspace     | Yes        | Sample temperature upon receipt | 2.2°C    |
| Sample container provider              | SGS        | Turnaround time requested       | Next Day |
| Samples received in correct containers | Yes        | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes        |                                 |          |



## HOLDING TIME SUMMARY

SE272177 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

Field pH for Acid Sulphate Soil

Method: ME-(AU)-[ENV]AN104

| Sample Name  | Sample No.   | QC Ref   | Sampled     | Received    | Extraction Due | Extracted   | Analysis Due | Analysed    |
|--------------|--------------|----------|-------------|-------------|----------------|-------------|--------------|-------------|
| BH3M_0.4-0.5 | SE272177.001 | LB326109 | 08 Oct 2024 | 08 Oct 2024 | 05 Nov 2024    | 08 Oct 2024 | 05 Nov 2024  | 09 Oct 2024 |
| BH3M_0.9-1.0 | SE272177.002 | LB326109 | 08 Oct 2024 | 08 Oct 2024 | 05 Nov 2024    | 08 Oct 2024 | 05 Nov 2024  | 09 Oct 2024 |
| BH3M_1.4-1.5 | SE272177.003 | LB326109 | 08 Oct 2024 | 08 Oct 2024 | 05 Nov 2024    | 08 Oct 2024 | 05 Nov 2024  | 09 Oct 2024 |
| BH3M_1.9-2.0 | SE272177.004 | LB326109 | 08 Oct 2024 | 08 Oct 2024 | 05 Nov 2024    | 08 Oct 2024 | 05 Nov 2024  | 09 Oct 2024 |
| BH3M_2.4-2.5 | SE272177.005 | LB326109 | 08 Oct 2024 | 08 Oct 2024 | 05 Nov 2024    | 08 Oct 2024 | 05 Nov 2024  | 09 Oct 2024 |
| BH3M_2.9-3.0 | SE272177.006 | LB326109 | 08 Oct 2024 | 08 Oct 2024 | 05 Nov 2024    | 08 Oct 2024 | 05 Nov 2024  | 09 Oct 2024 |
| BH3M_3.4-3.5 | SE272177.007 | LB326109 | 08 Oct 2024 | 08 Oct 2024 | 05 Nov 2024    | 08 Oct 2024 | 05 Nov 2024  | 09 Oct 2024 |
| BH3M_3.9-4.0 | SE272177.008 | LB326109 | 08 Oct 2024 | 08 Oct 2024 | 05 Nov 2024    | 08 Oct 2024 | 05 Nov 2024  | 09 Oct 2024 |

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 identifier 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.

No method blanks were required for this job.

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

## Field pH for Acid Sulphate Soil

Method: ME-(AU)-[ENV]AN104

| Original     | Duplicate    | Parameter | Units    | LOR | Original | Duplicate | Criteria % | RPD % |
|--------------|--------------|-----------|----------|-----|----------|-----------|------------|-------|
| SE272133.002 | LB326109.012 | pHf       | pH Units | -   | 5.3      | 5.3       | 30         | 1     |
|              |              | pHfox     | pH Units | -   | 5.0      | 4.1       | 30         | 20    |
| SE272133.009 | LB326109.020 | pHf       | pH Units | -   | 4.9      | 4.8       | 30         | 3     |
|              |              | pHfox     | pH Units | -   | 3.6      | 3.6       | 30         | 2     |



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.

| 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 identifier 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 are calculated as Relative Percent Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : [https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022\\_QA\\_QC\\_Plan.pdf](https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf)

- \* NATA accreditation does not cover the performance of this service .
- \*\* Indicative data, theoretical holding time exceeded.
- \*\*\* Indicates that both \* and \*\* apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

This document is issued by the Company under its General Conditions of Service accessible at [www.sgs.com/en/Terms-and-Conditions.aspx](http://www.sgs.com/en/Terms-and-Conditions.aspx). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.

| Sheet <u>1</u> of <u>1</u>           |               |                |                           |           | Sample Matrix |       | Analysis               |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      | Comments                   |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
|--------------------------------------|---------------|----------------|---------------------------|-----------|---------------|-------|------------------------|-------|------------------------------------------------------|--------------------------------|---------------------------|------|------|----------|---------------------------------|------------------------------|----------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------|------------------|------------------|--------|---------------------------------|------|----------------------------|-----------------------------------|---------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Site: <u>101 NORTH STEYNE, MANLY</u> |               |                | Project No: <u>626459</u> |           | SOIL          | WATER | 0.45 µm field filtered | OTHER | HM <sup>A</sup> /TRH/BTEX/PAHs<br>OC/OP/PCB/Asbestos | HM <sup>A</sup> /TRH/BTEX/PAHs | HM <sup>A</sup> /TRH/BTEX | BTEX | VOCs | Asbestos | Asbestos Quantification (500ml) | Asbestos 10L field screening | Excavated Natural Material (ENM) Suite | ENM Suite - Stockpile discrete (TRH/BTEX/PAHs) | ENM Suite - Stockpile composite (HM <sup>A</sup> /pH / EC / Foreign Materials) | Dewatering Suite | pH / pH peroxide | sPOCAS | Chromium Reducible Sulfur (CrS) | PFAS | pH / CEC (cation exchange) | pH / EC (electrical conductivity) | Sulphate / Chloride | Lead | TCLP HM <sup>B</sup> / PAH                                                                                                                                                  | HM <sup>A</sup><br>Arsenic<br>Cadmium<br>Chromium<br>Copper<br>Lead<br>Mercury<br>Nickel<br>Zinc<br><br>HM <sup>B</sup><br>Arsenic<br>Cadmium<br>Chromium<br>Lead<br>Mercury<br>Nickel |  |
| Sample ID                            | Laboratory ID | Container Type | Sampling                  |           |               |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
|                                      |               |                | Date                      | Time      |               |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
| <u>BH3M-04-05</u>                    | <u>1</u>      | <u>ZUB</u>     | <u>8/10/24</u>            | <u>AM</u> | <u>X</u>      |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  | <u>X</u>         |        |                                 |      |                            |                                   |                     |      | Dewatering Suite<br>pH & EC<br>TDS / TDU<br>Hardness<br>Total Cyanide<br>Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)<br>TRH (F1, F2, F3, F4)<br>BTEX<br>PAH<br>Total Phenol |                                                                                                                                                                                        |  |
| <u>BH3M-09-10</u>                    | <u>2</u>      | <u> </u>       | <u> </u>                  | <u> </u>  | <u> </u>      |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  | <u> </u>         |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
| <u>BH3M-14-15</u>                    | <u>3</u>      | <u> </u>       | <u> </u>                  | <u> </u>  | <u> </u>      |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  | <u> </u>         |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
| <u>BH3M-19-20</u>                    | <u>4</u>      | <u> </u>       | <u> </u>                  | <u> </u>  | <u> </u>      |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  | <u> </u>         |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
| <u>BH3M-24-25</u>                    | <u>5</u>      | <u> </u>       | <u> </u>                  | <u> </u>  | <u> </u>      |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  | <u> </u>         |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
| <u>BH3M-29-30</u>                    | <u>6</u>      | <u> </u>       | <u> </u>                  | <u> </u>  | <u> </u>      |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  | <u> </u>         |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
| <u>BH3M-34-35</u>                    | <u>7</u>      | <u> </u>       | <u> </u>                  | <u> </u>  | <u> </u>      |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  | <u> </u>         |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
| <u>BH3M-39-40</u>                    | <u>8</u>      | <u> </u>       | <u> </u>                  | <u> </u>  | <u> </u>      |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  | <u> </u>         |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
|                                      |               |                |                           |           |               |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
|                                      |               |                |                           |           |               |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
|                                      |               |                |                           |           |               |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
|                                      |               |                |                           |           |               |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |
|                                      |               |                |                           |           |               |       |                        |       |                                                      |                                |                           |      |      |          |                                 |                              |                                        |                                                |                                                                                |                  |                  |        |                                 |      |                            |                                   |                     |      |                                                                                                                                                                             |                                                                                                                                                                                        |  |

**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      BB = Bulk Bag

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

|                                                    |                                        |
|----------------------------------------------------|----------------------------------------|
| Sampler's Name (EI):<br>Print <u>Ricardo Lopez</u> | Received by (SGS):<br>Print <u>MIB</u> |
| Signature <u>[Signature]</u>                       | Signature <u>[Signature]</u>           |
| Date <u>8/10/24</u>                                | Date <u>8.10.24 2:05</u>               |

**IMPORTANT:**  
Please e-mail laboratory results to: [lab@eiaustralia.com.au](mailto:lab@eiaustralia.com.au)

Report with EI Waste Classification Table ☐

Sampler's Comments:  
CC: Sergio Repentin



Suite 6.01, 55 Miller Street,  
PYRMONT NSW 2009  
Ph: 9516 0722  
[lab@eiaustralia.com.au](mailto:lab@eiaustralia.com.au)

SGS EHS Sydney COC  
**SE272177**





## SAMPLE RECEIPT ADVICE

SE272177

### CLIENT DETAILS

Contact Sergio Raposeira  
Client EIA AUSTRALIA  
Address SUITE 6.01  
55 MILLER STREET  
PYRMONT NSW 2009  
  
Telephone 61 2 95160722  
Facsimile (Not specified)  
Email sergio.raposeira@eiaustralia.com.au  
  
Project **E26499 101 North Steyne, Manly**  
Order Number **E26499**  
Samples 8

### LABORATORY DETAILS

Manager Shane McDermott  
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 8/10/2024  
Report Due Wed 9/10/2024  
SGS Reference **SE272177**

### SUBMISSION DETAILS

This is to confirm that 8 samples were received on Tuesday 8/10/2024. Results are expected to be ready by COB Wednesday 9/10/2024. Please quote SGS reference SE272177 when making enquiries. Refer below for details relating to sample integrity upon receipt.

|                                        |            |                                 |          |
|----------------------------------------|------------|---------------------------------|----------|
| Sample counts by matrix                | 8 Soil     | Type of documentation received  | COC      |
| Date documentation received            | 8/10/2024  | Samples received in good order  | Yes      |
| Samples received without headspace     | Yes        | Sample temperature upon receipt | 2.2°C    |
| Sample container provider              | SGS        | Turnaround time requested       | Next Day |
| Samples received in correct containers | Yes        | Sufficient sample for analysis  | Yes      |
| Sample cooling method                  | Ice Bricks | Samples clearly labelled        | Yes      |
| Complete documentation received        | Yes        |                                 |          |

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](http://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

SE272177

CLIENT DETAILS

Client EI AUSTRALIA

Project E26499 101 North Steyne, Manly

SUMMARY OF ANALYSIS

| No. | Sample ID    | Field pH for Acid Sulphate Soil |
|-----|--------------|---------------------------------|
| 001 | BH3M_0.4-0.5 | 4                               |
| 002 | BH3M_0.9-1.0 | 4                               |
| 003 | BH3M_1.4-1.5 | 4                               |
| 004 | BH3M_1.9-2.0 | 4                               |
| 005 | BH3M_2.4-2.5 | 4                               |
| 006 | BH3M_2.9-3.0 | 4                               |
| 007 | BH3M_3.4-3.5 | 4                               |
| 008 | BH3M_3.9-4.0 | 4                               |

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 .

---

## Appendix J – QA/QC Assessment

---

## J.1 Quality Assurance / Quality Control Program

Quality assurance comprises an assessment of the reliability of the field procedures and laboratory results against standard industry practices and the SAQP. A summary of the project QA/QC measures incorporated into this DSI is presented in **Table J-1**.

**Table J-1 Project QC Measures**

| Task                             | Description                                                                                                                                                                                                                                                                                                             | Project                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Field QA/QC</b>               |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>General</b>                   | Work was to be undertaken following standard field procedures which are based on industry accepted standard practice.                                                                                                                                                                                                   | <p>Soil samples were collected directly from the auger flights / bucket. Soil samples were placed in 250 gram glass jars and plastic bags, which were filled to minimise headspace, and sealed using Teflon-coated lids.</p> <p>PFAS samples were placed in a dedicated Teflon free soil jar provided by the laboratory.</p> <p>Groundwater samples were obtained using sample bottles/vials provided by the laboratory.</p> |
|                                  | All fieldwork was supervised by a suitably qualified and experienced scientist or engineer.                                                                                                                                                                                                                             | Yes                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Soil Screening with PID</b>   | <p>The PID was serviced and calibrated as per manufacturer requirements.</p> <p>PID calibrated at the beginning of each day of fieldwork.</p>                                                                                                                                                                           | Yes                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Equipment Decontamination</b> | <p>Sampling equipment to be decontaminated after the collection of each soil sample by washing with phosphate-free detergent and potable water, followed by a final distilled water rinse.</p> <p>One rinsate blank would be collected and analysed for the primary contaminants. All results should be non-detect.</p> | <p>Yes</p> <p>Rinsate sample was collected during the soil investigation on 08 October 2024. All results were reported as below the detection limits, except for chromium (24,000 µg/L) in QR1.</p> <p>QR1 was prepared by the laboratory. As such, it is considered that the detection of chromium in sample QR1 was not caused by any equipment decontamination.</p>                                                       |
| <b>Transport</b>                 | Samples stored in a chilled cooler box and transported to the 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                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Task                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Project                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Trip Blanks</b>             | Trip blank samples were to be prepared and analysed by the primary laboratory for BTEX. Analytical results to be below the laboratory LOR, indicating satisfactory sample transport and handling conditions were achieved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Trip blank sample prepared by the primary laboratory were analysed for BTEX during soil testing. All results were reported below the laboratory LOR, indicating that ideal sample transport and handling conditions were achieved (i.e. no cross-contamination of volatiles during sample transport and subsequent handling).                                                                                                                 |
| <b>Trip Spikes</b>             | Trip spike samples were to be prepared and analysed by the primary laboratory for BTEX. Analytical results to be within 80-120% recovery, indicating satisfactory sample transport and handling conditions were achieved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Trip spike samples prepared by the primary laboratory were analysed for BTEX during soil. All results were within the recovery acceptance levels, indicating that satisfactory sample transport and handling conditions were achieved (i.e. no loss of volatiles during sample transport and subsequent handling).                                                                                                                            |
| <b>Duplicates</b>              | <p>Field duplicate samples were to be analysed as follows (as per NEPM):</p> <ul style="list-style-type: none"> <li>▪ intra-laboratory duplicates at a rate of 1 in 20 primary samples; and</li> <li>▪ inter-laboratory duplicates at a rate of 1 in 20 primary samples.</li> </ul> <p>Field and laboratory acceptable limits between 30-50% RPD as stated by AS4482.1–2005. RPDs that exceed this range may be considered acceptable where:</p> <ul style="list-style-type: none"> <li>▪ Results are less than 10 times the limits of reporting (LOR);</li> <li>▪ Results are less than 20 times the LOR and the RPD is less than 50%; or</li> <li>▪ Heterogeneous materials or volatile compounds are encountered.</li> </ul> <p>Non-compliance is to be documented in the report and the sample re-analysed or a higher level conservatively adopted.</p> | <p>The required sampling density of 1 per 20 duplicated primary samples was achieved and sufficient for the investigation.</p> <p>Laboratory duplicates prepared and analysed.</p> <p>Minor non-conformance, with negligible effects on data use for interpretative purposes.</p> <p>Field QC samples and calculated RPD values are presented in <b>Table J-5</b>.</p> <p>Copies of laboratory reports are included in <b>Appendix I</b>.</p> |
| <b><u>Laboratory QA/QC</u></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Laboratory Analysis</b>     | <p>The laboratories selected are NATA accredited for the analytes selected and perform their own internal QA/QC programs.</p> <p>Appropriate detection limits were used for the analyses to be undertaken.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Yes</p> <p>SGS - primary laboratory</p> <p>Envirolab - secondary laboratory</p> <p>Laboratory QA/QC analyses are included in <b>Appendix J</b>.</p> <p>Practical Quantitation Limits for all tested parameters during the DSI are presented in laboratory analytical reports in <b>Appendix J</b>.</p>                                                                                                                                     |
| <b>Holding Times</b>           | 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 the holding times.                                                                                                                                                                                                                                                                                                                                                                                           |

| Task                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Project                                                                                                                                             |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Method Blanks</b>               | A method blank contains the reagents used to prepare the sample for final analysis. The purpose of this procedure is to identify contamination in the reagent materials and assess potential bias in the sample analysis due to contaminated reagents. The QC criterion aims to find no detectable contamination in the reagents. Each analysis procedure should be subject to a method blank analysis. The results of each should indicate that contaminants were not detected.                                                                | Yes                                                                                                                                                 |
| <b>Laboratory Duplicates</b>       | 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.<br><br>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. | Assessment of laboratory duplicates has been undertaken by the laboratory.<br>All data quality objectives were met.                                 |
| <b>Laboratory Control Standard</b> | 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.                                                                                                                                                                                                                    | Assessment of laboratory control standard has been undertaken by the laboratory.<br>All laboratory control standards were within acceptable ranges. |
| <b>Matrix Spikes</b>               | Matrix spikes 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%.                                                                                                                                                                                                                               | Assessment of matrix spikes has been undertaken by the laboratory.<br>All data quality objectives were met.                                         |
| <b>Surrogate Spikes</b>            | 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%.                                                                                                                                                                                                                                                                                          | Assessment of surrogate spikes has been undertaken by the laboratory.<br>All data quality objectives were met.                                      |
| <b>Conclusion</b>                  | 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.                                                                                                                                                                                                                                                                                                                                                                             | Assessment of the investigation QA/QC is presented in the following sections.                                                                       |

#### **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<sub>O</sub> = Concentration obtained for the primary sample; and

C<sub>R</sub> = Concentration obtained for the blind replicate or split duplicate sample.

## J.2 Field QA/QC

### Field QC Samples

The field (intra- / inter- laboratory) duplicate samples collected during the investigation are summarised in Table J-3. Inter-laboratory duplicates were analysed by the secondary laboratory, Envirolab.

**Table J-2 Field QC Sampling Program**

| Matrix | Primary QA Sample | Duplicate<br>(Primary Lab) | Triplicate<br>(Secondary Lab) | Total<br>Duplicates |
|--------|-------------------|----------------------------|-------------------------------|---------------------|
| Soil   | BH2M_0.3-0.4      | QD1                        | QT1                           | 2                   |

### Field QC Summary

Review of the field data quality indicators is presented in **Table J-3** below.

**Table J-3 Field Data Quality Indicators**

| QA Component                                                                            | Data Quality Indicator(s)                                        | Conformance |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------|
| Accuracy – a quantitative measure of the closeness of reported data to the “true” value | SOPs appropriate and complied with                               | Yes         |
|                                                                                         | Results for inter-laboratory (split field) duplicates acceptable | Yes         |
| Precision – A quantitative measure of the variability (or reproducibility) of data      | SOPs appropriate and complied with                               | Yes         |
|                                                                                         | Results for intra-laboratory (blind field) duplicates acceptable | Yes         |
| 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 data                      | Same sampling method used on each occasion/location              | Yes         |

| QA Component                                                                                                             | Data Quality Indicator(s)                                                                       | Conformance |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------|
| Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite | Experienced sampler                                                                             | Yes         |
|                                                                                                                          | Same type of samples collected (filtered, size, fractions)                                      | Yes         |
|                                                                                                                          | Appropriate media sampled according to SAQP                                                     | Yes         |
| Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite | Each media identified in SAQP sampled                                                           | Yes         |
|                                                                                                                          | Appropriate sample collection methodologies, handling, storage and preservation techniques used | Yes         |

### J.3 Conclusion for the Field QA/QC

All field work, including equipment decontamination and sample preservation and transport, was conducted in accordance with the SAQP, which were devised with reference to industry-approved guidelines. Appropriate QC measures were integrated into each sampling event and the DQIs were met.

All samples, including field QC samples, were transported to the primary and secondary laboratories under refrigerated conditions, using strict COC procedures. Relevant documents (COC forms) were presented with the samples at the times of delivery. All supporting documents (COCs and SRAs) were completed in full and signed, where appropriate. EI considered the field QA/QC program carried out during the PSI to be appropriate.

### J.4 Laboratory QA/QC

#### **Laboratory Accreditation**

Primary and intra-laboratory duplicate samples were analysed by SGS (located in Alexandria NSW), with inter-laboratory duplicate samples analysed by Envirolab (located in Chatswood NSW). All laboratories are accredited by NATA for the analyses undertaken.

#### **Laboratory QC Summary**

Review of the laboratory data quality indicators is presented in **Table J-4** below.

**Table J-4 Laboratory Data Quality Indicators**

| QA/QC Measure                                                                           | Data Quality Indicator(s)                       | Conformance |
|-----------------------------------------------------------------------------------------|-------------------------------------------------|-------------|
| Accuracy – A quantitative measure of the closeness of reported data to the “true” value | Analysis of method blanks                       | Yes         |
|                                                                                         | Analysis of matrix spikes                       | Yes         |
|                                                                                         | Analysis of surrogate spikes                    | Yes         |
|                                                                                         | Analysis of laboratory control samples          | Yes         |
| Precision – A quantitative measure of the variability (or reproducibility) of data      | Analysis of laboratory duplicates               | Yes         |
| Completeness – A measure of the amount of useable data from a data                      | All critical samples analysed according to SAQP | Yes         |

| QA/QC Measure                                                                                                                                | Data Quality Indicator(s)                         | Conformance |
|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------|
| collection activity                                                                                                                          | All analytes analysed according to SAQP           | Yes         |
|                                                                                                                                              | Appropriate methods and PQLs                      | Yes         |
|                                                                                                                                              | 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 analytical methods used (including clean-up) | Yes         |
|                                                                                                                                              | Same 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        | Yes         |

### ***Conclusion for the Laboratory QA/QC***

All contracted laboratories (SGS and Envirolab) were accredited by NATA for the analyses undertaken. All analytical procedures used were industry recognised and endorsed standard methods. Appropriate QC measures were integrated into each testing batch and the DQIs were met, or if not, the variability was suitably justified.

All final reports were submitted in full and included all requested analyses, as per the signed COC forms. EI considered the laboratory QA/QC programs carried out during the PSI to be appropriate.

### **J.5 Summary of Project QA/QC**

The sampling (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation were consistent with EI protocols. The project DQOs specified in **Section 5.2, Table 5-1** were considered to have been achieved. The adopted QA/QC program ensured that the data collated during the PSI were accurate, precise and representative of the site condition. It was therefore considered that the data were sufficiently precise and accurate and that the results could be used for PSI interpretative purposes.

**Table J-5 Summary of Results for the Field QA/QC samples**

| Sample identification                           | Description               | TRH |      |                                          |                                          | BTEX    |         |              |                | Heavy Metals |         |                  |        |       |         |        |      |
|-------------------------------------------------|---------------------------|-----|------|------------------------------------------|------------------------------------------|---------|---------|--------------|----------------|--------------|---------|------------------|--------|-------|---------|--------|------|
|                                                 |                           | F1* | F2** | F3 (>C <sub>16</sub> - C <sub>34</sub> ) | F4 (>C <sub>34</sub> - C <sub>40</sub> ) | Benzene | Toluene | Ethylbenzene | Xylene (total) | Arsenic      | Cadmium | Chromium (Total) | Copper | Lead  | Mercury | Nickel | Zinc |
| Intra-laboratory Duplicate - Soil Investigation |                           |     |      |                                          |                                          |         |         |              |                |              |         |                  |        |       |         |        |      |
| BH2M_0.3-0.4                                    | Fill                      | <25 | <25  | <90                                      | <120                                     | <0.1    | <0.1    | <0.1         | <0.3           | 2            | <0.3    | 1.7              | 2.7    | 16    | <0.05   | 0.7    | 7.8  |
| QD1                                             | Duplicate of BH2M_0.3-0.4 | <25 | <25  | <90                                      | <120                                     | <0.1    | <0.1    | <0.1         | <0.3           | 2            | <0.3    | 1.3              | 0.9    | 3     | <0.05   | <0.5   | 3    |
| RPD (%)                                         |                           | 0.0 | 0.0  | 0.0                                      | 0.0                                      | 0.0     | 0.0     | 0.0          | 0.0            | 0.0          | 0.0     | 26.7             | 100.0  | 136.8 | 0.0     | 42.1   | 88.9 |
| Inter-laboratory Duplicate- Soil Investigation  |                           |     |      |                                          |                                          |         |         |              |                |              |         |                  |        |       |         |        |      |
| BH2M_0.3-0.4                                    | Fill                      | <25 | <25  | <90                                      | <120                                     | <0.1    | <0.1    | <0.1         | <0.3           | 2            | <0.3    | 1.7              | 2.7    | 16    | <0.05   | 0.7    | 7.8  |
| QT1                                             | Duplicate of BH2M_0.3-0.4 | <25 | <50  | <100                                     | <100                                     | <0.2    | <0.5    | <1           | <1             | <4           | <0.4    | 1                | 1      | 4     | <0.1    | <1     | 3    |
| RPD (%)                                         |                           | 0.0 | NA   | NA                                       | NA                                       | NA      | NA      | NA           | NA             | 100.0        | NA      | 51.9             | 91.9   | 120.0 | NA      | 50.0   | 88.9 |
| Rinsate Blanks                                  |                           |     |      |                                          |                                          |         |         |              |                |              |         |                  |        |       |         |        |      |
| QR1                                             | Groundwater Rinsate       | <50 | <60  | <500                                     | <500                                     | <0.5    | <0.5    | <0.5         | <1.5           | 4            | 0.6     | 24000            | <1     | <1    | <0.1    | <1     | <5   |
| Trip Blanks / Spikes                            |                           |     |      |                                          |                                          |         |         |              |                |              |         |                  |        |       |         |        |      |
| TB1                                             | Soil Trip Blank           | -   | -    | -                                        | -                                        | <0.1    | <0.1    | <0.1         | <0.3           | -            | -       | -                | -      | -     | -       | -      | -    |
| TS1                                             | Soil Trip Spike           | -   | -    | -                                        | -                                        | [94%]   | [103%]  | [104%]       | [105%]         | -            | -       | -                | -      | -     | -       | -      | -    |
| QTB1                                            | Soil Trip Blank           | -   | -    | -                                        | -                                        | <0.1    | <0.1    | <0.1         | <0.3           | -            | -       | -                | -      | -     | -       | -      | -    |
| QTS1                                            | Soil Trip Spike           | -   | -    | -                                        | -                                        | [89%]   | [88%]   | [101%]       | [100%]         | -            | -       | -                | -      | -     | -       | -      | -    |

**NOTE:**

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

\* - to obtain F1 subtract the sum of BTEX concentrations from the C<sub>6</sub>-C<sub>10</sub> fraction

\*\* - to obtain F2 subtract naphthalene from the > C<sub>10</sub>-C<sub>16</sub> fraction