

LANE COVE DEVELOPMENTS NO. 1 PTY LTD



Acid Sulfate Soil Assessment

300 Burns Bay Road, Lane Cove NSW

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1. Introduction

1.1 Background

This Acid Sulfate Soil Assessment prepared by EI Australia on behalf of Lane Cove Developments no.1 Pty Ltd ('the Applicant') in support of Early works State Significant Development Application (SSDA) (SSD-100293708) being lodged with the Department of Planning, Housing and Infrastructure (DPHI) for the demolition of all existing buildings and structures, excavation, augmentation of existing services and ground works at 300 Burns Bay Road, Lane Cove (the site) to enable the proposed redevelopment of the site for a residential development.

This proposal aims to:

- Facilitate the early works required for Ministerial declared HDA site under SSD-87925706, which will result in the construction of 225 dwellings.
- Enable the demolition, excavation and ground works to ensure the site is suitable for development of a residential development.
- Ensure the expedient delivery of the HDA application at the site (SSD-87925706), as per the requirements of the HDA approval pathway.

On 26 May 2025, the Housing Delivery Authority (HDA) recommended the proposed development for the purpose of residential flat building development including the construction of circa 225 dwellings at 300 Burns Bay Road, Lane Cove be declared a State Significant Development (SSD) under s4.36(3) of the Environmental Planning and Assessment Act 1979 (EP&A Act). The main works SSD (Ref. SSD-87925706) will be lodged imminently with DPHI, with exhibition anticipated to commence in March 2026. This Early Works SSD is intended to facilitate the delivery of this residential flat building development through the following proposed works:

- Site establishment works including:
 - Erection of site hoarding, fencing and signage;
 - Installation of site office and amenities.
- The demolition of all existing structures at the site comprising:
 - Office Building
 - Warehouse
 - Car Parking structure
- Removal of 32 trees on the site;
- Shoring and bulk excavation works to enable the excavation of basement levels; and
- Extension and augmentation of services and infrastructure as required.

1.2 Purpose

The land was designated for redevelopment and environmental investigations were required in support of the corresponding application to the New South Wales Department of Planning, via the State Significant Development pathway. The aim of this assessment was to evaluate the potential for acid sulfate soils (ASSs) to be present on the land.

1.3 Site Description

The site is irregular in shape and is legally described as Lot 15 DP 1230609, and has a site area of 7,595m². The site is located on the eastern side of the roundabout intersection between Burns Bay Road and Waterview Drive. Existing development on the site comprises an existing four (4) storey office building and warehouse, which is predominately sited on the eastern portion of the site

An aerial of the site illustrated in **Figure 1**.



Figure 1 Site aerial (highlighted in red)

Source: Nearmap, edits by Colliers Urban Planning

1.4 Overview of Proposed Development

This SSDA (Ref. SSD-100293708) seeks approval for early works associated with the delivery of the residential development of the site under SSD-87925706 at 300 Burns Bay Road, Lane Cove. This SSD comprises the following proposed development:

- Site establishment works including:
 - Erection of site hoarding, fencing and signage;
 - Installation of site office and amenities.
- The demolition of all existing structures at the site comprising:
 - Office Building
 - Warehouse
 - Car Parking structure
- Removal of 32 trees on the site;
- Shoring and bulk excavation works to enable the excavation of basement levels; and
- Extension and augmentation of services and infrastructure as required.

Architectural drawings are presented in **Appendix B**.

1.5 Secretary's Environmental Assessment Requirements

This report has been prepared to respond to the Secretary's Environmental Assessment Requirements (SEARS) dated 18 July 2025 for SSD-27925706. Specifically, this report has been prepared to respond to those SEARS outlined in **Table 1-1** below.

Table 1-1 Secretary's Environmental Assessment Requirements relevant to this report

SEARS	Issue and Assessment Requirements	SEARs Scope Agreed with DPHI	Report Name and Section
Ground and Groundwater Conditions	•Assess <i>potential impacts on soil resources and related infrastructure and riparian lands on and near the site and including soil erosion.</i> •Where required provide a <i>Groundwater Impact Assessment in accordance with relevant Groundwater Guidelines. If the proposed development is on land identified as having high salinity or acid sulfate soil potential in an EPI provide a Salinity Management Plan or Acid Sulfate Soil Management Plan that includes appropriate management measures and strategies.</i>	ASSA will be submitted with the Early Works SSD.	ASSA: Soil Results – Section 4.0 Conclusion – Section 5.0 Recommendations – Section 6.0

1.6 Project Objectives

The main objective of this assessment was to evaluate the potential for ASSs to be present on the site. Should ASSs be identified, a secondary objective was to provide advice for the management of such soils during any excavation.

1.7 Scope of Work

To achieve the above objectives, the following scope of work was completed:

- Review of topographical, geological and soil landscape maps, including the relevant ASS planning and risk maps;
- A site walkover inspection;

- Sub-surface profiling at five test boreholes, identified as BH1M, BH2M, BH3M, BH4M and BH5M;
- Soil sampling at each of the bores;
- Laboratory analysis of representative soil samples for ASS parameters; and
- Data interpretation and reporting.

1.8 Regulatory Framework

The work reported herein was completed with reference to the following publications:

- EPA (1995) *Assessing and Managing Acid Sulfate Soils - Guidelines for Land Management in NSW Coastal Areas*;
- Ahern *et al.* (1998) *Acid Sulfate Soil Manual*;
- Sullivan *et al.* (2018) *National Acid Sulfate Soils Guidance: National Acid Sulfate Soils Identification and Laboratory Methods Manual*; and
- Lane Cove Local Environmental Plan 2009.

2. Site Description

2.1 Site Identification

The site identification details and associated information are presented in **Table 2-1**. The site locality and layout plans are presented in **Appendix A**.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Address	300 Burns Bay Road, Lane Cove, New South Wales
Location	Located in a high density, residential area. Bound by: ▪ North: High density residential properties and Hartman Hill Reserve; ▪ East: Residential property (300B Burns Bay Road), followed by Burns Bay Reserve and Tannery Creek; ▪ South: High density residential properties; and ▪ West: Roadways, followed by Hughes Park and high density residential properties.
Geographical Coordinates	Centre of the site: ▪ Northing: 329102.05 ▪ Easting: 6256188.207 (Source: http://maps.six.nsw.gov.au)
Area	7,595 m ²
Lot and DP	Lot 15 in DP1230609
LGA	Lane Cove Municipal Council
Current Zoning	R4: High Density Residential (<i>Lane Cove Local Environmental Plan 2009</i>)
Current Land Uses	The site was comprised of a two-storey, car park building in the north-western quadrant, a four storey, brick building in the north-eastern quadrant and eastern end, an open tennis court at the western end, and a part suspended / part at-grade asphalt surfaced car park in the remaining open areas.

2.2 Regional Setting

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

Table 2-2 Regional Setting Information

Attribute	Description
Topography	The site gently slopes from north to south, the high point at 22.15m (AHD) along the boundary with the properties to the north, sloping south to a low point of 18.83m (AHD) along the southern boundary, sandstone cut faces and cliffs are present at the southern and eastern boundaries of the site.
Drainage	Likely to be consistent with the general slope of the site. Runoff is expected to be collected in stormwater pits and piped to Tannery Creek.
Geology	Information on regional sub-surface conditions, referenced from the Department of Mineral Resources <i>Sydney 1:100,000 Geological Series Sheet 9130</i> (DMR, 1983), indicates the site is underlain by Hawkesbury Sandstone, which comprises medium to course grained quartz sandstone, very minor shale and laminate lenses.
Soil Landscape	The NSW Government Department of Planning, Industry, and Environment eSPADE v2.2 website indicates that the site overlies a Hawkesbury (ha) colluvial landscape in the western portion and disturbed terrain in the east. The Hawkesbury landscape consists of rugged, rolling to very steep hills on Hawkesbury Sandstone. Disturbed terrain includes level to

	hummocky terrain, extensively disturbed by human activity, including complete removal or burial of soil.
Nearest Surface Water Features	Tannery Creek (50m south east), which joins Burns Bay (145m south) and Lane Cove River (825m south)
Inferred Groundwater Flow Direction	South easterly, towards Tannery Creek. The site is located within the <i>Sydney Basin Central Groundwater Source</i> .

2.3 Site Inspection

The following observations were made during an inspection of the site on 9 September 2024.

- The subject site was a trapezoid shaped, block of land, occupied by an open tennis court, a two-storey car parking building, a four-storey brick building, and a part suspended / part at-grade asphalt surfaced car park. There was no basement facility.
- All building footings displayed no signs of corrosion, iron oxide staining or salt scalding.
- The surface (asphalt, concrete and brick) pavements were in good condition with no notable cracks or signs of corrosion, iron oxide staining or salt scalding.
- All parts of the site were free of any odours and visual signs of contamination resulting from ASSs (e.g. no hydrogen sulfide (H₂S) odour, iron oxide staining or corrosion was detected).
- There was no visual evidence of high levels of salts (e.g. soil scalding or acid salt deposits).
- No surface ponding, derived from seepage water, was observed on the site.
- A range of plants, including small trees, flowering shrubs, grasses and weeds, were present on the site, suggesting that phytotoxicity was not an issue for the soils.
- Steep, sandstone faces and cliffs were present at the southern and eastern site boundaries, suggesting shallow soils layers, overlying bedrock.

3. Desktop Review

3.1 Definition of Acid Sulfate Soils

Acid sulfate soils are naturally occurring sediments containing iron sulfides, which have been deposited in estuarine conditions. As ASSs comprise natural materials, their occurrence is not related to site boundaries or anthropogenic contamination; rather, they extend across regions suitable for their deposition.

When ASSs are exposed to air (e.g. due to bulk excavation or dewatering), oxygen reacts with the iron sulfides, producing sulfuric acid (and iron oxides). The acid can be produced in large quantities and drain into waterways causing severe short and long term socio-economic and environmental impacts, including damage to manmade structures and natural ecosystems.

ASS can be classified as either:

- actual acid sulfate soil (AASS), within which are materials that have already reacted with oxygen to produce acid; or
- potential acid sulfate soil (PASS), within which are materials that contain iron sulfides, but have not been exposed to oxygen (e.g. soils below the water table) and therefore have not produced sulfuric acid (though they have the capacity to do so).

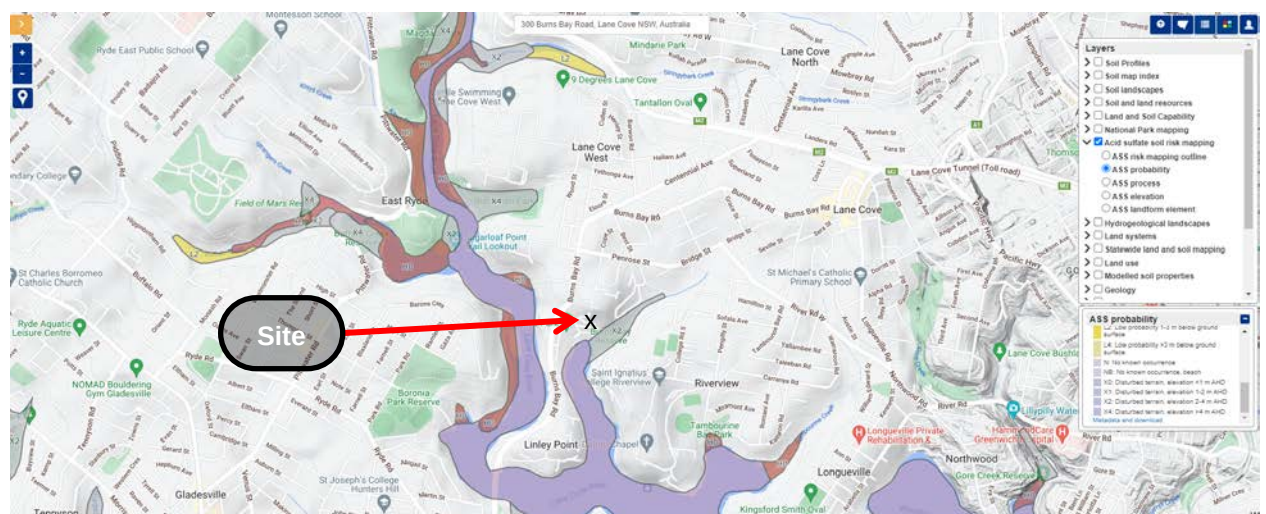
Aquatic organisms are extremely sensitive to acid drainage. The impacts from ASS leachates include:

- Dissolved metals (aluminium in particular) can be toxic to both aquatic life forms;
- Dissolved sulfate salts can increase the salinity of freshwater; and
- Acidic sediment may “fix” phosphates and other nutrients, preventing their uptake by plants.

3.2 Acid Sulfate Soil Planning and Risk Maps

On the *Lane Cove Local Environmental Plan 2009 - Acid Sulfate Soil Planning Map*, the site has not been classified; however, it is near both *Class 5* and *Class 2* areas, the latter being immediately south. According to the *eSPADE v2.2 Acid Sulfate Soil Risk Map* (**Figure 3-1**), the site is adjacent to disturbed terrain of elevation 2-4m AHD.

Figure 3-1 eSPADE Acid Sulfate Soil Risk Map



With reference to the *Prospect / Parramatta River Acid Sulfate Soil Risk Map* (1:25,000 scale; Murphy, 1997), the site lies within an area of *No Known Occurrence*. In such cases, ASSs are not known or expected to occur and “land management activities are not likely to be affected by ASS materials.” This map identified disturbed terrain of low elevation to the west of the site (2-4m AHD; approximately 25m distance), while the estuarine bottom sediments of Burns Bay to the south had high probability of ASS occurrence.

3.3 Geomorphic Characteristics of ASS

The likelihood of ASS occurrence on-site was considered in relation to the geomorphic indicators given in Ahern *et al.* (1998) *Acid Sulfate Soil Manual*. These considerations are summarised in **Table 3-1**.

Table 3-1 Consideration of Geomorphic Indicators

Geomorphic Feature	Presence On-Site
Quaternary / Holocene age sediments	Unlikely to be present Based on maps and relative elevation (≥ 18 m AHD)
Soil horizons less than 5m AHD	Not present Sandstone faces and cliffs present at the southern and eastern site boundaries, suggesting shallow soils layers, overlying bedrock
Marine / estuarine sediments or tidal lakes	Unlikely to be present Based on maps and relative elevation (≥ 18 m AHD)
Coastal wetland, back swamp, waterlogged or scaled areas, inter-dune swales or coastal sand dunes	Unlikely to be present Based on maps and walkover inspection
Dominant vegetation is mangroves, reeds, rushes and other swamp or marine tolerant species	Not present Based on walkover inspection
Geology containing sulfide-bearing material	Unlikely to be present Based on maps and relative elevation (≥ 18 m AHD)
Deep older (Pleistocene) estuarine sediments	Unlikely to be present Based on maps and relative elevation (≥ 18 m AHD)

3.4 Likelihood of ASS Occurrence

Based on the preliminary (inspection and desktop) findings, the site was situated within relatively elevated (≥ 18 m AHD) terrain, perched on a Hawkesbury Sandstone formation. The presence of alluvial (estuarine) deposits was unlikely.

Whilst the assessment to this point indicated the potential for the presence of ASSs on-site was low, the land was nonetheless in close proximity to both disturbed terrain and high probability areas. Further assessment was therefore warranted (prudent), in order to confirm the absence of ASSs. Such assessment had to involve soil sampling and laboratory analysis. This judgement was consistent with the *Lane Cove Local Environmental Plan 2009*, as well as Schedule 3 of the NSW *Environmental Planning and Assessment Regulation 1994*.

4. Field Work and Sample Analysis

4.1 Intrusive Soil Profiling

Field work for this assessment comprised the following tasks (**Appendix A, Figure 2**):

- Sub-surface profiling at five test boreholes, identified as BH1M, BH2M, BH3M, BH4 and BH5M;
- Soil sampling at each of the bores; and
- Laboratory analysis of representative soil samples for ASS parameters.

The boreholes were drilled by Geosense Drilling and Engineering Pty Ltd using a mechanical *Comacchio Geo 205* rig. The bore depths were 10.20m, 10.08m, 15.12m, 10.32m and 10.13m BGL, respectively, each terminating in sandstone bedrock.

Detailed borehole logs are provided in **Appendix C**. Based on these logs, the sub-surface of the site was generalised as (excluding any surface paving):

- anthropogenic filling materials, comprised of (dark) grey, gravelly sand, silty sand or clayey sand, with sub-angular to angular, fine to coarse gravels, as well as some clay, brick fragments and sandstone cobbles (to 0.10-2.3m BGL); overlying
- (dark) yellow brown and grey, natural (residual), silty clay (1.2- 2.0m BGL); overlying
- Pale grey and (dark) yellow/red/purple brown, sandstone bedrock (from 1.2-2m BGL, to at least 15.12m BGL).

Groundwater inflow was encountered in bores BH2M (at 1.0m BGL) and BH5M (at 1.9m BGL).

No field indicators of actual or potential ASS, such as pale yellow deposits / coatings of jarosite, dark (blue/green) grey muds or H₂S odour, were encountered during drilling and sampling.

4.2 Sampling Procedures

During the borehole drilling, soil samples were collected from bores BH1M, BH2M, BH4 and BH5. A stainless steel trowel was used to transfer soil aliquots from the auger flights into laboratory-supplied, zip-lock, plastic bags (the sampler wearing dedicated, sterile nitrile gloves). Each zip-lock bag was half-filled, then squeezed to minimise the headspace air volume, prior to sealing. The sealed sample was immediately stored in an insulated chest (containing ice packs), before transportation to the designated NATA-accredited laboratory.

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

4.3 Laboratory Analysis

To confirm the presence / absence of ASSs, representative samples were assigned for analysis of the parameters recommended in Section 2 *ASSs Assessment Guidelines* of Ahern *et al.* (1998) *Acid Sulfate Soil Manual* 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; 12 samples);
- peroxide oxidation pH (pH_{fox}; 12 samples);

- Chromium suite (ten samples; BH1M_0.3-0.4, BH1M_0.9-1.0, BH1M_1.4-1.5, BH2M_0.9-1.0, BH4M_1.6-1.7, BH5M_0.4-0.5, BH5M_0.9-1.0, BH5M_1.4-1.5, BH5M_2.0-2.1 and BH5M_2.4-2.5).

All laboratory analyses were conducted on discrete (un-composited) samples using NATA-registered methods. The detailed laboratory reports are provided in **Appendix D**. The results are summarised in **Table E1** in **Appendix E**.

4.4 Adopted Criteria

The soil analytical results were interpreted with respect to the indicators (screening and action criteria) for ASSs presented in Tables 2.3 and 4.4 of *Ahern et al. (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 1000 tonnes of fine to medium textured, sand soils would be disturbed; hence, the corresponding criteria from the above sources were:

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

Chromium Suite

- Chromium reducible sulfur (S_{Cr}): 0.03% w/w as sulfur

4.5 Analytical Results in Relation to the Adopted Criteria

Laboratory analytical results for the tested soil samples are tabulated in **Appendix E**.

Field pH (pH_f)

The pH_f measurements were performed on 1:5 soil/water extracts. The results ranged from 5.8 to 9.2, indicating the soils were slightly acidic to alkaline, based on the rankings defined by Chapman and Murphy (1989). All readings were well above 4, the threshold indicative of the presence of AASS.

Peroxide pH Testing (pH_{fox})

Subsequent pH_{fox} testing of the samples, which involved their oxidation with 30% hydrogen peroxide prior to measurement, established that there was minimal acid generating ability in the soils (pH_{fox} : 3.7-8.3). All final pH_{fox} readings were above 3, the threshold indicative of the presence of PASS. Several pH_f / pH_{fox} differences were >1 , reflecting the high organic matter contents.

Note:

It is known that various natural constituents other than sulfide are also able to react with peroxide, leading to the generation of acid. Indeed, constituents such as iron and manganese minerals, as well as non-sulfurous organic matter, 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; *Ahern et al.*, 1998).

Chromium Suite Results

The chromium suite was subsequently performed on ten samples (BH1M_0.3-0.4, BH1M_0.9-1.0, BH1M_1.4-1.5, BH2M_0.9-1.0, BH4M_1.6-1.7, BH5M_0.4-0.5, BH5M_0.9-1.0, BH5M_1.4-1.5, BH5M_2.0-2.1 and BH5M_2.4-2.5, to determine the inorganic (oxidisable) sulfur content, which correlates with PASS.

Potassium chloride extractable acidity (pH_{KCl}) ranged from 5.8 to 9.9, consistent with the pH_f measurements, confirming the soils were slightly acidic to alkaline and not containing actual acid sulfates.

Concentrations of chromium reducible sulfur were below the adopted *Action Criterion* of 0.03% w/w, with the exception of the shallow fill sample BH1M_0.3-0.4 (0.071% w/w). However, considering this soil was alkaline (pH_F 8.6), its pH_{FOX} was 8.3 and the net acidity was below the limit of reporting ($<0.005\%$ w/w as S), it was considered unlikely that any inorganic (unoxidised) sulphides posed a risk.

Summation

Based on the assessment findings, neither actual nor potential acid sulfate soils were present to any significant extent in the site soils to a depth of 2.5m BGL. Beyond this depth, sandstone bedrock occurs. As such, EI considered there was negligible risk from unoxidised sulfur compounds and the need for an ASS management plan during any future development was unwarranted.

Notes:

This ASSA coincided with a groundwater monitoring event (GME), recorded under EI report E26484.E17_Rev0 (dated 5 November 2024). A groundwater monitoring well was installed at each of BH1M, BH2M, BH3M and BH5M. The findings from this GME that were relevant to the ASSA were:

- The groundwater table was variable, but relatively shallow (1.22-5.31m BGL). It will be intercepted during the basement excavation and construction phases of the proposed development.
- The estimated permeability through sandstone bedrock was 4.68×10^{-9} to 1.24×10^{-7} m/s. The flow direction was south easterly, towards Tannery Creek, consistent with the topography, moving predominantly through the underlying sandstone bedrock, along bedding planes, joints and fractures.
- All groundwater was pale yellow grey in colour, with high turbidity. The turbidity readings ranged from 99-780 NTU.
- Electrical conductivity readings ranged from 647-806 $\mu\text{S}/\text{cm}$, indicating fresh water.
- pH ranged from 5.33-6.54, indicating acidic conditions, although not so acidic as to reflect the presence of actual acid sulfates.
- The reduction/oxidation (-301mV to 193mV) and dissolved oxygen (0.35-0.62 mg/L) readings indicated non-oxidising (low oxygen) conditions.

5. Conclusion

The site identified as 300 Burns Bay Road, Lane Cove in New South Wales was the subject of this ASSA, which was completed as part of a series of investigations in support of a proposed land redevelopment application to the New South Wales Department of Planning.

The key findings of this ASSA were as follows:

- The site was situated within relatively elevated ($\geq 18\text{m}$ AHD) terrain, perched on a Hawkesbury Sandstone formation. The presence of alluvial (estuarine) deposits was unlikely.
- With reference to the *Prospect / Parramatta River Acid Sulfate Soil Risk Map*, the site lies within an area of *No Known Occurrence*.
- Based on the logs for five test boreholes (BH1M, BH2M, BH3M, BH4 and BH5M), the sub-surface of the site was generalised as (excluding any surface paving):
 - anthropogenic filling materials, comprised of (dark) grey, gravelly sand, silty sand or clayey sand, with sub-angular to angular, fine to coarse gravels, as well as some clay, brick fragments and sandstone cobbles (to 0.10-2.3m BGL); overlying
 - (dark) yellow brown and grey, natural (residual), silty clay (1.2- 2.0m BGL); overlying
 - Pale grey and (dark) yellow/red/purple brown, sandstone bedrock (from 1.2-2m BGL, to at least 15.12m BGL).
- Neither the site, nor any of the examined soils to 2.5m BGL, displayed any of the field indicators for actual and potential ASSs.
- Laboratory analysis of representative samples confirmed that actual and potential ASSs were not present to any significant extent in the examined site soils to 2.5m BGL. Beyond that depth, sandstone bedrock occurred.

Based on the findings from this assessment and with due consideration of EI's *Statement of Limitations* (**Section 7**), EI concluded that the potential for ASSs to be present at the site was low. The likelihood that acid sulfate conditions would be generated during the proposed development was regarded as negligible. Hence, the preparation of an ASS management plan was unwarranted.

6. Recommendations

EI makes the following recommendations in relation to the proposed redevelopment of the site:

- All soils designated for off-site disposal, including any *virgin excavated natural material* (VENM), should be managed in accordance with an appropriate management plan, which references the *POEO (Waste) Regulations 2014*. The waste classification process will require representative soil sampling and analysis, in accordance with the EPA (2014) *Waste Classification Guidelines*.
- Once appropriately classified, all waste materials are to be transported by the appointed contractor(s) to facilities that are licenced with the New South Wales Environment Protection Authority (EPA). All tipping dockets supplied by the landfill companies are to be retained, to confirm the appropriate (lawful) disposal of wastes.
- Any material being imported to the site should 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 emphasise that these recommendations can be managed through the development application / consent process, in accordance with *State Environmental Planning Policy (Resilience and Hazards) 2021*.

7. Statement of Limitations

This report has been prepared for the exclusive use of Lane Cove Developments No. 1 Pty Ltd, whom is the only intended beneficiary of EI's work. The scope of the assessment carried out for the purpose of this report was limited to that agreed with Lane Cove Developments No. 1 Pty Ltd.

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

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

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

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

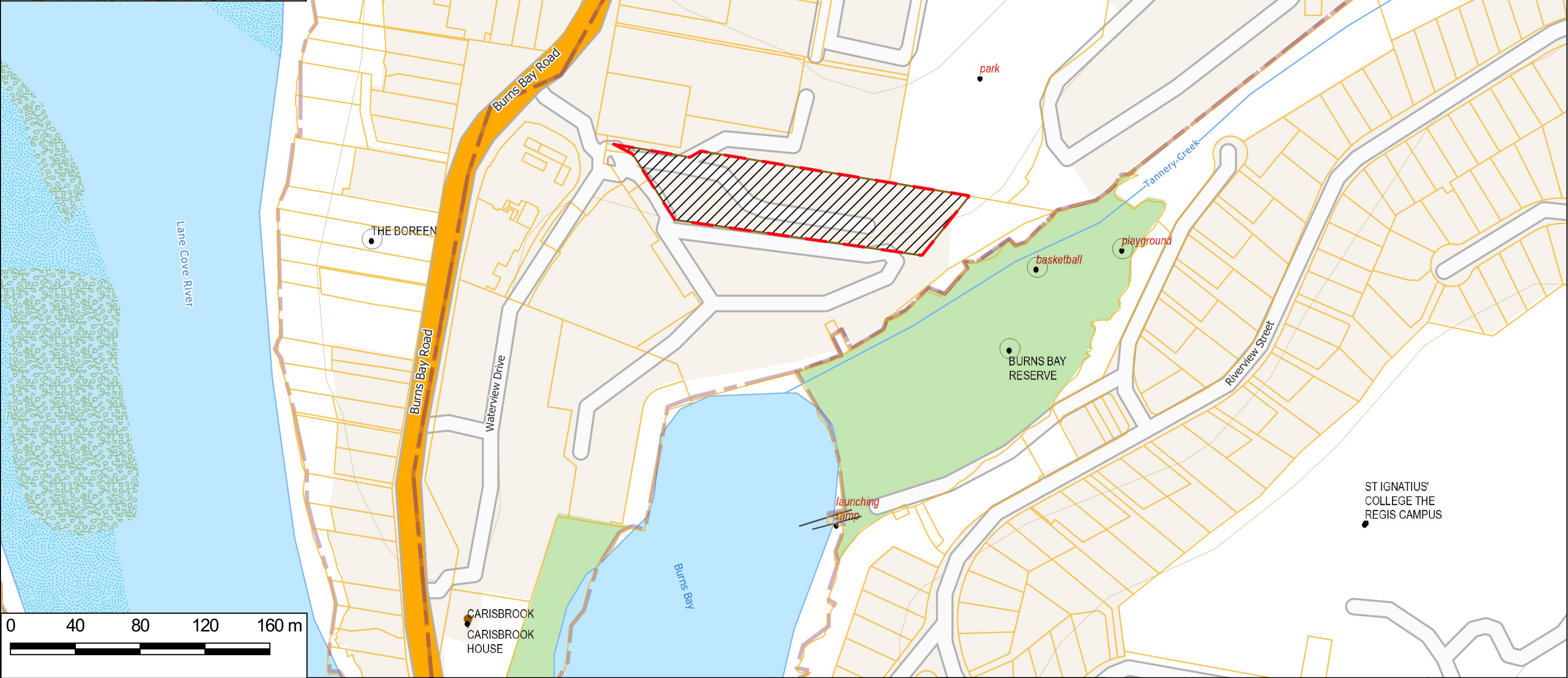
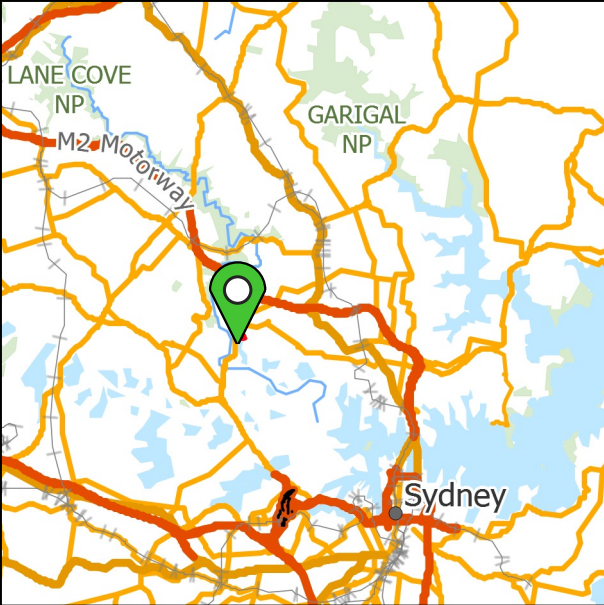
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Appendix A – Figures



LEGEND. Note: All locations are approximate		 eiaustralia Practical Solutions for Built Environments Suite 6.01, 55 Miller Street, PYRMONT 2009 Ph (02) 9516 0722 Fax (02) 9518 5088	Drawn:	M.C	Lane Cove Developments No.1 Pty Ltd Acid Sulfate Soil Assessment 300 Burns Bay Road, Lane Cove, NSW Site Locality Plan	Figure: 1
 Site Boundary			Approved:			Project: E26484.E14
			Date:	06/09/2024		



0 10 20 30 40 50 m

LEGEND. Note: All locations are approximate

 Site Boundary
  Borehole Location

 Proposed Basement Boundary
  Borehole/Monitoring Well Location

 Proposed landscape area



Drawn:	M.C.
Approved:	A.I.
Date:	08/12/2025

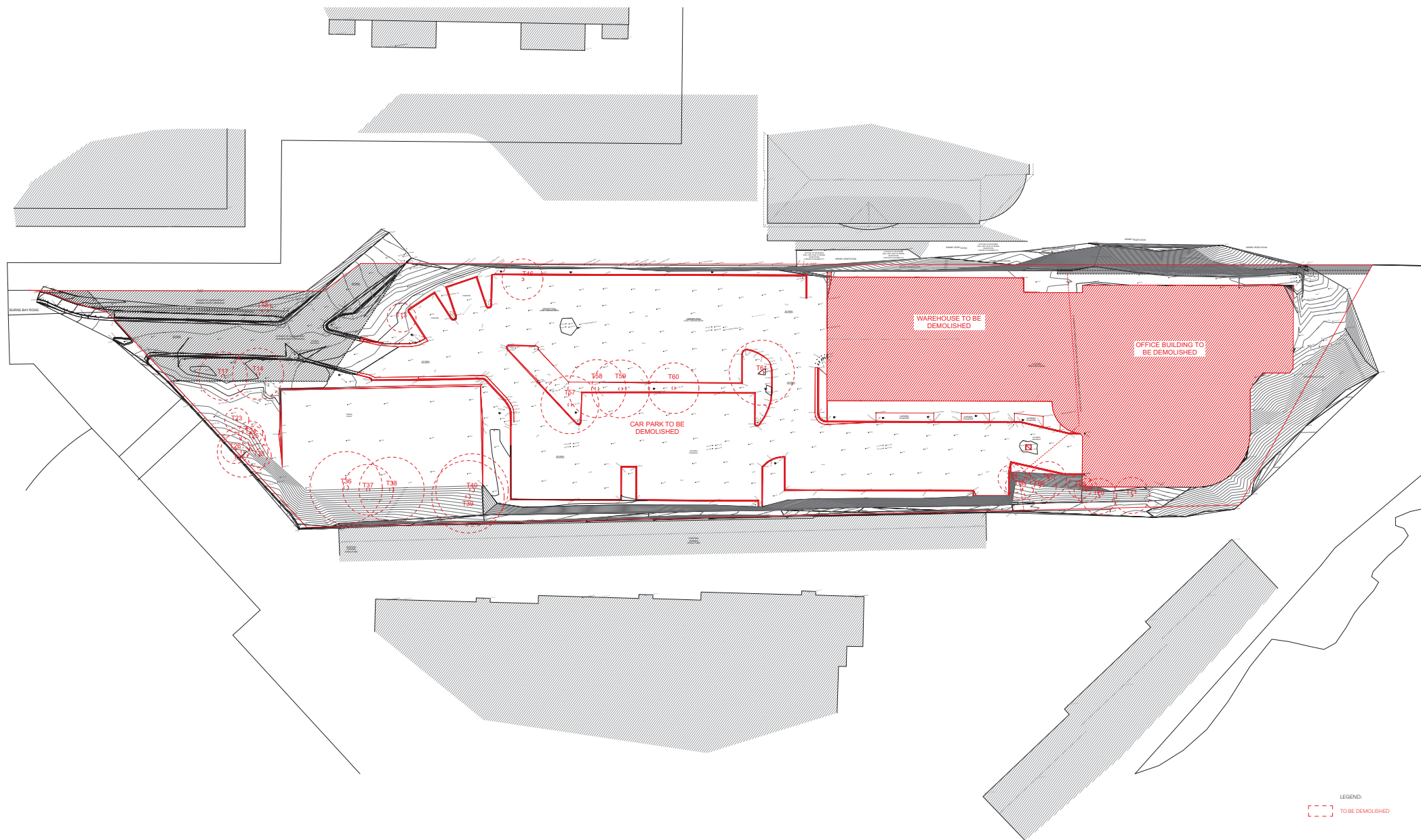
Lane Cove Developments No.1 Pty Ltd
Acid Sulfate Soil Assessment
300 Burns Bay Road, Lane Cove, NSW
Sampling Location Plan

Map Source:
NSW Spatial Collaboration Portal. Accessed 8/12/25

Figure: 2
Project: E26484.E14 Rev1

Appendix B – Architectural Drawings

- 
- TREE TP2



LEGEND:

 TO BE DEMOLISHED

GENERAL NOTES:

- ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATE/TERITORY/LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS
- DRAWINGS FOR THE PURPOSES OF DA ONLY **NOT** FOR CONSTRUCTION - FURTHER CONSULTANT/ AUTHORITY COORDINATION WILL BE REQUIRED AT SC STAGE WHICH MAY IMPACT ON DESIGN AND PLANNING VALUATIONS
- ARCHITECTURAL PLANS TO BE READ IN CONJUNCTION WITH CONSULTANT/DRAWINGS, SPECIFICATIONS & REPORTS
- COPYRIGHT OF DESIGN SHOWN HEREON IS RETAINED BY PBD ARCHITECTS AND AUTHORITY IS REQUIRED FOR ANY REPRODUCTION
- AREA SCHEDULES SUPPLIED ARE APPROXIMATE ONLY - FUTURE ALLOWANCE FOR VERTICAL SERVICE DUCTS, STRUCTURAL WALL SYSTEMS AND CONSULTANT INPUT WILL BE REQUIRED

[illegible]

P - 02 9698 8540
E - info@pbdarchitects.com.au
W - pbdarchitects.com.au

Level 2, 52 Albion Street,
Sunny Hills NSW 2010

ABN 36 947 035 550
Nominated Architect:
Paul Buljevic NSW 7768

PROJECT:
PROPOSED RESIDENTIAL FLAT BUILDING
300 Burns Bay Road, Lane Cove, NSW 2066

CLIENT:
Lane Cove Developments No.1 Pty Ltd

DRAWING TITLE:
Demolition Plan

DRAWING BY:
AL, HK

SCALE:
1:3000 A1

PROJECT NO:
2424

CHECKED BY:	KS
-------------	----

	DRAWING NO:
--	-------------

DATE:	30/01/2026
-------	------------

ISSUE:	
--------	--

01

LEGEND:

AW AWNING
AH ACCESS HATCH
AC A/C CONDENSER UNITS
FH FIRE HYDRANT
FHR FIRE HOSE REEL
FS FIRE STAIRS
GC GARBAGE CHUTE
HW HIGHLIGHT WINDOW
MV MECHANICAL RISER TO FUTURE DETAIL
MB MAILBOX TO FUTURE DETAIL
SK SKYLIGHT

STR STORAGE
HWU HOT WATER UNITS

(AH) AFFORDABLE HOUSING UNITS

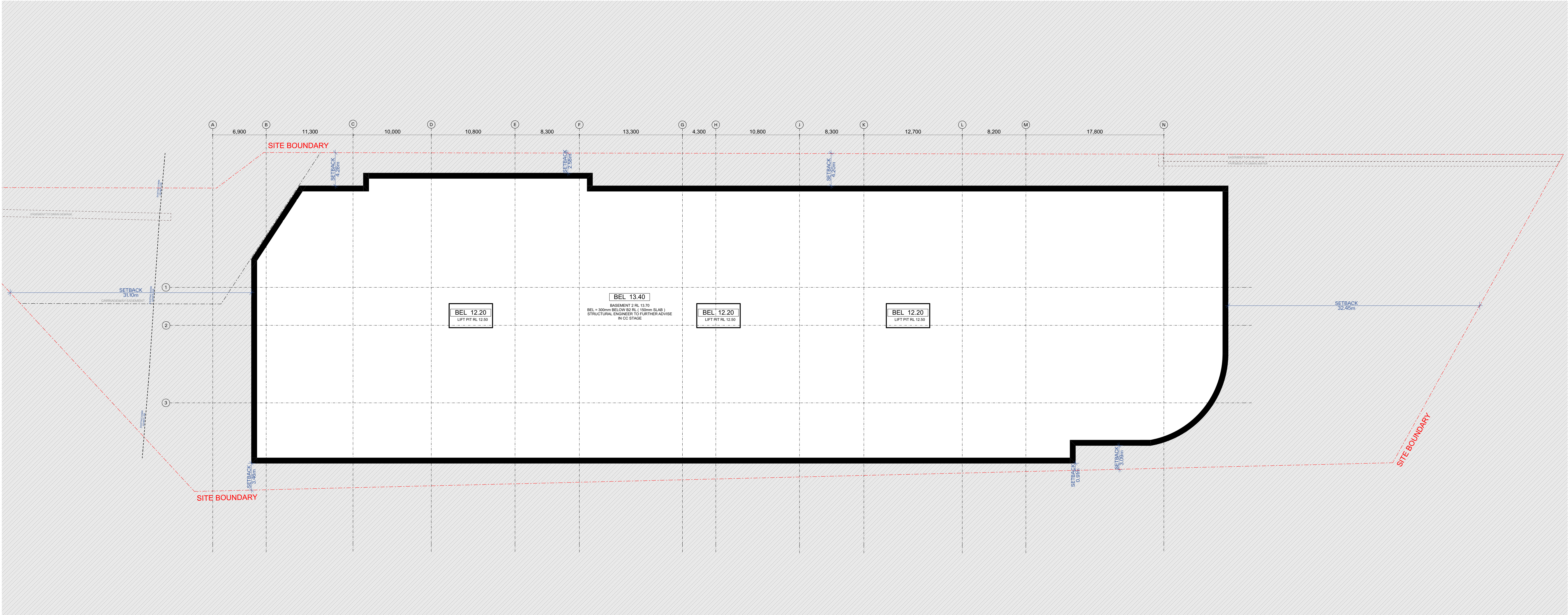
MATERIALS LEGEND:

AFG ALUMINIUM FRAMED GLAZING
LV ALUMINIUM ELLIPTICAL FIXED LOUVERS
AW AWNING (TO FUTURE DETAIL)
CONC CONCRETE
GB FRAMELESS TOUCHED GLASS BALUSTRADE (TO BCA/AUS STANDARDS)
MB METAL BALUSTRADE
MC METAL CLADDING
MF METAL FENCING (TO FUTURE SELECTION)

PSK PRIVACY SCREEN (TO FUTURE SELECTION)
PTX PAINT FINISH TYPE
RP ROOF RIVER PEBBLES
RW RENDERED FINISH/SELECTED PAINT FINISH

TREE LEGEND:

TREE TPZ



DRAFT

GENERAL NOTES: • ALL WORKS TO COMPLY WITH BUILDING CODE OF AUSTRALIA, REQUIREMENTS OF RELEVANT STATUTORY AUTHORITIES/ LOCAL GOVERNMENT & RELEVANT AUSTRALIAN BUILDING STANDARDS • DRAWINGS FOR THE PURPOSES OF DA ONLY (NOT FOR CONSTRUCTION) - FURTHER CONSULTANT/ AUTHORITY COORDINATION WILL BE REQUIRED AT CC STAGE WHICH MAY IMPACT ON DESIGN AND PLANNING LAYOUTS • ARCHITECTURAL PLANS TO BE READ IN CONJUNCTION WITH CONSULTANT'S DRAWINGS, SPECIFICATIONS & REPORTS • COPYRIGHT OF DESIGN SHOWN HEREON IS RETAINED BY PBD ARCHITECTS AND AUTHORITY IS REQUIRED FOR ANY REPRODUCTION • AREA SCHEDULES SUPPLIED ARE APPROXIMATE ONLY - FUTURE ALLOWANCE FOR VERTICAL SERVICE DUCTS, STRUCTURAL WALL SYSTEMS AND CONSULTANT INPUT WILL BE REQUIRED	Issue	Date	Description	N pbdarchitects P - 02 9698 8140 E - info@pbdarchitects.com.au W - pbdarchitects.com.au Level 2, 52 Albion Street, Surry Hills NSW 2010 ABN 36 147 035 550 Nominated Architect: Paul Buljevic NSW 7768	PROJECT: PROPOSED RESIDENTIAL FLAT BUILDING 300 Burns Bay Road, Lane Cove, NSW 2066 CLIENT: Lane Cove Developments No.1 Pty Ltd	DRAWING TITLE: Bulk Excavation Plan	DRAWING BY: AL, HK	CHECKED BY: KS	DATE: 11/02/2026
	A	11/02/2026	Issue For Information						

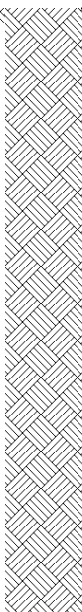
Appendix C – Borehole Logs

MONITORING WELL LOG

BH ID: BH1M

Location	300 Burns Bay Road, Lane Cove, NSW	Started	09 September 2024	
Client	Lane Cove Development No. 1 Pty Ltd	Completed	09 September 2024	
Job No.	E26484.G03	Logged By	KP	Date 09 September 2024
Sheets	1 of 2	Review By	Date	

Drilling Contractor	Geosense Drilling and Engineering	Surface RL	≈22.25 m (AHD)	Northing	6256177.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	328958.0000 (MGA 2020 Zone 56)

WATER		SAMPLES & FIELD TESTS		DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS		STANDPIPE DETAILS			
GWNE	BH1M_0.50-0.95 SPT 0.50-0.95 4,4,2 N=6	80%	BH1M_1.50-1.88 SPT 1.50-1.70 1,3/50 mm HB N=R	0.00		22.25	ASPHALT: 100mm thick	-	Steel Cover at Surface			Well Stickup =-0.10m (RL 22.15m)		
				0.10		22.15	FILL: Gravelly SAND: medium to coarse grained, grey, gravels are medium to coarse, angular to sub-angular	M	Cuttings 0.00m - 4.00m				0.10m - 5.0m PVC casing (50mm Ø)	
0%			0.40		21.85	FILL: Silty SAND: fine to medium grained, yellow brown, trace of fine to medium, sub-angular to angular and brick								
			0.80		21.45	From 0.80m, yellow brown-grey trace of clay								
				1		20.55	SANDSTONE: fine to medium grained, grey-white / brown-red							
				1.70		20.45	NO CORE: 300mm thick							
				2		20.15	SANDSTONE: fine to medium grained, grey-white / brown-red, laminated							
				2.10										
				3										
				3.10		19.15	From 3.10m, laminated							
				4										
				4.18		18.07	From 4.18m, pale grey, medium to thickly bedded							
				5										
				6										
				7										
				8										
				9										
				9.20		13.05	From 9.20m, interbedded with shale, dark grey							
				9.65										
				10		12.60	From 9.65m, medium bedded							

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

MONITORING WELL LOG

BH ID: BH1M

Location

300 Burns Bay Road, Lane Cove, NSW

Client

Lane Cove Development No. 1 Pty Ltd

Job No.

E26484.G03

Sheets

2 of 2

Started

09 September 2024

Completed

09 September 2024

Logged By

KP

Date

09 September 2024

Review By

Date

Drilling Contractor

Geosense Drilling and Engineering

Surface RL

≈22.25 m (AHD)

Northing

6256177.0000 (MGA 2020 Zone 56)

Plant

Comacchio Geo 205

Inclination

90°

Easting

328958.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
0%					From 9.65m, medium bedded			
				12.05	Terminated at 10.20m. 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: BH2M

Location	300 Burns Bay Road, Lane Cove, NSW	Started	11 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd	Completed	11 September 2024		
Job No.	E26484.G03	Logged By	KP	Date	11 September 2024
Sheets	1 of 2	Review By		Date	

Drilling Contractor	Geosense Drilling andnEngineering	Surface RL	≈22.60 m (AHD)	Northing	6256200.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	328946.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
▽	BH2M_0.50-0.95 SPT 0.50-0.95 10,8,11 N=19	0.00		22.60	ASPHALT: 100mm thick	-	Steel Cover at Surface	Well Stickup ≈-0.10m (RL 22.50m)
		0.10		22.50	FILL: Gravelly SAND: fine to medium grained, dark grey, gravels are fine to medium, angular to sub-angular	M	Cuttings 0.00m - 1.00m	
		0.30		22.30	FILL: Silty SAND: fine to medium grained, dark brown / grey, with medium to coarse, sub-angular to sub-rounded gravels and sandstone cobbles	W	Bentonite 1.00m - 1.50m	
		0.80		21.80	From 0.80m, medium to coarse grained, brown / pale grey-dark grey, trace of sandstone fragments	-	Sand 1.50m - 5.00m	
90%		1.00		21.60	SANDSTONE: fine to medium grained, grey-white, distinctly weathered, low strength			0.10m - 2.0m PVC casing (50mm Ø)
		1.20		21.40	SANDSTONE: fine to medium grained, pale grey, thinly to medium bedded			
0%		2.30		20.30	From 2.30m, purple red			
		2.45		20.15	NO CORE: 260mm thick			
90%		2.71		19.89	SANDSTONE: fine to medium grained, grey / orange brown, medium bedded			
		3.45		19.15	From 3.45m, pale grey			2.0m - 5.0m PVC screen (50mm Ø)
		4.20		18.40	From 4.20m, very thickly bedded			
		7.20		15.40	From 7.20m, medium to thickly bedded			
50%							Bentonite 5.00m - 5.50m	
							Sand 5.50m - 10.08m	

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

MONITORING WELL LOG

BH ID: BH2M

Location	300 Burns Bay Road, Lane Cove, NSW	Started	11 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd	Completed	11 September 2024		
Job No.	E26484.G03	Logged By	KP	Date	11 September 2024
Sheets	2 of 2	Review By		Date	

Drilling Contractor	Geosense Drilling andnEngineering	Surface RL	≈22.60 m (AHD)	Northing	6256200.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	328946.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
				12.52	From 7.20m, medium to thickly bedded Terminated at 10.08m. Target Depth Reached.			
		11						
		12						
		13						
		14						
		15						
		16						
		17						
		18						
		19						
		20						

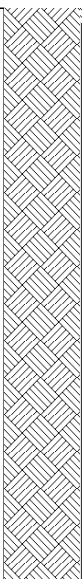
This log should be read in conjunction with EI Australia's accompanying explanatory notes.

MONITORING WELL LOG

BH ID: BH3M

Location	300 Burns Bay Road, Lane Cove, NSW	Started	09 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd	Completed	09 September 2024		
Job No.	E26484.G03	Logged By	KP	Date	09 September 2024
Sheets	1 of 2	Review By		Date	

Drilling Contractor	Geosense Drilling and Engineering	Surface RL	≈22.30 m (AHD)	Northing	6256195.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	329007.0000 (MGA 2020 Zone 56)

WATER		SAMPLES & FIELD TESTS		DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS		STANDPIPE DETAILS	
GWNE		BH3M_0.50-0.60 SPT 0.50-0.60 7/100 mm HB N=R		0.00		22.30	ASPHALT: 100mm thick	-	Steel Cover at Surface		Well Stickup = -0.10m (RL 22.20m)	
				0.10		22.20	FILL: Gravelly SAND: fine to medium grained, dark grey / pale grey, gravels are fine to medium, angular to sub-angular, trace of clay	M				
				0.50		21.80	SANDSTONE: fine to medium grained, grey-white, distinctly weathered, low strength	-				
60%				0.60		21.70	SANDSTONE: fine to medium grained, pale grey / brown, very thinly to thinly bedded					
				1								
				1.38		20.92	NO CORE: 180mm thick					
				1.56		20.74	SANDSTONE: fine to medium grained, brown / grey, very thinly bedded					
				1.81		20.49	From 1.81m, thinly to medium bedded		Cuttings 0.00m - 3.80m		0.10m - 5.0m PVC casing (50mm Ø)	
				2								
				2.77		19.53	From 2.77m, medium to thickly bedded					
				3								
				4								
				5					Bentonite 3.80m - 4.30m			
				6								
				7								
				8								
				7.89		14.41	From 7.89m, interbedded with shale, dark grey					
				8.68		13.62	From 8.68m, grey / grey-white					
				9								
				10					Bentonite 8.00m - 9.50m		5.0m - 8.0m PVC screen (50mm Ø)	

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

MONITORING WELL LOG

BH ID: BH3M

Location	300 Burns Bay Road, Lane Cove, NSW	Started	09 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd	Completed	09 September 2024		
Job No.	E26484.G03	Logged By	KP	Date	09 September 2024
Sheets	2 of 2	Review By		Date	

Drilling Contractor	Geosense Drilling and Engineering	Surface RL	≈22.30 m (AHD)	Northing	6256195.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	329007.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
80%		11			From 8.68m, grey / grey-white		Sand 9.50m - 15.12m	
		12						
		12.80		9.50	From 12.80m, thinly to medium bedded			
		13						
		14						
		15		7.18	Terminated at 15.12m. Target Depth Reached.			
		16						
		17						
		18						
		19						
		20						

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

BOREHOLE LOG

BH ID: BH4

Location	300 Burns Bay Road, Lane Cove, NSW	Started	10 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd	Completed	10 September 2024		
Job No.	E26484.G03	Logged By	KP	Date	10 September 2024
Sheets	1 of 3	Review By		Date	

Drilling Contractor	Geosense Drilling and Engineering	Surface RL	≈22.20 m (AHD)	Northing	6256173.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	329011.0000 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH5_0.50-0.95 SPT 0.50-0.95 5,3,2 N=5		0.00		22.20	ASPHALT: 150mm thick	-	-	ASPHALT
				0.15		22.05	FILL: Gravelly SAND: fine to medium grained, dark brown, gravels are fine to medium, angular to sub-angular	M	-	FILL
				0.50		21.70	FILL: Silty SAND: fine to medium grained, brown, trace of fine to medium, angular to sub-angular			FILL
				1.20		21.00	Silty CLAY: low plasticity, brown	M < PL	-	RESIDUAL SOIL
		BH5_1.50-1.80 SPT 1.50-1.70 0,4/50 mm HB N=R		1.50		20.70	From 1.50m, low plasticity, grey / orange brown, grading into extremely weathered sandstone			
				1.84		20.36	Log continued on next page.			
				2						

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

BOREHOLE CORE LOG

BH ID: BH4

Location	300 Burns Bay Road, Lane Cove, NSW	Started	10 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd	Completed	10 September 2024		
Job No.	E26484.G03	Logged By	KP	Date	10 September 2024
Sheets	2 of 3	Review By		Date	

Drilling Contractor	Geosense Drilling and Engineering	Surface RL	≈22.20 m (AHD)	Northing	6256173.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	329011.0000 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
				0			Log continued from previous page.		VL 0-1 L 0-3 M 1 H 3 VH 10 EH		30 100 300 1000 3000
				1							
		100	94	2			SANDSTONE: fine to medium grained, grey / dark brown, thickly bedded				
				3				SW			
				4						3.84: JT 25° PR RO CN 3.88-3.95: XWS 3.88: JT 25° PR RO CN	
				4.48		17.72	SANDSTONE: pale grey, thickly bedded			4.50: JT 15° PR RO CN	
		98	91	5				FR			
				6							
				6.51		15.69	NO CORE: 60mm thick			6.48-6.51: XWS	
				6.57		15.63	SANDSTONE: fine to medium grained, pale grey, interbedded with shale, dark shale, thinly to medium bedded			6.57-6.61: XWS	
				7							
				8				FR			
		100	93	8.68		13.52	From 8.68m, grey-brown, medium bedded			8.71-8.74: XWS	
				9							
				9.45		12.75	From 9.45m, grey, interbedded with shale, dark grey			9.49: JT 5° CU RO CN	
				10							

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

BOREHOLE CORE LOG

BH ID: BH4

Location	300 Burns Bay Road, Lane Cove, NSW	Started	10 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd	Completed	10 September 2024		
Job No.	E26484.G03	Logged By	KP	Date	10 September 2024
Sheets	3 of 3	Review By		Date	

Drilling Contractor	Geosense Drilling and Engineering	Surface RL	≈22.20 m (AHD)	Northing	6256173.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	329011.0000 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
	80%								VL 0-1 L 0-3 M 1 H 3 VH 10 EH		30 100 300 1000 3000
						11.88	From 9.45m, grey, interbedded with shale, dark grey			10.20-10.22: XWS	
							Terminated at 10.32m. Target Depth Reached.			10.22: JT 15° PR RO CN 10.31-10.32: XWS	
				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: BH5M

Location	300 Burns Bay Road, Lane Cove, NSW			Started	10 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd			Completed	10 September 2024		
Job No.	E26484.G03			Logged By	KP	Date	10 September 2024
Sheets	1 of 2			Review By	Date		
Drilling Contractor	Geosense drilling and engineering		Surface RL	≈22.15 m (AHD)	Northing	6256169.0000 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205		Inclination	90°	Easting	329038.0000 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		0.00		22.15	ASPHALT: 100mm thick	-	Steel Cover at Surface	
		0.10		22.05	FILL: Gravelly SAND: fine to medium grained, dark grey, gravels are fine to coarse, angular to sub-angular			Well Stickup ≈-0.10m (RL 22.05m)
	BH5M_0.60-1.05 SPT 0.60-1.05 4,2,3 N=5	0.60		21.55	FILL: Clayey SAND: medium to coarse grained, dark grey / grey-white, trace of clay and weathered sandstone and with fine to medium, angular to sub-angular gravel	M	Cuttings 0.00m - 3.00m	
▽	BH5M_1.50-1.95 SPT 1.50-1.95 3,0,0 N=0	1						
		2				W		
		2.30		19.85	SANDSTONE: medium to coarse grained, grey-white / yellow brown, extremely weathered sandstone, very low to low strength	-		
		2.50		19.65	SANDSTONE: fine to medium grained, grey / brown, medium to thickly bedded			0.10m - 5.0m PVC casing (50mm Ø)
		3						
70%		4					Bentonite 3.00m - 4.50m	
		5						
		5.60		16.55	From 5.60m, thinly to medium bedded			
		6						
		6.53		15.62	NO CORE: 120mm thick			
		6.65		15.50	SANDSTONE: fine to medium grained, grey / brown / purple red, medium to thickly bedded			5.0m - 8.0m PVC screen (50mm Ø)
80%		7						
		8					Sand 4.50m - 10.13m	
		9						
		10						

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

MONITORING WELL LOG

BH ID: BH5M

Location	300 Burns Bay Road, Lane Cove, NSW	Started	10 September 2024		
Client	Lane Cove Development No. 1 Pty Ltd	Completed	10 September 2024		
Job No.	E26484.G03	Logged By	KP	Date	10 September 2024
Sheets	2 of 2	Review By		Date	

Drilling Contractor	Geosense drilling and engineering	Surface RL	≈22.15 m (AHD)	Northing	6256169.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	329038.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
80 %				42.02	SANDSTONE: fine to medium grained, grey / brown / purple red, medium to thickly bedded Terminated at 10.13m. 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 D – Laboratory CoC Forms and Analytical Reports

Luong, Thi Song Van (Alexandria)

From: Andrew Schmidt - EIAustralia <andrew.schmidt@eiaustralia.com.au>
Sent: Friday, 20 September 2024 4:47 PM
To: AU.Environmental.Sydney, AU (Sydney); AU.SampleReceipt.Sydney, AU (Sydney)
Cc: Laboratory Results - EIAustralia; Linda Sweeney - EIAustralia
Subject: [EXTERNAL] RE: Report Job SE270939, your reference E26484 300 Burns Bay Rd, Lane Cove, order number E26484

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: PRINTED

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

Hi SGS,

Can we please test for Chromium reducible sulfur (CrS) on a standard TAT for the following samples:

SE270939.001 BH1M_0.3-0.4
SE270939.002 BH1M_0.9-1.0
SE270939.003 BH1M_1.4-1.5
SE270939.005 BH2M_0.9-1.0
SE270939.006 BH4M_1.6-1.7
SE270939.007 BH5M_0.4-0.5
SE270939.009 BH5M_0.9-1.0
SE270939.010 BH5M_1.4-1.5
SE270939.011 BH5M_2.0-2.1
SE270939.012 BH5M_2.4-2.5

SGS EHS Alexandria Laboratory



SE270939RE COC
Received: 20 – Sep – 2024

Would it also be possible to do a retest of pH/pHfox on 24hr TAT for sample:

SE270939.001 BH1M_0.3-0.4

Please let me know if you have any questions

Kind regards,

Andrew Schmidt
BEng. (Chem)
Environmental Engineer
T 02 9516 0722 M 0420 236 609
E andrew.schmidt@eiaustralia.com.au

Suite 6.01, 55 Miller Street
Pyrmont, NSW 2009

www.eiaustralia.com.au



Environmental | Geotechnical | Structural | Civil | Hazardous Materials

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From: AU.SampleReceipt.Sydney, AU (Sydney) <AU.SampleReceipt.Sydney@sgs.com>
Sent: Friday, September 20, 2024 2:52 PM
To: AU.SampleReceipt.GBS, AU (Alexandria) <AU.SampleReceipt.GBS@sgs.com>
Cc: AU.SampleReceipt.Sydney, AU (Sydney) <AU.SampleReceipt.Sydney@sgs.com>
Subject: FW: [EXTERNAL] RE: Report Job SE270939, your reference E26484 300 Burns Bay Rd, Lane Cove, order number E26484

Hi GBS,

Please book additional job – standard TAT forwarded below. Thank you.

Kind regards,

Please kindly Reply to All for a timely response. Thank you!

Van Luong
Industries & Environment
Sample Receipt Team Lead

SGS Australia Pty Ltd
Unit 16, 33 Maddox St
Alexandria NSW 2015
Phone: +61 2 8594 0400
Email: Thisongvan.Luong@sgs.com
Visit: <https://www.sgs.com/en-au>

How did we go? Your feedback helps us to improve.



From: Andrew Schmidt - EIAustralia <andrew.schmidt@eiaustralia.com.au>
Sent: Friday, September 20, 2024 4:47 PM
To: AU.Environmental.Sydney, AU (Sydney) <AU.Environmental.Sydney@SGS.com>; AU.SampleReceipt.Sydney, AU (Sydney) <AU.Samplerreceipt.Sydney@SGS.com>
Cc: Laboratory Results - EIAustralia <lab@eiaustralia.com.au>; Linda Sweeney - EIAustralia <linda.sweeney@eiaustralia.com.au>
Subject: [EXTERNAL] RE: Report Job SE270939, your reference E26484 300 Burns Bay Rd, Lane Cove, order number E26484

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

Hi SGS,

Can we please test for Chromium reducible sulfur (CrS) on a standard TAT for the following samples:

SE270939.001 BH1M_0.3-0.4
SE270939.002 BH1M_0.9-1.0
SE270939.003 BH1M_1.4-1.5
SE270939.005 BH2M_0.9-1.0
SE270939.006 BH4M_1.6-1.7
SE270939.007 BH5M_0.4-0.5
SE270939.009 BH5M_0.9-1.0
SE270939.010 BH5M_1.4-1.5
SE270939.011 BH5M_2.0-2.1
SE270939.012 BH5M_2.4-2.5

Would it also be possible to do a retest of pH/pHfox on 24hr TAT for sample:

SE270939.001 BH1M_0.3-0.4

Please let me know if you have any questions

Kind regards,

Andrew Schmidt

BEng. (Chem)

Environmental Engineer

T 02 9516 0722 **M** 0420 236 609

E andrew.schmidt@eiaustralia.com.au

Suite 6.01, 55 Miller Street
Pyrmont, NSW 2009

www.eiaustralia.com.au



Environmental | Geotechnical | Structural | Civil | Hazardous Materials

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 Please consider the environment before printing this email.

From: AU.Environmental.Sydney@SGS.com [<mailto:AU.Environmental.Sydney@SGS.com>]

Sent: Thursday, 19 September 2024 4:23 PM

To: Andrew Schmidt - EIAustralia; Laboratory Results - EIAustralia; Linda Sweeney - EIAustralia

Subject: Report Job SE270939, your reference E26484 300 Burns Bay Rd, Lane Cove, order number E26484

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.

Dear Valued Customer,

Please find attached the report for SGS job SE270939, your reference E26484 300 Burns Bay Rd, Lane Cove, order number E26484.

If you have any questions or concerns, please don't hesitate to contact your SGS Client Services representative.

Page 2 of 3

Please provide any feedback you have on our service via this link

https://sgssurveys.qualtrics.com/jfe/form/SV_6fbPVjB8TRGUXKC?utm_source=Feedback&utm_medium=email&utm_campaign=Survey

Best Regards,

SGS Alexandria Customer Service Team

SGS Australia Pty Ltd

Phone: +61 (0)2 8594 0400

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SAMPLE RECEIPT ADVICE

SE270939

CLIENT DETAILS

Contact Andrew Schmidt
Client EIAUSTRALIA
Address SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009

Telephone 61 2 95160722
Facsimile (Not specified)
Email andrew.schmidt@eiaustralia.com.au

Project **E26484 300 Burns Bay Rd, Lane Cove**
Order Number **E26484**
Samples 12

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 Thu 12/9/2024
Report Due Thu 19/9/2024
SGS Reference **SE270939**

SUBMISSION DETAILS

This is to confirm that 12 samples were received on Thursday 12/9/2024. Results are expected to be ready by COB Thursday 19/9/2024. Please quote SGS reference SE270939 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	12 Soil	Type of documentation received	COC
Date documentation received	12/9/2024	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	2.5°C
Sample container provider	Client	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

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SAMPLE RECEIPT ADVICE

SE270939

CLIENT DETAILS

Client **EI AUSTRALIA**

Project **E26484 300 Burns Bay Rd, Lane Cove**

SUMMARY OF ANALYSIS

No.	Sample ID	Field pH for Acid Sulphate Soil
001	BH1M_0.3-0.4	4
002	BH1M_0.9-1.0	4
003	BH1M_1.4-1.5	4
004	BH2M_0.4-0.5	4
005	BH2M_0.9-1.0	4
006	BH4M_1.6-1.7	4
007	BH5M_0.4-0.5	4
008	BH5M_0.7-0.8	4
009	BH5M_0.9-1.0	4
010	BH5M_1.4-1.5	4
011	BH5M_2.0-2.1	4
012	BH5M_2.4-2.5	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 .



SAMPLE RECEIPT ADVICE

SE270939A

CLIENT DETAILS

Contact **Andrew Schmidt**
Client **EI AUSTRALIA**
Address **SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009**

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

Project **E26484 300 Burns Bay Rd, Lane Cove**
Order Number **E26484**
Samples **12**

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 20/9/2024**
Report Due **Fri 27/9/2024**
SGS Reference **SE270939A**

SUBMISSION DETAILS

This is to confirm that 12 samples were received on Friday 20/9/2024. Results are expected to be ready by COB Friday 27/9/2024. Please quote SGS reference SE270939A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	10 Soil	Type of documentation received	Email
Date documentation received	20/9/2024@4:47PM	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	2.5°C
Sample container provider	Client	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 Suite subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146.

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SAMPLE RECEIPT ADVICE

SE270939A

CLIENT DETAILS

Client **EI AUSTRALIA**

Project **E26484 300 Burns Bay Rd, Lane Cove**

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)
001	BH1M_0.3-0.4	6	2	7	1	1	5
002	BH1M_0.9-1.0	6	2	7	1	1	5
003	BH1M_1.4-1.5	6	2	7	1	1	5
005	BH2M_0.9-1.0	6	2	7	1	1	5
006	BH4M_1.6-1.7	6	2	7	1	1	5
007	BH5M_0.4-0.5	6	2	7	1	1	5
009	BH5M_0.9-1.0	6	2	7	1	1	5
010	BH5M_1.4-1.5	6	2	7	1	1	5
011	BH5M_2.0-2.1	6	2	7	1	1	5
012	BH5M_2.4-2.5	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 .



SAMPLE RECEIPT ADVICE

SE270939RE

CLIENT DETAILS

Contact Andrew Schmidt
Client EIAUSTRALIA
Address SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009

Telephone 61 2 95160722
Facsimile (Not specified)
Email andrew.schmidt@eiaustralia.com.au

Project **E26484 300 Burns Bay Rd, Lane Cove- Re**
Order Number **E26484**
Samples 12

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 20/9/2024
Report Due Mon 23/9/2024
SGS Reference **SE270939RE**

SUBMISSION DETAILS

This is to confirm that 12 samples were received on Friday 20/9/2024. Results are expected to be ready by COB Monday 23/9/2024. Please quote SGS reference SE270939RE when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Soil	Type of documentation received	Email
Date documentation received	20/09/2024@4:47pm	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	2.5°C
Sample container provider	Client	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

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SAMPLE RECEIPT ADVICE

SE270939RE

CLIENT DETAILS

Client **EI AUSTRALIA**

Project **E26484 300 Burns Bay Rd, Lane Cove- Re**

SUMMARY OF ANALYSIS

No.	Sample ID	Field pH for Acid Sulphate Soil
001	BH1M_0.3-0.4	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 Andrew Schmidt
Client EI AUSTRALIA
Address SUITE 6.01
 55 MILLER STREET
 PYRMONT NSW 2009

Telephone 61 2 95160722
Facsimile (Not specified)
Email andrew.schmidt@eiaustralia.com.au

Project **E26484 300 Burns Bay Rd, Lane Cove**
Order Number **E26484**
Samples 12

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 **SE270939 R0**
Date Received 12/9/2024
Date Reported 19/9/2024

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: 18/9/2024

			BH1M_0.3-0.4	BH1M_0.9-1.0	BH1M_1.4-1.5	BH2M_0.4-0.5	BH2M_0.9-1.0
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/9/2024	9/9/2024	9/9/2024	11/9/2024	11/9/2024
PARAMETER	UOM	LOR	SE270939.001	SE270939.002	SE270939.003	SE270939.004	SE270939.005
pHf	pH Units	-	8.4	8.4	8.3	8.2	9.0
pHfox	pH Units	-	8.6	6.7	6.3	7.1	7.3
Reaction Rate (pHfox)*	No unit	-	4	3	3	1	2
pH Difference*	pH Units	-10	-0.2	1.6	2.0	1.1	1.7

			BH4M_1.6-1.7	BH5M_0.4-0.5	BH5M_0.7-0.8	BH5M_0.9-1.0	BH5M_1.4-1.5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			10/9/2024	10/9/2024	10/9/2024	10/9/2024	10/9/2024
PARAMETER	UOM	LOR	SE270939.006	SE270939.007	SE270939.008	SE270939.009	SE270939.010
pHf	pH Units	-	5.8	8.8	9.2	9.1	8.5
pHfox	pH Units	-	3.7	6.9	7.9	7.8	7.0
Reaction Rate (pHfox)*	No unit	-	2	2	2	2	2
pH Difference*	pH Units	-10	2.1	1.9	1.3	1.4	1.5

			BH5M_2.0-2.1	BH5M_2.4-2.5
			SOIL	SOIL
			-	-
			10/9/2024	10/9/2024
PARAMETER	UOM	LOR	SE270939.011	SE270939.012
pHf	pH Units	-	7.2	6.8
pHfox	pH Units	-	3.9	4.4
Reaction Rate (pHfox)*	No unit	-	2	2
pH Difference*	pH Units	-10	3.2	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.

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ANALYTICAL REPORT



Accreditation No. 2562

CLIENT DETAILS

Contact **Andrew Schmidt**
Client **EI AUSTRALIA**
Address **SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009**

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

Project **E26484 300 Burns Bay Rd, Lane Cove**
Order Number **E26484**
Samples **12**

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 **SE270939A R0**
Date Received **20/9/2024**
Date Reported **26/9/2024**

COMMENTS

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

Chromium Suite subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146. Report No: CE177557

SIGNATORIES



ANALYTICAL RESULTS

SE270939A R0

Moisture Content [AN002] Tested: 26/9/2024

			BH1M_0.3-0.4	BH1M_0.9-1.0	BH1M_1.4-1.5	BH2M_0.9-1.0	BH4M_1.6-1.7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/9/2024	9/9/2024	9/9/2024	11/9/2024	10/9/2024
PARAMETER	UOM	LOR	SE270939A.001	SE270939A.002	SE270939A.003	SE270939A.005	SE270939A.006
% Moisture	%w/w	0.5	7.2	10	5.7	13	14

			BH5M_0.4-0.5	BH5M_0.9-1.0	BH5M_1.4-1.5	BH5M_2.0-2.1	BH5M_2.4-2.5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			10/9/2024	10/9/2024	10/9/2024	10/9/2024	10/9/2024
PARAMETER	UOM	LOR	SE270939A.007	SE270939A.009	SE270939A.010	SE270939A.011	SE270939A.012
% Moisture	%w/w	0.5	11	11	12	17	13

TAA (Titration Actual Acidity) [AN219] Tested: 26/9/2024

PARAMETER	UOM	LOR	BH1M_0.3-0.4	BH1M_0.9-1.0	BH1M_1.4-1.5	BH2M_0.9-1.0	BH4M_1.6-1.7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/9/2024 SE270939A.001	9/9/2024 SE270939A.002	9/9/2024 SE270939A.003	11/9/2024 SE270939A.005	10/9/2024 SE270939A.006
pH KCl*	pH Units	-	8.9	8.9	8.7	9.9	5.8
Titration Actual Acidity	kg H ₂ SO ₄ /T	0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Titration Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5	<5
Titration Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-	-

PARAMETER	UOM	LOR	BH5M_0.4-0.5	BH5M_0.9-1.0	BH5M_1.4-1.5	BH5M_2.0-2.1	BH5M_2.4-2.5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			10/9/2024 SE270939A.007	10/9/2024 SE270939A.009	10/9/2024 SE270939A.010	10/9/2024 SE270939A.011	10/9/2024 SE270939A.012
pH KCl*	pH Units	-	9.6	9.8	9.6	6.7	6.4
Titration Actual Acidity	kg H ₂ SO ₄ /T	0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Titration Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5	<5
Titration Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-	-



ANALYTICAL RESULTS

SE270939A R0

Chromium Reducible Sulfur (CRS) [AN217] Tested: 26/9/2024

			BH1M_0.3-0.4	BH1M_0.9-1.0	BH1M_1.4-1.5	BH2M_0.9-1.0	BH4M_1.6-1.7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/9/2024	9/9/2024	9/9/2024	11/9/2024	10/9/2024
PARAMETER	UOM	LOR	SE270939A.001	SE270939A.002	SE270939A.003	SE270939A.005	SE270939A.006
Chromium Reducible Sulfur (Scr)	%	0.005	0.071	0.010	0.006	0.006	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	44	6	<5	<5	<5

			BH5M_0.4-0.5	BH5M_0.9-1.0	BH5M_1.4-1.5	BH5M_2.0-2.1	BH5M_2.4-2.5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			10/9/2024	10/9/2024	10/9/2024	10/9/2024	10/9/2024
PARAMETER	UOM	LOR	SE270939A.007	SE270939A.009	SE270939A.010	SE270939A.011	SE270939A.012
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	0.006	0.006
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5	<5

Acid Neutralising Capacity (ANC) [AN214] Tested: 26/9/2024

PARAMETER	UOM	LOR	BH1M_0.3-0.4	BH1M_0.9-1.0	BH1M_1.4-1.5	BH2M_0.9-1.0	BH5M_0.4-0.5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/9/2024 SE270939A.001	9/9/2024 SE270939A.002	9/9/2024 SE270939A.003	11/9/2024 SE270939A.005	10/9/2024 SE270939A.007
Acid Neutralisation Capacity (ANCBT) as % CaCO ₃	% CaCO ₃	0.1	5.9	2.3	2.9	1.4	3.0
Acid Neutralisation Capacity (ANCBT) as kg H ₂ SO ₄ /t	kg H ₂ SO ₄ /t	0.1	58	22	28	13	29
ANC as % CaCO ₃	% CaCO ₃	0.1	5.9	2.3	2.9	1.4	3.0
Lime Equivalence	% CaCO ₃	0.1	5.9	2.3	2.9	1.4	3.0
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H ⁺ /T	3	1200	450	570	270	600
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	1.9	0.72	0.92	0.44	0.96

PARAMETER	UOM	LOR	BH5M_0.9-1.0	BH5M_1.4-1.5	BH5M_2.0-2.1
			SOIL	SOIL	SOIL
			-	-	-
			10/9/2024 SE270939A.009	10/9/2024 SE270939A.010	10/9/2024 SE270939A.011
Acid Neutralisation Capacity (ANCBT) as % CaCO ₃	% CaCO ₃	0.1	2.3	1.3	0.2
Acid Neutralisation Capacity (ANCBT) as kg H ₂ SO ₄ /t	kg H ₂ SO ₄ /t	0.1	22	12	1.8
ANC as % CaCO ₃	% CaCO ₃	0.1	2.3	1.3	0.2
Lime Equivalence	% CaCO ₃	0.1	2.3	1.3	0.2
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H ⁺ /T	3	450	250	37
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	0.72	0.40	0.060

Chromium Suite Net Acidity Calculations [AN220] Tested: 26/9/2024

PARAMETER	UOM	LOR	BH1M_0.3-0.4	BH1M_0.9-1.0	BH1M_1.4-1.5	BH2M_0.9-1.0	BH4M_1.6-1.7
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			9/9/2024 SE270939A.001	9/9/2024 SE270939A.002	9/9/2024 SE270939A.003	11/9/2024 SE270939A.005	10/9/2024 SE270939A.006
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005	0.012
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5	7
Liming Rate*	kg CaCO ₃ /T	0.1	<0.1	<0.1	<0.1	<0.1	-
Verification s-Net Acidity*	%w/w S	-20	-1.2	-0.47	-0.61	-0.29	0.00
a-Net Acidity without ANCBT*	moles H+/T	5	44	6	<5	<5	7
Liming Rate without ANCBT*	kg CaCO ₃ /T	0.1	3.3	-	<0.1	<0.1	-
s-Net Acidity without ANC	%w/w S	0.005	0.071	0.010	0.006	0.006	0.012

PARAMETER	UOM	LOR	BH5M_0.4-0.5	BH5M_0.9-1.0	BH5M_1.4-1.5	BH5M_2.0-2.1	BH5M_2.4-2.5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			10/9/2024 SE270939A.007	10/9/2024 SE270939A.009	10/9/2024 SE270939A.010	10/9/2024 SE270939A.011	10/9/2024 SE270939A.012
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5	<5
Liming Rate*	kg CaCO ₃ /T	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity*	%w/w S	-20	-0.64	-0.48	-0.27	-0.03	0.01
a-Net Acidity without ANCBT*	moles H+/T	5	<5	<5	<5	<5	<5
Liming Rate without ANCBT*	kg CaCO ₃ /T	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
s-Net Acidity without ANC	%w/w S	0.005	<0.005	<0.005	<0.005	0.006	0.008

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 ₄ -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 ₂ SO ₄ /tonne or %CaCO ₃ . 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 ₂ S) which is collected and titrated with iodine (I ₂ (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.

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ANALYTICAL REPORT



Accreditation No. 2562

CLIENT DETAILS

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Project **E26484 300 Burns Bay Rd, Lane Cove- Re**
Order Number **E26484**
Samples 12

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SGS Reference **SE270939RE R0**
Date Received 20/9/2024
Date Reported 23/9/2024

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: 23/9/2024

			BH1M_0.3-0.4
			SOIL
			-
			9/9/2024
PARAMETER	UOM	LOR	SE270939RE.001
pHf	pH Units	-	8.6
pHfox	pH Units	-	8.3
Reaction Rate (pHfox)*	No unit	-	1
pH Difference*	pH Units	-10	0.2

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.

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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.

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STATEMENT OF QA/QC PERFORMANCE

SE270939 R0

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Order Number **E26484**
Samples 12

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SGS Reference **SE270939 R0**
Date Received 12 Sep 2024
Date Reported 19 Sep 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	12 Soil	Type of documentation received	COC
Date documentation received	12/9/2024	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	2.5°C
Sample container provider	Client	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

SE270939 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
BH1M_0.3-0.4	SE270939.001	LB324152	09 Sep 2024	12 Sep 2024	07 Oct 2024	18 Sep 2024	07 Oct 2024	19 Sep 2024
BH1M_0.9-1.0	SE270939.002	LB324152	09 Sep 2024	12 Sep 2024	07 Oct 2024	18 Sep 2024	07 Oct 2024	19 Sep 2024
BH1M_1.4-1.5	SE270939.003	LB324152	09 Sep 2024	12 Sep 2024	07 Oct 2024	18 Sep 2024	07 Oct 2024	19 Sep 2024
BH2M_0.4-0.5	SE270939.004	LB324152	11 Sep 2024	12 Sep 2024	09 Oct 2024	18 Sep 2024	09 Oct 2024	19 Sep 2024
BH2M_0.9-1.0	SE270939.005	LB324152	11 Sep 2024	12 Sep 2024	09 Oct 2024	18 Sep 2024	09 Oct 2024	19 Sep 2024
BH4M_1.6-1.7	SE270939.006	LB324152	10 Sep 2024	12 Sep 2024	08 Oct 2024	18 Sep 2024	08 Oct 2024	19 Sep 2024
BH5M_0.4-0.5	SE270939.007	LB324152	10 Sep 2024	12 Sep 2024	08 Oct 2024	18 Sep 2024	08 Oct 2024	19 Sep 2024
BH5M_0.7-0.8	SE270939.008	LB324152	10 Sep 2024	12 Sep 2024	08 Oct 2024	18 Sep 2024	08 Oct 2024	19 Sep 2024
BH5M_0.9-1.0	SE270939.009	LB324152	10 Sep 2024	12 Sep 2024	08 Oct 2024	18 Sep 2024	08 Oct 2024	19 Sep 2024
BH5M_1.4-1.5	SE270939.010	LB324152	10 Sep 2024	12 Sep 2024	08 Oct 2024	18 Sep 2024	08 Oct 2024	19 Sep 2024
BH5M_2.0-2.1	SE270939.011	LB324152	10 Sep 2024	12 Sep 2024	08 Oct 2024	18 Sep 2024	08 Oct 2024	19 Sep 2024
BH5M_2.4-2.5	SE270939.012	LB324152	10 Sep 2024	12 Sep 2024	08 Oct 2024	18 Sep 2024	08 Oct 2024	19 Sep 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 %
SE270939.010	LB324152.012	pHf	pH Units	-	8.5	8.5	30	0
		pHfox	pH Units	-	7.0	6.7	30	4
SE270939.012	LB324152.015	pHf	pH Units	-	6.8	6.7	30	1
		pHfox	pH Units	-	4.4	4.0	30	8



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

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

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

- * 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.

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STATEMENT OF QA/QC PERFORMANCE

SE270939A R0

CLIENT DETAILS

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Project **E26484 300 Burns Bay Rd, Lane Cove**
Order Number **E26484**
Samples 12

LABORATORY DETAILS

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SGS Reference **SE270939A R0**
Date Received 20 Sep 2024
Date Reported 26 Sep 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	10 Soil	Type of documentation received	Email
Date documentation received	20/9/2024@4:47PM	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	2.5°C
Sample container provider	Client	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

- * 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.

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STATEMENT OF QA/QC PERFORMANCE

SE270939RE R0

CLIENT DETAILS

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Project **E26484 300 Burns Bay Rd, Lane Cove- Re**
Order Number **E26484**
Samples 12

LABORATORY DETAILS

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SGS Reference **SE270939RE R0**
Date Received 20 Sep 2024
Date Reported 23 Sep 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.

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

SAMPLE SUMMARY

Sample counts by matrix	1 Soil	Type of documentation received	Email
Date documentation received	20/09/2024@4:47pr	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	2.5°C
Sample container provider	Client	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

SE270939RE 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)-ENVJAN104

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.3-0.4	SE270939RE.001	LB324556	09 Sep 2024	20 Sep 2024	07 Oct 2024	23 Sep 2024	07 Oct 2024	23 Sep 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 %
SE270928A.003	LB324556.012	pHf	pH Units	-	8.037	7.989	30	1
		pHfox	pH Units	-	5.239	5.342	30	2
SE270939RE.00	LB324556.015	pHf	pH Units	-	8.6	8.6	30	1
1		pHfox	pH Units	-	8.3	8.4	30	1



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.

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Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

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No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
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- † Refer to relevant report comments for further information.

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Appendix E – ASS Analytical Results

Table E1 Summary of Acid Sulfate Soil Results

E26484- Lane Cove

Sample	Sampling Date	Soil Type	pH (Lab) Screening			Chromium Suite				
			pH _F	pH _{FOX}	pH Difference (pH _F - pH _{FOX})	pH KCl	TAA (%w/w S)	S _{Cr} (%)	Net Acidity (%w/w S)	Liming Rate (kg CaCO ₃ /t)
Laboratory Analytical Results										
BH1M_0.3-0.4	9/9/2024	FILL	8.6	8.3	0.2	8.9	<0.01	0.071	<0.005	<0.1
BH1M_0.9-1.0		FILL	8.4	6.7	1.6	8.9	<0.01	0.01	<0.005	<0.1
BH1M_1.4-1.5		FILL	8.3	6.3	2	8.7	<0.01	0.006	<0.005	<0.1
BH2M_0.4-0.5	11/9/2024	FILL	8.2	7.1	1.1	NA	NA	NA	NA	NA
BH2M_0.9-1.0		FILL	9	7.3	1.7	9.9	<0.01	0.006	<0.005	<0.1
BH4M_1.6-1.7	10/9/2024	NATURAL	5.8	3.7	2.1	5.8	<0.01	<0.005	0.012	not reported
BH5M_0.4-0.5		FILL	8.8	6.9	1.9	9.6	<0.01	<0.005	<0.005	<0.1
BH5M_0.7-0.8		FILL	9.2	7.9	1.3	NA	NA	NA	NA	NA
BH5M_0.9-1.0		FILL	9.1	7.8	1.4	9.8	<0.01	<0.005	<0.005	<0.1
BH5M_1.4-1.5		FILL	8.5	7	1.5	9.6	<0.01	<0.005	<0.005	<0.1
BH5M_2.0-2.1		FILL	7.2	3.9	3.2	6.7	<0.01	0.006	<0.005	<0.1
BH5M_2.4-2.5		NATURAL	6.8	4.4	2.5	6.4	<0.01	0.006	<0.005	<0.1
Statistical Analysis										
Minimum			5.8	3.7	0.2	5.8	<0.01	0.006	<0.005	<0.1
Maximum			9.2	8.3	3.2	9.9	<0.01	0.071	0.012	<0.1
SILs										
	Action Criterion for >1 tonne coarse textured soil disturbed							≥0.03		
	Field pH Indicator of AASS	≤ 4 actual ASS are present								
		>4 - <5.5 are acidic, but limited; not confirmatory of actual ASS								
	Field Indicator of PASS		pHfox <3 and a strong reaction to peroxide, indicates a high level of certainty							
			pHFOX >3 and ≤4, less positive and further testing required							
			pHFOX >4 and ≤5, neither positive or negative and further testing required							
			pHFOX >5 and little or no drop in pH, PASS unlikely							
	Field Indicator of PASS					>1 may indicate PASS				

Notes:

pH_F≤4, indicates that actual acid sulfate soil are present with sulphides being oxidised in the past resulting in acid soil (and soil pore water) conditions

pH_F values >4 and <5.5 are acid and may be the result of some previous or limited oxidation of sulfides but is not confirmatory of actual ASS

If pH_{FOX} is more than one pH unit below the pH_F, it may indicate potential acid sulfate soils

pH_{FOX} <3 and a strong reaction to peroxide, indicates a high level of certainty of a potential acid sulfate soils

pH_{FOX} >3 and <=4 is less positive for presence of actual acid sulfate soils and laboratory analyses is need to confirm if sulphides are present

pH_{FOX} >4 and <=5 is neither positive or negative for presence of actual acid sulfate soils and further laboratory analysis is needed to confirm if oxidisable sulphides are present

pH_{FOX} >5 and little or no drop in pH from the field value indicates little net acid generating ability

S_{Cr} – Chromium reducible sulfur

pH_F – Field pH

pH_{FOX} – Peroxide oxidised pH

pH_{KCL} – Potassium chloride pH

TAA - Titratable actual acidity

