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17 OXFORD STREET PTY LTD

Additional Geotechnical Investigation

13-17 Oxford Street and 2 Verona Street, Paddington, NSW

E25559.G04
18 November 2025

Document Control

Report Title:	Additional Geotechnical Investigation, 13-15 and 17 Oxford Street and 2 Verona, Paddington, NSW
Report No:	E25559.G04

Copies	Recipient
1 Soft Copy (PDF – Secured, issued by email)	Jack Joseph 17 Oxford Street Pty Ltd Suite 5A, 2 New McLean Street EDGECLIFFE NSW 2027
2 Original (Saved to Digital Archives) (\\Pah\ei-au$\07 - Projects\E25559_Sammy Soliman_Paddington_GI\05_Deliverables\Work in Progress\G04\E25559.G04 - AGI final.docx)	EI Australia Suite 6.01, 55 Miller Street, PYRMONT NSW 2009

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Revision	Details	Date	Amended By
	Original	18 November 2025	SK

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1. Introduction

1.1 Background

At the request of 17 Oxford Street Pty Ltd (the Client), EI Australia (EI) has carried out an Additional Geotechnical Investigation (AGI) for the proposed redevelopment at 13-17 Oxford Street and 2 Verona Street, Paddington, NSW (the Site). This AGI report has been prepared to provide advice and recommendations to assist in the preparation of designs for the proposed redevelopment. The most recent investigation has been carried out in accordance with the agreed scope of works outlined in EI's proposal referenced P20177.10 dated 8 August 2025.

EI has previously prepared the following relevant reports for this site:

- Geotechnical Investigation Report (GI) – Report No. E25559.G03, 24 May 2022.
- Groundwater Take Assessment (GTA) – Report No. E25559.G12_Rev4, 16 June 2025.

The following reports by others were provided to EI by the Client:

- Numerical Modelling Report prepared by Douglas Partners, Project No. 86362.02, REV 1, dated 9 September 2020.
- Hydrogeology Report prepared by Douglas Partners, Projects No. 212062.00, Rev 2, dated 13 November 2023 and;
- Geotechnical Report prepared by Douglas Partners (DP), Projects No. 212062.00, Rev 0, dated 12 July 2023.

This AGI incorporates the previous boreholes by EI and DP as part of its assessment and recommendations.

1.2 Proposed Development

The following documents, which were supplied by the Client, were used to assist with the preparation of this AGI report:

- Architectural drawings prepared by Tonkin Zulaikha Greer Architect Pty Ltd, Job No: 24026 – Dated 17 November 2025;
- Survey Plan prepared by Boxall, Drawing No:1144-001,REV D- dated 22 July 2024
- Architectural plans of the existing site building annotated by the client – Drawing No. GA17, Dated February 1994.
- Structural plans and details of the existing site building prepared by Connell Wagner and annotated by the client – Job No. 3516, Drawing No. S4, S5 & S6, Rev. E, Dated 23 June 1994,

Based on the provided documents above, EI understands that the proposed development involves the demolition of the existing site structures (with the exception of the existing basement shoring wall of 17 Oxford St) and the construction of a seven-storey mixed-use building overlying a three-level basement. The basement is proposed to have a Finished Floor Level (FFL) of RL 36.56m to 37.81m Australian Height Datum (AHD). A Bulk Excavation Level (BEL) of RL 36.2m to 37.5m AHD is assumed for the construction which includes allowance for a concrete basement slab. To achieve the BEL, an excavation depth of about 8m to 14m Below Existing Ground Level (BEGL) is expected. Locally deeper excavations may be required for footings, service trenches, crane pads, and lift overrun pits

1.3 Objectives

The objective of the AGI was to assess site surface and subsurface conditions at a total of eight borehole locations (including the previous investigations), and to provide geotechnical advice and recommendations addressing the following:

- Dilapidation Surveys.
- Excavation methodologies and monitoring requirements.
- Groundwater considerations.
- Vibration considerations.
- Excavation support requirements, including geotechnical design parameters for retaining walls and shoring systems.
- Building foundation options, including.
  - Design parameters.
  - Earthquake loading factor in accordance with AS1170.4:2007.
- The requirement for additional geotechnical works.

1.4 Scope of Works

The scope of works for the AGI included:

- Preparation of a Work Health and Safety Plan.
- Review of relevant geological maps for the project area.
- Site walkover inspection by a Geotechnical Engineer to assess topographical features and site conditions.
- Scanning of proposed borehole locations for buried conductive services using a licensed service locator with reference to Dial Before You Dig (DBYD) plans.
- Auger drilling of two boreholes (BH1, BH2 and BH201M) by a track-mounted drill rig using solid flight augers equipped with a 'Tungsten-Carbide' (T-C) bit and hand auger drilling of one borehole (BH208M). The boreholes were auger drilled to depths and continued using NMLC diamond coring techniques to termination depths as shown in **Table 1-1** below:

Table 1-1 Auger Drilling and Rock Coring Depths

Borehole ID	Surface RL (m AHD)	Auger Drilling		Rock Coring	
		Depth (m)	RL (m AHD)	Depth (m)	RL (m AHD)
BH1	50.20	6.20	44.0	10.25	39.95
BH2	50.20	6.20	44.0	10.40	39.80
BH201M	50.10	10.10	40.0	17.80	32.30
BH208M	43.50	2.00	41.50	11.38	32.12

- Dynamic Cone Penetration (DCP) was carried out (as per AS 1289.6.3.1-2004), where possible, adjacent to both boreholes BH201M and BH208M to assess soil strength/relative densities.
- When auger drilling in soils, Standard Penetration Tests (SPT) were carried out at regular intervals to assess in- situ soil strength/relative densities in borehole BH1 only, and collect samples for logging and test purposes.
- Measurements of groundwater seepage/levels, where possible, in the augered sections of the boreholes during and shortly after completion of auger drilling.

- Soil and rock samples were sent to STS Geotechnics Pty Ltd (STS) and SGS Australia (SGS), which are National Australian Testing Authority (NATA) accredited laboratories, for testing and storage. The rock core photographs are presented in **Appendix A** and the test results are presented in **Appendix B**.
- Boreholes BH1 and BH2 were backfilled with drilling spoils and capped with concrete upon completion and boreholes BH201M and BH208M were converted to groundwater wells to allow for long- term monitoring.
- Preparation of this AGI report.

EI's geotechnical engineer was present full-time onsite to set out the borehole locations, direct the testing and sampling, log the subsurface conditions and record groundwater levels.

1.5 Constraints

The AGI was limited by the intent of the investigation and existing site structures. The discussions and advice presented in this report are intended to assist in the preparation of final designs for the proposed development. Further geotechnical inspections should be carried out during construction to confirm the geotechnical and groundwater models, and the design parameters provided in this report.

2. Site Description

2.1 Site Description and Identification

The site identification details and associated information are presented in **Table 2-1** below while the site locality is shown on **Figure 1.** An aerial photograph of the site is presented in **Plate 1** below.

Table 2-1 Summary of Site Information

Information	Detail
Street Address	13-17 Oxford Street and 2 Verona Street, Paddington, NSW
Lot and Deposited Plan (DP) Identification	▪ Lot 1 in DP 137013 ▪ Lot 1 in DP 75105 ▪ SP 22113
Brief Site Description	17 Oxford Street was occupied by a four-storey commercial building with brick and steel façades. From the provided existing structural drawings, a single level basement is present beneath 17 Oxford Street, with a FFL of 47.915 to 47.45m. 2 Verona Street is a two-level commercial building, with on-grade car parking. 13-15 Oxford Street comprised of a three-level residential brick apartment complex overlying a two level basement. The building abuts 17 Oxford Street site boundary.
Site Area	The site area is approximately 2,533m^2 (based on Survey plan referenced above)

- **Plate 1:** Aerial photograph of the site (source: Six maps, accessed 7/10/2025)

2.2 Local Land Use

The site is situated within an area of commercial and residential use. Current uses on surrounding land at the time of our presence on site are described in **Table 2-2** below. For the sake of this report, the site boundary adjacent to Oxford St shall be adopted as the eastern site boundary.

Table 2-2 Summary of Local Land Use

Direction Relative to Site	Land Use Description
North	Properties at 1-11 Oxford St, a three-level commercial brick apartment complex with a two-level basement. The building abuts the site boundary.
East	Oxford Street, a two-way, six lane, asphalt-paved road. Beyond this are two-storey rendered brick commercial buildings.
South	Verona Street, a two lane, concrete-paved road. Beyond this is a three-storey brick commercial building. A lower ground floor carpark was observed underlying the building which is slightly lower in elevation (approximately 1m) compared to Verona Street.
West	Property at 4 Verona St, a four-storey brick apartment building. Based on the provided drawings by Urbis and Scott Carver Pty Ltd, a heritage masonry water line (Busby's Bore) runs underneath the western site boundary with a crown RL of approximately RL 38m.

2.3 Regional Setting

The site topography and geological information for the locality is summarised in **Table 2-3** below**.**

Table 2-3 Topographic and Geological Information

Attribute	Description
Topography	The site is located on the high west side of Oxford Street within gently (0° to 10°), or east dipping topography. Locally the existing site is relatively flat, with the existing loading dock within the western area of the site at an approximate RL of 50.2m and the ground floor retail areas within the central and western portions of the site at RLs of approximately RL 47.92m to RL 47.45m.
Regional Geology	Information on regional sub-surface conditions, referenced from the NSW Seamless Geology dataset (Colquhoun et al., 2024, corresponding to the Sydney 1:100,000 Geological Series Sheet) indicates the site to be underlain by Ashfield Shale, which consists of black to dark grey shale and laminite.

- **Plate 2:** Excerpt of geological map showing location of site.

3. Investigation Results

3.1 Stratigraphy

For the development of a site-specific geotechnical model, the stratigraphy observed in the AGI, and previous GI's from EI and DP have been grouped into five geotechnical units. A summary of the subsurface conditions across the site, interpreted from the assessment results, is presented in **Table 3-1** below. More detailed descriptions of subsurface conditions at each borehole location are available on the borehole logs presented in **Appendix A**. The details of the methods of soil and rock classifications, explanatory notes and abbreviations adopted on the borehole logs are also presented in **Appendix A.**

Table 3-1 Summary of Subsurface Conditions

Unit	Material[2]	Depth to Top of Unit (m BEGL)[1]	RL of Top of Unit (m AHD)[1]	Observed Thickness (m)	Comments
1	**Fill**	0 to 0.4	43.5 to 50.3	0.2 to 2.9	Concrete pavements of 150mm to 400mm thickness, underlain by sand fill with bricks and sandstone gravels. No fill was observed in BH201M and BH208M beneath the concrete slab. Fill was assessed based on our observations during drilling and SPT N values to be poorly compacted.
2a	**Aeolian Sand**	0.2 to 3.3	45.5 to 49.9	1.9 to 9.3	Fine to medium grained aeolian sand and was observed to be loose or medium dense.
2b	**Residual Soil**	0.2 to 9.5	40.6 to 45.4	0.3 to 1.8	Residual sandy clay, silty clayey sand and clayey sand, grading into extremely weathered sandstone with depth. Not observed in in BH2 (EI) and BH3 (DP).
3	**Very Low to Low Strength Sandstone**	2.0 to 10.1	40.0 to 44.4	1.8 to 6.95	Generally very low to low strength sandstone, observed in all boreholes. BH201M comprised of a deep weathering profile; initially of medium strength, however multiple zones of core loss between 200mm to 810mm thickness (2000mm in total) and fractured zones were present.
4	**Low to medium Strength Sandstone**	7.2 to 11.8	36.7 to 42.2	2.0 to 4.2	Distinctly weathered, low to medium strength sandstone. Not observed in BH201M and BH208M.
5	**Medium to high Strength Sandstone**	4.0 to 17.05	32.5 to 39.5	- [3]	Slightly weathered to fresh, medium to high strength sandstone. Not observed in BH1 and BH2 (EI), do to shallow boreholes drilled at the time.

Note 1 Approximate depth and level at the time of our assessment. Depths and levels may vary across the site.
Note 2 For more detailed descriptions of the subsurface conditions, reference should be made to the borehole logs attached to **Appendix A.**
Note 3 Observed up to termination depth in BH201M, BH208M, and BH1 to BH4 (DP).

3.2 Bedrock and Rock Mass Classification

The sandstone bedrock cores were assessed and classified with reference to Pells et al (1998) "Foundations on Sandstone and Shale in the Sydney Region" Australian Geomechanics Journal Dec 1998. A summary of the resulting rock mass classification assessment for each borehole and siltstone bedrock unit is presented in **Table 3-2** below.

Table 3-2 Summary of Pells Rock Mass Assessment

Unit	Unit Name	Assessed Rock Class	Depth of Unit (m BEGL)							
			BH1 (EI)	BH2 (EI)	BH1 (DP)	BH2A (DP)	BH3 (DP)	BH4A (DP)	BH201M	BH208M
		Surface RL (m AHD)	49.8	49.8	50.1	43.5	50.3	50.3	48.0	47.3
3	Very Low to Low Strength Sandstone	Class V Sandstone	6.2	6.2	6.3	5.9	3.7	6.1	10.1	2.0
4	Low to Medium Strength Sandstone	Class IV Sandstone	8.24	8.2	8.1	11.8	7.2	10.6	-	-
5	Medium to High Strength Sandstone	Class III Sandstone	-	-	12.3	13.8	9.9	14.8	17.05	4.0

3.3 Groundwater Observations

Groundwater seepage was observed during auger drilling of BH1, BH2, BH201M and BH208M at depths of 5.1m, 5.0m, 6.0m and 0.6m respectively. Water circulation due to coring within the boreholes prevented further observations of groundwater levels within all boreholes. We note that the groundwater levels may not have become evident or stabilised in the augered boreholes within the limited observation period. Also, previous wells were installed by Douglas Partners BH1, BH2A and BH4A.

After drilling was completed, groundwater standpipe monitoring wells were installed into all the boreholes to depths as shown in **Table 3-3**. The wells were then bailed dry. The groundwater levels were then measured within the monitoring wells as per **Table 3-4** :

Table 3-3 Well Installation Depths

Borehole ID	Approx. Surface RL (m AHD)	Well Termination Depth		Top of Screened section	
		Depth (m)	RL (m AHD)	Depth (m)	RL (m AHD)
BH201M	50.10	14.10	36.00	11.10	39.00
BH208M	43.50	8.10	35.40	5.10	38.40

Table 3-4 Groundwater Monitoring Results

Borehole ID	Measurement Date	Depth to Groundwater (m BEGL)	Groundwater RL (m AHD)
BH201M	26/09/25	8.45	41.55
BH208M	26/09/25	1.45	41.95

Borehole ID	Measurement Date	Depth to Groundwater (m BEGL)	Groundwater RL (m AHD)
BH1 (DP)[1]	26/05/25	4.50	45.70
BH2A (DP)[1]	26/05/25	4.80	45.40
BH4A (DP)[1]	26/05/25	3.90	43.25

Note 1 Measurement taken by EI

As part of the Geotechnical Investigation prepared by DP three monitoring wells (BH1, BH2A and BH4A) were installed for groundwater monitoring. DP undertook a Groundwater Monitoring Event (GME) on 13 October 2022, 18 March 2023, 24 October 2023 and 7 November 2023 within all the monitoring wells installed by DP. EI also completed a monitoring event on 26 May 2025. Groundwater measurements are presented in **Table 3-5** below.

Table 3.-5 Summary of Groundwater Levels

Monitoring Well / Test ID	Date of Observation	Approximate Depth to Groundwater Level (m BEGL)	Approximate RL of Groundwater Level (m AHD)
BH1	13-Oct-22	4.9	45.4
	18-Mar-23	5.5	44.8
	24-Oct-23	5.7	44.6
	7-Nov-23	5.7	44.6
	26-May-25	4.5	45.8
BH2A	13-Oct-22	4.9	45.4
	18-Mar-23	5.7	44.6
	24-Oct-23	6.0	44.3
	7-Nov-23	6.0	44.3
	26-May-25	4.8	45.5
BH4A	13-Oct-22	4.4	42.9
	18-Mar-23	4.7	42.6
	24-Oct-23	4.8	42.5
	7-Nov-23	4.8	42.5
	26-May-25	3.9	43.4

As a part of the Geotechnical Investigation and Hydrogeological report (DP, 2023B), DP undertook long term monitoring in wells BH1, BH2A and BH4A between the dates 13 October 2022 to 18 March 2023, and between 24 October 2023 and 7 November 2023. The second set of monitoring was extended up to 18 July 2024 by DP (DP, 2024). A summary of the long term groundwater levels is summarised in **Table 3-6** and **Table 3-7** below.

Table 3-6 Summary of Long Term Groundwater Monitoring (13 October 2022 to 18 March 2023)

Monitoring Well / Test ID	Average Groundwater Level (m AHD)	Minimum Groundwater Level (m AHD)	Maximum Groundwater Level (m AHD)
BH1	44.9	44.5	45.5
BH2A	44.8	44.5	45.4
BH4A	42.7	42.4	43.0

Table 3-7 Summary of Long Term Groundwater Monitoring (24 October 2023 to 18 July 2024)

Monitoring Well / Test ID	Average Groundwater Level (m AHD)	Minimum Groundwater Level (m AHD)	Maximum Groundwater Level (m AHD)
BH1	45.2	44.5	45.9
BH2A	44.95	44.2	45.7
BH4A	42.9	42.4	43.4

3.3.1 Rising Head Tests

Rising Head Tests were completed on 26 May 2025 and 26 September 2025. Boreholes BH1, BH2A and BH4A were tested on the 26 May and BH201M and BH2028M were tested on the 26 September at the site. The following procedure was adopted:

- The groundwater level within the well was initially recorded;
- The well was purged an electrical groundwater pump;
- The rising groundwater level within the well was measured at various time intervals of 5 minutes over 1 hour duration.

The results were then used to estimate the permeability of the bedrock using the Hvorslev Method based on the borehole geometry. The initials inflows were high, which then quickly tapered off to lower inflows. The estimated permeability of the bedrock is summarised in **Table 3-8** below.

Table 3-8 Pump-out Test Results

Borehole ID	Estimated Permeability (m/s)	Screened Material
BH201M	9.8×10^{-9}	Class V Sandstone
BH208M	3.0×10^{-8}	Class III Sandstone
BH1	6.59×10^{-6}	Sand – Sandstone
BH2A	2.58×10^{-7}	Sand – Sandstone
BH4A	1.08×10^{-7}	Sand - Sandstone

3.4 Test Results

Five soil samples were selected for laboratory testing to assess soil aggressivity (pH, chloride and sulfate content and electrical conductivity) and practical size distribution. A summary of the soil test results is provided in **Table 3-9** below. Laboratory test certificates are presented in **Appendix B**.

Table 3-9 Summary of Soil Laboratory Test Results

Test/ Sample ID		BH1_5.8-6.0m	BH2_4.5-4.95m	BH201M_2.6-3.0m	BH208M_0.6-0.7m	BH208M_0.2-1.7m
Unit		2a	2a	2a	2b	2b
Material Description [1]		SAND	SAND	SAND	Silty Clayey SAND	Silty Clayey SAND
Aggressivity	Chloride Cl (ppm)	12	0.86	2.4	11	-
	Sulfate SO_4 (ppm)	38	9.6	45	63	-
	pH	4.6	8.2	6.3	6.5	-
	Electrical Conductivity (µS/cm)	35	37	34	59	-
Moisture Content (%)		9.5	1.2	<1.0	18.1	-
Particle Size Distribution	Gravel (%)	-	-	-	-	18
	Sand (%)	-	-	-	-	57
	Clay & Silt (%)	-	-	-	-	25

Note 1 More detailed descriptions of the subsurface conditions at each borehole location are available on the borehole logs presented in **Appendix A**.

The assessment indicated high permeability soil was present above the groundwater table. In accordance with Tables 6.4.2(C) and 6.5.2(C) of AS 2159:2009 'Piling – Design and Installation', the results of the pH, chloride and sulfate content and electrical conductivity of the soil provided the following exposure classifications:

- 'Moderate to Mild' for buried concrete structural elements; and
- 'Mild to Non-Aggressive' for buried steel structural elements.

In accordance with Table 4.8.1 of AS3600-2009 'Concrete Structures' these soils would be classified as exposure classification 'B1 to A2' for concrete in sulfate soils.

The results of the particle size distribution test on a sample collected from borehole BH208M between the depths of 0.2m to 1.7m indicated the material constitutes silty clayey sand with gravel.

30 selected rock core samples were tested by STS to estimate the Point Load Strength Index (Is_{50}) values to assist with rock strength assessment. The results of the testing are summarised on the attached borehole logs. The point load strength index tests correlated reasonably well with our field assessments of rock strength. The approximate Unconfined Compressive Strength (UCS) of the rock core, estimated from correlations with the point load strength index test results, varied from 0.58 MPa to 38 MPa

4. Recommendations

4.1 Geotechnical Issues

Based on the results of the assessment, we consider the following to be the main geotechnical issues for the proposed development:

- Underpinning of the superstructure and existing foundation piers during excavation;
- Underpinning of existing shoring piles if the proposed excavation level is below the founding level of the shoring walls;
- Impact of vibrations during demolition and excavation on existing site structures (including the existing façade) and neighbouring site structures;
- Basement excavation and retention to limit lateral deflections and ground loss as a result of excavations, resulting in damage to nearby structures;
- Groundwater within the depth of the excavation;
- Potential impact of surcharge of the new footings on Busby's Bore heritage water line beneath the western portion of the site (2 Verona Street); and
- Foundation design for building loads.

4.2 Dilapidation Surveys

Prior to excavation and construction, we recommend that detailed dilapidation surveys be carried out on all structures and infrastructures surrounding the site that falls within the zone of influence of the excavation to allow assessment of the recommended vibration limits and protect the client against spurious claims of damage. The zone of influence of the excavation is defined by a distance back from the excavation perimeter of twice the total depth of the excavation. The reports would provide a record of existing conditions prior to commencement of the work. A copy of each report should be provided to the adjoining property owner who should be asked to confirm that it represents a fair assessment of existing conditions. The reports should be carefully reviewed prior to demolition and construction.

4.3 Excavation Methodology

4.3.1 Excavation Assessment

Prior to any excavation commencing, we recommend that reference be made to the Safe Work Australia Excavation Work Code of Practice, dated January 2020.

EI assumes that the proposed development will require either an excavation depth of between about 12m to 14m.Locally deeper excavations for footings, service trenches, crane pads and lifts overrun pits may be required.

In both cases, based on the borehole logs, the proposed basement excavations are expected to extend through all units as outlined in **Table 3-1** above. As such, an engineered retention system must be installed prior to excavation commencing.

Units 1, 2a, 2b and 3 could be excavated using buckets of conventional earthmoving Hydraulic Excavators. Excavation of Units 4 and 5 (where encountered) may present hard or heavy ripping, or “hard rock” excavation conditions. Hydraulic rock breakers, rock saws, ripping hooks or rotary grinders could be used, though productivity would be lower and equipment wear increased, and this should be allowed for. Due the presence of building structure, accessibility issues, such as height clearances during operation, should also be taken into account during the development of any construction methodology.

Due to the proximity of potentially sensitive structures at and adjacent to the site, it is recommended that the use of rock hammers be avoided where possible. However, should rock hammers be required for the excavation of the bedrock, excavation should commence away from the adjoining structures and the transmitted vibrations monitored to assess how close the hammer can operate to the adjoining structures while maintaining transmitted vibrations within acceptable limits. To fall within these limits, we recommend that the size of rock hammers do not exceed a medium sized rock hammer, and be trialled prior to use. The transmitted vibrations from rock hammers should be measured to determine how close each individual hammer can operate to the adjoining buildings.

The vibration measurements can be carried out using either an attended or an unattended vibration monitoring system. An unattended vibration monitoring system must be fitted with an alarm in the form of a strobe light or siren or alerts sent directly to the site supervisor to make the plant operator aware immediately when the vibration limit is exceeded. The vibration monitor must be set to trigger the alarm when the overall Peak Particle Velocity (PPV) exceeds set limits outlined by a vibration monitoring plan. Reference should be made to **Appendix C** for a guide to acceptable limits of transmitted vibrations.

If it is found that the transmitted vibrations by the use of rock hammers are unacceptable, then it would be necessary to change to a smaller excavator with a smaller rock hammer, or to a rotary grinder, rock saws, jackhammers, ripping hooks, chemical rock splitting and milling machines. Although these are likely to be less productive, they would reduce or possibly eliminate risks of damage to adjoining properties through vibration effects transmitted via the ground. Such equipment would also be required for detailed excavation, such as footings or service trenches, and for trimming of faces. Final trimming of faces may also be completed using a grinder attachment rather than a rock breaker in order to assist in limiting vibrations. The use of rotary grinders generally generates dust and this may be supressed by spraying with water.

To assist in reducing vibrations and over-break of the sandstone, we recommend that initial saw cutting of the excavation perimeters through the bedrock may be provided using rock saw attachments fitted to the excavator. Rock sawing of the excavation perimeter has several advantages as it often reduces the need for rock bolting as the cut faces generally remain more stable and require a lower level of rock support than hammer cut excavations, ground vibrations from rock saws are minimal and the saw cuts will provide a slight increase in buffer distance for

use of rock hammers. However, the effectiveness of such approach must be confirmed by the results of vibration monitoring. Due to sensitivity of heritage listed Busby's Bore, EI recommends a comprehensive vibration control and management plan be prepared for this site.

Care must be taken to ensure that any existing structural elements of the building, such as columns and existing footings, are not undermined during excavation of the additional basement and are appropriately assessed by the structural engineer prior to excavation.

Groundwater seepage monitoring should be carried out during bulk excavation works and prior to finalising the design of a pump out facility. Outlets into the stormwater system will require Council approval. Additional groundwater monitoring is recommended to confirm this in the long term.

Furthermore, any existing buried services, which run below the site, will require diversion prior to the commencement of excavation or alternatively be temporarily supported during excavation, subject to permission or other instructions from the relevant service authorities. Enquiries should also be made for further information and details, such as invert levels, on the buried services.

- **Excavation Monitoring**

Consideration should be made to the impact of the proposed development upon neighbouring structures, roadways and services. Basement excavation retention systems should be designed so as to limit lateral deflections.

Contractors should also consider the following limits associated with carrying out excavation and construction activities:

- Limit lateral deflection of temporary or permanent retaining structures;
- Limit vertical settlements of ground surface at common property boundaries and services easement; and
- Limit Peak Particle Velocities (PPV) from vibrations, caused by construction equipment or excavation, experienced by any nearby structures and services.

Monitoring of deflections of retaining structures and surface settlements should be carried out by a registered surveyor at agreed points along the excavation boundaries and along existing building foundations / services/ pavements and other structures located within or near the zone of influence of the excavation. Owners of existing services adjacent to the site should be consulted to assess appropriate deflection limits for their infrastructures. Measurements should be taken in the following sequence:

- Before commencing installation of retaining structures where appropriate to determine the baseline readings. Two independent sets of measurements must be taken confirming measurement consistency;
- After installation of the retaining structures, but before commencement of excavation;
- After excavation to the first row of supports or anchors, but prior to installation of these supports or anchors;
- After excavation to any subsequent rows of supports or anchors, but prior to installation of these supports or anchors;
- After excavation to the base of the excavation;
- After de-stressing and removal of any rows of supports or anchors; and

- One month after completion of the permanent retaining structure or after three consecutive measurements not less than a week apart showing no further movements, whichever is the latter.

4.4 Groundwater Considerations

Groundwater seepage was reported in both boreholes at the contact of soil and sandstone bedrock, which are above the assumed BEL of RL 36.2m to 37.5m m.

Based on experience with nearby sites, groundwater seepage into the site will primarily occur by perched seepage along the interface of Aeolian sand and residual soil/bedrock. Allowing seepage at this interface may result in high groundwater inflows and possible soil loss, particularly following periods of heavy rainfall.

Hence, EI recommends that a relatively impermeable shoring system be installed through this interface, so that any groundwater flows into the excavation will be through the relatively low permeability bedrock profile. Flows through the bedrock profile should not have any adverse impact on the proposed development or on the neighbouring sites and should be manageable. The initial flows into the excavation may be initially high, but would be expected to decrease considerably with time as the bedding seams/joints are drained. We recommend that monitoring of seepage be implemented during the excavation works to confirm the capacity of the drainage system.

We expect that any seepage that does occur will be able to be controlled by a conventional sump and pump system. We recommend that a sump-and-pump system be used both during construction and for permanent groundwater control below the basement floor slab.

In the long term, drainage should be provided behind all basement retaining walls, around the perimeter of the basement and below the basement slab. The completed excavation should be inspected by the hydraulic engineer to confirm that adequate drainage has been allowed for. Drainage should be connected to the sump-and-pump system and discharging into the stormwater system. The permanent groundwater control system should take into account any possible soluble substances in the groundwater which may dictate whether or not groundwater can be pumped into the stormwater system.

The design of drainage and pump systems should take the above issues into account along with careful ongoing inspections and maintenance programs.

4.5 Excavation Retention & Support of Existing Piles

4.5.1 Support Systems

Based on the provided footing plans, it is understood that the western portion of the site underneath the existing loading dock is supported by 900mm diameter foundation piles socketed at least 1.0m or 1.5m into the sandstone. A 400mm diameter contiguous pile wall of about 5m to 5.5m is also present beneath the southern elevation of 17 Oxford Street.

Based on the encountered depth to sandstone bedrock at RL 40.0m, the foundation pile toe RLs are therefore expected to be at approximately RL 39.0m or RL 38.5m, while the shoring piles are estimated to be founded to about RL 45.0m, which are above the assumed BEL of 35.7m for the proposed three-level basement.

Further investigation should also be made to the existing basement shoring system of 13-15 Oxford Street to the north to assess whether underpinning or new shoring systems are required.

Underpinning and support systems designed by the structural engineer in cooperation with the geotechnical engineer will be required for support of the existing foundations, contiguous pile wall and any neighbouring basement structures as the excavation progresses. For this, we consider the installation of additional foundation piles socketed into sandstone below the proposed BEL and directly adjacent to the existing foundation piles to be the most suitable for support of the existing building. The piles would be installed prior to excavation in order to transfer the existing & proposed additional loads from the old piles and into a suitable bearing stratum below the proposed BEL. The skin resistance of the new foundation piles above BEL should not be considered in the design as this would not contribute during excavation to BEL.

Temporary support will also be required for the existing foundation piles, existing contiguous pile wall and the newly built shoring wall during excavation and construction and this should be designed by the structural engineer. It is critical to maintain the stability of all adjacent structures and infrastructures during demolition, excavation and construction works.

Based on the above, the encountered subsurface conditions, the retention of the existing structure, the close proximity of the surrounding buildings and the required excavation depth, temporary batters or vertical cuts of the soil are not recommended for this site as these carry the risk of potential collapse especially after a period of wet weather. Collapse of the material may result in injury to personnel and/or damage to nearby structures/infrastructures and equipment. Due to the quality of the sandstone bedrock encountered, unsupported vertical cuts are not recommended in the sandstone bedrock.

Based on the above, a suitable retention system will be required for the support of the entire depth of the excavation. For this site, we recommend the following option:

- Contiguous pile walls with small gaps between the piles, with grout/mass concrete in between the piles may be feasible. The grout may be injected between the contiguous piles to prevent groundwater entering the basement, particularly at the soil/rock interface. There may be a risk of seepage and soil loss between the piles at the soil/rock interface, where it may be difficult to apply the mass concrete/grout, particularly during heavy rainfall periods.

Anchors/props and mass concrete must be installed progressively as the excavation proceeds. Due to presence of existing basement, anchors may not be feasible for this site so these should be replaced with internal props.

Only Grout injected CFA piles should be used for this site for the piles. Due to the collapsible nature of the sandy soils, bored piles are not recommended for this site. The proposed pile locations should take into account the presence of the neighbouring anchors and/or the presence of buried services. Further advice should be sought from prospective piling contractors who should be provided with a copy of this report. Cased CFA piles may be required for piles in close proximity to neighbouring properties (such as the brick residences to the west) due to the possibility of soil draw-in during piling through sandstone bedrock. Working platforms may also be required. We can complete the design of the working platform, if commissioned to do so.

Consideration may be made for some piles, which are not supporting the vertical structural loads of the building, to be terminated at least 1m, into Unit 4 material or better, above the base of the bulk excavation levels. Excavation within Unit 4 sandstone or better should generally be able to be cut vertically and without support, provided an anchor is installed at the toe of the piles.

For vertical cuts, the excavations must be inspected by a geotechnical engineer at regular intervals to check for any inclined joints or weak seams that require stabilisation. Such geotechnical inspections should be carried out at depth intervals of no more than 1.5m. If adverse defects are encountered, the stabilisation measures may comprise rock bolts,

shotcrete and mesh or dental treatment of thin weak seams using non-shrink grout, and this should be allowed for.

4.5.2 Retaining Wall Design Parameters

The following parameters may be used for static design of temporary and permanent retaining walls at the subject site:

- For progressively anchored or propped walls where minor movements can be tolerated (provided there are no buried movement sensitive services), we recommend the use of a trapezoidal earth pressure distribution of 5H kPa for the soil profile, where H is the retained height in meters;
- For progressively anchored or propped walls which support areas which are highly sensitive to movement (such as areas where movement sensitive structures or infrastructures or buried services are located in close proximity), we recommend the use of a trapezoidal earth pressure distribution of 8H kPa for the soil profile, where 'H' is the retained height in meters;
- All surcharge loading affecting the walls (including from construction equipment, construction loads, adjacent high level footings, etc.) should be adopted in the retaining wall design as an additional surcharge using an 'at rest' earth pressure coefficient, Ko.
- The retaining walls should be designed as watertight.
- For piles embedded into Unit 4 or better below BEL, the allowable lateral toe resistance values outlined in **Table 4-1** below may be adopted. These values assume excavation is not carried out within the zone of influence of the wall toe and the rock does not contain adverse defects etc. The upper 0.3m depth of the socket should not be taken into account to allow for tolerance and disturbance effects during excavation.
- If temporary anchors extend beyond the site boundaries, then permission from the neighbouring properties would need to be obtained prior to installation. Also, the presence of neighbouring basements and/or services and their levels must be confirmed prior to finalising anchor design**.**
- For the design of anchors in bedrock, the bond stress outlined in **Table 4-1** below may be used, subject to the following conditions:
    1. Anchor bond lengths of at least 3m behind the 'active' zone of the excavation (taken as a 45 degree zone above the base of the excavation) is provided;
    2. Overall stability, including anchor group interaction, is satisfied;
    3. All anchors should be proof loaded to at least 1.33 times the design working load before locked off at working load. Such proof loading is to be witnessed by and engineer independent of the anchoring contractor. We recommend that only experienced contractors be considered for anchor installation with appropriate insurances;
    4. If permanent anchors are to be used, these must have appropriate corrosion provisions for longevity.
- Uncased anchor holes within the sands will almost certainly collapse and temporary casing of these holes will be required. It is good practice for anchors to be a "design and construct" sub-contract to avoid disputes should anchors fail to hold their test load.

Table 4-1 Geotechnical Design Parameters

Material [1]		Unit 1 Fill	Unit 2a Marine Sand	Unit 2b Residual Soil	Unit 3 Class V Sandstone	Unit 4 Class IV Sandstone	Unit 5 Class III/II Sandstone
Bulk Unit Weight (kN/m^3)		**17**	**18**	**18**	**23**	**24**	**24**
Friction Angle, ϕ' (°)		**25**	**28**	**25**	**30**	**40**	**45**
Earth Pressure Coefficients	At rest, K_o [3]	0.58	0.53	0.58	0.50	0.36	0.15
	Active, K_a [3]	0.41	0.36	0.41	0.33	0.22	0.1
	Passive, K_p [3]	2.46	2.77	2.46	3.0	4.60	5.82
Allowable Bearing Pressure (kPa) [5]		-	-	-	700	2000	6000
Ultimate Shaft Adhesion in Compression (kPa) [4, 5]		-	-	-	150	350	1500
Allowable Toe Resistance (kPa)		-	-	-	-	2000	6000
Allowable Bond Stress (kPa)		-	-	-	100	200	500
Earthquake Classification	Site Risk	▪ AS 1170.4:2007 indicates an earthquake subsoil class of Class C_e (Shallow Soil) AS 1170.4:2007 indicates that the hazard factor (z) for Sydney is 0.08.					

Notes:

1 More detailed descriptions of subsurface conditions are available on the borehole logs presented in **Appendix A.**
2 Approximate levels of top of unit at the time of our investigation. Levels may vary across the site.
3 Earth pressures are provided on the assumption that the ground behind the retaining walls is horizontal.
4 Side adhesion values given assume there is intimate contact between the pile and foundation material and should achieve a clean socket roughness category R2 or better. Design engineer to check both 'piston pull-out' and 'cone liftout' mechanics in accordance with AS4678-2002 Earth Retaining Structures.
5 To adopt these parameters we have assumed that:
- Footings have a nominal socket of at least 0.3m, into the relevant founding material;
- For piles, there is intimate contact between the pile and foundation material (a clean socket roughness category of R2 or better);
- Potential soil and groundwater aggressivity will be considered in the design of piles and footings;
- Piles should be drilled in the presence of a Geotechnical Engineer prior to pile construction to verify that ground conditions meet design assumptions. Where groundwater ingress is encountered during pile excavation, concrete is to be placed as soon as possible upon completion of pile excavation. Pile excavations should be pumped dry of water prior to pouring concrete, or alternatively a tremmie system could be used;
- The bases of all pile, pad and strip footing excavations are cleaned of loose and softened material and water is pumped out prior to placement of concrete;
- The concrete is poured on the same day as drilling, inspection and cleaning.
- The allowable bearing pressures given above are based on serviceability criteria of settlements at the footing base/pile toe of less than or equal to 1% of the minimum footing dimension (or pile diameter).

4.6 Foundations

Following bulk excavations for the proposed basement, various classes of sandstone (Unit 3, 4 and 5) are expected to be exposed at the basement floor BEL of RL 35.7m. Given the expected loads EI recommends the proposed development may be supported on sandstone of at least Unit 4 or better.

Pad footings founded on Unit 4 sandstone should be feasible for the majority of the site, for an allowable bearing capacity of 2000kPa. Only BH201M found Class V sandstone at the assumed BEL, however this is outside of the basement outline. Piles may be required for areas of the proposed development outside of the basement outline.

Footings founded at or near a crest of an excavation (such as the building outside of the basement outline) should be founded below the zone of influence of the lower basement retaining walls, which may be taken as founding below a line drawn at 1 Vertical to 1 Horizontal from the base of the retaining walls.

For piles founded Unit 5 sandstone bedrock, these must be embedded a minimum of 0.5m into sandstone, and can be designed for a maximum allowable bearing pressure of 6000kPa. The allowable shaft adhesion in sandstone bedrock may be designed as 10% of the allowable bearing pressure (or 5% for uplift) for the socket length in excess of 0.5m.

Pad footing excavations and at least the initial drilling of piles should be completed in the presence of a geotechnical engineer to verify that ground conditions meet design assumptions.

Where groundwater ingress is encountered during pile excavation, concrete is to be placed as soon as possible upon completion of pile excavation. Pile excavations should be pumped dry of water prior to pouring concrete, or alternatively a tremmie system could be used. Concrete must be poured on the same day as drilling, inspection and drilling. Bored piles may be feasible for foundation piles drilled within the basement excavation.

The aggressivity of natural soils and groundwater (if encountered) should be taken into consideration in the design..

4.7 Basement Floor Slab

Following bulk excavations for the proposed basement, Unit 3, 4 and 5 sandstone is expected to be exposed at the basement floor BEL.

Following the removal of all loose and softened materials, we recommend that underfloor drainage be provided and should comprise a strong, durable, single sized washed aggregate such as ‘blue metal gravel’. Joints in the concrete floor slab should be designed to accommodate shear forces but not bending moments by using dowelled and keyed joints. The basement floor slab should be isolated from columns. The completed excavation should be inspected by the hydraulic engineer to confirm the extent of the drainage required.

In addition, a system of sub-soil drains comprising a durable single sized aggregate with perforated drains/pipes leading to sumps should be provided. The basement floor slab should be isolated from columns.

5. Further Geotechnical Inputs

Below is a summary of the recommended additional work that needs to be carried out:

- Geotechnical design review of additional underpinning foundation and shoring piles for the existing structure, shoring design and construction methodology;
- Geotechnical inspections for the neighbouring foundations;
- Dilapidation surveys;
- Vibration monitoring plan;
- Long term groundwater monitoring and seepage modelling within the newly installed wells and for the new basement design;
- Design of working platforms (if required) for construction plant by an experienced and qualified geotechnical engineer;
- Witnessing installation of support measures and proof-testing of anchors (if required).
- Geotechnical inspections of all new footings/piles by an experienced geotechnical professional before concrete or steel are placed to verify their bearing capacity and the in-situ nature of the founding strata; and
- Ongoing monitoring of groundwater inflows into the bulk excavation;

We recommend that a meeting be held after initial structural design has been completed to confirm that our recommendations have been correctly interpreted. We also recommend a meeting at the commencement of construction to discuss the primary geotechnical issues and inspection requirements.

6. Statement of Limitations

This report has been prepared for the exclusive use of Jack Joseph and 17 Oxford Street Pty Ltd who is the only intended beneficiary of EI's work. The scope of the assessment carried out for the purpose of this report is limited to those agreed with Jack Joseph and 17 Oxford Street Pty Ltd

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

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

The conclusions presented in this report are based on a limited investigation of conditions, with specific sampling and test locations chosen to be as representative as possible under the given circumstances.

EI's professional opinions are reasonable and based on its professional judgment, experience, training and results from analytical data. EI may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified by EI.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or validation testing and analysis during construction. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

We draw your attention to the document "Important Information", which is included in **Appendix C** of this report. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be. The document is not intended to reduce the level of responsibility accepted by EI, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

Should you have any queries regarding this report, please do not hesitate to contact EI.

7. References

AS1289.6.3.1:2004, *Methods of Testing Soils for Engineering Purposes,* Standards Australia.

AS1726:2017, *Geotechnical Site Investigations*, Standards Australia.

AS2159:2009, *Piling – Design and Installation*, Standards Australia.

AS3600:2009, *Concrete Structures,* Standards Australia

Safe Work Australia Excavation Work Code of Practice, dated January 2020 – WorkCover NSW

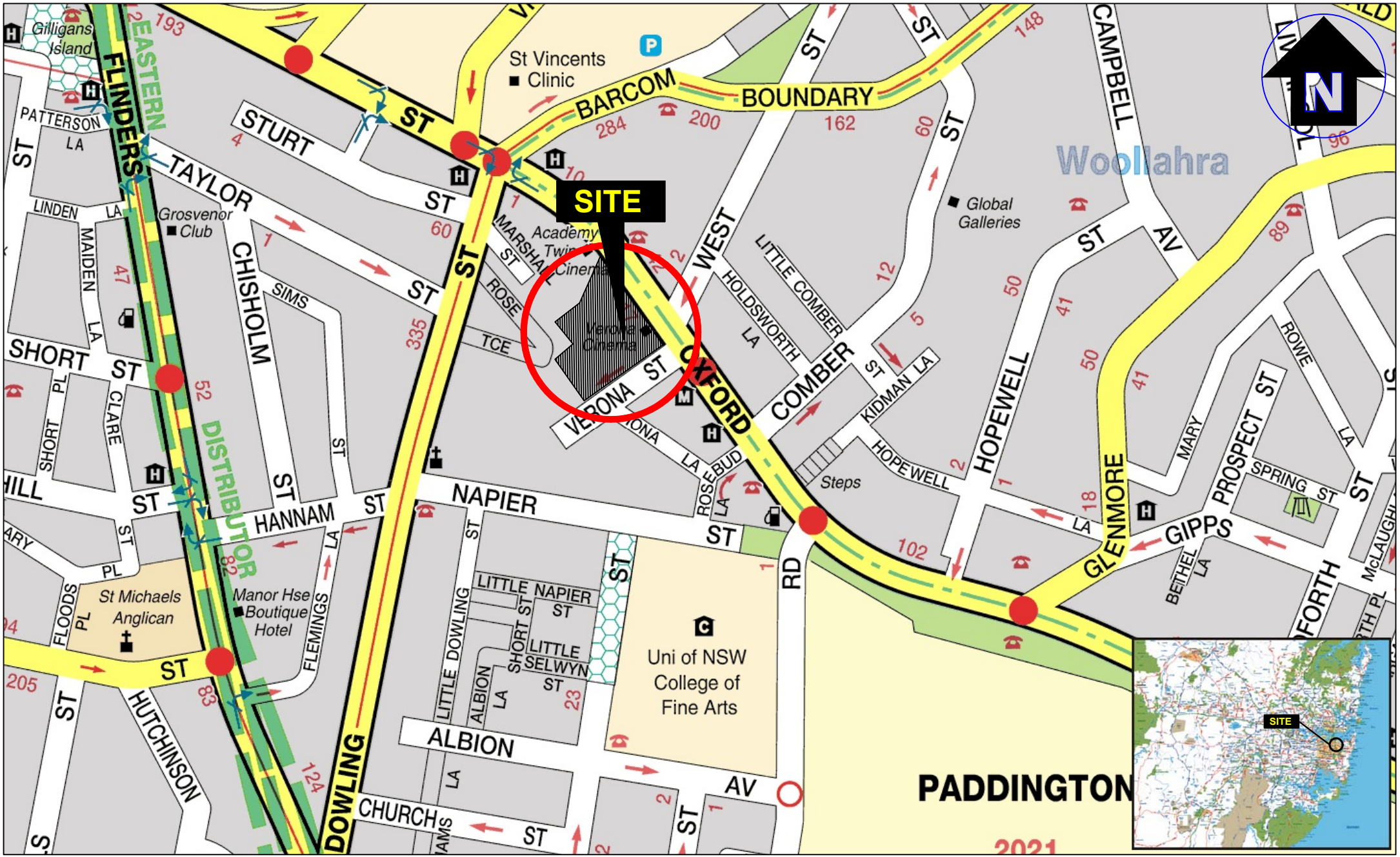
NSW Department of Finance and Service, Spatial Information Viewer, maps.six.nsw.gov.au.

NSW Department of Mineral Resources (1983) Sydney 1:100,000 Geological Series Sheet 9130 (Edition 1). Geological Survey of New South Wales, Department of Mineral Resources.

Abbreviations

AGI	Additional Geotechnical Investigation
AHD	Australian Height Datum
AS	Australian Standard
BEL	Bulk Excavation Level
BEGL	Below Existing Ground Level
BH	Borehole
DBYD	Dial Before You Dig
DP	Deposited Plan
EI	EI Australia
GI	Geotechnical Investigation
NATA	National Association of Testing Authorities, Australia
RL	Reduced Level
SPT	Standard Penetration Test
T-C	Tungsten-Carbide
UCS	Unconfined Compressive Strength

Figures



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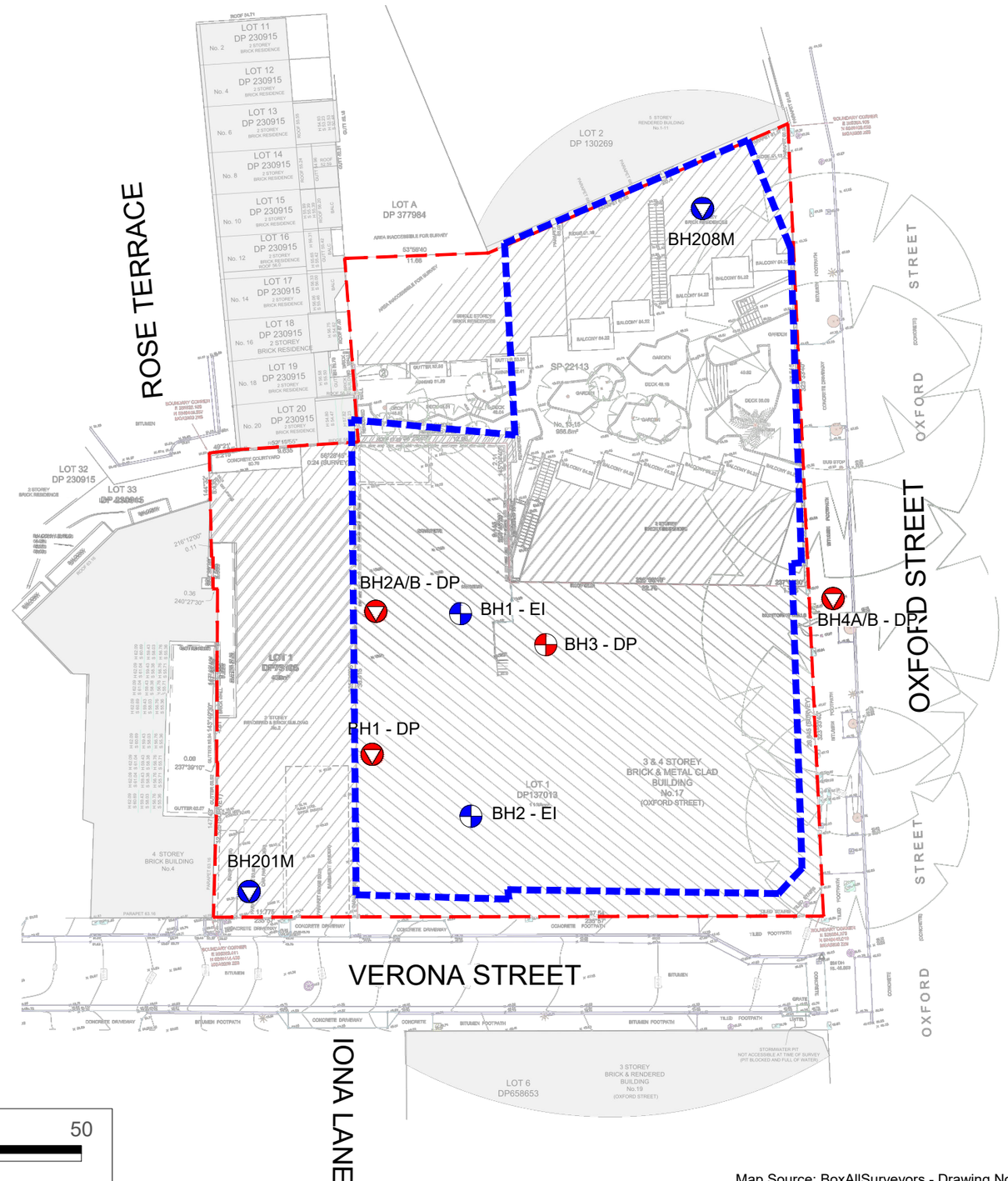
	Approved:	-
	Date:	10-10-25
	Scale:	Not To Scale

17 Oxford Street Pty Ltd
Geotechnical Investigation
17 Oxford St, Paddington Hill NSW

Site Locality Plan

Figure:
1

Project: E25559.G04



Map Source: BoxAllSurveyors - Drawing No. 11434-001, Sheet 1-2 of 4, Latest Revision F, Dated 18 October 2022

LEGEND (All Locations are Approximate)

- Site boundary
- Basement boundary
- Borehole locations (EI Australia, 2022/2025
- Monitoring well locations (EI Australia, 2025)
- Monitoring well locations (Douglas Partners, 2023)

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17 Oxford Street Pty Ltd
Additional Geotechnical Investigation
17 Oxford Street, Paddington, NSW

Borehole Location Plan

Figure: 2

Project: E25559.G04

Appendix A – Borehole Logs And Explanatory Notes

BOREHOLE LOG

BH NO. BH1

Project	Proposed Alterations and Additions	**Sheet**	1 of 3
Location	17 Oxford Street, Paddington NSW	**Date Started**	23/03/2022
Position	Refer to Figure 2	**Date Completed**	23/03/2022
Job No.	E25559.G03	**Logged By** JS	**Date** 23/03/2022
Client	Verona Co.	**Reviewed By** DS	**Date** 23/05/2022

Drilling Contractor	Tightsite Drilling	**Surface RL**	≈50.20 m AHD
Drill Rig	Ute Rig	**Inclination**	-90°

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY REL. DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	50.20				-	Concrete: 400mm thickness	-	-	PAVEMENT
				0.40								
				49.80				-	FILL: SAND; fine to medium grained, with medium sandstone gravels, bricks.	D	-	FILL
			1									
			2									
				2.40								
				47.80				SP	SAND; fine to medium grained, pale orange	D	-	AEOLIAN SOIL
AD/T	-		3									
			4							M		
				4.80								
		▽		45.40					From 4.8m, grading into orange-brown mottled red and pale grey, with clay			
			5							W		
			6	*6.20*					Continued as Cored Borehole			
			7									
			8									
			9									
			10									

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

CORED BOREHOLE LOG

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BH NO. BH1

Project	Proposed Alterations and Additions	**Sheet**	2 OF 3
Location	17 Oxford Street, Paddington NSW	**Date Started**	23/03/2022
Position	Refer to Figure 2	**Date Completed**	23/03/2022
Job No.	E25559.G03	**Logged By** JS	**Date** 23/03/2022
Client	Verona Co.	**Reviewed By** DS	**Date** 23/05/2022

Drilling Contractor	Tightsite Drilling	**Surface RL**	≈50.20 m AHD
Drill Rig	Ute Rig	**Inclination**	-90°

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	*DEPTH* RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	Average Defect Spacing (mm) (30, 100, 300, 1000, 3000)
				0							
				1							
				2							
				3							
				4							
				5							
				6	*6.20*		Continuation from non-cored borehole				
NMLC	95-100% RETURN	100	73	7	44.00		SANDSTONE: fine to medium grained, orange pale and pale grey, thinly to medium bedded, with ironstaining	DW		6.46: JT, 0°, OP, PR, SM 6.50: JT, 6°, CL, IR, UN 6.52: JT, 10°, OP, PR, SM 6.60: JT, 10°, OP, PR, SM 6.67: JT, 10°, CL, PR, SM 6.75: JT, 15°, OP, UN, RO 6.80-7.00: XWZ 7.03: JT, 20°, OP, PR, RO	
				8						7.46: JT, 30°, OP, PR, UN 7.50: JT, 75°, OP, UN, RO 7.65: JT, 15°, CL, PR, SM 7.69: JT, 5°, OP, UN, SM 7.72-7.78: CS 7.78: JT, 45°, OP, PR, SM 7.95: JT, OP, UN, RO 8.17: JT, 15°, OP, PR, SM	
	85% RETURN	100	88	9	*8.24* 41.96		From 8.24m, becoming orange brown and red, thickly bedded			8.68: JT, 20°, OP, PR, RO 8.97: JT, OP, UN, ST 9.28: JT, 3°, OP, PR, SM 9.35: JT, 10°, CL, UN, RO	
	90% RETURN	100	100	10						9.87: JT, 0°, OP, PR, SM	

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

CORED BOREHOLE LOG

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BH NO. BH1

Project	Proposed Alterations and Additions	**Sheet**	3 OF 3
Location	17 Oxford Street, Paddington NSW	**Date Started**	23/03/2022
Position	Refer to Figure 2	**Date Completed**	23/03/2022
Job No.	E25559.G03	**Logged By** JS	**Date** 23/03/2022
Client	Verona Co.	**Reviewed By** DS	**Date** 23/05/2022

Drilling Contractor	Tightsite Drilling	**Surface RL**	≈50.20 m AHD
Drill Rig	Ute Rig	**Inclination**	-90°

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	*DEPTH* RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	Average Defect Spacing (mm) (30, 100, 300, 1000, 3000)
		100	100	10	*10.25* 39.95		Hole Terminated at 10.25 m Target Depth Reached.	DW			
				11							
				12							
				13							
				14							
				15							
				16							
				17							
				18							
				19							
				20							

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

CORE PHOTOGRAPH OF BOREHOLE: BH1

Project	Proposed Alterations & Additions			**Depth Range**	6.2m to 10.25 m BEGL		
Location	17 Oxford Street, Paddington, NSW			**Contractor**	Tightsite Pty Ltd		
Position	See Figure 2	**Surface RL**	≈ 50.2m	**Drill Rig**	Ute Rig		
Job No.	E25559.G03	**Inclination**	-90°	**Logged**	JS	**Date**	24 / 03 / 2022
Client	Verona Co	**Box**	1-2 of 2	**Checked**	DS	**Date**	10 / 05 / 2022

BOREHOLE LOG

BH NO. BH2

Project	Proposed Alterations and Additions	**Sheet**	1 of 3
Location	17 Oxford Street, Paddington NSW	**Date Started**	23/03/2022
Position	Refer to Figure 2	**Date Completed**	23/03/2022
Job No.	E25559.G03	**Logged By** JS	**Date** 23/03/2022
Client	Verona Co.	**Reviewed By** DS	**Date** 23/05/2022

Drilling Contractor	Tightsite Drilling	**Surface RL**	≈50.20 m AHD
Drill Rig	Ute Rig	**Inclination**	-90°

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY REL. DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	50.20				-	Concrete: 400mm thickness	-	-	PAVEMENT
				0.40								
				49.80				-	FILL: SAND; fine to medium grained, dark brown grey, with brick			FILL
			1		BH2_1-1.45 1.00-1.45 m SPT 1.00-1.45 m 2,1,3 N=4							
			2							D		
					BH2_2.5-2.95 2.50-2.95 m SPT 2.50-2.95 m 3,2,5 N=7							
AD/T	-		3	*3.30*								
				46.90				SP	SAND; fine to medium grained, pale orange with fine to medium sub-rounded sandstone gravels			AEOLIAN SOIL
			4							D		
					BH2_4.5-4.95 4.50-4.95 m SPT 4.50-4.95 m 4,5,12 N=17						MD	
		▽	5							W		
			6	*6.20*								
									Continued as Cored Borehole			
			7									
			8									
			9									
			10									

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

CORED BOREHOLE LOG

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Practical Solutions for Built Environments

BH NO. BH2

Project	Proposed Alterations and Additions	**Sheet**	2 OF 3
Location	17 Oxford Street, Paddington NSW	**Date Started**	23/03/2022
Position	Refer to Figure 2	**Date Completed**	23/03/2022
Job No.	E25559.G03	**Logged By** JS	**Date** 23/03/2022
Client	Verona Co.	**Reviewed By** DS	**Date** 23/05/2022

Drilling Contractor	Tightsite Drilling	**Surface RL**	≈50.20 m AHD
Drill Rig	Ute Rig	**Inclination**	-90°

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	Average Defect Spacing (mm) (30, 100, 300, 1000, 3000)
				0							
				1							
				2							
				3							
				4							
				5							
				6							
					6.20		Continuation from non-cored borehole				
NMLC	90% RETURN	100	56	7	44.00		SANDSTONE: fine to medium grained, orange brown pale and red, thinly bedded	DW		6.28: JT, 5°, OP, UN, SM 6.34: JT, 5°, OP, PR, SM 6.38: JT, 10°, OP, PR, SM 6.46: JT, 25°, OP, PR, UN 6.49: JT, 30°, CL, PR, SM 6.52: JT, 30°, CL, PR, SM 6.59: JT, 40°, CL, PR, SM 6.78: JT, 15°, OP, UN, SM 6.87: JT, 20°, OP, CU, RO	
					7.25 42.95		From 7.25m, becoming orange brown and red, thinly laminated			6.95: JT, 20°, CL, PR, UN 7.04: JT, 25°, CL, PR, SM	
					7.60 42.60		From 7.6m, becoming light grey and orange pale			7.10: JT, 25°, CL, PR, SM 7.14: JT, 25°, CL, PR, SM 7.20: JT, 20°, CL, PR, SM 7.50: JT, 75°, OP, UN, RO 7.54-7.62: CS 7.74-7.80: CS	
	90% RETURN	100	45	8						7.82: JT, 5°, OP, PR, SM 7.84: JT, 5°, OP, PR, SM 7.88: JT, 5°, OP, PR, SM 7.93: JT, 15°, CL, UN, RO 7.99: JT, 20°, OP, PR, SM 8.04: JT, 5°, OP, PR, SM	
				9						8.09: JT, 10°, OP, UN, SM 8.14: JT, 5°, OP, UN, SM 8.17: JT, 5°, OP, UN, SM 8.20: JT, 5°, OP, UN, SM 8.43: JT, 15°, CL, PR, SM 8.46: JT, 5°, CLAY, PR, UN 8.52: JT, 10°, CL, UN, RO 8.54-8.66: XWZ	
					9.86 40.34		From 9.86m, becoming orange brown and red			8.69: JT, 15°, CL, UN, RO 8.73: JT, 10°, OP, UN, SM	
				10							

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

CORED BOREHOLE LOG

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BH NO. BH2

Project	Proposed Alterations and Additions	**Sheet**	3 OF 3
Location	17 Oxford Street, Paddington NSW	**Date Started**	23/03/2022
Position	Refer to Figure 2	**Date Completed**	23/03/2022
Job No.	E25559.G03	**Logged By** JS	**Date** 23/03/2022
Client	Verona Co.	**Reviewed By** DS	**Date** 23/05/2022

Drilling Contractor	Tightsite Drilling	**Surface RL**	≈50.20 m AHD
Drill Rig	Ute Rig	**Inclination**	-90°

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	*DEPTH* RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	Average Defect Spacing (mm) (30, 100, 300, 1000, 3000)
NMLC		100	45	10	*10.40* 39.80		SANDSTONE: fine to medium grained, orange brown pale and red, thinly bedded	DW		8.78: JT, 5°, CL, PR, SM 8.79: JT, 5°, CL, PR, SM 8.81: JT, 4°, CL, UN, RO 8.86: JT, 5°, OP, PR, SM 9.10: XWS 9.17: JT, 10°, CL, PR, SM 9.20: JT, 10°, CL, PR, SM 9.34: JT, 20°, OP, PR, SM 9.55-9.82: XWZ 9.86-9.99: CZ	
							Hole Terminated at 10.40 m Target Depth Reached.				
				11							
				12							
				13							
				14							
				15							
				16							
				17							
				18							
				19							
				20							

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

CORE PHOTOGRAPH OF BOREHOLE: BH2

Project	Proposed Alterations & Additions			**Depth Range**	6.2 to 10.4 m BEGL		
Location	17 Oxford Street, Paddington, NSW			**Contractor**	Tightsite Pty Ltd		
Position	See Figure 2	**Surface RL**	≈ 50.2m	**Drill Rig**	Ute Rig		
Job No.	E25559.G03	**Inclination**	-90°	**Logged**	JS	**Date**	24 / 03 / 2022
Client	Verona Co	**Box**	1 of 1	**Checked**	DS	**Date**	10 / 05 / 2022

BOREHOLE LOG

BH ID: BH201M

Location	13-15, Oxford Street and 2 Verona Street Paddington NSW			**Started**	09 September 2025
Client	17 Oxford Street Pty Ltd			**Completed**	10 September 2025
Job No.	E25559.G04			**Logged By**	S2 **Date** 09 September 2025
Sheets	1 of 3			**Review By**	SK **Date** 15 October 2025
Drilling Contractor	STS Geotechnics	**Surface RL**	≈50.10 m (AHD)	**Northing**	6250678.9 (MGA 2020 Zone 56)
Plant	Christie	**Inclination**	90°	**Easting**	332768.0 (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	DCP BLOWS	MATERIAL ORIGIN & OBSERVATIONS
DT				0.00		50.10	CONCRETE: 200mm thick	-	-		CONCRETE
AD/T	▷	BH201M_0.40-0.50		0.20		49.90	SAND: fine to medium grained, pale brown	D	VL - L	6, 5, 3, 1, 1, 2, 1, 1	AEOLIAN SOIL
		BH201M_0.80-1.00		1					D	2, 2, 4, 8, 6, 6, 8, 8, 8	
		BH201M_2.60-3.00		2					D - VD	10, 10, 10, 11, 12, 13, 11, 10, 9, 8, 9, 12, 7, 20	
		BH201M_3.50-3.70		3				M			
				4							
		BH201M_5.20-5.30		5		45.10	From 5.00m, red brown with clay nodules.				
				6				W	-		
				7							
				8							
				9							
				9.50		40.60	Sandy CLAY: low plasticity, pale grey	M > PL			RESIDUAL SOIL
				10							

BOREHOLE LOG

BH ID: BH201M

Location	13-15, Oxford Street and 2 Verona Street Paddington NSW			**Started**	09 September 2025
Client	17 Oxford Street Pty Ltd			**Completed**	10 September 2025
Job No.	E25559.G04			**Logged By**	S2 **Date** 09 September 2025
Sheets	2 of 3			**Review By**	SK **Date** 15 October 2025
Drilling Contractor	STS Geotechnics	**Surface RL**	≈50.10 m (AHD)	**Northing**	6250678.9 (MGA 2020 Zone 56)
Plant	Christie	**Inclination**	90°	**Easting**	332768.0 (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	DCP BLOWS 0 5 10 15 20 25 30	MATERIAL ORIGIN & OBSERVATIONS
AD/T				10.10		40.00	Sandy CLAY: low plasticity, pale grey *Log continued on next page.*	M > PL	-		RESIDUAL SOIL

BOREHOLE CORE LOG

BH ID: BH201M

Location	13-15, Oxford Street and 2 Verona Street Paddington NSW			**Started**	09 September 2025
Client	17 Oxford Street Pty Ltd			**Completed**	10 September 2025
Job No.	E25559.G04			**Logged By**	S2 **Date** 09 September 2025
Sheets	3 of 3			**Review By**	SK **Date** 15 October 2025
Drilling Contractor	STS Geotechnics	**Surface RL**	≈50.10 m (AHD)	**Northing**	6250678.9 (MGA 2020 Zone 56)
Plant	Christie	**Inclination**	90°	**Easting**	332768.0 (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 (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
				10			*Log continued from previous page.*				
NMLC	30%	91	81	10.23		39.87	NO CORE: 130mm thick	---			
							SANDSTONE: fine to medium grained, with dark grey Siltstone laminate, bedded 0-10°.	FR	M ▼	10.23-10.25: CS 10.28-10.33: CS 10.38-10.42: CS 10.52-10.56: CS	
				11						11.03-11.06: XWS 11.11: DB 11.22: DB 11.34: DB	
		76	46	12						11.62-11.85: XWZ 12.06: JT 80° RO Fe SN 12.16: DB	
				12.73		37.37	NO CORE: 370mm thick	---		12.68-12.73: XWS	
				13							
		46	0	13.10		37.00	SANDSTONE: fine to medium grained, with dark grey Siltstone laminate, bedded 0-10°	DW	VL–L	13.20-13.79: XWZ	
				13.79		36.31	NO CORE: 810mm thick	---			
				14							
		100	0	14.60		35.50	SANDSTONE: fine to medium grained, with extremely weathered bands	DW	VL–L	14.60-15.00: XWZ	
				15.00		35.10	NO CORE: 200mm thick	---			
		80	25	15.20		34.90	SANDSTONE: fine to medium grained, with extremely weathered bands and dark grey siltstone laminate, bedded 0-10°	DW	VL–M	15.40: JT 30° PR RO Fe SN 15.62: JT 50-60° PR RO Fe SN 15.77-16.00: XWZ	
				16							
		48	10	16.00		34.10	NO CORE: 520mm thick	---			
				16.52		33.58	SANDSTONE: fine to medium grained, grey with dark grey Siltstone laminate, bedded 0-10°	FR	M ▼	16.60-16.65: CS 16.77-16.80: XWS 16.95: JT 90° PR RO CN 17.06: DB 17.21: DB	
		100	100	17					M ▼	17.42: DB 17.51: DB 17.61: DB ~~17.78: BP 5° PR SM Infilled~~	
						32.30	Terminated at 17.80m. Target Depth Reached.				
				18							
				19							
				20							

MONITORING WELL LOG

BH ID: BH201M

Location	13-15, Oxford Street and 2 Verona Street Paddington NSW			**Started**	09 September 2025	
Client	17 Oxford Street Pty Ltd			**Completed**	10 September 2025	
Job No.	E25559.G04			**Logged By**	S2	**Date** 09 September 2025
Sheets	1 of 1			**Review By**	SK	**Date** 15 October 2025
Drilling Contractor	STS Geotechnics	**Surface RL**	≈50.10 m (AHD)	**Northing**	6250678.9 (MGA 2020 Zone 56)	
Plant	Christie	**Inclination**	90°	**Easting**	332768.0 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
		0.00	50.10	CONCRETE: 200mm thick	-
	BH201M_0.40-0.50	0.20	49.90	SAND: fine to medium grained, pale brown	D
	BH201M_0.80-1.00	1			
	BH201M_2.60-3.00	2			
	BH201M_3.50-3.70	3			
		4			M
	BH201M_5.20-5.30	5.00	45.10	From 5.00m, red brown with clay nodules.	
▷		6			
		7			
		8			W
		9			
		9.50	40.60	Sandy CLAY: low plasticity, pale grey	M > PL
		10.10	40.00	NO CORE: 130mm thick	
		10.23	39.87	SANDSTONE: fine to medium grained, with dark grey Siltstone laminate, bedded 0-10°.	
		11			
		12			
		12.73	37.37	NO CORE: 370mm thick	
		13.10	37.00	SANDSTONE: fine to medium grained, with dark grey Siltstone laminate, bedded 0-10°	
		13.79	36.31	NO CORE: 810mm thick	
		14.60	35.50	SANDSTONE: fine to medium grained, with extremely weathered bands	
		15.00	35.10	NO CORE: 200mm thick	
		15.20	34.90	SANDSTONE: fine to medium grained, with extremely weathered bands and dark grey siltstone laminate, bedded 0-10°	
		16.00	34.10	NO CORE: 520mm thick	
		16.52	33.58	SANDSTONE: fine to medium grained, grey with dark grey Siltstone laminate, bedded 0-10°	
		17			
		18	32.30	Terminated at 17.80m. Target Depth Reached.	
		19			
		20			

BACKFILL DETAILS	STANDPIPE DETAILS
Steel Gatic at Surface	Well Stickup =0.0m (RL 50.10m)
Grout 0.00m - 1.00m	
Sand 1.00m - 8.50m	0.0m - 11.10m PVC casing (50mm Ø)
Bentonite 8.50m - 9.50m	
Sand 9.50m - 14.10m	11.10m - 14.10m PVC screen (50mm Ø)
Bentonite 14.10m - 15.00m	
Sand 15.00m - 17.80m	

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

CORE PHOTOGRAPH OF BOREHOLE: BH201M

Project	Proposed Mixed-Use Development	**Easting**	331495.3992	**Depth Range**	10.10 m to 17.8 m BEGL		
Location	13-17 Oxford Street & 2 Verona Street, Paddington NSW	**Northing**	6258432.1894	**Contractor**	STS Geotechnics Pty Ltd		
Position	See Figure 2	**Surface RL**	50.10m	**Drill Rig**	Christie Track Mounted Rig		
Job No.	E25559.G04	**Inclination**	-90°	**Logged**	S2	**Date**	09 / 10 / 2025
Client	17 Oxford Street Pty Ltd	**Box**	1&2 of 2	**Checked**	SK	**Date**	15 / 10/ 2025

BOREHOLE LOG

BH ID: BH208M

Location	13-15, Oxford Street and 2 Verona Street Paddington NSW			**Started**	08 September 2025
Client	17 Oxford Street Pty Ltd			**Completed**	08 September 2025
Job No.	E25559.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	1 of 3			**Review By**	SK **Date** 15 October 2025
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈43.50 m (AHD)	**Northing**	6251631.2 (MGA 2020 Zone 56)
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	333765.5 (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	DCP BLOWS	MATERIAL ORIGIN & OBSERVATIONS
DT				0.00		43.50	CONCRETE: 200mm thick	-	-		CONCRETE
HA	▽	BH208M_0.60-0.70		0.20		43.30	Clayey SAND: pale brown and red brown, with fine to coarse grained sandstone gravels.	M	L	3, 3, 5, 4, 4, 3, 2	RESIDUAL SOIL
								W	MD	6, 6, 5, 6, 6, 6, 6, 15/50mm	
				2.00		41.50	*Log continued on next page.*		-		

DCP BLOWS scale: 0 5 10 15 20 25 30

BOREHOLE CORE LOG

BH ID: BH208M

Location	13-15, Oxford Street and 2 Verona Street Paddington NSW			**Started**	08 September 2025
Client	17 Oxford Street Pty Ltd			**Completed**	08 September 2025
Job No.	E25559.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	2 of 3			**Review By**	SK **Date** 15 October 2025
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈43.50 m (AHD)	**Northing**	6251631.2 (MGA 2020 Zone 56)
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	333765.5 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
				0		*Log continued from previous page.*				
				2		SANDSTONE: fine to medium grained, red brown and grey, ironstained, with extremely weathered bands.	XW		2.30-3.00: XWZ	
		100	31	3.00	40.50	SANDSTONE: fine to medium grained,red brown and grey,ironstained, with dark brown and grey Siltstone laminate, bedded 0-5°	DW		3.22-3.24: CS 3.25: HB 3.33: HB 3.41: HB 3.61: JT 30° PR RO CN 3.80-3.96: CZ	
		100	90	4.00	39.50	SANDSTONE: fine to medium grained,grey and red brown,ironstained, with dark grey Siltstone laminate and trace of carbonaceous lenses, bedded 0-5°	SW			
NMLC	95%	100	100	5.60	37.90	SANDSTONE: fine to medium grained, grey with dark grey Siltstone laminate, bedded 0-5°			6.48: BP 5° PR RO Clay VN 6.63: DB 6.67: DB 6.88-6.91: XWS	
		100	100	7.72	35.78	From 7.72m, interbedded siltstone bands.	FR		7.61-7.63: CS 7.77: BP 10° PR RO CN	
		100	100	7.82	35.68	SANDSTONE: fine to medium grained, grey with dark grey Siltstone laminate, bedded 0-5°			8.23: DB 8.83: DB 8.91: BP 5° PR RO Fe SN	

BOREHOLE CORE LOG

BH ID: BH208M

Location	13-15, Oxford Street and 2 Verona Street Paddington NSW	**Started**	08 September 2025
Client	17 Oxford Street Pty Ltd	**Completed**	08 September 2025
Job No.	E25559.G04	**Logged By**	S2 **Date** 08 September 2025
Sheets	3 of 3	**Review By**	SK **Date** 15 October 2025
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈43.50 m (AHD)
Plant	Hand Portable Rig	**Inclination**	90°
Northing	6251631.2 (MGA 2020 Zone 56)		
Easting	333765.5 (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 (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
NMLC	95%	100	100	11			SANDSTONE: fine to medium grained, grey with dark grey Siltstone laminate, bedded 0-5°	FR	▼ M	10.17: DB 10.25: JT 20° PR RO CN 10.51: BP 10° RO 11.11: BP 10° PR RO clay Infilled 11.25: DB	
						32.12	Terminated at 11.38m. Target Depth Reached.				
				12							
				13							
				14							
				15							
				16							
				17							
				18							
				19							
				20							

MONITORING WELL LOG

BH ID: BH208M

Location	13-15, Oxford Street and 2 Verona Street Paddington NSW			**Started**	08 September 2025	
Client	17 Oxford Street Pty Ltd			**Completed**	08 September 2025	
Job No.	E25559.G04			**Logged By**	S2	**Date** 08 September 2025
Sheets	1 of 1			**Review By**	SK	**Date** 15 October 2025
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈43.50 m (AHD)	**Northing**	6251631.2 (MGA 2020 Zone 56)	
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	333765.5 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
		0.00	43.50	CONCRETE: 200mm thick	-
		0.20	43.30	Clayey SAND: pale brown and red brown, with fine to coarse grained sandstone gravels.	M
▷	BH208M_0.60-0.70				W
		2.00	41.50	SANDSTONE: fine to medium grained, red brown and grey, ironstained, with extremely weathered bands.	
		3.00	40.50	SANDSTONE: fine to medium grained,red brown and grey,ironstained, with dark brown and grey Siltstone laminate, bedded 0-5°	
		4.00	39.50	SANDSTONE: fine to medium grained,grey and red brown,ironstained, with dark grey Siltstone laminate and trace of carbonaceous lenses, bedded 0-5°	
		5.60	37.90	SANDSTONE: fine to medium grained, grey with dark grey Siltstone laminate, bedded 0-5°	
		7.72	35.78	From 7.72m, interbedded siltstone bands.	
		7.82	35.68	SANDSTONE: fine to medium grained, grey with dark grey Siltstone laminate, bedded 0-5°	
		11.38	32.12	Terminated at 11.38m. Target Depth Reached.	

BACKFILL DETAILS

Steel Gatic at Surface

Bentonite 0.00m - 3.20m

Sand 3.20m - 8.10m

Bentonite 8.10m - 8.60m

Sand 8.60m - 11.38m

STANDPIPE DETAILS

Well Stickup =0.0m (RL 43.50m)

0.0m - 5.10m PVC casing (50mm Ø)

5.10m - 8.10m PVC screen (50mm Ø)

CORE PHOTOGRAPH OF BOREHOLE: BH208M

Project	Proposed Mixed-Use Development	**Easting**	331495.3992	**Depth Range**	2.0 m to 11.38m BEGL		
Location	13-17 Oxford Street & 2 Verona Street, Paddington NSW	**Northing**	6258432.1894	**Contractor**	Tightsite Geotechnical& Environmental Pty Ltd		
Position	See Figure 2	**Surface RL**	43.5m	**Drill Rig**	Hand Portable Rig		
Job No.	E25559.G04	**Inclination**	-90°	**Logged**	S2	**Date**	08 / 10 / 2025
Client	17 Oxford Street Pty Ltd	**Box**	1&2 of 2	**Checked**	SK	**Date**	15 / 10/ 2025

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

DRILLING/EXCAVATION METHOD

HA	Hand Auger	**ADH**	Hollow Auger	**NQ**	Diamond Core - 47 mm
DT	Diatube Coring	**RT**	Rotary Tricone bit	**NMLC**	Diamond Core - 52 mm
NDD	Non-destructive digging	**RAB**	Rotary Air Blast	**HQ**	Diamond Core - 63 mm
AD*	Auger Drilling	**RC**	Reverse Circulation	**HMLC**	Diamond Core - 63 mm
***V**	V-Bit	**PT**	Push Tube	**EX**	Tracked Hydraulic Excavator
***T**	TC-Bit, e.g. AD/T	**WB**	Washbore	**HAND**	Excavated by Hand Methods

PENETRATION RESISTANCE

L	**Low Resistance**	Rapid penetration/ excavation possible with little effort from equipment used.
M	**Medium Resistance**	Penetration/ excavation possible at an acceptable rate with moderate effort from equipment used.
H	**High Resistance**	Penetration/ excavation is possible but at a slow rate and requires significant effort from equipment used.
R	**Refusal/Practical Refusal**	No further progress possible without risk of damage or unacceptable wear to equipment used.

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

WATER

Standing Water Level — **Partial water loss**

Water Seepage — **Complete Water Loss**

GWNO	GROUNDWATER NOT OBSERVED - Observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave-in of the borehole/ test pit.
GWNE	GROUNDWATER NOT ENCOUNTERED - Borehole/ test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/ test pit been left open for a longer period.

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm. N = Blows per 300mm penetration following a 150mm seating drive
30/80mm	Where practical refusal occurs, the blows and penetration for that interval are reported, N is not reported
RW	Penetration occurred under the rod weight only, N<1
HW	Penetration occurred under the hammer and rod weight only, N<1
HB	Hammer double bouncing on anvil, N is not reported
Sampling	
DS	Disturbed Sample
ES	Sample for environmental testing
BDS	Bulk disturbed Sample
GS	Gas Sample
WS	Water Sample
U50	Thin walled tube sample - number indicates nominal sample diameter in millimetres
Testing	
FP	Field Permeability test over section noted
FVS	Field Vane Shear test expressed as uncorrected shear strength (sv= peak value, sr= residual value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket Penetrometer test expressed as instrument reading in kPa
WPT	Water Pressure tests
DCP	Dynamic Cone Penetrometer test
CPT	Static Cone Penetration test
CPTu	Static Cone Penetration test with pore pressure (u) measurement

GEOLOGICAL BOUNDARIES

———— = Observed Boundary (position known)

– – – – – – – – – – = Observed Boundary (position approximate)

– –?– –?– –?– – = Boundary (interpreted or inferred)

ROCK CORE RECOVERY

TCR=Total Core Recovery (%)

$$= \frac{\textit{Length of core recovered}}{\textit{Length of core run}} \times 100$$

RQD = Rock Quality Designation (%)

$$= \frac{\sum \textit{Axial lengths of core} > 100mm}{\textit{Length of core run}} \times 100$$

METHOD OF SOIL DESCRIPTION USED ON BOREHOLE AND TEST PIT LOGS

	FILL		ORGANIC SOILS (OL, OH or Pt)		CLAY (CL, CI or CH)
	COUBLES or BOULDERS		SILT (ML or MH)		SAND (SP or SW)
	GRAVEL (GP or GW)	Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay			

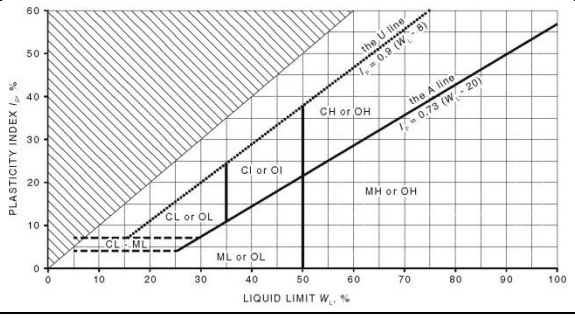
CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS 1726:2017, Section 6.1 – Soil description and classification.

PARTICLE SIZE CHARACTERISTICS

Fraction	Components	Sub Division	Size mm
Oversize	BOULDERS		>200
	COBBLES		63 to 200
Coarse grained soil	GRAVEL	Coarse	19 to 63
		Medium	6.7 to 19
		Fine	2.36 to 6.7
	SAND	Coarse	0.6 to 2.36
		Medium	0.21 to 0.6
		Fine	0.075 to 0.21
Fine grained soil	SILT		0.002 to 0.075
	CLAY		<0.002

PLASTICITY PROPERTIES



GROUP SYMBOLS

Major Divisions		Symbol	Description
COARSE GRAINED SOILS More than 65% of soil excluding oversize fraction is greater than 0.075mm	GRAVEL More than 50% of coarse fraction is >2.36mm	GW	Well graded gravel and gravel-sand mixtures, little or no fines, no dry strength.
		GP	Poorly graded gravel and gravel-sand mixtures, little or no fines, no dry strength.
		GM	Silty gravel, gravel-sand-silt mixtures, zero to medium dry strength.
		GC	Clayey gravel, gravel-sand-clay mixtures, medium to high dry strength.
	SAND More than 50% of coarse fraction is <2.36 mm	SW	Well graded sand and gravelly sand, little or no fines, no dry strength.
		SP	Poorly graded sand and gravelly sand, little or no fines, no dry strength.
		SM	Silty sand, sand-silt mixtures, zero to medium dry strength.
		SC	Clayey sand, sandy-clay mixtures, medium to high dry strength.
FINE GRAINED SOILS More than 35% of soil excluding oversized fraction is less than 0.075mm	Liquid Limit less < 50%	ML	Inorganic silts of low plasticity, very fine sands, rock flour, silty or clayey fine sands, zero to medium dry strength.
		CL, CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, medium to high dry strength.
		OL	Organic silts and organic silty clays of low plasticity, low to medium dry strength.
	Liquid Limit > than 50%	MH	Inorganic silts of high plasticity, high to very high dry strength.
		CH	Inorganic clays of high plasticity, high to very high dry strength.
		OH	Organic clays of medium to high plasticity, medium to high dry strength.
Highly Organic soil		PT	Peat muck and other highly organic soils.

MOISTURE CONDITION

Symbol	Term	Description
D	Dry	Non- cohesive and free-running.
M	Moist	Soils feel cool, darkened in colour. Soil tends to stick together.
W	Wet	Soils feel cool, darkened in colour. Soil tends to stick together, free water forms when handling.

Moisture content of cohesive soils shall be described in relation to plastic limit (PL) or liquid limit (LL) for soils with higher moisture content as follows: Moist, dry of plastic limit (w < PL); Moist, near plastic limit (w ≈ PL); Moist, wet of plastic limit (w < PL); Wet, near liquid limit (w ≈ LL), Wet, wet of liquid limit (w > LL),

CONSISTENCY

Symbol	Term	Undrained Shear Strength (kPa)	SPT "N" #
VS	Very Soft	≤ 12	≤ 2
S	Soft	>12 to ≤ 25	>2 to ≤ 4
F	Firm	>25 to ≤ 50	>4 to 8
St	Stiff	>50 to ≤ 100	>8 to 15
VSt	Very Stiff	>100 to ≤ 200	>15 to 30
H	Hard	>200	>30
Fr	Friable	-	

DENSITY

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

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.
SPT correlations are not stated in AS1726:2017, and may be subject to corrections for overburden pressure, moisture content of the soil, and equipment type.

MINOR COMPONENTS

Term	Assessment Guide	Proportion by Mass
Add 'Trace'	Presence just detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: ≤ 5% Fine grained soil: ≤ 15%
Add 'With'	Presence easily detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: 5 - 12% Fine grained soil: 15 - 30%
Prefix soil name	Presence easily detectable by feel or eye in conjunction with the general properties of primary component	Coarse grained soils: >12% Fine grained soil: >30%

TERMS FOR ROCK MATERIAL STRENGTH AND WEATHERING

CLASSIFICATION AND INFERRED STRATIGRAPHY

Rock is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 2017, Section 6.2 – Rock identification, description and classification.

ROCK MATERIAL STRENGTH CLASSIFICATION

Symbol	Term	Point Load Index, $Is_{(50)}$ (MPa) #	Field Guide
VL	Very Low	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30 mm can be broken by finger pressure.
L	Low	0.1 to 0.3	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of pick point; has dull sound under hammer. A piece of core 150 mm long by 50 mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
M	Medium	0.3 to 1	Readily scored with a knife; a piece of core 150 mm long by 50 mm diameter can be broken by hand with difficulty.
H	High	1 to 3	A piece of core 150 mm long by 50 mm diameter cannot be broken by hand but can be broken with pick with a single firm blow; rock rings under hammer.
VH	Very High	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
EH	Extremely High	>10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

 # Rock Strength Test Results

▼ Point Load Strength Index, $Is_{(50)}$, Axial test (MPa)

● Point Load Strength Index, $Is_{(50)}$, Diametral test (MPa)

Relationship between rock strength test result ($Is_{(50)}$) and unconfined compressive strength (UCS) will vary with rock type and strength, and should be determined on a site-specific basis. However UCS is typically 20 x $Is_{(50)}$.

ROCK MATERIAL WEATHERING CLASSIFICATION

Symbol		Term	Field Guide
RS		Residual Soil	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
XW		Extremely Weathered	Rock is weathered to such an extent that it has soil properties - i.e. it either disintegrates or can be remoulded, in water.
DW	HW	Distinctly Weathered	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores. In some environments it is convenient to subdivide into Highly Weathered and Moderately Weathered, with the degree of alteration typically less for MW.
	MW		
SW		Slightly Weathered	Rock slightly discoloured but shows little or no change of strength relative to fresh rock.
FR		Fresh	Rock shows no sign of decomposition or staining.

ABBREVIATIONS AND DESCRIPTIONS FOR ROCK MATERIAL AND DEFECTS

CLASSIFICATION AND INFERRED STRATIGRAPHY
Rock is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 2017, Section 6.2 – Rock identification, description and classification.

DETAILED ROCK DEFECT SPACING

Defect Spacing

Spacing/width (mm)	Descriptor	Symbol
<20	Extremely Close	EC
20-60	Very Close	VC
60-200	Close	C
200-600	Medium	M
600-2000	Wide	W
2000-6000	Very Wide	VW

Bedding Thickness (Stratification)

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

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT TYPES

Defect Type	Abbr.	Description
Joint	JT	Surface of a fracture or parting, formed without displacement, across which the rock has little or no tensile strength. May be closed or filled by air, water or soil or rock substance, which acts as cement.
Bedding Parting	BP	Surface of fracture or parting, across which the rock has little or no tensile strength, parallel or sub-parallel to layering/ bedding. Bedding refers to the layering or stratification of a rock, indicating orientation during deposition, resulting in planar anisotropy in the rock material.
Contact	CO	The surface between two types or ages of rock.
Sheared Surface	SSU	A near planar, curved or undulating surface which is usually smooth, polished or slickensided.
Sheared Seam/ Zone (Fault)	SS/SZ	Seam or zone with roughly parallel almost planar boundaries of rock substance cut by closely spaced (often <50 mm) parallel and usually smooth or slickensided joints or cleavage planes.
Crushed Seam/ Zone (Fault)	CS/CZ	Seam or zone composed of disoriented usually angular fragments of the host rock substance, with roughly parallel near-planar boundaries. The brecciated fragments may be of clay, silt, sand or gravel sizes or mixtures of these.
Extremely Weathered Seam/ Zone	XWS/XWZ	Seam of soil substance, often with gradational boundaries, formed by weathering of the rock material in places.
Infilled Seam	IS	Seam of soil substance, usually clay or clayey, with very distinct roughly parallel boundaries, formed by soil migrating into joint or open cavity.
Vein	VN	Distinct sheet-like body of minerals crystallised within rock through typically open-space filling or crack-seal growth.

NOTE: Defects size of <100mm SS, CS and XWS. Defects size of >100mm SZ, CZ and XWZ.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT SHAPE AND ROUGHNESS

Shape	Abbr.	Description	Roughness	Abbr.	Description
Planar	PR	Consistent orientation	Polished	POL	Shiny smooth surface
Curved	CU	Gradual change in orientation	Slickensided	SL	Grooved or striated surface, usually polished
Undulating	UN	Wavy surface	Smooth	SM	Smooth to touch. Few or no surface irregularities
Stepped	ST	One or more well defined steps	Rough	RO	Many small surface irregularities (amplitude generally <1mm). Feels like fine to coarse sandpaper
Irregular	IR	Many sharp changes in orientation	Very Rough	VR	Many large surface irregularities, amplitude generally >1mm. Feels like very coarse sandpaper

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

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT COATING

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

DEFECT APERTURE

Aperture	Abbr.	Description
Closed	CL	Closed.
Open	OP	Without any infill material.
Infilled	-	Soil or rock i.e. clay, silt, talc, pyrite, quartz, etc.

Appendix B – Laboratory Certificates

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Javier Arrieta
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 9516 0722
Facsimile	(Not specified)
Email	javier.arrieta@eiaustralia.com.au
Project	**E25559.G03 17 Oxford St Paddington**
Order Number	**E25559.G03**
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE230565 R0**
Date Received	1/4/2022
Date Reported	7/4/2022

COMMENTS

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

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Shane MCDERMOTT
Inorganic/Metals Chemist

Soluble Anions (1:5) in Soil/Solids by Ion Chromatography [AN245] Tested: 4/4/2022

PARAMETER	UOM	LOR	BH1 5.8-6.0m SOIL - 24/3/2022 SE230565.001	BH2 4.5-4.95m SOIL - 25/3/2022 SE230565.002
Chloride	mg/kg	0.25	**12**	**0.86**
Sulfate	mg/kg	5	**38**	**9.6**

pH in soil (1:5) [AN101] Tested: 4/4/2022

PARAMETER	UOM	LOR	BH1 5.8-6.0m SOIL - 24/3/2022 SE230565.001	BH2 4.5-4.95m SOIL - 25/3/2022 SE230565.002
pH	pH Units	0.1	**4.6**	**8.2**

Conductivity and TDS by Calculation - Soil [AN106] Tested: 4/4/2022

PARAMETER	UOM	LOR	BH1 5.8-6.0m SOIL - 24/3/2022 SE230565.001	BH2 4.5-4.95m SOIL - 25/3/2022 SE230565.002
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	**35**	**37**

Moisture Content [AN002] Tested: 5/4/2022

PARAMETER	UOM	LOR	BH1 5.8-6.0m SOIL - 24/3/2022 SE230565.001	BH2 4.5-4.95m SOIL - 25/3/2022 SE230565.002
% Moisture	%w/w	1	**9.5**	**1.2**

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.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract of as received sample with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN245	Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B

FOOTNOTES

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

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

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

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

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

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

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

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

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

STS GEOTECHNICS PTY LTD
CONSULTING GEOTECHNICAL ENGINEERS

STS Geotechnics Pty Ltd
14/1 Cowpasture Place, Wetherill Park NSW 2164
Phone: (02)9756 2166 | Email: enquiries@stsgeo.com.au

Point Load Strength Index Report

Project: E25559.G03 | 17 OXFORD STREET, PADDINGTON
Client: EI AUSTRALIA
Address: Suite 6.01, 55 Miller Street, Pyrmont, NSW 2009
Test Method: AS 4133.4.1
Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Project No.: 31380/6297D-L
Report No.: **22/1149**
Report Date: 31/03/2022
Page: 1 OF 1

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH1	6.33	24-25/03/2022	31/03/2022	A	**0.24**	**0.23**	SS	3	M
BH1	7.16	24-25/03/2022	31/03/2022	A	**0.086**	**0.087**	SS	3	M
BH1	8.38	24-25/03/2022	31/03/2022	A	**0.55**	**0.55**	SS	3	M
BH1	9.18	24-25/03/2022	31/03/2022	A	**0.93**	**0.95**	SS	3	M
BH2	6.6	24-25/03/2022	31/03/2022	A	**0.27**	**0.27**	SS	3	M
BH2	7.14	24-25/03/2022	31/03/2022	A	**0.51**	**0.54**	SS	3	M
BH2	8.34	24-25/03/2022	31/03/2022	A	**0.52**	**0.52**	SS	3	M
BH2	9.16	24-25/03/2022	31/03/2022	A	**0.15**	**0.16**	SS	3	M

Failure Type
1 = Fracture through bedding or weak plane
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by natural defect or drilling
5 = Partial fracture or chip (invalid result)

Test Type
A = Axial
D = Diametrial
I = Irregular
C = Cube

Moisure Condition
W = Wet
M = Moist
D = Dry

Rock Type
SS = Sandstone
ST = Siltstone
SH = Shale
YS = Claystoane
IG = Igneous

Remarks:

Approved Signatory.....

Technician: LS

Orlando Mendoza - Laboratory Manager

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Salah Khalifa
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
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Email	salah.khalifa@eiaustralia.com.au
Project	**E25559.G03 13-15 Oxford St. & 2 Verona**
Order Number	**E25559.G03**
Samples	2

LABORATORY DETAILS

Manager	Shane McDermott
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE289459 R0**
Date Received	15/9/2025
Date Reported	22/9/2025

COMMENTS

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

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Ying Ying ZHANG
Laboratory Technician

pH in soil (1:5) [AN101] Tested: 19/9/2025

PARAMETER	UOM	LOR	BH201M_2.6-3.0 SOIL - 15/9/2025 SE289459.001	BH208M_0.6-0.7 SOIL - 15/9/2025 SE289459.002
pH	pH Units	0.1	**6.3**	**6.5**

Conductivity and TDS by Calculation - Soil [AN106] Tested: 19/9/2025

PARAMETER	UOM	LOR	BH201M_2.6-3.0 SOIL - 15/9/2025 SE289459.001	BH208M_0.6-0.7 SOIL - 15/9/2025 SE289459.002
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	**34**	**59**

Soluble Anions (1:5) in Soil/Solids by Ion Chromatography [AN245] Tested: 19/9/2025

PARAMETER	UOM	LOR	BH201M_2.6-3.0 SOIL - 15/9/2025 SE289459.001	BH208M_0.6-0.7 SOIL - 15/9/2025 SE289459.002
Chloride	mg/kg	0.25	**2.4**	**11**
Sulfate	mg/kg	5	**45**	**63**

Moisture Content [AN002] Tested: 19/9/2025

PARAMETER	UOM	LOR	BH201M_2.6-3.0 SOIL - 15/9/2025 SE289459.001	BH208M_0.6-0.7 SOIL - 15/9/2025 SE289459.002
% Moisture	%w/w	1	<1.0	**18.1**

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.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract of as received sample with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN245	Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR			
***	Indicates that both * and ** apply.		Sample listed, but not received.		
NAD	No Asbestos Detected.	NA	Not Applicable.		

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.

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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: https://www.sgs.com/en-au/industry/environmental-health-and-safety.

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CONSULTING GEOTECHNICAL ENGINEERS

STS Geotechnics Pty Ltd
14/1 Cowpasture Place, Wetherill Park NSW 2164
Phone: (02)9756 2166 | Email: enquiries@stsgeo.com.au

Particle Size Distribution

Project: E25559.G04 13-15 OXFORD STREET & 2 VERONA STREET, PADDINGTO | **STS / Sample No.: 1282E-L/1** | Project No.: 31380

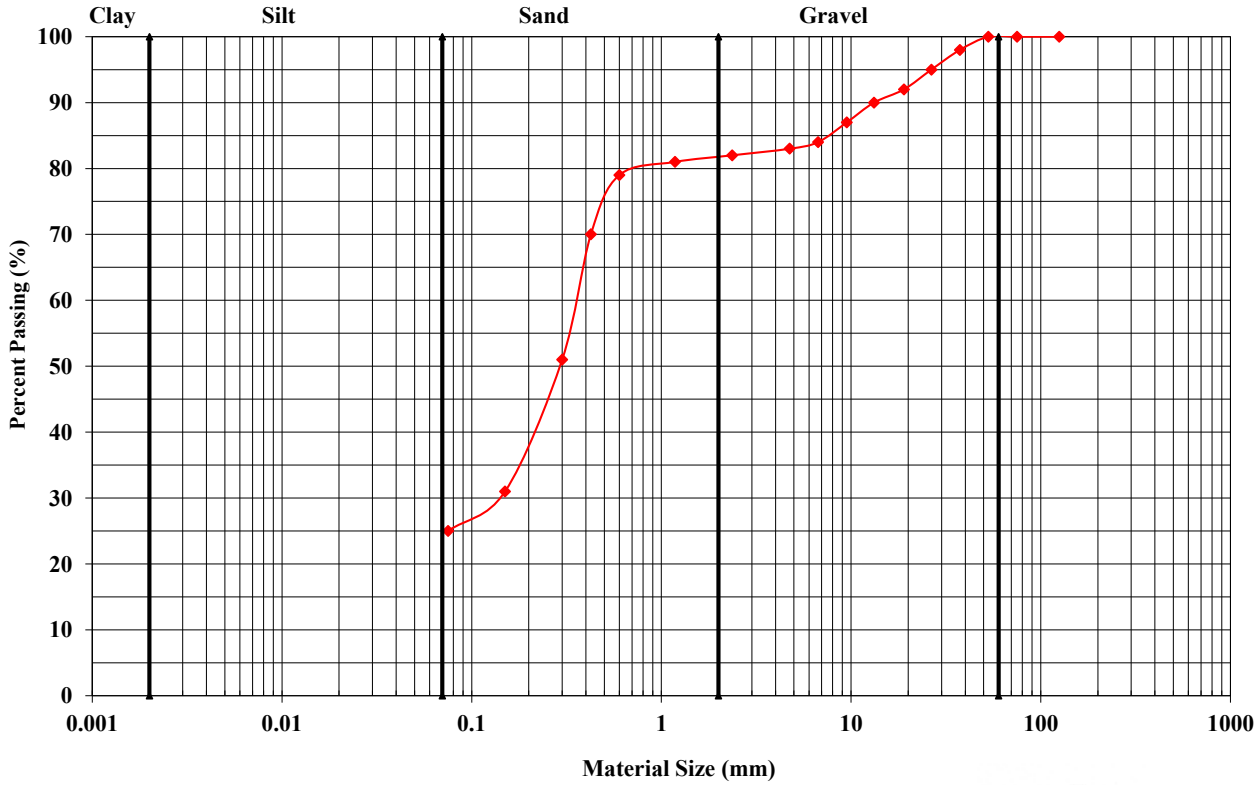
Client: EI AUSTRALIA PTY LTD | Sample Location: BH208 | Report No.: 25/2404

Address: SUITE 6.01, 55 MILLER STREET, PYRMONT NSW 2009 | Depth (m): 0.2- 1.7 | Report Date: 25/09/2025

Test Method: AS 1289.3.6.1 | Date Sampled: 8-10/09/2025 | Page: 1 of 1

Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation) | Client Project No: 0

Material Description: Silty Clayey SAND, brown, with Gravel | Date tested: 25/09/2025



Sample Washed: Y

Sieve Size (mm)	Percent Passing (%)
125.0	100.0
75.0	100.0
53.0	100.0
37.5	98.0
26.5	95.0
19.0	92.0
13.2	90.0
9.5	87.0
6.7	84.0
4.75	83.0
2.36	82.0
1.18	81.0
0.60	79.0
0.425	70.0
0.30	51.0
0.15	31.0
0.075	25.0

Remarks:

Approved Signatory.....

Technician: SP

Dilan Wijegunawardana - Senior Laboratory Technician

STS GEOTECHNICS PTY LTD
CONSULTING GEOTECHNICAL ENGINEERS

STS Geotechnics Pty Ltd
14/1 Cowpasture Place, Wetherill Park NSW 2164
Phone: (02)9756 2166 | Email: enquiries@stsgeo.com.au

Point Load Strength Index Report

Project: E25559.G04 13-15 OXFORD STREET AND 2 VERONA STREET, PADDINGTON NSW
Client: EI AUSTRALIA PTY LTD
Address: Suite 6.01, 55 Miller Street, Pyrmont NSW 2009
Test Method: AS 4133.4.1
Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Project No.: 31380/1282E-L
Report No.: 25/2324
Report Date: 17/09/2025
Page: 1 of 1

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH201M	10.71	08/09/2025	17/09/2025	A	**0.45**	**0.45**	SS	3	M
BH201M	11.43	08/09/2025	17/09/2025	A	**0.44**	**0.43**	SS	3	M
BH201M	12.53	08/09/2025	17/09/2025	A	**0.33**	**0.33**	SS	3	M
BH201M	16.65	08/09/2025	17/09/2025	A	**0.49**	**0.49**	SS	3	M
BH201M	17.74	08/09/2025	17/09/2025	A	**1.6**	**1.6**	SS	3	M
BH208M	3.15	10/09/2025	17/09/2025	A	**0.03**	**0.029**	SS	3	M
BH208M	3.71	10/09/2025	17/09/2025	A	**0.58**	**0.59**	SS	3	M
BH208M	4.32	10/09/2025	17/09/2025	A	**0.31**	**0.31**	SS	3	M
BH208M	4.82	10/09/2025	17/09/2025	A	**0.31**	**0.31**	SS	3	M
BH208M	5.30	10/09/2025	17/09/2025	A	**0.27**	**0.27**	SS	3	M
BH208M	5.84	10/09/2025	17/09/2025	A	**0.38**	**0.38**	SS	3	M
BH208M	6.27	10/09/2025	17/09/2025	A	**0.53**	**0.53**	SS	3	M
BH208M	6.78	10/09/2025	17/09/2025	A	**0.34**	**0.34**	SS	3	M
BH208M	7.11	10/09/2025	17/09/2025	A	**0.68**	**0.69**	SS	3	M
BH208M	7.90	10/09/2025	17/09/2025	A	**1.1**	**1.1**	SS	3	M
BH208M	8.35	10/09/2025	17/09/2025	A	**1.3**	**1.3**	SS	3	M
BH208M	8.82	10/09/2025	17/09/2025	A	**1.2**	**1.2**	SS	3	M
BH208M	9.21	10/09/2025	17/09/2025	A	**1.9**	**1.9**	SS	3	M
BH208M	9.90	10/09/2025	17/09/2025	A	**1.3**	**1.3**	SS	3	M
BH208M	10.29	10/09/2025	17/09/2025	A	**1**	**1**	SS	3	M
BH208M	10.72	10/09/2025	17/09/2025	A	**0.89**	**0.9**	SS	3	M
BH208M	11.12	10/09/2025	17/09/2025	A	**1.2**	**1.2**	SS	3	M

Failure Type
1 = Fracture through bedding or weak plane
2 = Fracture along bedding
3 = Fracture through rock mass
4 = Fracture influenced by natural defect or drilling
5 = Partial fracture or chip (invalid result)

Test Type
A = Axial
D = Diametrial
I = Irregular
C = Cube

Moisure Condition
W = Wet
M = Moist
D = Dry

Rock Type
SS = Sandstone
ST = Siltstone
SH = Shale
YS = Claystone
IG = Igneous

Remarks:

Approved Signatory.....

Technician: NL

Mrigesh Tamang - Manager

Appendix C – Vibration Limits

German Standard DIN 4150 – Part 3: 1999 provides guideline levels of vibration velocity for evaluating the effects of vibration in structures. The limits presented in this standard are generally considered to be conservative.

The DIN 4150 values (maximum levels measured in any direction at the foundation, OR, maximum levels measured in (x) or (y) directions, in the plane of the uppermost floor), are summarised in **Table A** below.

It should be noted that peak vibration velocities higher than the minimum figures in **Table A** for low frequencies may be quite 'safe', depending on the frequency content of the vibration and the actual conditions of the structures.

It should also be noted that these levels are 'safe limits', up to which no damage due to vibration effects has been observed for the particular class of building. 'Damage' is defined by DIN 4150 to include even minor non-structural cracking in cement render, the enlargement of cracks already present, and the separation of partitions or intermediate walls from load bearing walls. Should damage be observed at vibration levels lower than the 'safe limits', then it may be attributed to other causes. DIN 4150 also states that when vibration levels higher than the 'safe limits' are present, it does not necessarily follow that damage will occur. Values given are only a broad guide.

Table A DIN 4150 – Structural Damage – Safe Limits for Building Vibration

Group	Type of Structure	Peak Vibration Velocity (mm/s)			
		At Foundation Level at a Frequency of:			Plane of Floor of Uppermost Storey
		Less than 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz	All Frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 and 2 and have intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

Note: For frequencies above 100 Hz, the higher values in the 50 Hz to 100 Hz column should be used.

Appendix D – Important Information

Important Information

SCOPE OF SERVICES

The geotechnical report ("the report") has been prepared in accordance with the scope of services as set out in the contract, or as otherwise agreed, between the Client And EI Australia ("EI"). The scope of work may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

RELIANCE ON DATA

EI has relied on data provided by the Client and other individuals and organizations, to prepare the report. Such data may include surveys, analyses, designs, maps and plans. EI has not verified the accuracy or completeness of the data except as stated in the report. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations ("conclusions") are based in whole or part on the data, EI will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to EI.

GEOTECHNICAL ENGINEERING

Geotechnical engineering is based extensively on judgment and opinion. It is far less exact than other engineering disciplines. Geotechnical engineering reports are prepared for a specific client, for a specific project and to meet specific needs, and may not be adequate for other clients or other purposes (e.g. a report prepared for a consulting civil engineer may not be adequate for a construction contractor). The report should not be used for other than its intended purpose without seeking additional geotechnical advice. Also, unless further geotechnical advice is obtained, the report cannot be used where the nature and/or details of the proposed development are changed.

LIMITATIONS OF SITE INVESTIGATION

The investigation programme undertaken is a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions. The data derived from the site investigation programme and subsequent laboratory testing are extrapolated across the site to form an inferred geological model, and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Despite investigation, the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. The engineering logs are the subjective interpretation of subsurface conditions at a particular location and time, made by trained personnel. The actual interface between materials may be more gradual or abrupt than a report indicates.

SUBSURFACE CONDITIONS ARE TIME DEPENDENT

Subsurface conditions can be modified by changing natural forces or man-made influences. The report is based on conditions that existed at the time of subsurface exploration. Construction operations adjacent to the site, and natural events such as floods, or ground water fluctuations, may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. EI should be kept appraised of any such events, and should be consulted to determine if any additional tests are necessary.

VERIFICATION OF SITE CONDITIONS

Where ground conditions encountered at the site differ significantly from those anticipated in the report, either due to natural variability of subsurface conditions or construction activities, it is a condition of the report that EI be notified of any variations and be provided with an opportunity to review the recommendations of this report. Recognition of change of soil and rock conditions requires experience and it is recommended that a suitably experienced geotechnical engineer be engaged to visit the site with sufficient frequency to detect if conditions have changed significantly.

REPRODUCTION OF REPORTS

 Where information from the accompanying report is to be included in contract documents or engineering specification for the project, the entire report should be included in order to minimize the likelihood of misinterpretation from logs.

REPORT FOR BENEFIT OF CLIENT

The report has been prepared for the benefit of the Client and no other party. EI assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of EI or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own inquiries and obtain independent advice in relation to such matters.

OTHER LIMITATIONS

EI will not be liable to update or revise the report to take into account any events or emergent circumstances or fact occurring or becoming apparent after the date of the report.