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388 LCR DEVELOPMENT PTY LTD

Geotechnical Investigation

2-4 Giffnock Avenue, Macquarie Park NSW

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Revision	Details	Date	Amended By
	Original	30 May 2025	
1	Updated architectural drawings	16 July 2025	KX
2	Updated architectural drawings and additional geotechnical investigation	22 April 2026	RL/KX

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1. Introduction

1.1 Background

At the request of Peta Dahdah on behalf of 388 LCR Development Pty Ltd (the Client), EI Australia (EI) has carried out a Geotechnical Investigation (GI) for the proposed development at 2-4 Giffnock Avenue, Macquarie Park NSW (the Site).

This GI report has been prepared to provide advice and recommendations to assist in the preparation of designs for the proposed development. The investigation has been carried out in accordance with the agreed scope of works outlined in EI's proposal referenced P22983.1_Rev1, dated 10 March 2025.

This report is also prepared in accordance with Planning Secretary's Environmental Assessment Requirements (SEARs Application No. SSD-79017211, dated 8 January 2025) item 12 related to ground and groundwater conditions.

1.2 Proposed Development

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

- Architectural drawings prepared by StudioSC – Project referenced 20240028, latest revision S, dated 17 March 2026; and
- Planning Secretary's Environmental Assessment Requirements (SEARs) – Application No. SSD-79017211, dated 8 January 2025.

Based on the provided documents, EI understands that the proposed development involves the demolition of the existing site structures and the construction of commercial two tower twenty-six and thirty - eight stories overlying a shared six-level basement. The basement level is proposed to have a Finished Floor Level (FFL) of RL 41.9m. A Bulk Excavation Level (BEL) ranging between RL 41.6m is assumed, which includes allowance for the construction of the basement slab. To achieve the BEL, excavation depths from 16.4m to 23.4m Below Existing Ground Level (BEGL) have been estimated. Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches.

1.3 Objectives

The objective of the GI was to assess site surface and subsurface conditions at five borehole locations, and to provide geotechnical advice and recommendations to assist in the design of the proposed development.

1.4 Fieldwork Methodology

The scope of works for the GI 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 Before You Dig Australia (BYDA) plans;
- Concrete diatube coring through the existing concrete surfacing at four borehole locations to enable access to the subsoils;
- Auger drilling of six boreholes (BH101M, BH102M, BH103M, BH104, BH105M and BH201M) by a track-mounted drill rig using solid flight augers equipped with a 'Tungsten-

Carbide' (T-C) bit. The boreholes were auger drilled to depths as shown in **Table 1-1** below:

Table 1-1 Augering and Rock Coring Depths

Borehole ID	Surface RL (m AHD)	Augering Termination		Rock Coring Termination	
		Depth (m)	RL (m AHD)	Depth (m)	RL (m AHD)
BH101M	61.44	6.30	55.14	30.30	31.14
BH102M	60.83	8.00	52.83	20.48	40.35
BH103M	59.65	11.81	47.84	20.21	39.44
BH104	60.40	7.10	53.30	20.94	39.46
BH105M	63.68	8.27	55.41	20.31	43.37
BH201M	60.0	7.86	52.14	40.39	19.61

  - Standard Penetration Testing (SPT) was carried out (as per AS 1289.6.3.1-2004), where possible, during auger drilling of the boreholes to assess soil strength/relative densities;
  - Measurements of groundwater seepage/levels, where possible, in the augered sections of the boreholes during and shortly after completion of auger drilling;
  - The strength of the bedrock in the augered sections of the boreholes was assessed by observation of the auger penetration resistance using a T-C drill bit and examination of the recovered rock cuttings. It should be noted that rock strengths assessed from augered boreholes are approximate and strength variances can be expected;
  - The surface levels shown on the borehole logs were interpolated from spot levels taken by using a hand-held GPS;
  - Northing and easting data are presented in the detailed borehole logs in **Appendix A**.
- Continuation of BH101M, BH102M, BH103M, BH104, BH105M and BH201M using NMLC diamond coring techniques to termination depths shown above in **Table 1-1**. The rock core photographs are presented in **Appendix A**;
- Boreholes BH101M, BH102M, BH103M, BH105M and BH201M were converted into groundwater monitoring standpipe wells installed to a depth of 18.0m BEGL (RL 43.89m),18.05m BEGL(RL 42.78m), 12.0m BEGL (RL 47.65m), 4.0m BEGL (RL 59.68m) and 21.0m (RL 39.0m), respectively, to allow for long-term groundwater monitoring;
- Borehole BH104, was backfilled with drilling spoils and capped with concrete upon completion;
- Groundwater well BH201M was constructed as a part of an additional geotechnical investigation to meet the NSW DPE *Minimum Requirements for Building Site Groundwater Investigations and Reporting* (October 2022)*;*
- 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; and
- Preparation of this GI 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 GI was limited by the intent of the investigation and the presence of existing site structures that precluded full coverage of the site. The discussions and advice presented in this report are intended to assist in the preparation of initial designs for the proposed development. A supplementary geotechnical investigation may be required post-demolition in the remaining areas of the site in the form of cored boreholes in the areas not previously investigated to complement the GI findings and updating of geotechnical advice and recommendations as appropriate.

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	2-4 Giffnock Avenue, Macquarie Park NSW
Lot and Deposited Plan (DP) Identification	Lot 1 in DP 1310550
Brief Site Description	At the time of our investigation, the site was occupied by a two-storey commercial building (No. 2-4 Giffnock Avenue), surrounded by a concrete-paved car park. Large trees were observed along the northern and southern boundaries, while small to medium-sized hedges were present along the northern and south-eastern edges of the site. Located on the south eastern boundary, was a one storey brick commercial building surrounded by an asphalt-paved car park.
Site Area	The site area is approximately 1.5ha.(according to Sixmaps)

Plate 1 Aerial photograph of the site (source: Sixmaps, accessed on 15 April 2025)

2.2 Local Land Use

The site is situated within an area of commercial 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 Lane Cove Road shall be adopted as the eastern site boundary.

Table 2-2 Summary of Local Land Use

Direction Relative to Site	Land Use Description
North	Giffnock Avenue and Hyundai Drive, a two lane, asphalt-paved road. Beyond this are one to two storey commercial buildings.
West	Pocock Street, a two-lane asphalt-paved road. Beyond this are multi-storey commercial buildings.
South	Drake Avenue, a two-lane asphalt-paved road. Beyond this are multi- storey commercial buildings.
East	Lane Cove Road, an eight-lane, asphalt-paved road. Lane Cove Road is a TfNSW asset. Beyond are multi- storey commercial buildings.

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 north side of the Lane Cove Road within gently (0° to 5°) north dipping topography with site levels varying from R.L. 58m AHD at the northern site corner to R.L.64 at the southern site corner.
Regional Geology	Information on regional sub – surface conditions , referenced frommthe NSW Seamless Geology dataset (Colquhon et al., 2024, corresponding to the Syndey 1:100, 000 Geological Series Sheet) indicates the site to be underlain by Ashfield Shale (Twia) Which typically comprises dark-grey to black claystone-siltstone and fine sandstone – siltstone laminate.

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 GI has been grouped into six 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 in **Appendix A.** A summary of the depth and level of the units observed in each borehole is provided in **Table 3-2.**

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	Surface	59.65 to 63.68	0.15 to 2.2	Concrete pavements of 120mm to 180mm thickness, underlain by fill materials comprising silty Sand and clayey Gravel with traces of rootlets, sub-angular to angular ironstone and sandstone gravel, clay nodules and brick fragments.
2	Residual Soil	0.15 to 2.2	57.45 to 63.18	0.54 to 5.5	Low to high plasticity, firm to hard silty clay with trace ironstone gravels, grading into weathered sandstone with depth. SPT values ranged from 7 to refusal indicated by hammer bounce.
3	Class V Siltstone/Sandstone	0.7 to 7.5	52.15 to 60.74	1.56 to 5.8	Distinctly weathered very low strength siltstone; improving with depth to medium and high strength as assessed from the rock fragments recovered from augering with the T-C bit. Sandstone was only encountered in BH103M.
4	Class IV Siltstone	6.3 to 8.56	51.44 to 55.14	0.7 to 5.7	Encountered in BH101M ,BH102M and BH201M. Fresh weathered, low strength siltstone with occasional bands of medium to high strength siltstone.
5	Class III Siltstone/ Sandstone	7.1 to 12.0	47.84 to 55.41	2.9 to 6.61	Interbedded sandstone/ siltstone, fresh medium to high strength. A very low strength band was encountered in BH101M only. From depths between 17.7 to 18.00m, core loss of 300mm was observed in BH103M. Core loss is inferred to be bands of decomposed or highly fractured material.
6	Class II Sandstone	10.0 to 17.5	43.46 to 50.4	-[3]	Fresh medium to high strength sandstone with occasional siltstone clasts.

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 BH101M, BH104, BH105M and BH201M.

Table 3-2 Depths to Top of Units in Boreholes (mBEGL)

Unit	Material	BH101M	BH102M	BH103M	BH104	BH105M	BH201M
1	Fill	0	0	0	0	0	0
2	Residual Soil	0.16	0.2	2.2	0.15	0.5	1.5
3	Class V Siltstone/Sandstone	0.7	4.0	7.5	1.3	4.0	7.0
4	Class IV Siltstone	6.3	8.0	-	-	-	8.56
5	Class III Siltstone/ Sandstone	12.0	8.7	11.81	7.1	8.27	9.93
6	Class II Sandstone	17.5	-	-	10.0	14.7	16.54

3.2 Groundwater Observations

Following completion of auger drilling, the boreholes were left open temporarily and free standing groundwater levels were then measured within the boreholes after a period of time. No groundwater or significant seepage was observed during or after auger drilling, except within BH103M at 10.0m BEGL (RL 49.65m). NMLC diamond rock coring techniques, requiring the use of drilling fluid precluded the identification of groundwater or seepage below the augered zone of the boreholes.

Following completion of borehole drilling, groundwater standpipe monitoring wells were installed into BH101M, BH102M, BH103M, BH105M and BH201M and bailed dry. Well construction details are presented in **Table 3-3**.

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)
BH101M	61.44	18.0	43.44	12.0	49.44
BH102M	60.83	18.05	42.78	15.05	45.78
BH103M	59.65	12.00	47.65	9.0	50.65
BH105M	63.68	4.0	59.68	1.0	62.68
BH201M	60.0	21.0	39.0	15.0	45.0

EI attended the site to measure the groundwater levels on 26 March 2026, which levels are shown in **Table 3-4** below.

Table 3-4 Groundwater Measurements within Boreholes

Borehole ID	Depth to Groundwater (mBEGL)	Groundwater Level (mAHD)	Measured Date
BH101M	7.84	53.6	26/3/2026
BH102M	9.67	51.16	26/3/2026
BH103M	5.73	53.92	26/3/2026

3.3 Test Results

Eight soil samples were selected for laboratory testing to assess the following:

- Atterberg Limits and Linear Shrinkage
- Soil aggressivity (pH, chloride and sulfate content and electrical conductivity).
- Moisture content

A summary of the soil test results is provided in **Table 3-4** below. Laboratory test certificates are presented in **Appendix B**.

Table 3-5 Summary of Soil Laboratory Test Results

Test / Sample ID	BH101M_0.2-0.3	BH102M_0.1-0.2	BH103M_4.5-4.95	BH104_0.5-0.95	BH105M_3.0-3.45
Borehole ID	BH101M	BH102M	BH103M	BH104	105M
Sample Depth (mBEGL)	0.2-0.3	0.1-0.2	4.5-4.95	0.5-0.95	3.0-3.45
Unit	2	1	2	2	2
Material[1]	Residual Soil	Fill	Residual Soil	Residual Soil	Residual Soil
USCS Description	Silty CLAY	Silty SAND	Silty CLAY	Silty CLAY	Silty CLAY
Aggressivity					
Chloride Cl (ppm)	12	28	79	4.0	43
Sulfate SO_4 (ppm)	56	12	46	68	100
pH	4.5	5.0	4.8	4.6	5.1
Electrical Conductivity (µS/cm)	53	47	95	44	84
Moisture Content (%)	9.9	17.0	15.6	10.2	12.6
Test / Sample ID	**BH102M_3.0-3.45**	**BH103M_3.0-3.45**	**BH105M_1.5-1.95**		
Borehole ID	BH102M	BH103M	BH105M		
Unit	2	2	2		
Material[1]	Residual Soil	Residual Soil	Residual Soil		
Atterberg Limits					
Moisture Content (%)	16.5	9.2	12.9	-	-
Liquid Limit (%)	46	37	46	-	-
Plastic Limit (%)	23	19	22	-	-
Plasticity Index (%)	23	18	24	-	-
Linear Shrinkage (%)	10.5	9.5	11.0	-	-

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

The Atterberg Limits result on the selected clay samples indicated clays to be of medium plasticity and of moderate shrink-swell potential.

The assessment indicated low permeability soil, except BH102 sample 0.1-0.2, the soil indicted high permeability and all soils tested were 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:

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

Eighty-five (85) selected rock core samples were tested by STS Geotechnics Pty Ltd to estimate the Point Load Strength Index (Is_{50}) values to assist with rock strength assessment. The results of the testing are presented in the laboratory test reports (**Appendix B**) and reproduced on the attached borehole logs (**Appendix A**). The point load strength index tests correlated reasonably well with our field assessments of the rock strength.

Three selected rock core samples were tested by STS Geotechnics Pty Ltd to determine the Unconfined Compressive Strength (UCS) values. The UCS values are shown in **Table 3-5** below.

Table 3-6 Summary of UCS Test Results

Test / Sample ID	BH101M_UCS	BH103M_UCS	BH104_UCS
Depth (m BEGL)	17.22-17.48	14.5-14.6	7.14-7.39
Unit	6	5	5
Material Description	Class II Siltstone	Class III Sandstone	Class III Siltstone
Uniaxial Compressive Strength (MPa)	4.5	12.0	11.0
Initial Moisture Content (%)	2.0	2.0	3.4
Moisture Content as Tested (%)	2.2	2.6	3.6
Dry Density (kg/m^3)	2520	2490	2460

The approximate UCS of the rock cores, estimated from this correlation with the point load strength index test results, varied from 1.8 MPa to 86 MPa.

4. Recommendations

4.1 Geotechnical Considerations

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

- Basement excavation and retention to limit lateral defection;
- Presence of sensitive assets (TfNSW and Sydney Metro assets);
- Rock excavation and vibration;
- Potential for encountering groundwater within the depth of the excavation; 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. 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 a BEL of RL 41.6m for the basement, or an excavation depth of between about 16.4m and 23.4m BEGL. Locally deeper excavations for footings, service trenches, crane pads and lifts overrun pits may be required.

Based on the borehole logs, the proposed basement excavations will therefore extend through all units as outlined in **Table 3-1** above. As such, an engineered retention system must be installed prior to excavation commencing to support the overburden profile (fill and residual soil profile), the weathered Class V sandstone/siltstone bedrock (Unit 3) and Class IV siltstone (Unit 4) and Class III Siltstone/Sandstone. The Class II Sandstone may be allowed to stand vertically unsupported provided the following:

- The excavation face is absent of adversely oriented defects that may result in instability;
- Inspections be carried out by an experienced geotechnical engineer progressively during basement excavations to assess rock quality and absence of adversely oriented defects;
- Where adversely oriented defects are present which may form slip planes, wedges or unstable blocks, such areas be stabilised prior to further excavations.

Units 1 and 2 could be excavated using buckets of large earthmoving Hydraulic Excavators, particularly if fitted with ‘Tiger Teeth’ for excavations in Unit 3 (Class IV siltstone). Excavation of Units 4 and 5 (where encountered) may present hard or heavy ripping, or “hard rock” excavation conditions. Ripping would require a high capacity and heavy bulldozer for effective production. Wear and tear should also be allowed for. The use of a smaller size bulldozer will result in lower productivity and higher wear and tear, and this should be allowed for. Alternatively, 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.

Should rock hammers be used for the excavation of the bedrock, excavation should commence away from any adjoining structures and the transmitted vibrations monitored to assess how close the hammer can operate to any 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, say 900 kg, such as a Krupp 580, 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/siltstone, 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.

Also, there is a potential for poorly oriented defects within the excavated bedrock to result in localized rock slide/topple failure with potential impact to the work site or the adjacent structures. However through selection of suitable excavation equipment, geotechnical inspections and mapping during the excavation works along with the installation of support measures as determined necessary by the inspections, the risk from the proposed works can be maintained within ‘Acceptable’ levels. In addition, we recommend that only excavation contractors with appropriate insurances and experience on similar projects be used. The contractor should also be provided with a copy of this report to make his own judgement on the most appropriate excavation equipment.

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.

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.

4.3.2 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 and geotechnical inspections 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 a depth of 1.5m, and every 1.5m interval thereafter.
- 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 was observed to be above the BEL as per our observations listed in Section 3.2 above.

EI note that based on the measured water level being within the siltstone/sandstone bedrock, this is likely to be perched groundwater. Hence, we expect some minor seepage inflows into the excavation along the soil/rock interface and through any defects within the siltstone/sandstone bedrock (such as jointing, and bedding planes, etc.) particularly following a period of heavy rainfall. Due to the low permeability of the soil and bedrock profile any groundwater inflows into the excavation 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 locally 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.

Seepage encountered during excavation will be able to be controlled by a conventional sump and pump system.

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. On-going maintenance of the drainage and pump systems should be allowed for.

Council and WaterNSW normally do not allow permanent dewatering, should a drained basement be desired, additional investigations, monitoring and analysis will be required including seepage analysis, the installation of additional monitoring wells, long-term groundwater monitoring, and laboratory testing. Reference should be made to Department of Planning and Environment (DPE) guidelines "Minimum requirements for building site groundwater investigation and reporting", dated October 2022. EI should be contacted for further advice for the approval process for a drained basement.

4.5 Excavation Retention

4.5.1 Support Systems

From a geotechnical perspective, it is critical to maintain the stability of all adjacent structures and infrastructures during demolition, excavation and construction works.

Based on the provided architectural plans, the proposed basement outline was not provided. However, based on the depth of the excavation and the encountered subsurface conditions, temporary batters are not recommended for this site. Unsupported vertical cuts of the soil are not recommended for this site as these carry the risk of potential slumping especially after a period of wet weather. Slumping of the material may result in injury to personnel and/or damage to nearby structures/infrastructures and equipment.

A suitable retention system will be required to be installed for the support of material units 1, 2, 3 and 4. For this site, EI recommends an anchored and/or propped soldier pile wall with reinforced shotcrete panels in between the piles be founded into medium/high strength siltstone/sandstone (Unit 5 and 6). Excavation within Units 5 and 6 siltstone/ sandstone should generally be able to be cut vertically and without support, provided an anchor is installed at the toe of the solider pile wall. Anchors/props and reinforced shotcrete must be installed progressively as excavation proceeds.

Due to the presence of the basement structures adjacent to the site, anchors installation may not be possible and internal props may be required. Details of nearby basements, shoring pile walls and anchors must be obtained prior to final design.

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. Said inclined joints and weak seams were evident in the boreholes, particularly in BH101M. 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.

The existence of significant horizontal in-situ stresses in bedrock, particularly in the Sydney basin, is well established. The release of such stresses during the basement excavation may cause adverse impact on the stability of the excavation faces and thus increase the movements. Monitoring of several deep excavations within sandstone and shale in the Sydney region indicates that the lateral displacement at the top of the excavation is generally between 0.5mm to 2mm per meter depth of excavation. As the maximum depth of excavation into sandstone/siltstone is of about 10m, a lateral deflection at the crest of the excavation between 5mm to 20mm can be expected which will reduce in a stepped fashion to zero at the bulk excavation level. Monitoring of the lateral movement as the excavation progresses is recommended. An assessment of such movements and their impact can be carried out using finite element software such as PLAXIS.

Bored piles are considered to be the most suitable for this site. Tremie pumps may be required where high groundwater seepage inflows are present during the drilling of the bored piles.

However, relatively large capacity piling rigs will be required for drilling through the sandstone bedrock.

A cleaning bucket should be used to remove sludge and debris from the base of the pile holes and any seepage water be removed straight after drilling. The proposed pile locations should take into account the presence of buried services. Further advice should be sought from prospective piling contractors who should be provided with a copy of this report.

Working platforms may also be required. We can complete the design of the working platform, if commissioned to do so.

4.5.2 Excavation adjacent to TfNSW and Sydney Metro Assets

Reference should be made to the Transport for NSW (TfNSW) Technical Direction – Geotechnology GTD 2020/001, Version No. 01, dated on 2 July 2020, with regards to excavation/shoring adjacent to Lane Road. This document outlines requirements for excavations adjacent to TfNSW infrastructure and includes the level of geotechnical investigation required, dilapidation surveying, instrumentation and monitoring during construction, trigger levels and contingency plans.

Instrumentation (e.g. inclinometers) and monitoring is typically required where the excavation exceeds 3 m in height (for cantilevered shoring walls) or 6 m in height (for anchored or propped shoring walls). A geotechnical monitoring plan may be required by TfNSW prior to construction for this site.

As the site of the proposed development lies adjacent to both TfNSW assets and Sydney Metro, the asset owners may require further assessment of the potential impact of the proposed development on their assets. In order to assess the latter, a 2D numerical model using a commercially available computer program, such as PLAXIS, will be required. This model will enable the assessment of the potential impact of the proposed development on the TfNSW and Sydney Metro assets and predict the likely movements in the shoring wall. EI can provide such a service if commissioned to do so.

4.5.3 Retaining Wall Design Parameters

The following parameters may be used for static design of temporary and permanent retaining walls at the subject site. EI note that the below parameters, particularly with determining lateral earth pressures, are for preliminary planning purposes. We recommend that detailed analysis such as the use of finite element analysis software be used to design retaining walls.

- 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 soil, where H is the retained height in meters. These pressures should be assumed to be uniform over the central 50% of the support system, tapering to nil at top and bottom;

- 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 soil, where ‘H’ is the retained height in meters. These pressures should be assumed to be uniform over the central 50% of the support system, tapering to nil at top and bottom;

- 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, K_o.

- If a drained basement is to be considered, the retaining walls should be designed to provide complete and permanent drainage behind the walls. Strip drains protected with a

non-woven geotextile fabric should be used behind the shotcrete infill panels for soldier pile walls;

- If a tanked basement is to be considered, full hydrostatic pressures should be taken into consideration in the design of the retaining walls, assuming an external water level, say at least 1.0m, above the highest groundwater level measured to date. The hydrostatic pressure should extend to the base of the perimeter cut-off.

- For piles embedded into Class III/II Siltstone (Units 5&6) 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**.**

- Anchors should have their bond length within Class V Siltstone/Sandstone (Unit 3) or better. For the design of anchors bonded into Unit 3 or better, the allowable bond stress value 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 an engineer independent of the anchoring contractor. Lift-off tests should be carried out on at least 10% of the anchors 24 to 48 hours following locking off to confirm that the anchors are holding their load. Usually anchors are commissioned on design and construct basis so that failure of anchors to hold their load does not then become a contractual issue. 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.

Table 4-1 Geotechnical Design Parameters

Material 1		Unit 1 Fill	Unit 2 Residual Soil	Unit 3 Class V Siltstone/Sandstone	Unit 4 Class IV Siltstone/Sandstone	Unit 5 Class III Siltstone/Sandstone	Unit 6 Class II Sandstone
Bulk Unit Weight (kN/m^3)		18	20	23	24	24	24
Friction Angle, ϕ' (°)		25	27	30	35	45	50
Earth Pressure Coefficients	At rest, K_o [3]	0.58	0.55	0.50	-	-	-
	Active, K_a [3]	0.41	0.38	0.33	-	-	-
	Passive, K_p [3]	2.46	2.66	3.00	-	-	-
Allowable Bearing Pressure (kPa) [5]		-	-	600	2500	3500	6000
Allowable Shaft Adhesion (kPa) [4, 5]	in Compression	-	-	60	200	350	600
	in Uplift	-	-	30	100	175	300
Allowable Toe Resistance (kPa)		-	-	-	500	2000	4000
Allowable Bond Stress (kPa)		-	-	50	100	250	400
Earthquake Site Risk Classification		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

4.6.1 Shallow Footings in Rock

Following bulk excavation to the assumed BEL of RL 41.6m, we expect weathered, medium to high strength Sandstone/Silone (Unit 5&6) material to be exposed at BEL.

Pad or strip footings founded within Class II/III Sandstone/Siltstone (Unit 6 and 5) may be designed for an allowable bearing capacity of 3,500kPa, based on serviceability. It is recommended that all footings for the building be founded within the bedrock of similar strength to provide uniform support and reduce the potential for differential settlements.

Geotechnical inspections of foundations are recommended to determine that the required bearing capacity has been achieved and to determine any variations that may occur between the boreholes and inspected locations.

For footings designed for higher bearing capacities of 6000kPa, EI recommends that spoon tests are completed on at least 1/3 of the footings. Spoon tests involve the drilling of a small core hole through the base of the footing to a depth of 1.5 times the minimum footing width, and a spoon is used to measure the locations and thicknesses of any seams to confirm the bedrock class.

4.6.2 Pile Footings

Alternatively, the proposed development may be supported on deep foundations, such as piles, founded into Unit 6 sandstone bedrock.

For piles founded within weathered Unit 6 sandstone bedrock, these must be embedded a minimum of 0.5m into shale, and can be designed for a maximum allowable bearing pressure of 6000kPa. The allowable shaft adhesion in shale bedrock may be designed as 10% of the allowable bearing pressure (or 5% for uplift) for the socket length in excess of 0.5m.

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.

Bored piles are considered to be the most suitable for this site. Concrete must be poured on the same day as drilling, inspection and drilling. 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 use of a cleaning bucket is recommended to remove drill cuttings and debris from the base of pile holes prior to concrete placement. Placement of concrete from the base of the bored pile using a tremie pipe is recommended. However, relatively large capacity piling rigs will be required for drilling through the sandstone bedrock. Further advice should be sought from prospective piling contractors who should be provided with a copy of this report.

4.7 Basement Floor Slab

Following bulk excavations for the proposed basement, sandstone/Siltstone bedrock 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.

Permission may need to be obtained from Council and WaterNSW for any permanent discharge of seepage into the drainage system. Given the subsurface conditions, we expect that seepage volumes would be low and within acceptable limits manageable by drainage systems.

5. Further Geotechnical Inputs

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

- Aggressivity testing for buried concrete and steel structures;
- Long term groundwater monitoring and seepage modelling;
- Design of working platforms (if required) for construction plant by an experienced and qualified geotechnical engineer;
- If directed by Sydney Metro or any other asset owners, carry out specialist engineering assessment, further geotechnical investigations, monitoring equipment installs and/or subsequent monitoring;
- Classification of all excavated material transported off site;
- Witnessing installation of support measures and proof-testing of anchors (if required).
- Geotechnical inspections of rock faces during excavation by experience geotechnical professional at depth of no greater than 1.5m within medium to high strength bedrock, if vertical cut are adopted;
- 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 Peta Dahdah and 388 LCR Development 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 Peta Dahdah and 388 LCR Development 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 D** 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.

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.

AS3600:2018, *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.

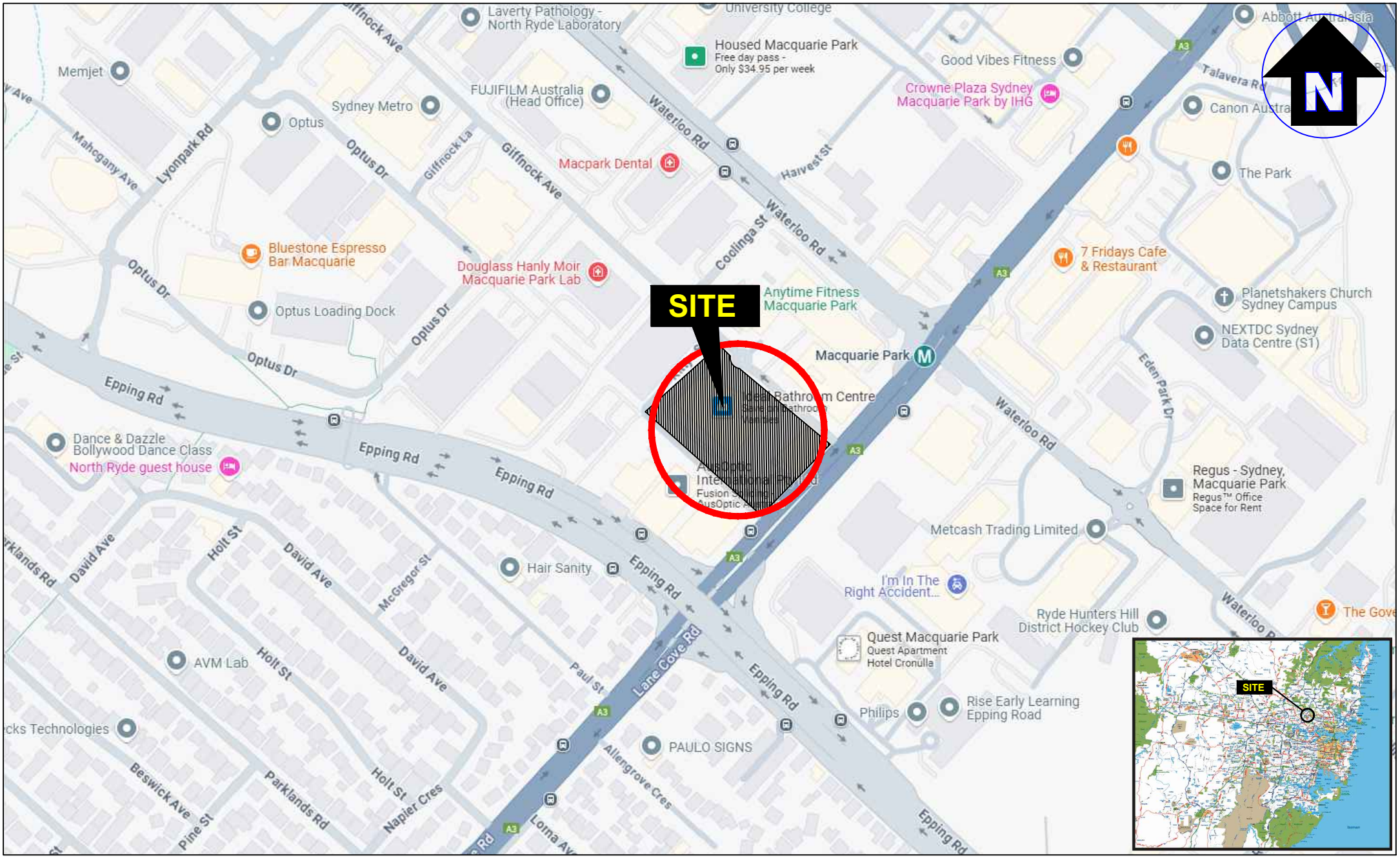
NSW Department of Mineral Resources (1983) Sydney 1:100,000 Geological Series Sheet 9130 (Edition 1). Geological Survey of New South Wales, Department of Mineral Resources.

Transport for NSW (TfNSW) Technical Direction – Geotechnology GTD 2020/001, Version No. 01, dated on 2 July 2020

Abbreviations

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:	K.X.
Date:	29-5-25
Scale:	Not To Scale

388 LCR Development Pty Ltd

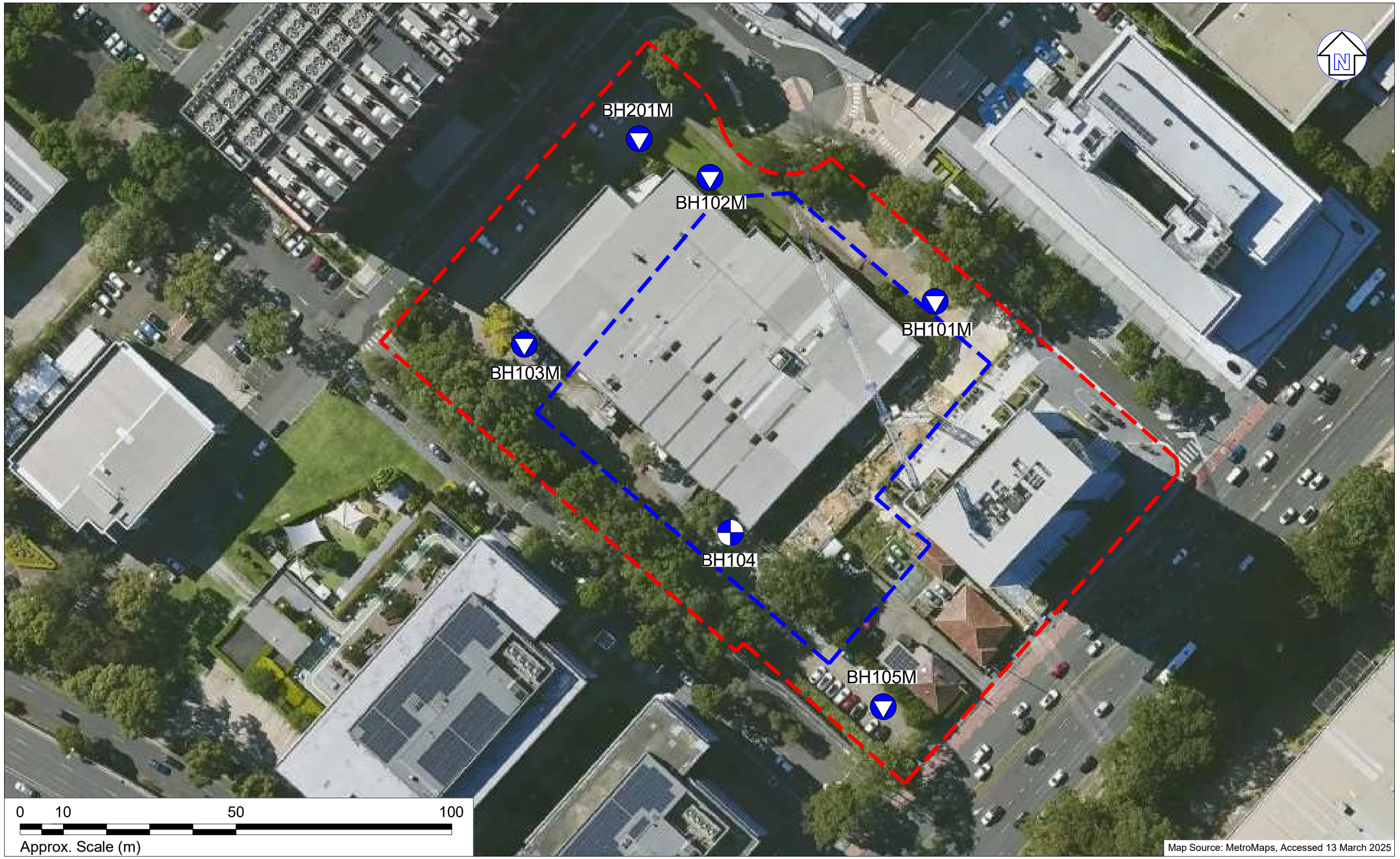
Geotechnical Investigation

2-4 Griffnock Avenue, Macquarie Park NSW

Site Locality Plan

Figure: 1

Project: E26706.G03



LEGEND (All Locations are Approximate)

- Site boundary
- Basement boundary
- Borehole locations
- Monitoring well locations

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388 LCR Development Pty Ltd
Geotechnical Investigation
2-4 Griffnock Avenue, Macquarie Park NSW

Borehole Location Plan

Figure: 2

Project: E26706.G03

Appendix A Borehole Logs And Explanatory Notes

BOREHOLE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	1 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
DT				0.00		61.44	CONCRETE: 160mm thick	-	-	CONCRETE
AD/T	GWNE	BH101M_0.20-0.30 BH101M_0.50-0.70 SPT 0.50-0.70 13,6/50 mm N=R		0.16		61.28	Silty CLAY: low to medium plasticity, brown, trace fine to medium grained, sub-angular to angular ironstone gravel	M < PL	H	RESIDUAL SOIL
				0.70		60.74	SILTSTONE: grey, very low strength with extremely weathered bands, distinctly weathered			WEATHERED ROCK
				1.10		60.34	From 1.10m, grey and red brown, low to medium strength, with extremely weathered bands			
				6.00		55.44	From 6.00m, grey, medium strength	-	-	
				6.30		55.14	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	2 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (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)
				0			*Log continued from previous page.*				
				1							
				2							
				3							
				4							
				5							
				6							
	95%	100	38	7			SILTSTONE: dark grey, thinly bedded			6.33: JT 35° PR RO CN CL 6.53: JT 35° PR RO CN OP 6.78: JT 45° PR RO CL 7.12: JT 25° PR RO CN CL 7.16: JT 20° PR RO CN CL 7.31: BP 5° PR SM Clay Infilled 7.36: JT 45° PR RO CN OP 7.50-7.82: JT 20-45° PR RO CN, Set of 6 OP 7.86: JT 20° PR RO Incipient CL 7.90: JT 20° PR RO CN OP 7.98: JT 30° CU RO CN OP 8.11: JT 45° PR RO CN OP 8.20: JT 30° PR RO CN OP 8.39: JT 30° PR RO CN OP 8.42: JT 25° PR RO CN OP 8.55: JT 25° PR RO CN OP 9.06: JT 40° PR RO OP Clay VN 9.55-9.85: JT 85° CU RO Set of 2 Clay VN	
				8							
				9							
				10							

BOREHOLE CORE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	3 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	DISCONTINUITIES & ADDITIONAL DATA
NMLC	95%	100	28	10.50	50.94	SILTSTONE: dark grey, thinly bedded From 10.50m, with interbedded, fine grained pale grey sandstone bands, thinly bedded		10.07-10.15: XWS 10.20: JT 40° PR RO Clay VN 10.27-10.33: XWS 10.43: JT 50° PR RO CN CN 10.57: JT 30° PR RO CN OP 10.90: JT 20° PR Incipient CL 10.95: JT 25° IR RO CN OP 11.30-11.35: CS 11.63: JT 45° PR RO OP Clay VN 11.82: JT 15° PR RO CN OP 11.92: JT 35° PR RO CN OP
		100	63					13.13-13.16: CS 13.27-13.32: JT 15° PR RO Set of 2 Clay VN 13.47: BP 15° PR SM Clay Infilled 13.51: JT 35° PR Incipient CL 13.70: JT 90° PR RO Clay VN 13.72-13.75: CS 13.95: JT 10° ST Incipient CL 14.57-14.63: XWS 14.71: JT 50° PR RO CN OP
		100	68				FR	15.01: JT 45° PR RO Clay VN 15.09-15.20: XWZ 15.09: BP 10° PR SM Clay Infilled 15.24: JT 45° PR RO CN OP 15.29-15.34: XWS 15.37-15.53: XWZ 15.42-15.48: XWS 15.57-15.62: CS 15.81: JT 20° PR RO CN OP 16.58-16.62: CS
		100	96	18.00	43.44	SANDSTONE: fine to medium grained grey, with interbedded dark grey siltstone bands,medium bedded		18.02-18.05: XWS
				19.00	42.44	SANDSTONE: fine to medium grained, with dark grey laminate, with occasional siltstone clusts and carbonaceous lenses, thinly to medium bedded		

ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral: VL 0-1, L 0-3, M 1, H 3, VH 10, EH

FRACTURE SPACING: 30, 100, 300, 1000, 3000

BOREHOLE CORE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	4 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (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)
	95%	100	100	21			SANDSTONE: fine to medium grained, with dark grey laminate, with occasional siltstone clusts and carbonaceous lenses, thinly to medium bedded				
				22							
				23						23.19: BP 5° PR RO Clay VN	
		100	100	24		37.14	From 24.30m, thickly bedded				
				24.30							
				25						25.54: BP 5° PR SM Clay Infilled	
				26							
		100	100	27							
				28							
				29							
				30							

BOREHOLE CORE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	5 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (MGA 2020 Zone 56)

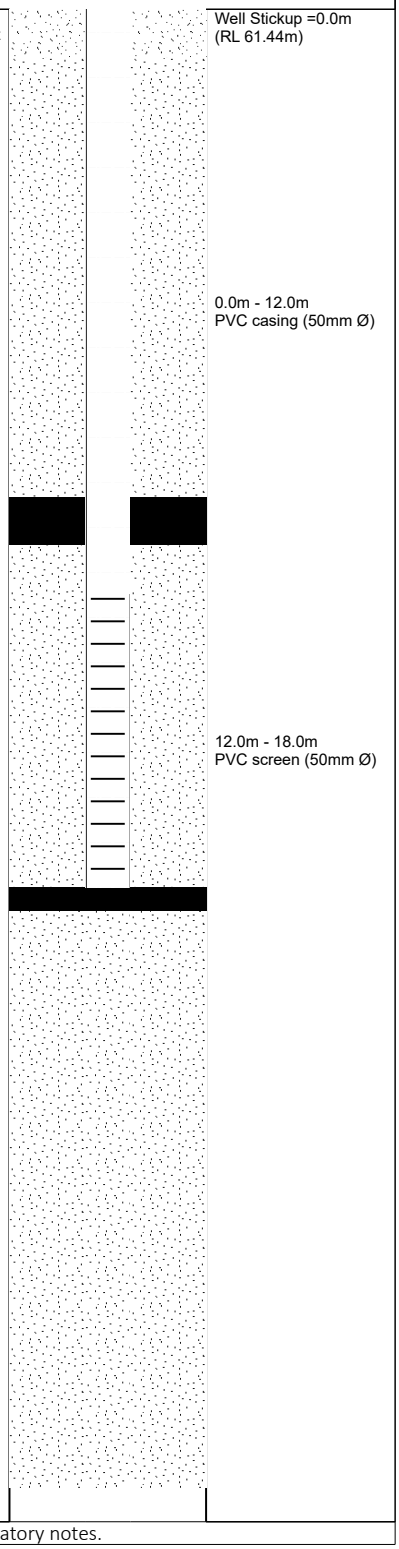
METHOD	95% Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral VL 0-1, L 0-3, M 1, H 3, VH 10, EH	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING 30, 100, 300, 1000, 3000
						31.37	Terminated at 30.07m. Target Depth Reached.				
				31							
				32							
				33							
				34							
				35							
				36							
				37							
				38							
				39							
				40							

MONITORING WELL LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	1 of 1			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
GWNE	BH101M_0.20-0.30 BH101M_0.50-0.70 SPT 0.50-0.70 13,6/50 mm N=R	0.00	61.44	CONCRETE: 160mm thick	M < PL
		0.16	61.28	Silty CLAY: low to medium plasticity, brown, trace fine to medium grained, sub-angular to angular ironstone gravel	
		0.70	60.74		
		1.10	60.34	SILTSTONE: grey, very low strength with extremely weathered bands, distinctly weathered From 1.10m, grey and red brown, low to medium strength, with extremely weathered bands	-
		6.00	55.44	From 6.00m, grey, medium strength	
		6.30	55.14	SILTSTONE: dark grey, thinly bedded	
95%		10.50	50.94	From 10.50m, with interbedded, fine grained pale grey sandstone bands, thinly bedded	
		18.00	43.44	SANDSTONE: fine to medium grained grey, with interbedded dark grey siltstone bands,medium bedded	
		19.00	42.44	SANDSTONE: fine to medium grained, with dark grey laminate, with occasional siltstone clusts and carbonaceous lenses, thinly to medium bedded	
		24.30	37.14	From 24.30m, thickly bedded	
		30	31.37	Terminated at 30.07m. Target Depth Reached.	



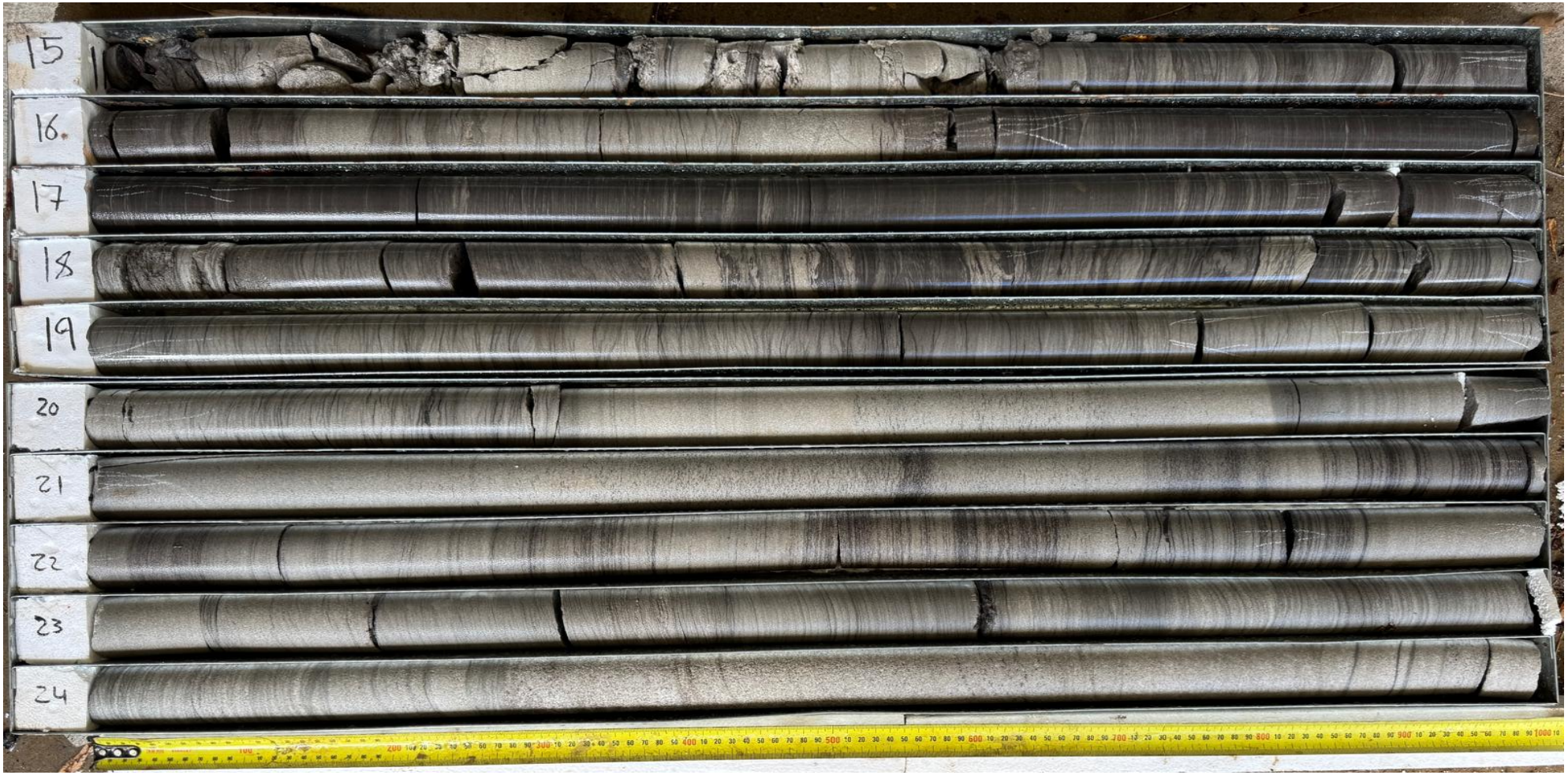
This log should be read in conjunction with EI Australia's accompanying explanatory notes.

CORE PHOTOGRAPH OF BOREHOLE: BH101M

Project	Proposed Development	**East**	-	**Depth Range**	6.3m to 15.0m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈64.44m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	26/03/25
Client	388 LCR Development Pty Ltd	**Box**	1 of 3	**Checked**	OV	**Date**	16/05/25

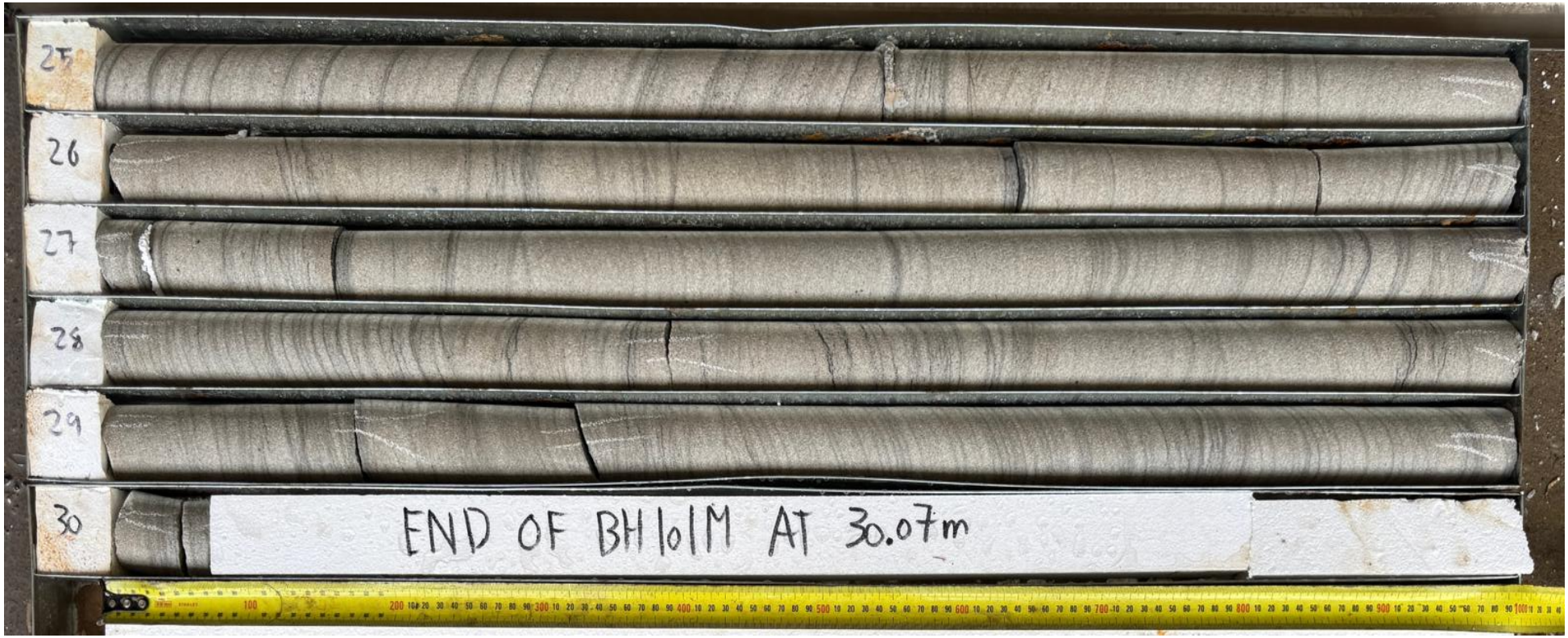
CORE PHOTOGRAPH OF BOREHOLE: BH101M

Project	Proposed Development	**East**	-	**Depth Range**	15.0m to 25.0m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈64.44m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	26/03/25
Client	388 LCR Development Pty Ltd	**Box**	2 of 3	**Checked**	OV	**Date**	16/05/25



CORE PHOTOGRAPH OF BOREHOLE: BH101M

Project	Proposed Development	**East**	-	**Depth Range**	25m to 30.07m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈64.44m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	26/03/25
Client	388 LCR Development Pty Ltd	**Box**	3 of 3	**Checked**	OV	**Date**	16/05/25



BOREHOLE LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 27 March 2025
Sheets	1 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH102M_0.10-0.20		0.00		60.83	FILL: Silty SAND: dark grey, trace rootlets and clay nodules	D	-	FILL
				0.20		60.63	Silty CLAY: medium to high plasticity, brown, trace fine to medium grained, sub-angular ironstone gravel	M > PL	F	RESIDUAL SOIL
		BH102M_0.50-0.95 SPT 0.50-0.95 1,3,4 N=7		1						
		BH102M_1.50-1.95 SPT 1.50-1.95 3,9,12 N=21		2				M ≈ PL	VSt	
		BH102M_3.00-3.45 SPT 3.00-3.45 6,9,11 N=20		3.00		57.83	From 3.00m, grey mottled brown, grading into weathered rock			
				4.00		56.83	SILTSTONE: grey and red brown, low to medium strength, distinctly weathered			WEATHERED ROCK
				7.50		53.33	From 7.50m, grey, medium to high strength.			
				8.00		52.83	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 27 March 2025
Sheets	2 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (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
				0			*Log continued from previous page.*				
				1							
				2							
				3							
				4							
				5							
				6							
				7							
	95%	100	38	8			SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded		▼ ▼	8.03: JT 15° CU RO CN OP 8.06-9.00: FS 8.14: JT 50° PR RO OP Clay VN 8.26: JT 50° PR RO CN OP 8.33: BP 5° PR RO Clay VN 8.36: JT PR RO Shale fragments,OP Infilled 8.43: JT 35° PR RO Infilled 8.53: JT 15° PR RO CN OP 8.67: BP 5° PR RO Infilled 9.50: JT 50° PR RO CN OP 9.91: BP 5° PR SM Infilled	
				9							
				10							

BOREHOLE CORE LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 27 March 2025
Sheets	3 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
NMLC	95%	100	75	11			SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded	FR	VL 0-1 L 0-3 M 1 H 3 VH 10 EH	10.63: JT 50° PR RO CN OP 10.75-10.77: FS 10.87: JT 85° PR RO CN OP 11.20: JT 60° PR RO CN OP	30 100 300 1000 3000
				11.70		49.13	SANDSTONE: fine to medium grained, grey with interbedded dark grey siltstone bands, medium bedded			11.71-11.74: XWS 12.14: BP 5° CU SM Rock fragments Infilled 12.70: JT 85° PR RO CN OP	
				13						13.40-13.57: XWZ	
				14						14.03: JT 50° PR RO CN OP 14.26: JT 85° IR RO CN OP 14.34: JT 60° PR RO Clay VN 14.54-14.61: XWS	
		100	82	15						14.93-14.96: XWS 15.02-15.04: XWS 15.16: BP 10° PR RO Clay VN 15.34: BP 5° PR SM Clay Infilled 15.45: BP 5° PR RO Clay VN	
				16.00		44.83	SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded			15.97: JT 80° PR RO CN OP	
	30%	100	96	17						17.35: BP 10° PR RO Clay VN	
				18						17.96-17.98: XWS 18.10: BP 5° PR RO Clay Infilled 18.14-18.16: XWS 18.22: JT 70° PR Incipient CL 18.30-18.32: XWS	
				19						18.75: JT 10° PR RO OP OP 18.80: JT 15° CU RO OP CN 18.91-18.94: FS 18.95: BP 10° PR RO Clay VN 19.04: JT 15° ST RO CN OP	
				20						19.62: BP 15° PR SM Clay Infilled	

BOREHOLE CORE LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025		
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025		
Job No.	E26706.G03			**Logged By**	SK	**Date**	27 March 2025
Sheets	4 of 4			**Review By**	OV	**Date**	16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)		
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (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)
	30%						SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded		H ▼		
						40.35	Terminated at 20.48m. Target Depth Reached.				
				21							
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

MONITORING WELL LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 27 March 2025
Sheets	1 of 1			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
GWNE	BH102M_0.10-0.20 BH102M_0.50-0.95 SPT 0.50-0.95 1,3,4 N=7 BH102M_1.50-1.95 SPT 1.50-1.95 3,9,12 N=21 BH102M_3.00-3.45 SPT 3.00-3.45 6,9,11 N=20	0.00	60.83	FILL: Silty SAND: dark grey, trace rootlets and clay nodules	D
		0.20	60.63	Silty CLAY: medium to high plasticity, brown, trace fine to medium grained, sub-angular ironstone gravel	M > PL
		3.00	57.83	From 3.00m, grey mottled brown, grading into weathered rock	M ≈ PL
		4.00	56.83	SILTSTONE: grey and red brown, low to medium strength, distinctly weathered	
		7.50	53.33	From 7.50m, grey, medium to high strength.	
95%		8.00	52.83	SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded	
		11.70	49.13	SANDSTONE: fine to medium grained, grey with interbedded dark grey siltstone bands, medium bedded	
30%		16.00	44.83	SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded	
		20.48	40.35	Terminated at 20.48m. Target Depth Reached.	

BACKFILL DETAILS	STANDPIPE DETAILS
Grout 0.00m - 0.50m	Well Stickup =0.0m (RL 60.83m)
Sand 0.50m - 10.00m	0.0m - 15.05m PVC casing (50mm Ø)
Bentonite 10.00m - 12.00m	
Sand 12.00m - 18.05m	15.05m - 18.05m PVC screen (50mm Ø)
Bentonite 18.05m - 19.00m	
Sand 19.00m - 20.45m	

CORE PHOTOGRAPH OF BOREHOLE: BH102M

Project	Proposed Development	**East**	-	**Depth Range**	8.0m to 17.0m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈60.83m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	27/03/25
Client	388 LCR Development Pty Ltd	**Box**	1 of 2	**Checked**	OV	**Date**	16/05/25

CORE PHOTOGRAPH OF BOREHOLE: BH102M

Project	Proposed Development	**East**	-	**Depth Range**	0.39m to 6.38m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈60.83m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	27/03/25
Client	388 LCR Development Pty Ltd	**Box**	2 of 2	**Checked**	OV	**Date**	16/05/25

BOREHOLE LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW	**Started**	27 March 2025
Client	388 LCR Development Pty Ltd	**Completed**	28 March 2025
Job No.	E26706.G03	**Logged By**	SK **Date** 28 March 2025
Sheets	1 of 4	**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)
Plant	Hanjin D&B 8-D	**Inclination**	90°
Northing	6260005.8543 (MGA 2020 Zone 56)		
Easting	326460.2255 (MGA 2020 Zone 56)		

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
DT				0.00		59.65	CONCRETE: 180mm thick	-	-	CONCRETE
		BH103M_0.20-0.30		0.18		59.47	FILL: Clayey GRAVEL: fine to medium grained, igneous, with silt	M		FILL
		BH103M_0.50-0.95 SPT 0.50-0.95 3,5,4 N=9		0.50		59.15	FILL: Silty CLAY: low to medium plasticity, brown, red brown and grey, trace fine to medium grained ironstone and sandstone gravels.	M ≈ PL	-	
		BH103M_1.50-1.95 SPT 1.50-1.95 3,5,4 N=9		1						
				2		57.45				
				2.20			Silty CLAY: low to medium plasticity, Orange brown			RESIDUAL SOIL
		BH103M_3.00-3.45 SPT 3.00-3.45 4,7,6 N=13		3					St	
				4						
		BH103M_4.50-4.95 SPT 4.50-4.95 3,4,12 N=16		4.50		55.15	From 4.50m, medium to high plasticity, grey mottled brown, grading into weathered rock	M < PL		
AD/T	GWNE			5						
		BH103M_6.00-6.45 SPT 6.00-6.45 4,9,14 N=23		6					VSt	
				7						
				7.50		52.15	SILTSTONE: grey, low strength, distinctly weathered	-	-	WEATHERED ROCK
				8						
				9		50.65	SANDSTONE: fine to medium grained, grey,red brown and brown, low strength distinctly weathered.			
				9.00						
				10						

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

BOREHOLE LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 28 March 2025
Sheets	2 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE			11			SANDSTONE: fine to medium grained, grey,red brown and brown, low strength distinctly weathered.	-	-	
				11.50		48.15	From 11.50m, grey and brown, medium strength.			
				11.81		47.84	*Log continued on next page.*			
				12						
				13						
				14						
				15						
				16						
				17						
				18						
				19						
				20						

BOREHOLE CORE LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 28 March 2025
Sheets	3 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (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.*				
				11							
NMLC	95%	100	98	12			SANDSTONE: fine to medium grained with interbedded dark grey siltstonebands, thinly to medium bedded			12.61: BP 5° PR RO Clay VN 12.75: BP 5° PR SM Clay Infilled	
				13						13.01-13.03: CS 13.24: JT 45° PR Incipient CL	
				14						13.84-13.86: XWS 14.04: JT 45° PR SM Clay Infilled	
		100	100	15				FR		14.85-14.87: XWS	
				15.30		44.35	SANDSTONE: fine to medium grained grey,massive, very thickly bedded				
	50%			16							
				17						16.77: JT 50° PR RO CN OP 17.43: JT 60° PR RO CN OP	
				17.70		41.95	NO CORE: 300mm thick	---			
	5%	88	88	18		41.65	SANDSTONE: fine to medium grained, grey, very thickly bedded			18.47: JT 45° PR RO CN OP	
				19				FR		18.91: JT 15° PR SM Clay Infilled	
				19.80		39.85	From 19.80m, fine to medium grained, with dark grey laminate, thickly bedded. SANDSTONE: fine to medium grained, grey with dark grey laminate, thickly bedded				
				20							

BOREHOLE CORE LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025		
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025		
Job No.	E26706.G03			**Logged By**	SK	**Date**	28 March 2025
Sheets	4 of 4			**Review By**	OV	**Date**	16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)		
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (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)
	5%			20 19.80		39.44	SANDSTONE: fine to medium grained, grey with dark grey laminate, thickly bedded Terminated at 20.21m. Target Depth Reached.		▼ (H)		
				21							
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

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

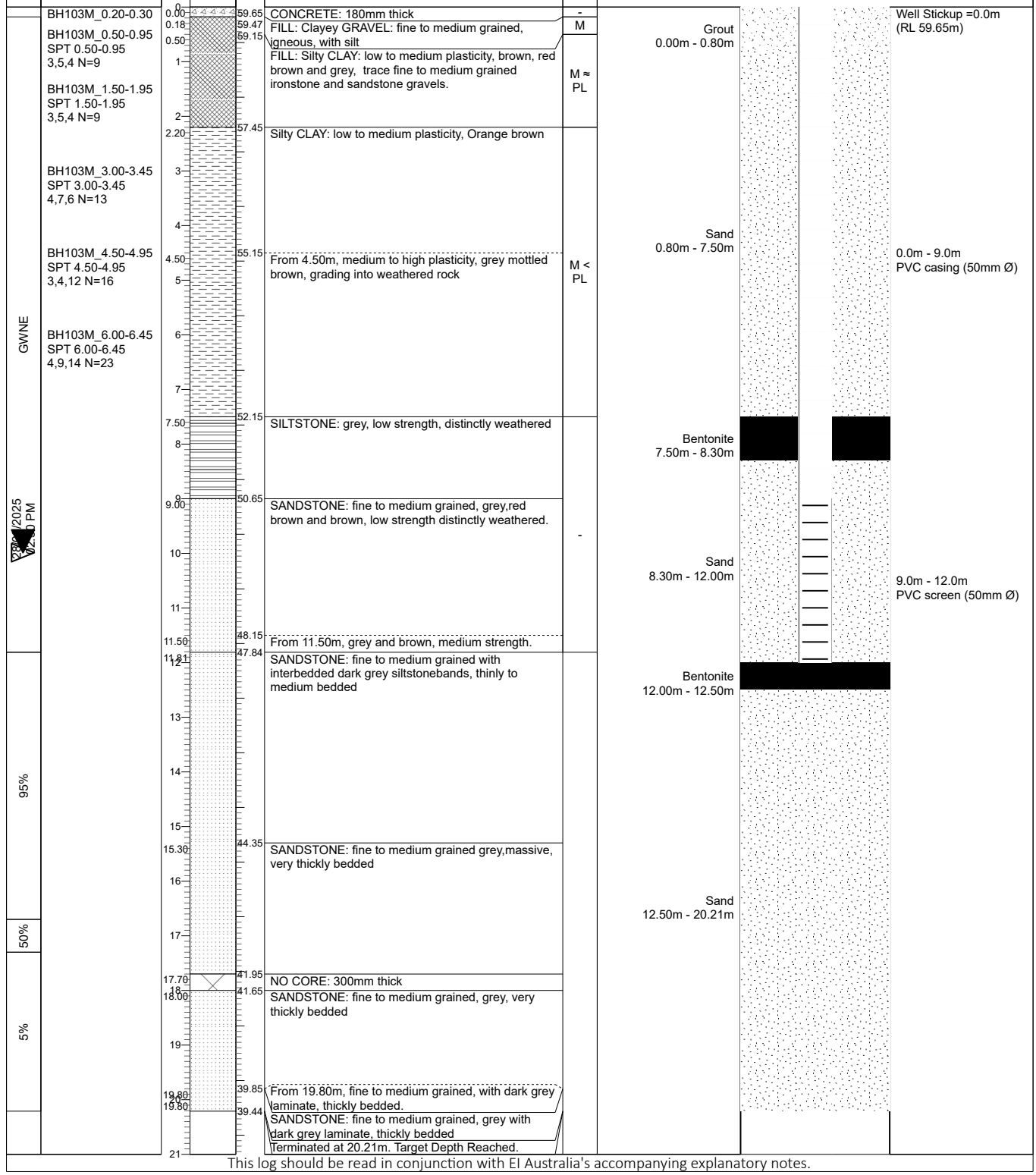
MONITORING WELL LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 28 March 2025
Sheets	1 of 1			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
	BH103M_0.20-0.30	0.00	59.65	CONCRETE: 180mm thick	-
	BH103M_0.50-0.95 SPT 0.50-0.95 3,5,4 N=9	0.18	59.47	FILL: Clayey GRAVEL: fine to medium grained, igneous, with silt	M
	BH103M_1.50-1.95 SPT 1.50-1.95 3,5,4 N=9	0.50	59.15	FILL: Silty CLAY: low to medium plasticity, brown, red brown and grey, trace fine to medium grained ironstone and sandstone gravels.	M ≈ PL
	BH103M_3.00-3.45 SPT 3.00-3.45 4,7,6 N=13	2.20	57.45	Silty CLAY: low to medium plasticity, Orange brown	
	BH103M_4.50-4.95 SPT 4.50-4.95 3,4,12 N=16	4.50	55.15	From 4.50m, medium to high plasticity, grey mottled brown, grading into weathered rock	M < PL
	BH103M_6.00-6.45 SPT 6.00-6.45 4,9,14 N=23	7.50	52.15	SILTSTONE: grey, low strength, distinctly weathered	
GWNE		9.00	50.65	SANDSTONE: fine to medium grained, grey,red brown and brown, low strength distinctly weathered.	-
28/4/2025 9:40 PM		11.50	48.15	From 11.50m, grey and brown, medium strength.	
95%		11.81	47.84	SANDSTONE: fine to medium grained with interbedded dark grey siltstonebands, thinly to medium bedded	
		15.30	44.35	SANDSTONE: fine to medium grained grey,massive, very thickly bedded	
50%		17.70	41.95	NO CORE: 300mm thick	
5%		18.00	41.65	SANDSTONE: fine to medium grained, grey, very thickly bedded	
		19.80	39.85	From 19.80m, fine to medium grained, with dark grey laminate, thickly bedded.	
		20.00	39.44	SANDSTONE: fine to medium grained, grey with dark grey laminate, thickly bedded	
		21		Terminated at 20.21m. Target Depth Reached.	

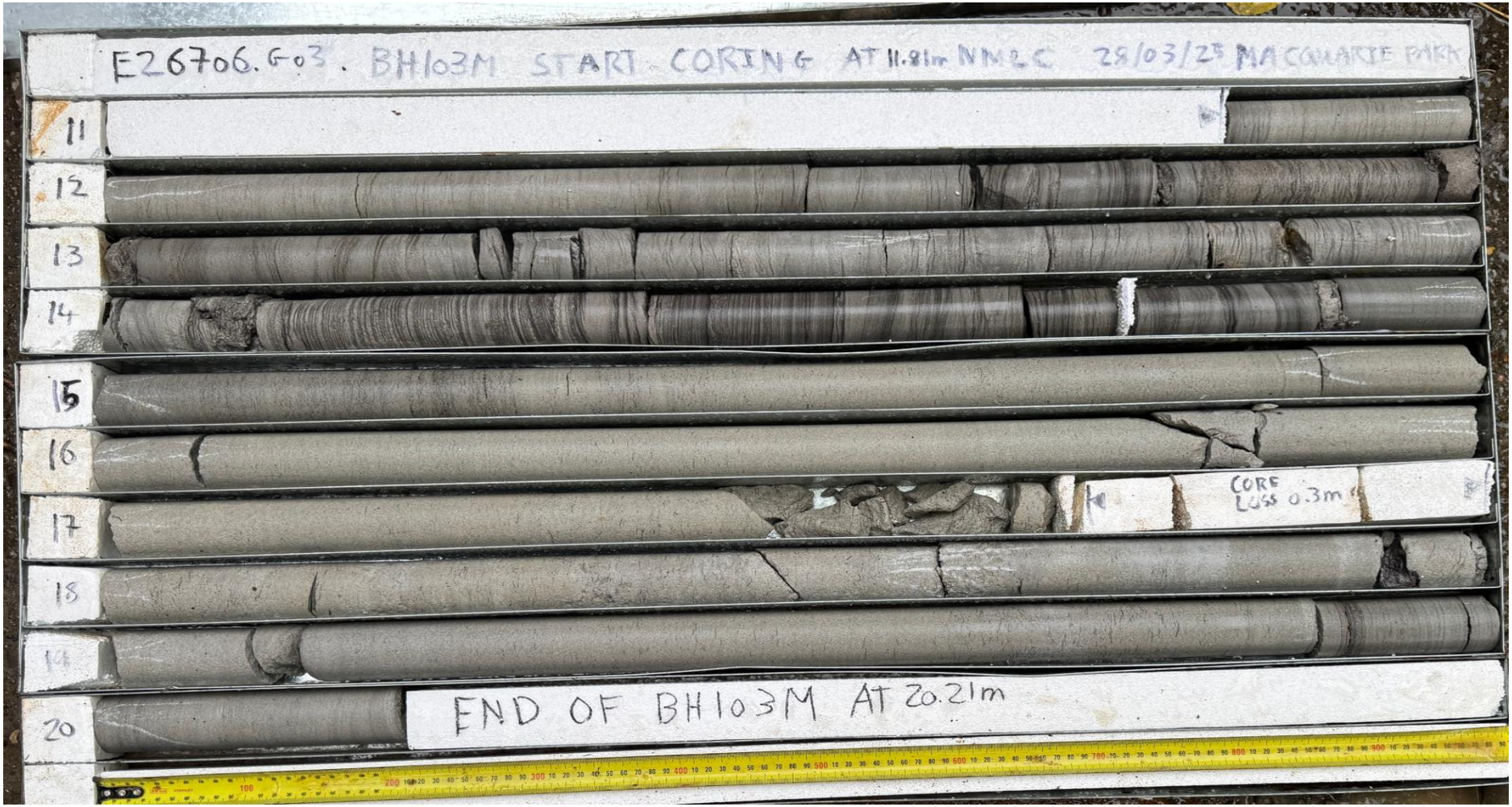
BACKFILL DETAILS	STANDPIPE DETAILS
Grout 0.00m - 0.80m	Well Stickup =0.0m (RL 59.65m)
Sand 0.80m - 7.50m	0.0m - 9.0m PVC casing (50mm Ø)
Bentonite 7.50m - 8.30m	
Sand 8.30m - 12.00m	9.0m - 12.0m PVC screen (50mm Ø)
Bentonite 12.00m - 12.50m	
Sand 12.50m - 20.21m	



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

CORE PHOTOGRAPH OF BOREHOLE: BH103M

Project	Proposed Development	**East**	-	**Depth Range**	11.81m to 20.21m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈59.65m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	28/03/25
Client	388 LCR Development Pty Ltd	**Box**	1 of 1	**Checked**	OV	**Date**	16/05/25



BOREHOLE LOG

BH ID: BH104

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	31 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 31 March 2025
Sheets	1 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.40 m (AHD)	**Northing**	6259975.3612 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326486.5774 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
DT				0.00		60.40	CONCRETE: 150mm thick	-	-	CONCRETE
AD/T	GWNE	BH104M_0.20-0.30 BH104M_0.50-0.95 SPT 0.50-0.95 10,19,25 N=44 BH104M_1.50-1.65 SPT 1.50-1.65 11/150 mm HB N=R		0.15		60.25	Silty CLAY: medium to high plasticity, grey and red brown trace fine to medium grained ironstone	M < PL	H	RESIDUAL SOIL
				1.30		59.10	SILTSTONE: grey and red brown, very low strength with extremely weathered bands, distinctly weathered			WEATHERED ROCK
				1.80		58.60	From 1.80m, medium strength			
				5.40		55.00	From 5.40m, grey, medium to high strength	-	-	
				7.10		53.30	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH104

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	31 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 31 March 2025
Sheets	2 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.40 m (AHD)	**Northing**	6259975.3612 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326486.5774 (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)
				0			*Log continued from previous page.*				
				1							
				2							
				3							
				4							
				5							
				6							
				7							
	95%	100	65	8			SILTSTONE: dark grey with interbedded, fine grained pale grey sandstone thinly laminated		▼	7.45: JT 50° PR RO CL CN 8.13: JT 20° PR SM Clay Infilled 8.37: JT 25° PR RO CN,CL 8.44: JT 35° PR RO CN CL 8.53: JT ST RO CN CL 8.89-8.92: XWS 8.98-9.02: CS 9.16: JT 85° CU SM Clay Infilled 9.25-9.31: CS 9.41: JT 90° PR RO CN CL	
				9							
				9.40		51.00	SANDSTONE: fine to medium grained, grey with dark grey laminate, thinly to medium bedded.		▼	9.64: JT 20° CU RO CN CL 9.79-9.92: XWZ	
				10							

BOREHOLE CORE LOG

BH ID: BH104

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	31 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 31 March 2025
Sheets	3 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.40 m (AHD)	**Northing**	6259975.3612 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326486.5774 (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 laminate, thinly to medium bedded.			10.41-10.44: XWS	
				12						12.53: JT 50° PR RO CN CL	
				12.90		47.50	SANDSTONE: fine to medium grained, grey,massive, with occassional siltstone clusts, very thickly bedded			12.94: JT 90° PR RO CN OP	
		100	95	14							
				15				FR		14.97: JT 15° PR RO CN OP 15.11: JT 20° PR RO Clay,CL Infilled 15.23-15.27: XWS	
				15.20		45.20	From 15.20m, with carbonaceous lenses			15.59: BP 5° PR SM Clay Infilled	
		100	100	16							
				17							
				18						18.67: BP 5° PR RO Clay VN	
				19						19.07-19.09: CS	
				20							

BOREHOLE CORE LOG

BH ID: BH104

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	31 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 31 March 2025
Sheets	4 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.40 m (AHD)	**Northing**	6259975.3612 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326486.5774 (MGA 2020 Zone 56)

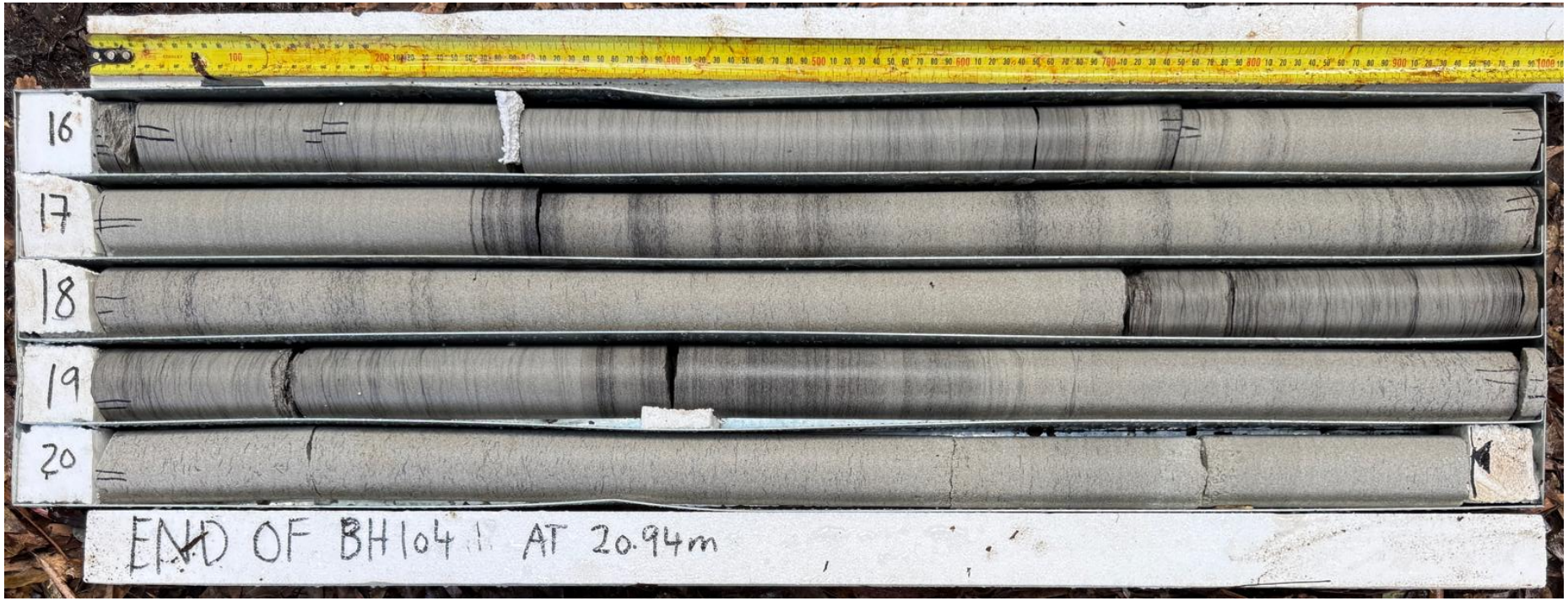
METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
	95%	100	100				From 15.20m, with carbonaceous lenses		M ▼		
				21		39.46	Terminated at 20.94m. Target Depth Reached.				
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

CORE PHOTOGRAPH OF BOREHOLE: BH104

Project	Proposed Development	**East**	-	**Depth Range**	7.1m to 16.0m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈60.4m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	28/3/25
Client	388 LCR Development Pty Ltd	**Box**	1 of 2	**Checked**	OV	**Date**	16/05/25

CORE PHOTOGRAPH OF BOREHOLE: BH104

Project	Proposed Development	**East**	-	**Depth Range**	16.0m to 20.94m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈60.4m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	28/3/25
Client	388 LCR Development Pty Ltd	**Box**	2 of 2	**Checked**	OV	**Date**	16/05/25



BOREHOLE LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	01 April 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 01 April 2025
Sheets	1 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)	**Northing**	6259949.0868 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326547.8750 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
D T				0.00		63.68	CONCRETE: 120mm thick	-	-	CONCRETE
				0.12		63.56	FILL: Silty SAND: fine to coarse grained, dark brown, trace fine to medium ironstone, sandstone and igneous gravels a d concrete and brick fragments.	D - -	-	FILL
		BH105M_0.50-0.95 SPT 0.50-0.95 5,6,8 N=14		0.50		63.18	Silty CLAY: medium to high plasticity, grey mottled brown.			RESIDUAL SOIL
		BH105M_1.50-1.95 SPT 1.50-1.95 4,12,13 N=25		1 2				M < PL	St - VSt	
		BH105M_3.00-3.45 SPT 3.00-3.45 8,21,20 N=41		3.00		60.68	From 3.00m, grey,grading into weathered rock		H	
AD/T	GWNE			4.00		59.68	SHALE: grey, low strength, distinctly weathered			WEATHERED ROCK
				5.00		58.68	From 5.00m, grey, low to medium strength			
				6.00		57.68	From 6.00m, grey and brown, medium to high strength	-	-	
				8.27		55.41	*Log continued on next page.*			

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

BOREHOLE CORE LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	01 April 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 01 April 2025
Sheets	2 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)	**Northing**	6259949.0868 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326547.8750 (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)
				0			*Log continued from previous page.*				
				1							
				2							
				3							
				4							
				5							
				6							
				7							
				8							
	95%	100	77	9			SILTSTONE: dark grey, thinly bedded			8.51: JT 20° PR RO CN OP 8.52: JT 40° PR Incipient CL 8.64: JT 90° UN RO CN OP 8.73: JT 85° CU RO CN OP 9.09: JT 20° PR RO CL 9.83: JT 50° PR RO CL Clay VN	
				10							

BOREHOLE CORE LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	01 April 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 01 April 2025
Sheets	3 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)	**Northing**	6259949.0868 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326547.8750 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	DISCONTINUITIES & ADDITIONAL DATA
NMLC	95%	100	64	10.23	53.45	SILTSTONE: dark grey, thinly bedded	FR	10.13: JT 50° PR RO CL Clay VN 10.19: JT 45° PR RO CN CL 10.21: BP 5° PR SM Clay Infilled 10.36: JT 85° UN RO CN CL
				12.53	51.15	SILTSTONE: dark grey, with interbedded fine grained, grey sandstone bands, thinly laminated		11.31: JT 50° PR RO OP Clay VN 11.44: JT 15° CU RO CL Clay VN 11.72-11.73: XWS 11.86-11.88: XWS 12.07: BP 5° PR SM Clay Infilled 12.16-12.18: CS 12.30: JT 90° PR RO OP Clay VN 12.39-12.50: CZ
						SANDSTONE: fine to medium grained, grey with dark grey laminate and occasional carbonaceous lenses, medium to thickly bedded		12.78-12.83: XWS 13.30: JT 20° PR SM Clay Infilled 13.82: BP 5° PR SM Clay Infilled 13.87: JT 90° PR RO CN CL 13.90-13.93: CS 13.98: JT 25° PR RO CN OP 14.12: JT 90° PR RO CN OP 14.18: JT 50° PR RO CN CL 14.45-14.47: XWS 14.57-14.60: CS 15.20-15.23: CS 16.72-16.75: XWS 18.89: BP 10° PR RO Clay VN
	40%	100	100					

ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral: VL 0-1, L 0-3, M 1, H 3, VH 10, EH

FRACTURE SPACING: 30, 100, 300, 1000, 3000

BOREHOLE CORE LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	01 April 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 01 April 2025
Sheets	4 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)	**Northing**	6259949.0868 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326547.8750 (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)
	40%					43.37	SANDSTONE: fine to medium grained, grey with dark grey laminate and occasional carbonaceous lenses, medium to thickly bedded		▼ H 3		
							Terminated at 20.31m. Target Depth Reached.				
				21							
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

MONITORING WELL LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW	**Started**	31 March 2025
Client	388 LCR Development Pty Ltd	**Completed**	01 April 2025
Job No.	E26706.G03	**Logged By**	SK **Date** 01 April 2025
Sheets	1 of 1	**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)
Plant	Hanjin D&B 8-D	**Inclination**	90°
Northing	6259949.0868 (MGA 2020 Zone 56)		
Easting	326547.8750 (MGA 2020 Zone 56)		

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
		0.00	63.68	CONCRETE: 120mm thick	-
		0.12	63.56	FILL: Silty SAND: fine to coarse grained, dark brown, trace fine to medium ironstone, sandstone and igneous gravels a d concrete and brick fragments.	D - -
		0.50	63.18	Silty CLAY: medium to high plasticity, grey mottled brown.	
	BH105M_0.50-0.95 SPT 0.50-0.95 5,6,8 N=14	1			
	BH105M_1.50-1.95 SPT 1.50-1.95 4,12,13 N=25	2			M < PL
		3.00	60.68	From 3.00m, grey,grading into weathered rock	
	BH105M_3.00-3.45 SPT 3.00-3.45 8,21,20 N=41	4.00	59.68	SHALE: grey, low strength, distinctly weathered	
		5.00	58.68	From 5.00m, grey, low to medium strength	
		6.00	57.68	From 6.00m, grey and brown, medium to high strength	-
		8.27	55.41	SILTSTONE: dark grey, thinly bedded	
		10.23	53.45	SILTSTONE: dark grey, with interbedded fine grained, grey sandstone bands, thinly laminated	
		12.53	51.15	SANDSTONE: fine to medium grained, grey with dark grey laminate and occasional carbonaceous lenses, medium to thickly bedded	
		20.31	43.37	Terminated at 20.31m. Target Depth Reached.	

GWNE 95% 40%

BACKFILL DETAILS

Grout 0.00m - 0.30m
Bentonite 0.30m - 0.65m
Sand 0.65m - 4.00m
Bentonite 4.00m - 6.10m
Sand 6.10m - 20.31m

STANDPIPE DETAILS

Well Stickup =0.0m (RL 63.68m)
0.0m - 1.0m PVC casing (50mm Ø)
1.0m - 4.0m PVC screen (50mm Ø)

CORE PHOTOGRAPH OF BOREHOLE: BH105M

Project	Proposed Development	**East**	-	**Depth Range**	8.27 to 17.0m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈63.68m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	01/04/25
Client	388 LCR Development Pty Ltd	**Box**	1 of 2	**Checked**	OV	**Date**	16/05/25

CORE PHOTOGRAPH OF BOREHOLE: BH105M

Project	Proposed Development	**East**	-	**Depth Range**	17.0m to 20.31m		
Location	2-4, Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈63.68m	**Drill Rig**	Hanjin D&B 8-D		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	SK	**Date**	01/04/25
Client	388 LCR Development Pty Ltd	**Box**	2 of 2	**Checked**	OV	**Date**	16/05/25

BOREHOLE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	1 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (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	MATERIAL ORIGIN & OBSERVATIONS
DT				0.00		60.00	CONCRETE: 190mm thick	-	-	CONCRETE
AD/T	GWNE	BH201M_0.20-0.30		0.19		59.81	FILL: Silty CLAY: medium plasticity, dark brown / grey, trace occasional coarse sand and angular fine gravel	-	-	FILL
		BH201M_0.5-0.95 SPT 0.50-0.95 2,2,3 N=5		1						
		BH201M_1.20-1.30		1.20		58.80	From 1.20m, dark grey, sandy caly			
		BH201M_1.50-1.95 SPT 1.50-1.95 3,5,9 N=14		1.50		58.50	Silty CLAY: medium plasticity, dark brown / red		St	RESIDUAL SOIL
		BH201M_2.50-2.60		2.50		57.50	From 2.50m, with ironstone bands			
		BH201M_3.00-3.45 SPT 3.00-3.45 3,16,15 N=31		3				M < PL	H	
		BH201M_3.80-3.90		4						
		BH201M_4.50-4.95 SPT 4.50-4.95 12,24,30 N=54		4.50		55.50	SILTSTONE: pale grey / red, extremely weathered, with ironstone bands.	-	-	WEATHERED ROCK
		BH201M_6.00-6.45 SPT 6.00-6.45 10,17,24 N=41		6						
		BH201M_7.00-7.10		7.00		53.00	SHALE: dark grey, very low tolow strength, extremely weathered to distinctly weathered	-	-	BEDROCK
		BH201M_7.50-7.56 SPT 7.50-7.56 9/60 mm HB N=R		7.86		52.14	*Log continued on next page.*			
				8						
				9						
				10						

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	2 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (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	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
				0			*Log continued from previous page.*				
NMLC	95% Water	100	63	8			SILTSTONE: dark grey / grey, with iron staining, with interbedded fine grained pale grey sandstone bands, thinly to medium bedded	DW - HW		8.06-8.16: JT 0-5° UN SM Set 4, 10 - 30 mm sp. VN 8.20-8.21: IS Si CL; 10mm 8.23-8.39: XWZ 160mm 8.41-8.56: JT 0-5° UN SM Set 7, 5 - 40mm sp. VN 8.67: DB 8.81-8.81: JT 0-5° PR SM VN 8.84-8.90: JT 70° UN RO VN 8.92: DB 8.99: DB 9.00-9.02: XWS 20mm 9.06-9.60: JT 0-10° UN SM Set 9, 40 - 110mm sp. VN 9.76-10.15: JT 0-5° PR SM Set 5, 50 - 170mm sp. VN	
				9							
				9.06		50.94	From 9.06m, sandstone; fine grained, grey	FR			
				9.60		50.40	From 9.60m, laminite; thinly bedded sandstone, grey				
				10							

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	3 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (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
NMLC	95% Water	100	77	11.24	48.76	From 11.24m, sandstone; fine grained, grey, thinly laminated siltstone			10.84-10.88: FS 50mm 10.98-11.21: JT 0-15° UN SM Set 5, 10 - 100mm sp. VN 11.21-11.24: CS 30mm 11.25-11.51: JT 0-15° UN SM Set 4, 10 - 140mm sp. VN 11.52-11.53: JT 0-45° ST SM VN 11.67-11.90: BP 0-5° PR SM Set 3, 60 - 170mm sp. VN 11.76-11.88: JT 0-15° UN SM Set 2 VN 12.00: HB	
				12.61	47.39	SANDSTONE: fine grained, grey, with trace iron staining, with laminite, medium bedding			12.23-12.42: JT 0-15° SM Set 4, 30 - 130mm sp. VN 12.42-12.51: JT 70° UN RO VN 12.51-12.54: XWS Si CL; 30mm 12.56-12.62: XWS 60mm	
		100	68	13.56	46.44	From 13.56m, laminite; thinly bedded, grey / dark grey	FR		12.98-13.00: HB 13.00-13.12: JT 45-90° CL 13.35-13.35: JT 0-15° UN RO VN 13.38-13.42: XWS Si CL; 13.44-13.57: JT 45-60° UN RO CN 13.57-13.61: JT 60° PR SM CN 13.61-13.69: BP 0-15° UN SM Set 3, 40m. sp. CN 13.81-13.83: XWZ Si CL 13.93: JT 0-15° UN SM CN 14.05: DB 14.24-14.31: BP 0-15° UN SM Set 2 VN 14.36: DB 14.58-14.89: BP 0-20° UN SM Set 9, 10 - 110mm sp. CN 14.96-15.00: FS 15.03: BP 0-15° UN SM CN 15.05-15.10: JT 60° UN RO CN 15.15-15.23: FS 15.32-15.88: BP 0-15° PR SM Set 9, 10 - 180mm sp. CN 15.39: JT 0-15° CL	
	85% Water	100	88	16.54	43.46	From 16.54m, fine to medium grained, pale grey			16.08: BP 0-5° UN SM CN 16.11-16.13: JT 0-5° UN SM Set 2 Clay VN 16.13-16.20: JT -70° UN SM CN 16.21-16.26: CS 16.31-16.41: JT -60° UN SM CN 16.46-16.54: XWS Si CL / crushed sandstone 16.76-16.96: BP 0-5° PR SM Set 4, 50 - 90mm sp. CN 17.00: HB 17.15-17.51: JT 10-30° UN RO Set 4, 100 - 190mm sp. CN 17.52-17.53: XWS 17.66-17.67: IS Si CL 17.71-18.04: BP 0-15° UN SM Set 5, 30 - 150mm sp. CN 18.10: BP 0-5° PR SM Clay VN 18.16-18.82: BP 0-15° UN SM Set 6, 40 - 240 mm sp. CN	
				17.52	42.48	From 17.52m, laminite; thinly bedded, dark grey				
				17.85	42.15	From 17.85m, sandstone; pale grey, medium bedded, with siltstone				
				18.50	41.50	From 18.50m, sandstone; pale grey			19.00: HB 19.03-19.05: CS 19.14-19.17: DB 19.46: JT 0-15° UN SM CN	

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	4 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (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	85% Water	100	100	21			From 18.50m, sandstone; pale grey	FR		20.00: HB 20.70: BP 0-5° PR SM CN 21.00: HB 21.85-21.95: BP 0-5° PR SM Set 2 CN 22.00: HB 22.27: BP 0-15° UN SM CN 22.80: JT 0-30° UN RO CN 23.00: HB 23.74: JT 0-15° UN RO CN 24.00: DB 24.89: BP 15° UN RO VN 25.00: DB 25.14: BP 0-15° UN RO CN 26.00: HB 26.40-26.79: BP 0-15° UN RO Set 4, 80 - 160mm sp. CN 26.85: JT 0-30° UN RO CN 27.00: HB 27.04-27.74: JT 0-15° UN SM Set 2 CN 27.96-27.97: IS Si CL 28.00: HB 28.18: JT 0-5° PR SM CN 28.31-28.34: JT 0-5° UN SM CN 28.48-28.49: IS 28.79: BP 0-15° PR SM VN 29.00: HB 29.80: JT 0-5° PR SM CN	
		100	100	22							
		100	100	23							
		100	97	24							
		100	82	25							
				26							
				27							
				28							
				29							
				30							

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	5 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (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	85% Water	100	95	31			From 18.50m, sandstone; pale grey	FR		30.00: HB 30.11: BP 0-15° UN SM CN 30.92-31.05: JT 60° UN RO CN 31.06-31.27: JT -60° UN RO CN 31.30-31.51: JT 45-90° UN CL	
				32						32.00: HB 32.85: BP 0-30° UN RO VN	
				33						33.00: HB 33.11: JT 0-15° UN RO CN	
				34						34.00: HB 34.32: JT 0-15° UN RO CN	
		100	100	35						35.82: BP 0-5° PR RO CN	
				36						36.00: HB 36.69: HB	
				37						37.15: BP 0-5° PR RO CN	
		100	100	38						38.00: HB	
				39						38.88: BP -15° PR RO CN 39.00-39.03: HB 39.22: BP 0-5° PR RO CN 39.62: DB RO 39.89: BP 0-15° PR RO CN	
				40							

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	6 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (MGA 2020 Zone 56)

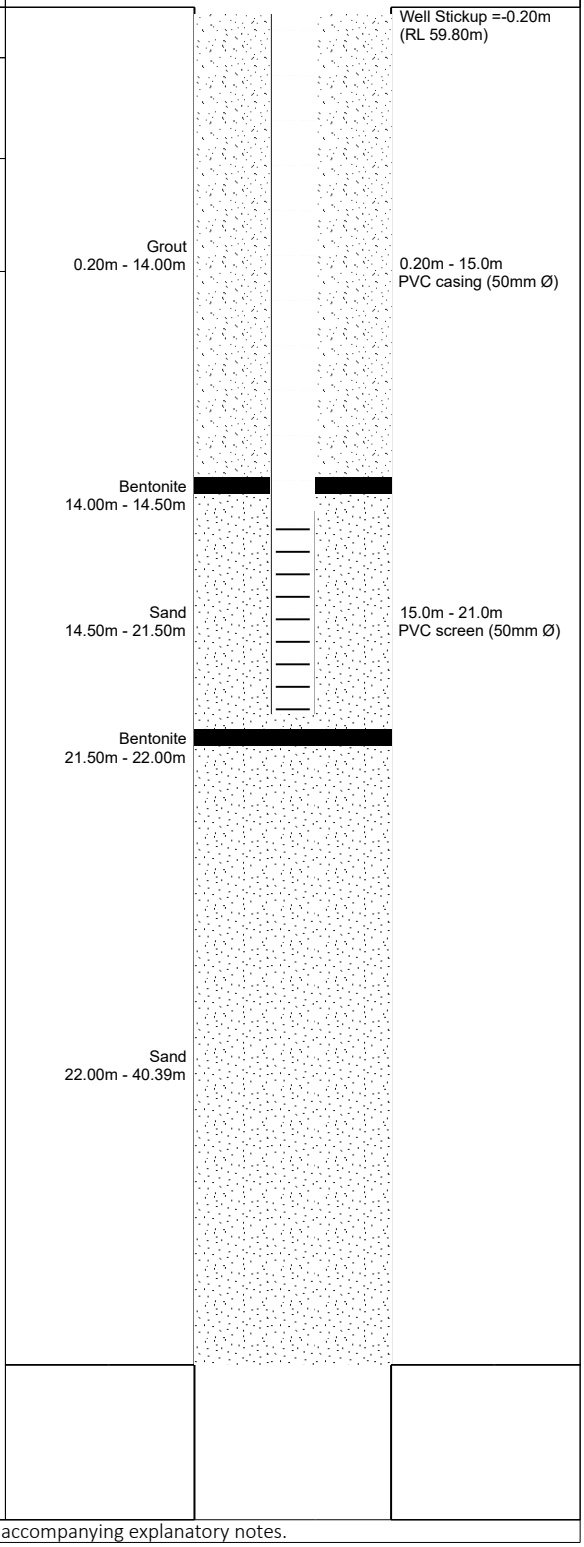
METHOD	85% Water Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral VL 0-1 / L 0-3 / M 1 / H 3 / VH 10 / EH	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING 30 / 100 / 300 / 1000 / 3000
NMLC							From 18.50m, sandstone; pale grey			40.00: HB	
						19.61	Terminated at 40.39m. Target Depth Reached.				
							Terminated at 40.39m. Target Depth Reached.				

MONITORING WELL LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	1 of 1			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
	BH201M_0.20-0.30 BH201M_0.5-0.95 SPT 0.50-0.95 2,2,3 N=5 BH201M_1.20-1.30 BH201M_1.50-1.95 SPT 1.50-1.95 3,5,9 N=14 BH201M_2.50-2.60 BH201M_3.00-3.45 SPT 3.00-3.45 3,16,15 N=31 BH201M_3.80-3.90 BH201M_4.50-4.95 SPT 4.50-4.95 12,24,30 N=54 BH201M_6.00-6.45 SPT 6.00-6.45 10,17,24 N=41 BH201M_7.00-7.10 BH201M_7.50-7.56 SPT 7.50-7.56 9/60 mm HB N=R	0.00 0.19 1.20 1.50 2.50 4.50 7.00 7.86 9.06 9.60 11.24 12.61 13.56 16.54 17.52 17.85 18.50	60.00 59.81 58.80 58.50 57.68 55.50 53.00 52.14 50.94 50.40 48.76 47.39 46.44 43.46 42.48 42.15 41.50 19.61	CONCRETE: 190mm thick FILL: Silty CLAY: medium plasticity, dark brown / grey, trace occasional coarse sand and angular fine gravel From 1.20m, dark grey, sandy caly Silty CLAY: medium plasticity, dark brown / red From 2.50m, with ironstone bands SILTSTONE: pale grey / red, extremely weathered, with ironstone bands. SHALE: dark grey, very low tolow strength, extremely weathered to distinctly weathered SILTSTONE: dark grey / grey, with iron staining, with interbedded fine grained pale grey sandstone bands, thinly to medium bedded From 9.06m, sandstone; fine grained, grey From 9.60m, laminite; thinly bedded sandstone, grey From 11.24m, sandstone; fine grained, grey, thinly laminated siltstone SANDSTONE: fine grained, grey, with trace iron staining, with laminite, medium bedding From 13.56m, laminite; thinly bedded, grey / dark grey From 16.54m, fine to medium grained, pale grey From 17.52m, laminite; thinly bedded, dark grey From 17.85m, sandstone; pale grey, medium bedded, with siltstone From 18.50m, sandstone; pale grey Terminated at 40.39m. Target Depth Reached. Terminated at 40.39m. Target Depth Reached.	- M < PL - -



CORE PHOTOGRAPH OF BOREHOLE: BH201M

Project	Proposed Development	**East**	-	**Depth Range**	7.86m to 16m		
Location	2-4 Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈ 60.0m	**Drill Rig**	Comaccio Geo 205		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	LL	**Date**	10/04/26
Client	388 LCR Development Pty Ltd	**Box**	1-2 of 7	**Checked**	KX	**Date**	22/04/26

CORE PHOTOGRAPH OF BOREHOLE: BH201M

Project	Proposed Development	**East**	-	**Depth Range**	16m to 26m		
Location	2-4 Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈60.0m	**Drill Rig**	Comaccio Geo 205		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	LL	**Date**	10/04/25
Client	388 LCR Development Pty Ltd	**Box**	3-4 of 7	**Checked**	KX	**Date**	22/04/26

CORE PHOTOGRAPH OF BOREHOLE: BH201M

Project	Proposed Development	**East**	-	**Depth Range**	26m to 36m		
Location	2-4 Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈60.0m	**Drill Rig**	Comaccio Geo 205		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	LL	**Date**	13/04/25
Client	388 LCR Development Pty Ltd	**Box**	5-6 of 7	**Checked**	KX	**Date**	22/04/26

CORE PHOTOGRAPH OF BOREHOLE: BH201M

Project	Proposed Development	**East**	-	**Depth Range**	36m to 40.39m		
Location	2-4 Giffnock Avenue, Macquarie Park NSW	**North**	-	**Contractor**	Geosense Drilling and Engineering		
Position	See Figure 2	**Surface RL**	≈60.0m	**Drill Rig**	Comaccio Geo 205		
Job No.	E26706.G03	**Inclination**	90°	**Logged**	LL	**Date**	13/04/25
Client	388 LCR Development Pty Ltd	**Box**	7 of 7	**Checked**	KX	**Date**	22/04/26

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			

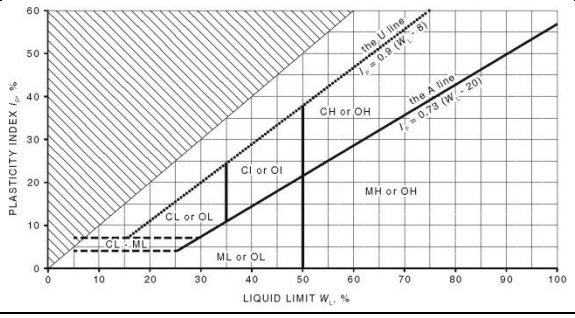
CLASSIFICATION AND INFERRED STRATIGRAPHY

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	Salah Khalifa
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	salah.khalifa@eiaustralia.com.au
Project	**E26706.G03 Site: 2-4 Giffnock Avenue, Ma**
Order Number	**E26706.G03**
Samples	5

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	**SE280860 R0**
Date Received	3/4/2025
Date Reported	10/4/2025

COMMENTS

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

SIGNATORIES

Dong LIANG

Metals/Inorganics Team Leader

Soluble Anions (1:5) in Soil/Solids by Ion Chromatography [AN245] Tested: 10/4/2025

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 26/3/2025 SE280860.001	BH102M 0.1-0.2 SOIL - 27/3/2025 SE280860.002	BH103M 4.5-4.95 SOIL - 28/3/2025 SE280860.003	BH104 0.5-0.95 SOIL - 31/3/2025 SE280860.004	BH105M_3.0-3.45 SOIL - 31/3/2025 SE280860.005
Chloride	mg/kg	0.25	**12**	**28**	**79**	**4.0**	**43**
Sulfate	mg/kg	5	**56**	**12**	**46**	**68**	**100**

pH in soil (1:5) [AN101] Tested: 9/4/2025

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 26/3/2025 SE280860.001	BH102M 0.1-0.2 SOIL - 27/3/2025 SE280860.002	BH103M 4.5-4.95 SOIL - 28/3/2025 SE280860.003	BH104 0.5-0.95 SOIL - 31/3/2025 SE280860.004	BH105M_3.0-3.45 SOIL - 31/3/2025 SE280860.005
pH	pH Units	0.1	**4.5**	**5.0**	**4.8**	**4.6**	**5.1**

Conductivity and TDS by Calculation - Soil [AN106] Tested: 9/4/2025

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 26/3/2025 SE280860.001	BH102M 0.1-0.2 SOIL - 27/3/2025 SE280860.002	BH103M 4.5-4.95 SOIL - 28/3/2025 SE280860.003	BH104 0.5-0.95 SOIL - 31/3/2025 SE280860.004	BH105M_3.0-3.45 SOIL - 31/3/2025 SE280860.005
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	**53**	**47**	**95**	**44**	**84**

Moisture Content [AN002] Tested: 7/4/2025

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 26/3/2025 SE280860.001	BH102M 0.1-0.2 SOIL - 27/3/2025 SE280860.002	BH103M 4.5-4.95 SOIL - 28/3/2025 SE280860.003	BH104 0.5-0.95 SOIL - 31/3/2025 SE280860.004	BH105M_3.0-3.45 SOIL - 31/3/2025 SE280860.005
% Moisture	%w/w	1	**9.9**	**17.0**	**15.6**	**10.2**	**12.6**

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
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Atterberg Limits and Linear Shrinkage Report

Project: E26706.G03 : 2-4 GIFFNOCK AVENUE, MACQUARIE PARK — Project No.: 31380

Client: EI AUSTRALIA — Report No.: 25/1122

Address: SUITE 6.01, 55 MILLER STREET, PYRMONT — Report Date: 16/04/2025

Test Method: AS 1289.3.3.1, 3.2.1, 3.1.2, 3.4.1 — Page: 1 of 1

Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

STS / Sample No.	9706D-L/1	9706D-L/2	9706D-L/3			
Sample Location	BH102M	BH103M	BH105M			
Material Description	Silty CLAY, grey, trace Sand and Gravel	Silty CLAY, orange brown, trace Sand	Silty CLAY, grey brown, trace Sand			
Depth (m)	3.0 - 3.45	3.0 - 3.45	1.5 - 1.95			
Sample Date	26/03-01/04/25	26/03-01/04/25	26/03-01/04/25			
Sample History	Oven Dried	Oven Dried	Oven Dried			
Method of Preparation	Dry Sieve	Dry Sieve	Dry Sieve			
Liquid Limit (%)	**46**	**37**	**46**			
Plastic Limit (%)	**23**	**19**	**22**			
Plasticity Index	**23**	**18**	**24**			
Linear Shrinkage (%)	**10.5**	**9.5**	**11.0**			
Mould Size (mm)	127	127	127			
Crumbing	N	N	N			
Curling	N	N	N			

Remarks:

Approved Signatory..... .....

Technician: SP

Mrigesh Tamang - Manager

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Moisture Content of Soil and Aggregate Samples

Project: E26706.G03 : 2-4 GIFFNOCK AVENUE, MACQUARIE PARK — Project No.: 31380

Client: EI AUSTRALIA — Report No.: 25/1123

Address: SUITE 6.01, 55 MILLER STREET, PYRMONT — Report Date: 16/04/2025

Test Method: AS1289.1289.2.1.1 — Page: 1 of 1

Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

STS / Sample No.	9706D-L/1	9706D-L/2	9706D-L/3			
Sample Location	BH102M	BH103M	BH105M			
Material Description	Silty CLAY, grey, trace Sand and Gravel	Silty CLAY, orange brown, trace Sand	Silty CLAY, grey brown, trace Sand			
Depth (mm)	3.0 - 3.45	3.0 - 3.45	1.5 - 1.95			
Sample Date	26/03-01/04/25	26/03-01/04/25	26/03-01/04/25			
Moisture Content (%)	**16.5**	**9.2**	**12.9**			

Remarks:

Approved Signatory.....

Technician: SP

Mrigesh Tamang - Manager

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Point Load Strength Index Report

Project: E26706.G03 : 2-4 GIFFNOCK AVENUE,MACQUARIE PARK
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.: 31380/9706D-L
Report No.: 25/1005
Report Date: 04/04/2025

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH101M	6.73	26/03/2025	04/04/2025	A	**1.10**	**1.10**	SS	3	M
BH101M	7.94	26/03/2025	04/04/2025	A	**1.00**	**1.00**	SS	3	M
BH101M	8.27	26/03/2025	04/04/2025	A	**0.49**	**0.49**	SS	3	M
BH101M	8.76	26/03/2025	04/04/2025	A	**1.10**	**1.10**	SS	3	M
BH101M	9.40	26/03/2025	04/04/2025	A	**0.81**	**0.82**	SS	3	M
BH101M	10.33	26/03/2025	04/04/2025	A	**0.80**	**0.81**	SS	3	M
BH101M	10.80	26/03/2025	04/04/2025	A	**1.40**	**1.40**	SS	3	M
BH101M	11.52	26/03/2025	04/04/2025	A	**0.58**	**0.58**	SS	3	M
BH101M	12.73	26/03/2025	04/04/2025	A	**0.77**	**0.79**	SS	3	M
BH101M	13.85	26/03/2025	04/04/2025	A	**0.09**	**0.09**	SS	3	M
BH101M	14.50	26/03/2025	04/04/2025	A	**2.30**	**2.30**	SS	3	M
BH101M	15.74	26/03/2025	04/04/2025	A	**1.8**	**1.8**	SS	3	M
BH101M	16.19	26/03/2025	04/04/2025	A	**1.9**	**1.9**	SS	3	M
BH101M	16.77	26/03/2025	04/04/2025	A	**1.2**	**1.2**	SS	3	M
BH101M	17.70	26/03/2025	04/04/2025	A	**1.7**	**1.7**	SS	3	M
BH101M	18.23	26/03/2025	04/04/2025	A	**1.8**	**1.8**	SS	3	M
BH101M	19.74	26/03/2025	04/04/2025	A	**4.3**	**4.3**	SS	3	D
BH101M	20.40	26/03/2025	04/04/2025	A	**2**	**2**	SS	3	M
BH101M	21.68	26/03/2025	04/04/2025	A	**1.8**	**1.8**	SS	3	M
BH101M	22.36	26/03/2025	04/04/2025	A	**1.2**	**1.2**	SS	3	M
BH101M	23.69	26/03/2025	04/04/2025	A	**2.3**	**2.4**	SS	3	M
BH101M	24.55	26/03/2025	04/04/2025	A	**0.93**	**0.93**	SS	3	M
BH101M	25.45	26/03/2025	04/04/2025	A	**1.5**	**1.5**	SS	3	M
BH101M	26.54	26/03/2025	04/04/2025	A	**1.2**	**1.2**	SS	3	M
BH101M	27.70	26/03/2025	04/04/2025	A	**1.6**	**1.6**	SS	3	M
BH101M	28.66	26/03/2025	04/04/2025	A	**1.6**	**1.6**	SS	3	M
BH101M	29.65	26/03/2025	04/04/2025	A	**1.7**	**1.7**	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

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Point Load Strength Index Report

Project: E26706.G03 : 2-4 GIFFNOCK AVENUE,MACQUARIE PARK
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.: 31380/9706D-L
Report No.: 25/1005
Report Date: 04/04/2025

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH102M	8.55	27/03/2025	04/04/2025	A	0.52	0.52	SS	3	M
BH102M	9.40	27/03/2025	04/04/2025	A	1.80	1.80	SS	3	M
BH102M	10.51	27/03/2025	04/04/2025	A	0.68	0.68	SS	3	M
BH102M	11.64	27/03/2025	04/04/2025	A	1.60	1.60	SS	3	M
BH102M	12.24	27/03/2025	04/04/2025	A	0.89	0.90	SS	3	M
BH102M	13.66	27/03/2025	04/04/2025	A	1.30	1.30	SS	3	M
BH102M	14.84	27/03/2025	04/04/2025	A	0.83	0.82	SS	3	M
BH102M	15.24	27/03/2025	04/04/2025	A	1.60	1.70	SS	3	M
BH102M	15.84	27/03/2025	04/04/2025	A	2.00	2.00	SS	3	M
BH102M	16.32	27/03/2025	04/04/2025	A	0.46	0.46	SS	3	M
BH102M	16.40	27/03/2025	04/04/2025	A	2.40	2.30	SS	3	M
BH102M	17.24	27/03/2025	04/04/2025	A	2	1.9	SS	3	M
BH102M	18.48	27/03/2025	04/04/2025	A	1.1	1.2	SS	3	M
BH102M	19.14	27/03/2025	04/04/2025	A	1.3	1.3	SS	3	M
BH102M	19.82	27/03/2025	04/04/2025	A	1.6	1.6	SS	3	M
BH102M	20.25	27/03/2025	04/04/2025	A	2	2	SS	3	M
BH103M	11.90	28/03/2025	04/04/2025	A	0.83	0.83	SS	3	M
BH103M	12.48	28/03/2025	04/04/2025	A	0.89	0.89	SS	3	M
BH103M	13.14	28/03/2025	04/04/2025	A	0.92	0.92	SS	3	M
BH103M	13.76	28/03/2025	04/04/2025	A	0.83	0.84	SS	3	M
BH103M	14.30	28/03/2025	04/04/2025	A	0.11	0.12	SS	3	M
BH103M	14.81	28/03/2025	04/04/2025	A	1.3	1.3	SS	3	M
BH103M	15.55	28/03/2025	04/04/2025	A	1.1	1.1	SS	3	M
BH103M	16.42	28/03/2025	04/04/2025	A	0.98	0.98	SS	3	M
BH103M	17.31	28/03/2025	04/04/2025	A	0.37	0.37	SS	3	M
BH103M	18.35	28/03/2025	04/04/2025	A	0.38	0.39	SS	3	M
BH103M	19.56	28/03/2025	04/04/2025	A	1.5	1.5	SS	3	M
BH103M	20.11	28/03/2025	04/04/2025	A	1.9	1.9	SS	3	M

Failure Type	Test Type	Moisure Condition	Rock Type
1 = Fracture through bedding or weak plane	A = Axial	W = Wet	SS = Sandstone
2 = Fracture along bedding	D = Diametrial	M = Moist	ST = Siltstone
3 = Fracture through rock mass	I = Irregular	D = Dry	SH = Shale
4 = Fracture influenced by natural defect or drilling	C = Cube		YS = Claystone
5 = Partial fracture or chip (invalid result)			IG = Igneous

Remarks:

Approved Signatory.....

Technician: NL

Mrigesh Tamang - Manager

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: E26706.G03 : 2-4 GIFFNOCK AVENUE,MACQUARIE PARK
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.: 31380/9706D-L
Report No.: 25/1005
Report Date: 04/04/2025

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH104	7.74	31/03/2025	04/04/2025	A	**0.66**	**0.67**	SS	3	M
BH104	8.63	31/03/2025	04/04/2025	A	**1.60**	**1.60**	SS	3	M
BH104	9.65	31/03/2025	04/04/2025	A	**0.66**	**0.67**	SS	3	M
BH104	10.38	31/03/2025	04/04/2025	A	**1.70**	**1.70**	SS	3	M
BH104	11.69	31/03/2025	04/04/2025	A	**1.50**	**1.50**	SS	3	M
BH104	12.34	31/03/2025	04/04/2025	A	**0.75**	**0.74**	SS	3	M
BH104	13.64	31/03/2025	04/04/2025	A	**1.30**	**1.30**	SS	3	M
BH104	14.47	31/03/2025	04/04/2025	A	**1.30**	**1.30**	SS	3	M
BH104	15.36	31/03/2025	04/04/2025	A	**1.70**	**1.70**	SS	3	M
BH104	15.85	31/03/2025	04/04/2025	A	**2.10**	**2.10**	SS	3	M
BH104	16.54	31/03/2025	04/04/2025	A	**1.90**	**2.00**	SS	3	M
BH104	17.88	31/03/2025	04/04/2025	A	**1.4**	**1.5**	SS	3	M
BH104	18.50	31/03/2025	04/04/2025	A	**1.5**	**1.5**	SS	3	M
BH104	19.79	31/03/2025	04/04/2025	A	**1.4**	**1.4**	SS	3	M
BH104	20.44	31/03/2025	04/04/2025	A	**1**	**1**	SS	3	M
BH105M	8.36	28/03/2025	07/04/2025	A	**1.3**	**1.3**	SS	3	M
BH105M	8.88	28/03/2025	07/04/2025	A	**2.3**	**2.3**	SS	3	M
BH105M	9.61	28/03/2025	07/04/2025	A	**0.61**	**0.61**	SS	3	M
BH105M	10.46	28/03/2025	07/04/2025	A	**0.46**	**0.46**	SS	3	M
BH105M	10.88	28/03/2025	07/04/2025	A	**0.67**	**0.66**	SS	3	M
BH105M	11.40	28/03/2025	07/04/2025	A	**1.4**	**1.3**	SS	3	M
BH105M	12.23	28/03/2025	07/04/2025	A	**0.78**	**0.78**	SS	3	M
BH105M	13.52	28/03/2025	07/04/2025	A	**0.97**	**0.97**	SS	3	M
BH105M	14.74	28/03/2025	07/04/2025	A	**1.4**	**1.4**	SS	3	M
BH105M	15.45	28/03/2025	07/04/2025	A	**1.3**	**1.3**	SS	3	M
BH105M	16.52	28/03/2025	07/04/2025	A	**1.5**	**1.6**	SS	3	M
BH105M	17.32	28/03/2025	07/04/2025	A	**1.6**	**1.7**	SS	3	M
BH105M	18.50	28/03/2025	07/04/2025	A	**2.6**	**2.6**	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

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Point Load Strength Index Report

Project: E26706.G03 : 2-4 GIFFNOCK AVENUE,MACQUARIE PARK
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.: 31380/9706D-L
Report No.: 25/1005
Report Date: 04/04/2025

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	**Is (MPa)**	**$Is_{(50)}$ (MPa)**	Rock Type	Failure Type	Moisture
BH105M	19.64	28/03/2025	07/04/2025	A	**1.40**	**1.40**	SS	3	D
BH105M	20.20	28/03/2025	07/04/2025	A	**1.80**	**1.80**	SS	3	D

Failure Type	Test Type	Moisure Condition	Rock Type
1 = Fracture through bedding or weak plane	A = Axial	W = Wet	SS = Sandstone
2 = Fracture along bedding	D = Diametrial	M = Moist	ST = Siltstone
3 = Fracture through rock mass	I = Irregular	D = Dry	SH = Shale
4 = Fracture influenced by natural defect or drilling	C = Cube		YS = Claystone
5 = Partial fracture or chip (invalid result)			IG = Igneous

Remarks:

Approved Signatory.....

Technician: NL

Mrigesh Tamang - Manager

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NATA Accredited for Compliance with ISO/IEC 17025 - Testing No. 2750

Unconfined Compressive Strength of Rock Core

Project: E26706.G03 : 2-4 GIFFNOCK AVENUE, MACQUARIE PARK
Client: EI AUSTRALIA
Address: SUITE 6.01, 55 MILLER ST. PYRMONT, NSW
Test Method: RTA T229, T120

Project No.: 31380
Report No.: 25/1197
Report Date: 24/04/25
Page: 1 of 2

Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Sample No.		9706D-L/1	9706D-L/2	9706D-L/4			
Location	(BH)	BH101M	BH103M	BH104M			
Depth	(m)	17.22 - 17.48	14.50 - 14.60	7.14 - 7.39			
Sample Description		Siltstone	Sandstone	Sandstone			
Date Cored		26/03-01/04/25	26/03-01/04/25	26/03-01/04/25			
Date Tested		17/04/2025	17/04/2025	17/04/2025			
Testing Machine		MAN 8-700026	MAN 8-700026	MAN 8-700026			
Sample Diameter	(mm)	51.9	52.1	51.9			
Sample Height	(mm)	95.0	113.0	114.6			
L/D Ratio		1.8	2.2	2.2			
Sample Conditioning		Unsoaked	Unsoaked	Unsoaked			
Test Duration	(min:sec)	7.5	8.0	8.5			
Failure Description		Single Shear	Multiple Shear	Single Shear			
Uniaxial Compressive Strength *	**(MPa)**	**4.5**	**12.0**	**11.0**			
Initial Moisture Content	**(%)**	**2.0**	**2.0**	**3.4**			
Moisture Content as Tested	**(%)**	**2.2**	**2.6**	**3.6**			
Dry Density	**(kg/m^3)**	**2520**	**2490**	**2460**			
Storage Conditions		Plastic Wrapped	Plastic Wrapped	Plastic Wrapped			
Other Comments							

* Where L/D Ratio is less than 2, Unixaial Compressive Strength has been corrected.

* Where MPa is greater than 50, indicated strength is to be considered its minimum

Remarks: -

Approved Signatory.....

Technician: BV

Mrigesh Tamang - Manager

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Unconfined Compressive Strength of Rock Cores

Project:	E26706.G03 : 2-4 GIFFNOCK AVENUE, MACQUARIE PARK	Project No.:	31380
Client:	**EI AUSTRALIA**	Report No.:	25/1197
Address:	SUITE 6.01, 55 MILLER ST. PYRMONT, NSW	Report Date:	24/04/2025
		Page:	2 of 2

BH101M : 17.22 - 17.48m

BH103M : 14.5 - 14.6m

BH104 : 7.14 - 7.39m

Appendix C Vibration Limits

German Standard DIN 4150 – Part 3: 2016-12 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.