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AQUALAND PRESTIGE 2 PTY LTD

Geotechnical Investigation

Site B, 2-16 Pockley Avenue, Roseville NSW

E26491.G03_Rev2
16 April 2025

Document Control

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Revision	Details	Date	Amended By
	Original	6 March 2025	
1	Updated Architectural Drawings	4 April 2025	KP/JB
2	Updated Architectural Drawings	16 April 2025	JB

*The SEARs Requirement Declaration form is shown in **Appendix E***

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1. Introduction

1.1 Background

At the request of Mr Wayne Xiong on behalf of Aqualand Prestige 2 Pty Ltd (the Client), EI Australia (EI) has carried out a Geotechnical Investigation (GI) for the proposed development at Site B, 2-16 Pockley Avenue, Roseville 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.

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 Woods Bagot, Project No. 122021, Sheet Nos. DA-AR-B-22-094 to DA-AR-B-22-1.9, DA-AR-B-22-190 , DA-AR-B-32-001 to DA-AR-B-32-003, DA-AR-B-32-101 to DA-AR-B-32-103, latest revision B, latest dated 9 April 2025; and
- Survey drawings by Rygate & Company Pty Ltd, Plan Showing Details and Levels, Sheets 1 to 7, Rev. A, dated 3 September 2024.

Based on the provided documents and conversations with the client, EI understands that the proposed development involves the demolition of existing vegetation & site structures and the construction of a multi-storey residential development overlying a stepped shared basement, as shown in **Plate 1**. The proposed development comprises a total of 178 dwellings, including 39 affordable housing, above the shared basement and 285 car parking spaces.

It is understood that the lowest basement level will have a Finished Floor Level (FFL) of RL 69.0m AHD at the north-eastern site boundary and RL 78.0m AHD at the south-western site boundary, therefore it is interpreted that the proposed bulk excavation will have a Bulk Excavation Level (BEL) ranging between R.L 68.7m AHD to 80.9m AHD. Given the elevation change across the site, EI assumes excavation depths are to range with approximately 10.0m (to the south-west of the site) to 20.0m (to the north-eastern of the site) to achieve the Bulk Excavation Level (BEL). Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches.

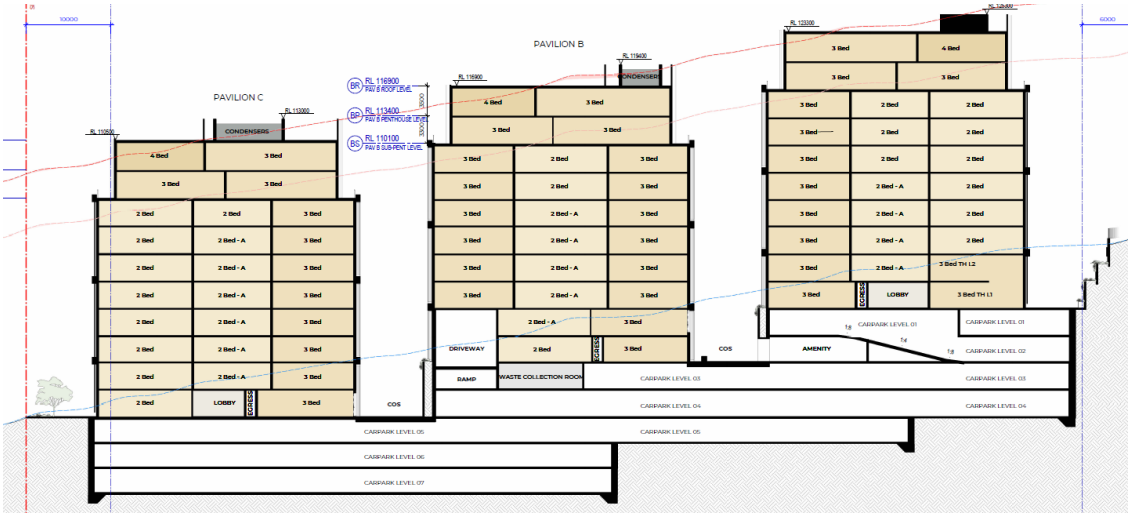

Plate 1 Extract of site section (source: Woods Bagot, Proj. 122021, Dwg. DA-AR-B-32-101, Rev. B, 9 April 2025)

1.3 Objectives

The objective of the GI was to assess site surface and subsurface conditions at the site, 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;
- Drilling of eleven (11) boreholes in total (BH1M, BH1a, BH2M, BH2.1M, BH3, BH3.1M, BH4M, BH4.1M, BH5, BH101 & BH102).
  - Auger drilling of BH1a, BH2M, BH2.1M, BH3.1M, BH4.1M, BH101 & BH102 by a track-mounted drilling rig using solid flight augers equipped with a Tungsten-Carbide' (T-C) bit.
  - Hand auger drilling of BH1M, BH3, BH4M & BH5 due to restricted access;
  - Rock rolling and/or rotary air hammer was carried out in BH2.1M, BH3.1 & BH4.1M, drilled adjacent to previously drilled boreholes, to advance through weathered rock in preparation for coring below the previous termination depths.

The drilling techniques for the boreholes are presented in **Table 1-1** below:

Table 1-1 Drilling Technique Termination Depths

Borehole ID	Augering		Rotary Air Hammer / Rock Rolling		Rock Coring	
	Depth (m)	RL (m AHD)	Depth (m)	RL (m AHD)	Depth (m)	RL (m AHD)
BH1M	2.53	92.27	-	-	9.67	85.13
BH1a	2.78	92.82	9.43	86.17	17.00	78.60
BH2M	4.40	93.60	-	-	15.40	82.60
BH2.1M	7.50	90.50	15.03	82.97	30.05	67.95
BH3	1.35	85.25	-	-	9.23	77.37
BH3.1	1.35	85.25	7.58	79.02	24.20	62.40
BH4M	1.51	78.74	-	-	8.93	71.32
BH4.1M	3.00	77.25	7.30	72.95	25.35	54.90
BH5	3.00	75.20	-	-	8.93	69.27
BH101	8.45	78.15	-	-	22.00	64.60
BH102	6.56	74.24	-	-	19.37	61.43

- Standard Penetration Testing (SPT) was carried out (as per AS 1289.6.3.1-2004), where possible, during auger drilling to assess soil strength/relative densities.
- Four Dynamic Cone Penetrometer (DCP) tests were carried out adjacent to BH1M, BH3, BH4M and BH5 to refusal depths of 0.48m, 1.16m, 1.32m and 2.45m BEGL respectively;
- 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.
- Northing and easting data are presented in the detailed borehole logs in **Appendix A**. The northing and easting data has been obtained using a hand held GPS.
- Surface RLs have been interpolated from survey data provided by the client.

- Continuation of all boreholes using NMLC diamond coring techniques to termination depths shown above in **Table 1-1**. The rock core photographs are presented in **Appendix A**;
- Installation of groundwater monitoring well within boreholes BH1M, BH2M, BH2.1M, BH4M and BH4.1M were converted into groundwater monitoring wells with depths of well and screen outlined below in **Table 1-2**.

Table 1-2 Drilling Technique Termination Depths

Borehole ID	Well Depth		Start of Screen	
	(m BEGL)	RL (mAHD)	(m BEGL)	RL (mAHD)
BH1M	7.03	87.77	4.03	90.77
BH2M	8.0	90.00	5.0	93.00
BH2.1M	18.0	80.00	12.0	86.00
BH4	7.0	73.24	4.0	76.24
BH4.1M	15.0	65.24	9.0	71.24

- Boreholes BH1a, BH3, BH5, BH101 and BH102 were backfilled with drilling spoils upon completion;
- 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.
- 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. The discussions and advice presented in this report are intended to assist in the preparation of initial designs for the proposed development. Further geotechnical inspections should be carried out during construction to confirm the geotechnical and groundwater models, and the preliminary design parameters provided in this report.

2. Site Description

2.1 Site Description and Identification

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

Table 2-1 Summary of Site Information

Information	Detail
Street Address	Site B, 2-16 Pockley Avenue, Roseville NSW
Lot and Deposited Plan (DP) Identification	Lot 11 to18 in DP 8261
Brief Site Description	At the time of our investigation, the site was occupied by one to two–storey residential dwellings. The remaining areas of the site are occupied by grass, plants and trees scattered across.
Site Area	The site area is approximately 6589m^2 (based on the provided information from SIX Maps accessed on 5 September 2024).

Plate 2 Aerial photograph of the site (source: Metro Map, accessed on 5 September 2024)

2.2 Local Land Use

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

Table 2-2 Summary of Local Land Use

Direction Relative to Site	Land Use Description
North	Pockley Avenue, a single lane, asphalt-paved road. Beyond the roadway are one to two-storey brick residential buildings.
East	Larkin Street, a single lane, asphalt paved road. Beyond the roadway are one to two-storey brick residential buildings.
South	Maclaurin Parade, a single lane asphalt paved road. Beyond it lie the multi-storey residential apartment building currently under construction.
West	Pockley Avenue, a single lane asphalt paved road as a continuation of Pockley Avenue from the northern boundary. Beyond the roadway are one to two storey brick residential 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 moderately dips from eastern site boundary towards the western site boundary towards Blue Gum Creek.
Regional Geology	Information on regional sub-surface conditions, referenced from the Department of Minerals and Energy Geological Map Sydney 1:100,000 Geological Series Sheet 9130 (DMR 1983) indicates the site to be underlain by Ashfield Shale (Rwa), as shown in **Plate 3**. Ashfield Shale (Rwa) typically consists of black to dark grey shale and laminite.

Plate 3 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 3.1** below.

Table 3-1 Summary of Subsurface Conditions

Unit	Material[2]	Depth to Top of Unit (m BEGL)[1]	Observed Thickness (m)	Comments
1	**Fill / Topsoil**	Surface	0.5 to 1.5	Generally Sandy CLAY, Silty CLAY, Sandy SILT or Gravelly CLAY, comprising some rootlets. Fill within Unit 1 comprised some building waste. Fill within Unit 1 is inferred to be uncontrolled and poorly compacted.
2	**Residual Soil**	0.5 to 1.5	0.75 to 7.75	Generally Silty CLAY, medium to high plasticity, grading into extremely weathered shale. Unit 2 is generally stiff to very stiff, based on STP N values.
3a	**Class V/IV Shale**	1.35 to 5.26	2.97 to 5.99	Generally SHALE / LAMINITE / CLAYSTONE, extremely to slightly weathered, extremely low to medium strength. Defects observed within Unit 3a comprise joints inclined up to 90°, heeled joints, clay seams and fracture zones.
3b	**Class III Shale**	7.40 to 8.23	2.03 to 4.77	Generally SHALE, extremely to slightly weathered, low to high strength. Defects observed within Unit 3b comprise joints inclined up to 75° and extremely weathered seams.
3c	**Class II Shale**	9.43 to 13.00	3.42 [3]	Generally SHALE, slightly weathered to fresh, high to very high strength. Defects observed within Unit 3c comprise joints inclined up to 80° and fractured zones.
4a	**Class IV sandstone**	2.10 to 7.34	4.66 to 5.23	Generally SANDSTONE, distinctly weathered, medium to high strength. Defects observed within Unit 4a comprise joints inclined up to 10° and shear/fractured zones.
4b	**Class III Sandstone**	6.04 to 16.42	1.5 to 7.08	Generally SANDSTONE, slightly weathered to fresh, high to very high strength. Defects observed within Unit 4b comprise joints inclined up to 45°, crushed zones, extremely weathered seams and clay seams.
4c	**Class II Sandstone**	13.50 to 23.50	- [4]	Generally SANDSTONE, fresh, high to very high strength. Defects observed within Unit 4b comprise joints inclined up to 40° and extremely weathered seams.

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 Thickness of Unit 3b observed only within BH2.1M .
Note 4 Observed up to termination depth in BH2.1M, BH3.1, BH4.1M, BH101 & BH102.

3.2 Shear Zone / Fault Lines

During the investigation, several boreholes encountered evidence of shear zones and/or fault lines. Such geological features were inferred observations of the core samples and defects, including:

- Stepping of cross bedding/laminations along joint planes;
- Significant fracturing of core; and/or
- Core loss surrounded by fractured rock;

Evidence of a shear zone or fault line was encountered within BH1M, BH4M and BH5 within the upper weathered profile in Unit 3a to Unit 3b. Shear zones and fault lines may present themselves as sets of steep joints with polished or slickensided joints in higher strength rock.

Table 3-2 Depths to Top of Units in Boreholes

		Depth to Top of Unit (m BEGL *[RL mAHD]*)										
Unit	**Material**	**BH1M**	**BH1a**	**BH2M**	**BH2.1M**	**BH3**	**BH3.1**	**BH4M**	**BH4.1M**	**BH5**	**BH101**	**BH102**
1	Fill / Topsoil	0.00 *[94.80]*	0.00 *[95.60]*	0.00 *[98.00]*	0.00 *[98.00]*	0.00 *[86.60]*	0.00 *[86.60]*	0.00 *[80.25]*	0.00 *[80.25]*	0.00 *[78.20]*	0.00 *[86.60]*	0.00 *[80.80]*
2	Residual Soil	1.50 *[93.30]*	0.50 *[95.10]*	0.90 *[97.10]*	0.80 *[97.20]*	0.60 *[86.00]*	0.90 *[85.70]*	0.70 *[79.55]*	0.50 *[79.75]*	1.40 *[76.80]*	0.70 *[85.90]*	1.00 *[79.80]*
3a	Class V/IV Shale	2.53 *[92.27]*	2.78 *[92.82]*	5.26 *[92.74]*	4.00 *[94.00]*	1.35 *[85.25]*	1.35 *[85.25]*[5]	-	1.51 *[78.74]*	-	-	-
3b	Class III Shale	-	7.40 *[88.20]*	8.23 *[89.77]*	8.23 *[89.77]*[5]	-	-[5]	-	-	-	-	-
3c	Class II Shale	-	9.43 *[86.17]*	13.00 *[85.00]*	13.00 *[85.00]*[5]	-	-[5]	-	-	-	-	-
4a	Class IV Sandstone	-	-	-	-	7.34 *[79.26]*	7.34 *[79.26]*[2]	2.10 *[78.15]*	2.10 *[78.15]*[2]	6.04 *[72.16]*	-	-
4b	Class III Sandstone	-	-	-	16.42 *[81.58]*	-	12.00 *[74.60]*	7.33 *[72.92]*	7.33 *[72.92]*	6.04 *[72.16]*	8.45 *[78.15]*	6.65 *[74.15]*
4c	Class II Sandstone	-	-	-	23.50 *[74.50]*	-	13.50 *[73.10]*	-	14.00 *[66.25]*	-	15.00 *[71.60]*	14.50 *[66.30]*
Termination Depth		9.67 *[85.13]*	17.00 *[78.60]*	15.40 *[82.60]*	30.05 *[67.95]*	9.23 *[77.37]*	24.20 *[62.40]*	8.93 *[71.32]*	25.35 *[54.90]*	8.93 *[69.27]*	22.00 *[64.60]*	19.37 *[61.43]*

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 Thickness of Unit 3b observed only within BH2.1M .
Note 4 Observed up to termination depth in BH2.1M, BH3.1, BH4.1M, BH101 & BH102.
Note 5 Deeper boreholes BH21.M, BH3.1M & BH4.1M have inferred depths of Units from adjacent short boreholes BH2M, BH3M & BH4M where material was not observed

3.4 Groundwater Observations

Following completion of auger drilling, the boreholes were left open and free standing groundwater levels were then measured within the boreholes after a period of time. Some seepage was observed in boreholes during auger drilling. Following their completion, groundwater monitoring wells were installed in BH1M, BH2M, BH2.1M, BH3.1M, BH4M & BH4.1M and bailed dry. The groundwater levels were then measured within the monitoring wells as per **Table 3-3** below. It should be noted that high groundwater are expected to be present within the Mittagong Formation, at the transition between Ashfield Shale and Hawkesbury Sandstone.

Table 3-3 Groundwater Measurements Within the Monitoring Wells

Borehole ID	Measurement Date	m BEGL *[RL mAHD]*
BH1M	6 September 2024	6.10 [88.40]
	11 September 2024	6.73 [87.77]
	21 February 2025	6.61 [87.89]
BH2M	11 September 2024	6.09 [91.91]
	21 February 2025	6.11 [91.89]
BH2.1M	21 February 2025	13.84 [84.16]
BH4M	6 September 2024	3.70 [76.55]
	11 September 2024	7.18 [73.07]
	21 February 2025	3.45 [76.80]
BH4.1M	21 February 2025	3.35 [76.90]

3.5 Test Results

Five disturbed 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).

A summary of the soil test results is provided in **Table 3-4**.

Table 3-4 Summaries of Soil Laboratory Test Results

Test / Sample ID	BH1M_ 2.4-2.5	BH2M_ 1.5-1.95	BH3_ 0.8-0.9	BH4M_ 1.2-1.3	BH5_ 2.1-2.2
Borehole ID	BH101.1M	BH2M	BH3	BH4M	BH5
Sample Depth (mBEGL)	2.4-2.5	1.5-1.95	0.8-0.9	1.2-1.3	2.1-2.2
Unit	2	2	2	2	2
Material[1]	Residual Soil	Residual Soil	Residual Soil	Residual	Residual Soil
USCS Description	Silty Clay	Silty Clay	Silt Clay	Silt Clay	Silt Clay
Aggressivity					
Chloride Cl (ppm)	11	-	9.1	9.3	4.3
Sulfate SO_4 (ppm)	24	-	55	56	59
pH	5.4	-	4.5	4.5	5.2
Electrical Conductivity (µS/cm)	25	-	54	55	41
Atterberg Limits					
Moisture Content (%)	13.6	14.0	15.6	15.8	17.2
Liquid Limit (%)	-	27	-	-	-
Plastic Limit (%)	-	21	-	-	-
Plasticity Index (%)	-	6	-	-	-
Linear Shrinkage (%)	-	5.5	-	-	-

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

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:

- 'Non-aggressive' for buried concrete structural elements; and
- 'Non-Aggressive' for buried steel structural elements.

The Atterberg Limits result on the selected sample indicated that Unit 2 (Residual Soil) to be of low plasticity. However, further testing should be carried out to confirm plasticity of residual soils across the site.

One hundred eleven (111) 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 (Error! Reference source not found.) 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 3-5 Summary of UCS Test Results

Test / Sample ID	BH2.1_UCS	BH4.1_UCS	BH101
Depth (m BEGL)	16.78 – 17.0	11.68 – 11.88	14.08 – 14.28
Unit	4b	4b	4b

Test / Sample ID	BH2.1_UCS	BH4.1_UCS	BH101
	Class III Sandstone	Class III Sandstone	Class III Sandstone
Material Description	Sandstone	Sandstone	Sandstone
Uniaxial Compressive Strength (MPa)	42	24	19
Initial Moisture Content (%)	1.5	1.4	7.7
Moisture Content as Tested (%)	1.7	2.2	6.0
Dry Density (kg/m^3)	2530	2420	2280

A plot correlating the UCS test results with the neighbouring point load test results on the same rock are presented in **Plate 4**.

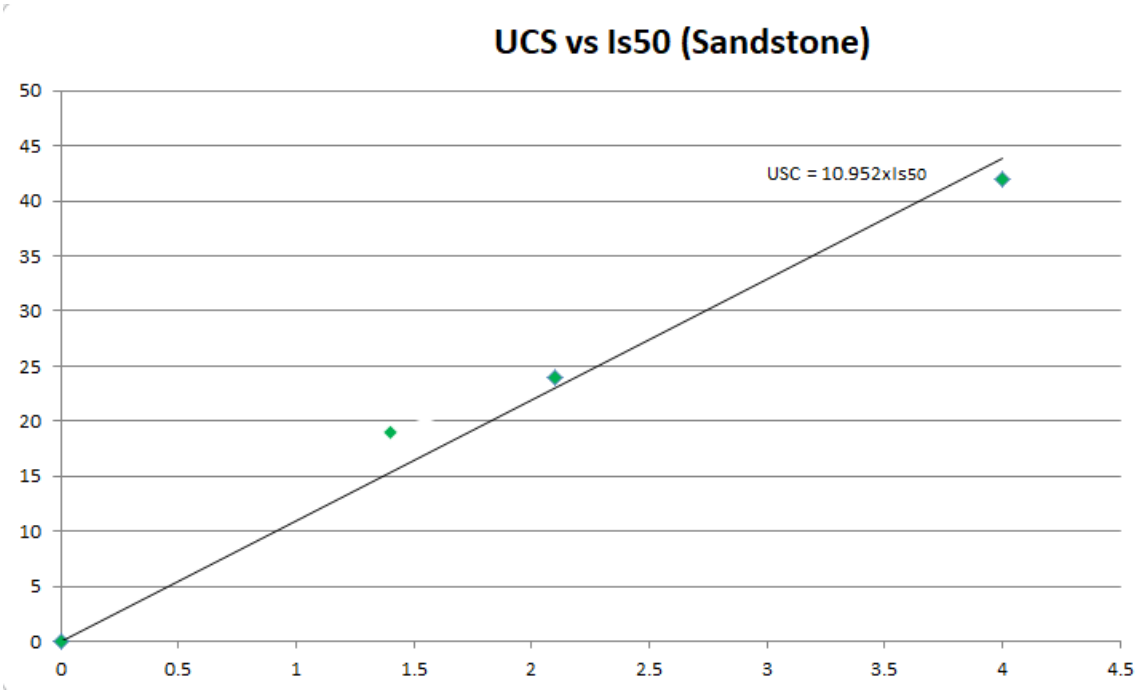

Plate 4 Correlation of UCS vs I_{s50}

As presented in **Plate 4** above, the correlation of UCS value to the point load strength index for sandstone at the site is UCS = 10.95 x Is_{50}. The approximate UCS of Unit 4b (Class III Sandstone), estimated from this correlation with the point load strength index test results, varied from 7 MPa to 60 MPa. It should be noted that the strength of Unit 4b varied with depth. Material within unit 4b has been classified as Class III sandstone, governed by defect spacing.

The strength of the material encountered across the site generally exceeds that expected. This will impact drillability, excavability, and productivity during bulk excavation works, which will need to be taken into consideration for plant selection and construction / excavation methodology

4. Recommendations

4.1 Geotechnical Considerations

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

- Basement excavation and retention;
- Rock excavation and vibration;
- 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 NSW Excavation Work Code of Practice, dated January 2020.

From documents provided by the client, EI understands that the basement is proposed to be seven levels in a stepped layout. EI assumes that the proposed development will require a BEL of ranging between RL 68.7m AHD to 80.9m AHD.

EI assumes excavation depths are to range from 10.0m (to the south-western of the site) to 20.0m (to the north-eastern of the site) to achieve the Bulk Excavation Level (BEL). Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches.

An engineered retention system must be installed prior to excavation commencing to support the overburden profile (Units 1 and 2), Shale Units (Unit 3a to Unit 3c) and Class IV Sandstone (Unit 4a).

Units 1 and 2 could be excavated using buckets of large earthmoving Hydraulic Excavators, particularly if fitted with ‘Tiger Teeth’ for excavations in Unit 3a (Class V/IV Shale). Excavation of Units 3a, 3b (Class III Shale) and 4a (Class IV Sandstone) 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. Such methods of excavation may be preferable for Unit 3c (Class II Shale), 4b (Class III Sandstone) and Unit 4c (Class II Sandstone).

Should rock hammers be used for the excavation of the bedrock, excavation should commence away from the adjoining structures and the transmitted vibrations monitored to assess how close the hammer can operate to the adjoining structures while maintaining transmitted vibrations within acceptable limits. To fall within these limits, we recommend that the size of rock

hammers do not exceed a medium sized rock hammer, 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 shale and sandstone, we recommend that initial saw cutting of the excavation perimeters through the bedrock may be provided using rock saw attachments fitted to the excavator. Rock sawing of the excavation perimeter has several advantages as it often reduces the need for rock bolting as the cut faces generally remain more stable and require a lower level of rock support than hammer cut excavations, ground vibrations from rock saws are minimal and the saw cuts will provide a slight increase in buffer distance for use of rock hammers. However, the effectiveness of such approach must be confirmed by the results of vibration monitoring.

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 should be taken in the following sequence:

- Before commencing installation of retaining structures where appropriate to determine the baseline readings. Two independent sets of measurements must be taken confirming measurement consistency;
- After installation of the retaining structures, but before commencement of excavation;
- After excavation to the first row of supports or anchors, but prior to installation of these supports or anchors;
- After excavation to any subsequent rows of supports or anchors, but prior to installation of these supports or anchors;
- After excavation to the base of the excavation;
- After de-stressing and removal of any rows of supports or anchors; and
- One month after completion of the permanent retaining structure or after three consecutive measurements not less than a week apart showing no further movements, whichever is the latter.

4.4 Groundwater Considerations

Groundwater was observed in all monitoring wells as detailed in **Table 3-3**, which are above the assumed BEL of the site.

EI note that based on the measured water level being within the shale/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 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 where seepage rates are relatively low. This is subject to long term groundwater monitoring and rising head (pump-out) testing to be undertaken in the installed wells.

For a drained basement, drainage should be provided behind all basement retaining/shoring 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. We recommend that monitoring of seepage be implemented during the excavation works to confirm the capacity of the drainage system.

Council and WaterNSW normally do not allow permanent dewatering and the basement may be required to be designed as a tanked structure. 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 Temporary Batters

Temporary batters may be constructed where room for full batter heights are available, and where temporary batters are excavated to a maximum batter height of 4m. Temporary batters may be constructed at a safe batter angle of 1V:1H for all Units provided that the batter faces are protected from wetting and drying. Steeper batter angles may exist for all Units provided that geotechnical modelling is first carried out to confirm batter stability. Unit 4b and 4c may be cut vertically provided that geotechnical inspections are carried out by a suitably qualified geotechnical professional during excavation to confirm that the material is of Class III Sandstone of better, and that adverse jointing of rock does not exist. Inspections of vertical excavations must be carried out at 1.5m depth intervals.

4.5.2 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. A suitable retention system will be required for the support Unit 1 (Fill) to Unit 4a (Class IV Sandstone). For this site, EI recommends an anchored and/or propped soldier pile wall with reinforced shotcrete panels in between the piles. Any anchors, props or reinforced shotcrete panels must be installed progressively as excavation proceeds.

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. Relatively large capacity piling rigs will be required for drilling through higher strength sandstone and shale bedrock, where present. 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.

4.5.3 Shoring 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.
- For a drained basement design, measures are to be taken to provide complete and permanent drainage behind the walls. Strip drains protected with a non-woven geotextile fabric should be used behind the reinforced shotcrete infill panels for soldier pile walls;
- For piles embedded into Unit 3b (Class III Shale) to Unit 4c (Class II Sandstone), 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 Unit 3b (Class III Shale) to Unit 4c (Class II Sandstone). For such anchor design, the allowable bond stress values outlined in **Table 4-1** below may be used, subject to the following conditions:
  - 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;
  - Overall stability, including anchor group interaction, is satisfied;
  - All anchors should be proof loaded to at least 1.3 times the design working load before locking off at about 80% of their working load. Such proof loading is to be witnessed by a suitably qualified geotechnical professional 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 a 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 design, specification and installation with appropriate insurances; and
  - If permanent anchors are to be used, these must have appropriate corrosion provisions for longevity.

Table 4-1 Geotechnical Design Parameters

Material [1]	Soils		Shale			Sandstone		
	Unit 1 Fill	Unit 2 Residual Soil	Unit 3a Class V/IV Shale	Unit 3b Class III Shale	Unit 3c Class II Shale	Unit 4a Class IV Sandstone	Unit 4b Class III Sandstone	Unit 4c Class II Sandstone
Bulk Unit Weight (kN/m^3)	16	17	23	23	24	24	24	24
Friction Angle, ϕ' (°)	27	24	28	35	40	35	40	45
Effective Cohesion, C' (kPa)	-	5	15	50	500	50	200	500
Young's Modulus, E' (MPa)	5	10	50	300	1000	300	1000	2000
Earth Pressure at rest, K_o [3]	0.58	0.58	0.58	0.43	0.36	0.43	-	-
Active Earth Pressure, K_a [3]	0.41	0.41	0.41	0.27	0.22	0.27	-	-
Passive Earth Pressure, K_p [3]	2.46	2.46	2.46	3.69	4.60	3.69	-	-
Allowable Bearing Pressure (kPa) [5]	-	-	700	1500	3500	1500	3500	6000
Allowable Shaft Adhesion in Compression (kPa)	-	-	70	150	350	150	350	600
Allowable Shaft Adhesion in Uplift (kPa)	-	-	35	75	175	75	175	300
Allowable Toe Resistance (kPa)	-	-	-	300	300	300	250	800
Allowable Bond Stress (kPa)	-	-	-	200	200	200	350	600
Earthquake Site Risk Classification	AS 1170.4:2007 indicates earthquake subsoil Class B_e.(Rock); AS 1170.4:2007 indicates the hazard factor (z) for Sydney is 0.08							

Note 1 More detailed descriptions of subsurface conditions are available on the borehole logs in Appendix A.
Note 2 Approximate levels of top of unit at the time of our investigation. Levels may vary across the site.
Note 3 Earth pressures are provided on the assumption that the ground behind the retaining walls is horizontal.

Note 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.

Note 5 To adopt these parameters we have assumed that:

a. Footings have a nominal socket of at least 0.3m, into the relevant founding material;
b. For piles, there is intimate contact between the pile and foundation material (a clean socket roughness category of R2 or better);
c. Potential soil and groundwater aggressivity will be considered in the design of piles and footings;
d. 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;
e. 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;
f. The concrete is poured on the same day as drilling, inspection and cleaning.

Note 6 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, EI expect that Units 4a (Class IV Sandstone) to Unit 4c (Class II Sandstone) to be exposed at BEL, see **Figure 3**. However, Unit 2 (Residual Soil) may be encountered above Unit 4b near BEL as presented in BH102 in **Table 3-2**.

Design of foundations at BEL should consider the geotechnical design parameters presented in **Table 4-1** above. It is recommended that all footings for the building be founded within bedrock of comparable bearing capacities and elastic moduli to provide uniform support and reduce the potential for differential settlements between footings. Shallow footings founded within Unit 3b and 4a may be designed for an allowable bearing capacity of 1500 kPa. Shallow footings founded within Unit 3c and Unit 4a may be designed for an allowable bearing capacity of 3500 kPa. Shallow footings founded within Unit 4c may be designed for an allowable bearing capacity of 6000 kPa. Such allowable bearing capacities are based on serviceability.

Footings located within or near shear zones may require overexcavation or piling to extend foundations away from rock of reduced quality. Footings should be inspected to confirm the locations of any such geological features across BEL.

Footings within Unit 4c (Class II Sandstone) and that are designed for an allowable bearing capacity of 6000 kPa should have spoon testing carried out to confirm defect spacing and percentage of seams.

Footings founded at or near a crest of an excavation, including detailed excavations of adjacent footings, should be founded below the zone of influence of the lower excavation. The zone of influence may be taken as a line drawn at 1 Vertical to 1 Horizontal from the base of the lower excavation. For footings within Unit 4b (Class III Sandstone) / Unit 4c (Class II Sandstone) and that are located within the zone of influence of adjacent excavations, the bearing capacity of Unit 4b and 4c should be reduced by 50%. The reduction in bearing capacity accounts for edge loading of the sandstone. Geotechnical inspections should be carried out by a suitably qualified geotechnical professional to confirm that no adverse jointing of rock will lead to instability of such footings.

EI note that signs of Valley Bulging have been observed within BH4M, this may result in variable foundation levels across the BEL (as observed within the boreholes) and contingency for lower bearing capacities and deeper footings should be allowed for.

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. Due to the variable nature of the rock conditions, potential for Valley Bulging and presence of shear zones / fault lines, we recommend that ALL foundations at BEL are inspected by a suitably qualified geotechnical professional.

The aggressivity of natural soils and groundwater (if encountered) should be taken into consideration in the design to assess exposure classification to steel and concrete structures.

5. Further Geotechnical Inputs

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

- Additional Geotechnical Investigations in the form of four cored boreholes to confirm the depth and quality of bedrock between existing borehole locations;
- Aggressivity testing for buried concrete and steel structures;
- Long term groundwater monitoring and seepage modelling;
- Stability assessment of temporary batters using computer modelling, if required;
- Dilapidation surveys for all neighbouring structures and assets;
- Classification of all excavated material transported off site;
- Witnessing installation of support measures and proof-testing of anchors, if required.
- Geotechnical inspections of all rock faces exposed, if any, during excavation by an experienced geotechnical professional at excavation depths of no greater than 1.5m within medium to high strength bedrock. This includes material exposed between shoring piles, if exposed;
- 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 Wayne Xiong and Aqualand Prestige 2 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 Wayne Xiong and Aqualand Prestige 2 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 E** 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.

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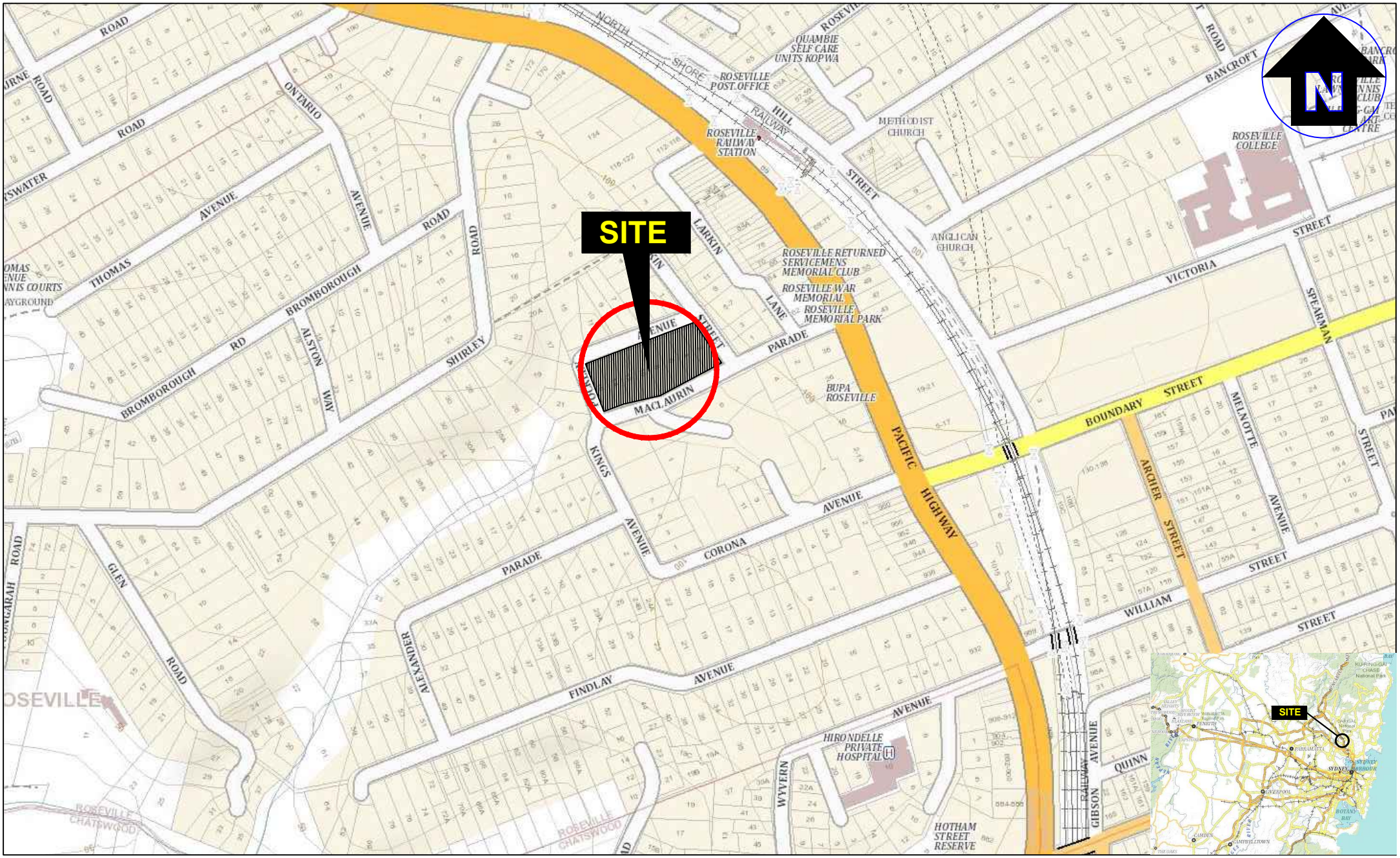
Abbreviations

AHD	Australian Height Datum
AS	Australian Standard
BEL	Bulk Excavation Level
BEGL	Below Existing Ground Level
BH	Borehole
DBYD	Dial Before You Dig
DCP	Dynamic Cone Penetrometer
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:	J.B.
Date:	31-03-25
Scale:	Not To Scale

Aqualand Prestige 2 Pty Ltd

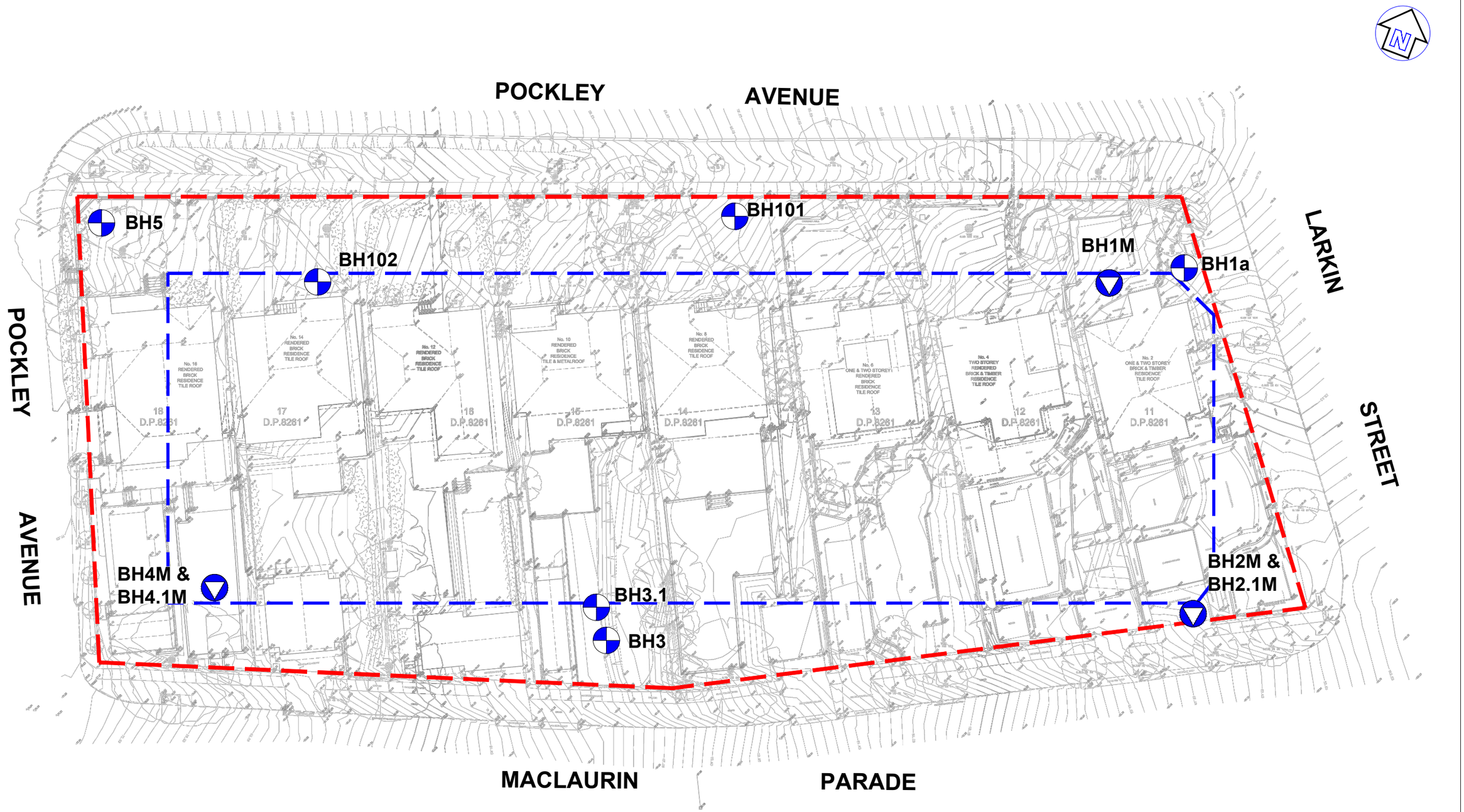
Geotechnical Investigation

Site B, 2-16 Pockley Avenue, Roseville NSW

Site Locality Plan

Figure: 1

Project: E26491.G03_Rev1



Map Source: Rygate&Company Pty Ltd - Reference No. 80598, Sheet 2-7 of 7, Revision. A, Dated 3 September 2024

LEGEND (All Locations are Approximate)

- Site boundary
- Basement outline
- Borehole location
- Monitoring well location

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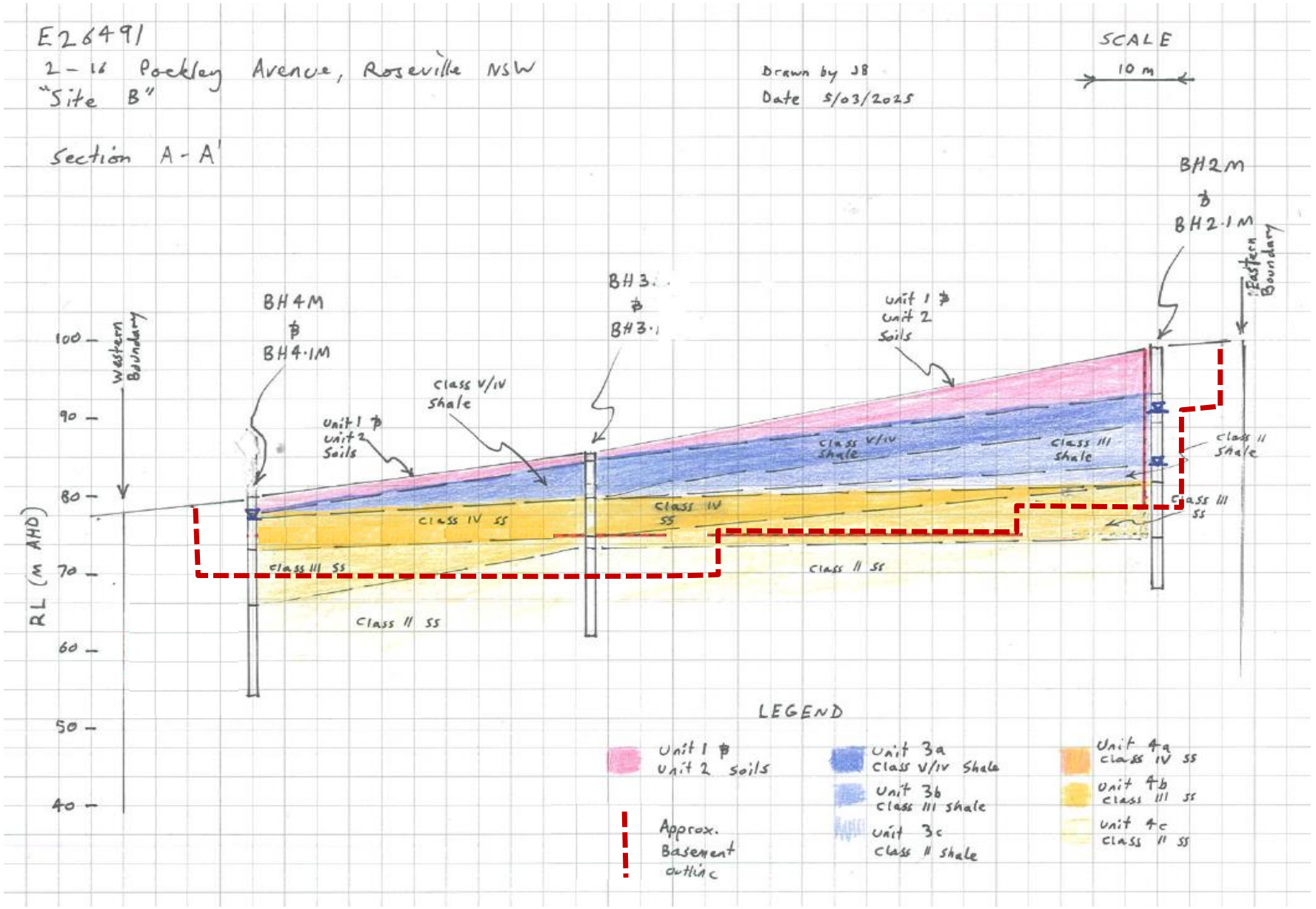
Aqualand Prestige 2 Pty Ltd
Geotechnical Investigation
Site B, 2-16 Pockley Aveue, Roseville, NSW

Borehle Location Plan

Figure: 2

Project: E26491.G03_Rev1



eiaustralia Contamination | Remediation | Geotechnical Suite 6.01, 55 Miller Street, PYRMONT 2009 Ph. (02) 9516 0722 Fax (02) 9518 5088	Drawn:	JB	**Aqualand Prestige 2 Pty Ltd** Geotechnical Investigation Site B, 2-16 Pockley Avenue, Roseville NSW Section Through Borehole Locations 2, 3 & 4	Figure: **3** Project: E26491.G03_Rev2
	Approved:	JB		
	Date:	16/04/2025		

Appendix A Borehole Logs And Explanatory Notes

BOREHOLE LOG

BH ID: BH1M

Location	Site B, 2-16 Pockley Avenue Roseville	**Started**	23 August 2024
Client	Aqualand Prestige 2 Pty Ltd	**Completed**	26 August 2024
Job No.	E26491.G03	**Logged By**	GP **Date** 26 August 2024
Sheets	1 of 2	**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈94.80 m (AHD)
Plant	Hand Portable Rig	**Inclination**	90°
Northing	6260071.3470 (MGA 2020 Zone 56)		
Easting	331170.4570 (MGA 2020 Zone 56)		

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	DCP BLOWS	MATERIAL ORIGIN & OBSERVATIONS
HA	GWNE	BH1M_2.40-2.50		0.00		94.80	FILL: Silty CLAY: dark grey, with rootlets, tiles, brick pavers, concrete	M	-	2, 1, 2, 10/80mm	FILL
				1.50		93.30	Silty CLAY: high plasticity, pale grey, grading in to weathered rock with depth	M < PL	-		RESIDUAL SOIL
				2.53		92.27	*Log continued on next page.*				

BOREHOLE CORE LOG

BH ID: BH1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	23 August 2024
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	26 August 2024
Job No.	E26491.G03			**Logged By**	GP **Date** 26 August 2024
Sheets	2 of 2			**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈94.80 m (AHD)	**Northing**	6260071.3470 (MGA 2020 Zone 56)
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	331170.4570 (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.*				
NMLC	80-70%	100	0	2.76		92.04	Silty CLAY: high plasticity, pale grey, grading into weathered rock.	RS			
							LAMINITE: dark grey, red-brown, siltstone interbedded with shale, very thinly bedded to thinly bedded, with ironstaining	HW		2.81-2.88: FS 2.91-2.94: FS 3.01: JT 80° PR VR 3.05-3.10: FS 3.20: JT 80° PR RO SN 3.28: JT 30-0° CU RO SN	
										3.58: JT 50° CU VR SN 3.70: JT 50° ST VR SN	
		100	0	4						4.10: JT 80° IR VR 4.20-4.21: XWS Clay Infilled 4.32-4.33: XWS Clay Infilled 4.49-4.50: XWS Clay Infilled 4.52: JT 70° IR VR Clay Infilled	
				5						4.75-4.76: XWS Fe SN 4.82: JT 75° IR VR 4.88: JT 10° ST VR SN 5.02: JT 20° PR RO CL 5.08: JT 60° PR VR Fe SN 5.12-5.20: FS 5.12: JT 50° PR VR Fe SN 5.35: JT 5° CU RO SN 5.52: JT 80° PR VR Fe SN 5.57: JT 45° PR VR Fe SN 5.74: JT 5-45° CU VR Fe SN 5.80: JT 20° CU VR Clay Infilled	
		100	0	6				DW		6.52: JT 30° PR CL 6.56: JT 55° PR CL 6.76: JT 20° ST VR SN 6.78: JT 0-20° IR VR SN 6.88: JT 0° ST VR	
		100	18	7						7.22: JT 20° PR Fe SN 7.26: JT 0° ST VR Fe SN 7.29: JT 0° ST VR CN 7.33: JT 10° PR RO Fe SN 7.37: JT 40° PR Fe SN 7.42: JT 35° CU CL 7.70: JT 65° PR VR 7.78: JT CU Clay Infilled 7.98: JT 90° PR SM CN	
				8						8.33: JT 0° ST VR SN 8.35: JT 45° PR Fe SN	
		100	0	9						8.66: JT 10° ST VR 8.71: JT 35° PR RO 9.04: JT 75° PR CL 9.11: JT 80° PR CL 9.51: JT 90° PR CL	
				10		85.13	Terminated at 9.67m. Target Depth Reached.				

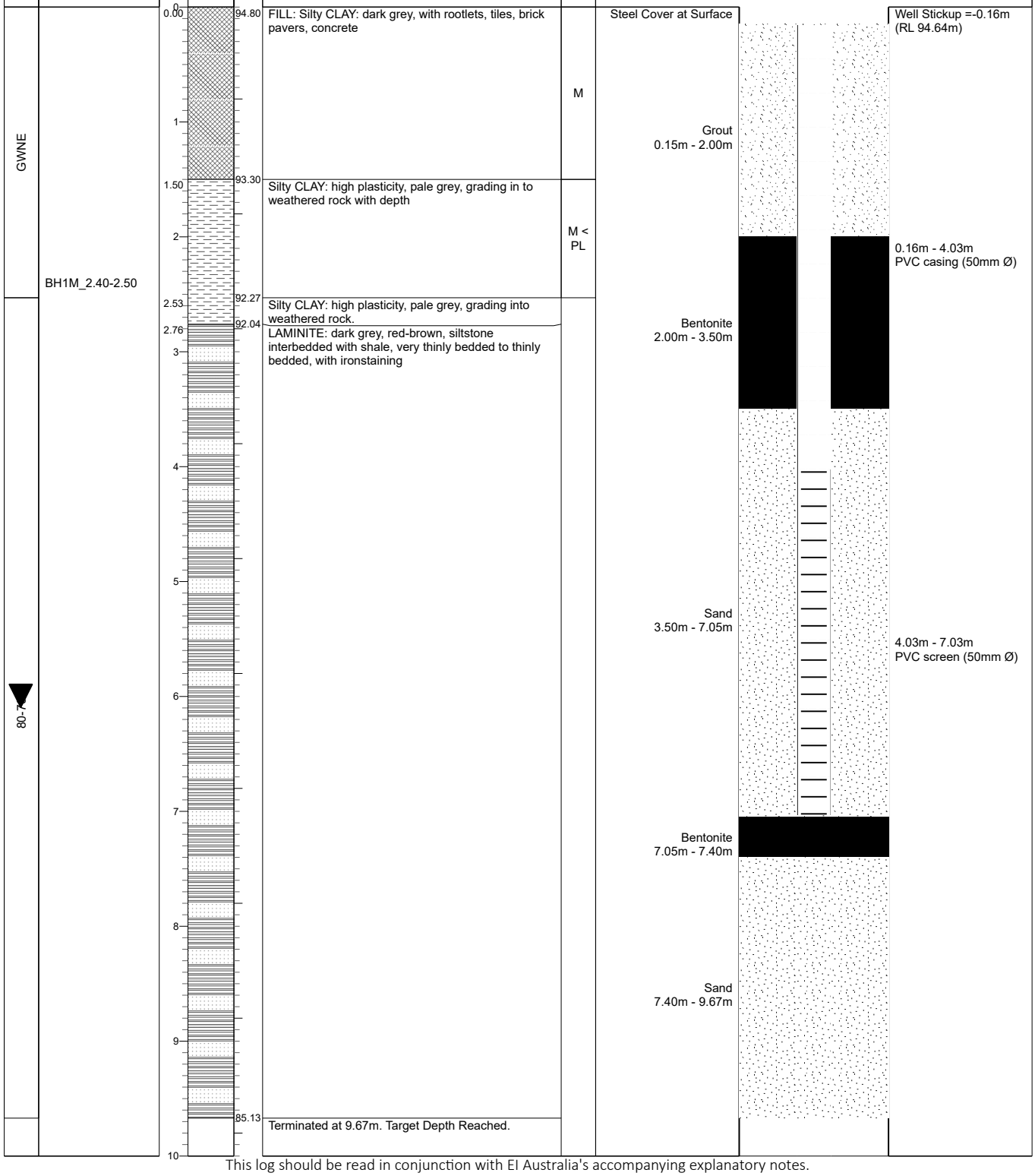
This log should be read in conjunction with EI Australia's accompanying explanatory notes.

MONITORING WELL LOG

BH ID: BH1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	23 August 2024	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	26 August 2024	
Job No.	E26491.G03			**Logged By**	GP	**Date**	26 August 2024
Sheets	1 of 1			**Review By**	AC	**Date**	06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈94.80 m (AHD)	**Northing**	6260071.3470 (MGA 2020 Zone 56)	
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	331170.4570 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
GWNE	BH1M_2.40-2.50	0.00	94.80	FILL: Silty CLAY: dark grey, with rootlets, tiles, brick pavers, concrete	M
		1.50	93.30	Silty CLAY: high plasticity, pale grey, grading in to weathered rock with depth	M < PL
		2.53	92.27	Silty CLAY: high plasticity, pale grey, grading into weathered rock.	
		2.76	92.04	LAMINITE: dark grey, red-brown, siltstone interbedded with shale, very thinly bedded to thinly bedded, with ironstaining	
		9.67	85.13	Terminated at 9.67m. Target Depth Reached.	



CORE PHOTOGRAPH OF BOREHOLE: BH1M

Project	Proposed Development	**East**	331179.6865 (MGA 2020 Zone 56)	**Depth Range**	2.53m to 9.67m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260054.9201 (MGA 2020 Zone 56)	**Contractor**	Tight Site Pty Ltd		
Position	See Figure 2	**Surface RL**	94.80	**Drill Rig**	Hand Portable		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	GP	**Date**	23/8/24
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1&2 of 2	**Checked**	AC	**Date**	5/9/24

BOREHOLE LOG

BH ID: BH1a

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	03 December 2024	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	04 December 2024	
Job No.	E26491.G03			**Logged By**	DS	**Date**	04 December 2024
Sheets	1 of 3			**Review By**	JB	**Date**	14 February 2025
Drilling Contractor	Macquarie Geotech	**Surface RL**	≈95.60 m (AHD)	**Northing**	6260068.0340 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 305	**Inclination**	90°	**Easting**	331177.1700 (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				0.00		95.60	TOPSOIL: Silty SAND: fine to medium grained, brown, with rootlets	M		TOPSOIL
				0.50		95.10	Silty CLAY: medium plasticity, red-brown, extremely weathered material	M > PL		RESIDUAL SOIL
				2.00				D		
RR	GWNE			2.78		92.82	LAMINITE: pale grey / red-brown, distinctly weathered, very low strength, with low strength bands and clay seams.	-	-	BEDROCK
				4.40		91.20	From 4.40m, dark grey / red-brown, low strength, distinctly weathered, with ironstaining			
				7.40		88.20	From 7.40m, grey / dark grey, medium strength, slightly weathered			
				9.43		86.17	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH1a

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	03 December 2024	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	04 December 2024	
Job No.	E26491.G03			**Logged By**	DS	**Date**	04 December 2024
Sheets	2 of 3			**Review By**	JB	**Date**	14 February 2025
Drilling Contractor	Macquarie Geotech	**Surface RL**	≈95.60 m (AHD)	**Northing**	6260068.0340 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 305	**Inclination**	90°	**Easting**	331177.1700 (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							
				9							
	95% Polymer			10			LAMINITE: grey / dark grey, laminated to very thinly bedded		▼		

BOREHOLE CORE LOG

BH ID: BH1a

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	03 December 2024	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	04 December 2024	
Job No.	E26491.G03			**Logged By**	DS	**Date**	04 December 2024
Sheets	3 of 3			**Review By**	JB	**Date**	14 February 2025
Drilling Contractor	Macquarie Geotech	**Surface RL**	≈95.60 m (AHD)	**Northing**	6260068.0340 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 305	**Inclination**	90°	**Easting**	331177.1700 (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)
HQ	95% Polymer	100	100	11			LAMINITE: grey / dark grey, laminated to very thinnly bedded				
				12							
		100	96	13				FR		13.35: JT 75° PR SM CN	
										13.80: JT 60-75° PR SM CN	
				14						14.30: JT 15-45° ST SM CN 14.36: JT 15-20° PR SM CN 14.40: JT 10° PR SM Clay VN 14.45: JT 5° PR SM CN 14.65: JT PR RO Clay VN 14.82: JT PR RO Clay VN	
				15							
		100	100	16						15.75: JT PR RO Clay VN 15.77-15.78: XWS	
										16.19-16.20: XWS	
										16.42-16.43: XWS 16.55: JT 15° PR RO Clay VN	
				17		78.60	Terminated at 17.00m. Target depth reached.				
				18							
				19							
				20							

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

CORE PHOTOGRAPH OF BOREHOLE: BH1a

Project	Proposed Development	**East**	331177.700 (MGA 2020 Zone 56)	**Depth Range**	9.43m to 17.0m		
Location	Site B, 2-16 Pockley Avenue Roseville	**North**	6260068.034 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	95.60	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	DS	**Date**	
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1of 1	**Checked**	JB	**Date**	06/03/25

BOREHOLE LOG

BH ID: BH2M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	26 August 2024	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	26 August 2024	
Job No.	E26491.G03			**Logged By**	PS	**Date** 26 August 2024
Sheets	1 of 3			**Review By**	AC	**Date** 06 September 2024
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7620 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4250 (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	BH2M_0.50-0.95 SPT 0.50-0.95 3,3,6 N=9		0.00 0.08		98.00 97.92	CONCRETE: 80mm thick FILL: Gravelly CLAY: low plasticity, brown to dark grey with gravel	-	-	CONCRETE FILL
				0.90		97.10	CLAY: medium to high plasticity, pale grey	M ≈ PL	St	RESIDUAL SOIL
		BH2M_1.50-1.95 SPT 1.50-1.95 7,8,19 N=27		1.55		96.45	From 1.55m, becoming friable, low to medium plasticity			
				1.90 2		96.10	From 1.90m, grading to extremely weathered shale		VSt	
		BH2M_3.00-3.09 SPT 3.00-3.09 5/90 mm HB N=R		3				M < PL		
				4					-	
				4.40		93.60	*Log continued on next page.*			
				5						
				6						
				7						
				8						
				9						
				10						

BOREHOLE CORE LOG

BH ID: BH2M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	26 August 2024
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	26 August 2024
Job No.	E26491.G03			**Logged By**	PS **Date** 26 August 2024
Sheets	2 of 3			**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7620 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4250 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
				0		*Log continued from previous page.*				
NMLC	95% GWNE	100	37	5.26	92.74	Silty CLAY: medium to high plasticity, pale grey with very low to low strength claystone.	XW		5.15: XWS RO Clay VN	
						CLAYSTONE: grey to pale grey with very thin laminations of siltstone	HW - DW		5.80: XWS RO Clay VN 6.57-6.62: XWS RO Clay VN 7.43-7.46: CS VR Infilled 7.66-7.74: CZ 7.78-7.80: CS 7.93: JT 15° SM Clay VN 8.02-8.07: CS VR Infilled 8.13-8.19: FS SM CL 8.29: JT 5° RO Fe SN	
		100	40	8.23	89.77	LAMINITE: pale grey	SW		8.55: JT 10° CU SM Fe SN 8.84: JT 5° RO Fe SN 9.12: JT 45° PR RO CN 9.24: JT 30° RO Fe SN	
							DW		9.49: JT 30° PR RO SN 9.58-9.60: SS VR CN 9.66-9.68: SS	

BOREHOLE CORE LOG

BH ID: BH2M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	26 August 2024
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	26 August 2024
Job No.	E26491.G03			**Logged By**	PS **Date** 26 August 2024
Sheets	3 of 3			**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7620 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4250 (MGA 2020 Zone 56)

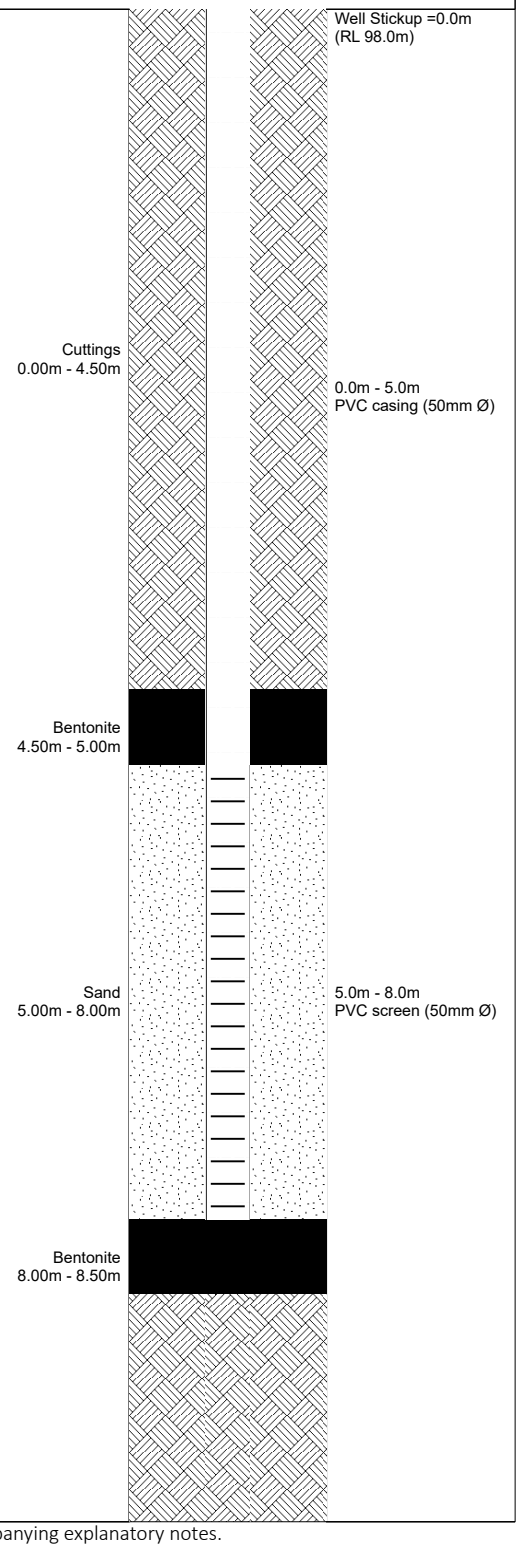
METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
	95% GWNE	100	59	11			LAMINITE: pale grey			9.94: JT 30° PR RO CN 10.04: XWS VR OP 10.35: JT 30° PR RO CN	
				12				SW		11.68: JT 20° CU RO CN 11.86-11.89: FS VR CL 12.05: JT 0-45° ST RO VN 12.15-12.21: CS	
		100	89	12.50		85.50	SILTSTONE: pale grey			12.40-12.45: SS 50° SM OP 12.42: JT 45° PR RO CN 12.65: JT 30° PR RO CN	
				13						13.06: JT 45° SM CN 13.27: JT 30° CU RO CN 13.33: JT 80-10° CU RO CN	
				14				SW - FR			
				15						14.67: JT 45° CU RO VN	
						82.60	Terminated at 15.40m. Target Depth Reached.				
				16							
				17							
				18							
				19							
				20							

MONITORING WELL LOG

BH ID: BH2M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	26 August 2024
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	26 August 2024
Job No.	E26491.G03			**Logged By**	PS **Date** 26 August 2024
Sheets	1 of 2			**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7620 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4250 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
		0.00	98.00	CONCRETE: 80mm thick	-
		0.08	97.92	FILL: Gravelly CLAY: low plasticity, brown to dark grey with gravel	M ≈ PL
	BH2M_0.50-0.95 SPT 0.50-0.95 3,3,6 N=9	0.90	97.10	CLAY: medium to high plasticity, pale grey	
	BH2M_1.50-1.95 SPT 1.50-1.95 7,8,19 N=27	1.55	96.45	From 1.55m, becoming friable, low to medium plasticity	M < PL
		1.90	96.10	From 1.90m, grading to extremely weathered shale	
	BH2M_3.00-3.09 SPT 3.00-3.09 5/90 mm HB N=R				
		4.40	93.60	Silty CLAY: medium to high plasticity, pale grey with very low to low strength claystone.	
GWNE		5.26	92.74	CLAYSTONE: grey to pale grey with very thin laminations of siltstone	
		8.23	89.77	LAMINITE: pale grey	



MONITORING WELL LOG

BH ID: BH2M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	26 August 2024	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	26 August 2024	
Job No.	E26491.G03			**Logged By**	PS	**Date**	26 August 2024
Sheets	2 of 2			**Review By**	AC	**Date**	06 September 2024
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7620 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4250 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
GWNE		11		LAMINITE: pale grey		Cuttings 8.50m - 15.40m	
		12					
		12.50	85.50	SILTSTONE: pale grey			
		13					
		14					
		15					
			82.60	Terminated at 15.40m. Target Depth Reached.			
		16					
		17					
		18					
		19					
		20					

CORE PHOTOGRAPH OF BOREHOLE: BH2M

Project	Proposed Development	**East**	33192.4250 (MGA 2020 Zone 56)	**Depth Range**	4.40m to 15.4m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260034.7620 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	98.0	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	26/8/24
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1 of 1	**Checked**	AC	**Date**	5/9/24

BOREHOLE LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025	
Job No.	E26491.G03			**Logged By**	PS	**Date** 13 January 2025
Sheets	1 of 5			**Review By**	JB	**Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (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		98.00	CONCRETE: 80mm thick	-		CONCRETE
				0.08		97.92	FILL: Sandy CLAY: medium plasticity, dark grey to brown with small gravels			FILL
				0.80		97.20	Silty CLAY: medium plasticity, pale grey			RESIDUAL SOIL
AD/T	GWNE			1				M ≈ PL		
				2						
				2.50		95.50	From 2.50m, becoming friable with fragments of shale			
				3						
				4		94.00	*Log continued on next page.*			
				4.00						
				5						
				6						
				7						
				8						
				9						
				10						

BOREHOLE CORE LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 13 January 2025
Sheets	2 of 5			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (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.*				
				4			SHALE: Inferred shale, extremely weathered				
				5.26		92.74	SHALE: No description due to drilling method				

BOREHOLE CORE LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 13 January 2025
Sheets	3 of 5			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (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
				11			SHALE: No description due to drilling method				
				12							
				13							
				14							
				15		82.97					
				15.03			SILTSTONE: grey with thin pale grey sandstone laminations				
		100	96	16						15.80: JT 5° PR SM OP 15.96-16.16: FZ 5-45° IR VR OP	
				16.42		81.58	SANDSTONE: fine grained, pale grey with medium, dark grey siltstone beddings				
	70%			17				SW		17.40: JT 10° PR RO OP	
				18						18.40: JT 10° PR SM OP	
		100	95	19						19.10: FS 5° PR VR Infilled 19.27: JT 5° PR SM OP 19.42-19.50: FS 45° IR VR Infilled 19.65-19.68: XWS 5° PR VR Clay Infilled	
	0%			20							

BOREHOLE CORE LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 13 January 2025
Sheets	4 of 5			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (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	0%			21			SANDSTONE: fine grained, pale grey with medium, dark grey siltstone beddings			20.15: XWS 5° PR RO Clay Infilled 20.19: JT 0° PR RO OP	
										20.70: JT 5° PR RO OP	
										21.08: JT 5° PR RO OP 21.13: JT 5° PR RO OP	
										21.58: JT 20° PR RO OP	
		100	97	21.90 22		76.10	From 21.90m, becoming medium grained				
										22.34: JT 5° PR RO OP 22.39: JT 5° PR RO OP	
										22.80: JT 5° PR RO OP	
				23							
				24							
				25							
	20%	100	100	26				FR		26.32: JT 10° PR RO OP 26.52: JT 5° PR RO OP	
				27							
				28						28.45: JT 10° PR RO OP	
		100	100							28.90: JT 40° PR RO SN	
				29							
				30						29.80: JT 10° IR RO SN	

BOREHOLE CORE LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 13 January 2025
Sheets	5 of 5			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (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
						67.95	From 21.90m, becoming medium grained Terminated at 30.05m. Target Depth Reached.				

MONITORING WELL LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025	
Job No.	E26491.G03			**Logged By**	PS	**Date**	13 January 2025
Sheets	1 of 4			**Review By**	JB	**Date**	14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
GWNE		0.00	98.00	CONCRETE: 80mm thick	-	Cuttings 0.00m - 10.00m	Well Stickup =0.0m (RL 98.0m)
		0.08	97.92	FILL: Sandy CLAY: medium plasticity, dark grey to brown with small gravels			
		0.80	97.20	Silty CLAY: medium plasticity, pale grey			
		2.50	95.50	From 2.50m, becoming friable with fragments of shale	M ≈ PL		
		4.00	94.00	SHALE: Inferred shale, extremely weathered			
		5.26	92.74	SHALE: No description due to drilling method			0.0m - 12.0m PVC casing (50mm Ø)

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

MONITORING WELL LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025	
Job No.	E26491.G03			**Logged By**	PS	**Date** 13 January 2025
Sheets	2 of 4			**Review By**	JB	**Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
		11			SHALE: No description due to drilling method	
		12				
		13				
		14				
		15		82.97		
		15.03			SILTSTONE: grey with thin pale grey sandstone laminations	
		16				
		16.42		81.58	SANDSTONE: fine grained, pale grey with medium, dark grey siltstone beddings	
70%		17				
		18				
		19				
0%		20				

BACKFILL DETAILS

Bentonite
10.00m - 11.50m

Sand
11.50m - 18.00m

Bentonite
18.00m - 18.50m

STANDPIPE DETAILS

12.0m - 18.0m
PVC screen (50mm Ø)

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

MONITORING WELL LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025	
Job No.	E26491.G03			**Logged By**	PS	**Date** 13 January 2025
Sheets	3 of 4			**Review By**	JB	**Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
0%					SANDSTONE: fine grained, pale grey with medium, dark grey siltstone beddings			
		21						
		21.90		76.10	From 21.90m, becoming medium grained			
		22						
		23						
		24					Cuttings 18.50m - 30.05m	
		25						
20%		26						
		27						
		28						
		29						
		30						

MONITORING WELL LOG

BH ID: BH2.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	13 January 2025	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	13 January 2025	
Job No.	E26491.G03			**Logged By**	PS	**Date** 13 January 2025
Sheets	4 of 4			**Review By**	JB	**Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈98.00 m (AHD)	**Northing**	6260034.7860 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331192.4370 (MGA 2020 Zone 56)	

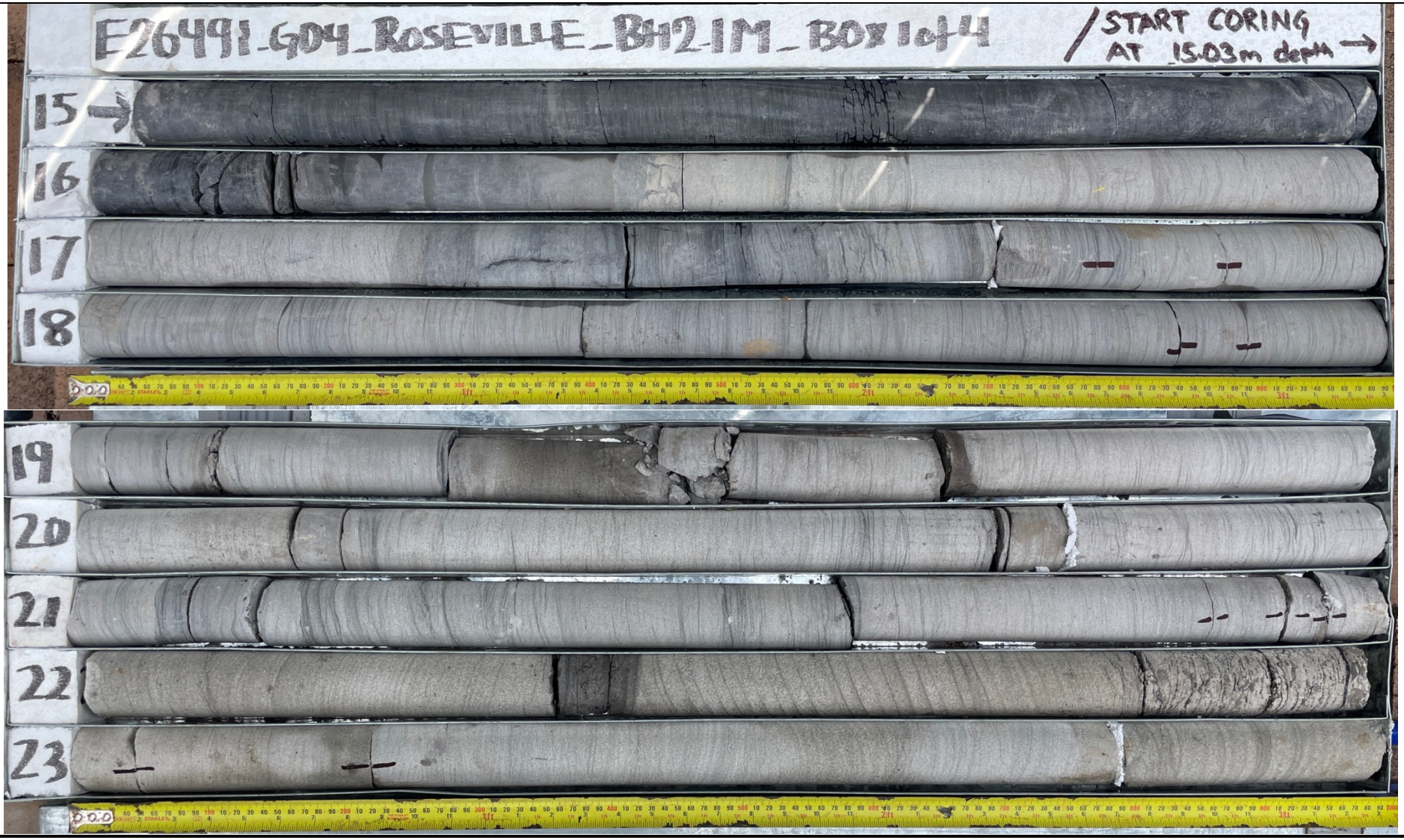
WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
				67.95	As above, SANDSTONE Terminated at 30.05m. Target Depth Reached.			

31 32 33 34 35 36 37 38 39 40

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

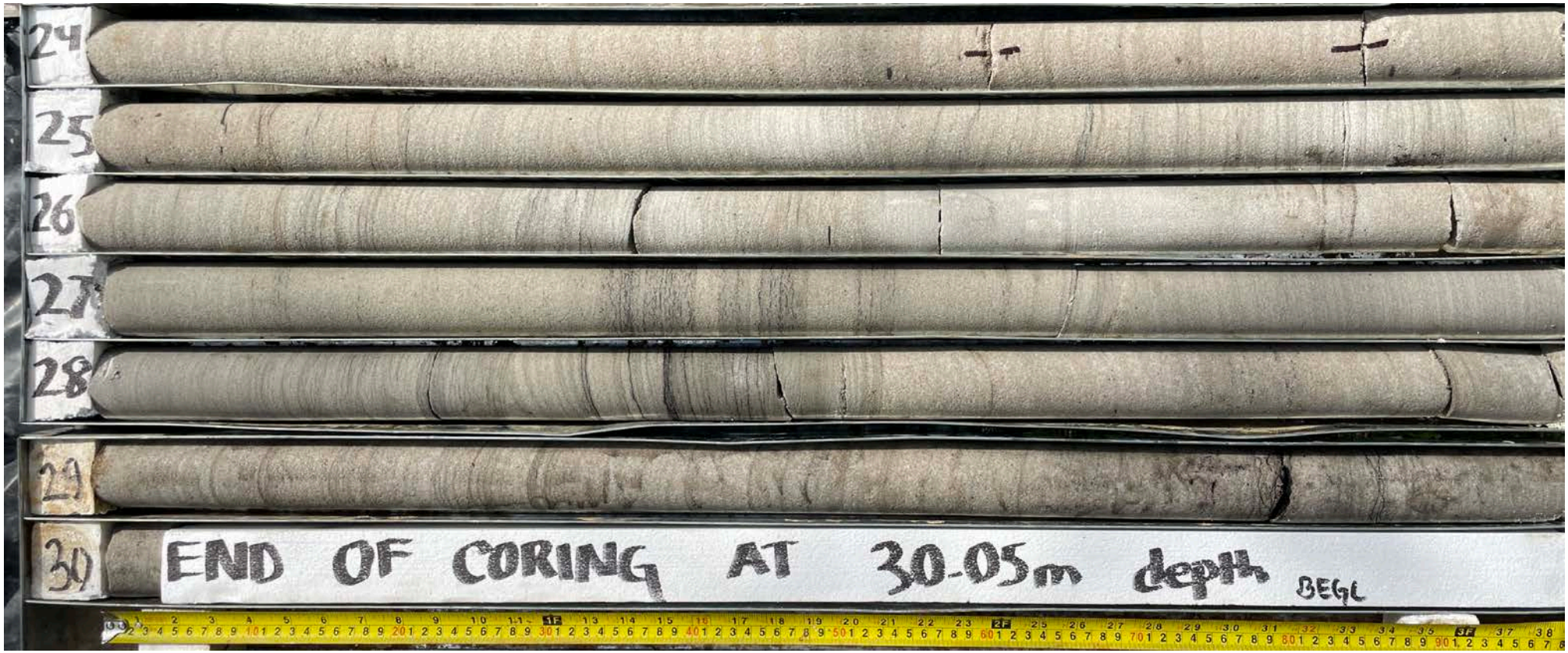
CORE PHOTOGRAPH OF BOREHOLE: BH2.1M

Project	Proposed Development	**East**	331192.4370 (MGA 2020 Zone 56)	**Depth Range**	15.03 to 30.05m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260034.7860 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	98.10	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	13/01/2025
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1 of 2	**Checked**	JB	**Date**	06/03/25



CORE PHOTOGRAPH OF BOREHOLE: BH2.1M

Project	Proposed Development	**East**	331192.4370 (MGA 2020 Zone 56)	**Depth Range**	15.03 to 30.05m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260034.7860 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	98.10	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	13/01/2025
Client	Aqualand Prestige 2 Pty Ltd	**Box**	2 of 2	**Checked**	JB	**Date**	06/03/25



BOREHOLE LOG

BH ID: BH3

Location	Site B, 2-16 Pockley Avenue Roseville	**Started**	22 August 2024
Client	Aqualand Prestige 2 Pty Ltd	**Completed**	23 August 2024
Job No.	E26491.G03	**Logged By**	GP **Date** 23 August 2024
Sheets	1 of 2	**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈86.60 m (AHD)
Plant	Hand Portable Rig	**Inclination**	90°
Northing	6260002.9149 (MGA 2020 Zone 56)		
Easting	331132.6459 (MGA 2020 Zone 56)		

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	DCP BLOWS (0 5 10 15 20 25 30)	MATERIAL ORIGIN & OBSERVATIONS
HA	GWNE	BH3_0.80-0.90		0.00		86.60	FILL: Silty CLAY: dark grey, with rootlets trace medium grained sand	M	-	2, 2, 2, 4, 3, 5	FILL
				0.60		86.00	Silty CLAY: medium plasticity, orange, mottled red, with trace of indurated ironstained gravels.	M > PL	St	3, 4, 3, 4, 3, 8/60mm	RESIDUAL SOIL
				1.35		85.25	*Log continued on next page.*				

BOREHOLE CORE LOG

BH ID: BH3

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	22 August 2024
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	23 August 2024
Job No.	E26491.G03			**Logged By**	GP **Date** 23 August 2024
Sheets	2 of 2			**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260002.9149 (MGA 2020 Zone 56)
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	331132.6459 (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.*				
NMLC	80%	100	0	1			SHALE: dark grey, red-brown, very thinly bedded	XW - HW		1.60-1.63: XWS Clay 1.69-1.76: CS SN 1.78: JT 0° IR SL	
		100	0	2						2.00-2.06: XWS Clay 2.11: JT 0° CU SL CN 2.21: JT 0° ST SM CN 2.30-2.33: XWS Clay	
		100	0	3						2.60-2.63: XWS Fe SN 2.80-3.00: XWS Clay	
		100	0	4						3.23: JT 70° UN CL 3.30-3.39: XWS Clay VN	
		91	0	5						3.59-3.60: XWS Clay VN 3.68-3.85: SZ CL	
		95	0	5.43		81.17				3.93-3.96: CS 4.00-4.06: CS SN 4.08: JT 0-70° ST SM SN 4.12-4.17: XWS Clay 4.21-4.26: CS Clay Infilled 4.26-4.51: XWZ Clay VN 4.51-4.55: XWS 4.74-5.36: XWZ Clay VN	
		100	0	6			SILTSTONE: orange, grey, very thinly to thinly bedded, with iron staining	SW		5.71: JT 70° IR CL 5.74: JT 0° IR VR SN 5.77-5.78: CS SN 5.88-5.90: XWS Clay 5.95-5.98: CS Clay Infilled 6.18-6.19: XWS 6.24: JT 5° CU RO Clay Infilled 6.34-6.39: XWS Clay Infilled 6.54: JT 70° PR CL 6.56: JT 15° PR RO Infilled 6.63-6.64: XWS SN 6.75-6.79: CS SN 6.98-7.00: CS SN 7.02-7.04: XWS 7.12: JT 0-30° UN VR CN 7.20-7.21: XWS Clay Infilled	
		100	72	7							
		100	88	7.34		79.26	SANDSTONE: fine to medium grained, grey, medium bedded, with siltstone laminations.	FR			
				8							
				9							
				9.23		77.37	Terminated at 9.23m. Target Depth Reached.				
				10							

CORE PHOTOGRAPH OF BOREHOLE: BH3

Project	Proposed Development	**East**	331132.6459(MGA 2020 Zone 56)	**Depth Range**	1.35m to 9.23m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260002.914(MGA 2020 Zone 56)	**Contractor**	Tight Site Pty Ltd		
Position	See Figure 2	**Surface RL**	86.60	**Drill Rig**	Hand Portable		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	GP	**Date**	22/8/24
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1&2 of 2	**Checked**	AC	**Date**	5/9/24

BOREHOLE LOG

BH ID: BH3.1

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	14 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	14 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 14 January 2025
Sheets	1 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260009.3200 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331134.3520 (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	BH3.1M_0.50-0.95 SPT 0.50-0.95 3,4,4 N=8		0 0.00		86.60	FILL: Sandy SILT: low to medium plasticity, pale grey to brown with rootlets	M ≈ PL	-	FILL
				0.90		85.70	Silty CLAY: medium to high plasticity, pale brown to red brown		F - H	RESIDUAL SOIL
				1.20		85.40	From 1.20m, becoming pale grey, friable, trace of shale fragments			
				1.35		85.25	*Log continued on next page.*			
				2						
				3						
				4						
				5						
				6						
				7						
				8						
				9						
				10						

BOREHOLE CORE LOG

BH ID: BH3.1

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	14 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	14 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 14 January 2025
Sheets	2 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260009.3200 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331134.3520 (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			SHALE: Inferred shale				
				2							
				3							
				4							
				5							
				5.43		81.17	SILTSTONE: Inferred siltstone				
				6							
				7							
				7.58		79.02	SILTSTONE: dark grey with iron stained beddings and pale grey sandstone lamination			~~7.58-7.91: FZ 5-20° PR VR SN~~	
				7.72		78.88	SANDSTONE: fine to medium grained, pale grey with planar dark grey siltstone beddings				
	95%	100	60	8				DW		8.08-8.30: SZ 30° IR RO OP 8.63-8.83: FZ 5-20° IR VR Iron stained SN 9.10: JT 5° PR RO OP 9.35: JT 5° PR RO OP 9.43: JT 10° PR RO OP 9.54-9.66: FZ 5-10° PR RO OP 9.84: JT 5° PR RO OP	
				9							
				10							

BOREHOLE CORE LOG

BH ID: BH3.1

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	14 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	14 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 14 January 2025
Sheets	3 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260009.3200 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331134.3520 (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	97	11			SANDSTONE: fine to medium grained, pale grey with planar dark grey siltstone beddings	SW - FR		9.96: JT 5° PR RO OP 10.49: JT 5° PR RO OP 10.73: JT 5° PR RO OP 10.79: JT 10° PR RO OP 11.30: JT 5° PR RO CL 11.40: JT PR RO OP 11.70: JT 5° PR RO SN 11.90: JT 5° PR RO OP	
		100	99	12						12.67: JT 15° PR RO OP 12.78: JT 5° PR RO OP 12.92: JT 5° PR VR OP 13.34: JT 5° PR RO OP 13.69: JT 5° PR RO OP 14.44: JT 5° PR RO OP	
		100	99	16				FR		16.86: JT 2° PR RO OP 17.84: JT 2° PR RO SN 18.14: JT 5° PR RO OP	
		100	100	19						19.08: XWS 10° PR RO Clay VN	

BOREHOLE CORE LOG

BH ID: BH3.1

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	14 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	14 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 14 January 2025
Sheets	4 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260009.3200 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331134.3520 (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)
WB	95%	100	100	21			SANDSTONE: fine to medium grained, pale grey with planar dark grey siltstone beddings		▼ H	20.50: JT 10° PR RO OP	
				22					▼ H		
				23					▼ H		
				24		62.40			▼ H	23.92: XWS 5° PR RO Clay VN 24.10: JT 15° PR RO OP	
				25			Terminated at 24.20m. Target Depth Reached.				
				26							
				27							
				28							
				29							
				30							

CORE PHOTOGRAPH OF BOREHOLE: BH3.1M

Project	Proposed Development	**East**	331134.3520 (MGA 2020 Zone 56)	**Depth Range**	7.58m to 24.2m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260009.3200 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	86.60	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	14/01/25
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1 of 2	**Checked**	JB	**Date**	06/03/25

CORE PHOTOGRAPH OF BOREHOLE: BH3.1M

Project	Proposed Development	**East**	331134.3520 (MGA 2020 Zone 56)	**Depth Range**	7.58m to 24.2m		
Location	**Site B,** 2 – 16 Pockley Street, Roseville	**North**	6260009.320 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	86.60	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	14/01/25
Client	Aqualand Prestige 2 Pty Ltd	**Box**	2 of 2	**Checked**	JB	**Date**	06/03/25

BOREHOLE LOG

BH ID: BH4M

Location	Site B, 2-16 Pockley Avenue Roseville	**Started**	27 August 2024
Client	Aqualand Prestige 2 Pty Ltd	**Completed**	27 August 2024
Job No.	E26491.G03	**Logged By**	GP **Date** 27 August 2024
Sheets	1 of 2	**Review By**	AC **Date** 06 September 2024

Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.7256 (MGA 2020 Zone 56)
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	331098.3968 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	DCP BLOWS (0 5 10 15 20 25 30)	MATERIAL ORIGIN & OBSERVATIONS
HA	GWNE	BH4M_1.20-1.30		0.00		80.25	FILL: Sandy SILT: dark grey, with medium grained sand, rootlets, concrete fragments, brick	M	-	1, 4, 3, 7, 4, 7	FILL
				0.70		79.55	Silty CLAY: low plasticity, mottled red, orange trace of sand and indurated ironstained gravels.	M > PL	St	4, 4, 5, 3, 5, 4, 9/20mm	RESIDUAL SOIL
				1.51		78.74	*Log continued on next page.*				

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

BOREHOLE CORE LOG

BH ID: BH4M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	27 August 2024
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	27 August 2024
Job No.	E26491.G03			**Logged By**	GP **Date** 27 August 2024
Sheets	2 of 2			**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.7256 (MGA 2020 Zone 56)
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	331098.3968 (MGA 2020 Zone 56)

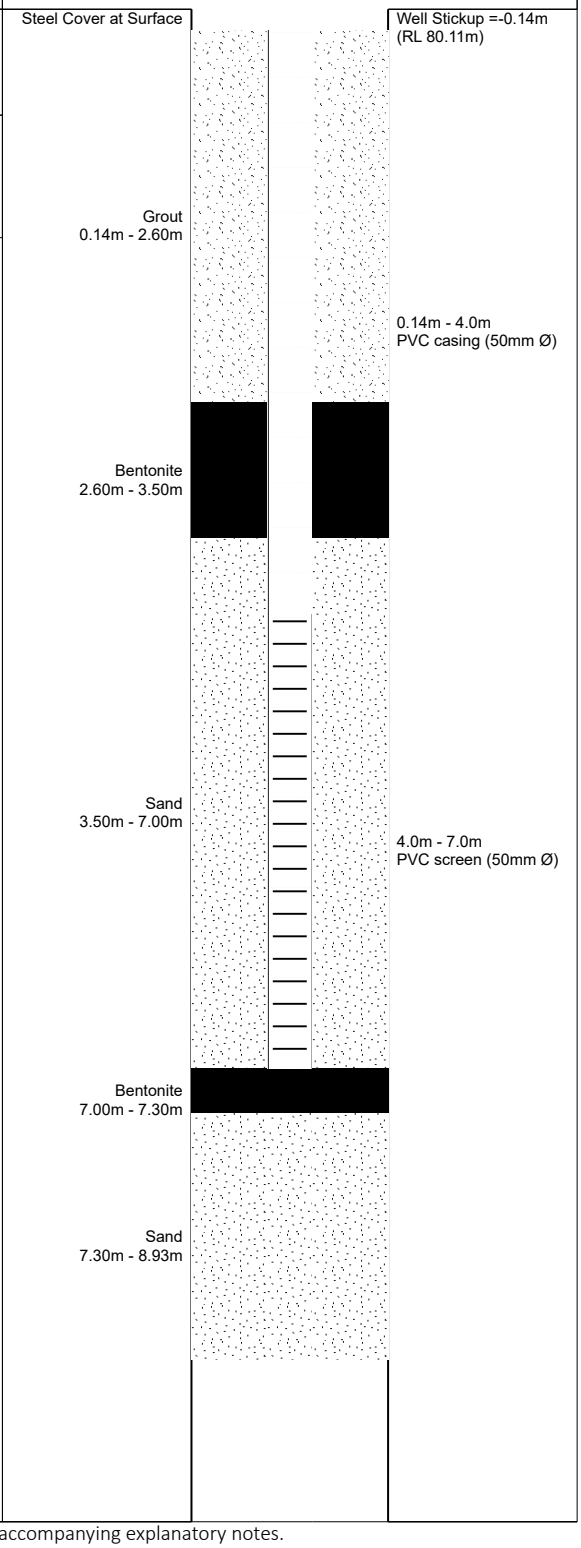
METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
				0			*Log continued from previous page.*				
				1							
NMLC	90-80%	100	0	2			SANDSTONE: fine to medium grained, red-brown, orange, grey, very thinly bedded, with ironstaining.	HW		1.59-1.69: XWZ Clay 1.83-2.10: XWZ Silt, clay	
		100	0	3				SW		2.98-3.08: SZ 3.13: JT 20° ST Silt CL 3.25: JT 0-70° ST VR 3.67: JT PR RO VN 3.87-3.91: FS 4.03-4.12: FS	
		100	0	4						4.23-4.29: SS 4.34-4.35: XWS Silt Infilled 4.50: JT 0-75° IR VR SN 4.87-4.92: XWS Silt and clay 4.97-5.06: XWS Silt	
		100	0	5						5.33-5.36: XWS Clay Infilled 5.46: JT IR RO 5.52-5.55: XWS	
		100	59	6						5.97-6.03: XWS Clay Infilled 6.11-6.12: XWS Clay Infilled 6.26: JT 0-80° UN RO CN	
				7				HW		6.55: JT 20° PR VR Extremely weathered seam Infilled 6.66-6.99: XWZ Fe SN 6.67: JT 75° PR VR Fe SN 6.99-7.02: XWS Clay Infilled	
		100	93	7.33		72.92	SANDSTONE: fine to medium grained, grey, medium bedded.	FR		8.45: JT 80° IR VR	
				9		71.32	Terminated at 8.93m. Target Depth Reached.				
				10							

MONITORING WELL LOG

BH ID: BH4M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	27 August 2024
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	27 August 2024
Job No.	E26491.G03			**Logged By**	GP **Date** 27 August 2024
Sheets	1 of 1			**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.7256 (MGA 2020 Zone 56)
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	331098.3968 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
GWNE	BH4M_1.20-1.30	0.00	80.25	FILL: Sandy SILT: dark grey, with medium grained sand, rootlets, concrete fragments, brick	M
		0.70	79.55	Silty CLAY: low plasticity, mottled red, orange trace of sand and indurated ironstained gravels.	M > PL
		1.51	78.74	SANDSTONE: fine to medium grained, red-brown, orange, grey, very thinly bedded, with ironstaining.	
90-80%		7.33	72.92	SANDSTONE: fine to medium grained, grey, medium bedded.	
		9	71.32	Terminated at 8.93m. Target Depth Reached.	



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

CORE PHOTOGRAPH OF BOREHOLE: BH4M

Project	Proposed Development	**East**	331098.3968 (MGA 2020 Zone 56)	**Depth Range**	1.51m to 8.93m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6259991.7256 (MGA 2020 Zone 56)	**Contractor**	Tight Site Pty Ltd		
Position	See Figure 2	**Surface RL**	80.25	**Drill Rig**	Hand Portable		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	GP	**Date**	27/8/24
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1&2 of 2	**Checked**	AC	**Date**	5/9/24

BOREHOLE LOG

BH ID: BH4.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	15 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	15 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 15 January 2025
Sheets	1 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.8429 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331099.9372 (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			0.00		80.25	FILL: Gravelly CLAY: low to medium plasticity, medium gravel, dark grey to brown with rootlets	M ≈ PL	-	FILL
				0.50		79.75	Silty CLAY: medium to high plasticity, pale brown to reddish brown			RESIDUAL SOIL
				1.00		79.25	From 1.00m, grading to extremely weathered sandstone			
				1.00			SANDSTONE: extremely weathered to silghty weathered, no further description due to drilling method			
				1.51		78.74	SANDSTONE: Inferred sandstone			
RR				7.30		72.95	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH4.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	15 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	15 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 15 January 2025
Sheets	2 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.8429 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331099.9372 (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							
	80% GWNE	100	100	8			SANDSTONE: medium grained, pale grey with dark grey planar siltstone bedding	FR			
				8.54		71.71	NO CORE: 100mm thick	-		8.64-8.67: CS IR VR SN	
				8.64		71.61	SANDSTONE: medium grained, pale grey to planar dark grey siltstone bedding				
				9							
				10						9.80: JT 10° PR RO SN	

BOREHOLE CORE LOG

BH ID: BH4.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	15 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	15 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 15 January 2025
Sheets	3 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.8429 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331099.9372 (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	80% GWNE	97	96	11			SANDSTONE: medium grained, pale grey to planar dark grey siltstone bedding		▼	10.63: JT 5° PR RO CL	
										11.15: JT 2° PR RO SN	
										11.40: JT 5° PR RO OP	
		100	99	12				SW	▼		
									▼		
				13						13.22: JT 10° PR RO OP	
				13.33		66.92	From 13.33m, very thin bedding of dark grey siltstone			13.33-13.40: FS IR VR Infilled	
				13.70		66.55	SANDSTONE: medium grained, pale grey with planar dark grey siltstone bedding		▼	13.70: XWS 2° PR VR Clay VN	
		100	100	14							
				15						15.41: JT 5° PR RO OP	
									▼		
				16					▼		
								FR			
				17						16.98: XWS 2° PR RO Clay VN	
									▼		
		100	100	18						18.23: JT 30° PR RO SN	
										18.36: XWS 2° PR RO Clay VN	
									▼		
				19						18.80: JT 2° PR RO OP	
				20							

BOREHOLE CORE LOG

BH ID: BH4.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	15 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	15 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 15 January 2025
Sheets	4 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.8429 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331099.9372 (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)
	80% GWNE	100	100	21			SANDSTONE: medium grained, pale grey with planar dark grey siltstone bedding		▼	20.99: JT 2° PR RO OP	
				22					▼	21.70: JT 15° PR RO OP	
				23					▼	22.60: JT 5° PR SM OP	
		100	100	24					▼		
				25		54.90	Terminated at 25.35m. Target Depth Reached.				
				26							
				27							
				28							
				29							
				30							

MONITORING WELL LOG

BH ID: BH4.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	15 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	15 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 15 January 2025
Sheets	1 of 3			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.8429 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331099.9372 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
GWNE		0.00	80.25	FILL: Gravelly CLAY: low to medium plasticity, medium gravel, dark grey to brown with rootlets	M ≈ PL
		0.50	79.75	Silty CLAY: medium to high plasticity, pale brown to reddish brown	
		1.00	79.25	From 1.00m, grading to extremely weathered sandstone	
		1.00		SANDSTONE: extremely weathered to silghty weathered, no further description due to drilling method	
		1.51	78.74	SANDSTONE: Inferred sandstone	
		7.30	72.95	SANDSTONE: medium grained, pale grey with dark grey planar siltstone bedding	
GWNE		8.54	71.71	NO CORE: 100mm thick	
		8.64	71.61	SANDSTONE: medium grained, pale grey to planar dark grey siltstone bedding	

BACKFILL DETAILS

Cuttings
0.00m - 8.00m

Bentonite
8.00m - 8.50m

STANDPIPE DETAILS

Well Stickup =0.0m
(RL 80.25m)

0.0m - 9.0m
PVC casing (50mm Ø)

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

MONITORING WELL LOG

BH ID: BH4.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	15 January 2025	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	15 January 2025	
Job No.	E26491.G03			**Logged By**	PS	**Date**	15 January 2025
Sheets	2 of 3			**Review By**	JB	**Date**	14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.8429 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331099.9372 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
GWNE		11			SANDSTONE: medium grained, pale grey to planar dark grey siltstone bedding		Sand 8.50m - 15.00m	9.0m - 15.0m PVC screen (50mm Ø)
		12						
		13						
		13.33		66.92	From 13.33m, very thin bedding of dark grey siltstone			
		13.70		66.55	SANDSTONE: medium grained, pale grey with planar dark grey siltstone bedding			
		14						
		15						
		16					Bentonite 15.00m - 16.00m	
		17						
		18						
		19						
		20						

MONITORING WELL LOG

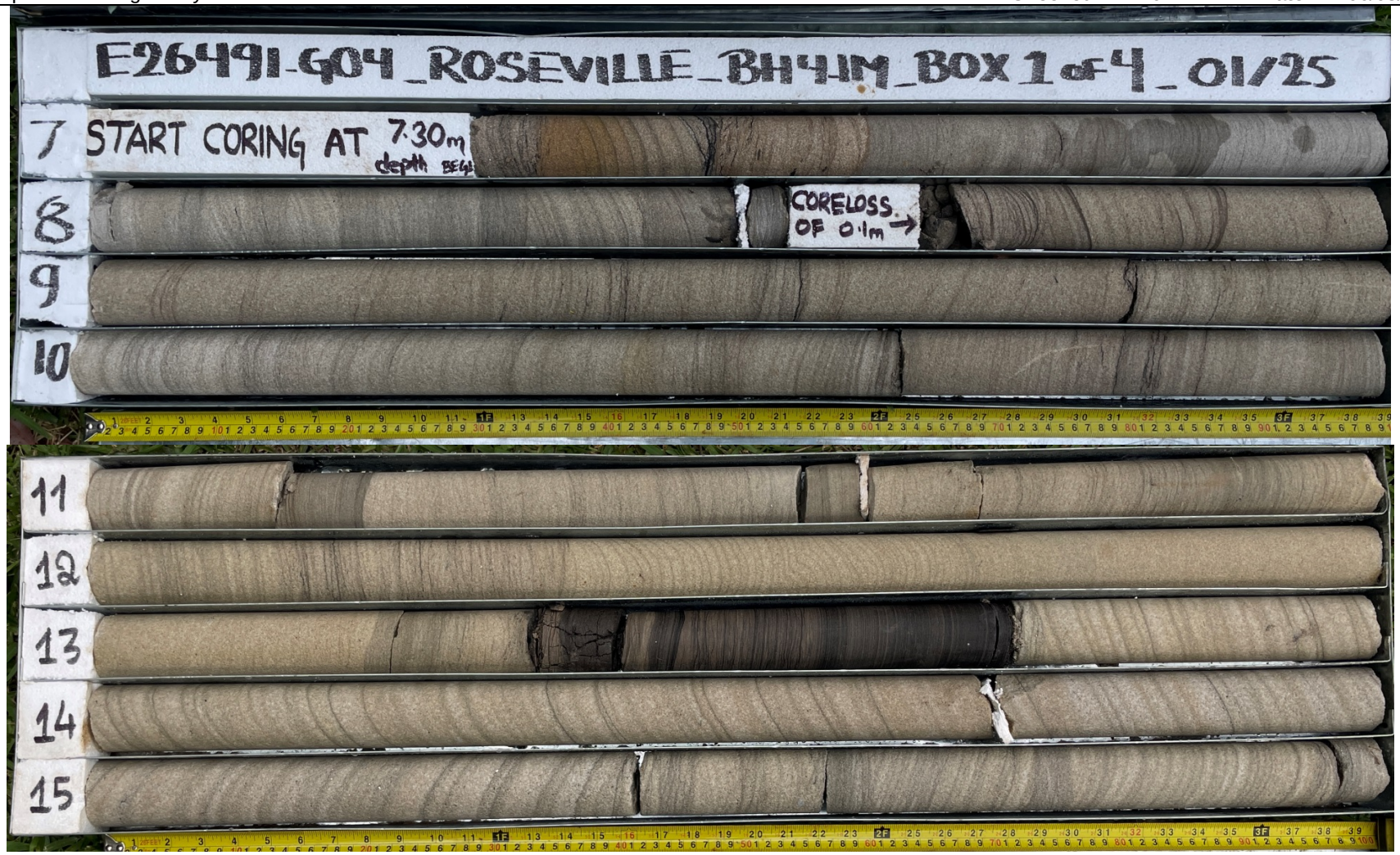
BH ID: BH4.1M

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	15 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	15 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 15 January 2025
Sheets	4 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.25 m (AHD)	**Northing**	6259991.8429 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331099.9372 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
GWNE		21			SANDSTONE: medium grained, pale grey with planar dark grey siltstone bedding		Cuttings 16.00m - 25.35m	
		22						
		23						
		24						
		25						
				54.90	Terminated at 25.35m. Target Depth Reached.			
		26						
		27						
		28						
		29						
		30						

CORE PHOTOGRAPH OF BOREHOLE: BH4.1M

Project	Proposed Development	**East**	331099.9372 (MGA 2020 Zone 56)	**Depth Range**	7.30m to 25.35m		
Location	**Site B,** 2 – 16 Pockley Street, Roseville	**North**	6259991.8429 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	80.25	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	15/01/25
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1 of 2	**Checked**	JB	**Date**	06/03/25



CORE PHOTOGRAPH OF BOREHOLE: BH4.1M

Project	Proposed Development	**East**	331099.9372 (MGA 2020 Zone 56)	**Depth Range**	7.30m to 25.35m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6259991.8429 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	80.25	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	15/01/25
Client	Aqualand Prestige 2 Pty Ltd	**Box**	2 of 2	**Checked**	JB	**Date**	06/03/25

BOREHOLE LOG

BH ID: BH5

Location	Site B, 2-16 Pockley Avenue Roseville	**Started**	28 August 2024
Client	Aqualand Prestige 2 Pty Ltd	**Completed**	28 August 2024
Job No.	E26491.G03	**Logged By**	GP **Date** 28 August 2024
Sheets	1 of 2	**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈78.20 m (AHD)
Plant	Hand Portable Rig	**Inclination**	90°
Northing	6260031.6290 (MGA 2020 Zone 56)		
Easting	331067.6230 (MGA 2020 Zone 56)		

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	DCP BLOWS (0 5 10 15 20 25 30)	MATERIAL ORIGIN & OBSERVATIONS
HA	GWNE	BH5_1.40-1.60		0.00		78.20	FILL: Silty CLAY: dark grey, with rootlets and medium grained sand	M	-	3, 4, 2, 5, 3, 4, 2, 2, 1	FILL
				1.40		76.80	Silty CLAY: low plasticity, orange	M < PL	St	2, 4, 5, 4, 4, 4, 5, 4, 6, 5, 4, 5, 5, 8, 12/50mm	RESIDUAL SOIL
		BH5_2.10-2.20		2.30		75.90	From 2.30m, medium to high plasticity, mottled red, orange, with indurated iron stained gravels.	M ≈ PL			
				2.80		75.40	From 2.80m, grading into weathered rock with depth.				
				3.00		75.20	*Log continued on next page.*				

BOREHOLE CORE LOG

BH ID: BH5

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	28 August 2024
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	28 August 2024
Job No.	E26491.G03			**Logged By**	GP **Date** 28 August 2024
Sheets	2 of 2			**Review By**	AC **Date** 06 September 2024
Drilling Contractor	Tightsite Geotechnical & Environmental Drilling	**Surface RL**	≈78.20 m (AHD)	**Northing**	6260031.6290 (MGA 2020 Zone 56)
Plant	Hand Portable Rig	**Inclination**	90°	**Easting**	331067.6230 (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.*				
				1							
				2							
		100	0	3			Silty CLAY: mottled red, orange, with indurated ironstained gravels				
				3.48		74.72	Sandy CLAY: low plasticity, pale grey, orange, fine grained sand				
		100	0	4							
				4.36		73.84	NO CORE: 280mm thick	RS			
				4.64		73.56	From 4.64m, orange, with occasional bands of ironstained low strength sandstone.				
		100	0	5							
NMLC	80%			5.85		72.35	SANDSTONE: fine to medium grained, orange				
				6							
				6.04		72.16	From 6.04m, pale grey, medium to thickly bedded.				
		100	97	7							
				8				FR			
		100	100	9		69.27	Terminated at 8.93m. Target Depth Reached.				
				10							

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

CORE PHOTOGRAPH OF BOREHOLE: BH5

Project	Proposed Development	**East**	331067.6230 (MGA 2020 Zone 56)	**Depth Range**	3.0m to 8.93m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260031.6290 (MGA 2020 Zone 56)	**Contractor**	Tight Site Pty Ltd		
Position	See Figure 2	**Surface RL**	78.2	**Drill Rig**	Hand Portable		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	GP	**Date**	27/8/24
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1 of 1	**Checked**	AC	**Date**	5/9/24

BOREHOLE LOG

BH ID: BH101

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	17 January 2025	
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	17 January 2025	
Job No.	E26491.G03			**Logged By**	PS	**Date** 17 January 2025
Sheets	1 of 4			**Review By**	JB	**Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260046.7119 (MGA 2020 Zone 56)	
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331128.9804 (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	▷ ▷ ▷			0.00		86.60	FILL: Sandy CLAY: medium plasticity, dark grey to dark brown with rootlets, No odour	M ≈ PL	-	FILL
				0.70		85.90	Silty CLAY: high plasticity, reddish brown to brown, No odour			RESIDUAL SOIL
				2.00		84.60	From 2.00m, becoming red brown to pale grey			
				2.80		83.80	From 2.80m, becoming friable with fragments of shale			
				7.30		79.30	From 7.30m, becoming extremely weathered			
				8.45		78.15	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH101

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	17 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	17 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 17 January 2025
Sheets	2 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260046.7119 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331128.9804 (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.*				
	90%	100	99	9			SANDSTONE: fine to medium grained, pale grey with dark grey planar siltstone bedding	SW		8.86-8.89: CS 5° PR VR Infilled 9.35-9.37: FS 5° PR RO OP 9.84: JT 5° PR RO SN	

BOREHOLE CORE LOG

BH ID: BH101

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	17 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	17 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 17 January 2025
Sheets	3 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260046.7119 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331128.9804 (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	90%	100	100	11			SANDSTONE: fine to medium grained, pale grey with dark grey planar siltstone bedding		▼ H	10.08: JT 2° PR SM SN 10.27: JT 10° PR RO SN 10.41: XWS 15° PR VR SN	
				12					▼ H	11.96: JT 5° PR SM SN	
				13					▼ H	12.75: JT 2° PR SM SN	
				14					▼ H	13.71: JT 2° PR SM SN	
		100	98	15				FR	▼ H	14.58: JT 5° PR RO CL 14.76: JT 40° PR SM CL 14.90-14.95: FS 5° PR VR Infilled	
				16					▼ H		
				17					▼ H		
		100	98	18					▼ H	18.02: JT 5° PR SM CL	
				19					▼ H	19.07: JT 2° PR RO OP	
				20							

BOREHOLE CORE LOG

BH ID: BH101

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	17 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	17 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 17 January 2025
Sheets	4 of 4			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈86.60 m (AHD)	**Northing**	6260046.7119 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331128.9804 (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)
	90%	100	100	21			SANDSTONE: fine to medium grained, pale grey with dark grey planar siltstone bedding		H ▼ ▼	19.95-20.00: FS 5° PR VR Infilled 20.80: JT 40° PR RO OP	1000–3000
				22		64.60	Terminated at 22.00m. Target Depth Reached.				
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

CORE PHOTOGRAPH OF BOREHOLE: BH101

Project	Proposed Development	**East**	331128.9804 (MGA 2020 Zone 56)	**Depth Range**	8.45m to 22.0m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260046.7119 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	86.60	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	17/01/25
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1 of 2	**Checked**	JB	**Date**	06/03/25

CORE PHOTOGRAPH OF BOREHOLE: BH101

Project	Proposed Development	**East**	331128.9804 (MGA 2020 Zone 56)	**Depth Range**	8.45m to 22.0m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260046.7119 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	86.60	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	17/01/25
Client	Aqualand Prestige 2 Pty Ltd	**Box**	2 of 2	**Checked**	JB	**Date**	06/03/25

BOREHOLE LOG

BH ID: BH102

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	10 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	10 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 10 January 2025
Sheets	1 of 3			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.80 m (AHD)	**Northing**	6260040.1776 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331076.9665 (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	▽			0.00		80.80	TOPSOIL: Sandy CLAY: low to medium plasticity, dark brown to dark grey with rootlets and gravels			TOPSOIL
				1.00		79.80	Silty CLAY: medium plasticity, brown to red brown			RESIDUAL SOIL
				1.50		79.30	From 1.50m, trace iron stained gravels	M ≈ PL		
				2.00		78.80	From 2.00m, becoming pale grey to red brown			
				3.00		77.80	From 3.00m, becoming friable	M < PL - M ≈ PL	-	
				4.00		76.80	From 4.00m, increase in moisture content	W ≈ PL - W > PL		
				5.50		75.30	From 5.50m, becoming pale brown to brown, trace sand			
				6.00		74.80	From 6.00m, becoming pale grey trace fragments of siltstone	M < PL		
				6.56		74.24	*Log continued on next page.*			
				7						
				8						
				9						
				10						

BOREHOLE CORE LOG

BH ID: BH102

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	10 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	10 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 10 January 2025
Sheets	2 of 3			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.80 m (AHD)	**Northing**	6260040.1776 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331076.9665 (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.*				
	80%	100	93	7			SANDSTONE: fine to medium grained, pale grey with thin, dark grey planer siltstone bedding	SW		6.85: JT 20° PR RO SN 7.40: JT 10° PR RO SN 7.44: JT 5° PR RO SN 7.62: JT 5° PR RO VN 7.85: JT 5° PR RO VN 8.34: XWS 5° PR RO VN 8.52: JT 20° PR RO OP 8.56: JT 20° PR RO OP 8.68: JT 10° PR RO OP 8.85-8.91: XWS 5° PR VR VN 9.84: JT 5° PR RO OP	

BOREHOLE CORE LOG

BH ID: BH102

Location	Site B, 2-16 Pockley Avenue Roseville			**Started**	10 January 2025
Client	Aqualand Prestige 2 Pty Ltd			**Completed**	10 January 2025
Job No.	E26491.G03			**Logged By**	PS **Date** 10 January 2025
Sheets	3 of 3			**Review By**	JB **Date** 14 February 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈80.80 m (AHD)	**Northing**	6260040.1776 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	331076.9665 (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	80%	100	100	11			SANDSTONE: fine to medium grained, pale grey with thin, dark grey planer siltstone bedding				
				12						12.33: JT PR RO SN 12.36: Handling Break 12.40: JT 5° PR RO OP 12.59: JT 10° PR RO SN	
		100	100	13						13.33: JT 5° PR RO SN	
				14						14.02: JT 25° PR RO OP 14.22: JT 10° PR RO OP 14.35: JT 5° PR RO OP	
				15				FR		15.40: JT 10° PR RO OP	
		100	100	16						16.67: JT 5° PR RO OP	
				17						17.40: JT PR RO Extremely weathered sandstone Infilled	
		100	100	18						18.46: JT 5° PR RO OP	
				19						18.96: JT 40° PR RO OP	
						61.43	Terminated at 19.37m. Target Depth Reached.				
				20							

CORE PHOTOGRAPH OF BOREHOLE: BH102

Project	Proposed Development	**East**	331076.9665 (MGA 2020 Zone 56)	**Depth Range**	6.56m to 19.37m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260040.1776 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	80.80	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	10/01/25
Client	Aqualand Prestige 2 Pty Ltd	**Box**	1 of 2	**Checked**	JB	**Date**	06/03/25

CORE PHOTOGRAPH OF BOREHOLE: BH102

Project	Proposed Development	**East**	331076.9665 (MGA 2020 Zone 56)	**Depth Range**	6.56m to 19.37m		
Location	Site B, 2 – 16 Pockley Street, Roseville	**North**	6260040.1776 (MGA 2020 Zone 56)	**Contractor**	Geosense Drilling Engineers		
Position	See Figure 2	**Surface RL**	80.80	**Drill Rig**	Comacchio Geo 205		
Job No.	E26491.G03	**Inclination**	90°	**Logged**	PS	**Date**	10/01/25
Client	Aqualand Prestige 2 Pty Ltd	**Box**	2 of 2	**Checked**	JB	**Date**	06/03/25

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 (%)

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

RQD = Rock Quality Designation (%)

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

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			

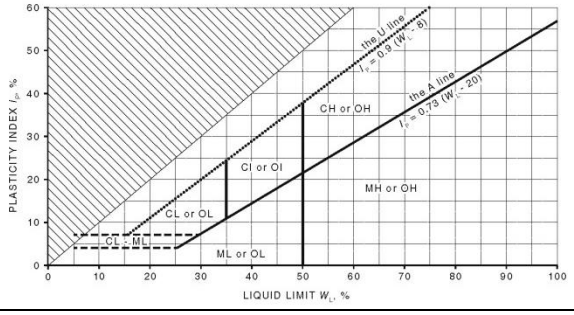
CLASSIFICATION AND INFERRED STRATIGRAPHY

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

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

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

Atterberg Limits and Linear Shrinkage Report

Project: E26491.G03: 2-16 Pockley Avenue, Roseville — Project No.: 31380

Client: EI Australia — Report No.: 24/3406

Address: Suite 6.01, 55 Miller Street, Pyrmont — Report Date: 28/10/2024

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.	9197D-L/1					
Sample Location	BH2M					
Material Description	Clayey SILT, pale grey					
Depth (m)	1.5 - 1.95					
Sample Date	28/08/2024					
Sample History	Oven Dried					
Method of Preparation	Dry Sieve					
Liquid Limit (%)	**27**					
Plastic Limit (%)	**21**					
Plasticity Index	**6**					
Linear Shrinkage (%)	**5.5**					
Mould Size (mm)	127					
Crumbing	N					
Curling	N					

Remarks:

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

Technician: DS

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

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

Moisture Content of Soil and Aggregate Samples

Project: E26491.G03: 2-16 Pockley Avenue, Roseville — Project No.: 31380

Client: EI AUSTRALIA — Report No.: 24/3407

Address: Suite 6.01, 55 Miller Street, Pyrmont NSW 2009 — Report Date: 28/10/2024

Test Method: AS1289.2.1.1 — Page: 1 of 1

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

STS / Sample No.	9197D-L/1					
Sample Location	BH2M					
Material Description	Clayey SILT, pale grey					
Depth (m)	1.5 - 1.95					
Sample Date	28/08/2024					
Moisture Content (%)	**14.0**					

Remarks:

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

Technician: DS — 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

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

Point Load Strength Index Report

Project: E26491.G03: 2-16 Pockley Avenue, Roseville
Client: EI AUSTRALIA
Address: Suite 6.01, 55 Miller St. PYRMONT, NSW
Test Method: AS 4133.4.1
Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Project No.: 31380/9197D-L
Report No.: 24/3126
Report Date: 08/10/2024

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH1M	3.84	23/08/2024	08/10/2024	A	**0.18**	**0.18**	SH	3	M
BH1M	4.76	23/08/2024	08/10/2024	A	**0.41**	**0.43**	SH	3	M
BH1M	5.40	23/08/2024	08/10/2024	A	**0.48**	**0.52**	SH	3	M
BH1M	5.87	23/08/2024	08/10/2024	A	**0.47**	**0.45**	SH	3	M
BH1M	6.19	26/08/2024	08/10/2024	A	**0.45**	**0.46**	SH	3	M
BH1M	6.93	26/08/2024	08/10/2024	A	**0.62**	**0.65**	SH	3	M
BH1M	7.46	26/08/2024	08/10/2024	A	**0.29**	**0.3**	SH	3	M
BH1M	8.51	26/08/2024	08/10/2024	A	**0.51**	**0.51**	SH	3	M
BH2M	4.80	26/08/2024	08/10/2024	A	**0.07**	**0.073**	SH	3	M
BH2M	5.26	26/08/2024	08/10/2024	A	**0.06**	**0.064**	SH	3	M
BH2M	6.12	26/08/2024	08/10/2024	A	**0.084**	**0.081**	SH	3	M
BH2M	6.84	26/08/2024	08/10/2024	A	**0.059**	**0.061**	SH	3	M
BH2M	7.39	26/08/2024	08/10/2024	A	**0.073**	**0.077**	SH	3	M
BH2M	8.50	26/08/2024	08/10/2024	A	**0.97**	**1**	SH	3	M
BH2M	10.33	26/08/2024	08/10/2024	A	**0.8**	**0.77**	SH	3	M
BH2M	11.50	26/08/2024	08/10/2024	A	**1.1**	**1.2**	SH	3	M
BH2M	12.77	26/08/2024	08/10/2024	A	**1.3**	**1.2**	SH	3	M
BH2M	13.73	26/08/2024	08/10/2024	A	**4.2**	**4**	SH	3	M
BH2M	14.81	26/08/2024	08/10/2024	A	**3.2**	**3.3**	SH	3	M
BH3	1.53	22/08/2024	08/10/2024	A	**0.32**	**0.34**	SH	3	M
BH3	2.50	22/08/2024	08/10/2024	A	**0.082**	**0.083**	SH	3	M
BH3	3.69	22/08/2024	08/10/2024	A	**0.52**	**0.5**	SH	3	M
BH3	5.74	22/08/2024	08/10/2024	A	**0.2**	**0.21**	SH	3	M
BH3	6.29	22/08/2024	08/10/2024	A	**0.44**	**0.44**	SH	3	M
BH3	7.23	22/08/2024	08/10/2024	A	**0.51**	**0.53**	SH	3	M
BH3	8.29	22/08/2024	08/10/2024	A	**1.5**	**1.5**	SS	3	M

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A = Axial
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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: TB

Manager - Mrigesh Tamang

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

Point Load Strength Index Report

Project: E26491.G03: 2-16 Pockley Avenue, Roseville
Client: EI AUSTRALIA
Address: Suite 6.01, 55 Miller St. PYRMONT, NSW
Test Method: AS 4133.4.1
Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Project No.: 31380/9197D-L
Report No.: 24/3126
Report Date: 08/10/2024
Page: 2 of 2

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH4M	2.39	27/08/2024	08/10/2024	A	**0.18**	**0.19**	SS	3	M
BH4M	3.55	27/08/2024	08/10/2024	A	**0.32**	**0.33**	SS	3	M
BH4M	4.59	27/08/2024	08/10/2024	A	**0.44**	**0.47**	SS	3	M
BH4M	5.14	27/08/2024	08/10/2024	A	**0.2**	**0.21**	SS	3	M
BH4M	5.69	27/08/2024	08/10/2024	A	**0.21**	**0.22**	SS	3	M
BH4M	6.35	27/08/2024	08/10/2024	A	**0.69**	**0.73**	SS	3	M
BH4M	7.07	27/08/2024	08/10/2024	A	**1.1**	**1.1**	SS	3	M
BH4M	8.53	27/08/2024	08/10/2024	A	**1.1**	**1.1**	SS	3	M
BH5	5.91	28/08/2024	08/10/2024	A	**0.96**	**1**	SS	3	M
BH5	6.42	28/08/2024	08/10/2024	A	**1.3**	**1.4**	SS	3	M
BH5	7.72	28/08/2024	08/10/2024	A	**1.1**	**1.2**	SS	3	M
BH5	8.75	28/08/2024	08/10/2024	A	**1.5**	**1.5**	SS	3	M

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Remarks:

Approved Signatory.....

Technician: TB

Manager - Mrigesh Tamang

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

Point Load Strength Index Report

Project: E26491.G04: 2-16 Pockley Avenue, Roseville
Client: EI AUSTRALIA
Address: SUITE 6.01, 55 MILLER ST. PYRMONT, NSW
Test Method: AS 4133.4.1
Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Project No.: 31380/9393D-L
Report No.: 24/4000
Report Date: 19/12/2024
Page: 1 of 1

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH1a	9.81	05/12/2024	13/12/2024	A	**3.2**	**3.4**	SH	3	D
BH1a	11.13	05/12/2024	13/12/2024	A	**3**	**3.2**	SH	3	D
BH1a	12.78	05/12/2024	13/12/2024	A	**1.8**	**1.9**	SH	3	M
BH1a	14.11	05/12/2024	13/12/2024	A	**1.4**	**1.5**	SH	3	D
BH1a	15.35	05/12/2024	13/12/2024	A	**1.4**	**1.5**	SH	3	M
BH1a	16.76	05/12/2024	13/12/2024	A	**1.9**	**2**	SS	3	D

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Remarks:

Approved Signatory.....

Technician:

Manager - Mrigesh Tamang

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

Point Load Strength Index Report

Project: E26491.1.G04 : 2-16 Pockley Avenue, Roseville
Client: EI AUSTRALIA
Address: Suite 6.01, 55 Miller Street, Pyrmont 2009
Test Method: AS 4133.4.1
Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Project No.: 31380/9490D-L
Report No.: 25/0454
Report Date: 12/02/2025

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH2.1M	15.46	01/01/2025	30/01/2025	A	**1.2**	**1.2**	ST/SS	3	M
BH2.1M	16.74	01/01/2025	30/01/2025	A	**4**	**4**	SS	3	D
BH2.1M	17.09	01/01/2025	30/01/2025	A	**3.2**	**3.2**	SS	3	D
BH2.1M	17.83	01/01/2025	30/01/2025	A	**5.8**	**5.8**	SS	3	D
BH2.1M	18.43	01/01/2025	30/01/2025	A	**3.9**	**3.9**	SS	3	D
BH2.1M	19.78	01/01/2025	30/01/2025	A	**2.3**	**2.3**	SS	3	M
BH2.1M	20.26	01/01/2025	30/01/2025	A	**2.3**	**2.3**	SS	3	M
BH2.1M	21.47	01/01/2025	30/01/2025	A	**2.4**	**2.4**	SS	3	M
BH2.1M	22.71	01/01/2025	30/01/2025	A	**1**	**1**	SS	3	M
BH2.1M	23.40	01/01/2025	30/01/2025	A	**1.7**	**1.6**	SS	3	M
BH2.1M	24.47	01/01/2025	30/01/2025	A	**2.1**	**2.1**	SS	3	M
BH3.1	11.51	01/01/2025	12/02/2025	A	**2.2**	**2.3**	SS	3	M
BH3.1	12.07	01/01/2025	12/02/2025	A	**0.16**	**0.27**	SS	3	M
BH3.1	13.42	01/01/2025	12/02/2025	A	**2**	**2**	SS	3	M
BH3.1	14.11	01/01/2025	12/02/2025	A	**1.3**	**1.3**	SS	3	M
BH3.1	14.96	01/01/2025	12/02/2025	A	**1.3**	**1.3**	SS	3	M
BH3.1	16.56	01/01/2025	12/02/2025	A	**1.2**	**1.2**	SS	3	M
BH3.1	18.35	01/01/2025	12/02/2025	A	**0.75**	**0.76**	SS	3	M
BH3.1	20.11	01/01/2025	12/02/2025	A	**1.3**	**1.3**	SS	3	M
BH3.1	21.53	01/01/2025	12/02/2025	A	**1.8**	**1.8**	SS	3	M
BH3.1	23.74	01/01/2025	12/02/2025	A	**2.1**	**2.1**	SS	3	M

Failure Type
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Moisure Condition
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D = Dry

Rock Type
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ST = Siltstone
SH = Shale
YS = Claystone
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

Point Load Strength Index Report

Project: E26491.1.G04 : 2-16 Pockley Avenue, Roseville
Client: EI AUSTRALIA
Address: Suite 6.01, 55 Miller Street, Pyrmont 2009
Test Method: AS 4133.4.1
Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Project No.: 31380/9490D-L
Report No.: 25/0454
Report Date: 12/02/2025

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH4.1M	7.54	01/01/2025	30/01/2025	A	1	1	SS	3	M
BH4.1M	8.78	01/01/2025	30/01/2025	A	1.1	1.1	SS	3	M
BH4.1M	10.43	01/01/2025	30/01/2025	A	1	1	SS	3	M
BH4.1M	11.89	01/01/2025	30/01/2025	A	2.1	2.1	SS	3	M
BH4.1M	12.45	01/01/2025	30/01/2025	A	1.2	1.2	SS	3	M
BH4.1M	13.62	01/01/2025	12/02/2025	A	1.8	1.8	ST/SS	3	M
BH4.1M	15.81	01/01/2025	12/02/2025	A	1.4	1.4	SS	3	M
BH4.1M	16.39	01/01/2025	12/02/2025	A	1.9	1.9	SS	3	M
BH4.1M	17.32	01/01/2025	12/02/2025	A	2	2	SS	3	M
BH4.1M	18.53	01/01/2025	12/02/2025	A	2.1	2.1	SS	3	M
BH4.1M	20.60	01/01/2025	12/02/2025	A	1.4	1.4	SS	3	M
BH4.1M	21.13	01/01/2025	12/02/2025	A	1.3	1.3	SS	3	M
BH4.1M	22.76	01/01/2025	12/02/2025	A	1.4	1.4	SS	3	M
BH4.1M	23.15	01/01/2025	12/02/2025	A	1.3	1.4	SS	3	M
BH4.1M	24.43	01/01/2025	12/02/2025	A	1.4	1.4	SS	3	M
BH101	8.56	01/01/2025	11/02/2025	A	2.8	2.9	SS	3	M
BH101	9.27	01/01/2025	11/02/2025	A	3.3	3.3	SS	3	M
BH101	9.91	01/01/2025	11/02/2025	A	3.2	3.2	SS	3	M
BH101	10.46	01/01/2025	11/02/2025	A	2	2.1	SS	3	M
BH101	11.23	01/01/2025	11/02/2025	A	2.3	2.4	SS	3	M
BH101	11.90	01/01/2025	11/02/2025	A	1.9	1.9	SS	3	M
BH101	12.23	01/01/2025	11/02/2025	A	2	2	SS	3	M
BH101	13.84	01/01/2025	11/02/2025	A	1.7	1.6	SS	3	M
BH101	14.06	01/01/2025	11/02/2025	A	1.3	1.4	SS	3	M
BH101	15.16	01/01/2025	11/02/2025	A	1.3	1.3	SS	3	M
BH101	16.69	01/01/2025	11/02/2025	A	1.3	1.3	SS	3	M
BH101	17.24	01/01/2025	11/02/2025	A	1.5	1.5	SS	3	M
BH101	18.53	01/01/2025	11/02/2025	A	1.4	1.4	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

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

Point Load Strength Index Report

Project: E26491.1.G04 : 2-16 Pockley Avenue, Roseville
Client: EI AUSTRALIA
Address: Suite 6.01, 55 Miller Street, Pyrmont 2009
Test Method: AS 4133.4.1
Sampling Procedure: Samples Supplied By Client (Not covered under NATA Scope of Accreditation)

Project No.: 31380/9490D-L
Report No.: 25/0454
Report Date: 12/02/2025

Borehole / Sample No.	Depth (m)	Date Sampled	Date Tested	Test Type	Is (MPa)	$Is_{(50)}$ (MPa)	Rock Type	Failure Type	Moisture
BH101	19.21	01/01/2025	11/02/2025	A	**1.5**	**1.5**	SS	3	M
BH101	20.40	01/01/2025	11/02/2025	A	**2**	**2**	SS	3	M
BH101	21.64	01/01/2025	11/02/2025	A	**2.2**	**2.2**	SS	3	M
BH104	6.63	01/01/2025	12/02/2025	A	**2.2**	**2.2**	SS	3	M
BH104	7.28	01/01/2025	12/02/2025	A	**2.2**	**2.2**	SS	3	M
BH104	8.16	01/01/2025	12/02/2025	A	**0.73**	**0.73**	SS	3	M
BH104	9.08	01/01/2025	12/02/2025	A	**1.2**	**1.2**	SS	3	M
BH104	10.41	01/01/2025	12/02/2025	A	**1.6**	**1.6**	SS	3	M
BH104	11.92	01/01/2025	12/02/2025	A	**1.3**	**1.3**	SS	3	M
BH104	12.45	01/01/2025	12/02/2025	A	**1.4**	**1.4**	SS	3	M
BH104	13.08	01/01/2025	12/02/2025	A	**2**	**2**	SS	3	M
BH104	13.41	01/01/2025	12/02/2025	A	**0.71**	**0.7**	SS	3	M
BH104	14.46	01/01/2025	12/02/2025	A	**2.7**	**2.7**	SS	3	M
BH104	15.80	01/01/2025	12/02/2025	A	**1.1**	**1.1**	SS	3	M
BH104	16.20	01/01/2025	12/02/2025	A	**1.6**	**1.6**	SS	3	M
BH104	17.52	01/01/2025	12/02/2025	A	**1.6**	**1.6**	SS	3	M
BH104	18.21	01/01/2025	12/02/2025	A	**1.7**	**1.7**	SS	3	M
BH104	19.32	01/01/2025	12/02/2025	A	**1.9**	**1.9**	SS	3	M

EI NOTE: BH104 SHOWN IN LAB CERTIFICATE is BH102 IN GI

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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: E26491.1.G04 : 2-16 Pockley Avenue, Roseville
Client: EI AUSTRALIA
Address: Suite 6.01, 55 Miller Street, Pyrmont 2009
Test Method: RTA T229, T120

Project No.: 31380
Report No.: 25/0475
Report Date: 14/02/25

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

Sample No.		9490D-L/1	9490D-L/3	9490D-L/4			
Location	(BH)	BH2.1M	BH4.1M	BH101			
Depth	(m)	16.78 - 17.00	11.68 - 11.88	14.08 - 14.28			
Sample Description		Sandstone	Sandstone	Sandstone			
Date Cored		1/01/2025	1/01/2025	1/01/2025			
Date Tested		13/02/2025	13/02/2025	13/02/2025			
Testing Machine		MAN 8-700026	MAN 8-700026	MAN 8-700026			
Sample Diameter	(mm)	52.0	52.1	52.0			
Sample Height	(mm)	129.4	129.2	129.8			
L/D Ratio		2.5	2.5	2.5			
Sample Conditioning		Unsoaked	Unsoaked	Unsoaked			
Test Duration	(min:sec)	8.50	7.50	7.50			
Failure Description		Single Shear	Single Shear	Single Shear			
Uniaxial Compressive Strength *	**(MPa)**	**42.0**	**24.0**	**19.0**			
Initial Moisture Content	**(%)**	**1.5**	**1.4**	**7.7**			
Moisture Content as Tested	**(%)**	**1.7**	**2.2**	**6.0**			
Dry Density	**(kg/m^3)**	**2530**	**2420**	**2280**			
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: KM/BV

Mrigesh Tamang - Manager

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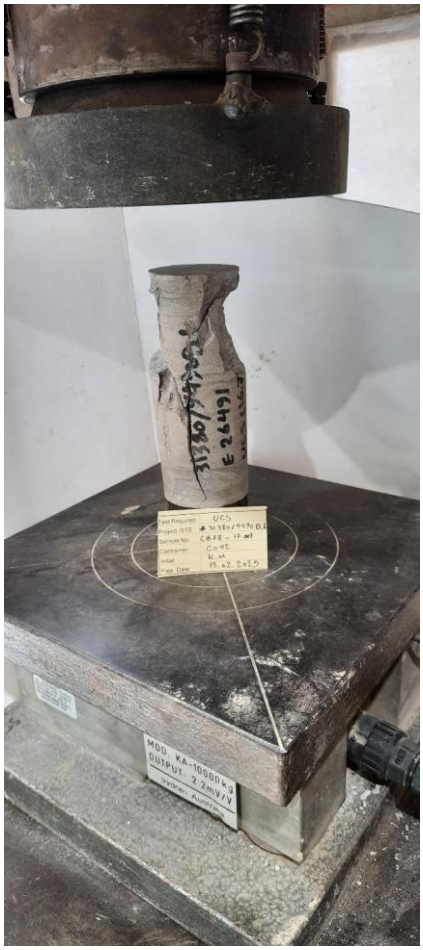
Unconfined Compressive Strength of Rock Cores

Project:	E26491.1.G04 : 2-16 Pockley Avenue, Roseville	Project No.:	31380
Client:	**EI AUSTRALIA**	Report No.:	25/0475
Address:	Suite 6.01, 55 Miller Street, Pyrmont 2009	Report Date:	14/02/2025
		Page:	2 of 2



BH2.1M - 16.78 - 17.0m

BH4.1M - 11.68 - 11.88m

BH101 - 14.08 - 14.28m

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Gokul Pothineni
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
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Project	**E264191.G03 2-16 Pockley Avenue, Rosevil**
Order Number	**E264191.G03**
Samples	4

LABORATORY DETAILS

Manager	Shane McDermott
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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SGS Reference	**SE272307 R0**
Date Received	10/10/2024
Date Reported	11/10/2024

COMMENTS

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

SIGNATORIES

Shane MCDERMOTT
Laboratory Manager

Ying Ying ZHANG
Laboratory Technician

Soluble Anions (1:5) in Soil/Solids by Ion Chromatography [AN245] Tested: 11/10/2024

PARAMETER	UOM	LOR	BH1M_2.4-2.5 SOIL - 23/8/2024 SE272307.001	BH3_0.8-0.9 SOIL - 22/8/2024 SE272307.002	BH4M_1.20-1.30 SOIL - 27/8/2024 SE272307.003	BH5_2.10-2.20 SOIL - 28/8/2024 SE272307.004
Chloride	mg/kg	0.25	**11**	**9.1**	**9.3**	**4.3**
Sulfate	mg/kg	5	**24**	**55**	**56**	**59**

pH in soil (1:5) [AN101] Tested: 11/10/2024

PARAMETER	UOM	LOR	BH1M_2.4-2.5 SOIL - 23/8/2024 SE272307.001	BH3_0.8-0.9 SOIL - 22/8/2024 SE272307.002	BH4M_1.20-1.30 SOIL - 27/8/2024 SE272307.003	BH5_2.10-2.20 SOIL - 28/8/2024 SE272307.004
pH	pH Units	0.1	**5.4**	**4.5**	**4.5**	**5.2**

Conductivity and TDS by Calculation - Soil [AN106] Tested: 11/10/2024

PARAMETER	UOM	LOR	BH1M_2.4-2.5 SOIL - 23/8/2024 SE272307.001	BH3_0.8-0.9 SOIL - 22/8/2024 SE272307.002	BH4M_1.20-1.30 SOIL - 27/8/2024 SE272307.003	BH5_2.10-2.20 SOIL - 28/8/2024 SE272307.004
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	25	54	55	41

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

PARAMETER	UOM	LOR	BH1M_2.4-2.5 SOIL - 23/8/2024 SE272307.001	BH3_0.8-0.9 SOIL - 22/8/2024 SE272307.002	BH4M_1.20-1.30 SOIL - 27/8/2024 SE272307.003	BH5_2.10-2.20 SOIL - 28/8/2024 SE272307.004
% Moisture	%w/w	1	**13.6**	**15.6**	**15.8**	**17.2**

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract of as received sample with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN245	Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B

FOOTNOTES

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

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

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

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

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

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

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

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

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

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Appendix C Vibration Limits

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

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

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

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

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

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

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

Appendix D Important Information

Important Information

SCOPE OF SERVICES

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

RELIANCE ON DATA

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

GEOTECHNICAL ENGINEERING

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

LIMITATIONS OF SITE INVESTIGATION

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

SUBSURFACE CONDITIONS ARE TIME DEPENDENT

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

VERIFICATION OF SITE CONDITIONS

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

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This report is the subject of copyright and shall not be reproduced either totally or in part without the express permission of this Company. 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.

Appendix E SEARs Requirement Declaration Form

SEARs Requirements Declaration: Pockley Island

Declaration		
Name	James Brooker	
Qualifications	Senior Geotechnical Engineer BEng (Civil)	
	The undersigned declares that this E26491.G03_Rev2 Additional Geotechnical Investigation Report has been prepared in response to the following SEARs requirements issued for the Project on 15/11/2024 for SSD-77825469:	
SEARs item no.	SEARs Requirement	Relevant Section of this Report
13. Ground and Water Conditions (partial)	This report addresses part of: - Assess potential impacts on related infrastructure. - Provide a Surface and Groundwater Impact Assessment that assesses potential impacts on related infrastructure and groundwater resources in accordance with the relevant Groundwater Guidelines.	All sections
Signed		
Dated	16/04/2025	