

Macquarie Point Development Corporation

Macquarie Point Stadium Development

Geotechnical Factual Report

June 2024

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Macquarie Point Stadium Development Geotechnical Factual Report

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WSP acknowledges that every project we work on takes place on First Peoples lands.

We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Abbreviations

CPT	Cone Penetration Testing
DMT	Dilatometer Testing
GFR	Geotechnical Factual Report
GIR	Geotechnical Interpretative Report
HESP	Health, Environment and Safety Plan
mbgl	Metres below ground level
MPDC	Macquarie Point Development Corporation
Mac Point	Macquarie Point
RQD	Rock Quality Designation
SWMS	Safe Work Method Statement
SPT	Standard Penetration Testing

1 Introduction

1.1 Project Description

This report presents the factual results of the preliminary geotechnical investigation carried out by WSP Australia Pty Ltd (WSP) for the proposed stadium and associated structures forming the Macquarie Point Development at Hobart.

The proposed Macquarie Point stadium project comprises the design and construction of a multi-purpose stadium to provide a premier sporting, arts, events and entertainment facility. The proposed stadium site is to the north of Sullivans Cove, adjacent to the Hobart City Centre as shown in Figure 1.1. The precinct is approximately 9.3 hectares in size and is bounded by Davey Street to the West, Evans Street to the south, Hunter Street and the ports facility on the Derwent River to the east and the Hobart Cenotaph and Royal Hobart Regatta grounds to the north. The channelised Hobart Rivulet lies to the west and north, crossing the precinct near the northern boundary extent.

Macquarie Point Development Corporation (MPDC) has engaged WSP to undertake a geotechnical investigation to inform the design of the proposed stadium and associated structures. The purpose of the geotechnical investigation is to provide additional information to:

- Reduce the ground uncertainty risk associated with the project.
- Inform the stratigraphic ground model developed for the site.
- Characterise the foundations across the site and assess material strength and composition.
- Undertake in-situ testing to inform the development of geotechnical design parameters.
- Collect samples of soil and rock to undertake laboratory testing.
- Collect samples of soil and groundwater to assess aggressivity of the soil and bedrock for durability purposes.



Figure 1.1 Project Precinct Location

1.2 Objective of this Report

The objective of this investigation is to provide geotechnical information to inform the foundation design of the Macquarie Point Stadium. The geotechnical investigation was carried in general accordance with our proposal (PS212776-WSP-SYD-GEO-PRP-00001 Rev2 dated 27 March 2024).

At the time of the geotechnical investigations, the design of the structures and site layout of the proposed stadium was conceptual. The geotechnical investigations were purposely scoped with the objective of obtaining information that would assist MPDC with the general characterisation of the site and was not targeted towards specific footing structures or loadings.

1.3 Scope of work

The geotechnical investigation scope comprised the following activities:

- Desktop review of available geotechnical information.
- Development of a Health, Environment and Safety Plan (HESP) and Ground Penetration Permit (GPP) for the intrusive investigations to set out possible risks and associated mitigation measures required to conduct the investigations safely.
- Site reconnaissance and test location planning.
- Subsurface utility locating at the proposed intrusive investigation locations.
- Vertical borehole drilling.
- Cone Penetration Testing (CPT) and Dilatometer Testing (DMT).
- Targeted sampling regime.
- Photography of recovered soil and rock core.
- Laboratory testing on soil and rock samples collected during the borehole investigation.
- Groundwater level observation were encountered during the investigations.
- Survey of all test locations (undertaken by others).

Contamination assessment and groundwater level assessment were not part of this scope of work.

This Geotechnical Factual Report (GFR) presents the factual information collected during the geotechnical site investigation phase with laboratory testing of collected samples. Interpretation of the collected data is presented in the Geotechnical Interpretive Report (GIR) which will be issued as a separate submission.

1.4 Previous Investigations

Numerous investigations have been conducted on the site over the past 50 years. A summary of previous investigations is below:

- 335 Geo-environmental borehole and test pit investigations undertaken by AECOM (2015, 2017, 2021)
- 103 borehole investigations undertaken by Sinclair Knight Merz (1997)
- 85 borehole investigations undertaken by the Tasmanian Department of Mines (1972, 1984)
- 82 borehole investigations undertaken by GHD (2010, 2014)
- 25 borehole investigations undertaken by Pitt & Sherry (2008)

- 20 borehole investigations undertaken by Roads and Transport division (various state departments) (1993)
- 15 borehole investigations undertaken by public works department (1962, 1976)
- 12 borehole investigations undertaken by Sloane Weldon Engineering (1995)
- 9 borehole investigations undertaken by Douglas Partners, documented in Report on Foundation Constructability, Macquarie Point development dated 23 November 2015.
- 7 test pit investigations undertaken by William Cromer for MPDC (2021)
- 6 borehole investigations undertaken by Department of State Growth (2008)
- 1 borehole investigation undertaken by Hydro Tasmania (2000)

A significant number of the previous investigations were undertaken for contamination assessment and remediation purposes and were on average 6 m deep. In many of these investigations, they did not penetrate past the base of fill. Investigations of greater depth were required to inform the design of the stadium.

2 Site Description

2.1 Current Land use description

At the time of the site investigation, there were a number of businesses, operations and temporary facilities on site that influenced the positioning and timing of the investigation locations. This included the following:

- Existing businesses and offices such as Goods Shed, The Hobart Brewing Company, The Loaded Dog Café and the The Spiegeltent at the southern end of the site.
- The Taswater construction zone at the northern end of the site.
- The active public car park in the south and east area of site
- Excavation and remediation of the southwestern corner of the site.
- Stockpiles of rubble.
- Shipping containers.
- Storage areas for temporary fencing and construction equipment.

Contamination remediation activities are understood to have occurred over sections of the site in recent years. The site was predominantly covered in gravel or asphalt and all investigation locations could be driven to.

2.2 Soil Strata and Geology

Geological databases captured by Mineral Resources Tasmania (Department of State Growth) indicate the western boundary of the site comprises of dolerite bedrock (Jd) with the majority of the site underlain by man-made fill deposits (Qhmm), as shown on an extract of the 1:25000 Geological Map (see Figure 2.1). The soil strata comprises of fill overlying estuarine and alluvial deposits on the majority of the site. Close to the southern boundary of the site, a paleochannel runs west to east formed by former river channels, which have been infilled with unconsolidated, semi-consolidated and cemented sediments, by fluvial deposition. The materials identified in the channel consist primarily of sands with minor lenses of clays, with boulders and cobbles at the base of the channel.

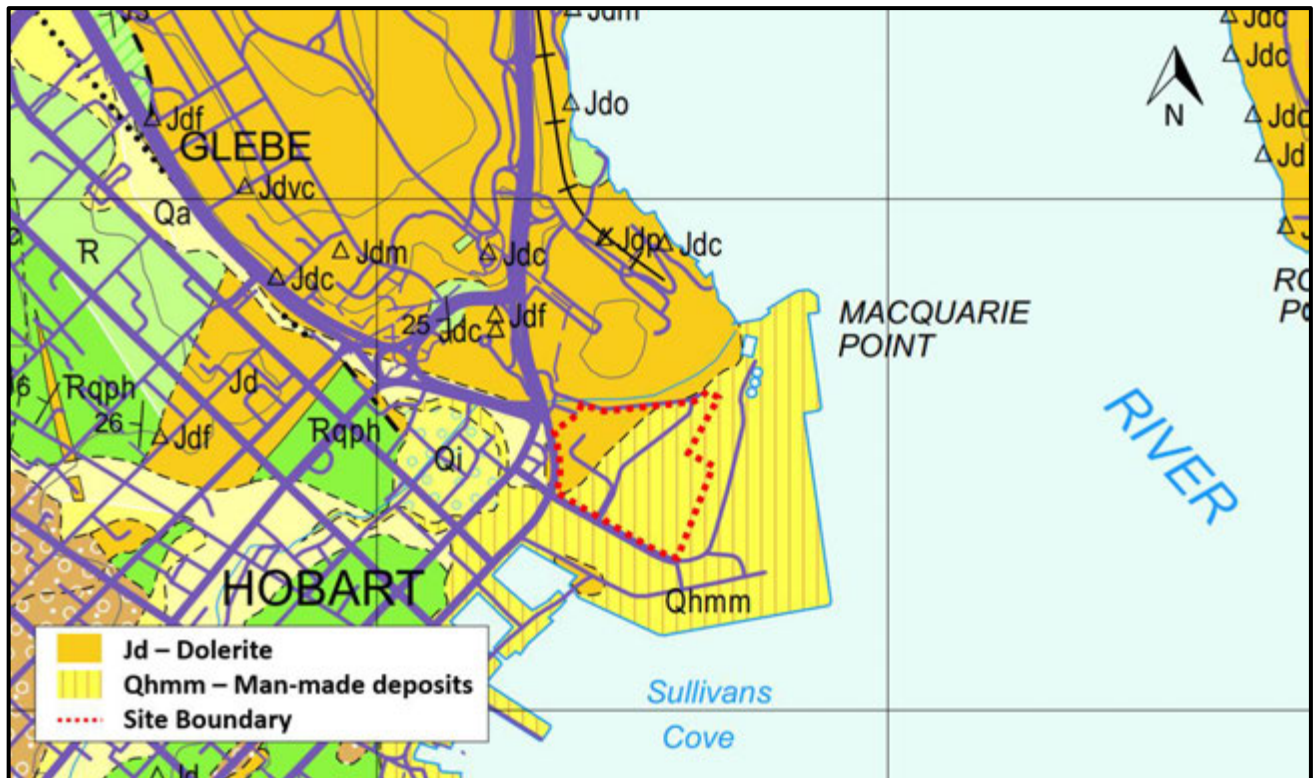


Figure 2.1 Macquarie Point Site Geological Map 1:25000 (Mineral Resources Tasmania)

The fill has been characterised as heterogeneous and made up of local materials sourced from quarries (gravel, cobbles and boulders), possibly dredged deposits (sands, silts and clays), including some anthropological waste (bricks, concrete blocks, metal, timber, glass, coal and pottery). Fill has been noted to vary in consistency, ranging from very loose and loose as well as apparent dense and very dense material that may have been interpreted from testing refusal on boulders. (Such test results are not necessarily representative of the actual in-situ density of the materials). Estuarine and alluvial deposits underly the fill and has been characterised into three sub-units: Boulders (alluvium and transported colluvium), Clay/Silt (likely estuarine) and Gravel/Sand (likely alluvium). Dolerite bedrock underlies the estuarine and alluvial material.

A historical survey of Domain Hill (Webster, 2022) identified that approximately a third of the Macquarie Point site was initially used as a quarry or a source of free rock by the City of Hobart and early European settlers.

3 Geotechnical Investigation

3.1 Investigation Summary

The geotechnical investigation was undertaken between 14th April 2024 and 21st May 2024, in accordance with Australian Standard *AS1726-1993 Geotechnical Site Investigations*. The investigations were carried out under the full-time supervision of a geotechnical engineer or engineering geologist. Initially, 16 boreholes (reference BH-0XX) and up to 19 CPT locations (reference CPT-XX) were scoped to further understand the subsurface profile. An additional 4 boreholes (reference ABH-00X) were added to the investigation by the client to meet acid sulfate soils testing target density requirements. Flat Plate Dilatometer testing (reference DMT-0X) was scoped to assess the stiffness of the fill, however program delays and difficulties penetrating the fill with the CPT rig resulted in removing additional tests from the scope.

Project constraints required MPDC to engage two consultants to undertake the fieldwork for the project:

- WSP undertook investigation scoping, borehole logging, CPT supervision, field coordination, sampling and testing coordination, reporting.
- William C Cromer Pty Ltd (WC) provided personnel for borehole logging and sample collection.

For completeness, the logs and laboratory test results from WC are incorporated into this geotechnical factual report. The geotechnical site investigation plan showing locations of the investigations is presented in Appendix A.

The following items were completed in this geotechnical investigation:

- 20 Boreholes, vertically inclined up to 28.82 m in depth.
- 17 CPT locations (4 retests due to early refusal), up to 13.59 m in depth.
- 1 DMT test 5.40 m in depth.

3.2 Weather Conditions

The geotechnical investigation was carried out between 14th April 2024 and 21st May 2023. The investigation was carried out during day shifts and included weekend works. The weather conditions during the investigation are provided in Figure 3.1. Weather data was obtained from the weather station on Ellerslie Road, Hobart (Station No. 094029) located 3.1km away from site.

Minimum daily temperatures recorded ranged between 4 °C and 15 °C, and maximum daily temperatures recorded ranging between 11 °C and 24 °C throughout the site investigation phase. Throughout the investigation phase, 13 of the 38 days experienced rain, with a maximum of 11mm of rainfall recorded on 10th May 2024.

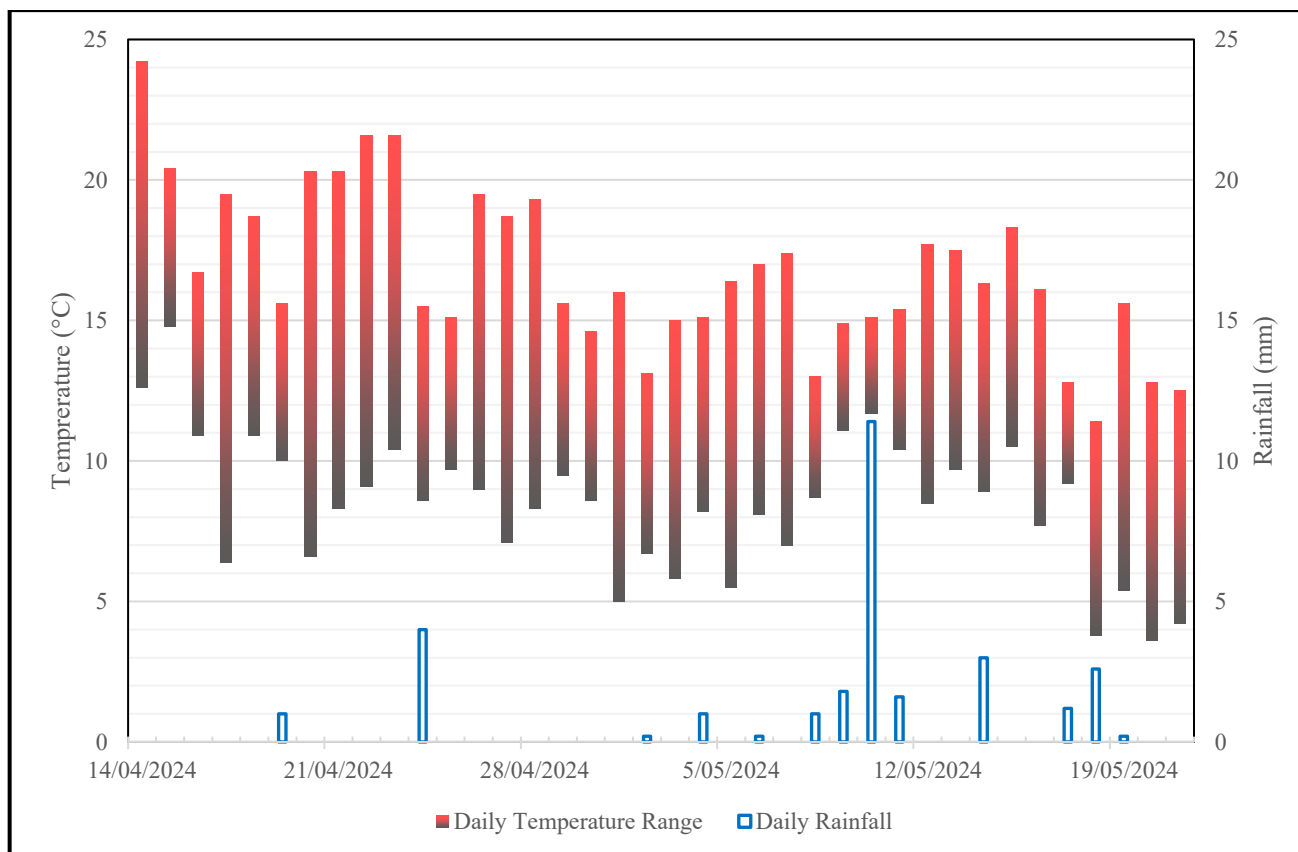


Figure 3.1 Weather Data during the Site Investigation Phase

3.3 Site Preparation

Prior to fieldwork commencing, liaison with MPDC was undertaken prior to site mobilisation to ensure all subcontractors were aligned and prepared for the site investigation phase. A WSP Health, Environment and Safety Plan (HESP) was prepared to outline the procedures for conducting and supervising fieldwork in a safe manner. WSP and other subcontractors developed and worked under task specific Safe Work Method Statements (SWMS) for all investigation activities onsite for the. As part of site preparation, proposed test locations were marked out together with the assessed location of underground services/utilities to ensure proposed penetrative activities were being conducted in safe areas.

3.3.1 Service Locating

Utility service locating was completed to check for existing buried services using electromagnetic and Ground Penetration Radar methods, prior to intrusive investigations. Utility plans were received from Before You Dig Australia (BYDA) and MDPC provided site wide as-constructed services plans. At the time of the investigation, the services locator was unable to locate the deep sewer main which runs north to south from the existing TasWater Treatment Plant to Evans Street, due to presence of shipping containers over sewer pits. MPDC confirmed the location of the untraceable sewer service onsite. Test locations were adjusted to suit the subsurface identified services network, ensuring a minimum 1.5 metre distance away from services and a minimum 3.0 metre exclusion distance from high risk, critical infrastructure services.

3.3.2 Ground Penetration Permits

Ground Penetration Permits were developed in clusters for all test locations. The GPP summarised location specific buried and overhead service information using BYDA plans, client provided service plans and the onsite utility locator report which included a confirmed services sketch with all test locations marked, and requirements prior to breaking ground (such as whether non-destructive digging or hand-auger was required).

3.4 Investigative Works

3.4.1 *Field Supervision*

Field supervision was carried out by a WSP geotechnical engineer or engineering geologist (subsequently referred to as engineers) and WC geologists with guidance from the WSP project team. Responsibilities of field engineers included management of site operations, health and safety of the crew, geotechnical logging of the sub-surface based on recovered soil and rock, and technical assessment of encountered geology to conduct appropriate in-situ sample collection. Field engineers also collected soil and rock samples, boxed sonic soil and rock cores, photographed and carried out point load testing on recovered rock cores.

Field supervision involved liaising with multiple stakeholders including MPDC, South-Western Drilling, Archer's, WC, Blackcap Group, Spiegeltent Hobart, AECOM and Elgin Associates.

3.4.2 *Borehole Drilling and Geotechnical Logging Procedures*

Twenty (20) vertical boreholes were constructed, of which sixteen (16) were for geotechnical purposes and the remaining four (4) were for acid sulfate investigative purposes. A tracked Royal Eijkelpark MidRotoSonic XL MAX (MRS XL MAX) rig supplied by South-Western Drilling was engaged to conduct the penetrative drilling work as part of the investigation. Six (6) boreholes were supervised and logged by WC, presented in Table 3-1.

Boreholes were drilled through the fill and natural soils using sonic drilling techniques to bedrock. Acid sulfate boreholes were terminated at the top of bedrock. Geotechnical boreholes were cased and advanced approximately 10 metres into bedrock using rotary triple tube coring. HQ3 coring techniques were used to recover 63mm diameter rock samples to the target termination depths. Instances where competent, very high strength dolerite bedrock with few natural defects were presented, the borehole termination criteria was adjusted to be between 8 to 10 metres into bedrock.

Standard Penetration Testing (SPT) was carried out (as per AS 1289.6.3.1 – 2004) during sonic drilling at all boreholes to assess the soil strength and consistency of fill and natural material every 1.5 m to 3.0 m. During drilling at BH-005, mechanical breakdown of the SPT resulted in no SPT assessment being gathered beyond 7.50 m. Nine (9) undisturbed 63mm diameter (U63) push tube samples were recovered. Depths of SPTs and U63 samples are noted on borehole logs.

Soil and rock logging by engineers was completed in accordance with AS 1726:2017. Borehole logs with soil, rock core photographs and explanatory notes are included in Appendix B1 (WSP) and Appendix B2 (WC). For minerals not listed in the WSP explanatory notes, we have used the abbreviations suggested by Whitney and Evans (2010). A schedule of point load strength index results is provided in Appendix C. For point load rock core samples exceeding 20 kN a greater than symbol (>) has been used in the borehole logs indicating that the sample did not undergo failure. For safety reasons, point load tests exceeding 20 kN were terminated. For example, a point load result of '>22.56' would indicate that the sample did not fail at 22.56 kN of applied load.

Soil origins were assessed based on material appearance, properties, historical background of the site, existing ground model data, published geological maps and soil strata maps. Rock classification has been undertaken in accordance with AS 1726:2017. Defect descriptions as part of rock logging include defect type, orientation, infilling, shape and roughness and defect or infilling thickness. Bedding partings or joints with a thickness of decomposed material of more than a few millimetres were described as seams or crushed seams. Extremely weathered seam thicknesses greater than 50mm have been noted in defect description, spacing, weathering and strength column. Drilling breaks, drilling lifts or handling breaks are marked on the cores and are not included on the logs or included in the calculation of defect spacing and rock quality designation (RQD).

Groundwater level measurements were taken during drilling as part of the investigation and are provided in Table 3-1.

Table 3-1 summarises the borehole data captured in the investigation, according to easting, northing, elevation, depth, type, geotechnical logging companies and groundwater levels depths.

Table 3-1 Summary of Boreholes

BH-ID	Easting ¹	Northing ¹	Elevation (mAHD)	Depth (m)	Type	Logged By	Groundwater Level Observations (m)
ABH-001	527514.4	5252572.6	5.70	2.70	Acid Sulfate Soil Borehole	WC	Not Encountered
ABH-002	527477.4	5252496.8	5.73	7.60	Acid Sulfate Soil Borehole	WSP	Not Assessed
ABH-003	527533.5	5252485.1	4.28	9.20	Acid Sulfate Soil Borehole	WC	Not Assessed
ABH-004	527580.5	5252448.9	3.82	6.0	Acid Sulfate Soil Borehole	WSP	2.50
BH-001	527448.9	5252553.9	5.96	11.75	Cored Borehole	WSP	2.40
BH-002	527407.7	5252514.8	5.77	18.30	Cored Borehole	WSP	Not Assessed
BH-003	527405.0	5252447.5	5.04	13.94	Cored Borehole	WSP	Not Assessed
BH-004	527464.2	5252389.8	3.90	27.60	Cored Borehole	WC	Not Assessed
BH-005	527530.3	5252373.5	3.76	28.82	Cored Borehole	WSP	3.50
BH-006	527590.0	5252384.8	3.39	25.40	Cored Borehole	WSP	2.00
BH-007	527618.4	5252416.6	3.06	18.30	Cored Borehole	WSP	Not Assessed
BH-008	527630.4	5252462.5	3.57	16.56	Cored Borehole	WSP	2.00
BH-009	527621.5	5252515.8	4.13	19.0	Cored Borehole	WSP	2.50
BH-010	527567.0	5252576.1	5.07	17.47	Cored Borehole	WSP	3.75
BH-011	527499.7	5252523.2	5.28	18.40	Cored Borehole	WSP	Not Assessed
BH-012	527455.6	5252450.4	5.71	11.00	Cored Borehole	WC	Not Assessed
BH-013	527495.1	5252403.9	3.94	24.10	Cored Borehole	WC	Not Assessed
BH-014	527567.0	5252421.7	3.79	19.17	Cored Borehole	WSP	4.10
BH-015	527567.6	5252514.0	4.30	10.10	Cored Borehole	WC	Not Assessed
BH-016	527592.8	5252309.9	2.97	24.92	Cored Borehole	WSP	3.10

Note: ¹ locations surveyed in grid system GDA 2020 Zone 55

3.4.3 Cone Penetration Testing

Seventeen (17) static cone penetration tests were carried out using an 11-tonne truck mounted rig operated by Insitu Geotech Services (IGS), with a push capacity of 100 kN. A 35.87 mm diameter instrumented cone-tipped probe is pushed into the soil with a hydraulic ram system at a standard rate. Continuous measurements were made of the end-bearing

pressure on the cone tip and the friction on a 134.89mm long sleeve located immediately behind the cone. The testing was performed in accordance with AS1289 6.5.1-1999. Table 3-2 provides the CPT locations, predrill depth and thickness tested, the termination conditions and the location of dissipation tests.

Table 3-2 Summary of CPT and Dissipation Testing Locations

CPT ID	Easting	Northings	Relative Level (mAHD)	Pre-drill Depth (mbgl)	Termination Depth (mbgl)	Thickness Tested (m)	Reason for Termination	Dissipation Testing Depth (mbgl)
CPT-03	527411.4	5252506.5	5.70	0.50	5.64	5.14	Equipment at Risk	-
CPT-04	527466.6	5252390.9	3.80	1.61	3.07	1.46	Abrupt Tilt	-
CPT-04A	527465.0	5252391.9	3.79	1.51	4.58	3.07	Equipment at Risk	-
CPT-05	527531.4	5252373.4	3.80	3.60	12.77	9.17	Equipment at Risk	11.49
CPT-06	527393.6	5252466.0	5.23	0.00	5.47	5.47	Abrupt Tilt	-
CPT-07	527396.3	5252409.1	5.10	0.50	4.74	4.24	Abrupt Tilt	-
CPT-07A	527395.1	5252410.0	5.10	0.00	4.66	4.66	Abrupt Tilt	-
CPT-08	527632.2	5252447.0	3.29	0.80	4.97	4.17	Abrupt Tilt	-
CPT-11	527497.0	5252539.3	5.19	0.81	4.51	3.70	Equipment at Risk	-
CPT-12	527441.7	5252460.0	5.50	0.50	1.82	1.32	Equipment at Risk	-
CPT-12A	527441.7	5252459.3	5.48	3.00	5.77	2.77	Equipment at Risk	-
CPT-13	527610.5	5252346.8	2.96	3.30	8.08	4.78	Equipment at Risk	8.08
CPT-13A	527610.5	5252347.2	2.96	8.11	13.59	5.48	Equipment at Risk	8.76
CPT-14	527550.2	5252416.6	3.78	3.60	9.31	5.71	Equipment at Risk	-
CPT-16	527594.4	5252309.1	2.96	1.20	12.40	11.2	Abrupt Tilt	7.15
CPT-17	527618.5	5252371.1	2.89	3.20	12.84	9.64	Equipment at Risk	6.94
CPT-19	527521.1	5252472.1	4.01	1.00	4.43	3.43	Abrupt Tilt	-

Results of the testing comprise plots of cone resistance (q_c), sleeve friction (f_s), friction ratio ($FR=(f_s/q_c)\times 100\%$) and pore pressure versus depth and are presented in Appendix D.

The majority of the site was overlain with gravel, asphalt or concrete and required the use of Blackcap machinery and South-Western Drilling's sonic rig to pre-drill and reach suitable penetrable soil for CPT testing. Pre-drilling was completed up to 3.60 mbgl due to coarse grained gravel in the upper fill material as shown in Table 3-2. CPT testing advanced through

fill, to target natural estuarine and alluvial layers with refusal on top of dolerite bedrock. The locations for CPT-15 and CPT-15A were pre-drilled, however were unable to be completed due to time limitations.

Refusal of the CPT probe was considered to have occurred when the probe deviated significantly from the vertical (inclination) or encountered material that could not be penetrated. Where shallow refusal occurred, or if refusal was encountered above target depth, probing was re-attempted at up to two further locations in the vicinity of the original proposed CPT location (within an approximate 1 metre radius). Where penetration testing was repeated, suffixes are included in the test location identifier as 'A'. Where there were instances where CPT refusal due to boulders, high strength rock or cobbles, the test location was terminated with the remark 'equipment at risk' or abrupt tilt'.

Negative pore pressures were encountered during CPT testing. It is noted that the data may not be representative of in-situ conditions due to cavitation. A potential explanation for the unusual pore pressure behaviour is due to dilatancy in the sand soil, where high negative pore pressures develop until cavitation occurs. Cavitation causes desaturation of the pore water measurement system, then a sluggish response is experienced in the soil layer until the measurement system reacts. A summary of CPT tests where negative pore pressures were measured is provided in Table 3-3.

Table 3-3 Summary of CPT tests experiencing negative pore pressures

CPT Test	Depth range where negative pore pressures were observed	
	From (mbgl)	To (mbgl)
CPT-003	1.0	1.8
	3.5	5.6
CPT-005	12.1	12.5
CPT-008	1.7	2.0
CPT-11	2.7	3.0
CPT-19	3.5	3.8

3.4.3.1 Dissipation Testing

Pore pressure dissipation testing was conducted at five CPT test locations between depths of 6.94 mbgl and 11.49 mbgl. During the dissipation tests, the pore water pressure was measured after the probe was stopped and clamped in place to prevent movement. The pore water pressure filter was located a few millimetres above the shoulder of the cone tip. The dissipation of excess pore pressures was observed by insertion of the piezocone and recording the rate of dissipation of pore pressure with time.

The test data is presented in Appendix D as pore pressure plotted against square root of time. Summary of dissipation testing depths at selected CPT test locations are presented in Table 3-2.

3.4.3.2 Dilatometer Testing

One (1) dilatometer test was completed as DMT-07A to depth of 4.70 mbgl at 0.2 m intervals from 1.20 mbgl. The test data has been plotted with P_0 and P_1 readings against depth, noting that only A and B readings were recorded. Data is presented in Appendix D.

3.4.4 Survey Data

All investigation locations were surveyed throughout the investigation phase by Blackcap. A TopCon HiPer VR unit using a coordinate system (GDA94) and elevation (mAHD) with a horizontal accuracy to 0.03 m, and vertical accuracy of 0.05 m was used. The survey data was then converted to GDA2020 Zone 55. The survey measurements are listed in the borehole and CPT schedule provided in Table 3-1 and Table 3-3 respectively.

3.4.5 Borehole & CPT Reinstatement

Reinstatement of all boreholes included grouting of the hole to surface. Sealed or asphalt areas were reinstated with black dyed concrete mix on the top 200mm. Gravel unsealed areas were reinstated with a concrete-gravel mixture at the top 200 mm. Reinstatement of CPT locations involved backfilling shallow pre-drilled areas using the existing material on the surface.

3.4.6 Drilling Waste Disposal

All drilling waste was transferred to 1000 litre plastic intermediate bulk containers (IBC's) post borehole drilling completion. Elgin Associates were responsible for the contamination testing and disposal of waste.

3.5 Site Investigation Challenges

Challenges that were encountered during the site investigation phase that included:

- Buried services were identified across the site, with multiple proposed test locations requiring to be shifted to fit within services and spatial constraints. Untraceable services such as the location of the northern buried sewer was confirmed by the client, at the time of the investigation. A few borehole and CPT locations were relocated within a 10 m allowance due to rig mobilisation constraints or from nearby services.
- Existing construction activities in the south-west of the site resulted in changes to the planned borehole and CPT locations as it was necessary to not impact the planned works on site. The program ensured that the completion of borehole and CPT investigations in these areas were prioritised. Some borehole locations in these areas were completed on weekends to ensure no work zone conflicts. A few CPT locations were omitted due to pre-drilling issues and depth of hard material overlaying CPT-penetrable soil.
- On site contractors assisted with clearing gravelly areas for several CPT locations with their heavy machinery, but not all locations. Consequently, the drilling contractor pre-drilled holes at several locations using sonic drilling methods. This was undertaken at CTP-005, CPT-013, CPT-014 and CPT-017.
- Numerous vehicles in the public carpark posed access concerns to some proposed borehole test locations and were appropriately resolved during the time of the investigation. Early morning rig mobilisations to test locations were completed to ensure the tracked rig did not impede any car vehicle movements in the public carpark during the day. While working in publicly accessible areas, clearly visible and delineated work zones were established.
- The site poses a geologically challenging environment due to the nature of the historical site operations. Understanding areas of where cut and fill operations may have been conducted historically onsite was imperative to determine where geological boundaries between fill, estuarine, alluvial and dolerite bedrock lay. The site investigation was conducted in conjunction with geological data presented from about 700 intrusive investigations previously completed at the site.

4 Laboratory Testing

4.1 Geotechnical Laboratory Testing

A program of laboratory tests was performed on the rock and soil samples collected in the field. The tests undertaken are outlined in Table 4-1 below. A tabulated summary of geotechnical results as well as laboratory test certificates are presented in Appendix E.

Table 4-1 Summary of Geotechnical Laboratory Testing

Test Type	Testing Laboratory	Test Method	No. of Tests
Aggressivity Suite Testing on Soil (EC, pH, SO ₄ , Cl)	EnviroLab		18
Atterberg Limits & Linear Shrinkage	Macquarie Geotech	AS1289 3.2.1 AS1289 3.3.1 AS1289 3.4.1	10
Moisture Content	Macquarie Geotech	AS1289 2.1.1	10
Oedometer (1-D consolidation)	Macquarie Geotech	AS1289 3.5.1	3
Particle Size Distribution (0.075-19mm)	Macquarie Geotech	AS1289 3.6.1	9
Particle Size Distribution + Hydrometer (0.002-19mm)	Macquarie Geotech	AS1289 3.6.1 AS1289 3.6.3	6
Point Load Index (PLI)	Field tests by WSP	AS4133.4.1-2007	Axial: 97
			Diametral: 100
			Lumps ² : 18
Standard Compaction CBR (4 days soaked and 100% SMDD)	ADG Laboratories	AS 1289 6.1.1	8
Triaxial Compression Unconsolidated Undrained with strain measurements	Macquarie Geotech	AS1289 6.4.1 AS1289 2.1.1	3
UCS	Macquarie Geotech	AS 4133.4.2.1	12 ¹
UCS with Deformability of Rock Material (Youngs Modulus & Poissons Ratio)	Macquarie Geotech	AS 4133.4.3.1	(only 4 received)
Rock Abrasion	Cerchar		Still awaiting results
	Sievers		Still awaiting results
	Taber		Still awaiting results

¹Initially 13 UCS tests scheduled; BH-001 7.27-7.47m broke during preparation through a defect in the sample, UCS could not be performed.

²Samples from the sonic drill.

4.2 Contamination Laboratory Testing

As part of the investigation, acid sulfate soil sampling was undertaken every 0.5 metres after initial ground penetration. Samples were collected and sent to Eurofins Environmental Testing Australia under the direction of the project contamination management consultants AECOM. AECOM will be responsible for the testing and reporting of contamination samples collected as part of this investigation.

5 Limitations

Refer to following limitations statement in Appendix F.

References

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- Macquarie Point Development Corporation (2023). Mac Point Multipurpose Stadium. Retrieved May 15, 2024, from: <https://www.macpoint.com/stadium>
- McWilliam, T, Griffith, J, May, R and Cromer, B (4 March 2024). Macquarie Point Preliminary Ground Model Report (P209850-WSP-SYD-GEO-REP-00004 RevA).
- Whitney, D and Evans, B. (2010). Abbreviations for names of rock-forming minerals, Extract from American Mineralogist [Volume 95, pages 185-187]. Retrieved May 18, 2024.

Appendix A

Site Investigation Plan





Legend

- 

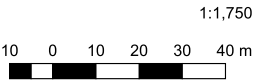
Acid Sulfate Borehole
- 

Borehole
- 

Cone Penetration Test
- 

Dilatometer Test
- 

Site Boundary



CLIENT
Macquarie Point Development Corporation



YYYY-MM-DD	2024-05-31
PREPARED	AG
REVIEWED	TM
APPROVED	RM

PROJECT
Macquarie Point Stadium Development

TITLE
Site Plan
Boreholes and Cone Penetration Tests

PROJECT NO
PS212776

REV.
0

FIGURE
A1

Appendix B

Borehole Logs



B1 Borehole Logs - WSP



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : ABH-002

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 1

POSITION : E: 527477.41, N: 5252496.83 (MGA2020-55) SURFACE ELEVATION : 5.73 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 21/5/2024 DATE COMPLETED : 21/5/2024 DATE LOGGED : 21/5/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL					
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER									
		F	Not Assessed		0.0 5.7			0.05m FILL GRAVEL: fine to coarse, sub-angular to angular, grey. FILL Gravelly SAND: brown, gravel is fine to coarse grained, sub-angular to angular.	D D - M	FILL Acid Sulfate Sampling every 0.5m to bedrock
					0.60m			FILL Clayey GRAVEL: fine to coarse, sub-rounded to sub-angular, dark grey and brown, clay is medium plasticity; with sand; with brick fragments.		
					1.0 4.7					
					2.0 3.7			2.40m 2.30m: becoming red-brown, increasing brick content		
					3.0 2.7			FILL Sandy Gravelly CLAY: low to medium plasticity, dark grey mottled brown and yellow-brown, gravel is fine to medium grained, sub-angular to angular; with brick and glass fragments. 3.00m: becoming dark grey, increasing gravel content, fine to coarse grained gravel, without glass and brick		
					3.45m				w<PL	
					4.0 1.7			4.60m: with trace brick fragments		
					5.0 0.7			4.90m DOLERITE: fine to coarse grained, brown, sub-rounded to angular, inferred as highly weathered.	M	
		6.0 -0.3			5.70m DOLERITE: fine to coarse grained, pale grey, inferred as moderately to slightly weathered.			D	ROCK	
		7.0 -1.3			7.60m Hole Terminated at 7.60 m Target depth Grouted to Surface					
					8.0 -2.3					

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-15-AU-BOREHOLE-2A-PS212776-MASTER-CPJ <<DrawingFiles>> 18/6/2024 12:08 10:00:00.09 Dugid Lab and in Situ Test - DGD [Lib: WSP-6.05.2.2020-08-23 Proj: WSP-6.04.0.2023-04-11]



PointID : ABH-002 Depth Range: 0.00 - 2.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - ABH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/4



PointID : ABH-002 Depth Range: 2.00 - 4.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - ABH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/4



PointID : ABH-002 Depth Range: 4.00 - 6.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - ABH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/4



PointID : ABH-002 Depth Range: 6.00 - 7.60 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - ABH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/4



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : ABH-004

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

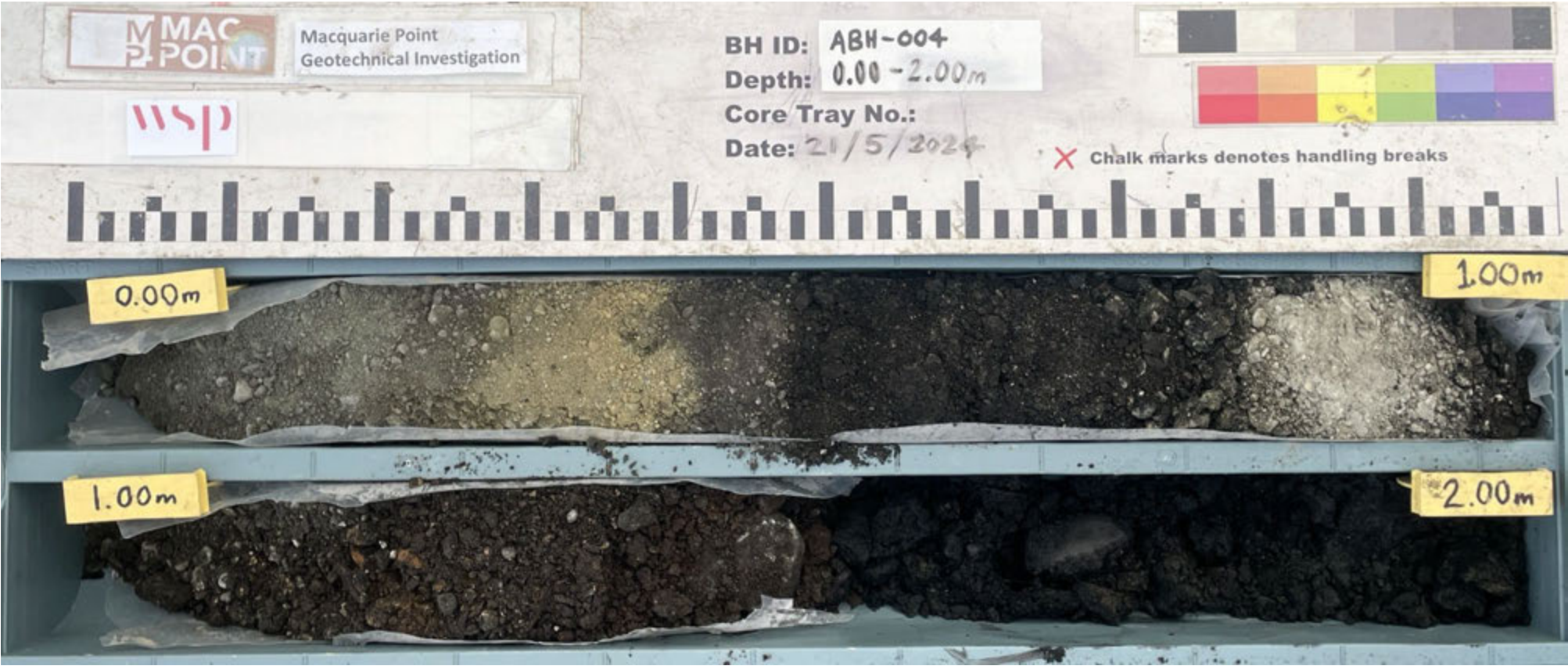
FILE / JOB NO : PS212776
SHEET : 1 OF 1

POSITION : E: 527580.50, N: 5252448.94 (MGA2020-55) SURFACE ELEVATION : 3.82 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 21/5/2024 DATE COMPLETED : 21/5/2024 DATE LOGGED : 21/4/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL					
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER									

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-18/6/2024 12:08 10:00:00:09 Dugge Lab and in Situ Test - DGD [Lib: WSP-6-05-2-2020-08-23 Proj: WSP-6-04-0-2023-04-11]



PointID : ABH-004 Depth Range: 0.00 - 2.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - ABH-004	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/3



PointID : ABH-004 Depth Range: 2.00 - 4.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - ABH-004	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/3



PointID : ABH-004 Depth Range: 4.00 - 6.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - ABH-004	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/3



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-001

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 3

POSITION : E: 527448.87, N: 5252553.93 (MGA2020-55) SURFACE ELEVATION : 5.96 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 19/4/2024 DATE COMPLETED : 20/4/2024 DATE LOGGED : 20/4/2024 LOGGED BY : TS CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
S PWT		F	Not Encountered	Is(50) I=8.26 MPa	0.0 6.0			0.06m	ASPHALTIC CONCRETE.	D	FILL Acid Sulfate Sampling every 0.5m to bedrock
					0.80m		FILL Clayey Gravelly SAND: medium to coarse grained, black with brown, gravel is fine to medium grained, sub-angular to angular; with cobbles.				
		H			1.20m		DOLERITE: fine to coarse grained, dark grey with brown, iron staining, inferred as highly to moderately weathered, high to very high strength.	D - M	ROCK		
					1.75m		Continued as Cored Drill Hole				
					2.0 4.0						
					3.0 3.0						
					4.0 2.0						
					5.0 1.0						
					6.0 0.0						
					7.0 -1.0						
					8.0 -2.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-ISAU-BOREHOLE-2A-PS212776-MASTER-CPJ <<DrawingFiles>> 18/6/2024 12:09 10:03:00:09 Dugge Lab and in Situ Test - DGD [Lib: WSP-6:05:2:2022-08-23 Proj: WSP-6:04:0:2023-04-11]



CORED DRILL HOLE LOG

HOLE NO : BH-001

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 2 OF 3

POSITION : E: 527448.87, N: 5252553.93 (MGA2020-55)	SURFACE ELEVATION : 5.96 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 19/4/2024	DATE COMPLETED : 20/4/2024
DATE LOGGED : 20/4/2024	LOGGED BY : TS	CHECKED BY : JRG
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG
BIT CONDITION : Good		

DRILLING					MATERIAL				FRACTURES										
PROGRESS		CORE LOSS (CORE RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other						
DRILLING & CASING	WATER								UCS-19 L ₉₀ ● - Axial ○ - Diametral ■ - UCS L 2 J 4 M 9 H 20 VH 40 EH 200										
					0.0														
					1.0														
					1.75m		START CORING AT 1.75m												
		0% LOSS	45	Is(50) D>6.94 MPa Is(50) A>6.44 MPa	2.0		DOLERITE: fine to coarse grained, dark grey, phaneritic, iron staining.	MW			J, 70°, VN, PR, RF, Zeo J, 80°, VN, PR, RF, Zeo J, 85°, VN, PR, RF, Fe, Zeo J, 10°, CN, PR, RF J, 85 - 90°, VN, PR, RF, Zeo, Chl J, 15°, VN, PR, RF, Fe Jx4, 40 - 50°, SN, PR, RF, Fe J, 45°, SN, PR, RF, Fe J, 65 - 70°, VN, PR, RF, Fe, Zeo J, 25°, SN, PR, RF, Chl, Fe J, 0°, SN, PR, RF, Fe J, 5°, SN, PR, RF, Zeo, Fe J, 45 - 70°, SN, PR, RF, Fe J, 10°, CN, PR, RF J, 90°, VN, PR, RF, Zeo, Fe J, 85°, VN, PR, RF, Zeo, Fe Jx5, 10 - 30°, SN, PR, RF, Fe J, 5°, SN, PR, RF, Fe J, 5°, SN, PR, RF, Fe J, 45 - 65°, VN, UN, RF, Fe, partially healed J, 75 - 80°, VN, PR, RF, Fe J, 5°, SN, PR, RF, Fe J, 5°, SN, PR, RF, Fe J, 70 - 75°, VN, UN, RF, Fe J, 60°, VN, PR, RF, Fe J, 50°, VN, PR, RF, Fe SZ SS, 15°, PR, Zeo, clay J, 40°, SN, PR, RF, Zeo, Fe EW, 50°, 100mm, clayey gravel J, 10°, VN, PR, SM-RF, Zeo, Fe J, 65°, VN, PR, RF, Fe J, 10°, VN, PR, SM-RF, clay EW, 45 - 60°, VN, ST, RF, Fe EW, 60 - 85°, IR, 12-40mm J, 5°, CT, PR, RF, Pl, clay, Fe J, 65°, PR, Fe, 3mm J, 15°, SN, PR, RF, Fe J, 45°, SN, PR, RF, Fe J, 55 - 85°, SN, IR, RF, Fe J, 30°, VN, PR, RF, Chl, Fe J, 55°, SN, PR, RF, Fe J, 60°, SN, PR, RF, Fe EW, 60°, PR, Fe, clay CZ, Fe, clay								
		3.20 0% LOSS	48		3.0														
		4.30 0% LOSS	0		4.0														
		4.70 0% LOSS	85	Is(50) D=4.71 MPa Is(50) A>6.49 MPa	5.0			HW											
		6.10 0% LOSS	85		6.0														
		7.60 0% LOSS	91	Is(50) D=4.17 MPa Is(50) A=3.21 MPa	7.0			MW											
				Is(50) D=4.17 MPa Is(50) A=0.600 MPa															

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



PointID : BH-001 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-001	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/5



PointID : BH-001 Depth Range: 1.50 - 1.75 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-001	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/5



PointID : BH-001 Depth Range: 1.75 - 5.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-001	DRAWN	DATE
		CHECKED	DATE
		SCALE	
		PROJECT No	
		FIGURE No	
		18/6/2024	18/6/2024
		Not To Scale	
		A4	
		PS212776	3/5



PointID : BH-001 Depth Range: 5.00 - 9.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-001	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/5



PointID : BH-001 Depth Range: 9.00 - 11.75 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-001	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/5



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-002

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 4

POSITION : E: 527407.71, N: 5252514.77 (MGA2020-55) SURFACE ELEVATION : 5.77 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 18/4/2024 DATE COMPLETED : 19/4/2024 DATE LOGGED : 18/4/2024 LOGGED BY : TS CHECKED BY : JRG

DRILLING					MATERIAL								
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations		
DRILLING & CASING	WATER												
		E-F	Not Encountered		0.0 5.8		0.06m	FILL Gravelly SAND: medium to coarse grained, brown, trace clay; trace cobbles.	D	FILL Acid Sulfate Sampling every 0.5m to bedrock			
		E-F			1.0 4.8		0.80m	FILL Silty CLAY: low to medium plasticity, black mottled brown, trace sand and gravel.	D - M				
		F			1.50m		1.10m	FILL CONCRETE: pale grey.	D				
		E			2.0 3.8		1.50m	FILL Silty CLAY: high plasticity, dark green and black.	M				
					2.85m		2.85m	FILL Gravelly Clayey SAND: medium to coarse grained, pale brown, with dolerite cobbles.	M				
		E			3.0 2.8		3.80m	FILL Silty SAND: medium to coarse grained, brown, with dolerite cobbles, with clay.	D				
		E-F			4.0 1.8		4.65m	4.50m-4.60m: perched water	M D				
		F			5.0 0.8			DOLERITE: medium to coarse grained, brown, iron staining, inferred as highly weathered, medium to high strength.					
					6.0 -0.2		6.00m	DOLERITE: medium to coarse grained, grey with dark grey, iron staining, inferred as moderately weathered, high to very high strength.					
		H			7.0 -1.2		7.24m						
					8.0 -2.2	Continued as Cored Drill Hole							

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-15-AU-BOREHOLE-2A-PS212776-MASTER-CPJ-18/06/2024 12:09 10:00:00.009 D:\Log-Lib\WSP-6-05-2-2020-08-23-Prj\WSP-6-04-0-2023-04-11

WSP-AU-6-GLB-Log-15-AU-CORED-BOREHOLE-2A-PS212776-MASTER-GPJ-18/6/2024 12:09 10.03.00.09 D:\Log-Lib-Tool-DGD\Lib-Tool-DGD\Lib-Tool-DGD\WSP-5.05.2 2023-08-23 Proj: WSP-5.04.0 2023-04-11



CORED DRILL HOLE LOG

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

HOLE NO : BH-002

FILE / JOB NO : PS212776
SHEET : 2 OF 4

POSITION : E: 527407.71, N: 5252514.77 (MGA2020-55)

SURFACE ELEVATION : 5.77 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 18/4/2024

DATE COMPLETED : 19/4/2024

DATE LOGGED : 18/4/2024

LOGGED BY : TS

CHECKED BY : JRG

CASING DIAMETER : 140 mm

BARREL (Length) : 1.50 m

BIT : IMPREG

BIT CONDITION : Good

DRILLING					MATERIAL					FRACTURES						
PROGRESS		CORE LOSS (CORE LOSS DRILL RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH					NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS-19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - 2 L ₂ - 4 L ₃ - 9 M - 20 H - 40 VH - 200 EH	UCS-19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - 2 L ₂ - 4 L ₃ - 9 M - 20 H - 40 VH - 200 EH	UCS-19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - 2 L ₂ - 4 L ₃ - 9 M - 20 H - 40 VH - 200 EH					
					0.0											
					1.0											
					2.0											
					3.0											
					4.0											
					5.0											
					6.0											
					7.0											
					7.24m		START CORING AT 7.24m									
					8.0		DOLERITE: fine to coarse grained, dark grey with brown, phaneritic, iron staining along defects.	MW								J, 80°, SN, PR, RF, Fe J, 25°, SN, PR, RF, Fe EW, 75°, Fe, clay, 2mm EW, 65 - 80°, Fe, clay, 2mm EW, 65°, Fe, clay, 1mm J, 65°

See Explanatory Notes for details of abbreviations & basis of descriptions.

File: PS212776 BH-002 2 OF 4



CORED DRILL HOLE LOG

HOLE NO : BH-002

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 4

POSITION : E: 527407.71, N: 5252514.77 (MGA2020-55)	SURFACE ELEVATION : 5.77 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 18/4/2024	DATE COMPLETED : 19/4/2024
DATE LOGGED : 18/4/2024	LOGGED BY : TS	CHECKED BY : JRG
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG
BIT CONDITION : Good		

DRILLING					MATERIAL				FRACTURES				
PROGRESS		CORE LOSS (CORE LOSS RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=19-125MPa ● - Axial ○ - Diametral ■ - UCS VL 2 J 4 M 9 H 20 VH 40 EH 200	NATURAL FRACTURE (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
DRILLING & CASING	WATER												
HQ3 90-95% RETURN		0% LOSS	78	Is(50) D>8.66 MPa Is(50) A>8.51 MPa 9.72m UCS =23 MPa Is(50) D>7.35 MPa Is(50) A=8.57 MPa Is(50) D>8.09 MPa Is(50) A>7.67 MPa Is(50) D>6.99 MPa Is(50) A>6.05 MPa Is(50) D>6.94 MPa Is(50) A=7.91 MPa Is(50) D>7.44 MPa Is(50) A=4.19 MPa	8.0		DOLERITE: fine to coarse grained, dark grey with brown, phaneritic, iron staining along defects. (continued) 9.45m DOLERITE: fine to coarse grained, dark grey, phaneritic. UCS failure influenced by defects, not indicative of true rock strength 13.18m DOLERITE: fine to coarse grained, dark grey, phaneritic, equigranular.	MW SW FR				J, 60°, SN, PR, RF J, 80°, SN, PR, RF J, 5 - 10°, SN, PR, RF, Fe J, 30°, SN, PR, RF, Fe SS, 15°, SN, PR, RF, Fe J, 65°, CT, PR, RF, Pl, clay J, 65°, CN, PR, RF J, 10°, SN, PR, RF, Fe J, 10°, SN, PR, RF, Fe J, 75°, SN, PR, partially healed, Fe J, 5°, SN, PR, RF, Fe SS, 20°, SN, PR, RF, clayey gravel J, 5°, SN, PR, RF J, 80 - 85°, SN, PR, RF, Fe V, 60 - 85°, VN, CU, RF, Cal, 1mm J, 10°, CN, PR, RF J, 80°, CN, PR, RF J, 0°, SN, PR, RF, Zeo, Cal J, 20°, CN, PR, RF J, 20°, CN, PR, RF CS, 60 - 85°, CT, UN, RF, Zeo, clay, 2mm CS, 15°, CT, PR, RF, Zeo, 2mm J, 85°, VN, PR, RF, Zeo J, 0°, CN, PR, RF J, 25°, VN, PR, RF, Fe, Chl J, 60°, VN, PR, SM-RF, Zeo J, 10°, VN, PR, RF J, 10°, SN, PR, RF J, 0°, CN, PR, RF J, 0°, CN, PR, RF	
		9.20	0% LOSS		95								9.0
		10.65	0% LOSS		99								10.0
		12.23	0% LOSS		100								11.0
		13.82	0% LOSS		100								12.0
		15.24	0% LOSS		95								13.0
													14.0
													15.0
													16.0
													17.0

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



CORED DRILL HOLE LOG

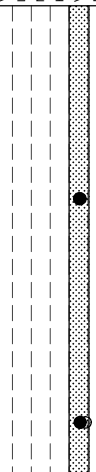
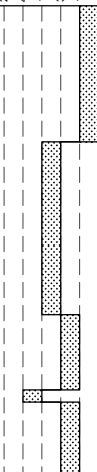
HOLE NO : BH-002

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 4 OF 4

POSITION : E: 527407.71, N: 5252514.77 (MGA2020-55)	SURFACE ELEVATION : 5.77 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 18/4/2024	DATE COMPLETED : 19/4/2024
DATE LOGGED : 18/4/2024	LOGGED BY : TS	CHECKED BY : JRG
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG
BIT CONDITION : Good		

DRILLING					MATERIAL					FRACTURES				
PROGRESS		CORE LOSS (% CORE LOSS DRILL DEPTH)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
DRILLING & CASING	WATER								UCS-19 L ₁₀₀ ● Axial ○ Diametral	UCS ■ UCS				
HQ3	90-95% RETURN	0% LOSS	95	Is(50) D>6.26 MPa Is(50) A>5.92 MPa	16.0		DOLERITE: fine to coarse grained, dark grey, phaneritic, equigranular. (continued)	FR				J, 65°, VN, PR, SM-RF J, 5°, CN, PR, RF J, 0°, VN, PR, RF, Cal J, 65°, VN, PR, SM, Zeo, Cal J, 20°, VN, PR, RF, Cal J, 40°, VN, PR, SM-RF, Zeo J, 45°, CT, PR, SM-RF, Zeo, Chl		
		16.71	96		17.0									
		0% LOSS			18.0									
		18.30		Is(50) D>8.53 MPa Is(50) A>6.15 MPa	18.30m		Hole Terminated at 18.30 m Target depth Grouted to Surface							
					19.0									
					20.0									
					21.0									
					22.0									
					23.0									
					24.0									

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



PointID : BH-002 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/8



PointID : BH-002 Depth Range: 1.50 - 3.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/8



PointID : BH-002 Depth Range: 3.00 - 4.65 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/8



PointID : BH-002 Depth Range: 4.65 - 6.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/8



PointID : BH-002 Depth Range: 6.00 - 7.24 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-002	DRAWN	DATE 18/6/2024	
		CHECKED	DATE 18/6/2024	
		SCALE Not To Scale		A4
		PROJECT No PS212776		FIGURE No 5/8



PointID : BH-002 Depth Range: 7.24 - 11.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/8



PointID : BH-002 Depth Range: 11.00 - 15.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/8



PointID : BH-002 Depth Range: 15.00 - 18.30 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-002	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 8/8

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 3

POSITION : E: 527405.03, N: 5252447.51 (MGA2020-55)

SURFACE ELEVATION : 5.04 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 16/4/2024

DATE COMPLETED : 17/4/2024

DATE LOGGED : 17/4/2024

LOGGED BY : TS

CHECKED BY : JRG

DRILLING					MATERIAL				
PROGRESS		DRILLING PENETRATION LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER								
S PWT		F		0.0 5.0			FILL Clayey GRAVEL: fine to medium, sub-angular to angular, brown, with sand.	D	FILL Acid Sulfate Sampling every 0.5m to bedrock
		H		1.0 4.0			FILL CONCRETE: grey.		
		F	1.50m SPT 5, 11, 16/115mm HB N=R	1.40m 1.60m			FILL Sandy CLAY: low plasticity, black with red brown, trace gravel; distinct aromatic hydrocarbon odour.	D - M	1.40-1.60: PP=375kPa
			1.92m			FILL Sandy GRAVEL: fine to coarse, red with grey, with sandstone cobbles and possible brick gravels.			
		F		2.0 3.0				D	
		F		3.0 2.0			2.90m 3.00m FILL Silty CLAY: high plasticity, dark grey, trace subangular to angular gravel. DOLERITE: fine to medium, sub-angular to angular, pale to dark grey, inferred as slightly weathered to fresh, high to very high strength.	D - M	2.90-3.00: PP=205kPa ROCK
			Not Encountered						
			Is(50) I=4.76 MPa						
			Is(50) I>7.80 MPa						
			Is(50) I=6.73 MPa						
		VH		4.0 1.0 5.0 0.0 6.0 -1.0				D	
				6.45m			Continued as Cored Drill Hole		
				7.0 -2.0					

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

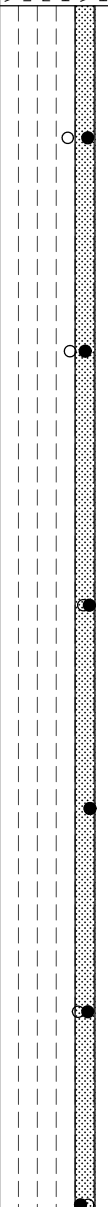
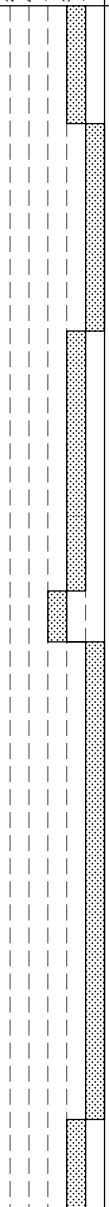
HOLE NO : BH-003

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 3

POSITION : E: 527405.03, N: 5252447.51 (MGA2020-55)	SURFACE ELEVATION : 5.04 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DATE STARTED : 16/4/2024	DATE COMPLETED : 17/4/2024	DATE LOGGED : 17/4/2024
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG
		BIT CONDITION : Good

DRILLING					MATERIAL					FRACTURES							
PROGRESS		CORE LOSS (CORE LOSS RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH					NATURAL FRACTURE (mm)		VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS:19 - Axial - UCS	UCS:19 - Diametral - UCS	UCS:19 - Tensile - UCS	UCS:19 - Shear - UCS	UCS:19 - Compression - UCS	UCS:19 - Tension - UCS	UCS:19 - Shear - UCS		
HQ3	95-100% RETURN	0% LOSS	100	A>5.81 MPa	8.0		DOLERITE: fine to medium grained, dark grey, phaneritic, equigranular. (continued)	FR				J, 15°, CN, PR, RF V, 10°, SN, PR, RF, Fe, Zeo, 2mm J, 5°, SN, PR, RF, Fe J, 0°, CN, PR, RF V, 65°, CT, PR, RF, Zeo, 5mm J, 0°, CN, PR, RF J, 0°, CN, PR, RF J, 0 - 5°, SN, PR, RF J, 0°, SN, PR, RF, Fe					
		9.37	0% LOSS	100	Is(50) D=2.00 MPa Is(50) A>6.81 MPa								9.0				
		10.90	0% LOSS	100	Is(50) D=2.30 MPa Is(50) A=5.80 MPa								10.0				
		10.90	0% LOSS	100	Is(50) D=5.19 MPa Is(50) A>7.45 MPa								11.0				
		12.45	0% LOSS	100	Is(50) D=7.79 MPa Is(50) A>7.72 MPa								12.0				
		13.94		Is(50) D=3.75 MPa Is(50) A=6.79 MPa	13.0		11.32m-11.35m: xenolith										
		13.94		Is(50) D>6.96 MPa Is(50) A=4.37 MPa	14.0		Hole Terminated at 13.94 m Target depth Grouted to Surface										
					15.0												
					16.0												

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



PointID : BH-003 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-003	DRAWN	DATE
		CHECKED	DATE
		SCALE	A4
		PROJECT No	FIGURE No
		PS212776	1/7



PointID : BH-003 Depth Range: 1.50 - 3.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-003	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/7



PointID : BH-003 Depth Range: 3.00 - 4.80 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-003	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/7



PointID : BH-003 Depth Range: 4.80 - 6.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-003	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/7



PointID : BH-003 Depth Range: 6.00 - 6.45 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-003	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/7



PointID : BH-003 Depth Range: 6.45 - 10.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-003	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/7



PointID : BH-003 Depth Range: 10.00 - 13.94 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-003	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/7



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-005

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 5

POSITION : E: 527530.25, N: 5252373.53 (MGA2020-55) SURFACE ELEVATION : 3.76 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 27/4/2024 DATE COMPLETED : 28/4/2024 DATE LOGGED : 28/4/2024 LOGGED BY : TS CHECKED BY : JRG

DRILLING					MATERIAL					
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER									
S PWT		F			0.0 3.8			0.05m ASPHALT. 0.10m FILL Sandy GRAVEL: fine to medium, sub-angular to angular, grey yellow brown. 0.30m FILL Gravelly SAND: fine to medium grained, dark grey, gravel is medium grained, sub-angular to angular. 0.70m FILL Gravelly SAND: fine to medium grained, yellow brown.	D	FILL Acid Sulfate Sampling every 0.5m to bedrock
					1.0 2.8			FILL Silty Clayey SAND: medium to coarse grained, dark grey brown mottled pale grey, with gravel; trace glass, ceramic fragments, sea-shells.		
S PWT		E		SPT 5,3,5 N=8 1.95m	2.0 1.8			1.80m: becoming clay dominant, yellow brown mottled green grey, with coarse grained sandstone gravel for 200mm 2.00m: with rootlets, trace nails and ceramic fragments 2.50m: with wood fragments for 300mm	M - W	0.90-2.00: PP=185kPa
					3.0 0.8			2.90m 2.80m: broken ceramic bottles		
S PWT				3.00m SPT 1,1,1 N=2 3.45m 3.50m U	3.0 0.8		CH	Silty CLAY: high plasticity, dark grey mottled green brown, with ironstone gravel, trace sand, trace rootlets, trace sea-shells. 3.50m-4.50m: trace ceramic fragments	w≈PL w>PL w≈PL	ESTUARINE SOIL 3.10-4.30: PP=75kPa
				3.85m	4.0 -0.2			4.50m		
S PWT		VE		4.50m SPT 1,3,5 N=8 4.95m	5.0 -1.2		SP	SAND: fine to medium grained, uniform, dark grey, with sea-shells, trace clay.	M - W	L
				6.00m SPT 2,2,2 N=4 6.45m	6.0 -2.2					
S PWT					7.0 -3.2		SP		L	7.50: SPT Hammer Damaged, Mechanical Failure
				SPT 3,4 SPT Damaged, Mechanical Failure 7.80m	7.50m SHELLY SAND: uniform, dark grey, trace clay. 8.00m					

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-15-AU-BOREHOLE-2A-PS212776-MASTER-CPJ-18/6/2024 12:11 10:00:00.09 D:\Log-15-AU-BOREHOLE-2A-PS212776-MASTER-CPJ-18/6/2024 12:11 10:00:00.09 D:\Log-15-AU-BOREHOLE-2A-PS212776-MASTER-CPJ-18/6/2024 12:11 10:00:00.09 D:\Log-15-AU-BOREHOLE-2A-PS212776-MASTER-CPJ-18/6/2024 12:11 10:00:00.09



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-005

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 2 OF 5

POSITION : E: 527530.25, N: 5252373.53 (MGA2020-55) SURFACE ELEVATION : 3.76 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 27/4/2024 DATE COMPLETED : 28/4/2024 DATE LOGGED : 28/4/2024 LOGGED BY : TS CHECKED BY : JRG

DRILLING					MATERIAL							
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER											
S PWT		VE			8.0 -4.2			SAND: uniform, dark grey, trace sea-shells, trace clay.	M - W	L	ESTUARINE SOIL	
					9.0 -5.2		SP					
		E			10.0 -6.2		10.00m	Gravelly SAND: uniform, dark grey, sub-rounded to rounded, with clay.		L		
	F		11.0 -7.2			Silty CLAY: high plasticity, green brown mottled brown, trace gravel.	w≈PL	St - VSt	10.80-11.60: PP=50kPa 11.70-12.30: PP=190kPa			
	H		12.00m U		12.0 -8.2		12.40m	Gravelly Silty CLAY: medium to high plasticity, grey green-brown, with sand; fine to coarse grained gravel, sub-rounded to angular.			ALLUVIAL SOIL 12.50-13.00: PP=50kPa 13.00-16.30: PP>350kPa	
			12.32m									
				13.0 -9.2			13.10m: with medium to coarse grained pebble cobbles					
				14.0 -10.2			14.00m: trace dolerite coarse grained gravel and cobbles					
						Cl-CH						
					15.0 -11.2							
					16.0 -12.2							

See Explanatory Notes for

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU 6 GLB Log IS AU BOREHOLE 2A PS212776_MASTER.GPJ <<DrawingFiles>> 18/6/2024 12:11 10:00:00.009 Dugout Lab and In Situ Test - DGD [Lib: WSP 6.05 2/2025-08-23 Proj: WSP 6.04 0/2023-04-11]



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-005

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 5

POSITION : E: 527530.25, N: 5252373.53 (MGA2020-55) SURFACE ELEVATION : 3.76 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 27/4/2024 DATE COMPLETED : 28/4/2024 DATE LOGGED : 28/4/2024 LOGGED BY : TS CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
S PWT		H		Is(50) I>7.97 MPa	16.0 -12.2		CI-CH	Gravelly Silty CLAY: medium to high plasticity, grey green-brown, with sand; fine to coarse grained gravel, sub-rounded to angular. (continued)	w<PL	H	ALLUVIAL SOIL
			16.30m		DOLERITE: fine to coarse grained, brown with green-grey, inferred as extremely to highly weathered, very low to low strength rock.				ROCK		
			16.70m		DOLERITE: fine to medium grained, pale grey with green, inferred as extremely to highly weathered, iron strained, low strength.						
			17.0 -13.2		DOLERITE: fine to medium grained, grey brown, inferred as highly to moderately weathered, iron stained, low to medium strength.						
		VH			18.0 -14.2			DOLERITE: fine to medium grained, dark grey, inferred as slightly weathered, high to very high strength.			
			18.10m								
					18.80m						
					19.0 -15.2			Continued as Cored Drill Hole			
					20.0 -16.2						
					21.0 -17.2						
					22.0 -18.2						
					23.0 -19.2						
					24.0 -20.2						

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

HOLE NO : BH-005

CLIENT : MPDC
LOCATION : Macquarie Point

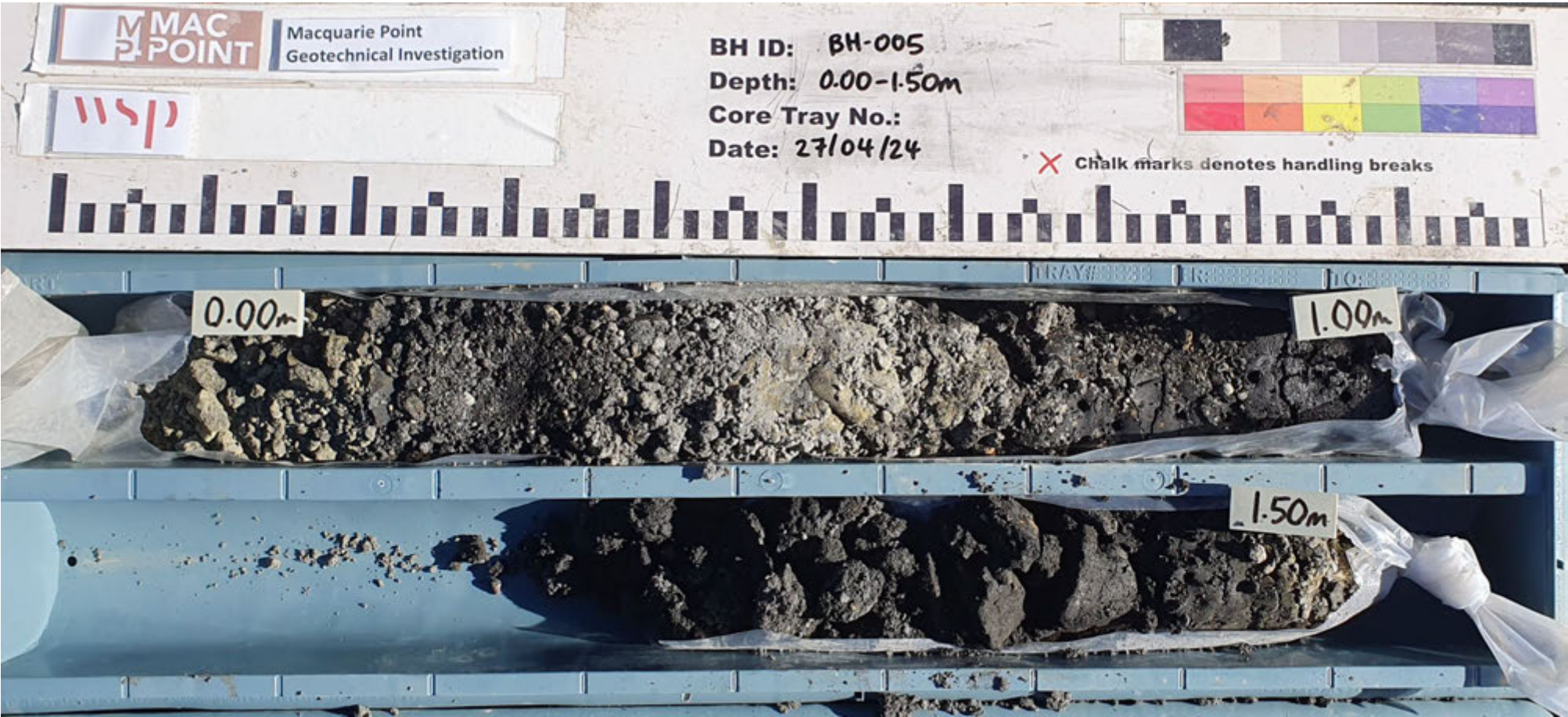
PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 4 OF 5

POSITION : E: 527530.25, N: 5252373.53 (MGA2020-55)	SURFACE ELEVATION : 3.76 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DATE STARTED : 27/4/2024	DATE COMPLETED : 28/4/2024	DATE LOGGED : 28/4/2024
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
		BIT CONDITION : Good

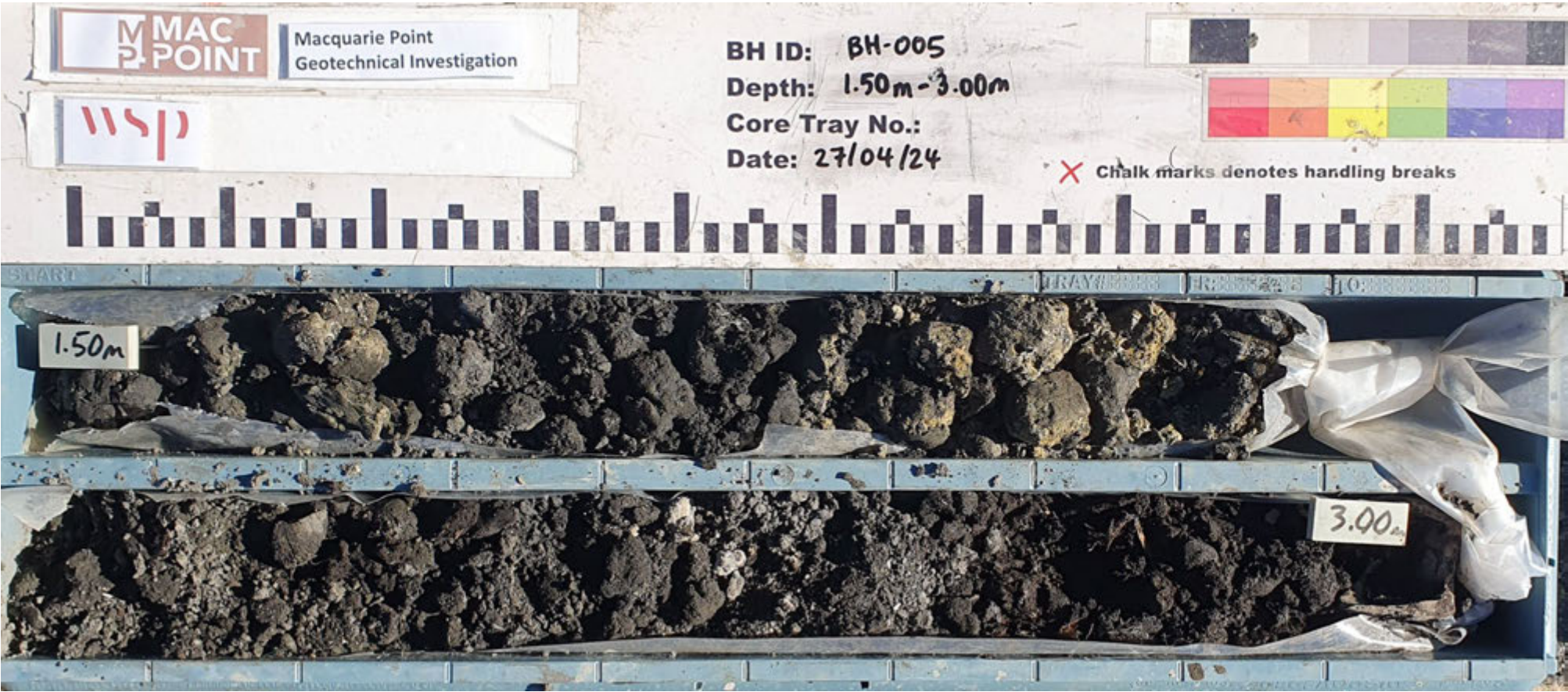
DRILLING					MATERIAL					FRACTURES				
PROGRESS		CORE LOSS (CORE LOSS RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
DRILLING & CASING	WATER								UCS-19 L ₉₀ ● - Axial ○ - Diametral ■ - UCS L - 2 M - 4 H - 20 VN - 40 EH - 200					
					16.0									
					17.0									
					18.0									
							18.80m START CORING AT 18.80m							
		0% LOSS	71	Is(50) D>8.85 MPa Is(50) A>9.31 MPa	19.0		DOLERITE: fine to medium grained, dark grey with pale blue, equigranular to phaneritic.	FR				J, 70°, VN, PR, RF, Zeo J, 10°, VN, PR, RF, Fe J, 10°, VN, PR, RF, Fe J, 40°, CN, PR, RF J, 80°, VN, PR, RF, Zeo J, 0 - 5°, VN, PR, RF, Zeo J, 0°, CN, PR, RF J, 70°, VN, PR, RF, Zeo J, 60°, VN, PR, RF, Zeo, Cal J, 5°, CN, PR, RF J, 20°, VN, CU, RF, Zeo J, 75°, VN, PR, RF, Zeo J, 20 - 30°, CT, UN, RF, Zeo, Chl J, 55 - 75°, CT, PR, SM-RF, Chl, Zeo J, 10°, CN, PR, RF		
		19.60 0% LOSS	100		20.0									
		21.10 0% LOSS	96	Is(50) D>9.16 MPa Is(50) A=6.51 MPa Is(50) D=5.53 MPa Is(50) A=6.16 MPa	21.0		21.74m: schlieren at 25-30° 21.80m: schlieren at 25-30° 21.84m: schlieren at 25-30°							
		22.66 0% LOSS	100	Is(50) D=5.83 MPa Is(50) A=4.82 MPa Is(50) D>9.42 MPa Is(50)	23.0									
					24.0									

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



PointID : BH-005 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/15



PointID : BH-005 Depth Range: 1.50 - 3.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/15



PointID : BH-005 Depth Range: 3.00 - 4.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/15



PointID : BH-005 Depth Range: 4.00 - 5.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/15



PointID : BH-005 Depth Range: 5.50 - 7.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/15



PointID : BH-005 Depth Range: 7.50 - 9.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024	
		CHECKED	DATE 18/6/2024	
		SCALE		A4
		PROJECT No PS212776		FIGURE No 6/15



PointID : BH-005 Depth Range: 9.00 - 11.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/15



PointID : BH-005 Depth Range: 11.00 - 13.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 8/15



PointID : BH-005 Depth Range: 13.00 - 15.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 9/15



PointID : BH-005 Depth Range: 15.00 - 16.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 10/15



PointID : BH-005 Depth Range: 16.50 - 18.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024		
		CHECKED	DATE 18/6/2024		
		SCALE Not To Scale			A4
		PROJECT No PS212776		FIGURE No 11/15	



PointID : BH-005 Depth Range: 18.00 - 18.80 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 12/15



PointID : BH-005 Depth Range: 18.80 - 22.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 13/15



PointID : BH-005 Depth Range: 22.00 - 26.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 14/15



PointID : BH-005 Depth Range: 26.00 - 28.82 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-005	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 15/15



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-006

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 5

POSITION : E: 527589.97, N: 5252384.82 (MGA2020-55) SURFACE ELEVATION : 3.39 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 8/5/2024 DATE COMPLETED : 9/5/2024 DATE LOGGED : 9/5/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL							
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations		
DRILLING & CASING	WATER											
S PWT	H	▽	F		0.0 3.4		0.05m	ASPHALTIC CONCRETE.	D	ROAD SURFACE		
					FILL Gravelly SAND: fine to coarse grained, dark grey, gravel is fine to medium grained, sub-angular. 0.2m: becoming green-grey		FILL					
					0.50m		FILL Sandy GRAVEL: fine to coarse, sub-angular to angular, dark grey.	D - M		Acid Sulfate Sampling every 0.5m to bedrock		
					1.0 2.4		1.50m	FILL Gravelly SAND: fine to coarse grained, dark grey and red-brown, gravel is fine to medium grained, sub-angular to angular; trace shell and glass fragments.		M		
					2.0 1.4		2.50m	FILL Sandy CLAY: medium to high plasticity, brown, sand is fine to medium grained. 2.80m: becoming dark grey, with gravels, fine to coarse grained, sub-angular to angular, trace tile and glass fragments		w≈PL	3.50-4.00: PP=145kPa	
					3.0 0.4		4.50m	FILL Gravelly SAND: fine to coarse grained, dark grey, gravel is fine to medium grained, sub-angular to angular; trace tile and glass fragments.		M - W		
					3.45m		5.20m	FILL Sandy CLAY: medium to high plasticity, dark green-grey.		w≈PL - w>PL		
					4.0 -0.6		5.60m	5.50m: organic layer (rootlets) for 100mm 5.60m: inferred reworked natural material for 200mm		M - W	VL - L	
					5.0 -1.6		5.80m	FILL SAND: fine to coarse grained, sub-rounded to sub-angular, grey, trace silt; trace sub-rounded gravel; with shell fragments. SAND: fine to coarse grained, sub-rounded, grey, trace silt; trace shell fragments.				
												6.00m U
6.45m		7.90-8.40: PP=50kPa										
7.0 -3.6	7.50m SPT 0,0,1 N=1	7.70m	CLAY: medium to high plasticity, green-grey, with fine to medium grained sand.									
					7.95m	CI-CH						

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-ISAU BOREHOLE 2A PS212776 MASTER.GPJ <<DrawingFile>> 18/6/2024 12:13 10:00:00.00 D:\git\Lab and in Situ Tools - DGD [Lib: WSP-6.05.2.2020-08-23 Proj: WSP-6.04.0.2023-04-11



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-006

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 2 OF 5

POSITION : E: 527589.97, N: 5252384.82 (MGA2020-55) SURFACE ELEVATION : 3.39 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 8/5/2024 DATE COMPLETED : 9/5/2024 DATE LOGGED : 9/5/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER										
S PWT		F			8.0 -4.6		CI-CH	CLAY: medium to high plasticity, green-grey, with fine to medium grained sand. (continued)	w≈PL - w>PL	VS	ESTUARINE SOIL
						8.50m		SAND: fine to coarse grained, sub-rounded, grey, trace silt; trace shell fragments.	M - W	L	
			9.00m SPT 3,1,2 N=3	9.0 -5.6			9.00-10.50m: No soil recovered from sonic run				
			9.45m								
			10.50m SPT 1,1,2 N=3	10.50m							
			10.95m								
			12.00m SPT 2,1,1 N=2	12.0 -8.6							
			12.45m 12.50m U 12.70m								
		H			13.0 -9.6		CI-CH	CLAY: medium to high plasticity, green-grey, with fine to medium grained sand.	w>PL - w≈LL	VS	ROCK
								DOLERITE: green-grey, recovered as sandy gravel, inferred weathered rock.			
								13.80m: becoming pale brown-grey			
					14.0 -10.6						
					15.0 -11.6						
								15.00m: becoming green-grey			
								15.30m			
								Continued as Cored Drill Hole			

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-15-AU-CORED-BOREHOLE-2A-PS212776-MASTER-GPJ <-DrawingFile>> 18/6/2024 12:13 10:03:00.09 Datalab and In Situ Tool - DGD [Lib: WSP 5.05.2 2023-08-23 Proj: WSP 5.04.0 2023-04-11]



CORED DRILL HOLE LOG

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

HOLE NO : BH-006

FILE / JOB NO : PS212776
SHEET : 3 OF 5

POSITION : E: 527589.97, N: 5252384.82 (MGA2020-55)

SURFACE ELEVATION : 3.39 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 8/5/2024

DATE COMPLETED : 9/5/2024

DATE LOGGED : 9/5/2024

LOGGED BY : MIR

CHECKED BY : JRG

CASING DIAMETER : 140 mm

BARREL (Length) : 1.50 m

BIT : IMPREG RC10

BIT CONDITION : Good

DRILLING					MATERIAL					FRACTURES								
PROGRESS		CORE LOSS (CORE RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH						NATURAL FRACTURE (mm)		VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS-19 L ₁₀₀ ● - Axial ○ - Diametral	UCS ■ - UCS	M ₄ □ - M ₄	H ₄ □ - H ₄	V ₁ -200 □ - V ₁ -200	E _h □ - E _h	20	40		
					8.0													
					9.0													
					10.0													
					11.0													
					12.0													
					13.0													
					14.0													
					15.0													
					15.30m		START CORING AT 15.30m											
		0% LOSS 15.60	0				DOLERITE: fine to medium grained, dark orange-brown, crystalline, phaneritic.	MW										
		0% LOSS	0															
				Is(50) I=1.88 MPa	16.0												SZ, Fe	

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



CORED DRILL HOLE LOG

HOLE NO : BH-006

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 4 OF 5

POSITION : E: 527589.97, N: 5252384.82 (MGA2020-55)	SURFACE ELEVATION : 3.39 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DATE STARTED : 8/5/2024	DATE COMPLETED : 9/5/2024	DATE LOGGED : 9/5/2024
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
		BIT CONDITION : Good

DRILLING				MATERIAL				FRACTURES					
PROGRESS		CORE LOSS (% LOSS) DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS=19 L ₁₀ M 20-40 H 40-200 EH	UCS=19 L ₁₀ M 20-40 H 40-200 EH			
		0% LOSS 16.20	0		16.0		16.10m: dark grey, fine to coarse grained	MW					
		0% LOSS	23					SW					
		17.75		Is(50) D=5.14 MPa Is(50) A>5.18 MPa Is(50) A=2.22 MPa Is(50) D>6.88 MPa	17.0								EW, 55 - 65°, PR, clay, 5mm J, 30 - 40°, SN, PR, SM, Fe Jx3, 0 - 10°, SN, ST, RF, Fe J, 80°, SN, PR, RF, Fe J, 20 - 60°, SN, ST, RF, Fe J, 70 - 75°, SN, PR, RF, Fe J, 70 - 75°, SN, PR, RF, Fe, Cal J, 80 - 90°, SN, UN, RF, Cal Jx2, 65 - 75°, CN, PR, RF J, 40 - 50°, SN, PR, RF, Fe J, 45°, CN, PR, RF Jx4, 10 - 30°, VN, PR, RF, Fe Jx2, 0 - 30°, SN, UN, RF, Fe SZ, 70 - 90°, UN, RF, brecciated gravelly clay J, 30 - 40°, CN, PR, SM
		0% LOSS	100		18.0		18.50m: fine to medium grained						J, 50 - 60°, SN, PR, SM, Chl
		19.25		Is(50) D=2.13 MPa Is(50) A=0.140 MPa	19.0								J, 60°, VN, PR, SM, Cal EW, 80 - 90°, VN, UN, RF, gravelly clay, Cal
		0% LOSS	100		20.0		20.30-24.40m: multiple healed joints 20.50-20.83m: hydrothermal breccia, vuggy texture						J, 60 - 70°, CN, PR, SM EW, 80 - 90°, IR, RF, Zeo, Cal, 3mm J, 45 - 55°, CN, CU, SM
		20.75		Is(50) D=4.35 MPa Is(50) A>5.69 MPa	21.0								J, 20 - 30°, SN, PR, SM
		0% LOSS	100		22.0								J, 70 - 90°, SN, CU, SM, Cal, Qz
		22.26		Is(50) D>5.88 MPa Is(50) A=6.35 MPa	23.0		23.15-23.74m: brecciated healed vein, irregular, dolerite clasts, fine to medium grained, sub-angular to angular						J, 10 - 20°, CN, PR, SM J, 30 - 40°, CN, PR, SM J, 70 - 80°, CN, PR, RF J, 45 - 55°, SN, PR, SM, Chl
		0% LOSS	100	Is(50) D>6.09 MPa Is(50) A>5.78 MPa	24.0								J, 20 - 50°, CN, UN, SM J, 55 - 65°, SN, PR, RF, Fe, Chl
		23.86		Is(50) D=4.48 MPa Is(50) A>4.23 MPa	25.0								J, 20 - 30°, VN, ST, RF, Chl
		0% LOSS	100	Is(50) D=5.76 MPa	26.0								

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



CORED DRILL HOLE LOG

HOLE NO : BH-006

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 5 OF 5

POSITION : E: 527589.97, N: 5252384.82 (MGA2020-55)	SURFACE ELEVATION : 3.39 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 8/5/2024	DATE COMPLETED : 9/5/2024
DATE LOGGED : 9/5/2024	LOGGED BY : MIR	CHECKED BY : JRG
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
BIT CONDITION : Good		

DRILLING					MATERIAL				FRACTURES				
PROGRESS		CORE LOSS (% CORE LOSS DRILL RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS=19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS H - 20 40 60 80 100 V ₁ - 200 E ₁				
HQ3 ↓	95-100% Polymer RETURN ↓	0% LOSS	100	Is(50) A=1.12 MPa	24.0		24.00-24.30m: brecciated healed pocket, irregular dolerite clasts, fine to medium grained, sub-angular to angular	SW				— J, 40 - 50°, CN, PR, RF — J, 70 - 80°, VN, PR, RF, Chl — J, 65 - 75°, SN, PR, RF, Chl	
				25.08m UCS =172 MPa	25.0			FR					
		25.40					25.40m Hole Terminated at 25.40 m Target depth Grouted to Surface						
					26.0								
					27.0								
					28.0								
					29.0								
					30.0								
					31.0								
					32.0								

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



PointID : BH-006 Depth Range: 0.00 - 2.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/12



PointID : BH-006 Depth Range: 2.00 - 4.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/12



PointID : BH-006 Depth Range: 4.00 - 5.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/12



PointID : BH-006 Depth Range: 5.00 - 7.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/12



PointID : BH-006 Depth Range: 7.00 - 8.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/12



PointID : BH-006 Depth Range: 8.00 - 10.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024	
		CHECKED	DATE 18/6/2024	
		SCALE Not To Scale		A4
		PROJECT No PS212776		FIGURE No 6/12



PointID : BH-006 Depth Range: 10.50 - 13.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/12



PointID : BH-006 Depth Range: 13.00 - 15.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 8/12



PointID : BH-006 Depth Range: 15.00 - 15.30 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 9/12



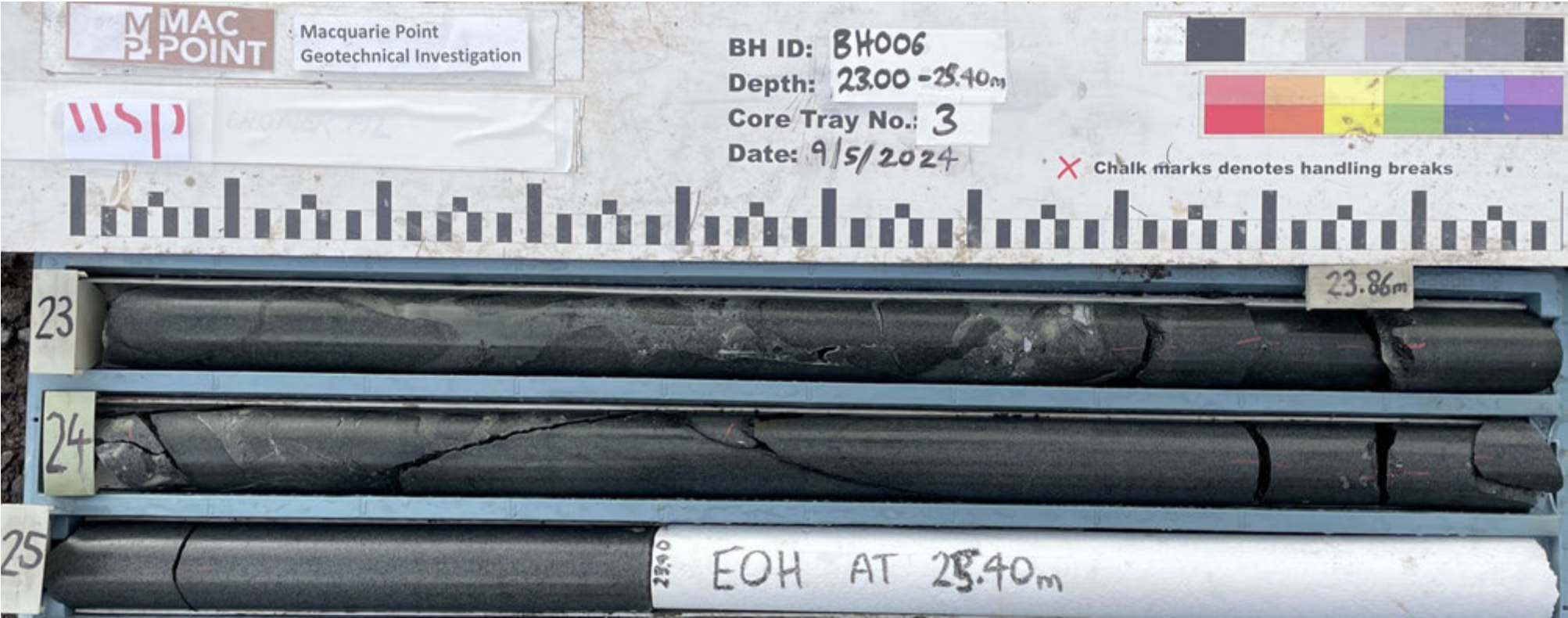
PointID : BH-006 Depth Range: 15.30 - 19.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 10/12



PointID : BH-006 Depth Range: 19.00 - 23.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 11/12



PointID : BH-006 Depth Range: 23.00 - 25.40 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-006	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 12/12

POSITION : E: 527618.42, N: 5252416.64 (MGA2020-55)

SURFACE ELEVATION : 3.06 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 2/5/2024

DATE COMPLETED : 3/5/2024

DATE LOGGED : 2/5/2024

LOGGED BY : MIR

CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER										
S PWT	F				0.0 3.1			ASPHALTIC CONCRETE.		ROAD SURFACE Acid Sulfate Sampling every 0.5m to bedrock	
					0.45m		FILL Gravelly SAND: fine to coarse grained, sub-angular to sub-rounded, dark grey mottled brown, gravel is fine to medium grained, angular to sub-rounded; with clay; with some waste inclusions (plastic and brick fragments).	M	FILL		
					1.0 2.1		1.45m	FILL Clayey Gravelly SAND: dark grey, gravel is fine to medium grained, angular to sub-rounded; clay is medium plasticity; with glass fragments and wood chips.	M - W		
					2.0 1.1		2.00m	FILL Sandy CLAY: medium plasticity, dark grey mottled yellow-brown. 2.20m: medium to high plasticity, dark grey, decreasing sand content; trace medium grained, sub-rounded gravel; trace glass and tile fragments	w<PL	2.20: PP =280 kPa 2.40: PP =48 kPa	
					3.0 0.1		3.00-6.00m: slight tar odour	w≈PL			
					3.45m						
					4.0 -0.9		4.00m	FILL SAND: fine to coarse grained, sub-angular to sub-rounded, dark grey, with clay; trace medium to coarse grained, sub-rounded gravel; trace waste and wood fragments. 4.50m: with fine to coarse grained, sub-angular gravel	M		
					5.0 -1.9			5.50-5.70m: lense of medium to high plasticity, green-grey clay	M - W		
					6.0 -2.9		6.00m	5.90-6.00m: metal fragments recovered			
					6.45m						
					6.00m SPT 0,0,1 N=1			SAND: fine to medium grained, sub-rounded, grey, with silt; with shell fragments.	M - W	VL - L	ESTUARINE SOIL
					6.45m		6.60m	DOLERITE: fine to coarse grained, yellow-brown, sub-angular to sub-rounded gravel, inferred as highly weathered. 7.00m: recovered as gravel and silt, inferred as highly to moderately weathered, grey			ROCK
					7.0 -3.9		7.80m				
					8.0			Continued as Cored Drill Hole			

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

HOLE NO : BH-007

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 2 OF 4

POSITION : E: 527618.42, N: 5252416.64 (MGA2020-55)	SURFACE ELEVATION : 3.06 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 2/5/2024	DATE COMPLETED : 3/5/2024
DATE LOGGED : 2/5/2024	LOGGED BY : MIR	CHECKED BY : JRG
CASING DIAMETER : 150 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
BIT CONDITION : Good		

DRILLING					MATERIAL				FRACTURES			
PROGRESS		CORE LOSS (CORE LOSS DRILL RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH ● - Axial ○ - Diametral ■ - UCS UCS=19 L ₁₀₀ M ₂₀ H ₄₀ V ₁₋₂₀₀ Eh	NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER											
					0.0							
					1.0							
					2.0							
					3.0							
					4.0							
					5.0							
					6.0							
					7.0							
					7.80m		START CORING AT 7.80m					
HQ3	↑	0% LOSS	44		8.0		DOLERITE: fine to coarse grained, dark grey-blue, crystalline, phaneritic.	SW				J, 60 - 90°, SN, CU, SM, Fe

See Explanatory Notes for
details of abbreviations
& basis of descriptions.

File: PS212776 BH-007 3 OF 4



CORED DRILL HOLE LOG

HOLE NO : BH-007

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 4 OF 4

POSITION : E: 527618.42, N: 5252416.64 (MGA2020-55)	SURFACE ELEVATION : 3.06 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 2/5/2024	DATE COMPLETED : 3/5/2024
DATE LOGGED : 2/5/2024	LOGGED BY : MIR	CHECKED BY : JRG
CASING DIAMETER : 150 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
BIT CONDITION : Good		

DRILLING					MATERIAL					FRACTURES							
PROGRESS		CORE LOSS (% CORE RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH					NATURAL FRACTURE (mm)		VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								VL-2 L-4 M-6 H-8 VH-60 EH-200	UCS-19 - Axial - UCS - UCS	Diagonal - Diagonal - Diagonal	20 40 100 300 1000					
HQ3	100% Polymer RETURN	0% LOSS	100	Is(50) D>6.00 MPa Is(50) A>7.25 MPa	16.0		DOLERITE: fine to coarse grained, dark grey-blue, crystalline, phaneritic. (continued) UCS failure influenced by single shear plane, not indicative of true rock strength 16.50m: increasing coarse grained minerals	FR							J, 0 - 10°, CN, PR, RF		
		16.75		16.40m UCS =46 MPa													
		0% LOSS	100	Is(50) A=6.69 MPa Is(50) D>6.01 MPa	17.0												
				Is(50) D=5.65 MPa Is(50) A>2.75 MPa	18.0												
					18.30m		Hole Terminated at 18.30 m Target depth Grouted to Surface										
					19.0												
					20.0												
					21.0												
					22.0												
					23.0												
					24.0												

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



PointID : BH-007 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-007	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/8



PointID : BH-007 Depth Range: 1.50 - 3.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-007	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/8



PointID : BH-007 Depth Range: 3.00 - 4.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-007	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/8



PointID : BH-007 Depth Range: 4.50 - 7.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-007	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/8



PointID : BH-007 Depth Range: 7.00 - 7.80 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-007	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/8



PointID : BH-007 Depth Range: 7.80 - 11.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-007	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/8



PointID : BH-007 Depth Range: 15.00 - 18.30 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-007	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 8/8



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-008

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 4

POSITION : E: 527630.36, N: 5252462.47 (MGA2020-55) SURFACE ELEVATION : 3.57 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 7/5/2024 DATE COMPLETED : 7/5/2024 DATE LOGGED : 7/5/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL							
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER											
		F			0.0		0.06m	ASPHALTIC CONCRETE.	D		ROAD SURFACE	
					0.30m		0.30m	FILL Gravelly SAND: fine to coarse grained, sub-rounded to sub-angular, orange-brown, gravel is fine to medium grained, sub-angular to angular. FILL Sandy GRAVEL: fine to coarse, to 150 mm, sub-rounded to angular, grey-brown.			FILL Acid Sulfate Sampling every 0.5m to bedrock	
					1.0		1.00m	FILL Gravelly SAND: fine to coarse grained, sub-rounded to sub-angular, brown and grey, gravel is fine to coarse grained, sub-rounded to angular; trace silt.				
					1.50m							
					1.95m		2.00m	1.90m: shell fragments FILL Clayey SAND: fine to coarse grained, sub-rounded to sub-angular, dark grey, clay is medium plasticity; trace fine to medium grained, sub-angular gravel; trace waste fragments (tile, brick, concrete, wood chips, metal, glass).				
					3.00m							
					3.45m							
					4.0		4.25m	4.00m: becoming orange-brown FILL Silty Clayey SAND: fine to coarse grained, sub-rounded to sub-angular, dark grey, clay is low to medium plasticity; trace metal and wire fragments. 4.25-5.00m: slight hydrocarbon / tar odour				
					5.0		5.60m	DOLERITE: grey, recovered as sand, fine to coarse grained, sub-rounded to sub-angular, green-grey, with gravel, inferred highly weathered.			M - W	ROCK
					6.0		6.00m	DOLERITE: grey orange-brown, recovered as sandy gravel, fine to coarse grained, inferred highly weathered to moderately weathered.				
		H			7.0		7.40m	Continued as Cored Drill Hole				
					8.0							

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-18/6/2024 12:16 10:00:00:09 D:\git\Lab and in Situ Test - DGD [Lib: WSP-6.05.2.2022-08-23 Proj: WSP-6.04.0.2023-04-11

WSP-AU 6.0 G.L.B. Log IS AU CORED BOREHOLE 2A PS212776 MASTER.GPJ <<DrawingFile>> 18/6/2024 12:17 10.03.00.09 Datalab and In Situ Tool - DGD [Lib: WSP 5.05.2 2023-08-23 Proj: WSP 6.04.0 2023-04-11]



CORED DRILL HOLE LOG

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

HOLE NO : BH-008

FILE / JOB NO : PS212776
SHEET : 2 OF 4

POSITION : E: 527630.36, N: 5252462.47 (MGA2020-55)

SURFACE ELEVATION : 3.57 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 7/5/2024

DATE COMPLETED : 7/5/2024

DATE LOGGED : 7/5/2024

LOGGED BY : MIR

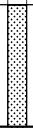
CHECKED BY : JRG

CASING DIAMETER : 150 mm

BARREL (Length) : 1.50 m

BIT : IMPREG RC10

BIT CONDITION : Good

DRILLING					MATERIAL					FRACTURES						
PROGRESS		CORE LOSS (CORE LOSS DRILL RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH					NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS-19 L ₁₀ (MPa)	UCS-19 L ₅₀ (MPa)	UCS-19 L ₉₀ (MPa)	UCS-19 L ₉₅ (MPa)				
					0.0				VL	2						
					1.0				L	4						
					2.0				M	9						
					3.0				H	40						
					4.0				VH	200						
					5.0				EH							
					6.0											
					7.0											
					7.40m		START CORING AT 7.40m									
		0% LOSS	86				DOLERITE: fine to coarse grained, dark grey-blue, crystalline, phaneritic texture.	SW							CS, 40 - 50°, CT, PR, RF, gravel, Fe, 2mm	
				Is(50) D>6.30 MPa Is(50)	8.0											

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

HOLE NO : BH-008

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 4

POSITION : E: 527630.36, N: 5252462.47 (MGA2020-55) SURFACE ELEVATION : 3.57 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 7/5/2024 DATE COMPLETED : 7/5/2024 DATE LOGGED : 7/5/2024 LOGGED BY : MIR CHECKED BY : JRG
CASING DIAMETER : 150 mm BARREL (Length) : 1.50 m BIT : IMPREG RC10 BIT CONDITION : Good

DRILLING					MATERIAL				FRACTURES			
PROGRESS		CORE LOSS (CORE LOSS RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH	NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER											
		0% LOSS	86	A>7.16 MPa	8.0		DOLERITE: fine to coarse grained, dark grey-blue, crystalline, phaneritic texture. <i>(continued)</i>	SW				J, 70 - 80°, VN, PR, RF, Fe
		8.90						MW				J, 20°, CT, PR, VR, Fe J, 20 - 25°, CT, PR, VR, Fe J, 70 - 80°, CT, PR, VR, Fe J, 60 - 70°, VN, PR, RF, Fe J, 20 - 30°, SN, PR, RF, Fe J, 0 - 10°, CT, PR, VR, Fe CS, 25 - 35°, PR, VR, gravel, Fe, 20mm
		0% LOSS	100	Is(50) A>5.13 MPa Is(50) D>5.88 MPa	9.0			SW				J, 10 - 20°, SN, PR, SM, Fe J, 30 - 80°, SN, ST, RF, Fe J, 0 - 10°, SN, PR, RF, Fe
		10.46		Is(50) D>5.88 MPa Is(50) A>6.76 MPa	10.0			FR				
		0% LOSS	100									
				Is(50) A>6.82 MPa Is(50) D>5.88 MPa	11.0							
		12.00		11.74m UCS =98.6 MPa	12.0		UCS failure influenced by defects, not indicative of true rock strength					
		0% LOSS	100	Is(50) D>6.05 MPa								
				Is(50) A>7.23 MPa Is(50) D>6.47 MPa	13.0							
		13.46		Is(50) A>6.17 MPa								
		0% LOSS	100	Is(50) A>6.17 MPa Is(50) D=5.72 MPa	14.0		13.80m: pale grey, porphyritic texture, chlorite and sericite alteration	SW - FR				
							14.40m: dark grey-blue, phaneritic texture, fine to medium grained	FR				
		15.10		Is(50) D>6.17 MPa Is(50) A>5.72 MPa	15.0							
		0% LOSS	100	Is(50) A>5.69 MPa Is(50) D>6.17 MPa			15.60m: dolerite breccia, cobbles, well rounded, matrix gravel and sands, angular, well graded, with hydrothermal mineral infill, lithified					J, 40 - 50°, CN, PR, SM

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

HOLE NO : BH-008

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 4 OF 4

POSITION : E: 527630.36, N: 5252462.47 (MGA2020-55)	SURFACE ELEVATION : 3.57 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 7/5/2024	DATE COMPLETED : 7/5/2024
DATE LOGGED : 7/5/2024	LOGGED BY : MIR	CHECKED BY : JRG
CASING DIAMETER : 150 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
BIT CONDITION : Good		

DRILLING					MATERIAL					FRACTURES							
PROGRESS		CORE LOSS (CORE LOSS RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH					NATURAL FRACTURE (mm)		VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS-19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS H - 20 M - 40 L - 60 VL - 200 EH								
HQ3 ↓	↓	0% LOSS 16.56	100		16.0		DOLERITE: fine to coarse grained, dark grey-blue, crystalline, phaneritic texture. (continued)	FR	VL L M H VL-200 EH								
					16.56m		Hole Terminated at 16.56 m Target depth Grouted to Surface										
					17.0												
					18.0												
					19.0												
					20.0												
					21.0												
					22.0												
					23.0												
					24.0												

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



PointID : BH-008 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-008	DRAWN	DATE 18/6/2024	
		CHECKED	DATE 18/6/2024	
		SCALE Not To Scale		A4
		PROJECT No PS212776		FIGURE No 1/8



PointID : BH-008 Depth Range: 1.50 - 4.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-008	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/8



PointID : BH-008 Depth Range: 4.00 - 5.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-008	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/8



PointID : BH-008 Depth Range: 5.00 - 7.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-008	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/8



PointID : BH-008 Depth Range: 7.00 - 7.40 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-008	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/8



PointID : BH-008 Depth Range: 7.40 - 11.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-008	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/8



PointID : BH-008 Depth Range: 11.00 - 15.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-008	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/8



PointID : BH-008 Depth Range: 15.00 - 16.56 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-008	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 8/8



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-009

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 4

POSITION : E: 527621.45, N: 5252515.83 (MGA2020-55) SURFACE ELEVATION : 4.13 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 10/5/2024 DATE COMPLETED : 11/5/2024 DATE LOGGED : 10/5/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER										
		F-H			0.0		0.06m	ASPHALTIC CONCRETE.	M	ROAD SURFACE	
					0.40m		FILL Clayey SAND: fine to coarse grained, sub-rounded to sub-angular, dark grey, clay is medium plasticity; with gravel; trace wood chips, glass and tile fragments.	FILL Acid Sulfate Sampling every 0.5m to bedrock			
					1.0		FILL Gravelly SAND: fine to coarse grained, sub-rounded to sub-angular, brown and grey, gravel is fine to coarse grained, sub-rounded to sub-angular.				
					3.1		0.80m: becoming dark brown				
							1.00m: becoming orange-brown, with clay				
							1.40m: becoming red-brown, with brick fragments, trace clay, trace nails and glass fragments				
					2.0		1.90m			FILL SAND: fine to coarse grained, sub-rounded to sub-angular, dark grey, with fine to medium grained, sub-rounded to angular gravel; with clay; trace glass, tile, wood and brick fragments.	
					2.1						
					3.0		3.00m			FILL Clayey SAND: fine to coarse grained, sub-rounded to sub-angular, dark grey, with gravel; trace glass, tile, wood and brick fragments. 3.00-5.00m: moderate hydrocarbon / tar odour	
					3.1						
		F			3.45m					M - W	6.80: PP =50 kPa
					4.0			3.80m: becoming dark green-grey, increasing gravel content, trace shell fragments			
					0.1			4.50m: becoming dark grey			
					5.0		5.00m	FILL SAND: fine to coarse grained, sub-angular, dark grey, with fine to coarse grained, sub-rounded to sub-angular gravel; with clay; trace wood, glass and shell fragments.			
					-0.9			5.80m: becoming fine to medium, sub-rounded, grey			
					6.0						
					-1.9		6.40m	FILL Sandy CLAY: medium to high plasticity, dark grey to grey, sand is fine to medium grained; metal fragments, trace shell fragments.			
					6.45m						
					7.0		7.00m	FILL CLAY: high plasticity, green-grey.			
					-2.9						
								F-H			
7.95m	8.00m		7.70: PP =90 kPa 7.90: PP >500 kPa								

See Explanatory Notes for details of abbreviations & basis of descriptions.



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-009

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 2 OF 4

POSITION : E: 527621.45, N: 5252515.83 (MGA2020-55) SURFACE ELEVATION : 4.13 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 10/5/2024 DATE COMPLETED : 11/5/2024 DATE LOGGED : 10/5/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
S PWT		F-H			8.0 -3.9			DOLERITE: recovered as silty gravel, fine to coarse grained, inferred extremely to highly weathered.	D		ROCK
					9.0 -4.9		9.00m	Continued as Cored Drill Hole			
					10.0 -5.9						
					11.0 -6.9						
					12.0 -7.9						
					13.0 -8.9						
					14.0 -9.9						
					15.0 -10.9						
					16.0 -11.9						

See Explanatory Notes for
details of abbreviations
& basis of descriptions.

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 4

POSITION : E: 527621.45, N: 5252515.83 (MGA2020-55)

SURFACE ELEVATION : 4.13 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 10/5/2024

DATE COMPLETED : 11/5/2024

DATE LOGGED : 10/5/2024

LOGGED BY : MIR

CHECKED BY : JRG

CASING DIAMETER : 140 mm

BARREL (Length) : 1.50 m BIT : IMPREG RC10

BIT : IMPREG RC10

BIT CONDITION : Good

[illegible]

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

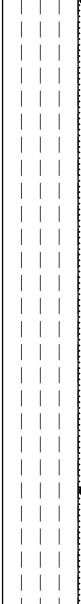
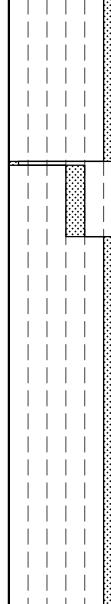
HOLE NO : BH-009

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 4 OF 4

POSITION : E: 527621.45, N: 5252515.83 (MGA2020-55)	SURFACE ELEVATION : 4.13 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 10/5/2024	DATE COMPLETED : 11/5/2024
DATE LOGGED : 10/5/2024	LOGGED BY : MIR	CHECKED BY : JRG
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
BIT CONDITION : Good		

DRILLING					MATERIAL				FRACTURES					
PROGRESS		CORE LOSS (% CORE LOSS DEPTH)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)		VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS=19 _{test} Axial	Cometral	200	20		
HQ3	100% Polymer RETURN	0% LOSS	99	A=2.76 MPa Is(50) A>4.94 MPa Is(50) D>6.15 MPa	16.0		DOLERITE: fine to coarse grained, orange-brown, porphyritic. (continued) 16.00m: fine to coarse grained, grey-blue, porphyritic	SW FR				Jx2, 70 - 80°, CT, PR, RF, Zeo, Cal, Fe J, 30 - 40°, CN, PR, SM J, 30°, SN, PR, RF, Fe J, 25 - 35°, SN, PR, SM, Cal		
		17.50 0% LOSS	100	Is(50) D>5.91 MPa Is(50) A>5.95 MPa	17.0		17.05m: fine to medium grained, grey, crystalline, trace pyrite							
		19.00		Is(50) D>6.52 MPa Is(50) A>4.94 MPa 18.65m UCS =153 MPa	19.0		Hole Terminated at 19.00 m Target depth Grouted to Surface							
					20.0									
					21.0									
					22.0									
					23.0									
					24.0									

See Explanatory Notes for
details of abbreviations
& basis of descriptions.



PointID : BH-009 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/9



PointID : BH-009 Depth Range: 1.50 - 4.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/9



PointID : BH-009 Depth Range: 4.00 - 5.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024	
		CHECKED	DATE 18/6/2024	
		SCALE		A4
		PROJECT No PS212776		FIGURE No 3/9



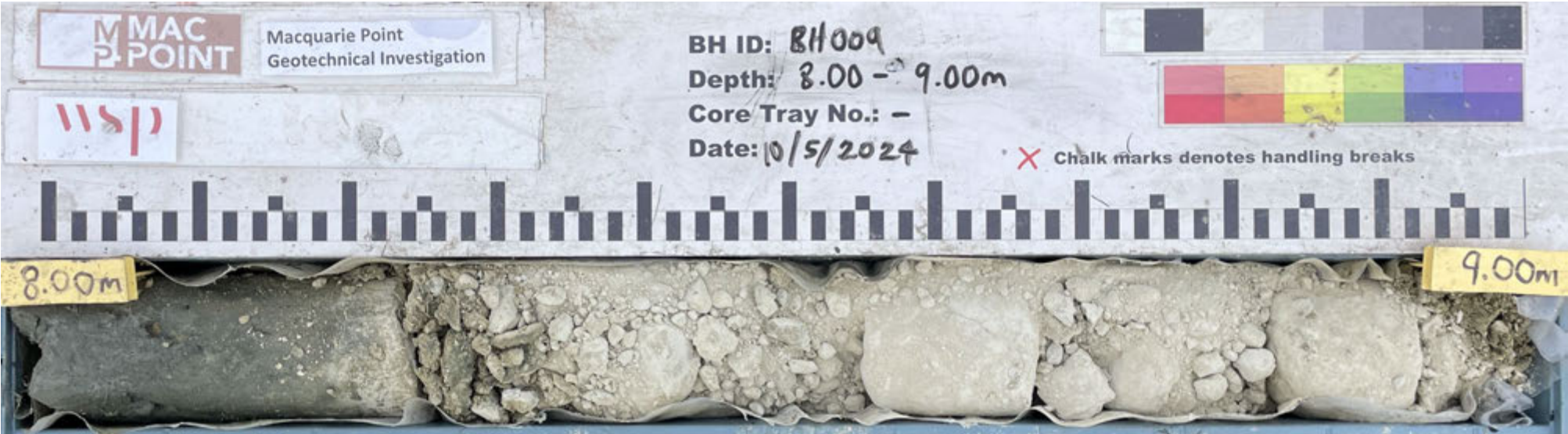
PointID : BH-009 Depth Range: 5.00 - 6.80 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/9



PointID : BH-009 Depth Range: 6.80 - 8.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/9



PointID : BH-009 Depth Range: 8.00 - 9.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/9



PointID : BH-009 Depth Range: 9.00 - 13.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/9



PointID : BH-009 Depth Range: 13.00 - 17.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 8/9



PointID : BH-009 Depth Range: 17.00 - 19.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-009	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 9/9

POSITION : E: 527566.95, N: 5252576.11 (MGA2020-55)

SURFACE ELEVATION : 5.07 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

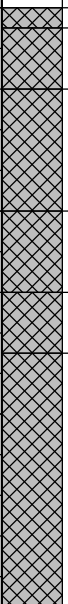
DATE STARTED : 24/4/2024

DATE COMPLETED : 26/4/2024

DATE LOGGED : 26/4/2024

LOGGED BY : TS

CHECKED BY : JRG

DRILLING					MATERIAL							
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER											
S PWT		E-F			0.0 5.1			0.10m FILL Sandy GRAVEL: fine to medium, sub-angular to angular, brown, trace coarse grained gravel.	D		FILL Acid Sulfate Sampling every 0.5m to bedrock	
				0.40m FILL Gravelly SAND: medium to coarse grained, pale brown, gravel is fine to medium grained, sub-angular to angular.								
				1.00m FILL Gravelly SAND: fine to coarse grained, pale grey to dark grey, gravel is fine to medium grained; trace coarse grained gravel, trace clay.								
				1.40m FILL Sandy GRAVEL: fine to medium, sub-angular to angular, pale grey, sand is fine to coarse grained.								
	1.50m SPT 3,5,5 N=10			1.70m FILL Silty CLAY: high plasticity, black mottled yellow brown, with fine to medium grained, sub-angular to angular gravel, trace brick and glass.								
	1.95m			FILL Clayey GRAVEL: fine to coarse, sub-angular to angular, grey to brown.								
	3.00m SPT 7,6,5 N=11			3.00m Silty Gravelly CLAY: medium plasticity, brown grey, gravel is fine to medium grained, sub-angular to angular; with sub-rounded to rounded pebbles, glass, sea shells, brick fragment. trace iron stained dolerite gravel.								
	3.45m			Silty CLAY: high plasticity, dark brown mottled dark green grey, with sea shells, coarse grained sand and dolerite.								
	4.50m U			4.50m SAND: fine to medium grained, grey brown, trace dolerite coarse grained gravels.								
	4.75m			DOLERITE: fine to medium grained, pale grey brown, with iron staining, inferred as highly weathered and medium strength.								
F-H				4.90m SPT 17,10/60mm HB N=R 5.11m	5.0 0.1			6.00m DOLERITE: fine to medium grained, pale grey brown, inferred as highly weathered and medium strength.	D		ROCK	
				7.50m Continued as Cored Drill Hole								
		VH										

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-15-AU-CORED-BOREHOLE-2A-PS212776-MASTER-GPJ <<DrawingFile>> 18/6/2024 12:22 10.03.00.09 Datalog Lab and In Situ Tool - DGD [Lib: WSP 5.05.2 2023-08-23 Proj: WSP 5.04.0 2023-04-11]

		CORED DRILL HOLE LOG				HOLE NO : BH-010												
CLIENT : MPDC		PROJECT : Macquarie Point GI				FILE / JOB NO : PS212776												
LOCATION : Macquarie Point						SHEET : 2 OF 4												
POSITION : E: 527566.95, N: 5252576.11 (MGA2020-55)						SURFACE ELEVATION : 5.07 (AHD)		ANGLE FROM HORIZONTAL : 90°										
RIG TYPE : MRS XL Max		MOUNTING : Track		CONTRACTOR : SWD		DRILLER : GB												
DATE STARTED : 24/4/2024		DATE COMPLETED : 26/4/2024		DATE LOGGED : 26/4/2024		LOGGED BY : TS		CHECKED BY : JRG										
CASING DIAMETER : 150 mm		BARREL (Length) : 1.50 m		BIT : IMPREG RC10		BIT CONDITION : Good												
DRILLING						MATERIAL				FRACTURES								
PROGRESS		CORE LOSS (CORE LOSS DRILL DEPTH)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH						NATURAL FRACTURE (mm)		VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS=19 L ₁₀₀ ● Axial ○ Diametral ■ UCS L 2 J 4 M 9 H 20 VH 40 EH 200			20 40 100 300 1000						
					0.0													
					1.0													
					2.0													
					3.0													
					4.0													
					5.0													
					6.0													
					7.0													
					7.50m		7.50m START CORING AT 7.50m											
							DOLERITE: fine to medium grained, grey with pale blue, iron staining on rock and along defects.	MW								J, 65°, CT, PR, RF, Fe, clayey gravel		
							7.50m-11.00m: broken core induced by drilling									J, 10°, CT, PR, RF, Fe, clay, 2mm		
					8.0													
See Explanatory Notes for details of abbreviations & basis of descriptions.																		



CORED DRILL HOLE LOG

HOLE NO : BH-010

CLIENT : MPDC
LOCATION : Macquarie Point

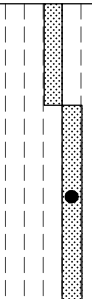
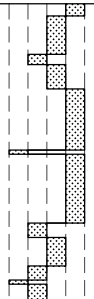
PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 4

POSITION : E: 527566.95, N: 5252576.11 (MGA2020-55)				SURFACE ELEVATION : 5.07 (AHD)				ANGLE FROM HORIZONTAL : 90°															
RIG TYPE : MRS XL Max				MOUNTING : Track				CONTRACTOR : SWD				DRILLER : GB											
DATE STARTED : 24/4/2024				DATE COMPLETED : 26/4/2024				DATE LOGGED : 26/4/2024				LOGGED BY : TS				CHECKED BY : JRG							
CASING DIAMETER : 150 mm				BARREL (Length) : 1.50 m				BIT : IMPREG RC10				BIT CONDITION : Good											
DRILLING								MATERIAL								FRACTURES							
PROGRESS		CORE LOSS (CORE LOSS RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=19 L ₉₅ ● Axial ○ Diametral ■ UCS VN=200 H=40 M=20 L=10 J=5 VL=2	NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other											
DRILLING & CASING	WATER																						
HQ3	90% Polymer RETURN	0% LOSS	0	Is(50) I=2.74 MPa	8.0		DOLERITE: fine to medium grained, grey with pale blue, iron staining on rock and along defects. (continued)	MW				J, 10°, CT, PR, RF, Fe, clay, 4mm J, 60°, CT, PR, RF, Fe, Fsp and Pl, clay J, 30°, CT, PR, SM-RF, Fe, clay J, 15°, VN, PR, RF, Fe J, 20°, VN, PR, RF, Fe, clay J, 5°, VN, PR, RF, Fe, clay J, 5°, VN, PR, RF, Fe, clay J, 10°, VN, PR, RF, Fe J, 5°, VN, PR, RF, Fe J, 10°, VN, PR, RF, Fe, clay J, 10°, VN, PR, RF, Fe, clay J, 10°, VN, PR, RF, Fe, clay J, 10°, VN, PR, RF, Fe, clay J, 15°, VN, PR, RF, Fe J, 85° CT, PR, RF, Fe, clay J, 20°, VN, PR, RF, Fe, clay J, 40° VN, PR, RF, Fe, clay J, 25° VN, PR, RF, Fe, clay J, 40° CT, PR, RF, Fe, clay, Pl J, 20° VN, PR, RF, Fe J, 75° VN, PR, RF, Fe, clay J, 45° VN, PR, RF, Fe J, 80° CN, PR, RF, Fe J, 5° VN, PR, RF, Fe, clay J, 15° SN, PR, RF, Fe J, 65° VN, PR, RF, Fe J, 25° CN, PR, RF, Fe J, 60° VN, PR, RF, Fe J, 20° VN, PR, RF, Fe J, 50° SN, PR, RF, Fe J, 30° SN, PR, RF, Fe J, 30° SN, PR, RF, Fe J, 25° VN, PR, RF, Fe SZ, clayey gravel J, 70° VN, PR, RF, Fe, clay J, 0° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 15° SN, PR, RF, Fe J, 30° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 15° SN, PR, RF, Fe J, 40° SN, PR, RF, Fe J, 50° SN, PR, RF, Fe J, 5° SN, PR, RF, Fe J, 75 - 85° SN, PR, RF, Fe J, 70° SN, PR, RF, Fe J, 35° SN, PR, RF, Fe J, 20° SN, PR, RF, Fe J, 25° SN, PR, RF, Fe Jx3, 15° SN, PR, RF, Fe J, 30° SN, PR, RF, Fe J, 5° SN, PR, RF, Fe J, 25° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 0° SN, PR, RF, Fe J, 0° SN, PR, RF, Fe J, 5 - 10° SN, PR, RF, Fe J, 40° SN, PR, RF, Fe J, 75° SN, PR, RF, Fe SZ, Fe, gravel SZ, Fe J, 45° SN, PR, RF, Fe J, 45° SN, PR, RF, Fe J, 15° SN, PR, RF, Fe J, 25° SN, PR, RF, Fe J, 20° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 25° SN, PR, RF, Fe J, 50° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 0° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 10° SN, PR, RF, Fe J, 0° SN, PR, RF, Fe J, 15° SN, PR, RF, Fe											
		8.90	0		9.0																		
		0% LOSS	0		9.20																		
		0% LOSS	0		9.45																		
		0% LOSS	0	Is(50) I=1.04 MPa	10.0		DOLERITE: fine to medium grained, grey with pale blue, iron staining on rock and along defects.	SW															
		0% LOSS	0		10.10																		
		0% LOSS	0		10.60																		
		9% LOSS	19		10.72m																		
		NO CORE 0.12m (10.60-10.72)																					
		0% LOSS	46	Is(50) D=7.95 MPa Is(50) A=5.78 MPa	13.0		DOLERITE: fine to medium grained, grey with pale blue, equigranular to phaneritic.	FR															
		0% LOSS	31		12.0																		
		0% LOSS	95		11.94																		
		0% LOSS	100		14.40																		
		0% LOSS	80	Is(50) D=1.77 MPa Is(50) A=0.940 MPa	15.0																		
		0% LOSS	100		15.90																		
See Explanatory Notes for details of abbreviations & basis of descriptions.																							

WSP-AU-6-GLB-Log IS AU CORED BOREHOLE 2A PS212776 MASTER GPJ <<DrawingFile>> 18/6/2024 12:22 10.03.00.09 D:\Log-Lib\WSP 5.06.2 2023-08-23 Proj WSP 5.04.0 2023-04-11

WSP-AU-6-GLB-Log-15-AU-CORED-BOREHOLE-2A-PS212776-MASTER-GPJ <<DrawingFile>> 18/6/2024 12:22 10.03.00.09 Datalog Lab and In Situ Tool - DGD [Lib: WSP 5.05.2 2023-08-23 Proj: WSP 5.04.0 2023-04-11]

		CORED DRILL HOLE LOG					HOLE NO : BH-010						
CLIENT : MPDC		PROJECT : Macquarie Point GI					FILE / JOB NO : PS212776						
LOCATION : Macquarie Point							SHEET : 4 OF 4						
POSITION : E: 527566.95, N: 5252576.11 (MGA2020-55)		SURFACE ELEVATION : 5.07 (AHD)			ANGLE FROM HORIZONTAL : 90°								
RIG TYPE : MRS XL Max		MOUNTING : Track		CONTRACTOR : SWD			DRILLER : GB						
DATE STARTED : 24/4/2024		DATE COMPLETED : 26/4/2024		DATE LOGGED : 26/4/2024		LOGGED BY : TS		CHECKED BY : JRG					
CASING DIAMETER : 150 mm		BARREL (Length) : 1.50 m			BIT : IMPREG RC10		BIT CONDITION : Good						
DRILLING				MATERIAL				FRACTURES					
PROGRESS		CORE LOSS (% CORE LOSS) DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH ● - Axial O - Diametral ■ - UCS UCS=19 L ₅₀ H 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600 620 640 660 680 700 720 740 760 780 800 820 840 860 880 900 920 940 960 980 1000	NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
DRILLING & CASING	WATER												
HQ3 90% Polymer RETURN		0% LOSS	80	A=1.78 MPa Is(50) D=5.85 MPa Is(50) A=5.46 MPa	16.0		DOLERITE: fine to medium grained, grey with pale blue, equigranular to phaneritic. (continued)	FR				J, 55°, SN, PR, RF, Zeo	
					17.0							J, 5°, SN, PR, RF, Zeo J, 15°, VN, CU, RF, Zeo V, 65°, VN, PR, RF, Zeo J, 25°, VN, PR, RF, Zeo	
		17.47			17.47m		Hole Terminated at 17.47 m Target depth Grouted to Surface					J, 10 - 15°, VN, PR, RF, Zeo J, 20°, VN, PR, RF, Zeo	
					18.0							J, 20°, VN, PR, RF, Fe, Zeo J, 85 - 90°, VN, IR, RF, Zeo, Cal	
					19.0							J, 15°, VN, PR, RF, Zeo J, 80°, VN, PR, RF, Zeo J, 5°, VN, PR, RF	
					20.0								
					21.0								
					22.0								
					23.0								
					24.0								
See Explanatory Notes for details of abbreviations & basis of descriptions.													

See Explanatory Notes for details of abbreviations & basis of descriptions.



PointID : BH-010 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-010	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/7



PointID : BH-010 Depth Range: 1.50 - 4.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-010	DRAWN	DATE 18/6/2024	
		CHECKED	DATE 18/6/2024	
		SCALE Not To Scale		A4
		PROJECT No PS212776		FIGURE No 2/7



PointID : BH-010 Depth Range: 4.00 - 6.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-010	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/7



PointID : BH-010 Depth Range: 6.00 - 7.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-010	DRAWN	DATE 18/6/2024	
		CHECKED	DATE 18/6/2024	
		SCALE Not To Scale		A4
		PROJECT No PS212776		FIGURE No 4/7



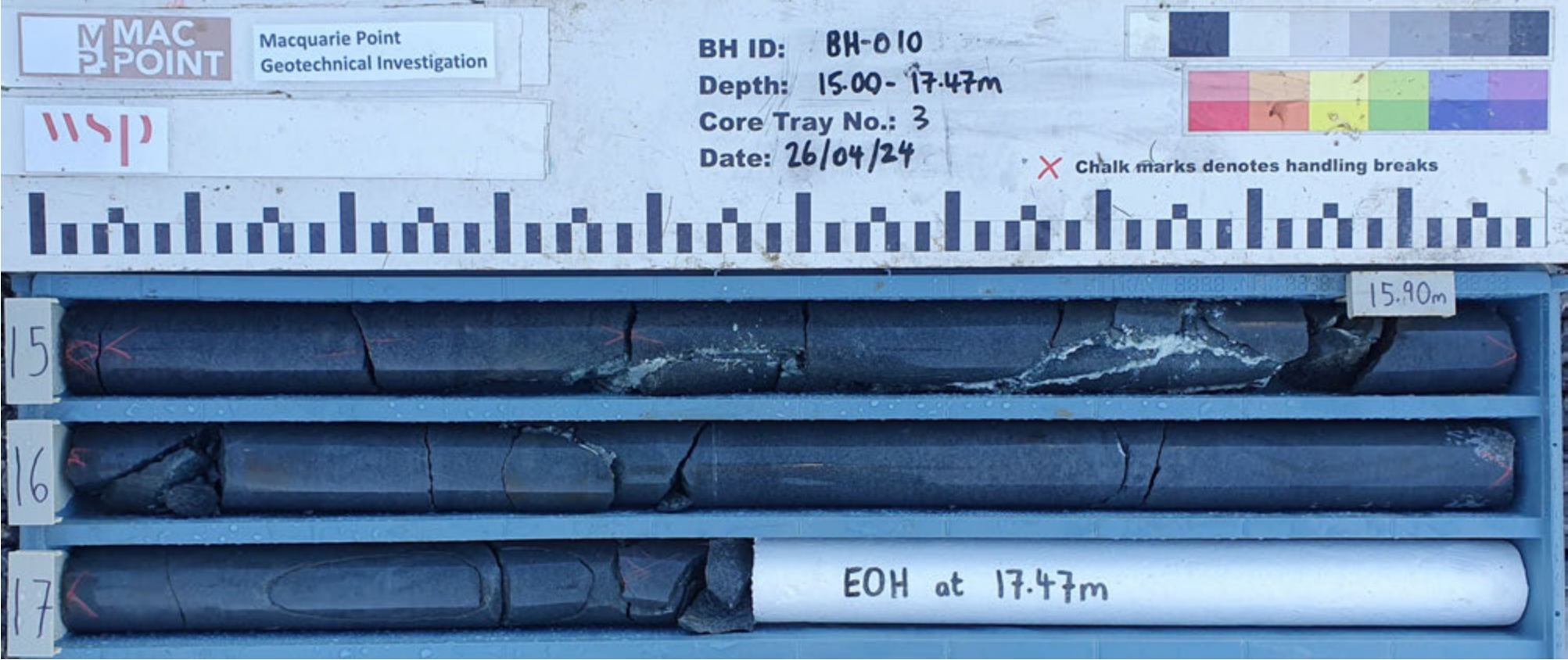
PointID : BH-010 Depth Range: 7.50 - 11.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-010	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/7



PointID : BH-010 Depth Range: 11.00 - 15.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-010	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/7



PointID : BH-010 Depth Range: 15.00 - 17.47 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-010	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/7



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-011

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 4

POSITION : E: 527499.65, N: 5252523.21 (MGA2020-55) SURFACE ELEVATION : 5.28 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 22/4/2024 DATE COMPLETED : 24/4/2024 DATE LOGGED : 23/4/2024 LOGGED BY : TS CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
		F			0.0			FILL Sandy GRAVEL: fine to medium, sub-angular to angular, grey.	D	FILL Acid Sulfate Sampling every 0.5m to bedrock	
					0.20m			FILL Gravelly SAND: medium to coarse grained, brown, trace coarse grained gravel, trace cobbles, trace clay.			
					0.80m			FILL Sandy GRAVEL: medium to coarse, sub-angular to angular, red, brown, with crushed brick, wood.			
					0.90m			FILL Silty Gravelly CLAY: black to dark grey, with fine to medium grained gravels, building waste fragments (glass, nails, PVC).			
					1.60m			FILL Silty Gravelly CLAY: brown mottled green, fine to medium grained gravel, sub-angular to angular, trace coarse grained sandstone gravel.			
					2.00m						
					2.90m			FILL SAND: medium grained, uniform, grey green.			
					3.00m			FILL Silty CLAY: grey to dark brown, with medium grained gravel, sub-angular to angular, trace cobbles.			
					3.30m						
					3.45m			Sandy CLAY: medium plasticity, pale brown mottled green-brown and grey, sand is fine to medium grained; with silt; trace sandstone gravel and cobbles. 3.50m: distinct hydrocarbon odour, oil			
		E-F			4.0			Clayey SAND: fine to medium grained, uniform, black with yellow brown, with sea shells, trace sub-rounded pebbles, distinct hydrocarbon odour, oil in sample.	W	ESTUARINE SOIL	
					4.50m						
					4.95m						
					5.00m			5.00m: becoming black			
					5.15m						
		H-VH			5.60m				L - MD	5.00: PP=125kPa 5.20-6.00: PP=40kPa	
					6.00m						
					6.00m						
					7.0			DOLERITE: fine to medium grained, pale grey to brown, extremely weathered, medium strength.		ROCK	
					7.40m			Continued as Cored Drill Hole			
					8.0						

See Explanatory Notes for

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-18/6/2024 12:24 10:00:00:09 D:\git\WSP-6-05-2-2020-08-23 Proj\WSP-6-04-0-2023-04-11

WSP-AU-6-GLB-Log-15-AU-CORED-BOREHOLE-2A-PS212776-MASTER-GPJ <<DrawingFile>> 18/6/2024 12:24 10.03.00.09 D:\proj\2023-08-23 Proj WSP 5.04.0 2023-04-11



CORED DRILL HOLE LOG

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

HOLE NO : BH-011

FILE / JOB NO : PS212776
SHEET : 2 OF 4

POSITION : E: 527499.65, N: 5252523.21 (MGA2020-55)

SURFACE ELEVATION : 5.28 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 22/4/2024

DATE COMPLETED : 24/4/2024

DATE LOGGED : 23/4/2024

LOGGED BY : TS

CHECKED BY : JRG

CASING DIAMETER : 150 mm

BARREL (Length) : 1.50 m

BIT : IMPREG RC10

BIT CONDITION : Good

DRILLING					MATERIAL					FRACTURES							
PROGRESS		CORE LOSS (CORE LOSS DEPTH)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH					NATURAL FRACTURE (mm)		VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS=19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - L ₉ M ₁ - M ₉ H ₁ - H ₉ V ₁ - V ₉ E ₁ - E ₉	UCS=19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - L ₉ M ₁ - M ₉ H ₁ - H ₉ V ₁ - V ₉ E ₁ - E ₉	UCS=19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - L ₉ M ₁ - M ₉ H ₁ - H ₉ V ₁ - V ₉ E ₁ - E ₉	UCS=19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - L ₉ M ₁ - M ₉ H ₁ - H ₉ V ₁ - V ₉ E ₁ - E ₉	UCS=19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - L ₉ M ₁ - M ₉ H ₁ - H ₉ V ₁ - V ₉ E ₁ - E ₉	UCS=19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - L ₉ M ₁ - M ₉ H ₁ - H ₉ V ₁ - V ₉ E ₁ - E ₉	UCS=19 L ₁₀₀ ● - Axial ○ - Diametral ■ - UCS L ₁ - L ₉ M ₁ - M ₉ H ₁ - H ₉ V ₁ - V ₉ E ₁ - E ₉		
					0.0												
					1.0												
					2.0												
					3.0												
					4.0												
					5.0												
					6.0												
					7.0												
					7.40m		START CORING AT 7.40m										
					8.0		DOLERITE: pale grey to brown, extremely weathered, 30-40% clay with core stones.	XW								7.50-12.80: No true defects, core stones in clay matrix	

See Explanatory Notes for details of abbreviations & basis of descriptions.

85-90% RETURN
0% LOSS
7.67
0% LOSS
0
Is(50)
I=1.50
MPa



CORED DRILL HOLE LOG

HOLE NO : BH-011

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 4

POSITION : E: 527499.65, N: 5252523.21 (MGA2020-55)	SURFACE ELEVATION : 5.28 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DATE STARTED : 22/4/2024	DATE COMPLETED : 24/4/2024	DATE LOGGED : 23/4/2024
CASING DIAMETER : 150 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
		BIT CONDITION : Good

DRILLING					MATERIAL				FRACTURES																		
PROGRESS		CORE LOSS (% LOSS)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other														
DRILLING & CASING	WATER								UCS=19 L ₁₀₀ ● Axial ○ Diametral ■ UCS																		
HQ3 85-90% RETURN		0% LOSS	0	Is(50) I=2.14 MPa	8.0		DOLERITE: pale grey to brown, extremely weathered, 30-40% clay with core stones. (continued)	XW																			
		8.40	0% LOSS		0																						
		9.10	0% LOSS		0																						
		9.45	0% LOSS		0																						
		9.60	0% LOSS		0																						
		9.60	33% LOSS	0	Is(50) I=2.00 MPa	9.60m		NO CORE 0.20m (9.60-9.80)																			
		9.80	0% LOSS	0		9.80m																					
		10.20	0% LOSS	0																							
		10.88	0% LOSS	0																							
		11.61	0% LOSS	0																							
		12.08	0% LOSS	0	Is(50) D=4.94 MPa Is(50) A=4.07 MPa Is(50) I=4.25 MPa	12.0		DOLERITE: pale grey to brown, extremely weathered, 30-40% clay with core stones.																			
		12.95	0% LOSS	34		12.80m																					
		13.67	0% LOSS	0		Is(50) D=5.42 MPa Is(50) A=4.91 MPa								13.0		DOLERITE: fine to medium grained, pale grey-blue, phaneritic.	SW				- J, 35°, CT, PR, RF, clay - J, 65°, CT, PR, RF, Zeo infill, 3mm - J, 50°, VN, PR, RF, Fe - J, 80°, VN, PR, RF, Fe - J, 70°, VN, PR, RF, Fe - J, 20°, SN, PR, RF, Fe - J, 45°, SN, PR, RF, Fe						
		14.10	0% LOSS	33																							
		14.70	0% LOSS	49										Is(50) D>7.31 MPa Is(50) A=1.97 MPa								14.0			FR		
		15.21	0% LOSS	82																							
		15.72m	UCS=96 MPa		15.0								- CS, Zeo, clay, 22mm - CS, clay, Zeo, 23mm - SZ, gravel with clay, Zeo														
																				J, 65°, VN, PR, RF, Zeo, Chl							

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

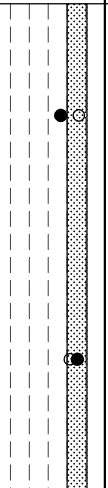
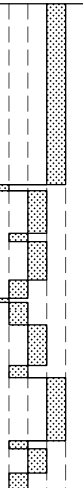
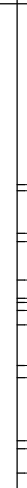
HOLE NO : BH-011

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 4 OF 4

POSITION : E: 527499.65, N: 5252523.21 (MGA2020-55)	SURFACE ELEVATION : 5.28 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DRILLER : GB	DATE STARTED : 22/4/2024	DATE COMPLETED : 24/4/2024
DATE LOGGED : 23/4/2024	LOGGED BY : TS	CHECKED BY : JRG
CASING DIAMETER : 150 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
BIT CONDITION : Good		

DRILLING					MATERIAL					FRACTURES				
PROGRESS		CORE LOSS DRILL RUN (%)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
DRILLING & CASING	WATER								UCS=19 L ₅₀ ● Axial ○ Diametral ■ UCS					
HQ3	85-90% RETURN	0% LOSS	82	Is(50) D=6.40 MPa Is(50) A=2.13 MPa	16.0		DOLERITE: fine to medium grained, pale grey-blue, phaneritic. (continued)	FR				J, 5°, CN, PR, RF J, 85° - 90°, VN, PR, RF, Zeo, Cal J, 5°, VN, PR, RF J, 65°, VN, PR, RF, Zeo, Cal J, 65° - 90°, VN, PR, RF, Zeo, Cal J, 75° - 85°, VN, PR, RF, Zeo, Cal J, 10°, SN, PR, RF, Fe J, 5°, SN, PR, RF J, 10°, SN, PR, RF, Zeo, Cal J, 50°, SN, PR, RF, Zeo J, 5°, CN, PR, RF J, 70° - 85°, CT, PR, RF, Zeo, Cal J, 5°, VN, PR, RF, Zeo, Cal J, 5°, VN, PR, RF, Zeo, Cal		
		16.80	75		17.0									
		0% LOSS			17.44									
		0% LOSS	61		18.0									
		18.40		Is(50) D=3.72 MPa Is(50) A=5.85 MPa	18.40m		Hole Terminated at 18.40 m Target depth Grouted to Surface							
					19.0									
					20.0									
					21.0									
					22.0									
					23.0									
					24.0									

See Explanatory Notes for details of abbreviations & basis of descriptions.



PointID : BH-011 Depth Range: 0.00 - 1.60 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-011	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/8



PointID : BH-011 Depth Range: 1.60 - 3.80 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-011	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/8



PointID : BH-011 Depth Range: 3.80 - 5.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-011	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/8



PointID : BH-011 Depth Range: 5.00 - 7.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-011	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/8



PointID : BH-011 Depth Range: 7.00 - 7.40 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-011	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/8



PointID : BH-011 Depth Range: 7.40 - 11.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-011	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/8



PointID : BH-011 Depth Range: 11.00 - 15.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-011	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/8



PointID : BH-011 Depth Range: 15.00 - 18.40 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-011	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 8/8



NON-CORE DRILL HOLE - GEOLOGICAL LOG

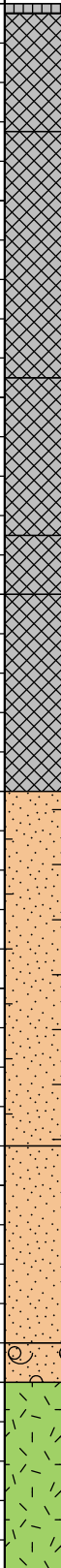
HOLE NO : BH-014

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 4

POSITION : E: 527567.03, N: 5252421.68 (MGA2020-55) SURFACE ELEVATION : 3.79 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 29/4/2024 DATE COMPLETED : 30/4/2024 DATE LOGGED : 30/4/2024 LOGGED BY : TS CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER										
S PWT		F			0.0			0.05m FILL ASPHALTIC CONCRETE.	D	FILL Acid Sulfate Sampling every 0.5m to bedrock	
					3.8			FILL Gravelly SAND: fine to medium grained, grey brown with dark grey brown, gravel is fine to medium grained, sub-angular to angular; trace silt and clay.			
					1.0			0.65m FILL Clayey Gravelly SAND: fine to medium grained, black to dark grey, gravel is fine to medium grained, sub-angular to angular.			D - M
					2.8						
					1.50m						
					SPT 4,9,5 N=14						
					1.95m			1.90m FILL Silty Gravelly CLAY: low to medium plasticity, dark grey to pale grey, gravel is fine to medium grained, sub-angular to angular; with sand, trace building material fragments.	w<PL - w≈PL		
					2.0						
		1.8			2.70m FILL Gravelly Clayey SAND: fine to coarse grained, red brown.			D			
		3.0			3.00m 2.90m: steel mesh fragment						
		0.8			FILL Gravelly Sandy CLAY: sub-rounded to sub-angular, medium plasticity, black, trace glass, wood.				w≈PL		
		3.45m									
		4.0			4.00m Clayey SAND: fine to medium grained, uniform, black to dark grey mottled green.		L				
		-0.2									
		4.45m									
		SPT 4,6,4 N=10									
		4.95m			5.80m SAND: fine to medium grained, uniform, black to dark grey, trace sea-shells, sub-rounded to angular gravel.		M - W				
		5.0									
		-1.2									
		6.0									
-2.2											
6.00m											
SPT 1,1,3 N=4											
6.45m	6.80m SHELLY SAND: fine to medium, uniform, black to dark grey, shelly sub-rounded to sub-angular; trace sub-rounded to rounded gravel.	VL - L									
7.0											
-3.2											
	7.00m DOLERITE: fine to medium grained, grey-blue, with iron staining, inferred as moderately weathered, high to very high strength.		ROCK								

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU 6 GLB Log IS AU BOREHOLE 2A PS212776 MASTER.CPJ <<DrawingFiles>> 18/6/2024 12:28 10:00:00.09 Dugid Lab and in Situ Test - DGD [Lib: WSP 6.05 2/2020-08-23 Proj: WSP 6.04 0/2023-04-11]



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-014

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 2 OF 4

POSITION : E: 527567.03, N: 5252421.68 (MGA2020-55) SURFACE ELEVATION : 3.79 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 29/4/2024 DATE COMPLETED : 30/4/2024 DATE LOGGED : 30/4/2024 LOGGED BY : TS CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
S PWT		VH		Is(50) I=6.69 MPa	8.0 -4.2			DOLERITE: fine to medium grained, grey-blue, with iron staining, inferred as moderately weathered, high to very high strength. (continued)			ROCK
					8.82m		Continued as Cored Drill Hole				
					9.0 -5.2						
					10.0 -6.2						
					11.0 -7.2						
					12.0 -8.2						
					13.0 -9.2						
					14.0 -10.2						
					15.0 -11.2						
					16.0 -12.2						

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

HOLE NO : BH-014

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 4

POSITION : E: 527567.03, N: 5252421.68 (MGA2020-55)	SURFACE ELEVATION : 3.79 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DATE STARTED : 29/4/2024	DATE COMPLETED : 30/4/2024	DATE LOGGED : 30/4/2024
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
		BIT CONDITION : Good

DRILLING					MATERIAL					FRACTURES						
PROGRESS		LOSS (% CORE LOSS)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH					NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS=19-130 ● - Axial ○ - Diametral ■ - UCS L 2-9 M 20-40 H 60-100 VH 200-400 EH							
					8.0											
							8.82m START CORING AT 8.82m									
		0% LOSS	72	Is(50) I=0.450 MPa	9.0		DOLERITE: fine grained, dark grey blue, iron staining along joints.	MW					J, 80°, VN, PR, RF, clay, Fe			
		9.50						9.30m-9.85m: vein zone						J, 45°, VN, PR, RF, clay, Fe J, 80°, VN, PR, RF, clay, Fe J, 30°, CT, PR, RF, clayey gravel, 20mm V, 60°, CT, PR, MW Cal, Qz, healed V, 65 - 80°, CT, PR, MW Cal, Qz, healed V, 75°, CT, PR, MW Cal, Qz, healed V, 75°, CT, PR, MW Cal, Qz, healed V, 85°, CT, PR, MW Cal, Qz, 3mm J, 75°, SN, PR, RF, Fe		
		0% LOSS	100													
		10.38		Is(50) D=6.98 MPa Is(50) A>7.71 MPa	10.0			FR					J, 25°, SN, PR, RF, Fe, clay J, 10°, SN, PR, RF, Fe			
		0% LOSS	95											J, 60°, SN, PR, RF, Fe		
														J, 40°, SN, PR, RF, Chl		
		11.71		Is(50) D=5.86 MPa Is(50) A=4.14 MPa	11.0		11.14m DOLERITE: fine grained, pale grey with green, coarse grained, tabular crystals in a fine grain matrix, possible feldspar.						J, 0°, VN, PR, RF, Zeo, Chl J, 75°, CT, PR, RF, Zeo, Chl, clay			
		0% LOSS	94											J, 5°, SN, PR, RF, Fe J, 10°, SN, PR, RF, Fe J, 10°, SN, PR, RF, Fe		
		12.86		Is(50) D>7.51 MPa Is(50) A>8.12 MPa	12.0		12.52m DOLERITE: fine to medium grained, dark grey blue, phaneritic.						J, 45°, SN, PR, RF, Chl			
		0% LOSS	100											J, 65°, CT, PR, RF, Zeo, Chl		
				Is(50) D>6.88 MPa Is(50) A=6.25 MPa	13.0		13.15m DOLERITE: fine to medium grained, dark grey blue, phaneritic.									
		14.35		Is(50) D>8.01 MPa Is(50) A=6.93 MPa	14.0		13.70m DOLERITE: fine to medium grained, dark grey blue, phaneritic.									
		0% LOSS	97													
				Is(50) D=2.28 MPa	15.0								J, 85 - 90°, CT, PR, RF, Zeo, Chl			
		15.92														
							16.00m									

See Explanatory Notes for details of abbreviations & basis of descriptions.



PointID : BH-014 Depth Range: 0.00 - 1.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-014	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/8



PointID : BH-014 Depth Range: 1.50 - 4.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-014	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/8



PointID : BH-014 Depth Range: 4.00 - 6.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-014	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/8



PointID : BH-014 Depth Range: 6.00 - 7.70 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-014	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/8



PointID : BH-014 Depth Range: 7.70 - 8.82 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-014	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/8



PointID : BH-014 Depth Range: 8.82 - 12.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-014	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/8



PointID : BH-014 Depth Range: 12.00 - 16.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-014	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/8

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 1 OF 5

POSITION : E: 527592.79, N: 5252309.93 (MGA2020-55)

SURFACE ELEVATION : 2.97 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 30/4/2024

DATE COMPLETED : 1/5/2024

DATE LOGGED : 2/5/2024

LOGGED BY : MIR

CHECKED BY : JRG

[illegible]

See Explanatory Notes for details of abbreviations & basis of descriptions.



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-016

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 2 OF 5

POSITION : E: 527592.79, N: 5252309.93 (MGA2020-55) SURFACE ELEVATION : 2.97 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 30/4/2024 DATE COMPLETED : 1/5/2024 DATE LOGGED : 2/5/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
S PWT		E			8.0 -5.0		SP	SAND: uniform, dark grey, trace sea-shells. (continued)	M - W	VL	ESTUARINE SOIL
				9.00m SPT 3,4,3 N=7	9.0 -6.0			9.00m-12.00m: no sonic soil samples recovered, sample washed away during drilling			
				9.45m							
					10.0 -7.0						
				10.50m SPT 2,2,2 N=4							
				10.95m							
					11.0 -8.0						
				12.00m SPT 2,0,0 N=0	12.0 -9.0						
				12.45m							
					13.0 -10.0						
				13.50m SPT 5,5,5 N=10				13.70m			
				13.95m							
		H-VH		14.0 -11.0		SP	Gravelly SAND: fine to coarse grained, dark grey, gravel is fine to coarse grained, sub-rounded to sub-angular; trace clay; with coarse grained dolerite gravel (up to 80mm), trace sea-shells.	L - MD	M - W	ALLUVIAL SOIL	
				14.70-15.00m: with clay, medium plasticity, dark brown, without shell fragments							
			15.00m SPT 9/60mm HB N=R 15.06m	15.0 -12.0			15.00m				DOLERITE: fine to medium grained, pale grey, inferred as fresh, very high strength.
									D - M		ROCK

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-15-AU-BOREHOLE-2A-PS212776-MASTER-CPJ-18/6/2024 12:29 10:00:00:09 Dugout Lab and in Situ Test - DGD [Lib: WSP-6.05-2-2020-08-23 Proj: WSP-6.04-0-2023-04-11]



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-016

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 3 OF 5

POSITION : E: 527592.79, N: 5252309.93 (MGA2020-55) SURFACE ELEVATION : 2.97 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max MOUNTING : Track CONTRACTOR : SWD DRILLER : GB
DATE STARTED : 30/4/2024 DATE COMPLETED : 1/5/2024 DATE LOGGED : 2/5/2024 LOGGED BY : MIR CHECKED BY : JRG

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
S PWT		H-VH			16.0 -13.0			DOLERITE: fine to medium grained, pale grey, inferred as fresh, very high strength. (continued)	D - M		ROCK
							16.40m	Continued as Cored Drill Hole			
					17.0 -14.0						
					18.0 -15.0						
					19.0 -16.0						
					20.0 -17.0						
					21.0 -18.0						
					22.0 -19.0						
					23.0 -20.0						
					24.0 -21.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.



CORED DRILL HOLE LOG

HOLE NO : BH-016

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

FILE / JOB NO : PS212776
SHEET : 4 OF 5

POSITION : E: 527592.79, N: 5252309.93 (MGA2020-55)	SURFACE ELEVATION : 2.97 (AHD)	ANGLE FROM HORIZONTAL : 90°
RIG TYPE : MRS XL Max	MOUNTING : Track	CONTRACTOR : SWD
DATE STARTED : 30/4/2024	DATE COMPLETED : 1/5/2024	DATE LOGGED : 2/5/2024
CASING DIAMETER : 140 mm	BARREL (Length) : 1.50 m	BIT : IMPREG RC10
		BIT CONDITION : Good

DRILLING					MATERIAL				FRACTURES				
PROGRESS		LOSS (CORE LOSS DRILL DEPTH)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS=19-195MPa ● - Axial ○ - Diametral ■ - UCS	EH			
					16.0								
							16.40m START CORING AT 16.40m						
		0% LOSS	63				DOLERITE: fine to medium grained, dark grey blue, phaneritic. 16.50-19.20m: iron staining along joints	FR					J, 30 - 40°, SN, PR, RF, Fe J, 10 - 30°, CT, PR, RF, Fe J, 10 - 20°, SN, CU, RF, Fe J, 0 - 10°, SN, PR, RF, Fe J, 45 - 85°, SN, UN, RF, partially healed, Fe J, 60°, SN, PR, RF, Fe
		17.07		Is(50) D>6.36 MPa Is(50) A>6.81 MPa	17.0		17.14m: schlieren at 15-20°						J, 40 - 50°, SN, PR, RF, Fe
		0% LOSS 17.21	100				17.61m: schlieren at 15° 17.67-17.80m: fine grained						J, 40 - 50°, CT, PR, RF, Fe
		0% LOSS		Is(50) D>10.2 MPa Is(50) A=4.90 MPa	18.0								
		18.77											J, 10°, SN, PR, RF, Fe
		0% LOSS	95	Is(50) D>5.95 MPa Is(50) A=8.70 MPa	19.0								J, 15° SN, PR, RF, Fe J, 55° CT, PR, RF, Zeo, Chl V, 55°, CT, PR, Zeo, Cal, 11mm
		20.32		Is(50) D=6.56 MPa Is(50) A>7.71 MPa	20.0								
		0% LOSS	100										J, 15° SN, PR, RF, Fe
		21.76		Is(50) D>6.04 MPa Is(50) A=9.23 MPa	21.0								Jx2, 25°, SN, PR, RF, Fe
		0% LOSS	100				21.83m						J, 15° SN, PR, RF, Fe
		23.33		Is(50) D>5.97 MPa Is(50) A>4.94 MPa	22.0		DOLERITE: fine to medium grained, dark grey blue, phaneritic.						J, 15° SN, PR, RF, Fe
		0% LOSS	100	23.00m UCS =229 MPa	23.0								
		23.33		Is(50) A=7.65 MPa Is(50) D>6.19 MPa	23.30m		DOLERITE: fine to medium grained, dark grey blue, phaneritic.						J, 35° SN, PR, RF, Fe

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-18/6/2024 12:30 10.03.00.09 D:\Log-Data\PS212776-MASTER-GPJ-Log-18/6/2024 12:30 10.03.00.09 D:\Log-Data\PS212776-MASTER-GPJ-Log-18/6/2024 12:30 10.03.00.09 D:\Log-Data\PS212776-MASTER-GPJ-Log-18/6/2024 12:30 10.03.00.09



CORED DRILL HOLE LOG

CLIENT : MPDC
LOCATION : Macquarie Point

PROJECT : Macquarie Point GI

HOLE NO : BH-016

FILE / JOB NO : PS212776

SHEET : 5 OF 5

POSITION : E: 527592.79, N: 5252309.93 (MGA2020-55)

SURFACE ELEVATION : 2.97 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : MRS XL Max

MOUNTING : Track

CONTRACTOR : SWD

DRILLER : GB

DATE STARTED : 30/4/2024

DATE COMPLETED : 1/5/2024

DATE LOGGED : 2/5/2024

LOGGED BY : MIR

CHECKED BY : JRG

CASING DIAMETER : 140 mm

BARREL (Length) : 1.50 m

BIT : IMPREG RC10

BIT CONDITION : Good

DRILLING				MATERIAL				FRACTURES					
PROGRESS		CORE LOSS (CORE LOSS DRILL RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								UCS-19 L ₁₀ (MPa)	UCS-19 L ₅₀ (MPa)			
DRILLING & CASING	WATER	CORE LOSS (CORE LOSS DRILL RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	UCS-19 L ₁₀ (MPa)	UCS-19 L ₅₀ (MPa)	NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
HQ3 ↓	90% Polymer RETURN ↓	0% LOSS	100	Is(50) A=4.68 MPa Is(50) D=5.64 MPa	24.0		DOLERITE: fine to medium grained, dark grey blue, phaneritic. (continued)	FR	● - Axial ○ - Diametral				J, 60°, CT, PR, RF, Zeo, Chi
		24.92		Is(50) D=6.49 MPa	25.0		Hole Terminated at 24.92 m Target depth Grouted to Surface						
					26.0								
					27.0								
					28.0								
					29.0								
					30.0								
					31.0								
					32.0								

See Explanatory Notes for details of abbreviations & basis of descriptions.

WSP-AU-6-GLB-Log-ISAU-CORED-BOREHOLE-2A-PS212776-MASTER-GPJ <<DrawingFile>> 18/6/2024 12:30 10.03.00.09 D:\git\Lab and In Situ Tool - DGD\Lib\WSP 5.05.2 2023-08-23 Proj\WSP 5.04.0 2023-04-11

File: PS212776 BH-016 5 OF 5



PointID : BH-016 Depth Range: 0.00 - 3.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 1/11



PointID : BH-016 Depth Range: 3.00 - 5.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 2/11



PointID : BH-016 Depth Range: 5.00 - 7.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 3/11



PointID : BH-016 Depth Range: 7.00 - 9.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 4/11



PointID : BH-016 Depth Range: 12.00 - 13.50 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 5/11



PointID : BH-016 Depth Range: 13.50 - 15.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 6/11



PointID : BH-016 Depth Range: 15.00 - 15.90 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 7/11



PointID : BH-016 Depth Range: 15.90 - 16.40 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 8/11



PointID : BH-016 Depth Range: 16.40 - 20.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 9/11



PointID : BH-016 Depth Range: 20.00 - 24.00 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 10/11



PointID : BH-016 Depth Range: 24.00 - 24.92 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo - BH-016	DRAWN	DATE 18/6/2024
		CHECKED	DATE 18/6/2024
		SCALE Not To Scale	A4
		PROJECT No PS212776	FIGURE No 11/11

B2 Borehole Logs - WC



William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists

Borehole log

ABH-001

Sheet 1 of 1

Project	Macquarie Point GI	Location	Macquarie Point	Client	MPDC
Coordinates	527514.42mE 5252572.56mN	Drill type	Sonic	Hole started	20/5/24
Datum	GDA2020	Drill rig	MRS XL Max	Hole finished	20/5/24
RL	5.7mAHD			Drilled by	SWD (G. Bourke)
Inclination	Vertical	Drill fluid(s)	Water (where indicated)	Logged by	G. Bremner
Bearing				Checked by	W. Cromer

Method	Penet. resist	Water	Notes Samples and field tests	metres <i>RLmAHD</i> Depth	Recovery (%)	Graphic log	USCS	Materials Soil type, colour, plasticity or particle characteristics, secondary and minor components	Moisture condition	Consistency Density index	Structure, geology, interpretation, additional observations
Sonic					100		SP	Clayey gravelly SAND: brown	M	D	Fill
			ASS 0.5 - 0.6m	0.4m 5	100		GM, GC	Sandy silty GRAVEL: light yellowish grey (light yellowish orange 1.2 - 1.5m); locally some clay; non-plastic to low plasticity; 30 - 40% well graded angular to subrounded SW to HW clasts of dolerite to 100mm	M	D	Colluvial sediments
			ASS 1.0 - 1.1m	1							
				1.5m 4	100		GM	Sandy silty GRAVEL: light olive grey (orange brown 2 - 2.2m); non-plastic; >75% well graded angular to subrounded SW to MW clasts of dolerite to 100mm	M	D	EW dolerite bedrock
				1.7m							
				2							
				2.7m 3				EOH 2.7mbg			
				3							
				4							
				5							
				6							
				7							
				8							
				9							
				10							

Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt = Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail)
Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)



PointID: ABH-001 Depth Range: 0.0 – 2.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – ABH-001

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

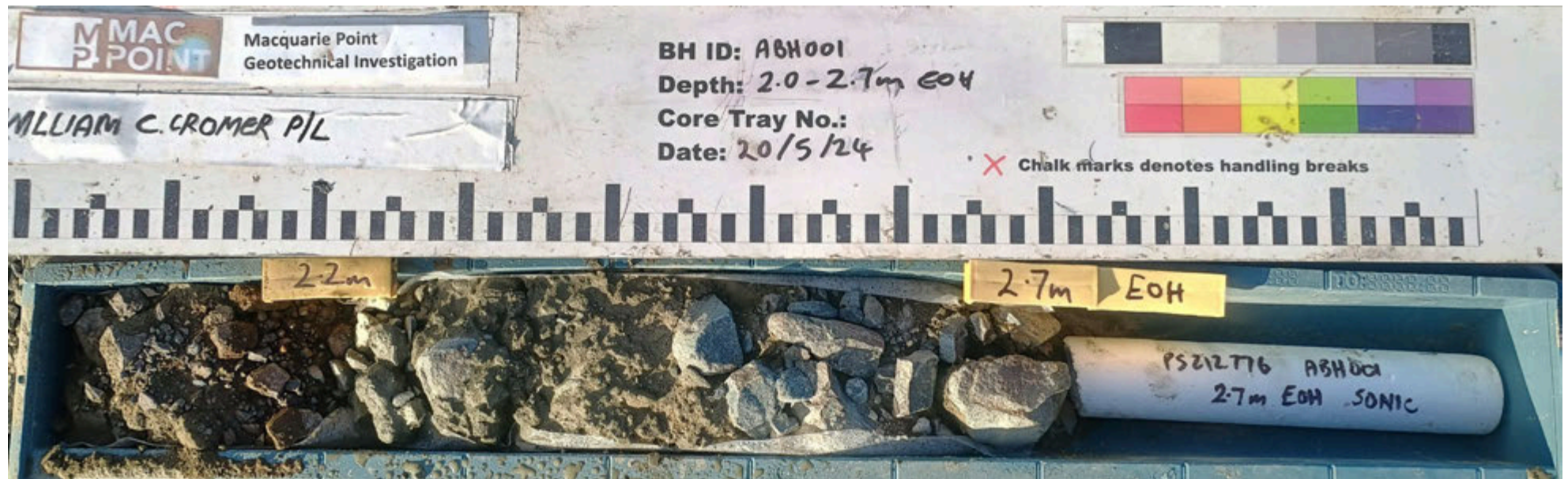
A4

PROJECT No.

PS212776

FIGURE No.

1/2



PointID: ABH-001 Depth Range: 2.0 – 2.7 m EOH



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – ABH-001

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

2/2



Borehole log

ABH-003

Sheet 1 of 1

Project	Macquarie Point GI	Location	Macquarie Point	Client	MPDC
Coordinates	527533.52mE 5252485.12mN	Drill type	Sonic	Hole started	20/5/24
Datum	GDA2020	Drill rig	MRS XL Max	Hole finished	20/5/24
RL	4.28mAHD			Drilled by	SWD (G. Bourke)
Inclination	Vertical	Drill fluid(s)	Water (where indicated)	Logged by	G. Bremner
Bearing				Checked by	W. Cromer

Method	Penet. resist	Water	Notes	metres	Recovery (%)	Graphic log	USCS	Materials	Moisture condition	Consistency	Density index	Structure, geology, interpretation, additional observations
			Samples and field tests	RLmAHD	Depth			Soil type, colour, plasticity or particle characteristics, secondary and minor components				
Sonic					4	0.2m	100	SP	Gravelly silty SAND: dark grey	M	MD	Fill
						0.6m	100	SM	Gravelly SILT: light grey; low plasticity			(Concrete?)
			ASS 0.5 - 0.6m			1.0m	100	GC	Clayey sandy GRAVEL: grey; some orange-brown doleritic gravel and clasts to 75mm			
			ASS 1.0 - 1.1m	3	1.4m	100	CH, CL	Sandy gravelly CLAY: dark brown; low-mod plasticity; some brick fragments	M<PL	F		
			ASS 1.5 - 1.6m		1.7m	100	CL	Sandy CLAY: mottled light greenish grey/brown		St		
			ASS 2.0 - 2.1m	2	2	70	CH, CL	Gravelly CLAY: dark brownish grey; some sand and silt; mod-high plasticity; 20% gravel, brick, sandstone to 20mm; occasional dolerite and sandstone clasts to 100mm	M>PL	S - F		
			ASS 2.5 - 2.6m		2.8m							
			ASS 3.0 - 3.1m		3.0m	100	CL	Sandy CLAY: dark grey; some gravel				
			SPT 6, 3, 2 N=5 Recovery: 150/450 3.45m	1	3	100	CH, CL, loc GC	Sandy gravelly CLAY: dark grey-green with some white travertine? patches near 3.3m; some silt; local clayey sand horizons; variable mod-high plasticity; 10% dolerite clasts to 50mm		F		
			ASS 3.5 - 3.6m		4							
			ASS 4.0 - 4.1m	0	4							
			ASS 4.5 - 4.6m		5							
			ASS 5.0 - 5.1m	-1	5.2m	65	SP	SAND: dark grey; fine-med grained; trace silt and clay; some fine white shell	W	MD		Estuarine sediments
			ASS 5.5 - 5.6m		5.8m							
			SPT R @ 6.0m on rock 6.0m	-2	6	100	GC	Clayey sandy GRAVEL: dark greenish grey with light green-grey clay patches, light brownish orange 6.5 - 8m; some silt; gravel is doleritic, with well-graded subangular EW-MW dolerite clasts to 100mm; clayey sand interval 8.4 - 8.7m	D - M	D		Colluvial sediments
				-3	7							
				-4	8							
				-5	8.9m			DOLERITE: grey blue; SW, fractured; high strength				Dolerite bedrock
					9.2m			EOH 9.2mbg				
					10							

Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt= Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail)

Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)



PointID: ABH-003 Depth Range: 0.0 – 2.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – ABH-003

DRAWN

WCC

DATE

28/5/24

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DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

1/5



PointID: ABH-003 Depth Range: 2.0 – 4.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – ABH-003

DRAWN	WCC	DATE	28/5/24
CHECKED		DATE	
SCALE	Not to Scale		A4
PROJECT No.	PS212776	FIGURE No.	2/5



PointID: ABH-003 Depth Range: 4.0 – 6.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – ABH-003

DRAWN

WCC

DATE

28/5/24

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DATE

SCALE

Not to Scale

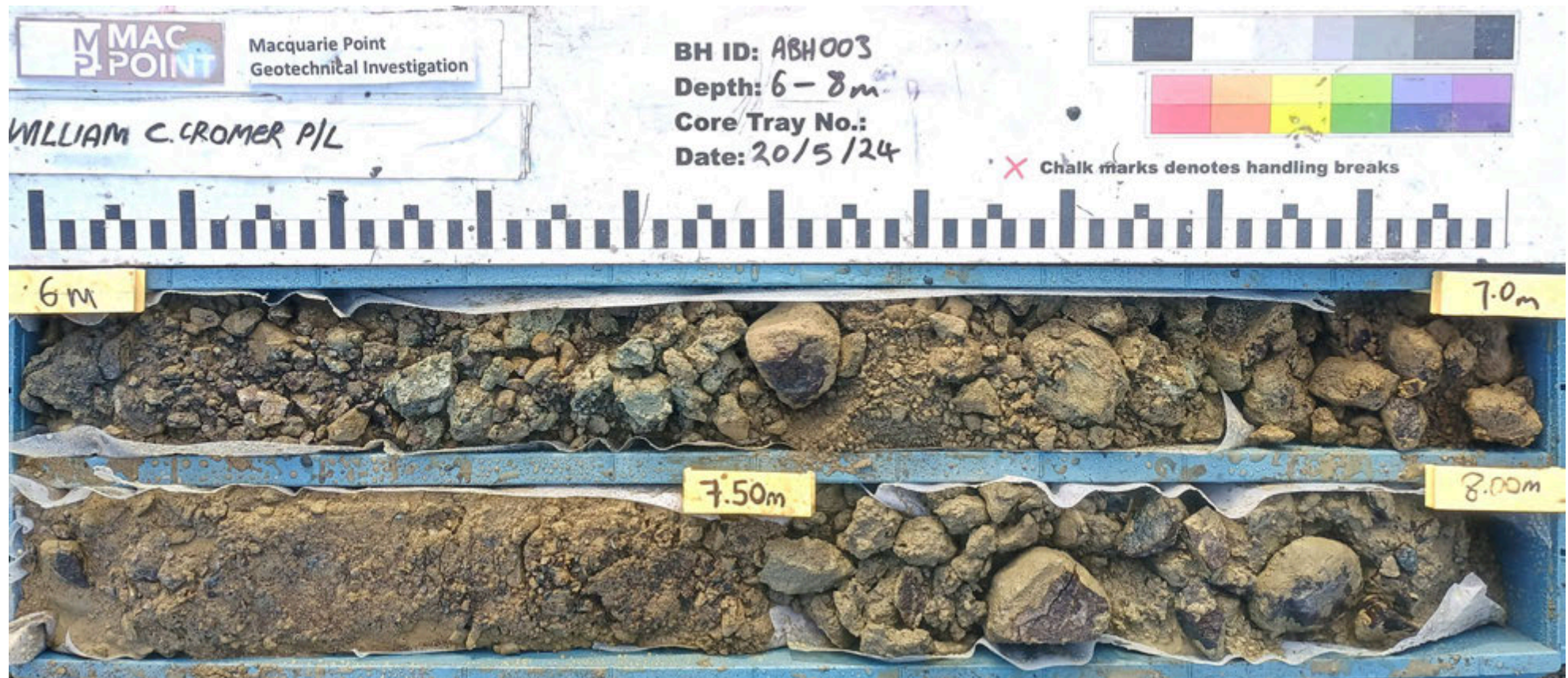
A4

PROJECT No.

PS212776

FIGURE No.

3/5



PointID: ABH-003 Depth Range: 6.0 – 8.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – ABH-003

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

4/5



PointID: ABH-003 Depth Range: 8.0 – 9.2 m EOH



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – ABH-003

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

5/5



William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists

Borehole log

BH-004

Sheet 1 of 4

Project	Macquarie Point GI	Location	Macquarie Point	Client	MPDC
Coordinates	527464.22mE; 5252389.76mN	Drill type	Sonic	Hole started	13/5/24
Datum	GDA2020	Drill rig	MRS XL Max	Hole finished	14/5/24
RL	3.91mAH	Drill fluid(s)	Water (where indicated)	Drilled by	SWD (G. Bourke)
Inclination	Vertical			Logged by	W. Cromer
Bearing				Checked by	G. Bremner

Method	Penet. resist	Water	Notes	metres	Recovery (%)	Graphic log	USCS	Materials	Moisture condition	Consistency	Density index	Structure, geology, interpretation, additional observations
			Samples and field tests	RLmAH	Depth			Soil type, colour, plasticity or particle characteristics, secondary and minor components				
Sonic												
			CBR 0 - 1m		100		SP	Gravelly silty SAND: black; fine-med. gr	D	L-MD		Fill
			ASS 0.5 - 0.6m	0.7m	100		SP	AS ABOVE: light yellowish grey				
			ASS 1.0 - 1.1m	1	100		SC	Clayey SAND: grey brown; f-mg; low plast.	M<>PL	F-St		
			ASS 1.5 - 1.6m	1.2m	70		SP	Gravelly SAND: variably light yellow, orange, brown, grey, olive grey; fine-medium; some silt; low plast.; occasional brick clasts to 25mm	D	MD		
			ASS 2.0 - 2.1m	2.1m	100		SC	Clayey SAND: grey brown; low plast	M<>PL	F-St		
			ASS 2.5 - 2.6m		70		SP	Gravelly SAND: variably light yellow, orange, brown, grey, olive grey; fine-medium; some silt; with c.10% well graded, angular yellow/orange sandstone clasts to 100mm	D	MD		
			ASS 2.9 - 3.0m	3.0m								
						Core loss						
			SPT 2.6,2 N=8 Recovery: 250/450	3.7m	50		GW	Silty sandy GRAVEL: grey brown; sand is fine-med; gravel is well-graded fine to coarse, doleritic; with 50% well-graded subangular to subrounded pebbles and occasional cobbles of MW-HW dolerite	W	MD		
			ASS 4.0 - 4.1m	4.15m								
			ASS 4.5 - 4.6m									
			Harder, less moist interval									
			ASS 5.0 - 5.1m	4.7m	50		GW	Silty sandy GRAVEL: dark grey to grey	M			
			ASS 5.5 - 5.6m	5.3m	100		SP	Silty SAND: dark grey to black; occasional angular to subangular dolerite clasts to 50mm	W			
			ASS 6.0 - 6.1m	5.8m	100		SP	Silty SAND: black; fine grained; trace clay; some shells and 10% shell fragments <5mm; mod-rapid dilatancy		L-MD		Estuarine sediments
			SPT 1, 1, 1 N=2 Recovery: 100/450	6.0m								
			ASS 6.5 - 6.6m	6.45m								
			ASS 7.0 - 7.1m	7				Very shelly 7 - 7.7m; well-graded white fragments to full shell size				
			ASS 7.5 - 7.6m	7.5m								
			SPT 1, 2, 1 N=3 Recovery: 200/450	7.95m								
			ASS 8.0 - 8.1m	8								
			ASS 8.5 - 8.6m									
			ASS 9.0 - 9.1m	9								
			SPT 1, 2, 2 N=4 Recovery: 350/450	9.0m	0							
			Rock blockage at start of run near 9m	9.45m		Core loss 9.1 - 10.5m						
				10								

Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt = Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail)
Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)



Borehole log

BH-004

Sheet 2 of 4

Project	Macquarie Point GI	Location	Macquarie Point	Client	MPDC
Coordinates	527464.22mE; 5252389.76mN	Drill type	Sonic	Hole started	13/5/24
Datum	GDA2020	Drill rig	MRS XL Max	Hole finished	14/5/24
RL	3.91mAHD	Drill fluid(s)	Water (where indicated)	Drilled by	SWD (G. Bourke)
Inclination	Vertical	Logged by	W. Cromer	Checked by	G. Bremner
Bearing					

Method	Penet. resist	Water	Notes	metres	Recovery (%)	Graphic log	USCS	Materials	Moisture condition	Consistency	Structure, geology, interpretation, additional observations
			Samples and field tests	RLmAHD	Depth			Soil type, colour, plasticity or particle characteristics, secondary and minor components		Density index	
Sonic											Estuarine sediments
			SPT 10.5m 1, 2, 1 N=3 Recovery: 450/450	10.5m	100	Core loss 9.1 - 10.5m	SP	SAND: black; fine-med; some silt; trace fine white shell fragments	W	MD	
			ASS 11.0 - 11.1m	11.0m							
			ASS 11.5 - 11.6m	11.5m							
				11.8m	100		GW	GRAVEL and sandy GRAVEL: grey; some silt; with subangular - rounded siltstone, sandstone, dolerite and basalt cobbles to 5cm	M		Colluvial sediments
			Aggressivity 12.5-12.6m	12.4m			GC	Gravelly clayey SAND: khaki; some silt; subangular - rounded mostly dolerite cobbles to 5cm	M<>PL		
			PP (10mm) = 2.7kg/cm ² @ 12.7m				CL, GC	Sandy gravelly CLAY: some silt; mottled khaki and orange; low-mod plast; occasional well-graded, subrounded to subangular dolerite clasts to 5cm; single 1cm white fossiliferous siltstone fragment @ 14.4m	W		
			PP (10mm) = 2.5kg/cm ² @ 13.0m								
			SPT 13.5m 12, 20, 12R Recovery: 300/370	13.5m	50				M<>PL		
			SPT @ 13.5m: double bounce after 12 blows in third interval moved 70mm	13.95m							
				14.5m	100		GW	Gravelly clayey SAND: greenish grey; some silt; with c50% well-graded, subrounded to subangular dolerite clasts to 100mm;; some thin gravelly clay lenses	M		
				15m	100		SP	Clayey SAND: olive brown; fine-med grained; some silt	M		
			Atterberg 15.6-15.8m	15.6m	100		CH	Sandy CLAY: olive brown; mod plast.	M>PL to loc. W		
				16m	100		GC	Gravelly sandy CLAY: olive brown; some silt; low-mod plasticity; occasional well-graded, subrounded to subangular dolerite clasts to 10cm			
				17.3m	50		GW	Silty sandy GRAVEL: light grey; >75% subrounded-subangular dolerite clasts to 10cm	D		Dolerite bedrock
				18m				17.8m: end sonic; start HQ3 coring			
				19m							
				20m							

Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt = Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail)

Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)



William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists

Engineering log – Cored borehole

Incorporating the Unified Rock Classification System (URCS)

BH-004

Sheet 3 of 4

Project		Macquarie Point GI		Location		Macquarie Point		Client		MPDC																			
Coordinates		527464.22mE; 5252389.76mN		Drill type		HQ3 diamond drilling		Hole started		13/5/24																			
Datum		GDA2020		Equipment		MRS XL Max		Hole finished		14/5/24																			
RL		3.91mAHD						Drilled by		SWD (G. Bourke)																			
Inclination		Vertical		Drill fluid(s)		Water		Logged by		W. Cromer																			
Bearing								Checked by		G. Bremner																			
Drilling information						Rock substance						Rock mass defects																	
Bit type/size	Case type/size/lift	Fluid /water	Notes Samples, field tests)	Core loss	RQD	metres	Graphic log	Substance description Rock type, Colour, Grain size, Structure (texture, fabric, mineral composition, hardness, alteration, cementation, etc as applicable)	Weathering					Est. strength	Nature of defects	Defect spacing (mm)	Defect description thickness, type, inclination, planarity, roughness, coating	Geol interp											
									A	B	C	D	E						A	B	C	D	E						
HQ3						17.8m		Sonic drilling to 17.8m																					
						18.4m		DOLERITE: grey (olive grey on joint faces); SW, unstained; fine-medium grained ; high strength; variably fractured								SV, RF 40°, RF	Jurassic dolerite												
						19.05m										Several SH, RF, I													
						19.4m										60°, RF, I, CN													
				UCS - CERCHAR	0	90										SH, RF, I, CN													
				19.85 - 20.0m PLT(dia & ax) = >20kN	19.85m											SH, RF, CN SH, PR, CN 70°, RF, I, CN SH, RF, I, CN													
						20.55m										SH, RF, Ca SH, RF, CN													
					0	100										SH, RF, CN SH, RF, CN SH, RF, I, CN													
						22.1m										SH, RF, I, Ca SV, RF, I, Ca SH, RF, I, Ca													
					0	90										SH, RF, CN													
				UCS - CERCHAR		23.55m												SV, RF, I, Ca 60°, RF, I, Ca											
				23.78 - 23.85m PLT(dia & ax) = >20kN																									
				0	100																								
						25.05m																							
				0	40																								
						26.21m																							
Drilling T = Triple tube coring B = Blades R = Roller/Tricone A = Auger W = Wash boring DT = Double tube coring HAM = Rotary hammer S = Sonic Case lift Fluid/water Casing used Level/date Partial water loss Water inflow Barrel withdrawn						Water Inflow Outflow Unit weight (UW, g/cc) A = >2.55 B = 2.40-2.55 C = 2.25-2.40 D = 2.10-2.25 E = <2.10 Strength Hammer impact test Approx. point load strength index Is(50), MPa Approx. UCS MPa A = rebound (RQ) >4 >103 B = pit (PQ) 2-4 55-103 C = dent (DQ) 1-2 21-55 D = crater (CQ) 0.25-1 7-21 E = mouldable, friable (MQ) <0.25 <7 Note: X on log is test result. Otherwise, visually estimated. US = Unconfined Compressive Strength Core loss Core loss (interval known) Core loss (interval unknown). Loss is shown in Graphic log column at top of run						Samples and Notes R = SPT penetration refusal D = Disturbed sample N = Standard Penetration Test PP = Pocket penetrometer test SV = In-situ Shear Vane test cSV= Shear Vane test on core CS = Core Sample Ux = Undisturbed tube sample (x mm diameter) Nd = SPT and Disturbed Sample Weathering A = Micro fresh state (MFS) B = Visually fresh state (VFS) C = Stained state(STS) D = Partly decomposed state (PDS) E = Completely decomposed state (CDS)						Soil consistency Fine grained soils VS = Very Soft S = Soft F = Firm St = Stiff VSt = Very stiff H = Hard Soil density index Coarse grained soils Fb = Friable VY = Very Loose L = Loose MD = Medium Dense D = Dense VD = Very Dense						Defects Joint Shear zone Infill seam Vein Crush zone EW seam Orientation Dip (degrees) relative to horizontal plane, or to core axis if inclined. SH, SV = subhoriz, subvert Roughness, shape, infill SM = Smooth RF = Rough PR = Planar UN = Undulating PO = Polished SL = Stickensided I = Irregular CU = Curved VU = Vuggy ST = Stepped CN = Clean CT = Coating Ca = Calcite Ch = Chlorite Cl = Clay O = Other					



William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists

Engineering log – Cored borehole

BH-004

Sheet 4 of 4

Incorporating the Unified Rock Classification System (URCS)

Project	Macquarie Point Gl	Location	Macquarie Point	Client	MPDC
Coordinates	527464.22mE; 5252389.76mN	Drill type	HQ3 diamond drilling	Hole started	13/5/24
Datum	GDA2020	Equipment	MRS XL Max	Hole finished	14/5/24
RL	3.91mAHD			Drilled by	SWD (G. Bourke)
Inclination	Vertical	Drill fluid(s)	Water	Logged by	W. Cromer
Bearing				Checked by	G. Bremner

Drilling information							Rock substance					Rock mass defects				
Bit type/size	Case type/size/lift	Fluid /water	Notes Samples, field tests)	Core loss	RQD	metres	Graphic log	Substance description Rock type, Colour, Grain size, Structure (texture, fabric, mineral composition, hardness, alteration, cementation, etc as applicable)	Weathering	Est. strength	Nature of defects	Defect spacing (mm)	Defect description thickness, type, inclination, planarity, roughness, coating	Geol interp		
				20% 40% 60% 80%	20% 40% 60% 80%	Depth			A B C D E	A B C D E					30 100 300 1000 3000	
			26.21	0	40	26		DOLERITE: AS ABOVE			AS ABOVE		— SV, RF, I — SH, RF, I, Ca — SV, RF, I, Ca — 30°, RF, I, Ca — SV, RF, I, Ca	AS ABOVE	Jurassic dolerite	
			26.2 - 26.25m PLT(ax) = >20kN													
			26.5 - 26.75m PLT(dia) = >20kN	0	70	27										
						28		EOH 27.6mbg								

Drilling T = Triple tube coring B = Blades R = Roller/Tricone A = Auger W = Wash boring DT = Double tube coring HAM = Rotary hammer S = Sonic Case lift Fluid/water Casing used Level/date Partial water loss Barrel withdrawn RQD (Rock Quality Designation Index) The sum of the lengths of 'sound' core pieces >100mm in a drilling run is divided by the total core run length. Expressed as %. Core length measured along centreline. Core drilling breaks not included.	Water Inflow Outflow Unit weight (UW, g/cc) A = >2.55 B = 2.40-2.55 C = 2.25-2.40 D = 2.10-2.25 E = <2.10 Strength Hammer impact test Approx. point load strength index Is(50), MPa Approx. UCS MPa A = rebound (RQ) >4 >103 B = pit (PQ) 2-4 55-103 C = dent (DQ) 1-2 21-55 D = crater (CQ) 0.25-1 7-21 E = mouldable, friable (MQ) <0.25 <7 Note: X on log is test result. Otherwise, visually estimated. US = Unconfined Compressive Strength Core loss Core loss (interval known) Core loss (interval unknown). Loss is shown in Graphic log column at top of run.	Samples and Notes R = SPT penetration refusal D = Disturbed sample N = Standard Penetration Test PP = Pocket penetrometer test SV = In-situ Shear Vane test cSV = Shear Vane test on core CS = Core Sample Ux = Undisturbed tube sample (x mm diameter) Nd = SPT and Disturbed Sample Weathering A = Micro fresh state (MFS) B = Visually fresh state (VFS) C = Stained state(STS) D = Partly decomposed state (PDS) E = Completely decomposed state (CDS)	Soil consistency Fine grained soils VS = Very Soft S = Soft F = Firm St = Stiff VSt = Very stiff H = Hard Soil density index Coarse grained soils Fb = Friable VY = Very Loose L = Loose MD = Medium Dense D = Dense VD = Very Dense	Defects Joint Shear zone Infill seam Vein Crush zone EW seam Orientation Dip (degrees) relative to horizontal plane, or to core axis if inclined. SH, SV = subhoriz. subvert Roughness, shape, infill SM = Smooth RF = Rough PR = Planar UN = Undulating PO = Polished SL = Slacksided I = Irregular CU = Curved VU = Vuggy ST = Stepped CN = Clean CT = Coating Ca = Calcite Ch = Chlorite Cl = Clay O = Other
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PointID: BH-004 Depth Range: 0.0 – 2.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

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DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

1/13



PointID: BH-004 Depth Range: 2.0 – 3.7 m



MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN	WCC	DATE	28/5/24
CHECKED		DATE	
SCALE	Not to Scale		A4
PROJECT No.	PS212776	FIGURE No.	2/13



PointID: BH-004 Depth Range: 3.7 – 5.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

3/13



PointID: BH-004 Depth Range: 5.0 – 6.3 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

4/13



PointID: BH-004 Depth Range: 6.3 – 8.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

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DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

5/13



PointID: BH-004 Depth Range: 8.0 – 10.0 m



MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN	WCC	DATE	28/5/24
CHECKED		DATE	
SCALE	Not to Scale		A4
PROJECT No.	PS212776	FIGURE No.	6/13



PointID: BH-004 Depth Range: 0.0 – 2.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

7/13



PointID: BH-004 Depth Range: 12.0 – 14.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

8/13



PointID: BH-004 Depth Range: 14.0 – 15.8 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

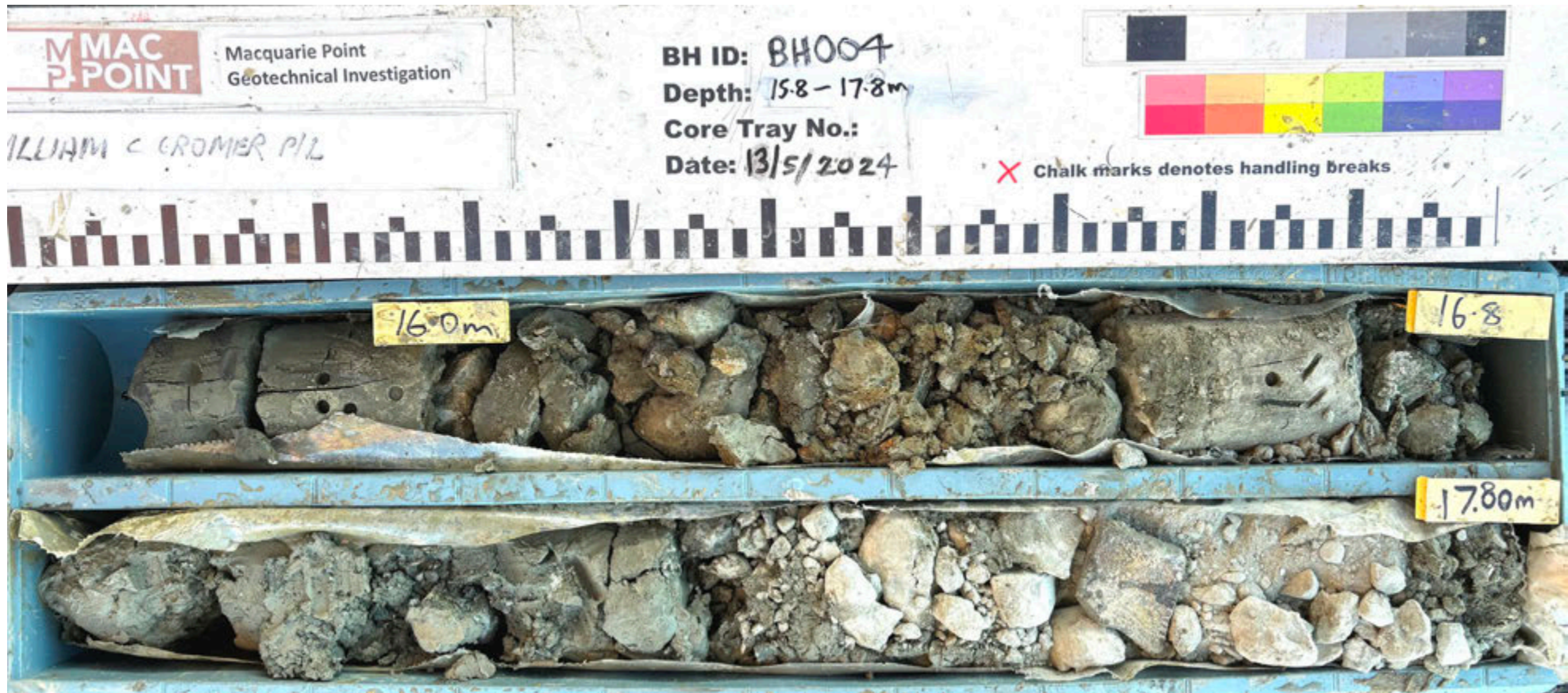
A4

PROJECT No.

PS212776

FIGURE No.

9/13



PointID: BH-004 Depth Range: 15.8 – 17.8 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

10/13

BH ID: BH-004

Depth: 17.7 – 21m

Core Tray No.: 01

Date: 14/05/24



X

Chalk marks denotes handling breaks



PointID: BH-004 Depth Range: 17.7 – 21.0 m



TITLE	MPDC Macquarie Point Macquarie Point GI Core Photo – BH-004	DRAWN	WCC	DATE	28/5/24	
		CHECKED		DATE		
		SCALE	Not to Scale			A4
		PROJECT No.	PS212776	FIGURE No.	11/13	



PointID: BH-004 Depth Range: 21.0 – 25.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

12/13



PointID: BH-004 Depth Range: 25.0 – 27.6 m EOH



MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN	WCC	DATE	28/5/24
CHECKED		DATE	
SCALE	Not to Scale		A4
PROJECT No.	PS212776	FIGURE No.	13/13

Borehole log

BH-012

Sheet 1 of 2

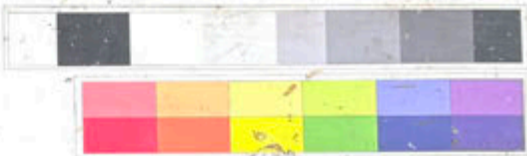
[illegible]

[illegible]



WILLIAM C. CROMER P/L

BH ID: BH012
Depth: 0-2m
Core Tray No.:
Date: 18/05/24



X Chalk marks denotes handling breaks



PointID: BH-012 Depth Range: 0.0 – 2.0 m



TITLE	MPDC Macquarie Point Macquarie Point GI Core Photo – BH-012		DRAWN WCC	DATE 29/5/24
			CHECKED	DATE
			SCALE Not to Scale	A4
			PROJECT No. PS212776	FIGURE No. 1/6



PointID: BH-012 Depth Range: 2.0 – 4.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-012

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

2/6



PointID: BH-012 Depth Range: 4.0 – 6.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-012

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

3/6



PointID: BH-012 Depth Range: 6.0 – 8.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-012

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

4/6



PointID: BH-012 Depth Range: 8.0 – 9.7 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-012

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

5/6



PointID: BH-012 Depth Range: 9.7 – 11.0 m EOH



MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-012

DRAWN WCC	DATE 29/5/24
CHECKED	DATE
SCALE Not to Scale	A4
PROJECT No. PS212776	FIGURE No. 6/6

Borehole log

BH-013

Sheet 1 of 3

Project		Macquarie Point GI		Location		Macquarie Point		Client		MPDC			
Coordinates		527495.11mE; 5252403.87mN		Drill type		Sonic		Hole started		15/5/24			
Datum		GDA2020		Drill rig		MRS XL Max		Hole finished		15/5/24			
RL		3.94mAHD								Drilled by		SWD (G. Bourke)	
Inclination		Vertical		Drill fluid(s) Water (where indicated)						Logged by		G. Bremner	
Bearing										Checked by		W. Cromer	
Method	Penet. resist	Water	Notes Samples and field tests	metres <u>RLmAHD</u> Depth	Recovery (%)	Graphic log	USCS	Materials Soil type, colour, plasticity or particle characteristics, secondary and minor components	Moisture condition	Consistency Density index	Structure, geology, interpretation, additional observations		
Sonic				0.3m	100		CL, GC	Gravelly sandy CLAY: brown; low plast	M<->PL	F-St	Fill		
			ASS 0.5 - 0.6m		100		GW	Sandy silty GRAVEL: brown-grey; trace clay; non-plastic; 50% well-graded subangular clasts of dolerite, brick, sandstone to 75mm	D-M	MD			
			ASS 1.0 - 1.1m	1	30		GC	Sandy clayey GRAVEL: dark brown; low plasticity; 50% well-graded subangular clasts of dolerite, and sandstone to 75mm	W				
			ASS 1.5 - 1.6m										
			ASS 2.0 - 2.1m	2									
			ASS 2.5 - 2.6m	2.5m	30		SP	Silty SAND: orange grading to grey; trace clay; some sandstone clasts to 100mm	M				
			ASS 3.0 - 3.1m	3	60		CL	Clayey sandy SILT: black; low plasticity; trace oil; c30% subangular-subrounded dolerite gravel to 50mm	W	VS			
			SPT 3, 3, 3 N=6 Recovery: 200/450	3.0m									
			ASS 3.5 - 3.6m	3.45m									
			ASS 4.0 - 4.1m	4									
			ASS 4.5 - 4.6m	4.2m	100		SM, GM	Sandy gravelly SILT: light grey; non-plastic; some dolerite clasts to 100mm at top	D-M		(Concrete?)		
			ASS 5.0 - 5.1m	-1 5	100		GP	Sandy clayey GRAVEL: dark grey - black; some silt; 50% poorly graded subangular dolerite and sandstone clasts to 50mm	W		Fill		
			ASS 5.5 - 5.6m										
			ASS 6.0 - 6.1m	-2 6	100		SP	SAND: dark grey; fine-med; some silt and 5% fine white shell fragments	W	MD	Estuarine sediments		
			No SPT @ 6m (blocked hole) ASS 6.4 - 6.5m	6.0m	80								
			SPT 1, 2, 2 N=4 Recovery: 350/450	6.5m									
			ASS 7.5 - 7.6m	7.5m	90		SP	SAND: dark grey; fine-med; some silt and 5% fine white shell fragments					
			SPT 4, 4, 4 N=8 Recovery: 400/450	7.5m									
			PSD 7.95 - 8m	-4 8	100								
			ASS 8.0 - 8.1m										
		ASS 8.5 - 8.6m											
		ASS 9.0 - 9.1m	-5 9										
			-6 10				Core loss						
Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt= Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail) Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)													



William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists

Borehole log

BH-013

Sheet 2 of 3

Project	Macquarie Point GI	Location	Macquarie Point	Client	MPDC
Coordinates	527495.11mE; 5252403.87mN	Drill type	Sonic	Hole started	15/5/24
Datum	GDA2020	Drill rig	MRS XL Max	Hole finished	15/5/24
RL	3.94mAHD	Drill fluid(s)	Water (where indicated)	Drilled by	SWD (G. Bourke)
Inclination	Vertical	Logged by	G. Bremner	Checked by	W. Cromer
Bearing					

Method	Penet. resist	Water	Notes Samples and field tests	metres RLmAHD Depth	Recovery (%)	Graphic log	USCS	Materials Soil type, colour, plasticity or particle characteristics, secondary and minor components	Moisture condition	Consistency Density index	Structure, geology, interpretation, additional observations
Sonic				10	0	Core loss					Estuarine sediments
			ASS 10.5- 10.6m	10.5m	70		SP	SAND: dark grey; fine-med; some silt and 5% fine white shell fragments; trace clay near 11.7m, increasing to base to clayey SAND	W		
			SPT 2, 1, 16 N=17 Recovery: 300/450	10.7m							
			ASS 11.0- 11.1m	11							
			ASS 11.5- 11.6m		30		SC, CL				
			ASS 12.0- 12.1m	12	100		SC, loc CL, GW	Gravelly clayey SAND: dark khaki; non-plastic - low plasticity; some silt; up to 75% subangular-subrounded dolerite and minor sandstone clasts up to 100mm	W M D		Colluvial sediments
			Aggress 12.7- 12.8m	12.8m	100		GC CL	Clayey sandy GRAVEL: dark khaki - grey, and dark orange-brown; some silt; low plasticity; locally up to 50% subangular-subrounded dolerite to 200mm, and minor sandstone	M D		
				13							
				14							
				14.3m	100		GW	Silty sandy GRAVEL: light grey-blue; trace-some clay; low plasticity	D		Dolerite bedrock
				15				15.0m: end sonic; start HQ3 coring			
				16							
				17							
				7.5m							
				18							
				19							
				20							

Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt = Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail)
Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)

[illegible]



PointID: BH-013 Depth Range: 0.0 – 3.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-013

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

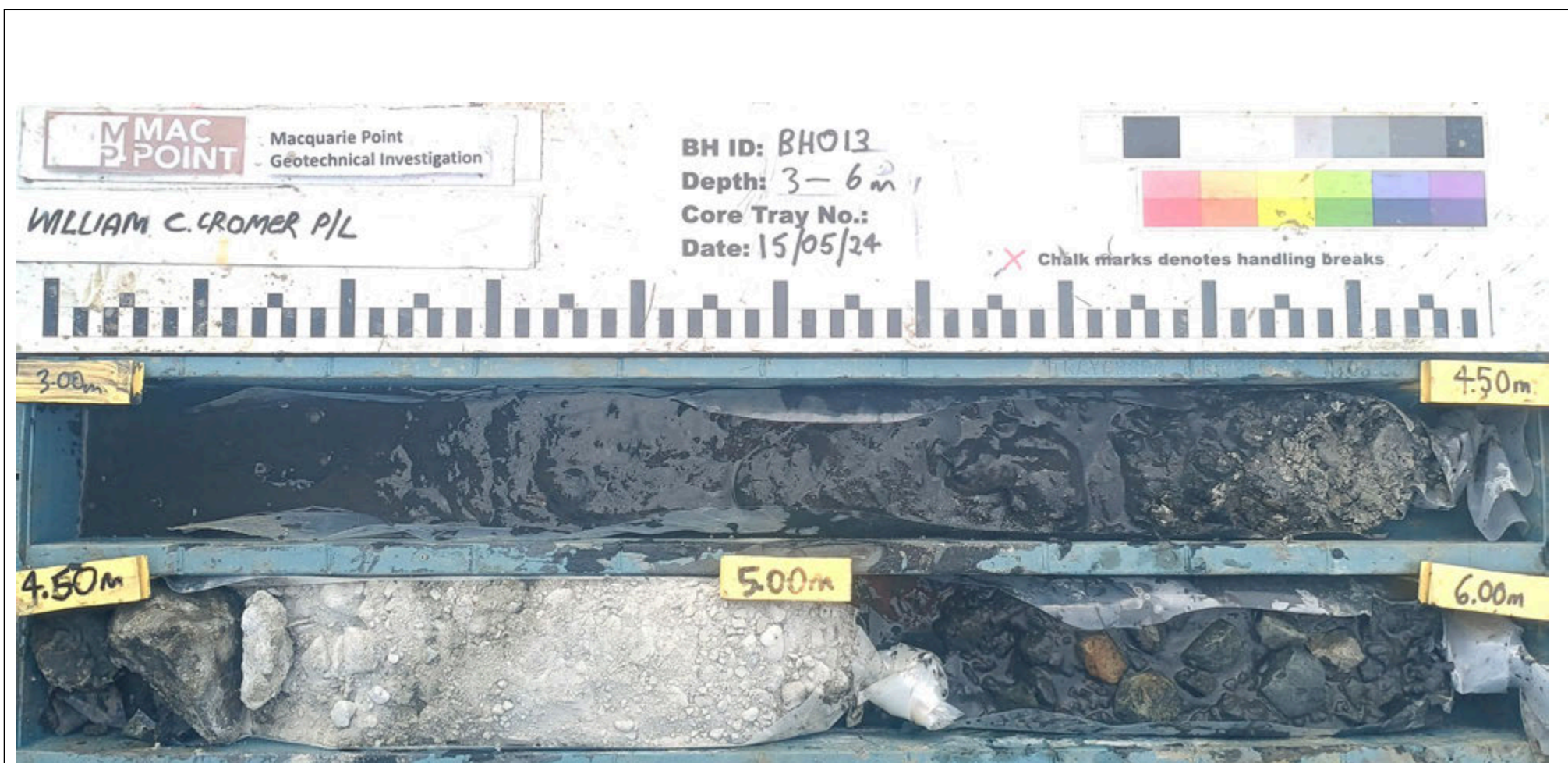
A4

PROJECT No.

PS212776

FIGURE No.

1/10



PointID: BH-013 Depth Range: 3.0 – 6.0 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo – BH-013	DRAWN	WCC	DATE	29/5/24
		CHECKED		DATE	
		SCALE	Not to Scale		A4
		PROJECT No.	PS212776	FIGURE No.	2/10



PointID: BH-013 Depth Range: 6.0 – 8.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-013

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

3/10



PointID: BH-013 Depth Range: 8.0 – 10.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-013

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

4/10



PointID: BH-013 Depth Range: 10.0 – 12.0 m



MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-013

DRAWN WCC	DATE 29/5/24
CHECKED	DATE
SCALE Not to Scale	A4
PROJECT No. PS212776	FIGURE No. 5/10



PointID: BH-013 Depth Range: 12.0 – 14.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-013

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

6/10

MAC POINT
Macquarie Point
Geotechnical Investigation

WILLIAM C. CROMER P/L

BH ID: BH013
Depth: 14.0 - 15.0m
Core Tray No.:
Date: 15/05/24



✗ Chalk marks denotes handling breaks



PointID: BH-013 Depth Range: 14.0 – 15.0 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo – BH-013		DRAWN WCC	DATE 29/5/24
			CHECKED	DATE
			SCALE Not to Scale	A4
			PROJECT No. PS212776	FIGURE No. 7/10



PointID: BH-013 Depth Range: 15.0 – 19.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-013

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

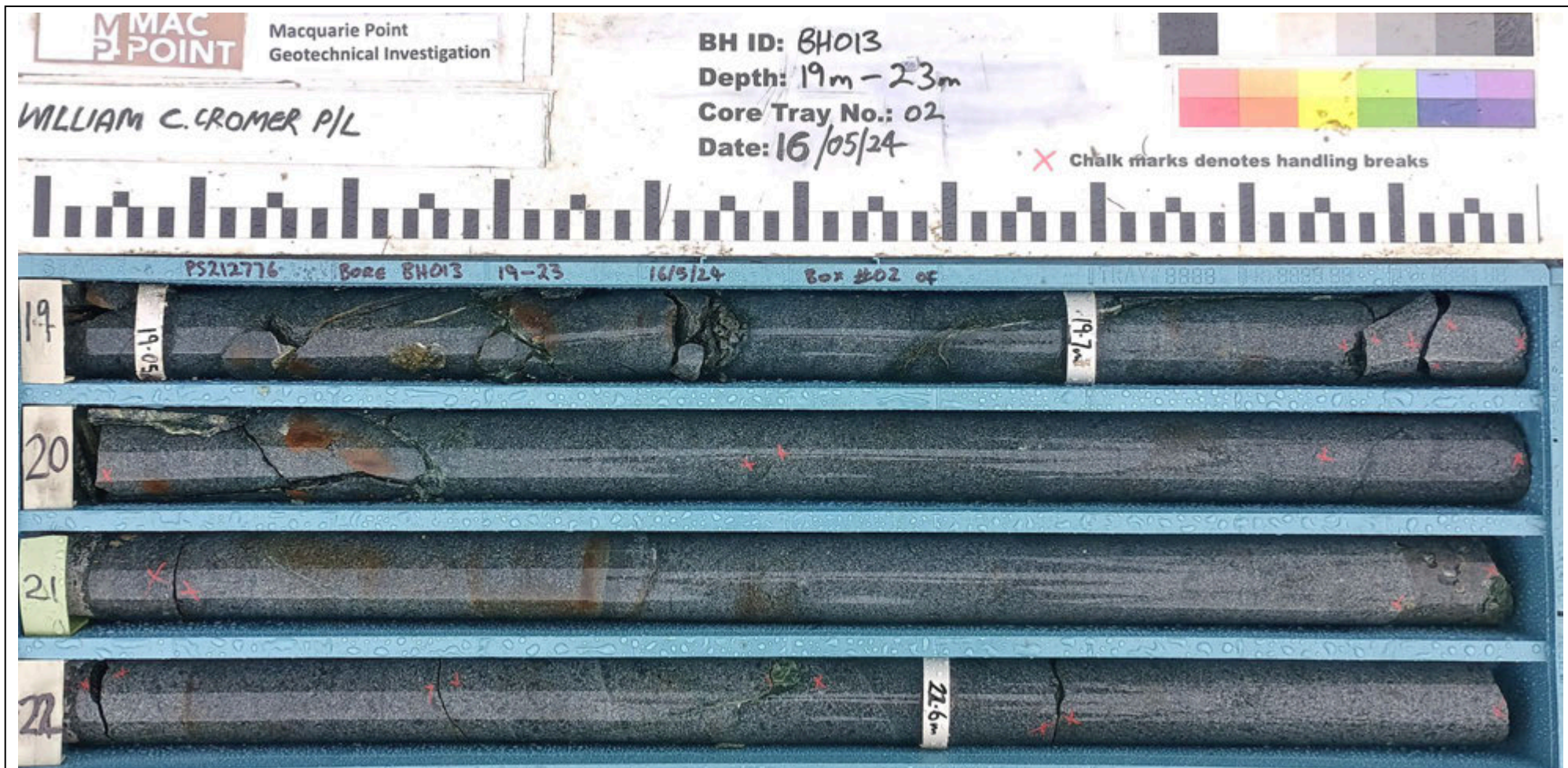
A4

PROJECT No.

PS212776

FIGURE No.

8/10



PointID: BH-013 Depth Range: 19.0 – 23.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-013

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

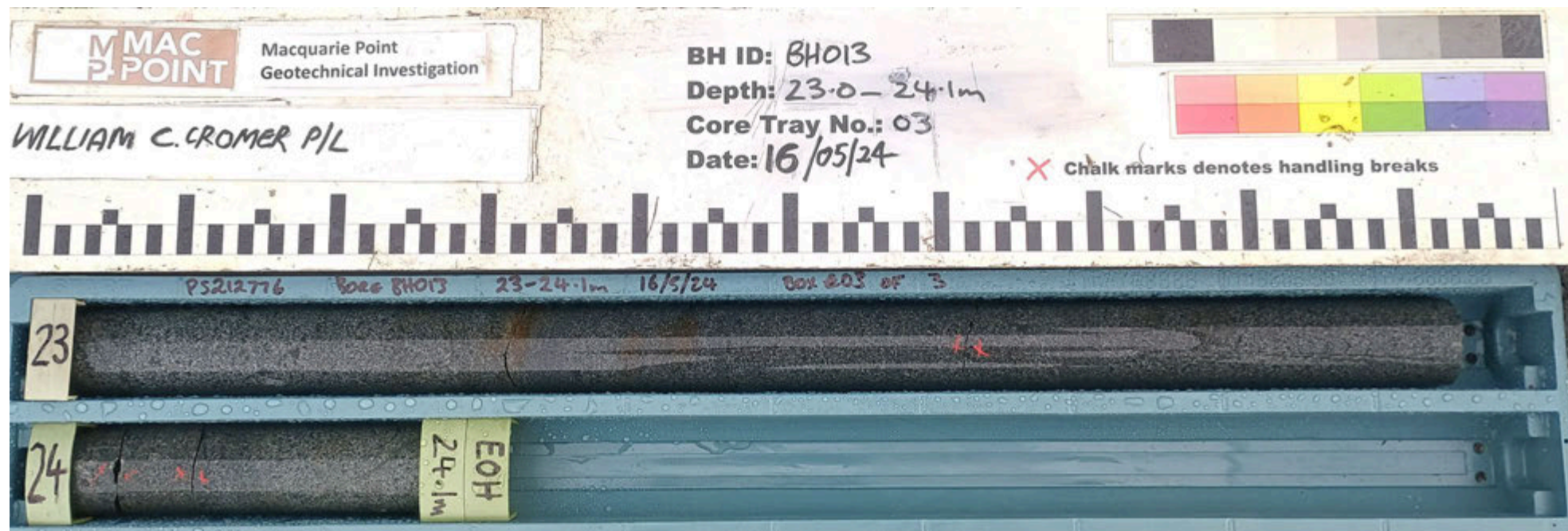
A4

PROJECT No.

PS212776

FIGURE No.

9/10



10/13

PointID: BH-013 Depth Range: 23.0 – 24.1 m EOH



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-013

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

10/10

Borehole log

BH-015

Sheet 1 of 1

Project	Macquarie Point Gl	Location	Macquarie Point	Client	MPDC						
Coordinates	527567.56mE; 5252514.03mN	Drill type	Sonic	Hole started	17/5/24						
Datum	GDA2020	Drill rig	MRS XL Max	Hole finished	17/5/24						
RL	4.30mAH			Drilled by	SWD (G. Bourke)						
Inclination	Vertical	Drill fluid(s)	Water (where indicated)	Logged by	W. Cromer						
Bearing				Checked by	G. Bremner						
Method	Penet. resist	Water	Notes	metres	Recovery (%)	Graphic log	USCS	Materials	Moisture condition	Consistency	Structure, geology, interpretation, additional observations
			Samples and field tests	<u>RLmAH</u> Depth				Soil type, colour, plasticity or particle characteristics, secondary and minor components		Density index	
Sonic											
			ASS 0.4 - 0.5m	0.45m	100		SP	Gravelly silty SAND: light greenish grey; 10% dolerite fragments to 20mm	D	MD	Fill
			ASS 0.9 - 1.0m	0.9m	100		GM	Sandy SILT - silty SAND: light grey; 20-30% angular dolerite clasts to 50mm			
			ASS 1.4 - 1.5m	1.5m	100		SM	Sandy gravelly SILT: black; occasional cream siltstone clasts to 30mm		L, VS	
			SPT 6, 4, 3 N=7 Recovery: 350/450	1.95m	100		SP	Silty SAND: reddish orange; 5% well graded brick fragments mostly to 10mm, occasionally to 50mm; some low plasticity clayey sand near base		L	
			ASS 2.0 - 2.1m	2.2m	100		SM GM	Sandy gravelly SILT: black; occasional orange-red brick fragments to 50mm	D-M	VS	(Ash and cinders)
			ASS 2.5 - 2.6m	2.65m	100		SP, loc. SC	Gravelly SAND: dark grey; some silt; trace clay; locally with 20 - 30% well graded subrounded dolerite clasts to 75mm	M	MD	
			SPT 6, 16, 21 N=37 Recovery: 340/450	3.45m	100		SP	SAND: dark grey - black; fine-med, grained; some silt			
			ASS 3.4 - 3.5m	3.5m	100		SP	SAND: dark grey - black; fine-med, grained; some silt			
			Aggress 3.7 - 3.8m	4.0m	100		SP	SAND: dark grey - black; fine-med, grained; some silt			
			ASS 4.0 - 4.1m	4.5m	100		SP	AS ABOVE: trace silt and fine red brick fragments, 1 piece leather, 1 piece porcelain, 1 piece wood (10cms); occasional rounded white quartzite pebbles to 10mm			
			ASS 4.5 - 4.6m	5.0m	100		SP	SAND: black grading to dark olive grey; med grained; occasional rounded white quartzite pebbles to 10mm; some fine white shell at base			Estuarine sediments
			ASS 5.0 - 5.1m	5.5m	100		GW GM	Gravelly SILT: light yellowish grey; with 25 - 30% well-mod. graded subrounded dolerite clasts to 100mm	D		Colluvial sediments
			SPT R @ 6.3m on rock	6.3m	75		GP	COBBLES: grey blue; well-mod. graded, subrounded, mod. weathered (some spheroidally) dolerite clasts to 100mm	W		
			6 - 7m: hard sonic drilling; material mostly pulverised	7.0m	75		GP	Sandy silty GRAVEL: light yellowish brown; matrix is doleritic sand and fine gravel flecked with white/cream; 30% mod. graded, subrounded, mod. weathered dolerite clasts to 30mm	D		
			7 - 8.2m: water used; matrix flushed out	8.2m	75		GP	Sandy silty GRAVEL: light yellowish brown; matrix is doleritic sand and fine gravel flecked with white/cream; 30% mod. graded, subrounded, mod. weathered dolerite clasts to 30mm			
			10.1m: sonic barrel jammed in "hard rock"; vibrated out; core lost.	9.1m 9.25m				DOLERITE: grey blue; SW, unfractured; high strength			Dolerite bedrock
				10		Core loss 9.25 - 10.1m					
								EOH 10.1mbg			
Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt = Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail) Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)											



PointID: BH-015 Depth Range: 0.0 – 2.0 m



TITLE

MPDC
 Macquarie Point
 Macquarie Point GI
 Core Photo – BH-015

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DATE

29/5/24

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DATE

SCALE

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A4

PROJECT No.

PS212776

FIGURE No.

1/5



PointID: BH-015 Depth Range: 2.0 – 4.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-015

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

2/5



Macquarie Point
Geotechnical Investigation

WILLIAM C. CROMER P/L

BH ID: BH015

Depth: 4 - 6m

Core Tray No.:

Date: 17/05/24



X

Chalk marks denotes handling breaks



PointID: BH-015 Depth Range: 4.0 – 6.0 m

	TITLE MPDC Macquarie Point Macquarie Point GI Core Photo – BH-015	DRAWN WCC	DATE 29/5/24	
		CHECKED	DATE	
		SCALE Not to Scale		A4
		PROJECT No. PS212776		FIGURE No. 3/5



PointID: BH-015 Depth Range: 6.0 – 8.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-015

DRAWN

WCC

DATE

29/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

FIGURE No.

4/5



WILLIAM C. CROMER P/L

BH ID: BH015
Depth: 8-10.1m
Core Tray No.:
Date: 17/05/24



✗ Chalk marks denotes handling breaks



PointID: BH-015 Depth Range: 8.0 – 10.1 m EOH

	TITLE		DRAWN	WCC	DATE	29/5/24
	MPDC Macquarie Point Macquarie Point GI Core Photo – BH-015		CHECKED		DATE	
			SCALE	Not to Scale		A4
			PROJECT No.	PS212776	FIGURE No.	5/5

Appendix C

Borehole Point Load Test Results



Client: MPDC

Project No. :

PS212776

Project: Macquarie Point GI

Borehole: BH-001

Test Details

Date: 21/04/2024

Test Locality:

Field

Core Diameter:

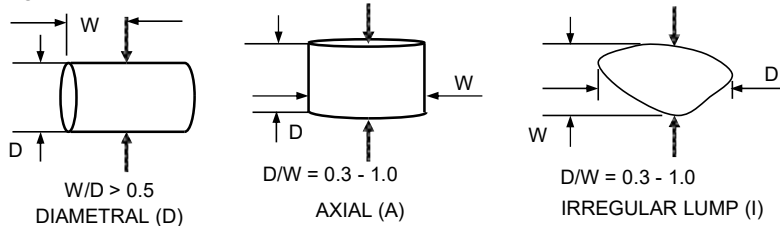
61

mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Test Type Comments	Point Load Strength Index $IS_{(50)}$ (MPa)	Strength Classification
BH-001	1.40	Dolerite	F	A	55.0	45.0	24.70	1	Completed as Irregular Lump	8.26	VH
BH-001	2.85	Dolerite	F	D	98.0	61.0	23.60	No Failure		6.94	VH
BH-001	2.85	Dolerite	F	A	61.0	49.0	22.29	No Failure		6.44	VH
BH-001	4.95	Dolerite	F	D	121.0	61.0	16.02	3V		4.71	VH
BH-001	4.95	Dolerite	F	A	61.0	48.0	22.10	No Failure		6.49	VH
BH-001	6.30	Dolerite	F	D	165.0	61.0	17.76	3V		5.22	VH
BH-001	6.30	Dolerite	F	A	61.0	47.0	10.76	No Failure		3.21	VH
BH-001	7.45	Dolerite	F	D	132.0	61.0	14.19	3V		4.17	VH
BH-001	7.45	Dolerite	F	A	61.0	43.0	1.87	3V		0.60	M
BH-001	8.25	Dolerite	F	D	80.0	61.0	22.90	No Failure		6.73	VH
BH-001	8.25	Dolerite	F	A	61.0	53.0	2.45	3V		0.67	M
BH-001	8.85	Dolerite	F	D	88.0	61.0	26.87	No Failure		7.90	VH
BH-001	8.85	Dolerite	F	A	61.0	59.0	21.09	No Failure		5.27	VH
BH-001	9.70	Dolerite	F	D	102.0	61.0	14.26	1		4.19	VH
BH-001	9.70	Dolerite	F	A	61.0	52.0	21.27	No Failure		5.87	VH
BH-001	10.70	Dolerite	F	D	145.0	61.0	20.31	No Failure		5.97	VH
BH-001	10.70	Dolerite	F	A	61.0	43.0	11.95	1		3.82	VH
BH-001	11.10	Dolerite	F	D	102.0	61.0	23.06	3V		6.78	VH
BH-001	11.10	Dolerite	F	A	61.0	45.0	25.25	1		7.79	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

1. Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 2. Fracture along bedding.
 3. Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 4. Chip or partial fracture.
- No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

TS

Checked:

TMCW

Date:

21/04/2024



POINT LOAD STRENGTH INDEX

Client: MPDC

Project No. : PS212776

Project: Macquarie Point GI

Borehole: BH-002

Test Details

Date: 19/04/2024

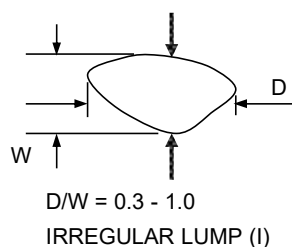
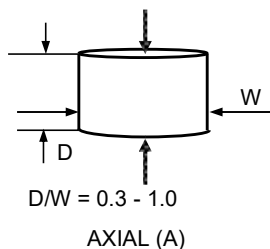
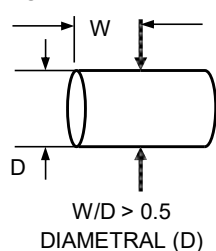
Test Locality: Field

Core Diameter: 61 mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Point Load Strength Index $IS_{(50)}$ (MPa)	Strength Classification
BH-002	8.95	Dolerite	F	D	130.0	61.0	29.45	No Failure	8.66	VH
BH-002	8.95	Dolerite	F	A	61.0	48.0	29.00	No Failure	8.51	VH
BH-002	9.65	Dolerite	F	D	142.0	61.0	23.55	No Failure	6.92	VH
BH-002	9.65	Dolerite	F	A	61.0	45.0	21.45	No Failure	6.62	VH
BH-002	10.60	Dolerite	F	D	113.0	61.0	25.00	No Failure	7.35	VH
BH-002	10.60	Dolerite	F	A	61.0	49.0	29.67	1	8.57	VH
BH-002	11.70	Dolerite	F	D	210.0	61.0	27.53	No Failure	8.09	VH
BH-002	11.70	Dolerite	F	A	61.0	47.0	25.70	No Failure	7.67	VH
BH-002	13.75	Dolerite	F	D	143.0	61.0	23.77	No Failure	6.99	VH
BH-002	13.75	Dolerite	F	A	61.0	55.0	22.92	No Failure	6.05	VH
BH-002	14.45	Dolerite	F	D	135.0	61.0	23.63	No Failure	6.94	VH
BH-002	14.75	Dolerite	F	A	61.0	35.0	21.10	No Failure	7.91	VH
BH-002	15.50	Dolerite	F	D	165.0	61.0	25.30	No Failure	7.44	VH
BH-002	15.50	Dolerite	F	A	61.0	53.0	15.40	3V	4.19	VH
BH-002	16.95	Dolerite	F	D	149.0	61.0	21.30	No Failure	6.26	VH
BH-002	16.95	Dolerite	F	A	61.0	55.0	22.40	No Failure	5.92	VH
BH-002	18.05	Dolerite	F	D	153.0	61.0	29.03	No Failure	8.53	VH
BH-002	18.05	Dolerite	F	A	61.0	49.0	21.30	No Failure	6.15	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

1. Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 2. Fracture along bedding.
 3. Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 4. Chip or partial fracture.
- No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

TS

Checked:

TMcW

Date:

19/04/2024

Client: MPDC

Project No. :

PS212776

Project: Macquarie Point GI

Borehole: BH-003

Test Details

Date: 17/04/2024

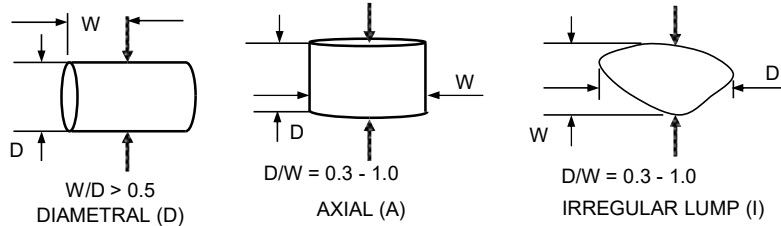
Test Locality: Field

Core Diameter: 61 mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Test Type Comments	Point Load Strength Index $IS_{(50)}$ (MPa)	Strength Classification
BH-003	3.50	Dolerite	F	A	66.0	45.0	16.41	3M	Completed as Irregular Lump	4.76	VH
BH-003	4.50	Dolerite	F	A	50.0	45.0	21.68	No Failure	Completed as Irregular Lump	7.80	VH
BH-003	5.50	Dolerite	F	A	50.0	35.0	15.40	3V	Completed as Irregular Lump	6.73	VH
BH-003	6.95	Dolerite	F	D	135.0	61.0	27.90	No Failure		8.20	VH
BH-003	6.95	Dolerite	F	A	61.0	55.0	26.32	No Failure		6.95	VH
BH-003	7.90	Dolerite	F	D	153.0	61.0	24.61	No Failure		7.23	VH
BH-003	7.90	Dolerite	F	A	61.0	53.0	21.39	No Failure		5.81	VH
BH-003	8.65	Dolerite	F	D	185.0	61.0	6.82	3V		2.00	H
BH-003	8.65	Dolerite	F	A	61.0	51.0	24.32	No Failure		6.81	VH
BH-003	9.70	Dolerite	F	D	193.0	61.0	7.82	3V		2.30	H
BH-003	9.70	Dolerite	F	A	61.0	52.0	21.04	1		5.80	VH
BH-003	10.95	Dolerite	F	D	85.0	61.0	17.66	1		5.19	VH
BH-003	10.95	Dolerite	F	A	61.0	46.0	24.56	No Failure		7.45	VH
BH-003	11.95	Dolerite	F	D	144.0	61.0	26.49	No Failure		7.79	VH
BH-003	11.95	Dolerite	F	A	61.0	43.0	24.17	No Failure		7.72	VH
BH-003	12.95	Dolerite	F	D	183.0	61.0	12.77	3V		3.75	VH
BH-003	12.95	Dolerite	F	A	61.0	55.0	25.71	1		6.79	VH
BH-003	13.90	Dolerite	F	D	213.0	61.0	23.67	No Failure		6.96	VH
BH-003	13.90	Dolerite	F	A	61.0	59.0	17.46	1		4.37	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

- Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 - Fracture along bedding.
 - Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 - Chip or partial fracture.
- No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_o^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_o^2 = 4WD/\pi$

Tested by:

TS

Checked:

TMcW

Date:

17/04/2024

Client: MPDC

Project No. :

PS212776

Project: Macquarie Point GI

Borehole: BH-005

Test Details

Date: 28/04/2024

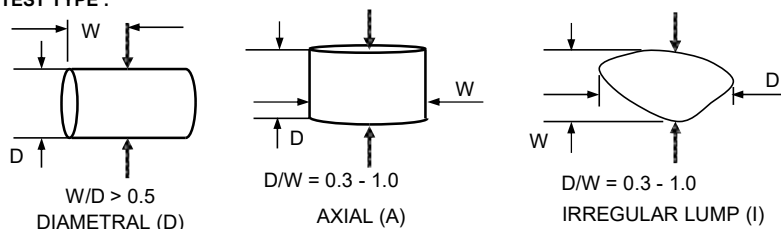
Test Locality: Field

Core Diameter: 61 mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Test Type Comments	Point Load Strength Index $IS_{(50)}$ (MPa)	Strength Classification
BH-005	17.00	Dolerite	F	A	55.0	50.0	25.87	No Failure	Completed as Irregular Lump	7.97	VH
BH-005	19.20	Dolerite	F	D	161.0	61.0	30.12	No Failure		8.85	VH
BH-005	19.20	Dolerite	F	A	61.0	40.0	27.55	No Failure		9.31	VH
BH-005	20.95	Dolerite	F	D	203.0	61.0	31.17	No Failure		9.16	VH
BH-005	20.95	Dolerite	F	A	61.0	59.0	26.02	1		6.51	VH
BH-005	21.50	Dolerite	F	D	121.0	61.0	18.83	3V		5.53	VH
BH-005	21.50	Dolerite	F	A	61.0	48.0	20.98	1		6.16	VH
BH-005	22.95	Dolerite	F	D	132.0	61.0	19.82	1		5.83	VH
BH-005	22.95	Dolerite	F	A	61.0	57.0	18.76	1		4.82	VH
BH-005	23.95	Dolerite	F	D	103.0	61.0	32.04	No Failure		9.42	VH
BH-005	23.95	Dolerite	F	A	61.0	56.0	30.78	No Failure		8.02	VH
BH-005	25.25	Dolerite	F	D	143.0	61.0	26.78	No Failure		7.87	VH
BH-005	25.25	Dolerite	F	A	61.0	56.0	31.88	No Failure		8.30	VH
BH-005	26.95	Dolerite	F	D	152.0	61.0	30.91	1		9.08	VH
BH-005	26.95	Dolerite	F	A	61.0	43.0	25.22	1		8.06	VH
BH-005	27.45	Dolerite	F	D	89.0	61.0	8.60	1		2.53	H
BH-005	27.45	Dolerite	F	A	61.0	45.0	16.33	1		5.04	VH
BH-005	28.15	Dolerite	F	D	103.0	61.0	23.40	No Failure		6.88	VH
BH-005	28.15	Dolerite	F	A	61.0	43.0	22.21	No Failure		7.10	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

1. Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 2. Fracture along bedding.
 3. Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 4. Chip or partial fracture.
- No Failure': No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

TS

Checked:

TMcW

Date:

28/04/2024

Client: MPDC

Project No. :

PS212776

Project: Macquarie Point GI

Borehole: BH-006

Test Details

Date: 9/05/2024

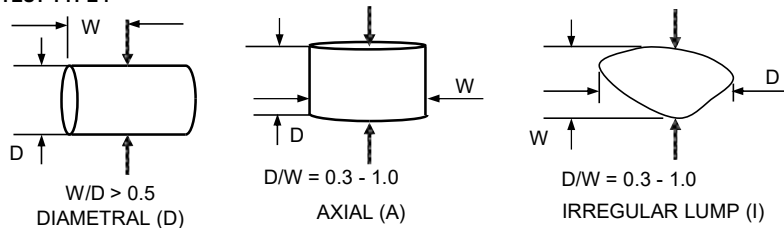
Test Locality: Field

Core Diameter: 61 mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Test Type Comments	Point Load Strength Index $IS_{(50)}$ (MPa)	Strength Classification
BH-006	15.80	Dolerite	F	A	90.0	30.0	6.00	1	Completed as Irregular Lump	1.88	H
BH-006	17.65	Dolerite	F	D	155.0	61.0	17.50	4		5.14	VH
BH-006	17.65	Dolerite	F	A	61.0	60.0	21.00	No Failure		5.18	VH
BH-006	18.20	Dolerite	F	D	170.0	61.0	23.40	No Failure		6.88	VH
BH-006	17.79	Dolerite	F	A	61.0	50.0	7.80	3M		2.22	H
BH-006	19.60	Dolerite	F	D	130.0	61.0	7.26	3C		2.13	H
BH-006	19.60	Dolerite	F	A	61.0	60.0	0.56	3C		0.14	L
BH-006	20.20	Dolerite	F	D	220.0	61.0	14.80	1		4.35	VH
BH-006	20.20	Dolerite	F	A	61.0	50.0	20.00	No Failure		5.69	VH
BH-006	21.25	Dolerite	F	D	230.0	61.0	20.00	No Failure		5.88	VH
BH-006	21.25	Dolerite	F	A	61.0	55.0	24.04	1		6.35	VH
BH-006	22.11	Dolerite	F	D	130.0	61.0	20.71	No Failure		6.09	VH
BH-006	22.11	Dolerite	F	A	61.0	49.0	20.00	No Failure		5.78	VH
BH-006	23.00	Dolerite	F	D	120.0	61.0	15.25	3M		4.48	VH
BH-006	23.00	Dolerite	F	A	50.0	60.0	14.70	No Failure	Completed as Irregular Lump	4.23	VH
BH-006	23.80	Dolerite	F	D	160.0	61.0	19.61	3M		5.76	VH
BH-006	23.80	Dolerite	F	A	61.0	60.0	4.52	3J		1.12	H
BH-006	25.00	Dolerite	F	D	240.0	61.0	20.90	1		6.14	VH
BH-006	25.00	Dolerite	F	A	61.0	45.0	20.00	No Failure		6.17	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

1. Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 2. Fracture along bedding.
 3. Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 4. Chip or partial fracture.
- No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

MIR

Checked:

TMcW

Date:

9/05/2024

Client: MPDC

Project No. : PS212776

Project: Macquarie Point GI

Borehole: BH-007

Test Details

Date: 3/05/2024

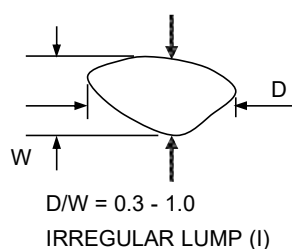
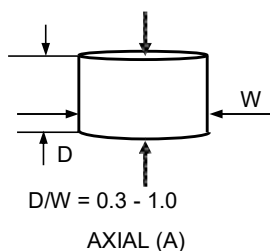
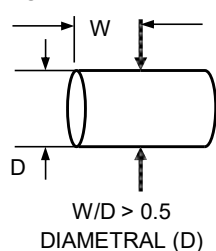
Test Locality: Field

Core Diameter: 61 mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Point Load Strength Index $Is_{(50)}$ (MPa)	Strength Classification
BH-007	10.08	Dolerite	F	D	100.0	61.0	20.50	No Failure	6.02	VH
BH-007	10.08	Dolerite	F	A	61.0	47.0	20.04	No Failure	5.98	VH
BH-007	10.97	Dolerite	F	D	150.0	61.0	21.90	No Failure	6.44	VH
BH-007	10.97	Dolerite	F	A	61.0	50.0	15.28	1	4.34	VH
BH-007	11.05	Dolerite	F	D	160.0	61.0	21.69	No Failure	6.37	VH
BH-007	11.95	Dolerite	F	A	61.0	40.0	17.42	1	5.89	VH
BH-007	13.05	Dolerite	F	D	110.0	61.0	21.82	No Failure	6.41	VH
BH-007	13.08	Dolerite	F	A	61.0	57.0	20.41	No Failure	5.24	VH
BH-007	13.90	Dolerite	F	D	190.0	61.0	20.92	No Failure	6.15	VH
BH-007	13.98	Dolerite	F	A	61.0	41.0	22.43	1	7.44	VH
BH-007	14.93	Dolerite	F	D	130.0	61.0	21.75	No Failure	6.39	VH
BH-007	14.98	Dolerite	F	A	61.0	46.0	22.42	No Failure	6.80	VH
BH-007	16.09	Dolerite	F	D	175.0	61.0	20.41	No Failure	6.00	VH
BH-007	16.15	Dolerite	F	A	61.0	43.0	22.70	No Failure	7.25	VH
BH-007	17.03	Dolerite	F	A	61.0	40.0	19.80	No Failure	6.69	VH
BH-007	17.10	Dolerite	F	D	180.0	61.0	20.45	1	6.01	VH
BH-007	17.97	Dolerite	F	D	60.0	61.0	19.21	1	5.65	VH
BH-007	18.08	Dolerite	F	A	61.0	130.0	20.26	No Failure	2.75	H

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

1. Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 2. Fracture along bedding.
 3. Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 4. Chip or partial fracture.
- No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

MIR

Checked:

TMcW

Date:

3/05/2024

Client: MPDC

Project No. : PS212776

Project: Macquarie Point GI

Borehole: BH-008

Test Details

Date: 8/05/2024

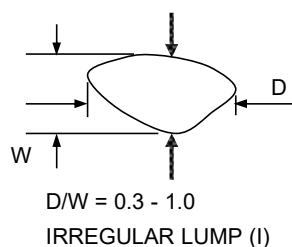
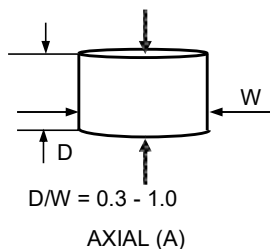
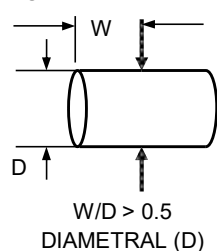
Test Locality: Field

Core Diameter: 61 mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Point Load Strength Index $IS_{(50)}$ (MPa)	Strength Classification
BH-008	7.90	Dolerite	F	D	150.0	61.0	21.45	No Failure	6.30	VH
BH-008	7.98	Dolerite	F	A	61.0	40.0	21.17	No Failure	7.16	VH
BH-008	9.05	Dolerite	F	D	100.0	61.0	20.00	No Failure	5.88	VH
BH-008	9.02	Dolerite	F	A	61.0	60.0	20.80	No Failure	5.13	VH
BH-008	10.05	Dolerite	F	D	120.0	61.0	20.00	No Failure	5.88	VH
BH-008	10.20	Dolerite	F	A	61.0	40.0	20.00	No Failure	6.76	VH
BH-008	11.05	Dolerite	F	A	61.0	40.0	20.17	No Failure	6.82	VH
BH-008	11.17	Dolerite	F	D	160.0	61.0	20.00	No Failure	5.88	VH
BH-008	12.50	Dolerite	F	D	190.0	61.0	20.60	No Failure	6.05	VH
BH-008	12.98	Dolerite	F	A	61.0	40.0	21.40	No Failure	7.23	VH
BH-008	13.08	Dolerite	F	D	140.0	61.0	22.00	No Failure	6.47	VH
BH-008	13.43	Dolerite	F	A	61.0	45.0	20.00	No Failure	6.17	VH
BH-008	13.96	Dolerite	F	A	61.0	50.0	21.69	No Failure	6.17	VH
BH-008	14.05	Dolerite	F	D	140.0	61.0	19.47	1	5.72	VH
BH-008	14.95	Dolerite	F	D	110.0	61.0	21.00	No Failure	6.17	VH
BH-008	15.03	Dolerite	F	A	61.0	50.0	20.11	No Failure	5.72	VH
BH-008	15.62	Dolerite	F	A	61.0	50.0	20.00	No Failure	5.69	VH
BH-008	15.83	Dolerite	F	D	120.0	61.0	21.00	4	6.17	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

1. Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 2. Fracture along bedding.
 3. Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 4. Chip or partial fracture.
- No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

MIR

Checked:

TMcW

Date:

8/05/2024

Client: MPDC

Project No. : PS212776

Project: Macquarie Point GI

Borehole: BH-009

Test Details

Date: 11/05/2024

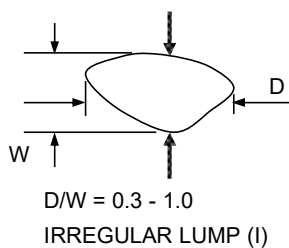
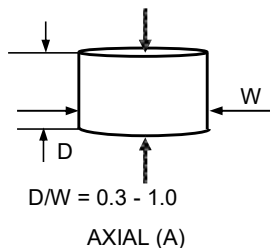
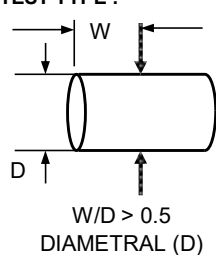
Test Locality: Field

Core Diameter: 61 mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Point Load Strength Index $Is_{(50)}$ (MPa)	Strength Classification
BH-009	10.60	Dolerite	F	D	120.0	61.0	12.91	1	3.79	VH
BH-009	10.60	Dolerite	F	A	61.0	45.0	10.90	1	3.36	VH
BH-009	11.70	Dolerite	F	A	61.0	50.0	22.32	No Failure	6.35	VH
BH-009	11.83	Dolerite	F	D	170.0	61.0	22.44	No Failure	6.60	VH
BH-009	12.50	Dolerite	F	D	130.0	61.0	19.22	1	5.65	VH
BH-009	13.92	Dolerite	F	D	130.0	61.0	21.53	No Failure	6.33	VH
BH-009	13.95	Dolerite	F	A	61.0	55.0	20.00	No Failure	5.28	VH
BH-009	14.93	Dolerite	F	D	130.0	61.0	20.00	No Failure	5.88	VH
BH-009	14.97	Dolerite	F	A	61.0	60.0	4.98	3V	1.23	H
BH-009	15.78	Dolerite	F	A	61.0	55.0	10.44	1	2.76	H
BH-009	15.89	Dolerite	F	D	230.0	61.0	20.07	No Failure	5.90	VH
BH-009	16.00	Dolerite	F	A	61.0	60.0	20.00	No Failure	4.94	VH
BH-009	16.10	Dolerite	F	D	190.0	61.0	20.93	No Failure	6.15	VH
BH-009	17.40	Dolerite	F	D	190.0	61.0	20.10	No Failure	5.91	VH
BH-009	17.47	Dolerite	F	A	61.0	50.0	20.91	No Failure	5.95	VH
BH-009	18.42	Dolerite	F	D	200.0	61.0	22.18	No Failure	6.52	VH
BH-009	18.42	Dolerite	F	A	61.0	60.0	20.00	No Failure	4.94	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

- Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 - Fracture along bedding.
 - Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 - Chip or partial fracture.
- No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$

For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

MIR

Checked:

TMcW

Date:

11/05/2024



POINT LOAD STRENGTH INDEX

Client: MPDC

Project No. :

PS212776

Project: Macquarie Point GI

Borehole: BH-010

Test Details

Date: 26/04/2024

Test Locality:

Field

Core Diameter:

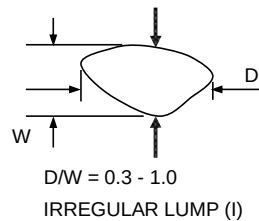
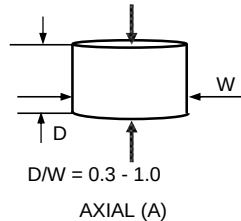
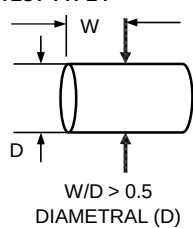
61

mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Test Type Comments	Point Load Strength Index $Is_{(50)}$ (MPa)	Strength Classification
BH-010	7.65	Dolerite	F	A	40.0	39.0	1.15	1	Completed as Irregular Lump	0.55	M
BH-010	8.75	Dolerite	F	A	58.0	38.0	7.50	1	Completed as Irregular Lump	2.74	H
BH-010	9.90	Dolerite	F	A	48.0	35.0	2.31	1	Completed as Irregular Lump	1.04	H
BH-010	10.80	Dolerite	F	A	60.0	35.0	3.01	1	Completed as Irregular Lump	1.14	H
BH-010	11.90	Dolerite	F	D	105.0	61.0	14.54	1		4.27	VH
BH-010	11.90	Dolerite	F	A	61.0	59.0	19.04	1		4.76	VH
BH-010	12.50	Dolerite	F	D	152.0	61.0	3.55	3V		1.04	H
BH-010	12.75	Dolerite	F	A	61.0	55.0	4.05	1		1.07	H
BH-010	13.85	Dolerite	F	D	101.0	61.0	27.05	No Failure		7.95	VH
BH-010	13.85	Dolerite	F	A	61.0	54.0	21.56	1		5.78	VH
BH-010	14.85	Dolerite	F	A	61.0	49.0	17.49	1		5.05	VH
BH-010	14.95	Dolerite	F	D	89.0	61.0	5.18	3V		1.52	H
BH-010	15.95	Dolerite	F	D	96.0	61.0	6.02	3V		1.77	H
BH-010	15.95	Dolerite	F	A	61.0	59.0	7.10	1		1.78	H
BH-010	16.95	Dolerite	F	D	166.0	61.0	19.90	1		5.85	VH
BH-010	16.95	Dolerite	F	A	61.0	43.0	17.08	1		5.46	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

- Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
- Fracture along bedding.
- Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
- Chip or partial fracture.

No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$

For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

TS

Checked:

TMcW

Date:

26/04/2024

Client: MPDC

Project No. :

PS212776

Project: Macquarie Point GI

Borehole: BH-011

Test Details

Date: 23/04/2024

Test Locality:

Field

Core Diameter:

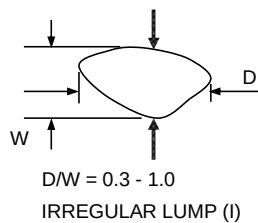
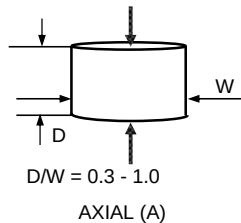
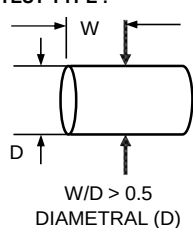
61

mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Test Type Comments	Point Load Strength Index $Is_{(50)}$ (MPa)	Strength Classification
BH-011	7.95	Dolerite	F	A	63.0	39.0	4.47	1	Completed as Irregular Lump	1.50	H
BH-011	8.90	Dolerite	F	A	48.0	41.0	5.35	1	Completed as Irregular Lump	2.14	H
BH-011	9.90	Dolerite	F	A	53.0	40.0	5.31	1	Completed as Irregular Lump	2.00	H
BH-011	11.75	Dolerite	F	D	112.0	61.0	16.82	1		4.94	VH
BH-011	11.75	Dolerite	F	A	61.0	52.0	14.74	1		4.07	VH
BH-011	12.20	Dolerite	F	A	55.0	38.0	11.14	1	Completed as Irregular Lump	4.25	VH
BH-011	13.50	Dolerite	F	D	98.0	61.0	18.43	1		5.42	VH
BH-011	13.50	Dolerite	F	A	61.0	56.0	18.84	1		4.91	VH
BH-011	14.75	Dolerite	F	D	95.0	61.0	24.87	No Failure		7.31	VH
BH-011	14.75	Dolerite	F	A	61.0	58.0	7.77	3M		1.97	H
BH-011	15.65	Dolerite	F	D	121.0	61.0	25.77	No Failure		7.57	VH
BH-011	15.65	Dolerite	F	A	61.0	59.0	21.40	1		5.35	VH
BH-011	16.55	Dolerite	F	D	101.0	61.0	21.78	1		6.40	VH
BH-011	16.55	Dolerite	F	A	61.0	58.0	8.40	3V		2.13	H
BH-011	17.75	Dolerite	F	D	132.0	61.0	12.67	1		3.72	VH
BH-011	17.75	Dolerite	F	A	61.0	40.0	17.30	1		5.85	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

1. Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
2. Fracture along bedding.
3. Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
4. Chip or partial fracture.

No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

TS

Checked:

TMCW

Date:

23/04/2024



POINT LOAD STRENGTH INDEX

Client: MPDC

Project No. :

PS212776

Project: Macquarie Point GI

Borehole: BH-014

Test Details

Date: 30/04/2024

Test Locality:

Field

Core Diameter:

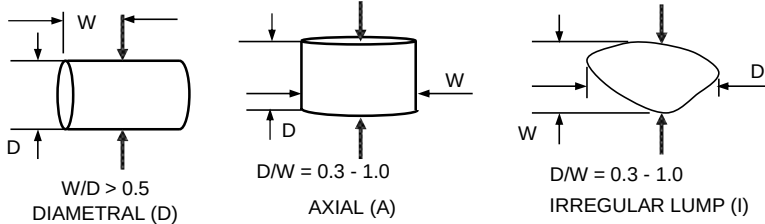
61

mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Test Type Comments	Point Load Strength Index $Is_{(50)}$ (MPa)	Strength Classification
BH-014	7.50	Dolerite	F	A	50.0	47.0	16.01	1	Completed as Irregular Lump	5.57	VH
BH-014	8.50	Dolerite	F	A	43.0	40.0	15.09	1	Completed as Irregular Lump	6.69	VH
BH-014	9.90	Dolerite	F	A	48.0	44.0	1.20	1	Completed as Irregular Lump	0.45	M
BH-014	10.60	Dolerite	F	D	98.0	61.0	23.74	No Failure		6.98	VH
BH-014	10.70	Dolerite	F	A	61.0	55.0	29.20	No Failure		7.71	VH
BH-014	11.92	Dolerite	F	D	132.0	61.0	19.95	1		5.86	VH
BH-014	11.92	Dolerite	F	A	61.0	43.0	12.95	1		4.14	VH
BH-014	12.95	Dolerite	F	D	143.0	61.0	25.55	No Failure		7.51	VH
BH-014	12.95	Dolerite	F	A	61.0	46.0	26.76	No Failure		8.12	VH
BH-014	13.95	Dolerite	F	D	122.0	61.0	23.40	No Failure		6.88	VH
BH-014	13.95	Dolerite	F	A	61.0	48.0	21.31	1		6.25	VH
BH-014	14.90	Dolerite	F	D	203.0	61.0	27.27	No Failure		8.01	VH
BH-014	14.95	Dolerite	F	A	61.0	52.0	25.11	1		6.93	VH
BH-014	15.80	Dolerite	F	D	176.0	61.0	7.75	3V		2.28	H
BH-014	16.65	Dolerite	F	D	95.0	61.0	24.51	No Failure		7.20	VH
BH-014	16.65	Dolerite	F	A	61.0	40.0	7.54	1		2.55	H
BH-014	17.95	Dolerite	F	D	134.0	61.0	23.49	No Failure		6.90	VH
BH-014	17.95	Dolerite	F	A	61.0	58.0	26.58	1		6.74	VH
BH-014	18.80	Dolerite	F	D	113.0	61.0	18.82	3V		5.53	VH
BH-014	18.80	Dolerite	F	A	61.0	46.0	22.70	No Failure		6.89	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

- Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
 - Fracture along bedding.
 - Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
 - Chip or partial fracture.
- No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$

For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

TS

Checked:

TMcW

Date:

30/04/2024

Client: MPDC

Project No. : PS212776

Project: Macquarie Point GI

Borehole: BH-016

Test Details

Date: 1/05/2024

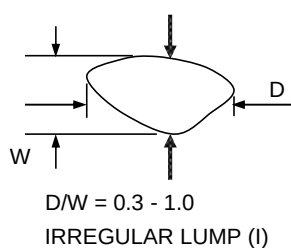
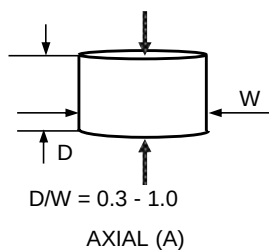
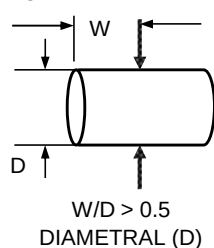
Test Locality: Field

Core Diameter: 61 mm

Test Machine S/N: 6510-0544

Borehole	Depth (m)	Rock Type	Moisture Condition	Test Type	W (mm)	D' (mm)	Load (kN)	Failure Type	Point Load Strength Index $Is_{(50)}$ (MPa)	Strength Classification
BH016	16.95	Dolerite	F	D	133.0	61.0	21.65	No Failure	6.36	VH
BH016	16.95	Dolerite	F	A	61.0	60.0	27.59	No Failure	6.81	VH
BH016	17.90	Dolerite	F	D	170.0	61.0	34.62	No Failure	10.17	EH
BH016	17.90	Dolerite	F	A	61.0	60.0	19.85	1	4.90	VH
BH016	18.95	Dolerite	F	D	90.0	61.0	20.25	No Failure	5.95	VH
BH016	18.95	Dolerite	F	A	61.0	32.0	21.66	1	8.70	VH
BH016	19.90	Dolerite	F	D	115.0	61.0	22.33	4	6.56	VH
BH016	19.97	Dolerite	F	A	61.0	35.0	20.58	No Failure	7.71	VH
BH016	20.90	Dolerite	F	D	200.0	61.0	20.54	No Failure	6.04	VH
BH016	21.05	Dolerite	F	A	61.0	30.0	21.85	1	9.23	VH
BH016	21.85	Dolerite	F	D	180.0	61.0	20.31	No Failure	5.97	VH
BH016	21.85	Dolerite	F	A	61.0	60.0	20.00	No Failure	4.94	VH
BH016	23.33	Dolerite	F	A	61.0	20.0	13.22	1	7.65	VH
BH016	23.40	Dolerite	F	D	100.0	61.0	21.06	No Failure	6.19	VH
BH016	24.10	Dolerite	F	A	61.0	30.0	11.08	1	4.68	VH
BH016	24.15	Dolerite	F	D	150.0	61.0	19.18	4	5.64	VH
BH016	24.93	Dolerite	F	D	140.0	61.0	22.08	No Failure	6.49	VH

TEST TYPE :



MOISTURE CONDITION :

Field (F), Saturated (S), Dry (D)

FAILURE TYPE :

1. Fracture through fabric of specimen oblique to bedding, not influenced by weak planes.
2. Fracture along bedding.
3. Fracture influenced by pre-existing joint plane (J), microfracture (M), vein (V), chemical alteration (C).
4. Chip or partial fracture.

No Failure'. No failure along core

NOTES

For specimens tested parallel to plane of weakness $D_e^2 = D^2$ For specimens tested perpendicular to plane of weakness $D_e^2 = 4WD/\pi$

Tested by:

MIR

Checked:

TMcW

Date:

1/05/2024

Appendix D

Cone Penetration Test Results



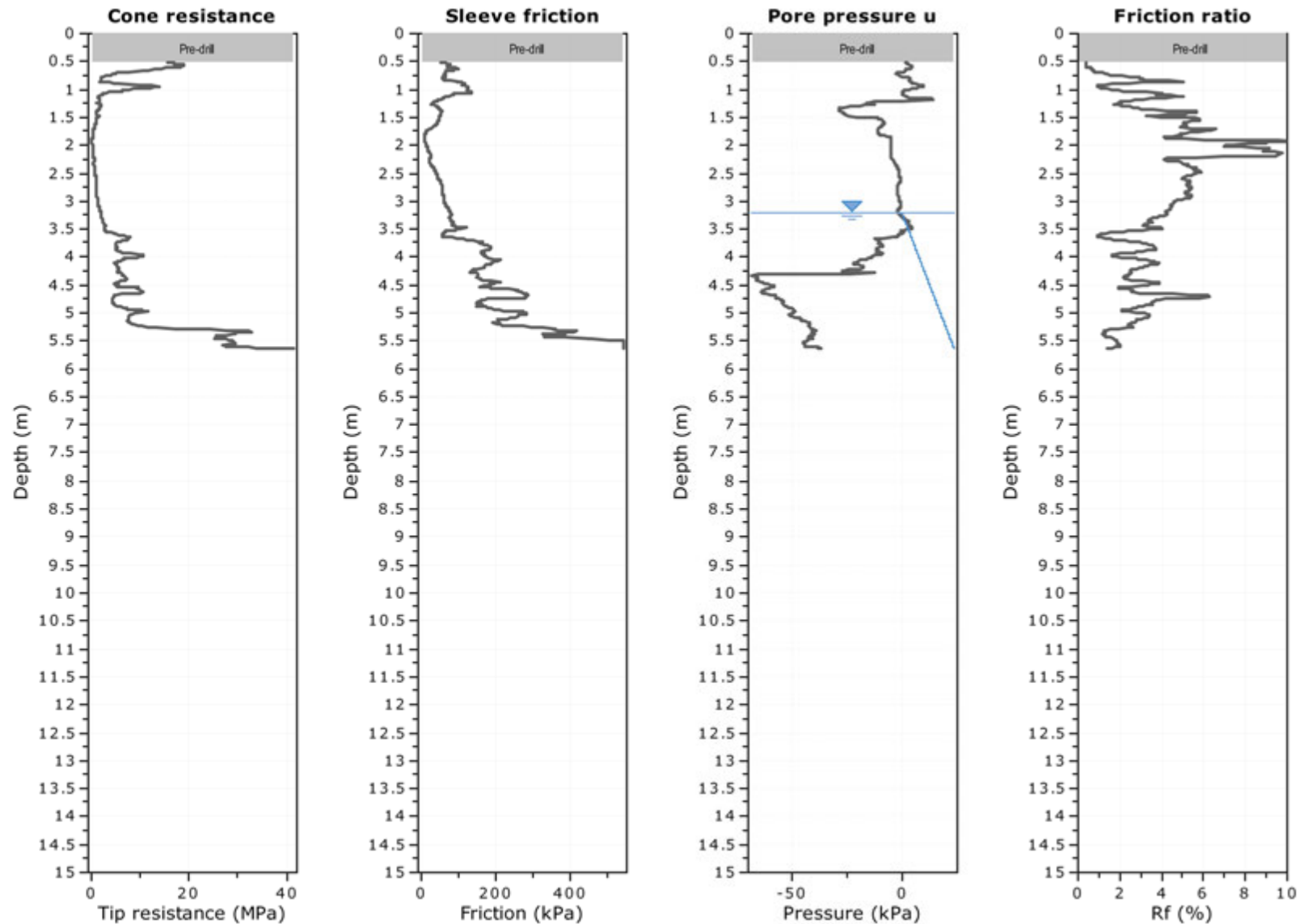
D1 Cone Penetration Test Results



Project: PS212776 Macquarie Point
Location: Hobart, Tasmania

CPT-03

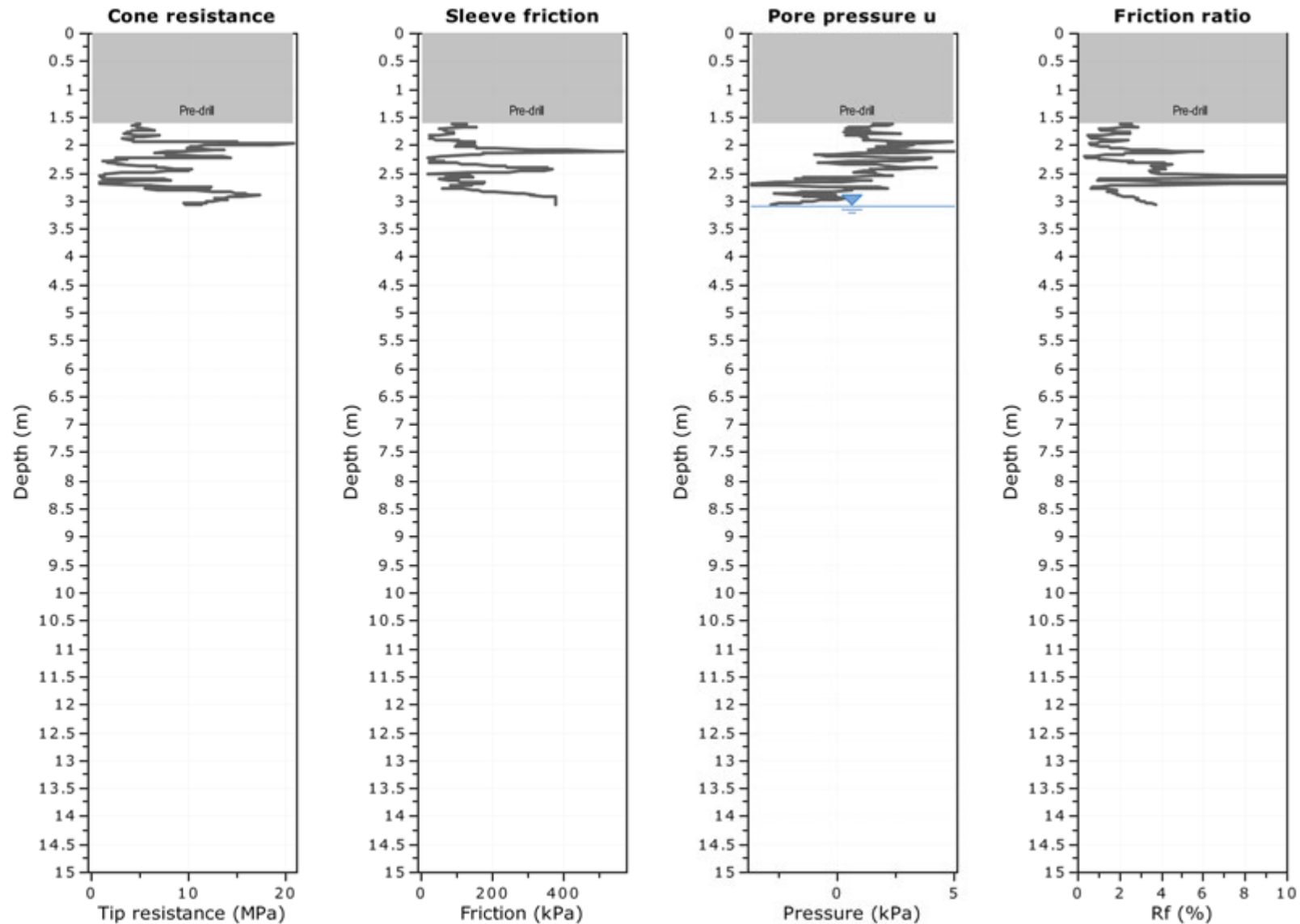
Total depth: 5.64 m, Date: 19/04/2024
Surface Elevation: 5.73 m
Coords: X:527411.44, Y:5252506.47
Cone Type: C15CFIIP.T.C21201
Cone Operator: IGS





Project: PS212776 Macquarie Point

Location: Hobart, Tasmania





Project: PS212776 Macquarie Point
Location: Hobart, Tasmania

CPT-04a

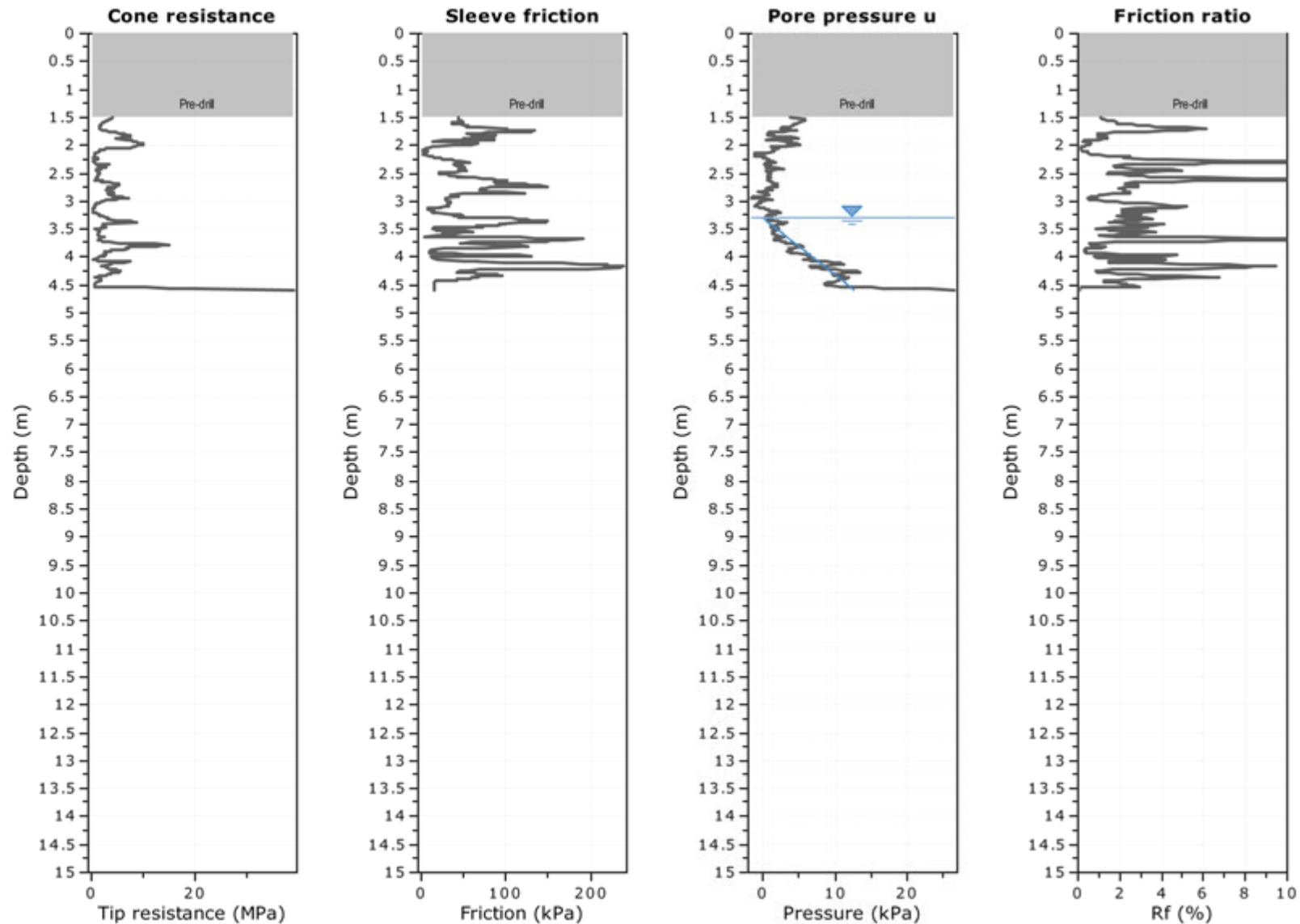
Total depth: 4.58 m, Date: 19/04/2024

Surface Elevation: 3.80 m

Coords: X:527465.00, Y:5252391.89

Cone Type: C15CFIIP.T.C21201

Cone Operator: IGS

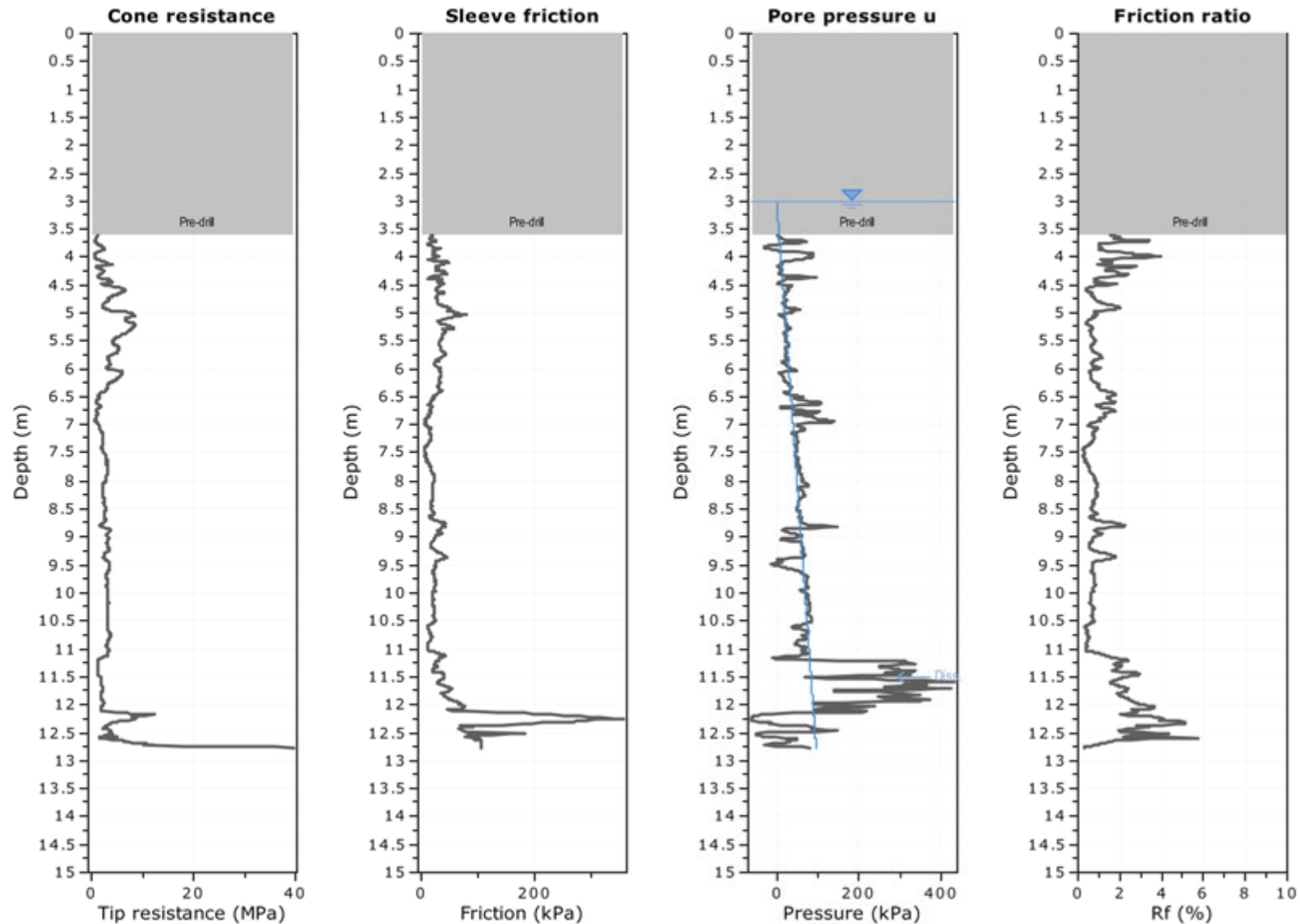




Project: PS212776 Macquarie Point
Location: Hobart, Tasmania

CPT-05

Total depth: 12.77 m, Date: 10/05/2024
Surface Elevation: 3.80 m
Coords: X:527531.41, Y:5252373.38
Cone Type: C10CFIIP.C181094
Cone Operator: IGS

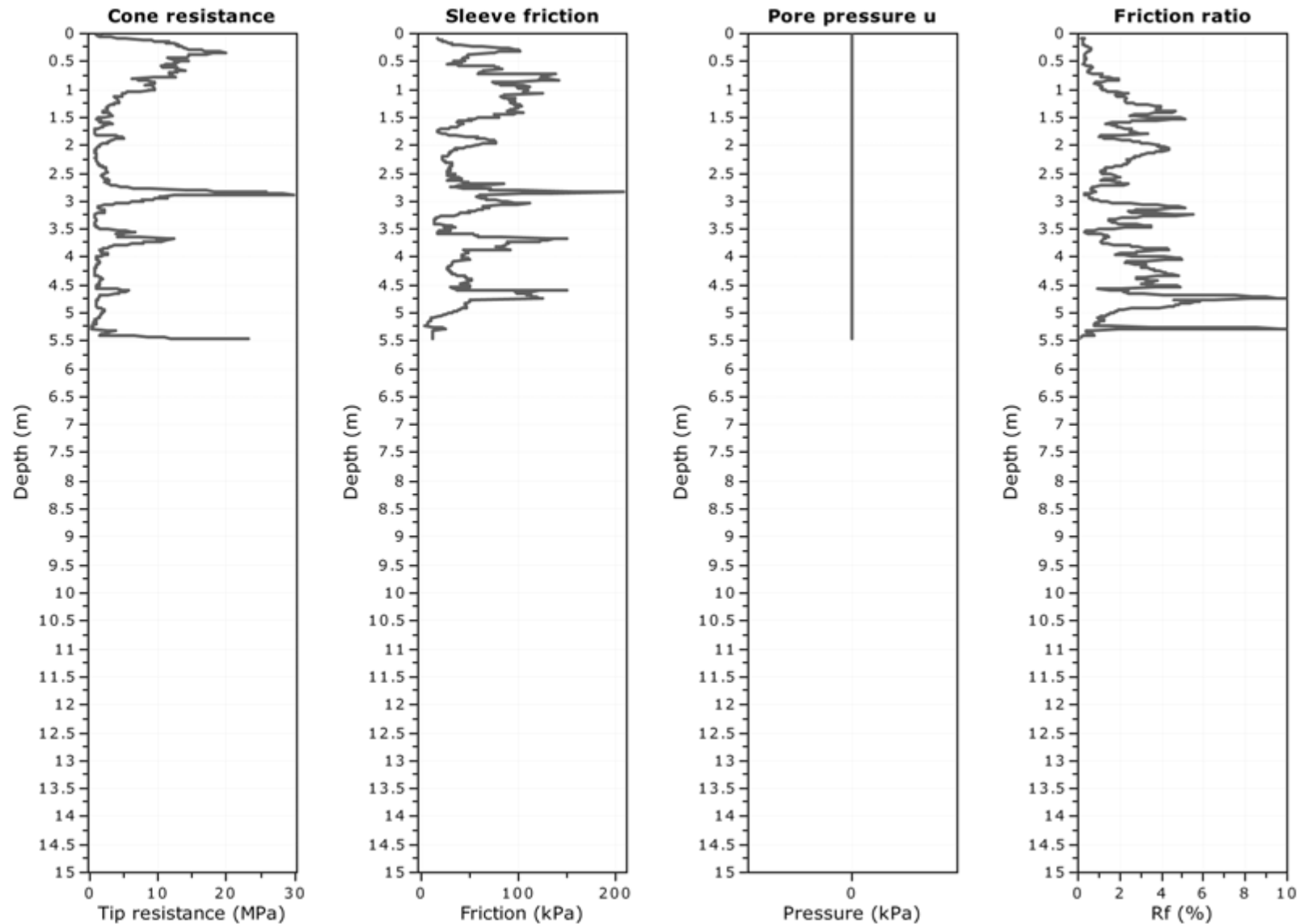




Project: PS212776 Macquarie Point
Location: Hobart, Tasmania

CPT-06

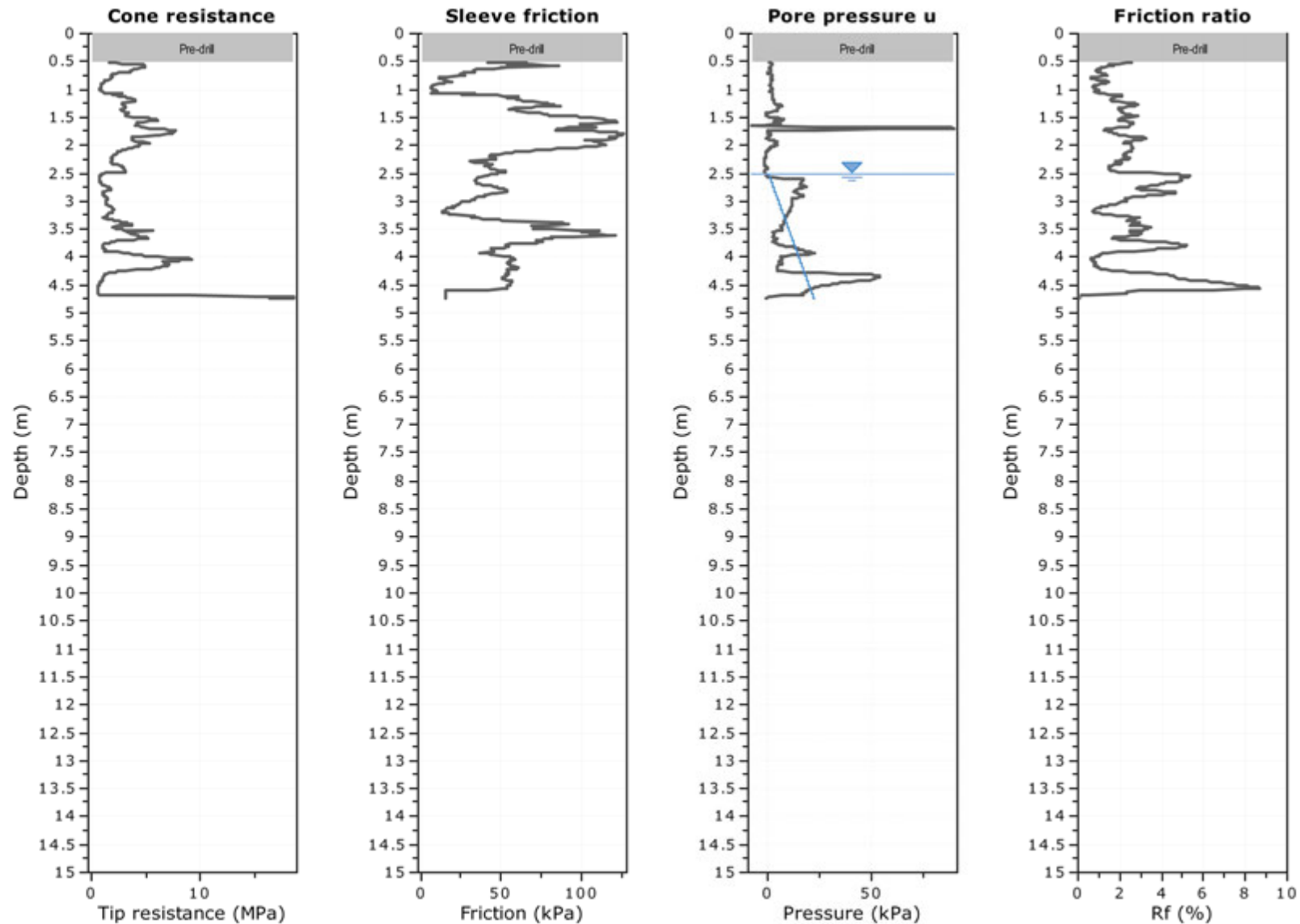
Total depth: 5.47 m, Date: 18/04/2024
Surface Elevation: 5.23 m
Coords: X:527393.64, Y:5252466.01
Cone Type: C15CFIIP.T.C21200
Cone Operator: IGS

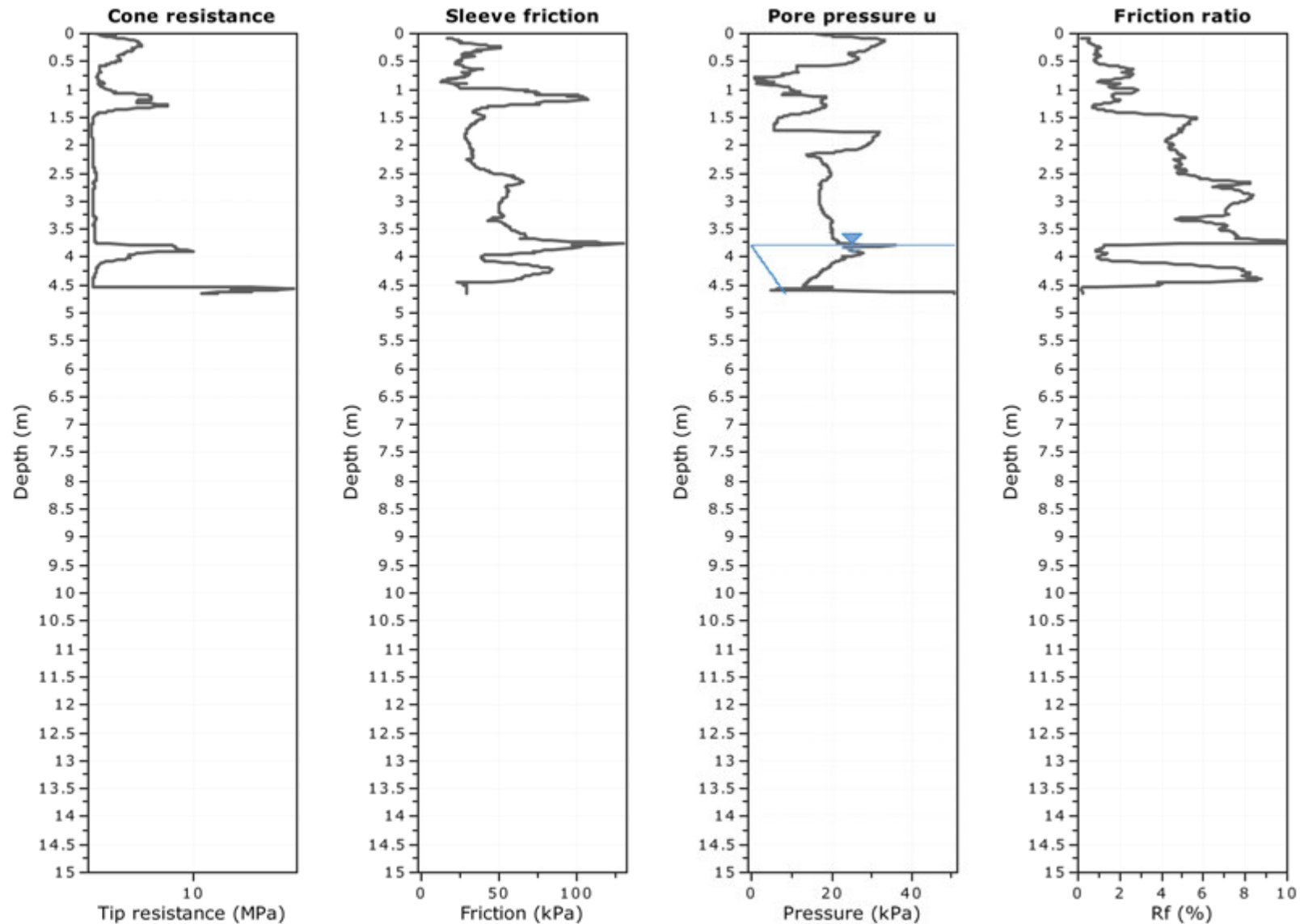




Project: PS212776 Macquarie Point

Location: Hobart, Tasmania

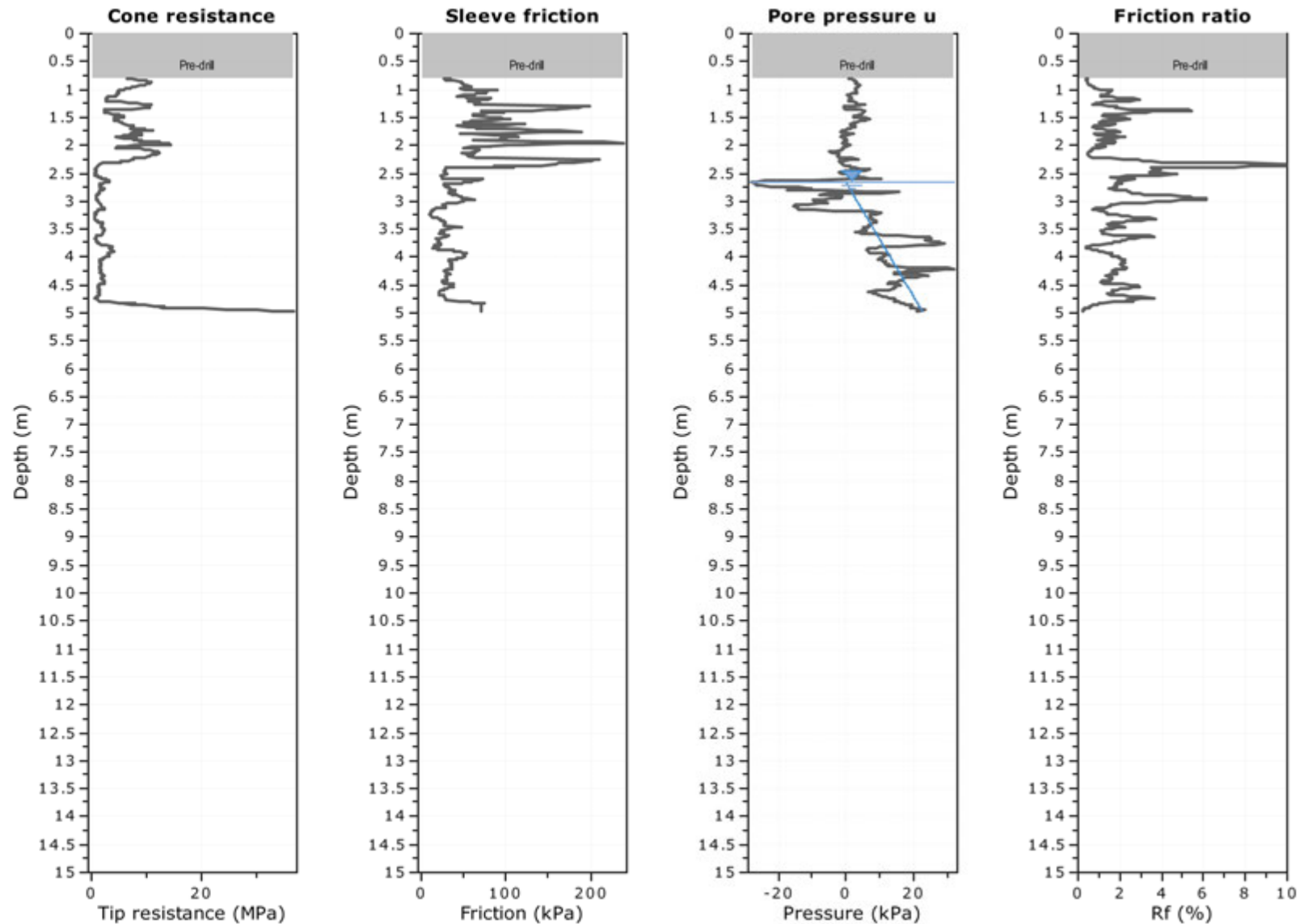


**Project: PS212776 Macquarie Point****Location: Hobart, Tasmania**



Project: PS212776 Macquarie Point

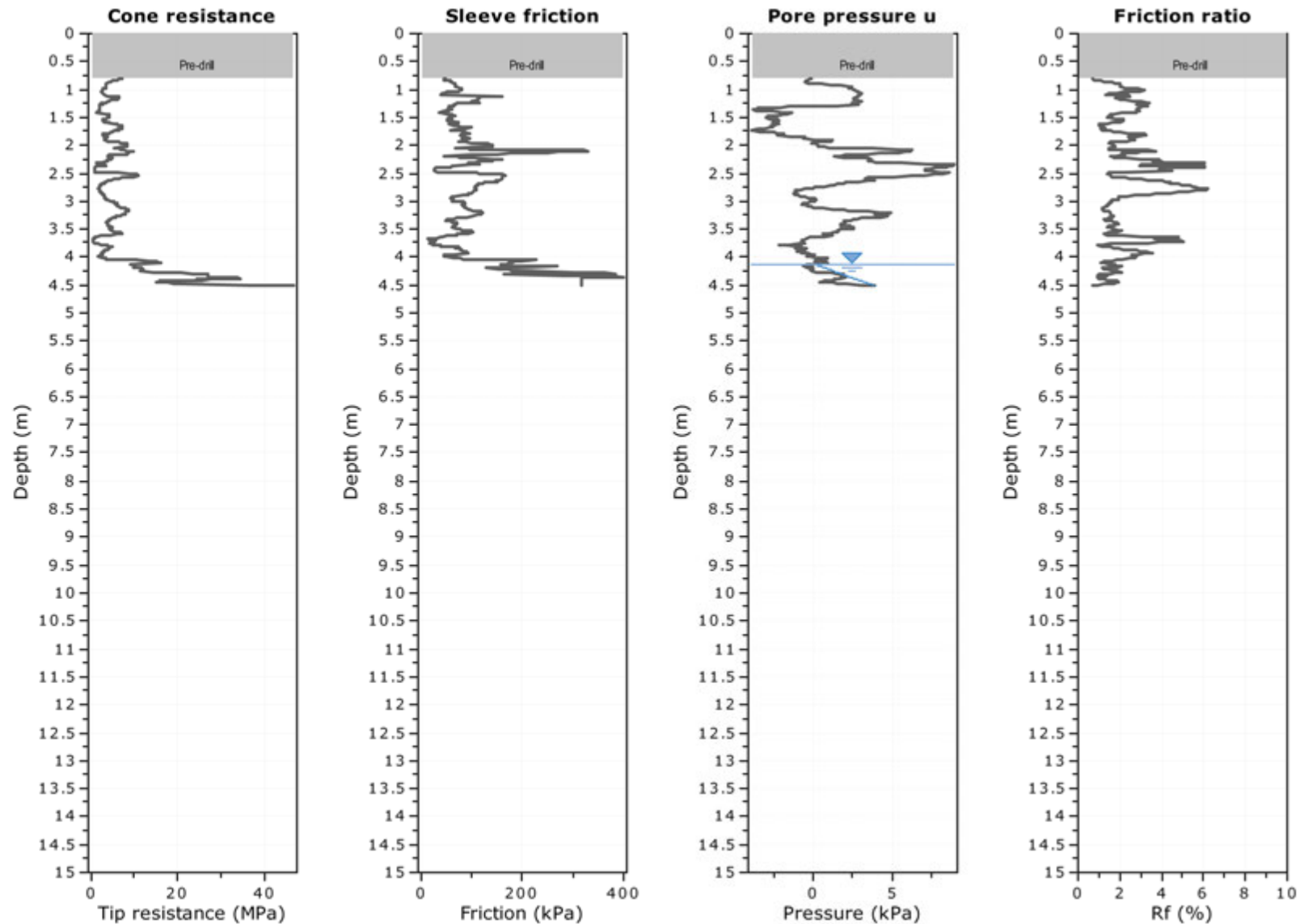
Location: Hobart, Tasmania





Project: PS212776 Macquarie Point

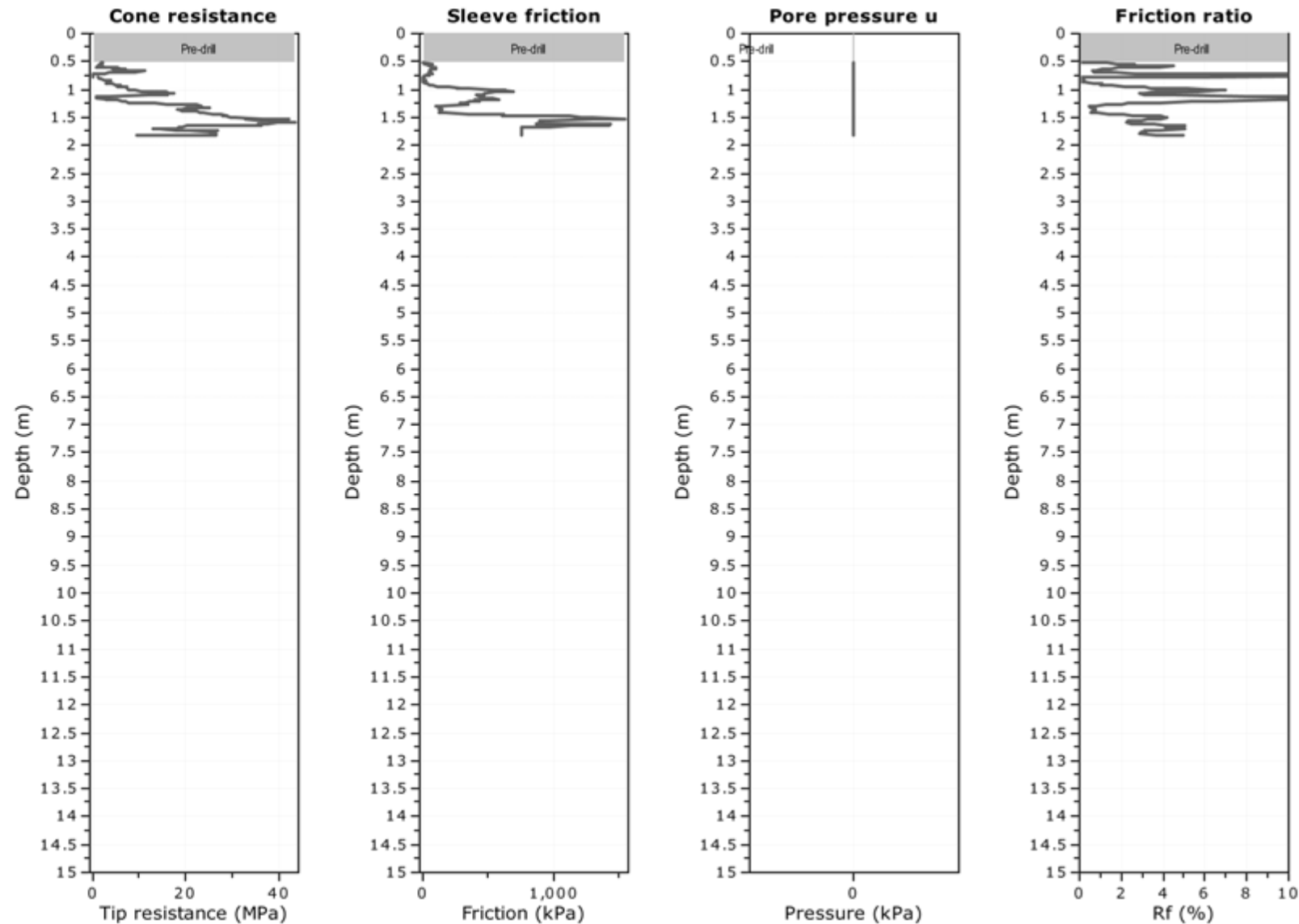
Location: Hobart, Tasmania





Total depth: 1.82 m, Date: 18/04/2024
Surface Elevation: 5.50 m
Coords: X:527441.71, Y:5252459.97
Cone Type: C15CFIIP.T.C21200
Cone Operator: IGS

Project: PS212776 Macquarie Point
Location: Hobart, Tasmania

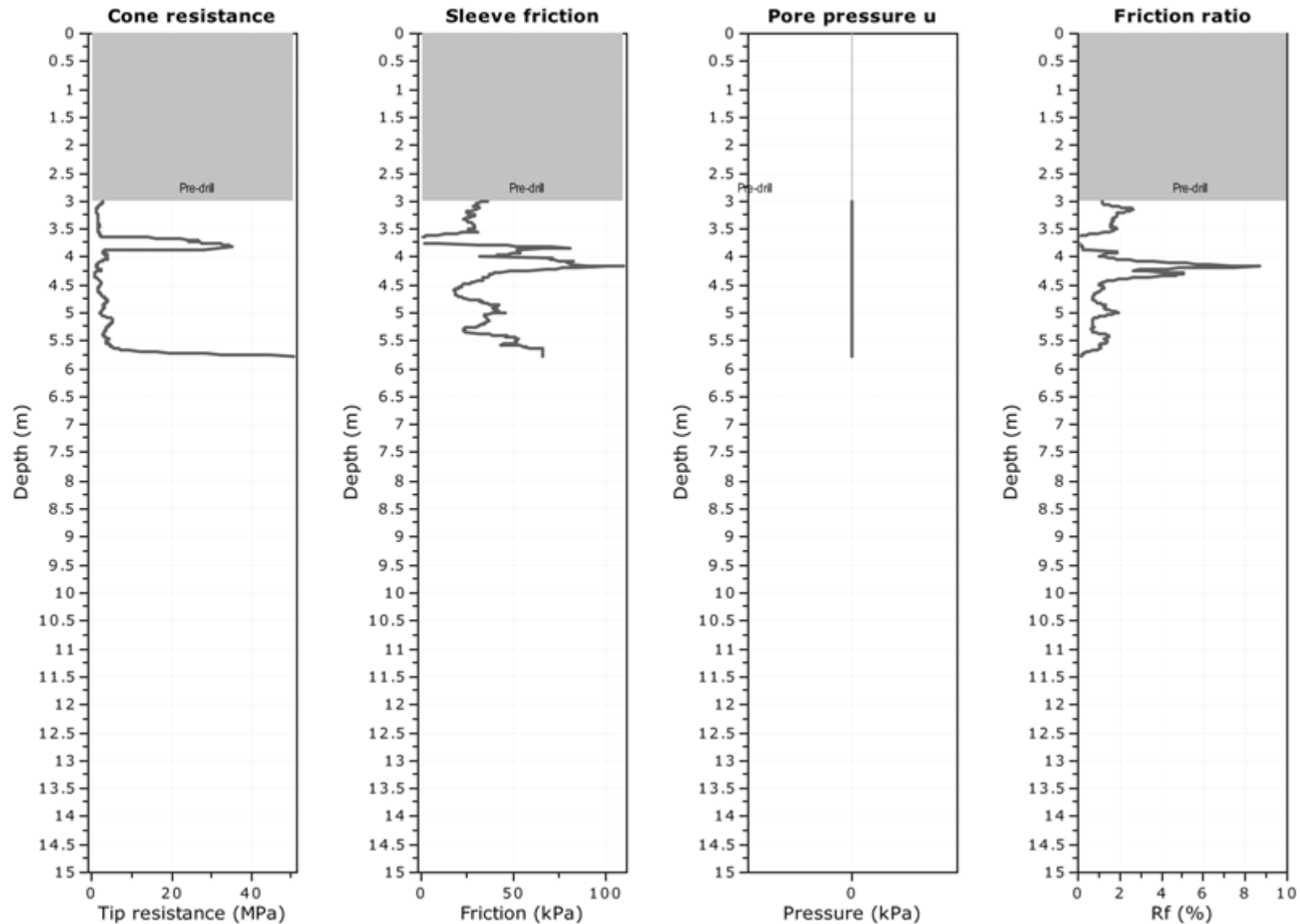




Project: PS212776 Macquarie Point
Location: Hobart, Tasmania

CPT-12a

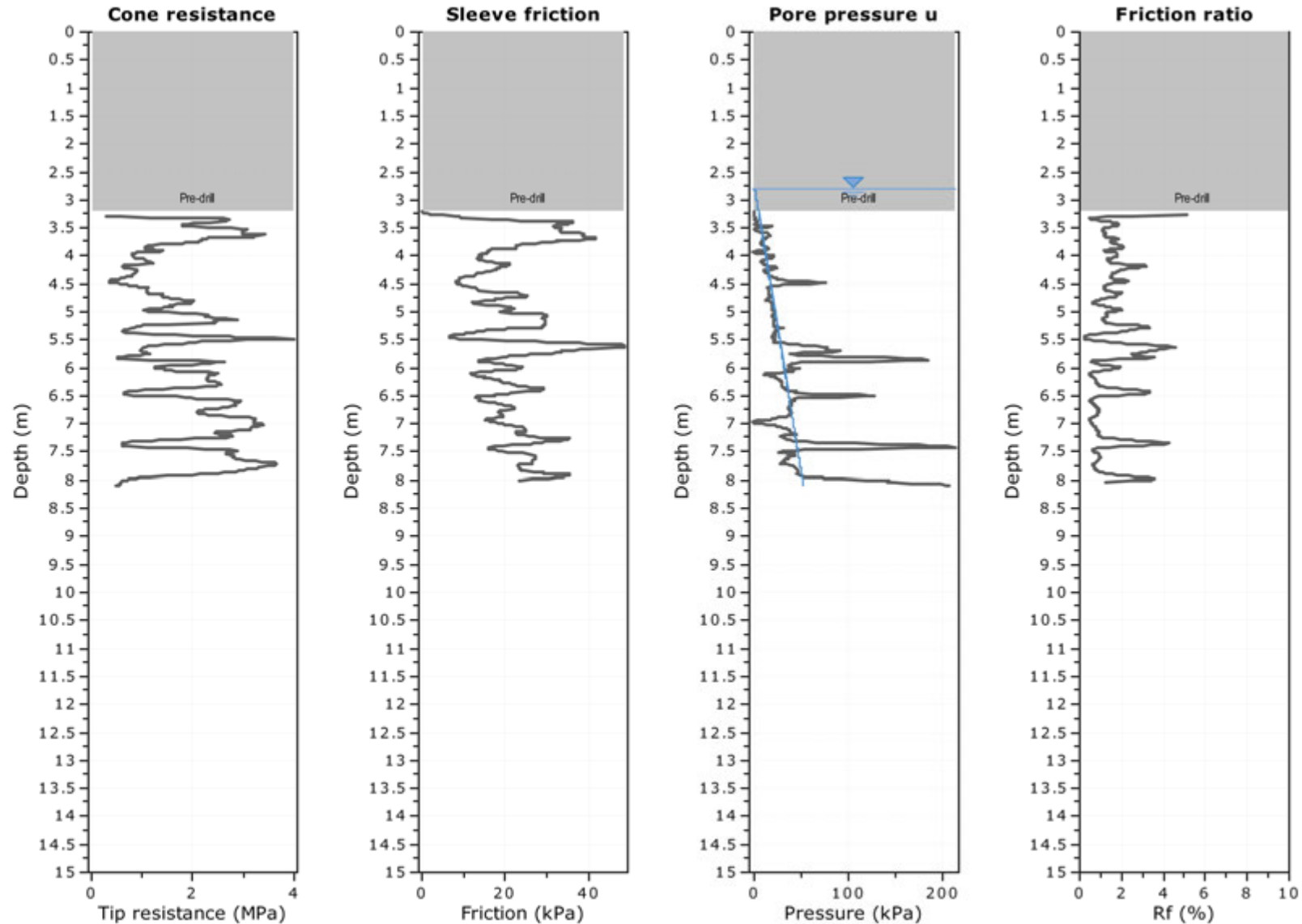
Total depth: 5.77 m, Date: 18/04/2024
Surface Elevation: 5.48 m
Coords: X:527441.65, Y:5252459.35
Cone Type: C15CFIIP.T.C21200
Cone Operator: IGS





Total depth: 8.09 m, Date: 9/05/2024
Surface Elevation: 2.96 m
Coords: X:527610.46, Y:5252346.81
Cone Type: C10CFIIP.C181094
Cone Operator: IGS

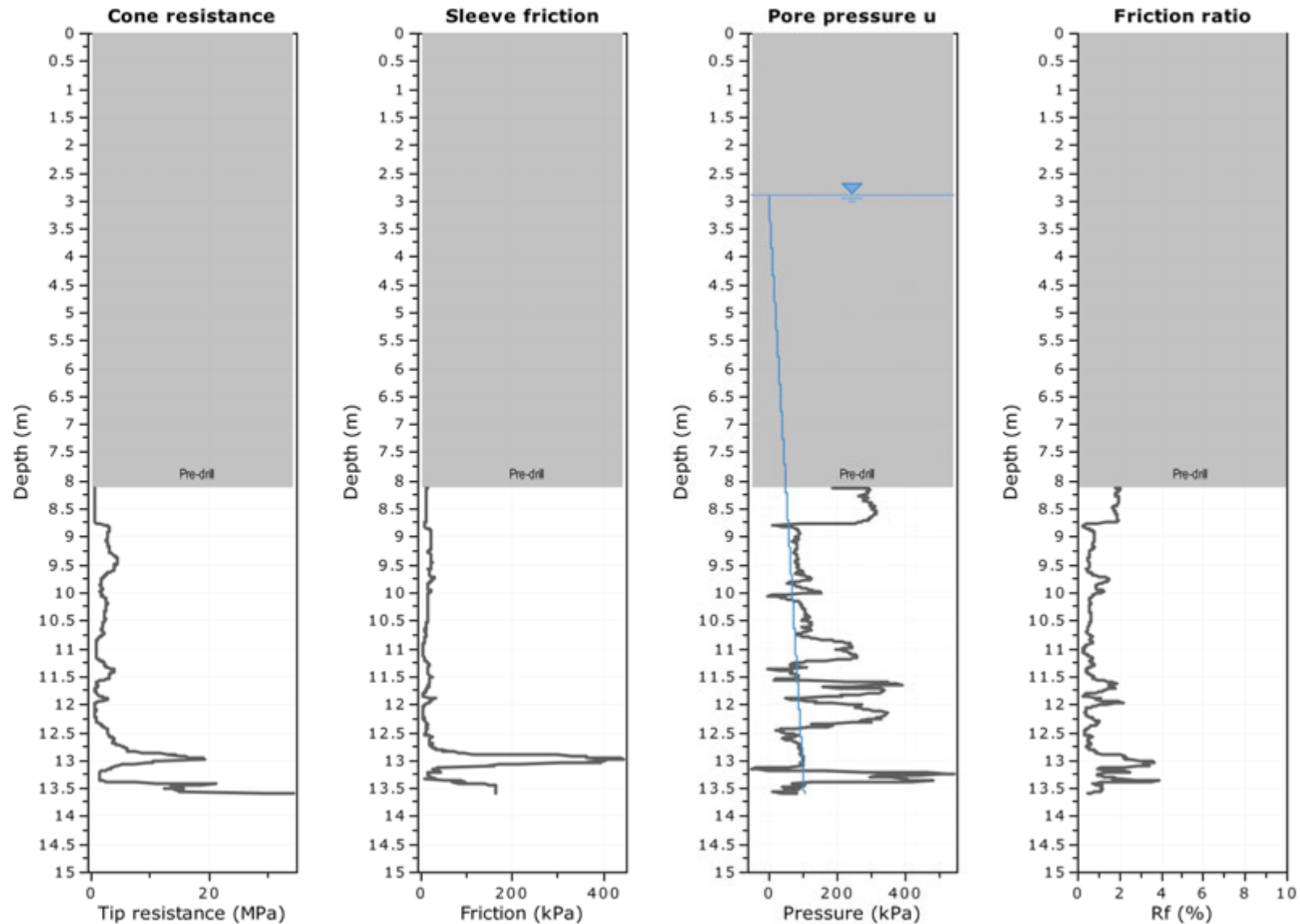
Project: PS212776 Macquarie Point
Location: Hobart, Tasmania





Project: PS212776 Macquarie Point

Location: Hobart, Tasmania

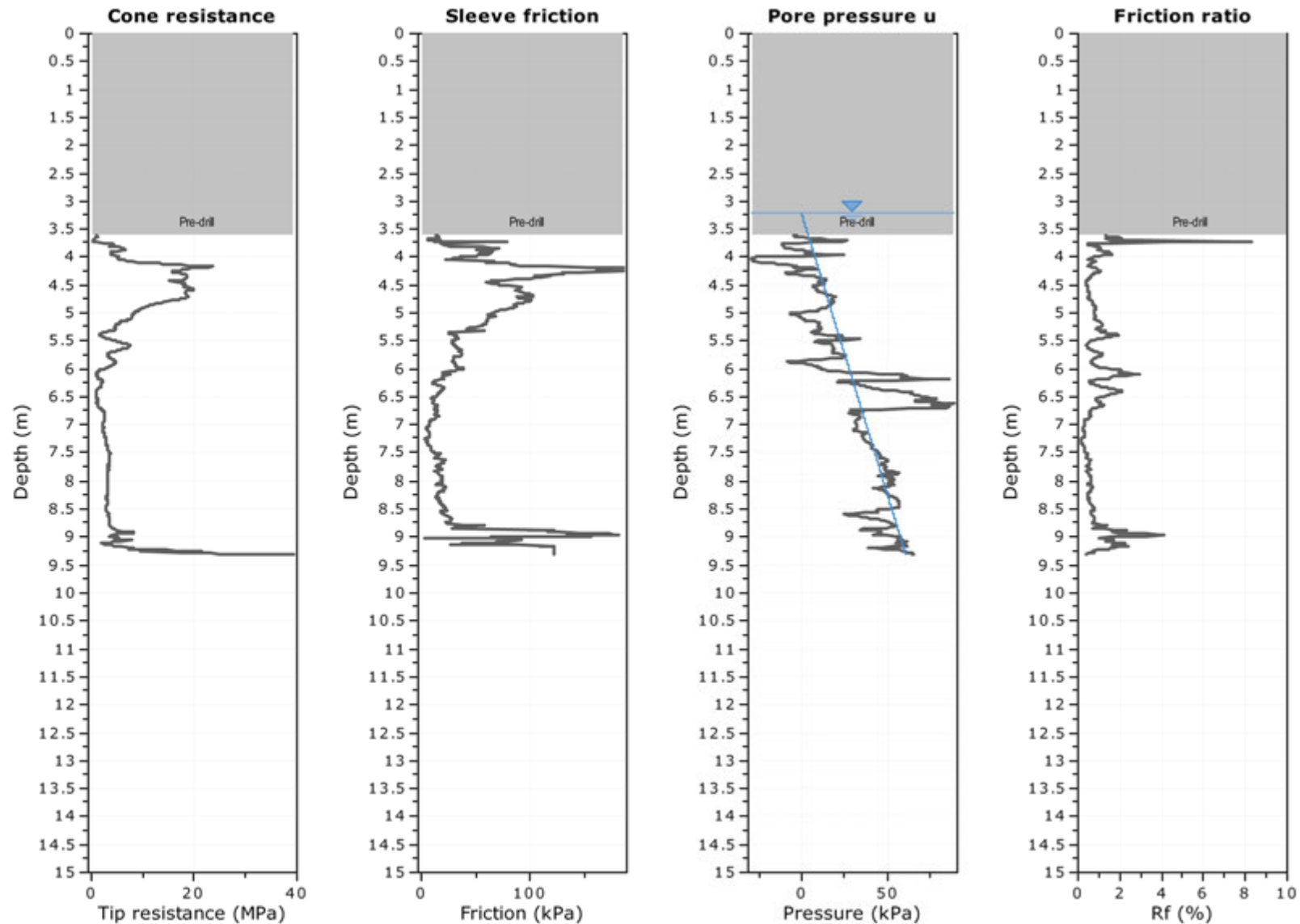




Project: PS212776 Macquarie Point
Location: Hobart, Tasmania

CPT-14

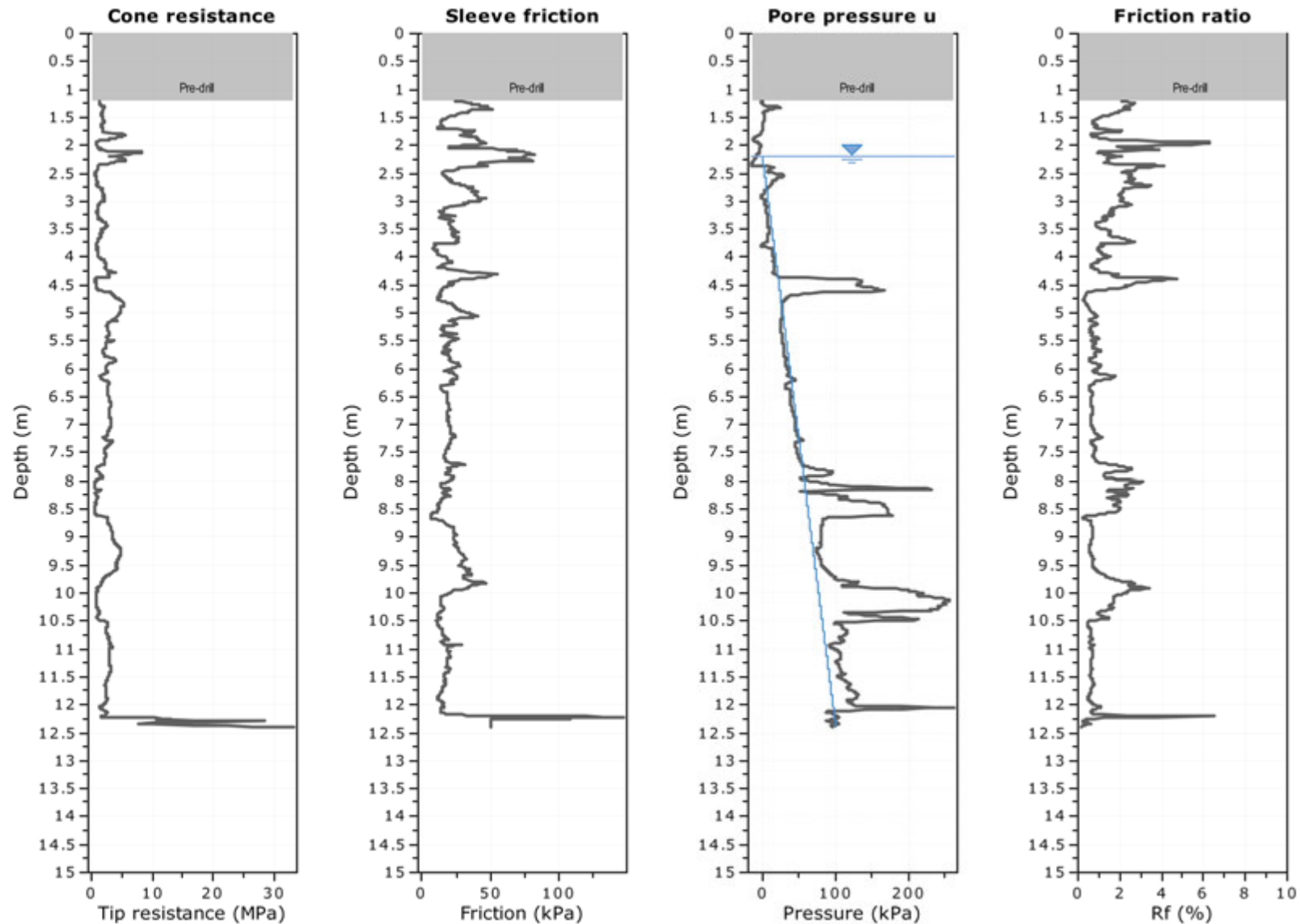
Total depth: 9.31 m, Date: 31/05/2024
Surface Elevation: 2.89 m
Coords: X:527550.17, Y:5252416.64
Cone Type:
Cone Operator:





Project: PS212776 Macquarie Point

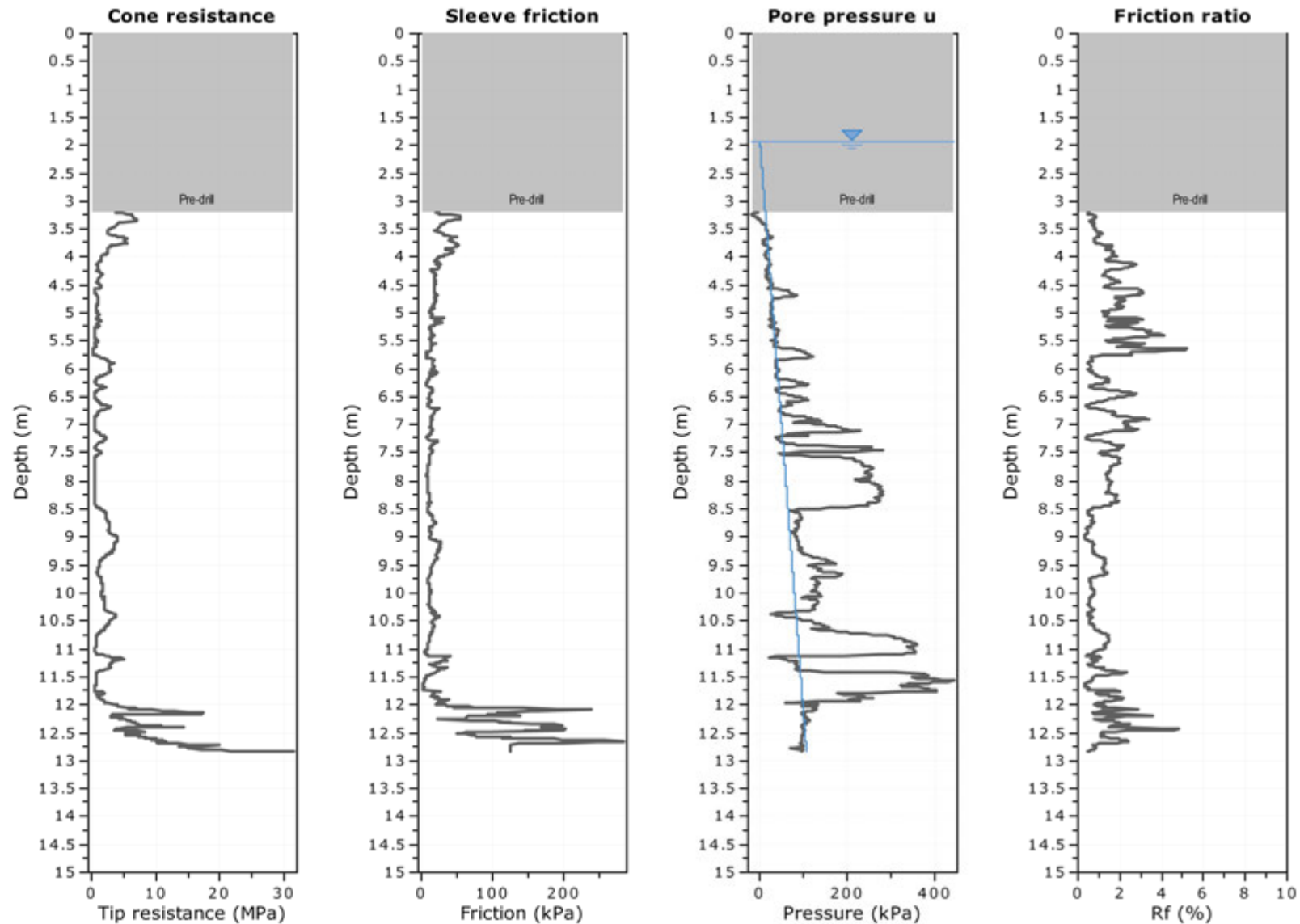
Location: Hobart, Tasmania





Project: PS212776 Macquarie Point

Location: Hobart, Tasmania





Project: PS212776 Macquarie Point
Location: Hobart, Tasmania

CPT-019

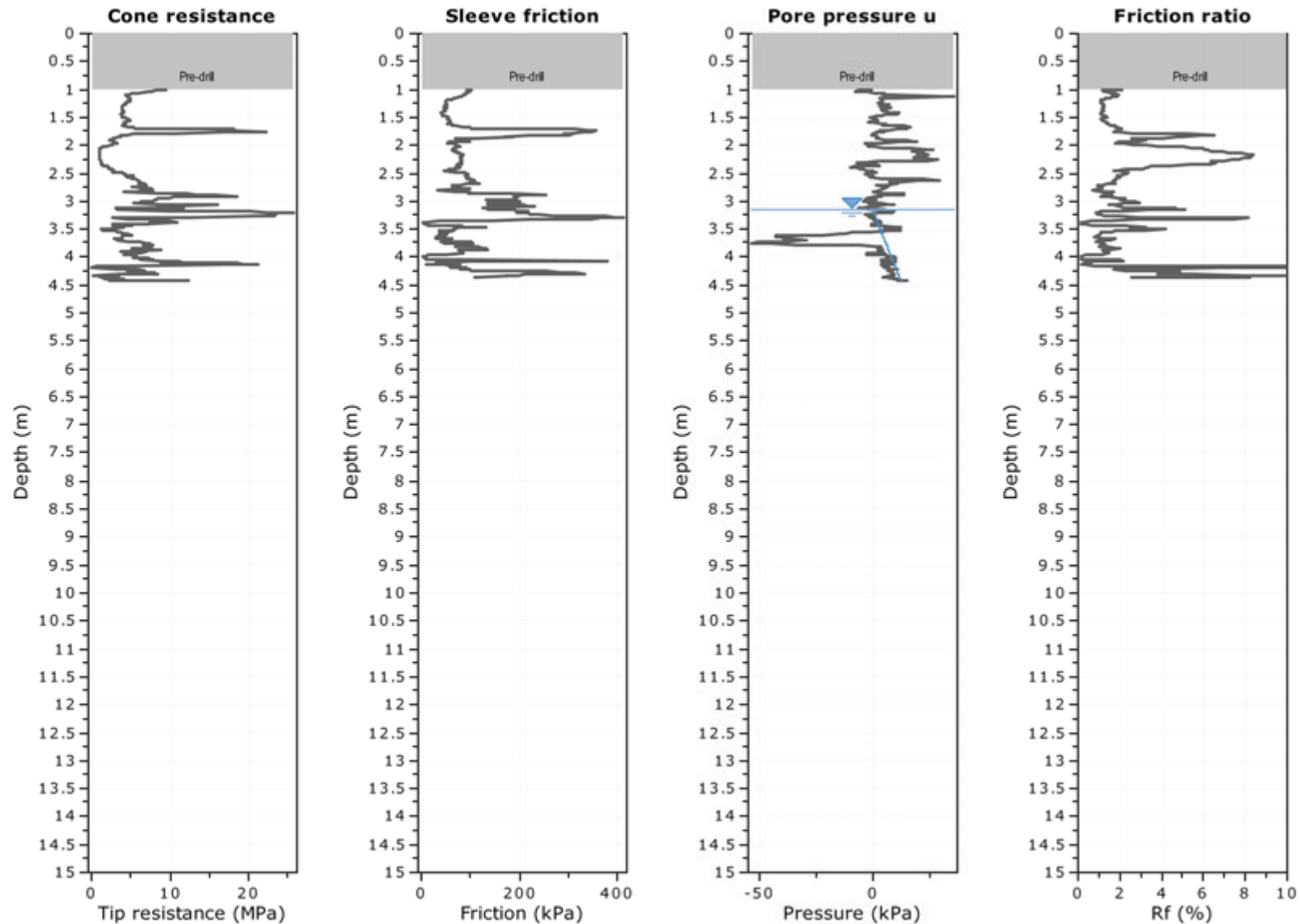
Total depth: 4.43 m, Date: 31/05/2024

Surface Elevation: 4.01 m

Coords: X:527521.13, Y:5252472.12

Cone Type:

Cone Operator:

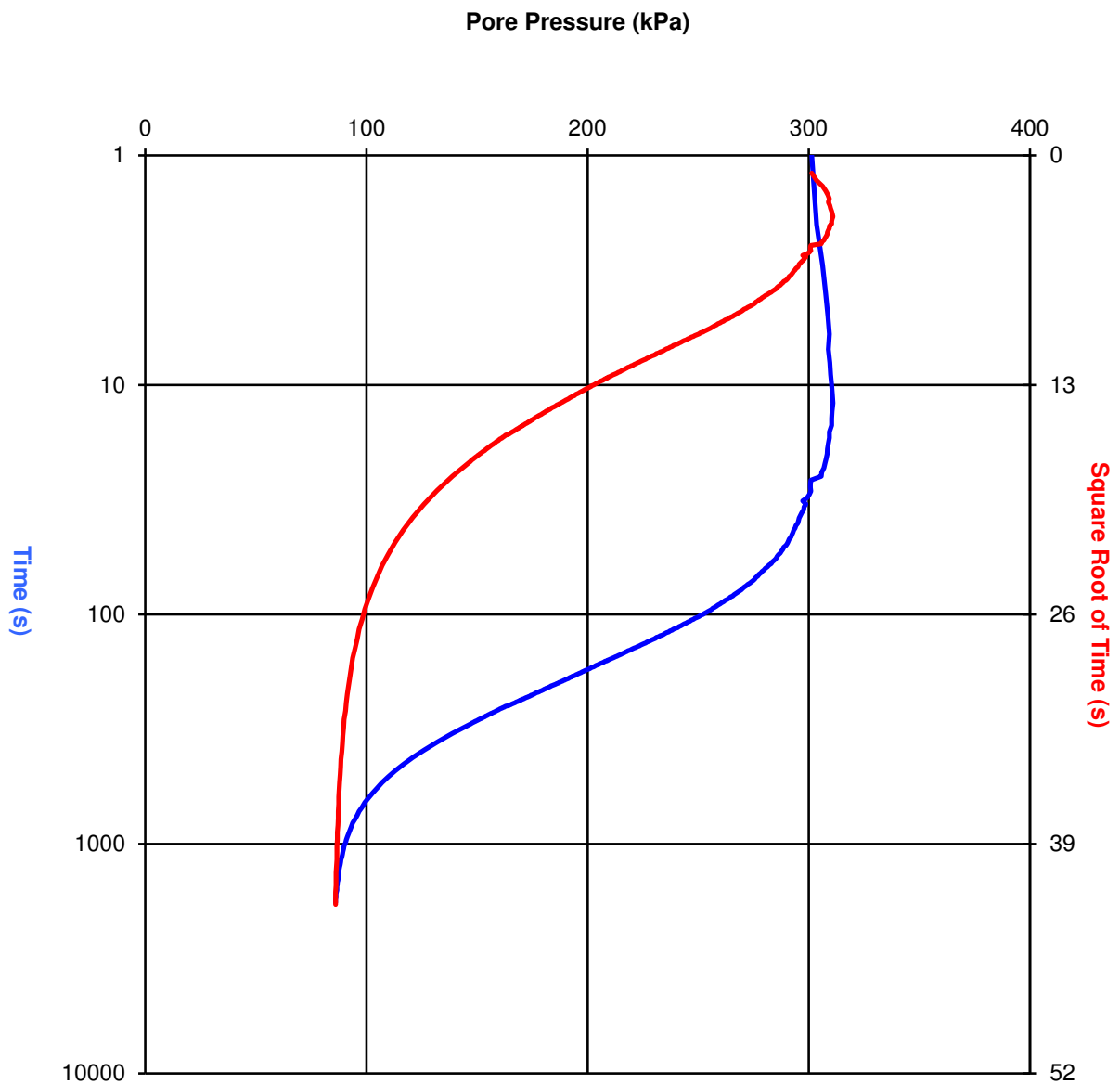


D2 Dissipation Test Results

PORE PRESSURE DISSIPATION TEST RESULT

Macquarie Point Development Corporation
Macquarie Point Stadium
Hobart TAS

CPT-05
Depth: 11.49m



Tested By: Ryan Currall
Test Duration: 0 Hours, 30 Minutes
Test Date: 10/05/2024
Job No: G24-03-08
Cone: C10CFIIP.C181094

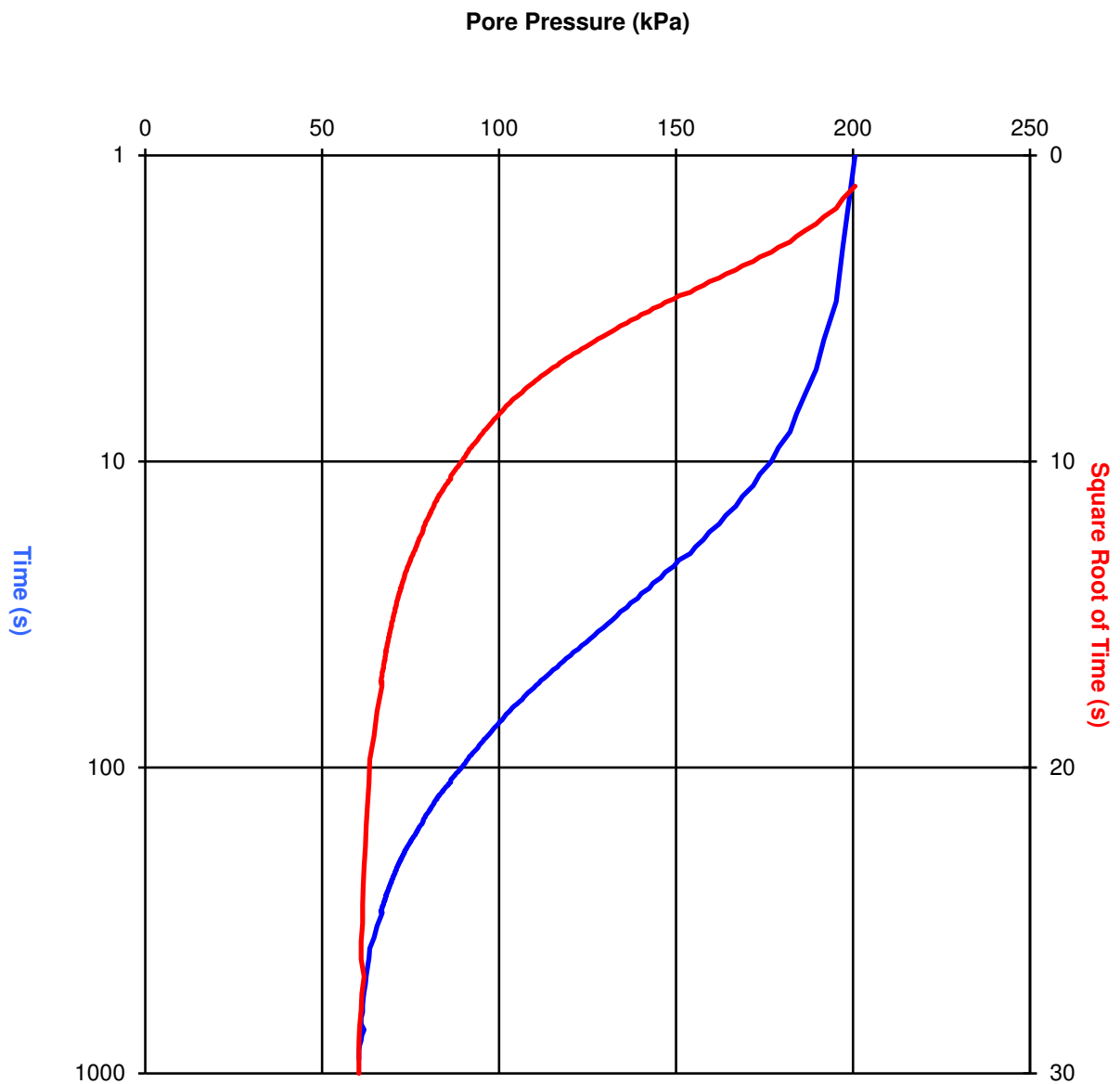
Termination Reason: Equilibrium Reached
Special Notes: Nil



PORE PRESSURE DISSIPATION TEST RESULT

Macquarie Point Development Corporation
Macquarie Point Stadium
Hobart TAS

CPT-13a
Depth: 8.76m



Tested By: Ryan Currall
Test Duration: 0 Hours, 15 Minutes
Test Date: 10/05/2024
Job No: G24-03-08
Cone: C10CFIIP.C181094

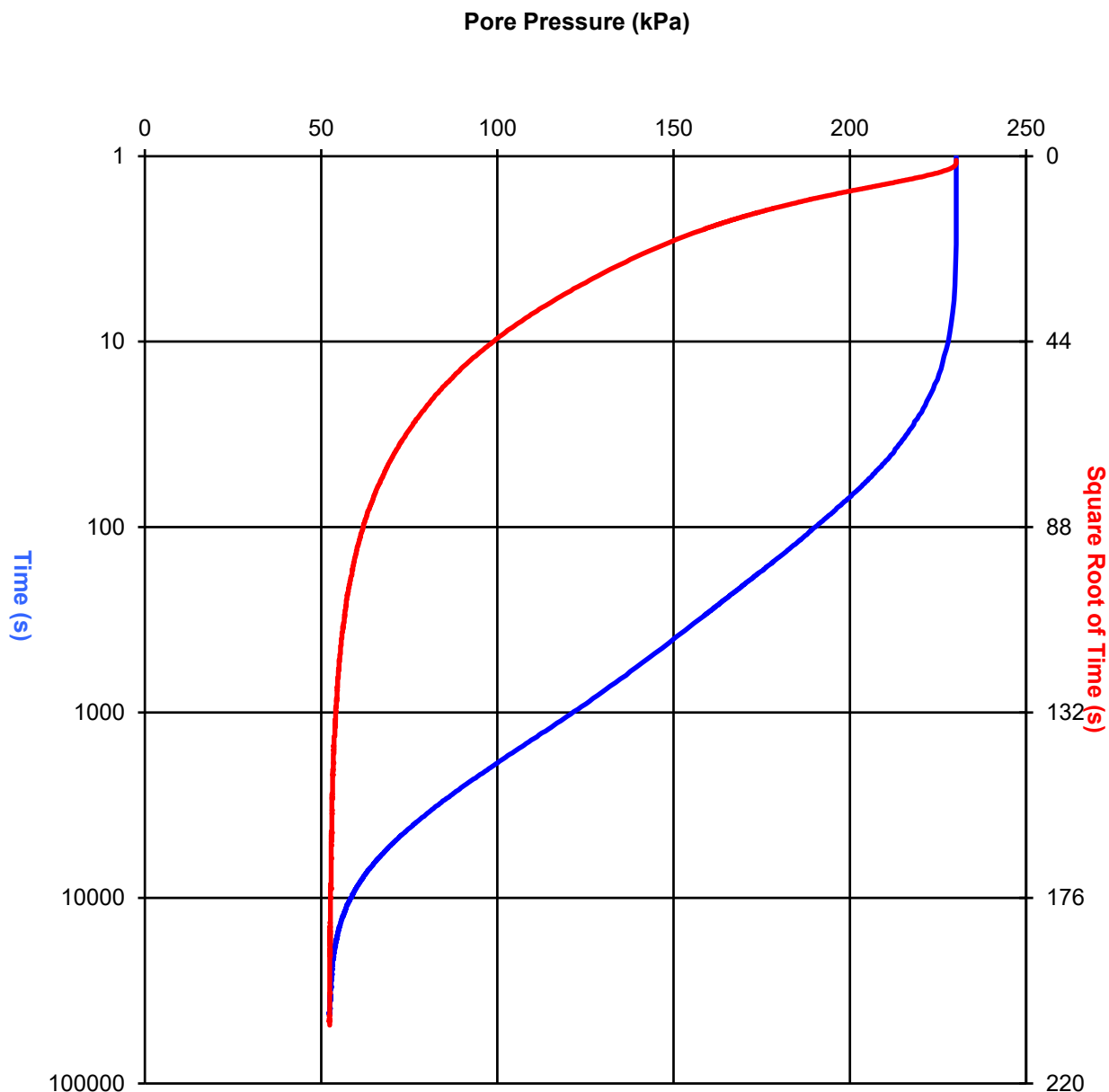
Termination Reason: Other
Special Notes: Nil



PORE PRESSURE DISSIPATION TEST RESULT

Macquarie Point Development Corporation
Macquarie Point Stadium
Hobart TAS

CPT-13
Depth: 8.08m



Tested By: Ryan Currall
Test Duration: 11 Hours, 48 Minutes
Test Date: 09/05/2024
Job No: G24-03-08
Cone: C10CFIIP.C181094

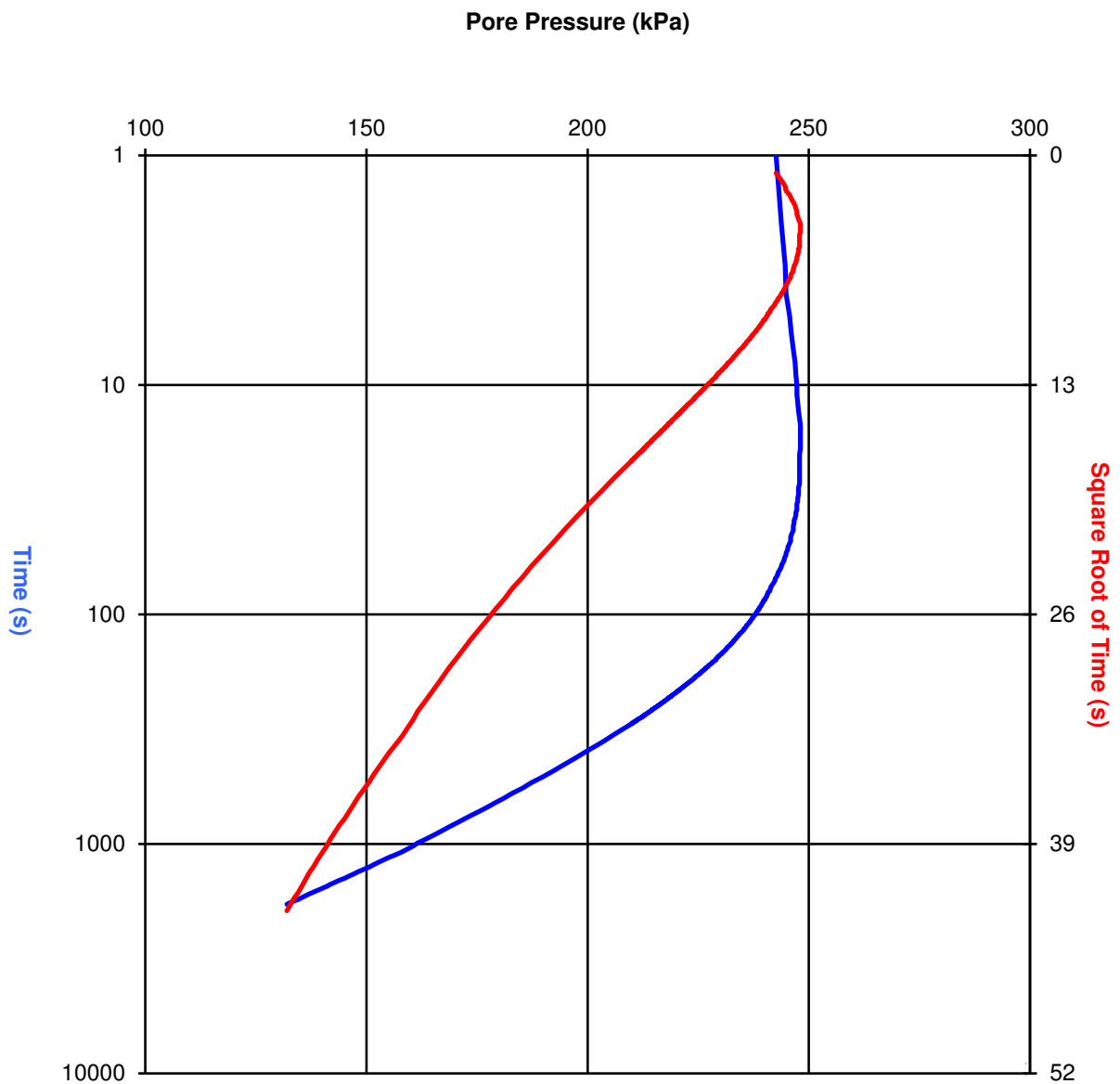
Termination Reason: Other
Special Notes: Nil



PORE PRESSURE DISSIPATION TEST RESULT

Macquarie Point Development Corporation
Macquarie Point Stadium
Hobart TAS

CPT-16
Depth: 8.15m



Tested By: Ryan Currall
Test Duration: 0 Hours, 30 Minutes
Test Date: 08/05/2024
Job No: G24-03-08
Cone: C10CFIIP.C181094

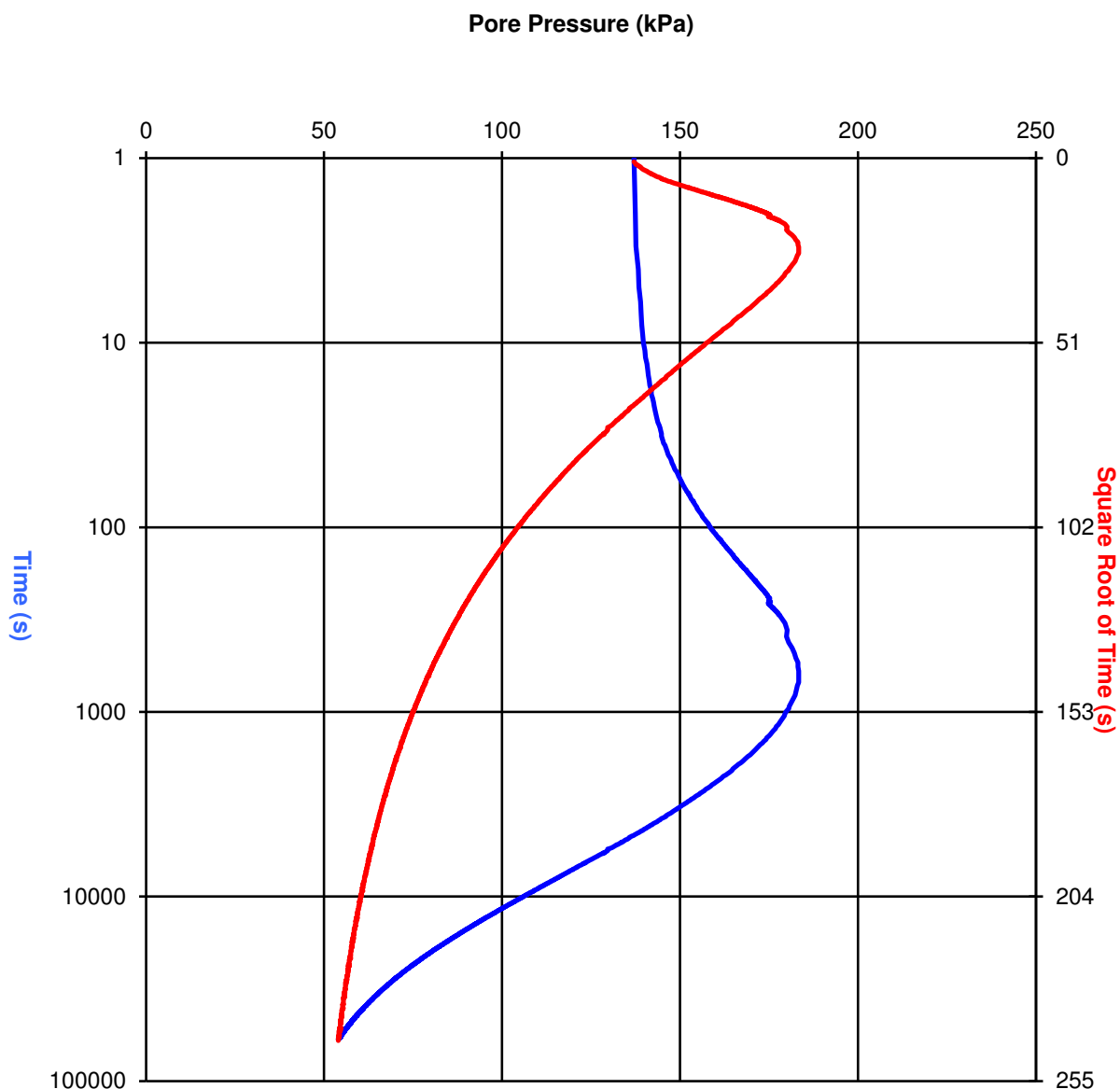
Termination Reason: T50 Reached
Special Notes: Nil



PORE PRESSURE DISSIPATION TEST RESULT

Macquarie Point Development Corporation
Macquarie Point Stadium
Hobart TAS

CPT-17
Depth: 6.94m

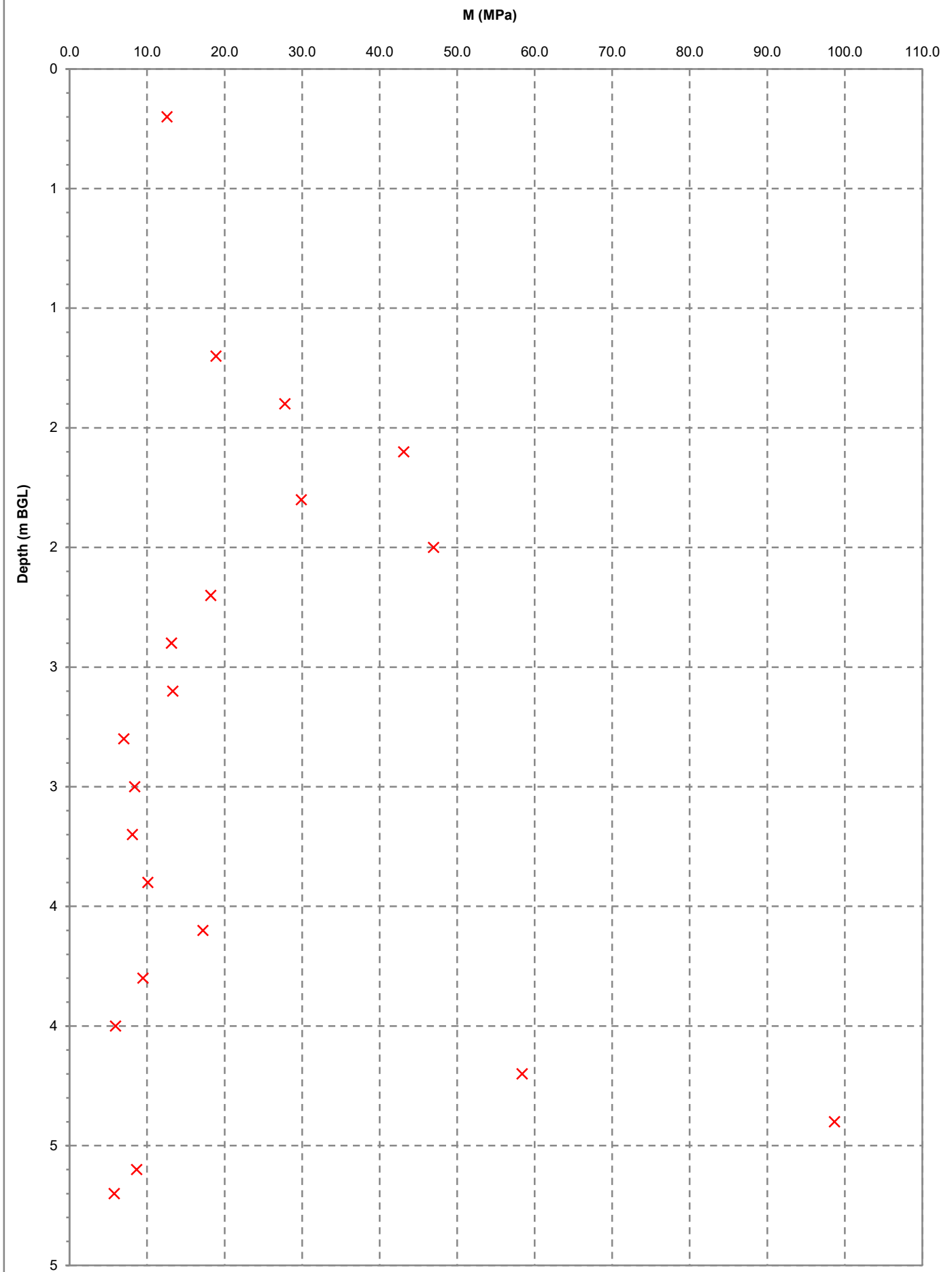


Tested By: Ryan Currall
Test Duration: 16 Hours, 30 Minutes
Test Date: 08/05/2024
Job No: G24-03-08
Cone: C10CFIIP.C181094

Termination Reason: Client Direction
Special Notes: Nil



D3 Dilatometer test Results



Appendix E

Laboratory Certificates



E1 Aggressivity Testing - Soil

CERTIFICATE OF ANALYSIS 352852

Client Details

Client	Macquarie Geotech (Sydney)
Attention	Jasper Haines
Address	3 Watt Dr, Bathurst, NSW, 2795

Sample Details

Your Reference	<u>S24245-1 PS212776-Mac Point GI</u>
Number of Samples	18 Soil, 1 Rocks
Date samples received	31/05/2024
Date completed instructions received	31/05/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	07/06/2024
Date of Issue	07/06/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Diego Bigolin, Inorganics Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

Misc Inorg - Soil

Our Reference		352852-1	352852-2	352852-3	352852-4	352852-5
Your Reference	UNITS	S96706	S96708	S96712	S96718	S96724
Sample ID		BH-001	BH-001	BH-002	BH-003	BH-004
Depth		0.3-0.4	1.1-1.2	2.7-2.8	1.8-1.9	12.5-12.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/05/2024	31/05/2024	31/05/2024	31/05/2024	31/05/2024
Date analysed	-	05/06/2024	05/06/2024	05/06/2024	05/06/2024	05/06/2024
pH 1:5 soil:water	pH Units	9.0	8.8	8.8	9.2	9.1
Electrical Conductivity 1:5 soil:water	µS/cm	100	140	210	140	590
Chloride, Cl 1:5 soil:water	mg/kg	<10	10	<10	29	460
Sulphate, SO4 1:5 soil:water	mg/kg	33	86	69	140	420

Misc Inorg - Soil

Our Reference		352852-6	352852-7	352852-8	352852-9	352852-10
Your Reference	UNITS	S96725	S96729	S96740	S96744	S96750
Sample ID		BH-004	BH-005	BH-006	BH-007	BH-008
Depth		15.6-15.7	2.2-2.3	4.2-4.3	5.2-5.3	5.9-6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/05/2024	31/05/2024	31/05/2024	31/05/2024	31/05/2024
Date analysed	-	05/06/2024	05/06/2024	05/06/2024	05/06/2024	05/06/2024
pH 1:5 soil:water	pH Units	8.6	7.9	7.9	8.0	9.3
Electrical Conductivity 1:5 soil:water	µS/cm	2,100	440	620	1,100	270
Chloride, Cl 1:5 soil:water	mg/kg	2,700	20	<10	140	22
Sulphate, SO4 1:5 soil:water	mg/kg	640	710	1,200	1,800	92

Misc Inorg - Soil

Our Reference		352852-11	352852-12	352852-13	352852-14	352852-15
Your Reference	UNITS	S96753	S96762	S96771	S96773	S96775
Sample ID		BH-009	BH-010	BH-011	BH-012	BH-013
Depth		4-4.1	4.4-4.5	6-6.1	3.5-3.6	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/05/2024	31/05/2024	31/05/2024	31/05/2024	31/05/2024
Date analysed	-	05/06/2024	05/06/2024	05/06/2024	05/06/2024	05/06/2024
pH 1:5 soil:water	pH Units	8.2	8.5	7.6	8.3	8.9
Electrical Conductivity 1:5 soil:water	µS/cm	340	150	1,100	220	120
Chloride, Cl 1:5 soil:water	mg/kg	10	<10	10	<10	10
Sulphate, SO4 1:5 soil:water	mg/kg	390	63	2,100	160	73

Misc Inorg - Soil				
Our Reference		352852-16	352852-17	352852-18
Your Reference	UNITS	S96780	S96782	S96785
Sample ID		BH-014	BH-015	BH-016
Depth		4.7-4.8	3.7-3.8	3.7-3.8
Type of sample		Soil	Soil	Soil
Date prepared	-	31/05/2024	31/05/2024	31/05/2024
Date analysed	-	05/06/2024	05/06/2024	05/06/2024
pH 1:5 soil:water	pH Units	8.3	8.4	7.4
Electrical Conductivity 1:5 soil:water	µS/cm	470	110	1,800
Chloride, Cl 1:5 soil:water	mg/kg	58	<10	20
Sulphate, SO4 1:5 soil:water	mg/kg	700	100	4,300

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.

Client Reference: S24245-1 PS212776-Mac Point GI

QUALITY CONTROL: Misc Inorg - Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	352852-18
Date prepared	-			31/05/2024	8	31/05/2024	31/05/2024		31/05/2024	31/05/2024
Date analysed	-			05/06/2024	8	05/06/2024	05/06/2024		05/06/2024	05/06/2024
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	8	7.9	7.8	1	100	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	8	620	740	18	103	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	8	<10	<10	0	88	78
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	8	1200	1400	15	88	#

QUALITY CONTROL: Misc Inorg - Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	17	31/05/2024	31/05/2024		[NT]	[NT]
Date analysed	-			[NT]	17	05/06/2024	05/06/2024		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	17	8.4	8.4	0	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	17	110	96	14	[NT]	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	17	<10	<10	0	[NT]	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	17	100	86	15	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

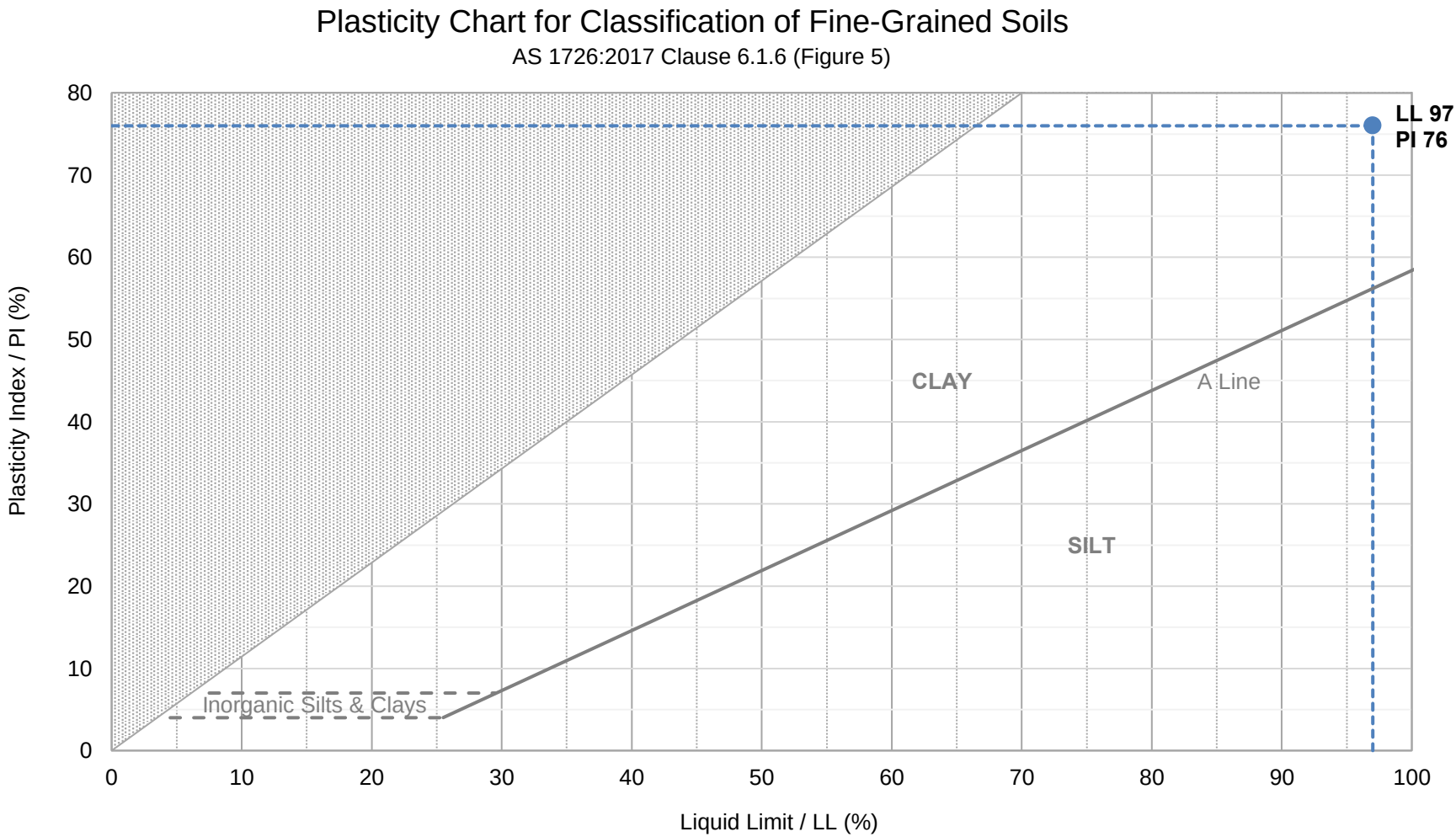
MISC_INORG_DRY:

Percent recovery is not applicable due to the high concentration of the analyte/s in the sample/s. However an acceptable recovery was obtained for the LCS.

E2 Atterberg Limits Testing

SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-002 1.5-1.9m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96711-PI
Job No.	S24245-1	Lab No.	S96711
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	7/06/2024



Preparation		Results	
Method of Preparation	Wet Sieved	Liquid Limit / LL (%)	97
History of the Sample	Natural State	Plastic Limit (%)	21
		Plasticity Index / PI (%)	76
		Linear Shrinkage (%)	14.5
		Condition upon Drying	Curling Occured

Notes



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Authorised Signatory:


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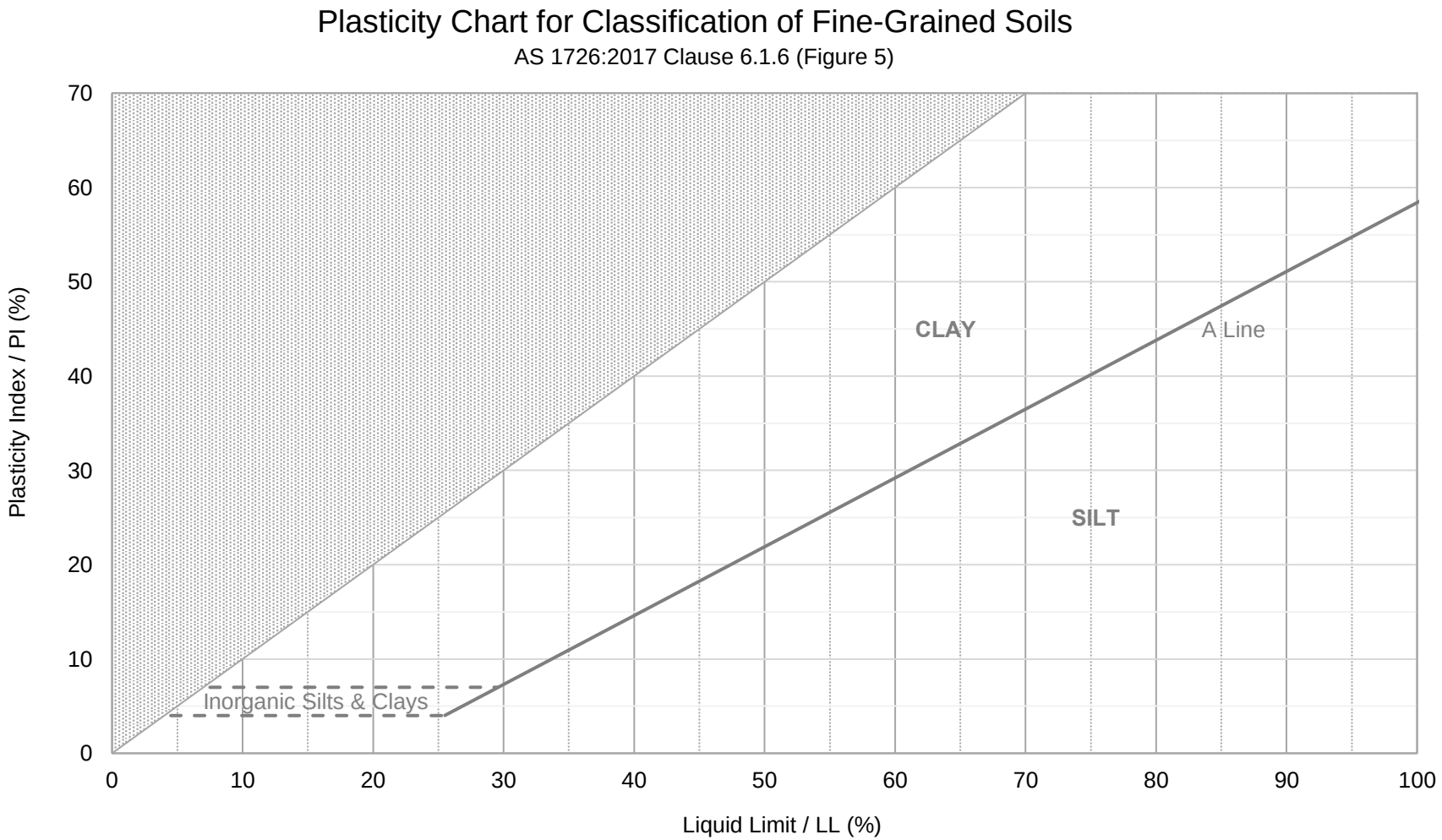
Date:



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14 Carter St
Lidcombe NSW 2141

SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-004 7.9-8m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty Clayey SAND
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96723-PI
Job No.	S24245-1	Lab No.	S96723
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024



Preparation	Results
Method of Preparation	Liquid Limit / LL (%)
History of the Sample	Plastic Limit (%)
	Plasticity Index / PI (%)
	Linear Shrinkage (%)
	Condition upon Drying
	Unobtainable
	Unobtainable
	Non-Plastic
	Unobtainable
	N/A

Notes



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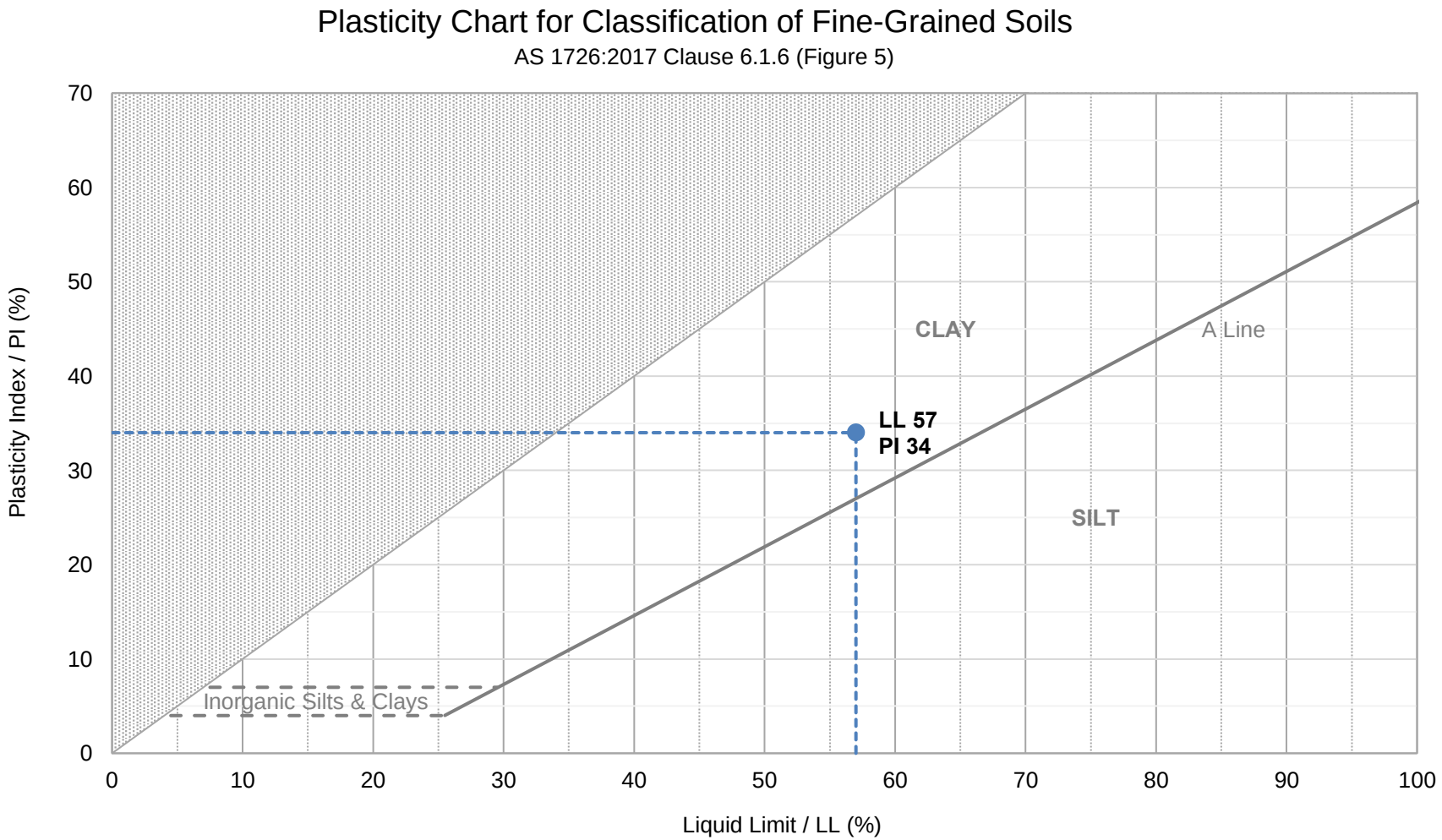
Date:



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SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-005 3.7-3.8m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96730-PI
Job No.	S24245-1	Lab No.	S96730
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024



Preparation	Results
Method of Preparation	Liquid Limit / LL (%)
History of the Sample	Plastic Limit (%)
	Plasticity Index / PI (%)
	Linear Shrinkage (%)
	Condition upon Drying

Notes



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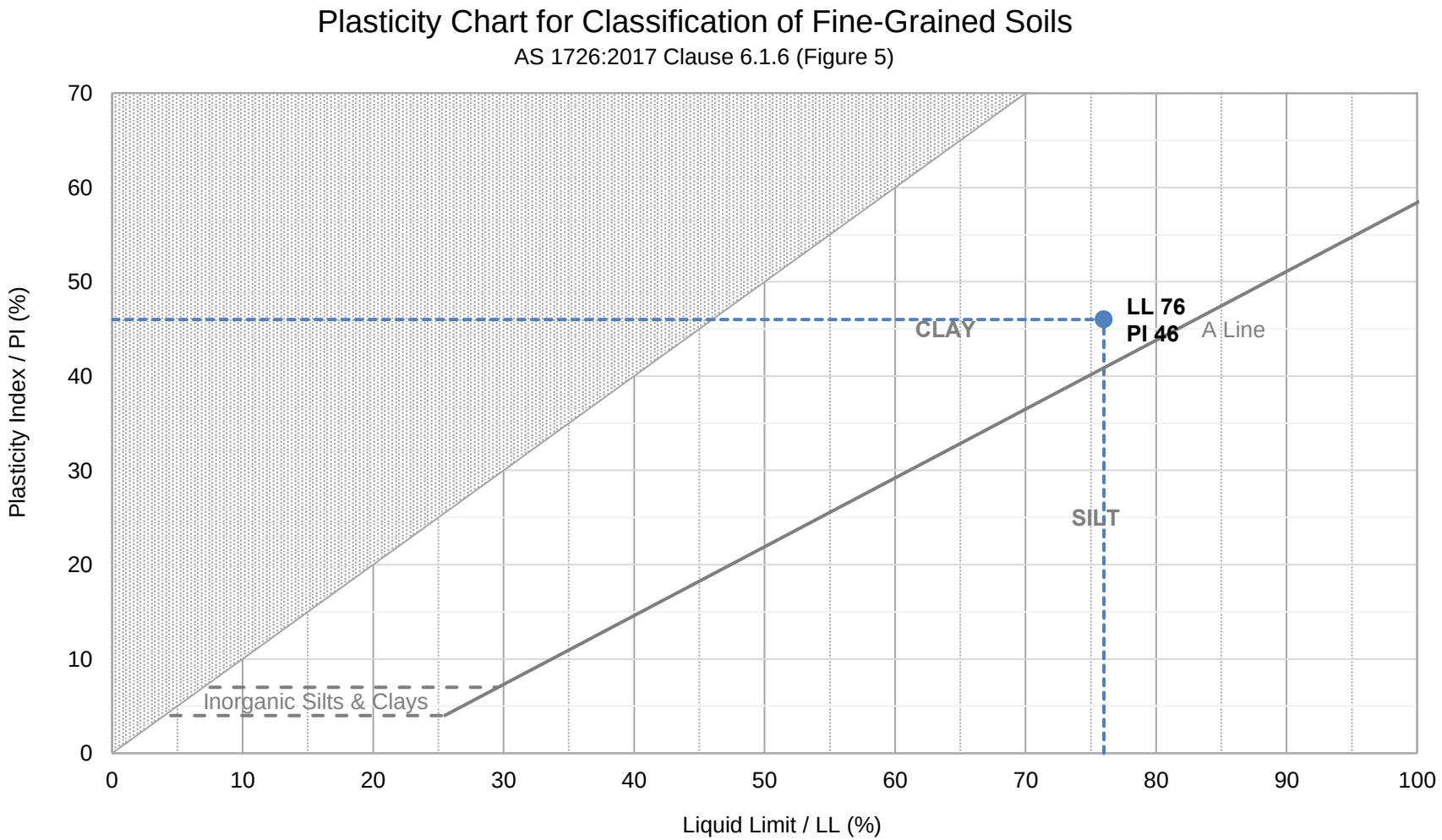
Date:



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SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-006 8-8.1m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96741-PI
Job No.	S24245-1	Lab No.	S96741
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	5/06/2024



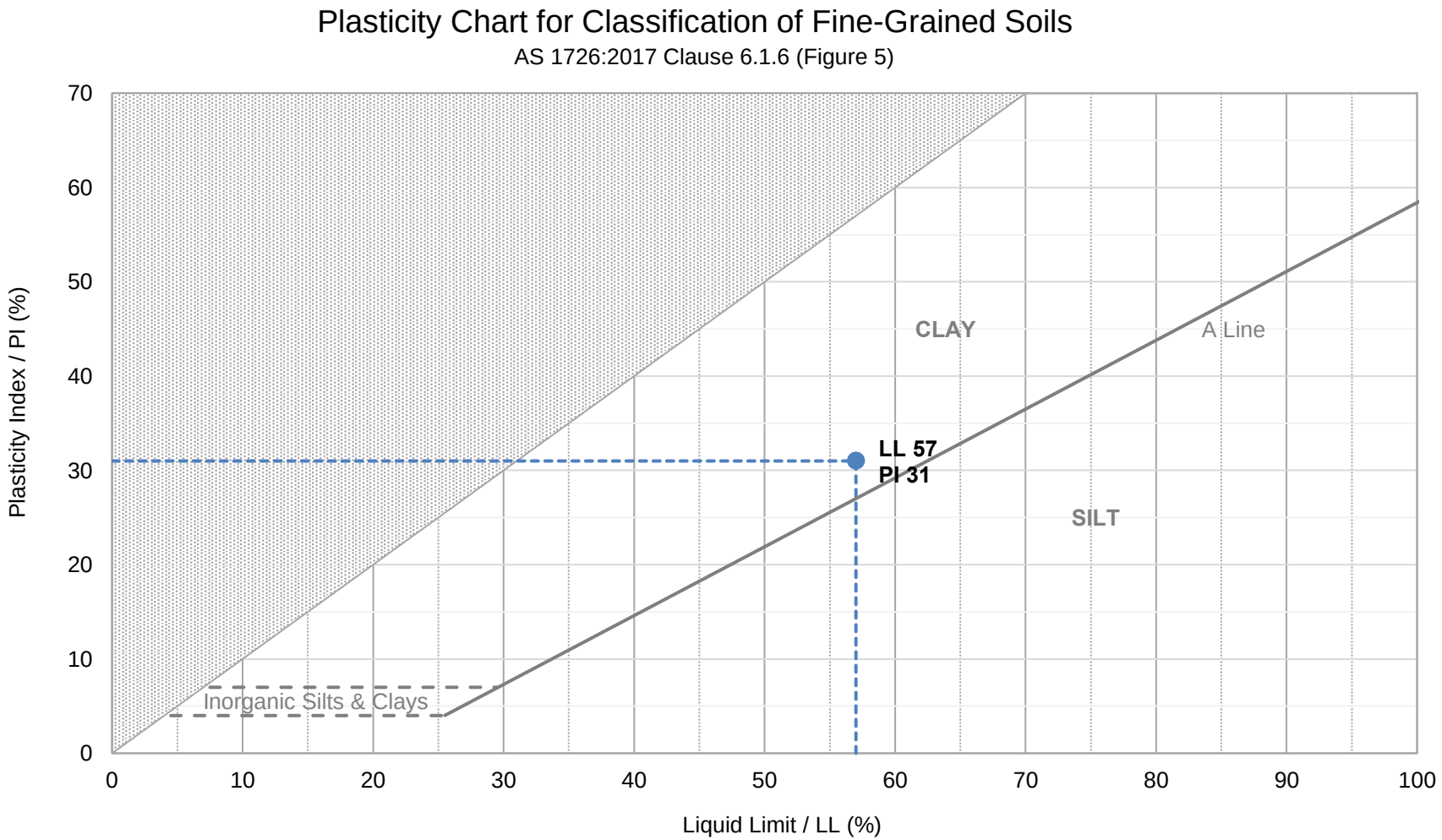
Preparation		Results	
Method of Preparation	Wet Sieved	Liquid Limit / LL (%)	76
History of the Sample	Natural State	Plastic Limit (%)	30
		Plasticity Index / PI (%)	46
		Linear Shrinkage (%)	12.0
		Condition upon Drying	Linear

Notes

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SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-009 6.7-6.8m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96754-PI
Job No.	S24245-1	Lab No.	S96754
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	5/06/2024



Preparation	Results
Method of Preparation	Liquid Limit / LL (%)
History of the Sample	Plastic Limit (%)
	Plasticity Index / PI (%)
	Linear Shrinkage (%)
	Condition upon Drying

Wet Sieved	57
Natural State	26
	31
	7.5
	Linear

Notes



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11/06/2024

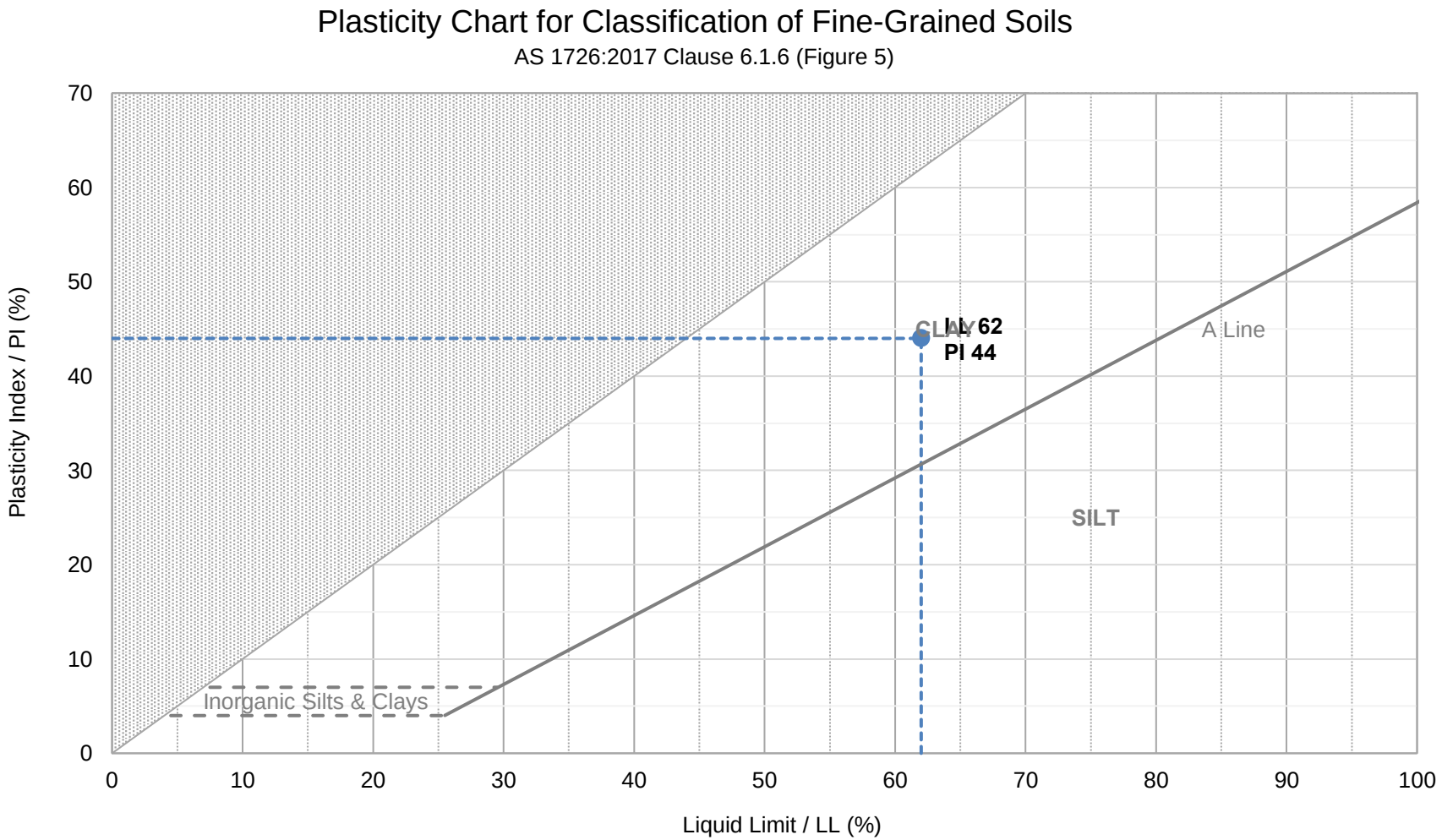
Date:



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14 Carter St
Lidcombe NSW 2141

SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-010 3.8-3.9m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Gravelly Silty CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96761-PI
Job No.	S24245-1	Lab No.	S96761
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024



Preparation	Results
Method of Preparation	Liquid Limit / LL (%)
History of the Sample	Plastic Limit (%)
	Plasticity Index / PI (%)
	Linear Shrinkage (%)
	Condition upon Drying

Notes



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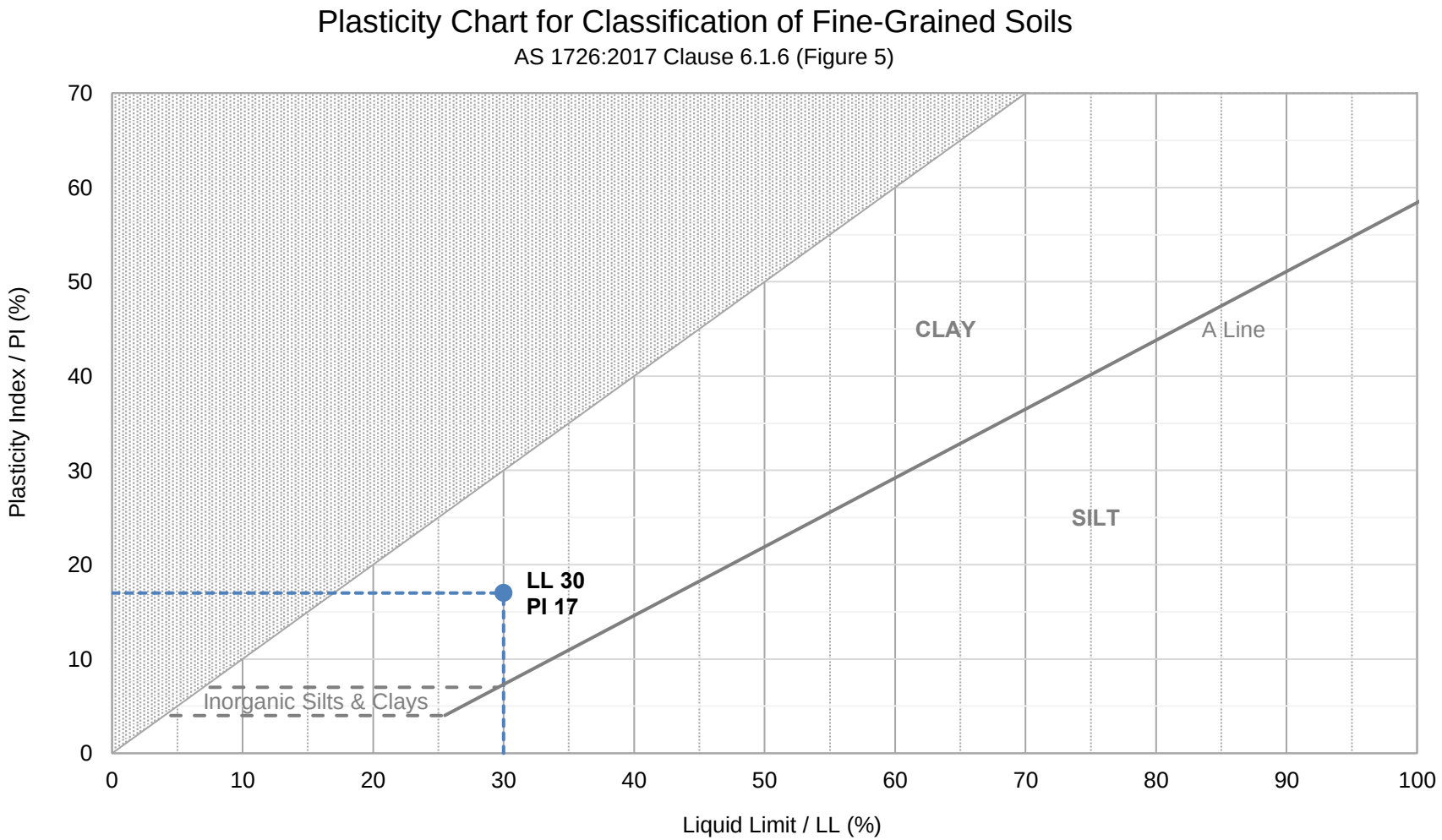
Date:



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14 Carter St
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SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-011 4.1-4.2m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Clayey Silty SAND
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96769-PI
Job No.	S24245-1	Lab No.	S96769
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024



Preparation	Results
Method of Preparation	Liquid Limit / LL (%)
History of the Sample	Plastic Limit (%)
	Plasticity Index / PI (%)
	Linear Shrinkage (%)
	Condition upon Drying

Notes



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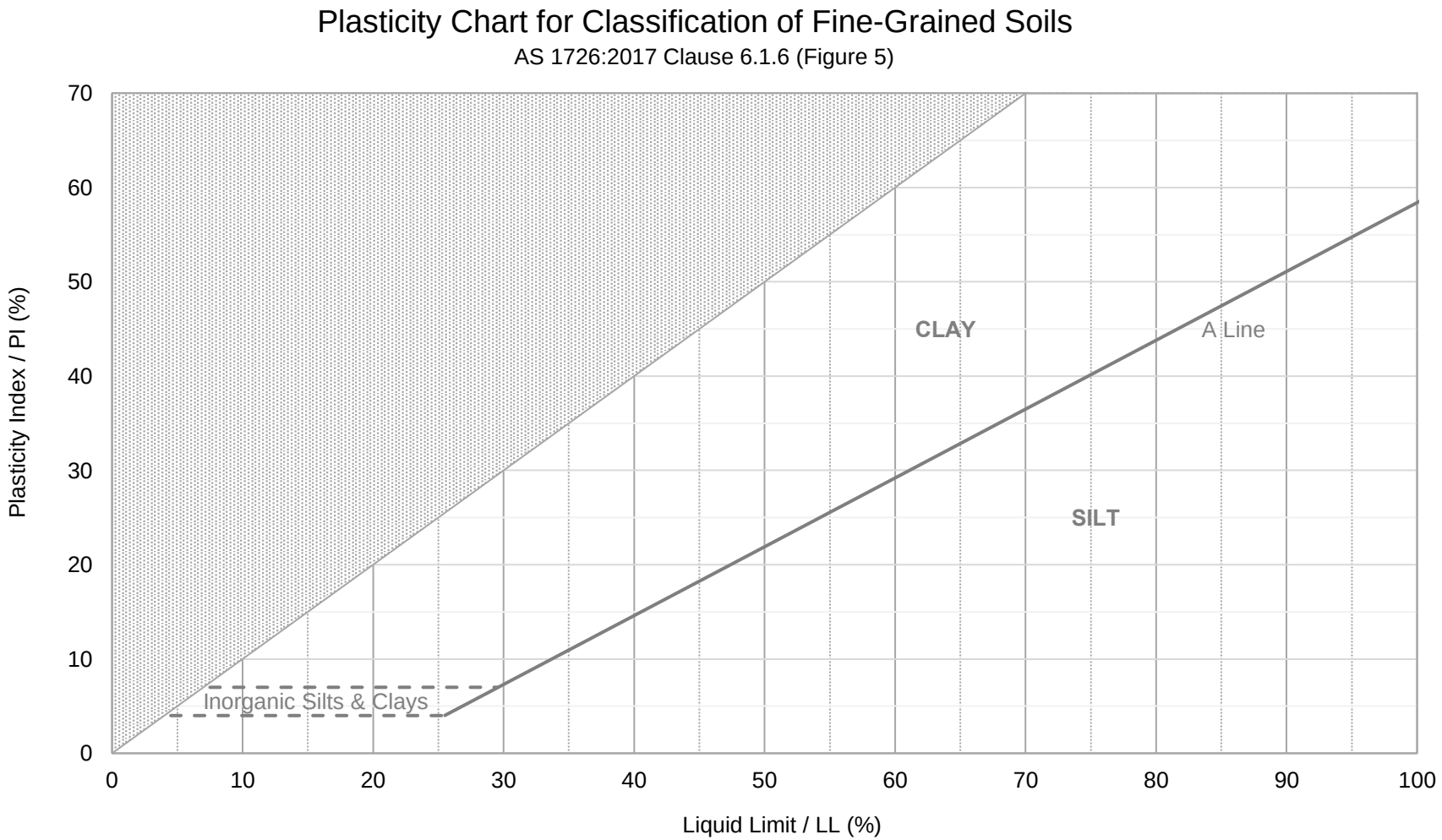
Date:



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SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-012 6-6.1m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty Clayey SAND
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96774-PI
Job No.	S24245-1	Lab No.	S96774
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/05/2024



Preparation	Results
Method of Preparation	Liquid Limit / LL (%)
History of the Sample	Plastic Limit (%)
	Plasticity Index / PI (%)
	Linear Shrinkage (%)
	Condition upon Drying
	Unobtainable
	Unobtainable
	Non-Plastic
	Unobtainable
	N/A

Notes



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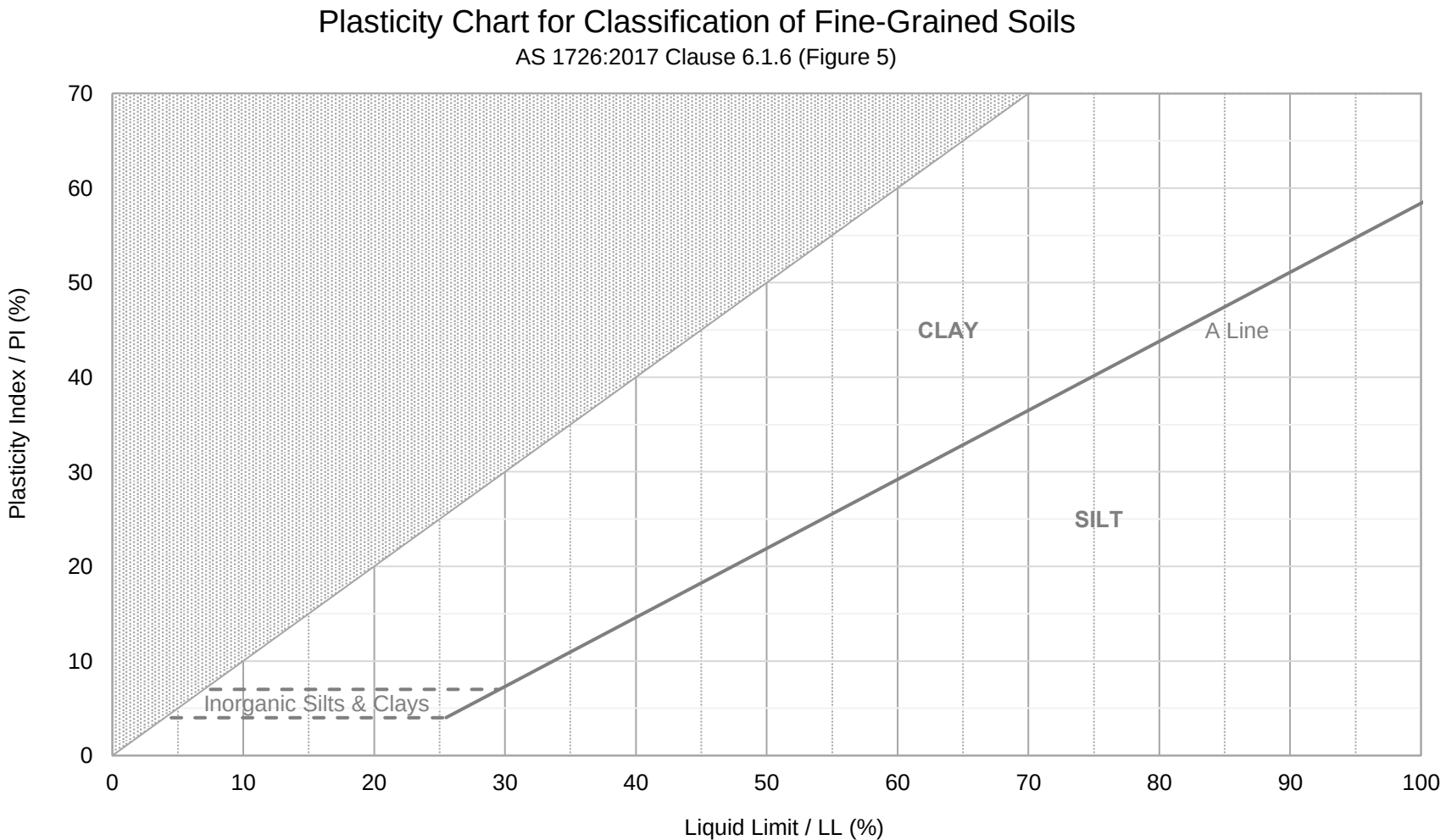
Date:



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14 Carter St
Lidcombe NSW 2141

SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-013 7.9-8m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty SAND
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96776-PI
Job No.	S24245-1	Lab No.	S96776
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024



Preparation	Results
Method of Preparation	Liquid Limit / LL (%)
History of the Sample	Plastic Limit (%)
	Plasticity Index / PI (%)
	Linear Shrinkage (%)
	Condition upon Drying
	Unobtainable
	Unobtainable
	Non-Plastic
	Unobtainable
	N/A

Notes



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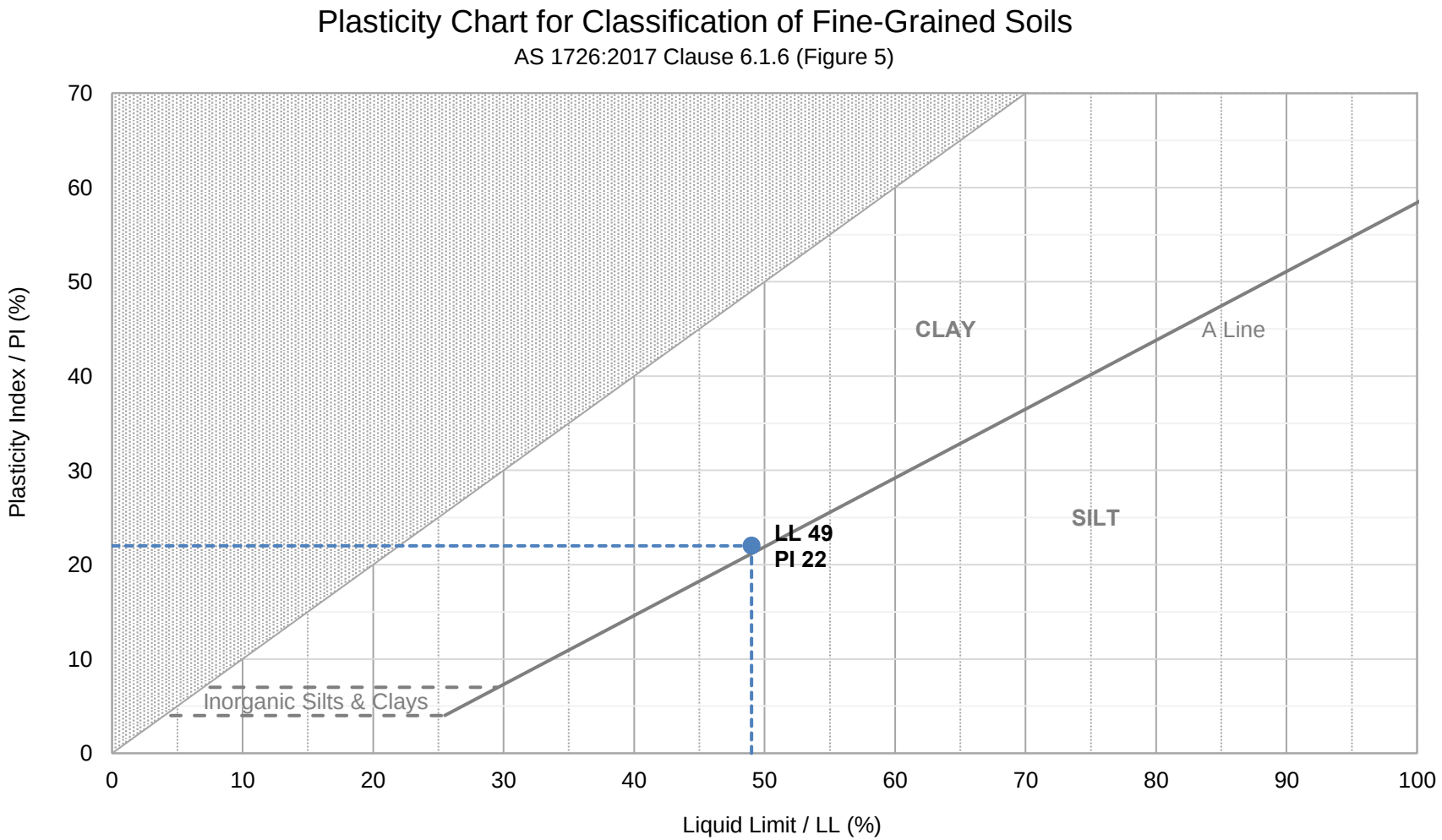
Date:



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14 Carter St
Lidcombe NSW 2141

SOIL CLASSIFICATION REPORT

Client	WSP Australia Pty Ltd	Source	BH-014 3.8-3.9m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Clayey SAND
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96778-PI
Job No.	S24245-1	Lab No.	S96778
Test Procedure	☐ AS1289 3.1.1 Liquid Limit - Four point Casagrande method ☐ AS1289 3.1.2 Liquid Limit - One point Casagrande method ☒ AS1289 3.2.1 Plastic Limit - Standard method ☒ AS1289 3.3.1 Calculation of the Plasticity Index ☒ AS1289 3.4.1 Linear Shrinkage - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024



Preparation	Results
Method of Preparation	Liquid Limit / LL (%)
History of the Sample	Plastic Limit (%)
	Plasticity Index / PI (%)
	Linear Shrinkage (%)
	Condition upon Drying

Notes



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NATA Accredited Laboratory Number: 14874

Authorised Signatory:

Chris Lloyd

11/06/2024

Date:



Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

E3 California Bearing Ratio Testing

ADG LABORATORIES

SOAKED CBR TEST AS 1289 6.1.1, 2.1.1

materials testing laboratories

Unit 8a 121 Mornington Rd

Ph (03) 6244 6884 Fax 03 6245 1498

ACN 117 593 254

client	Macquarie Point Development Corporation
project	Macquarie Point
location	Hobart
project no	0536/24/1H
sample no	H24/671
date received	28/5/2024
date tested	4/6/2024
sample identification	BH002 0.0 - 1.0m
sampled by	client
test report no	0536/24/1H/AA

compaction details 1		AS 1289 5.1.1 Standard Compaction		
test method				
maximum dry density	t/m ³			1.96
optimum moisture content	%			13.8
field moisture content	%	14.7		
compaction details 2				
required density ratio for remoulding %		100		
retained 19mm (not replaced)	%	28		
specimen details before soaking				
dry density ratio	%	100.0		
moisture ratio	%	100		
test details				
period of soaking	days	4		
moisture content top 30mm	%	14.2		
surcharge mass	kgs	4.5		
swell	%	0.0		
C.B.R. VALUE		6		
penetration	mm	5.0		

remarks -

Preliminary report issued? no

If yes replaces preliminary report no

P 0536/24/1H/AA



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materials testing laboratories

Unit 8a 121 Mornington Rd

Ph (03) 6244 6884 Fax 03 6245 1498

ACN 117 593 254

client	Macquarie Point Development Corporation
project	Macquarie Point
location	Hobart
project no	0536/24/1H
sample no	H24/672
date received	28/5/2024
date tested	4/6/2024
sample identification	BH004 0.0 - 1.0m
sampled by	client
test report no	0536/24/1H/AB

compaction details 1		AS 1289 5.1.1 Standard Compaction		
test method				
maximum dry density	t/m ³			1.96
optimum moisture content	%			13.4
field moisture content	%	12.9		
compaction details 2				
required density ratio for remoulding %		100		
retained 19mm (not replaced)	%	32		
specimen details before soaking				
dry density ratio	%	99.0		
moisture ratio	%	101		
test details				
period of soaking	days	4		
moisture content top 30mm	%	14.2		
surcharge mass	kgs	4.5		
swell	%	0.0		
C.B.R. VALUE		4.5		
penetration	mm	5.0		

remarks

-

Preliminary report issued? no

If yes replaces preliminary report no

P 0536/24/1H/AB



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ACN 117 593 254

client	Macquarie Point Development Corporation
project	Macquarie Point
location	Hobart
project no	0536/24/1H
sample no	H24/673
date received	28/5/2024
date tested	4/6/2024
sample identification	BH006 0.0 - 1.0m
sampled by	client
test report no	0536/24/1H/AC

compaction details 1		AS 1289 5.1.1 Standard Compaction		
test method				
maximum dry density	t/m ³			1.78
optimum moisture content	%			16.4
field moisture content	%			16.0
compaction details 2				
required density ratio for remoulding %				100
retained 19mm (not replaced)	%			31
specimen details before soaking				
dry density ratio	%			99.0
moisture ratio	%	120.5		
test details				
period of soaking	days			4
moisture content top 30mm	%			17.6
surcharge mass	kgs			4.5
swell	%			0.0
C.B.R. VALUE		2.5		
penetration	mm	5.0		

remarks

-

Preliminary report issued? no

If yes replaces preliminary report no

P 0536/24/1H/AC



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materials testing laboratories

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ACN 117 593 254

client	Macquarie Point Development Corporation
project	Macquarie Point
location	Hobart
project no	0536/24/1H
sample no	H24/674
date received	28/5/2024
date tested	4/6/2024
sample identification	BH008 0.0 - 1.0m
sampled by	client
test report no	0536/24/1H/AD

compaction details 1		AS 1289 5.1.1 Standard Compaction		
test method				
maximum dry density	t/m ³			2.17
optimum moisture content	%			11.0
field moisture content	%			9.1
compaction details 2				
required density ratio for remoulding	%	100		
retained 19mm (not replaced)	%	37		
specimen details before soaking				
dry density ratio	%	100.0		
moisture ratio	%	98		
test details				
period of soaking	days	4		
moisture content top 30mm	%	9.7		
surcharge mass	kgs	4.5		
swell	%	0.0		
C.B.R. VALUE		4		
penetration	mm	5.0		

remarks

-

Preliminary report issued? no

If yes replaces preliminary report no

P 0536/24/1H/AD



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materials testing laboratories

Unit 8a 121 Mornington Rd

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ACN 117 593 254

client	Macquarie Point Development Corporation
project	Macquarie Point
location	Hobart
project no	0536/24/1H
sample no	H24/675
date received	28/5/2024
date tested	4/6/2024
sample identification	BH009 0.0 - 1.0m
sampled by	client
test report no	0536/24/1H/AE

compaction details 1		AS 1289 5.1.1 Standard Compaction		
test method				
maximum dry density	t/m ³			1.86
optimum moisture content	%			16.2
field moisture content	%	13.7		
compaction details 2				
required density ratio for remoulding %		100		
retained 19mm (not replaced)	%	30		
specimen details before soaking				
dry density ratio	%	100.0		
moisture ratio	%	99.5		
test details				
period of soaking	days	4		
moisture content top 30mm	%	16.1		
surcharge mass	kgs	4.5		
swell	%	0.0		
C.B.R. VALUE		2		
penetration	mm	5.0		

remarks -

Preliminary report issued? no

If yes replaces preliminary report no

P 0536/24/1H/AE



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materials testing laboratories

Unit 8a 121 Mornington Rd

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ACN 117 593 254

client	Macquarie Point Development Corporation
project	Macquarie Point
location	Hobart
project no	0536/24/1H
sample no	H24/676
date received	28/5/2024
date tested	4/6/2024
sample identification	BH010 0.0 - 0.1m
sampled by	client
test report no	0536/24/1H/AF

compaction details 1		AS 1289 5.1.1 Standard Compaction		
test method				
maximum dry density	t/m ³			2.02
optimum moisture content	%			12.6
field moisture content	%	13.2		
compaction details 2				
required density ratio for remoulding %		100		
retained 19mm (not replaced)	%	19		
specimen details before soaking				
dry density ratio	%	100.0		
moisture ratio	%	99		
test details				
period of soaking	days	4		
moisture content top 30mm	%	11.2		
surcharge mass	kgs	4.5		
swell	%	0.0		
C.B.R. VALUE		8		
penetration	mm	5.0		

remarks -

Preliminary report issued? no

If yes replaces preliminary report no

P 0536/24/1H/AF



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materials testing laboratories

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ACN 117 593 254

client	Macquarie Point Development Corporation
project	Macquarie Point
location	Hobart
project no	0536/24/1H
sample no	H24/677
date received	28/5/2024
date tested	4/6/2024
sample identification	BH011 0.0 - 1.0m
sampled by	client
test report no	0536/24/1H/AG

compaction details 1		AS 1289 5.1.1 Standard Compaction		
test method				
maximum dry density	t/m ³			1.93
optimum moisture content	%			14.8
field moisture content	%			14.7
compaction details 2				
required density ratio for remoulding	%	100		
retained 19mm (not replaced)	%	16		
specimen details before soaking				
dry density ratio	%	100.0		
moisture ratio	%	99.5		
test details				
period of soaking	days	4		
moisture content top 30mm	%	11.6		
surcharge mass	kgs	4.5		
swell	%	0.0		
C.B.R. VALUE		5		
penetration	mm	5.0		

remarks -

Preliminary report issued? no

If yes replaces preliminary report no

P 0536/24/1H/AG



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ACN 117 593 254

client	Macquarie Point Development Corporation
project	Macquarie Point
location	Hobart
project no	0536/24/1H
sample no	H24/678
date received	28/5/2024
date tested	4/6/2024
sample identification	BH016 0.0 - 1.0m
sampled by	client
test report no	0536/24/1H/AH

compaction details 1		AS 1289 5.1.1 Standard Compaction		
test method				
maximum dry density	t/m ³			2.19
optimum moisture content	%			10.8
field moisture content	%			10.9
compaction details 2				
required density ratio for remoulding %		100		
retained 19mm (not replaced) %		17		
specimen details before soaking				
dry density ratio %		100.0		
moisture ratio %		98.5		
test details				
period of soaking days		4		
moisture content top 30mm %		7.0		
surcharge mass kgs		4.5		
swell %		0.0		
C.B.R. VALUE		13		
penetration mm		5.0		

remarks

-

Preliminary report issued? no

If yes replaces preliminary report no

P 0536/24/1H/AH



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5/6/2024
date of issue

E4 Moisture Content Testing

[illegible]

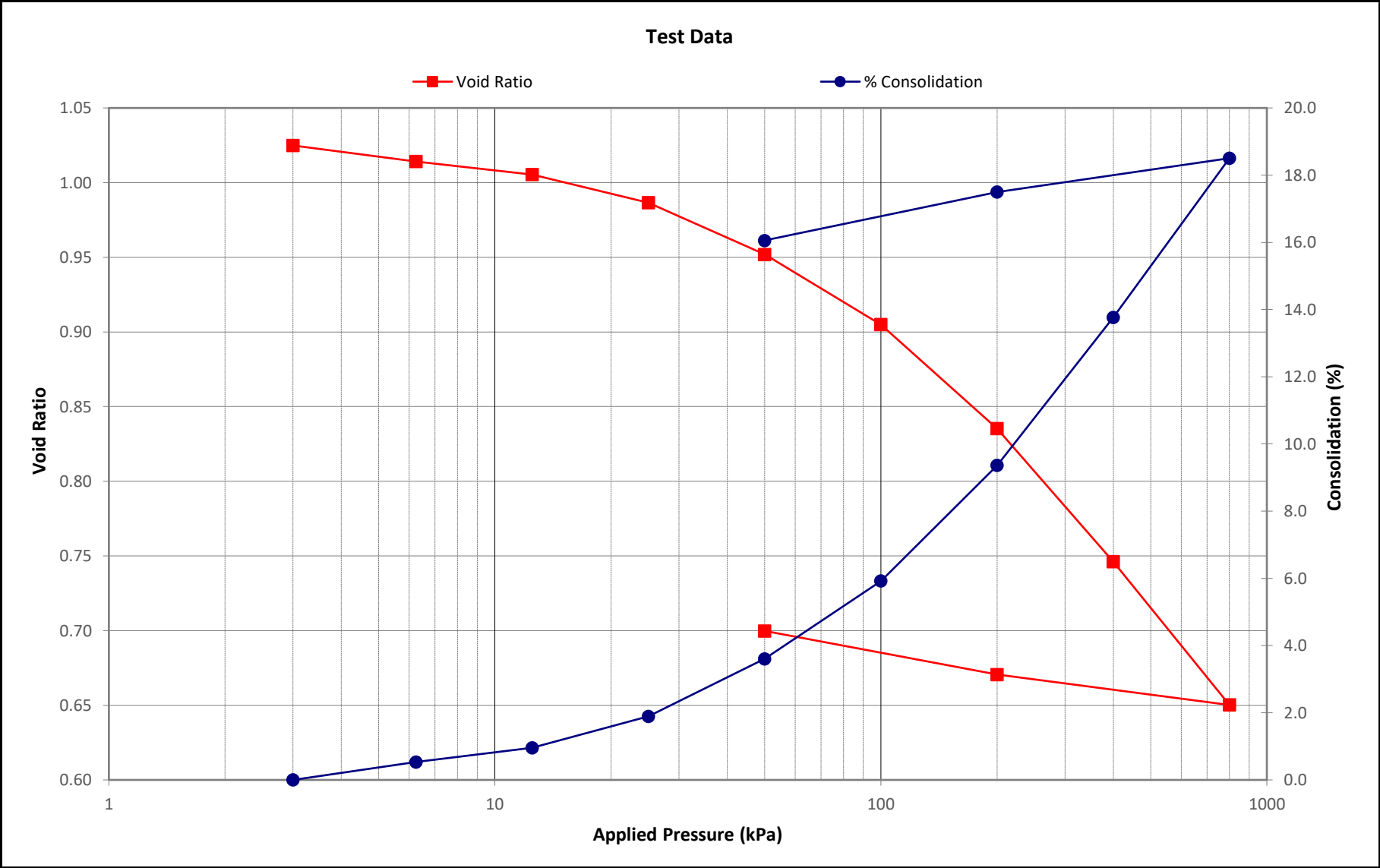
E5 Oedometer / 1-D Consolidation Testing

One-Dimensional Consolidation Report

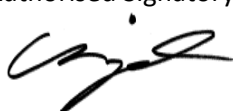
Client	WSP Australia Pty Ltd	Source	BH-005 3.5-3.85m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Gravelly Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96731-CON
Job No.	S24245-1	Lab No.	S96731

Test Procedure	AS 1289.6.6.1 Determination of the one-dimensional consolidation properties of a soil - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	10/06/2024

Specimen Type	Undisturbed	Initial Voids Ratio	1.025	Particle Density (t/m ³)	2.54
Test Condition	Inundated on load	Initial Degree of Saturation (%)	98.4	Dry Density (t/m ³)	1.25
Post-Test Observations	-	Initial Height (mm)	19.93	Final Height (mm)	16.73
Particle Density Method	AS 1289.3.5.1	Initial Moisture Content (%)	39.6	Final Moisture Content (%)	32.3



Notes	
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--	---

One-Dimensional Consolidation Report

Client	WSP Australia Pty Ltd	Source	BH-005 3.5-3.85m	
	Level 27, 680 George St, Sydney NSW 2000		Sample Description	Gravelly Silty Sandy CLAY
	PS212776 - Mac Point Geotechnical Investigation		Report No.	S96731-CON
	Job No.		S24245-1	Lab No.

Test Procedure	AS 1289.6.6.1 Determination of the one-dimensional consolidation properties of a soil - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	10/06/2024

Test Data

[illegible]

Notes	
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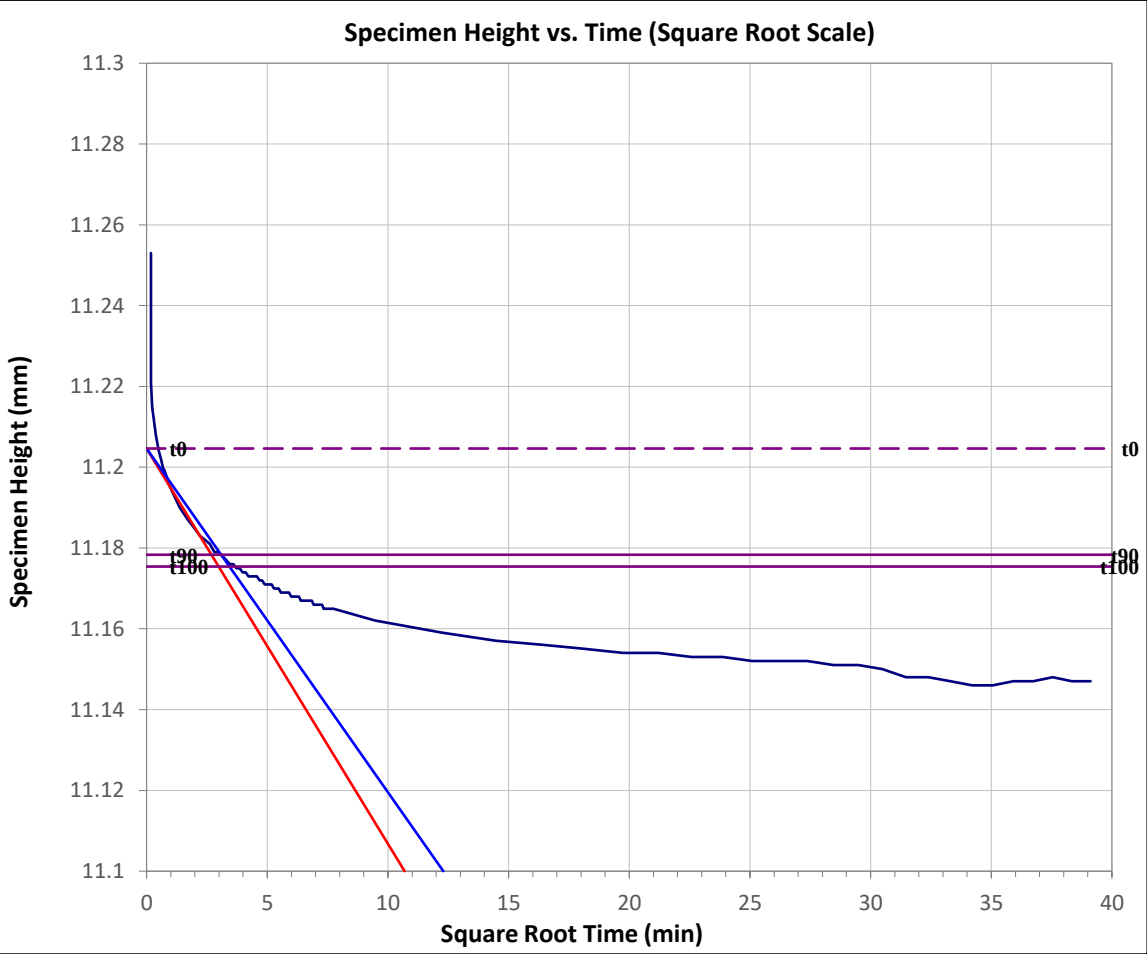
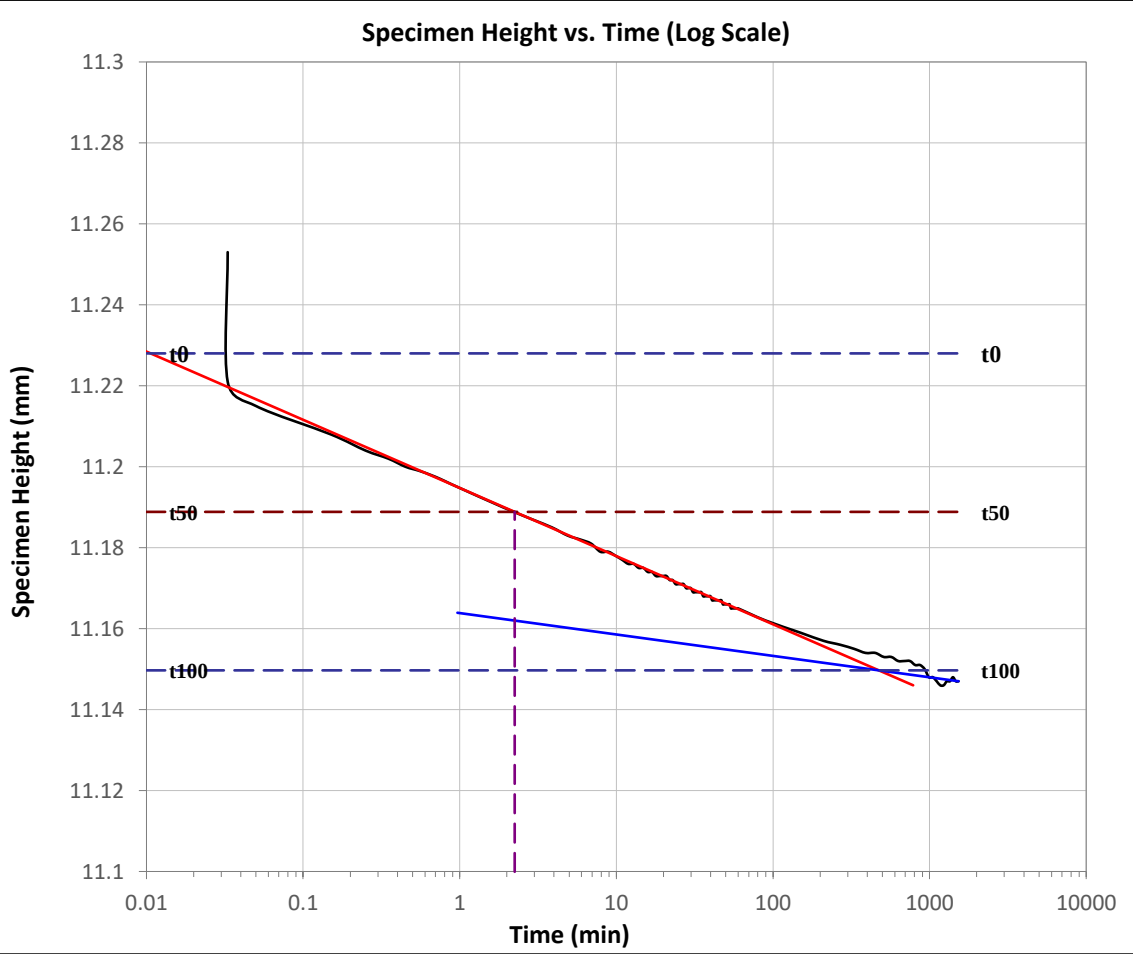


Page 2 of 12

One-Dimensional Consolidation Report - Stage 1



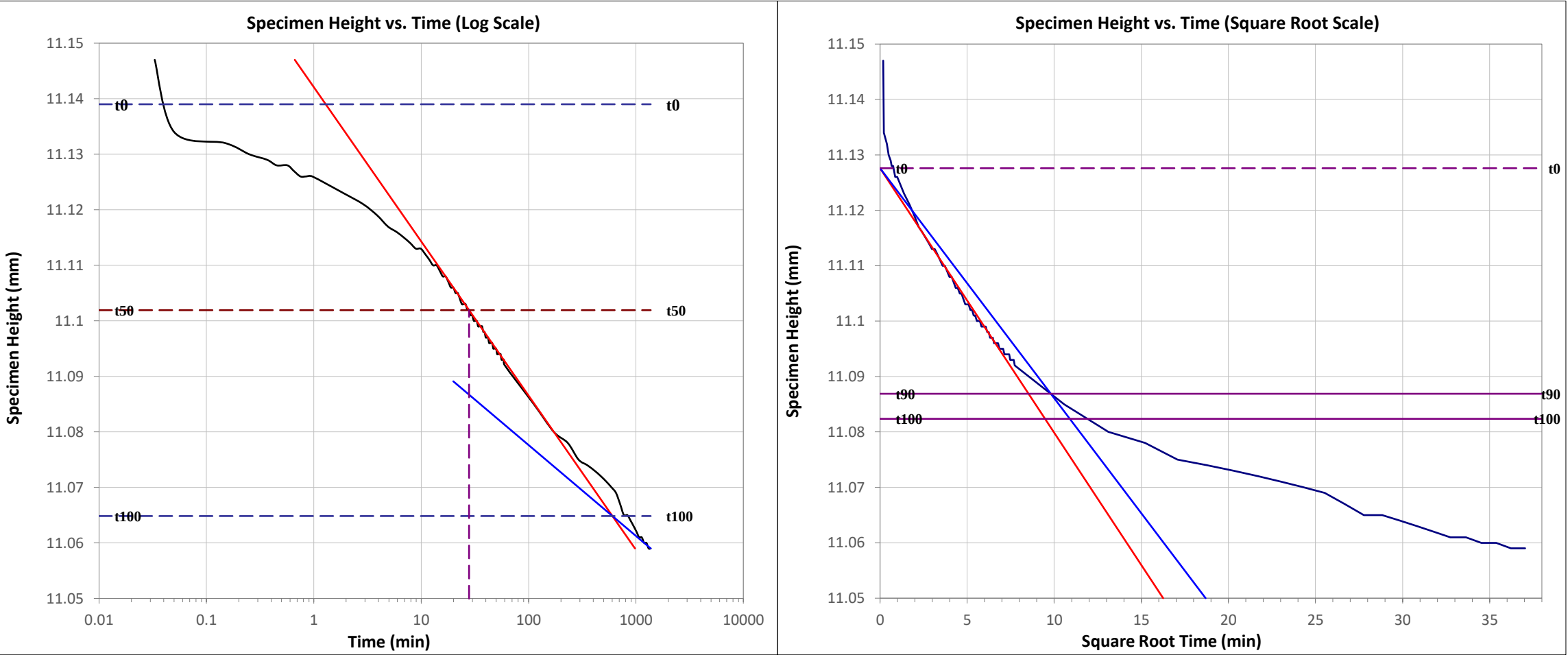
Source	BH-005 3.5-3.85m	Stage Load (kPa)	6.25
Report No.	S96731-CON	Stage (kPa)	3 - 6.25
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 2



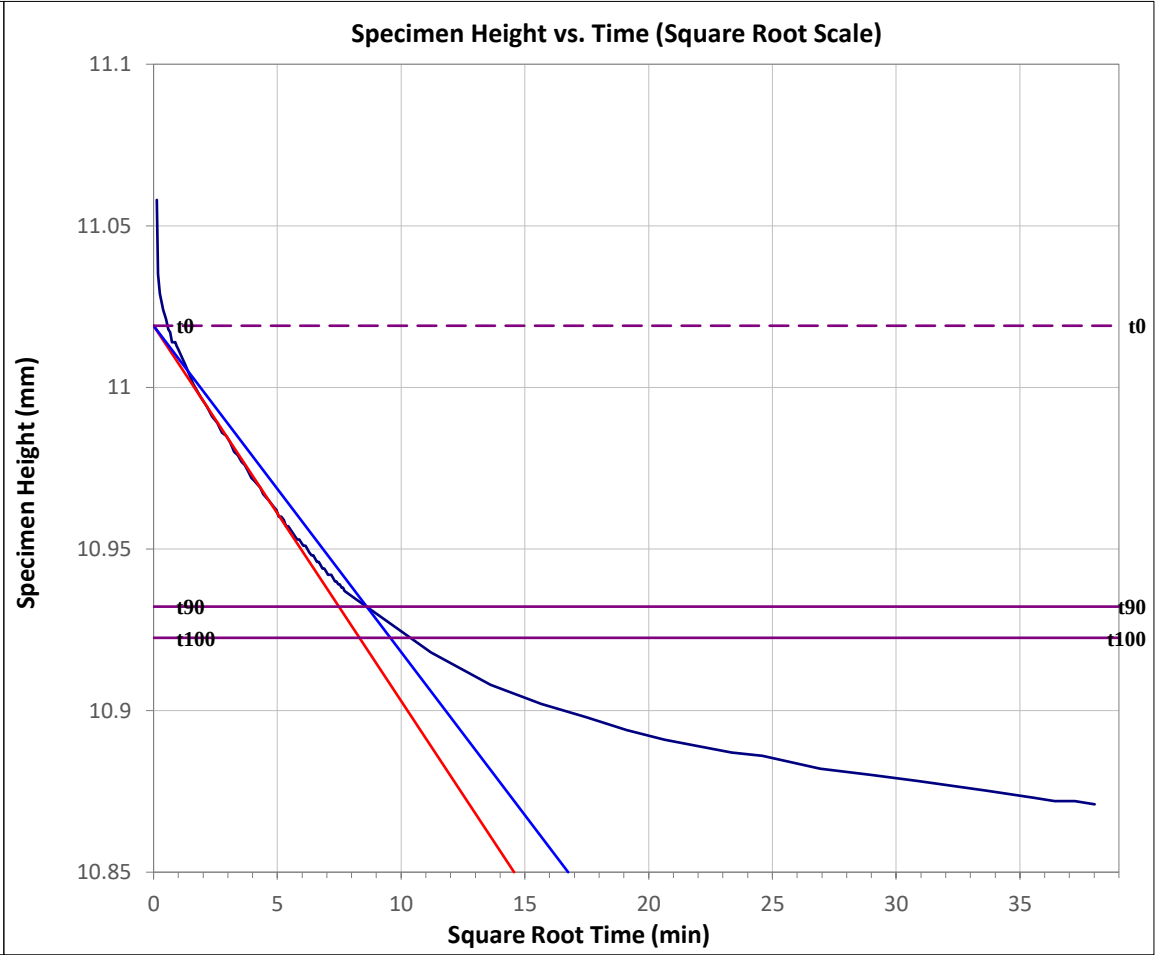
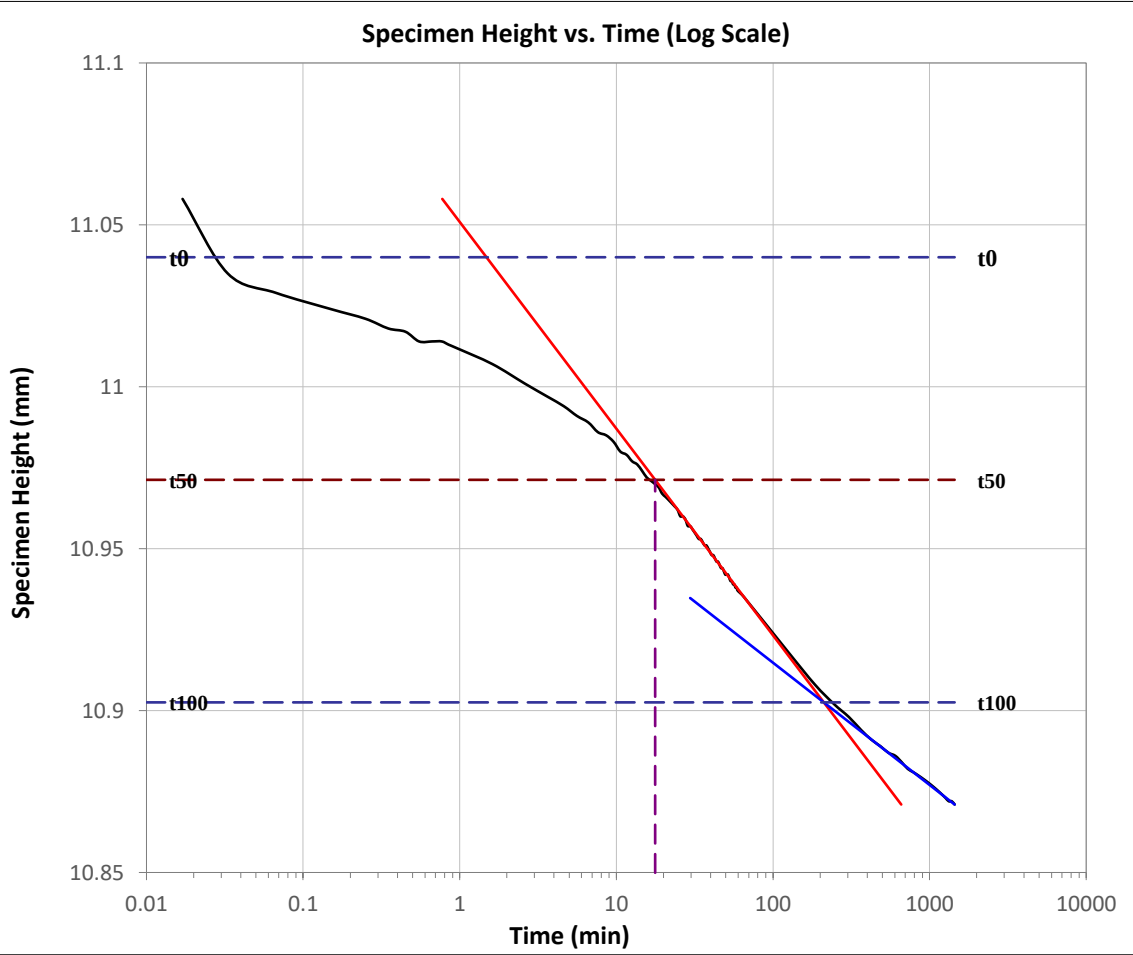
Source	BH-005 3.5-3.85m	Stage Load (kPa)	12.5
Report No.	S96731-CON	Stage (kPa)	6.25 - 12.5
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 3



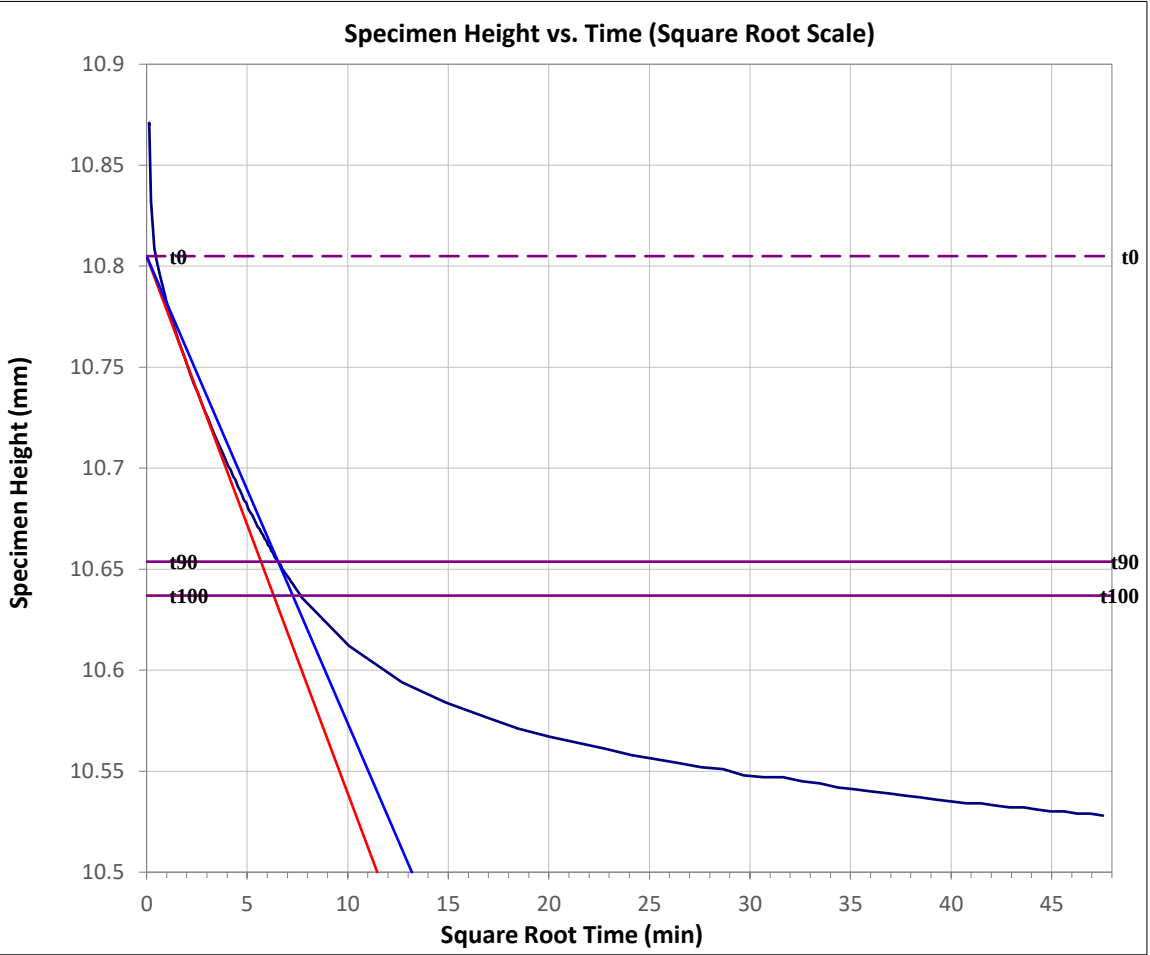
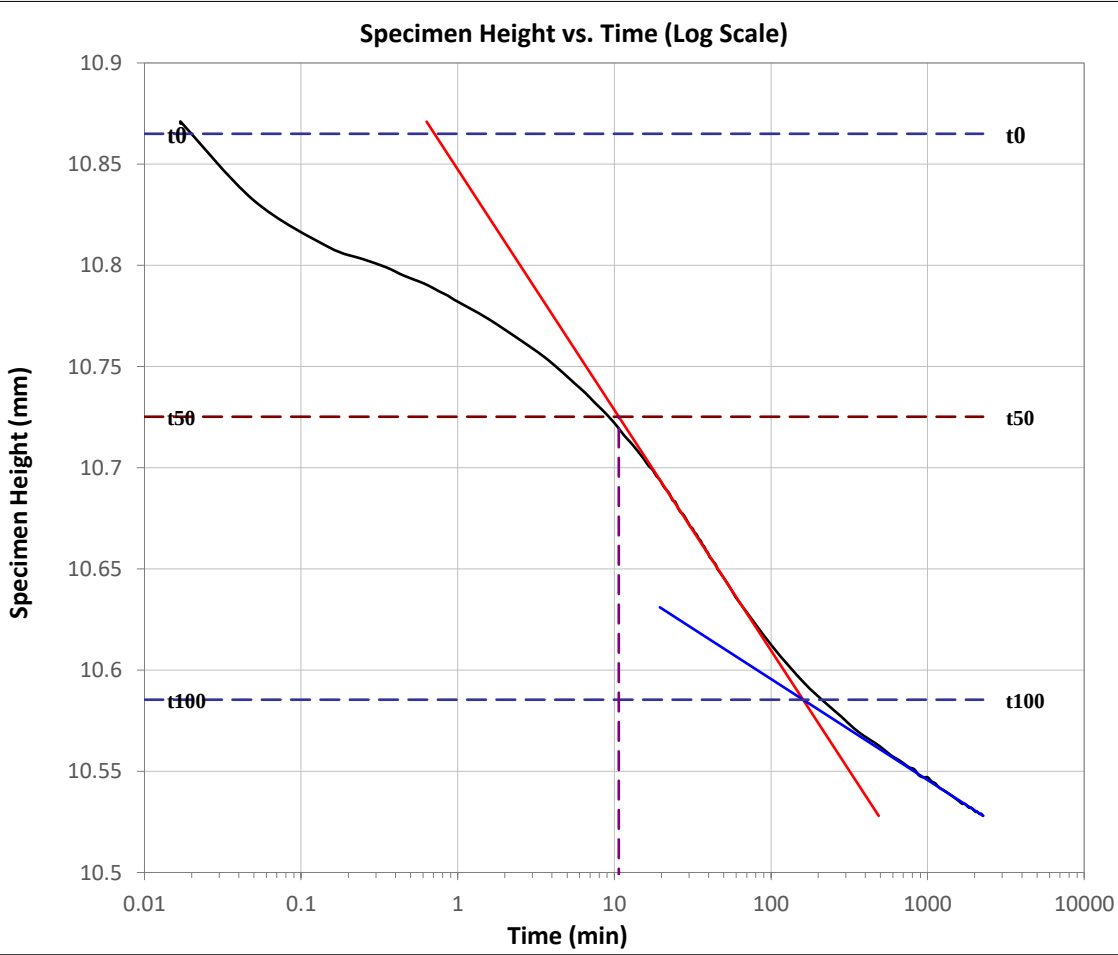
Source	BH-005 3.5-3.85m	Stage Load (kPa)	25
Report No.	S96731-CON	Stage (kPa)	12.5 - 25
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 4



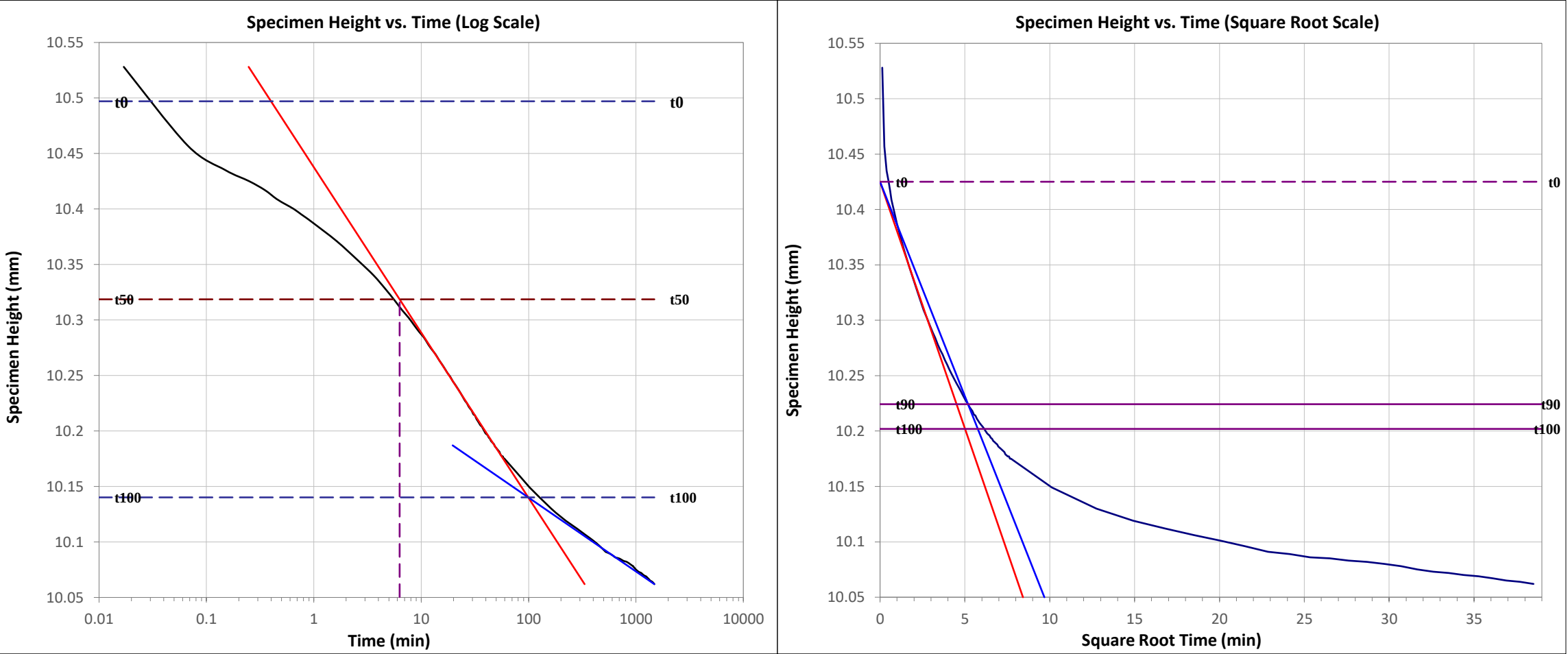
Source	BH-005 3.5-3.85m	Stage Load (kPa)	50
Report No.	S96731-CON	Stage (kPa)	25 - 50
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 5



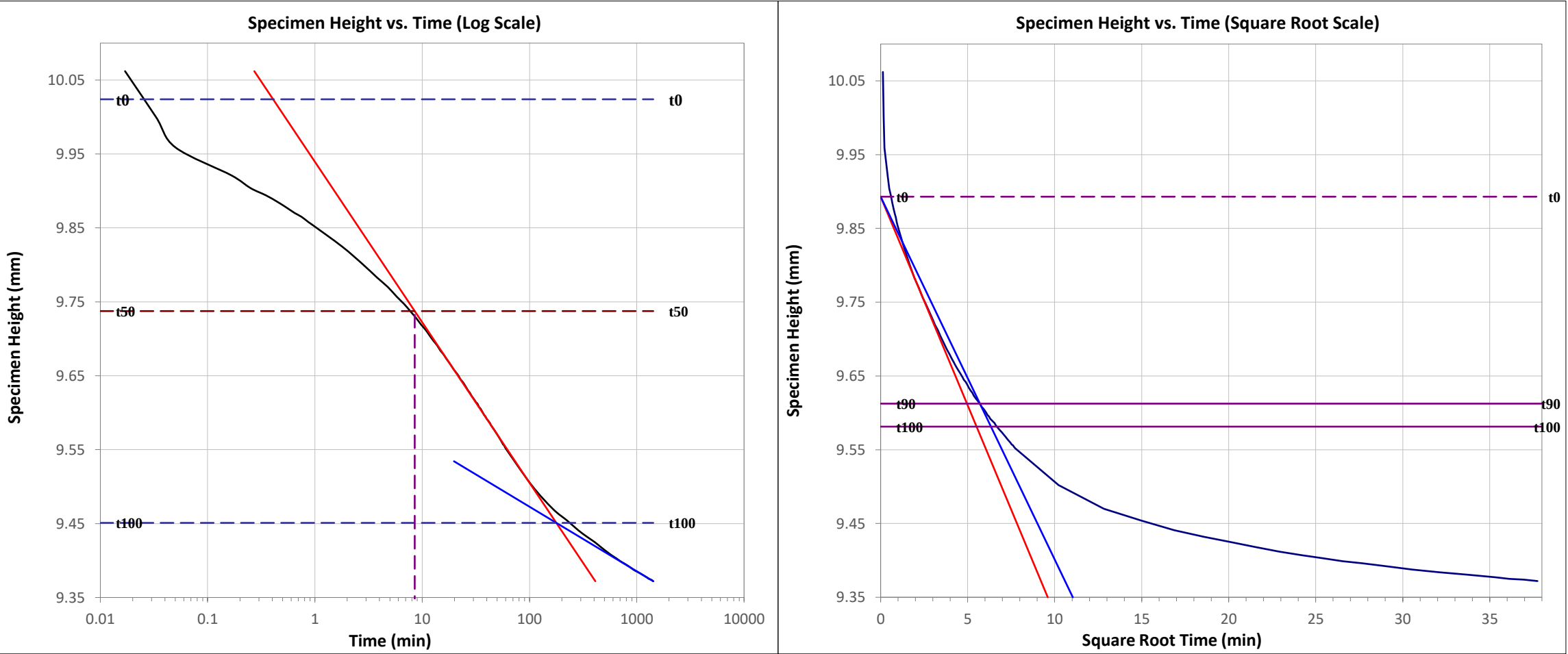
Source	BH-005 3.5-3.85m	Stage Load (kPa)	100
Report No.	S96731-CON	Stage (kPa)	50 - 100
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 6



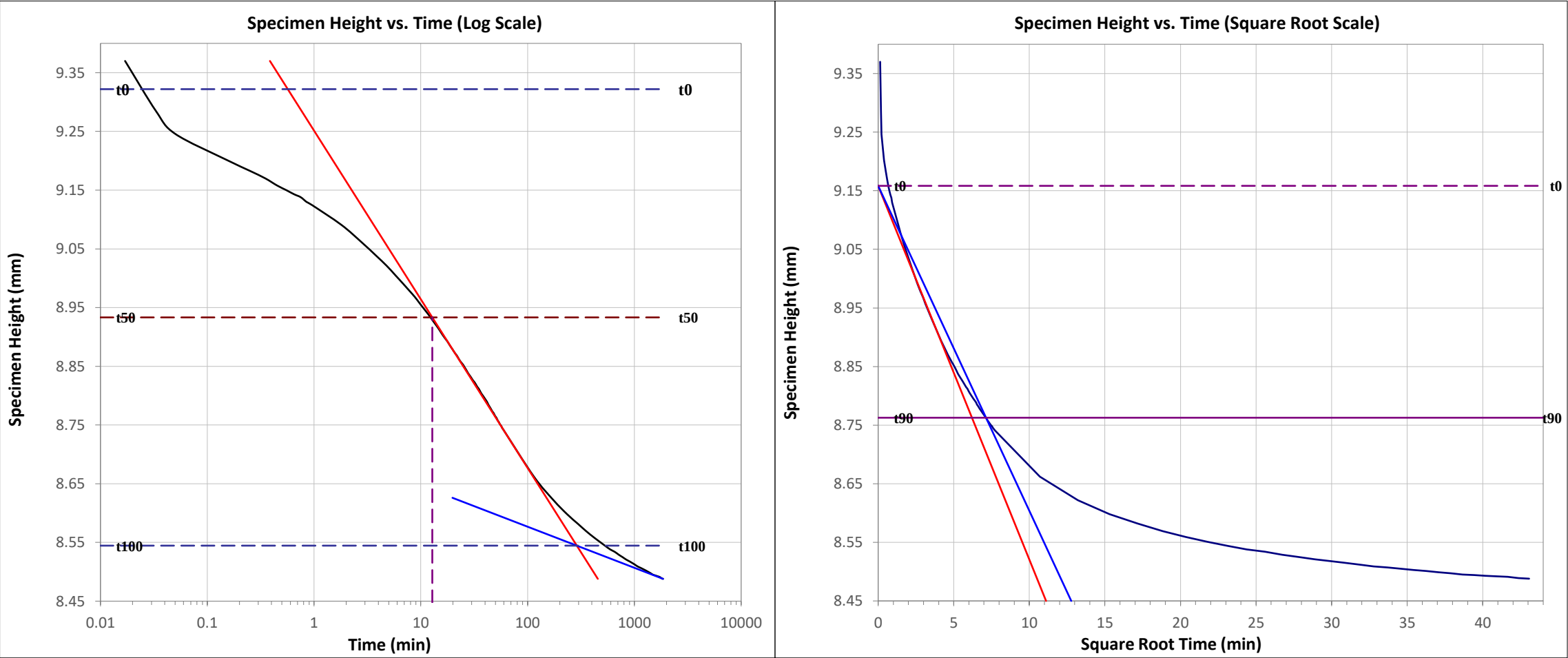
Source	BH-005 3.5-3.85m	Stage Load (kPa)	200
Report No.	S96731-CON	Stage (kPa)	100 - 200
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 7



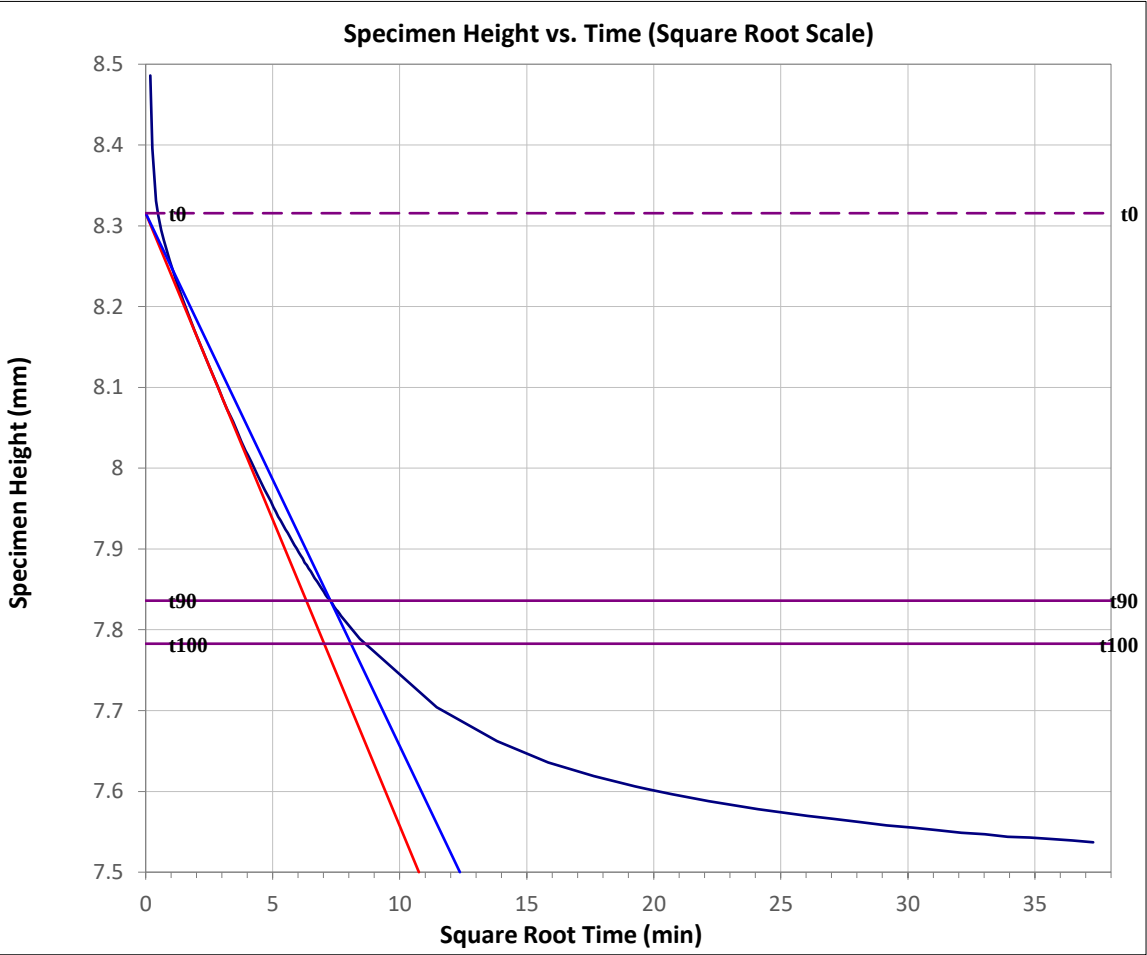
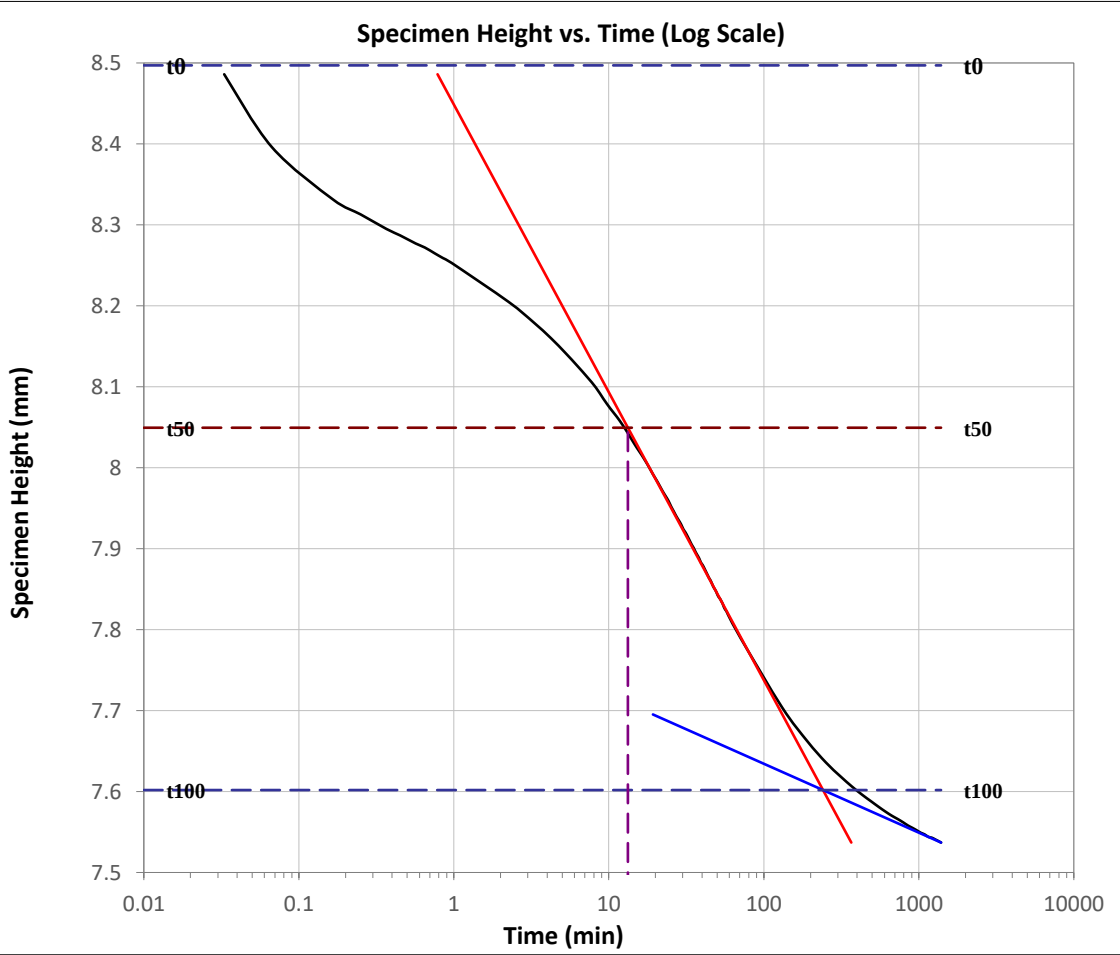
Source	BH-005 3.5-3.85m	Stage Load (kPa)	400
Report No.	S96731-CON	Stage (kPa)	200 - 400
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 8



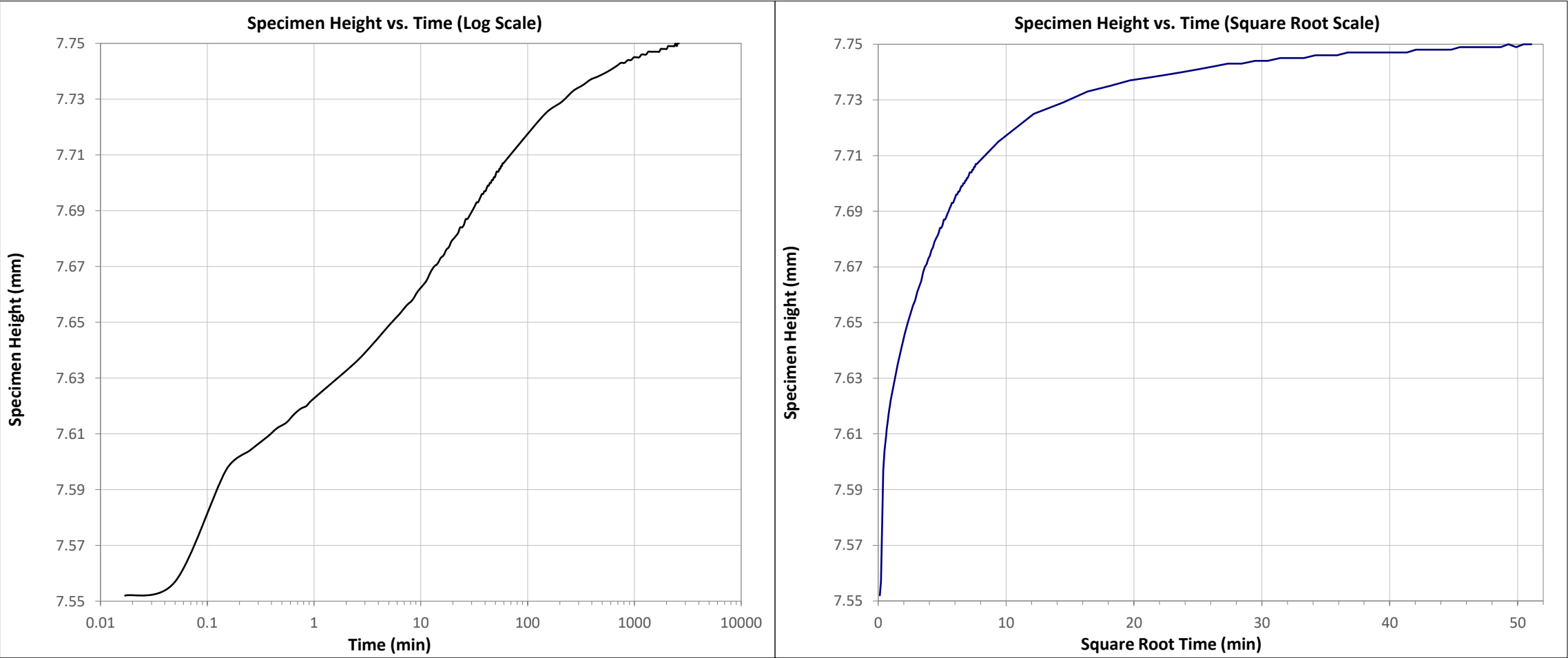
Source	BH-005 3.5-3.85m	Stage Load (kPa)	800
Report No.	S96731-CON	Stage (kPa)	400 - 800
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 9



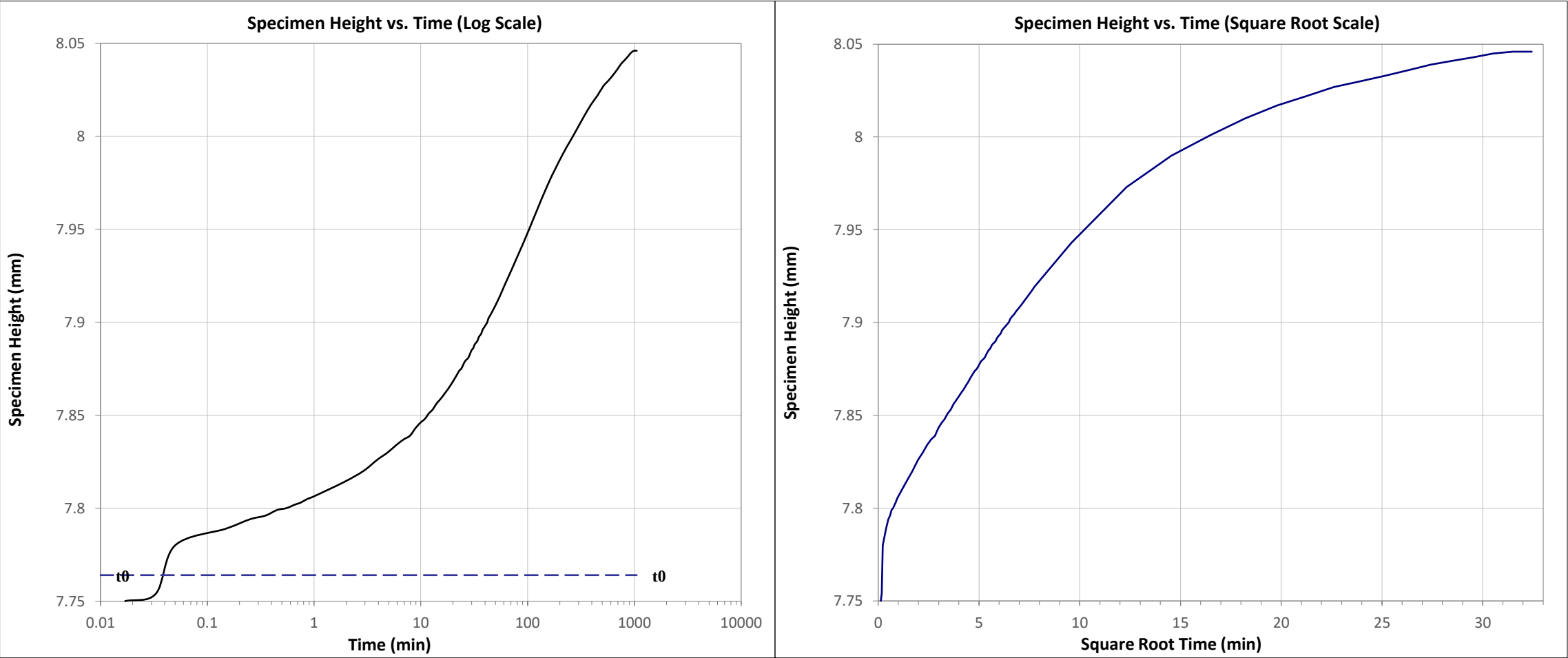
Source	BH-005 3.5-3.85m	Stage Load (kPa)	200
Report No.	S96731-CON	Stage (kPa)	800 - 200
Lab No.	S96731	Oedometer Rig No.	3



One-Dimensional Consolidation Report - Stage 10



Source	BH-005 3.5-3.85m	Stage Load (kPa)	50
Report No.	S96731-CON	Stage (kPa)	200 - 50
Lab No.	S96731	Oedometer Rig No.	3

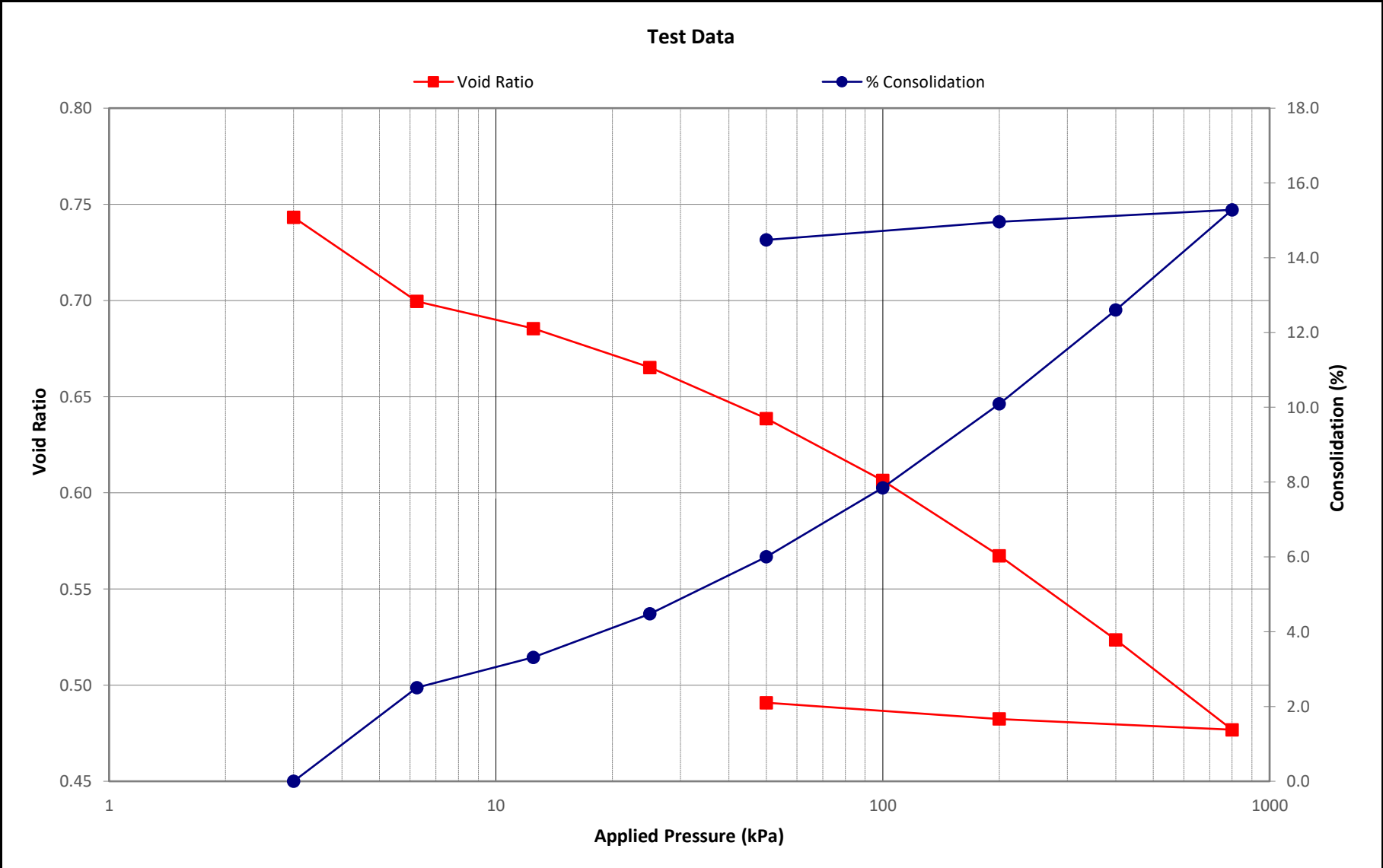


One-Dimensional Consolidation Report

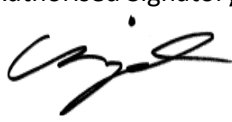
Client	WSP Australia Pty Ltd	Source	BH-006 12.5-12.7m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96742-CON
Job No.	S24245-1	Lab No.	S96742

Test Procedure	AS 1289.6.6.1 Determination of the one-dimensional consolidation properties of a soil - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	9/06/2024

Specimen Type	Undisturbed	Initial Voids Ratio	0.743	Particle Density (t/m ³)	2.49
Test Condition	Inundated on load	Initial Degree of Saturation (%)	110.1	Dry Density (t/m ³)	1.43
Post-Test Observations	-	Initial Height (mm)	19.99	Final Height (mm)	17.10
Particle Density Method	AS 1289.3.5.1 Batch	Initial Moisture Content (%)	32.8	Final Moisture Content (%)	25.0



Notes	
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--	---

One-Dimensional Consolidation Report

Client	WSP Australia Pty Ltd	Source Sample Description Report No. Lab No.	BH-006 12.5-12.7m
Address	Level 27, 680 George St, Sydney NSW 2000		Silty CLAY
Project	PS212776 - Mac Point Geotechnical Investigation		S96742-CON
Job No.	S24245-1		S96742

Test Procedure	AS 1289.6.6.1 Determination of the one-dimensional consolidation properties of a soil - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	9/06/2024

Test Data

[illegible]

Notes	
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NATA Accredited Laboratory Number: 14874

Authorised Signatory:

Date:

[Signature]

14/06/2024

Chris Lloyd

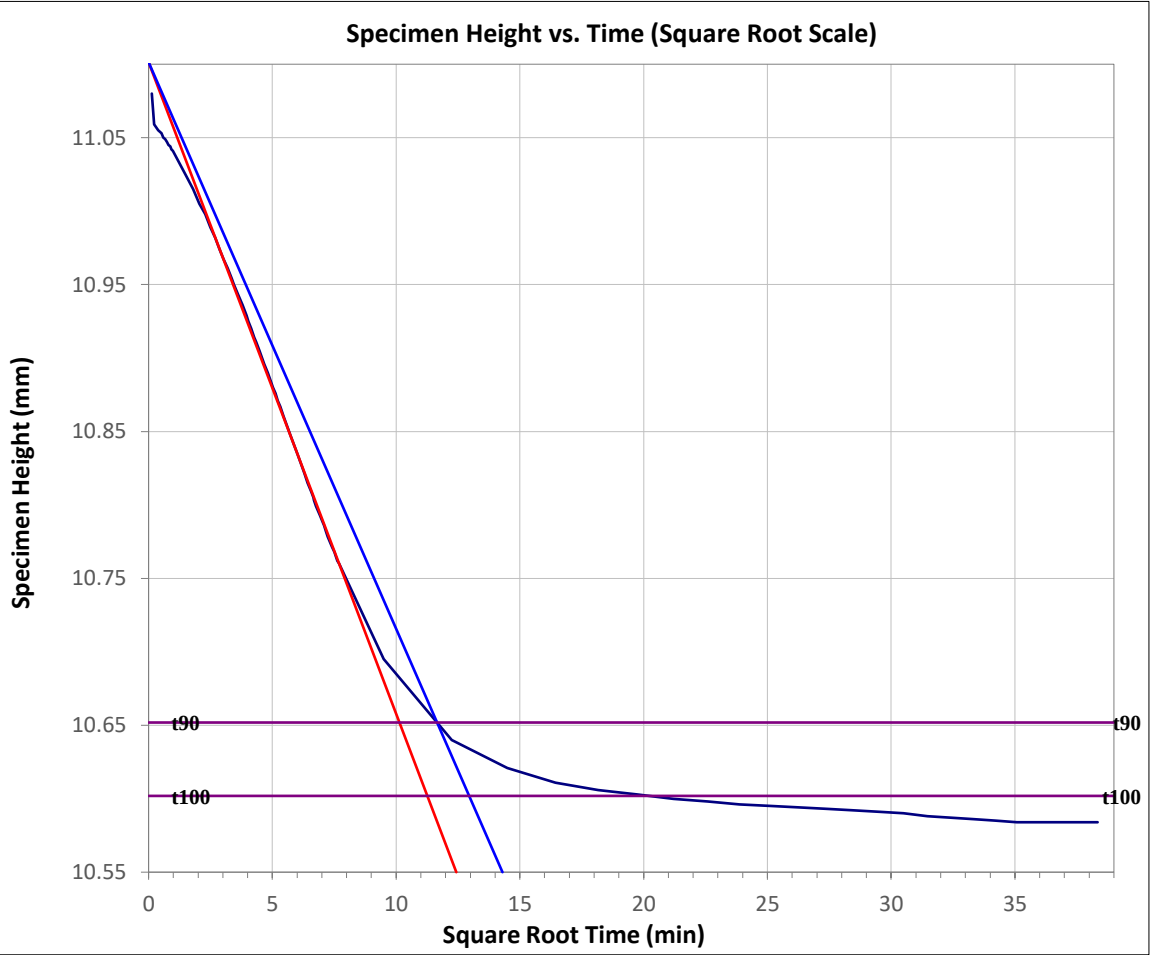
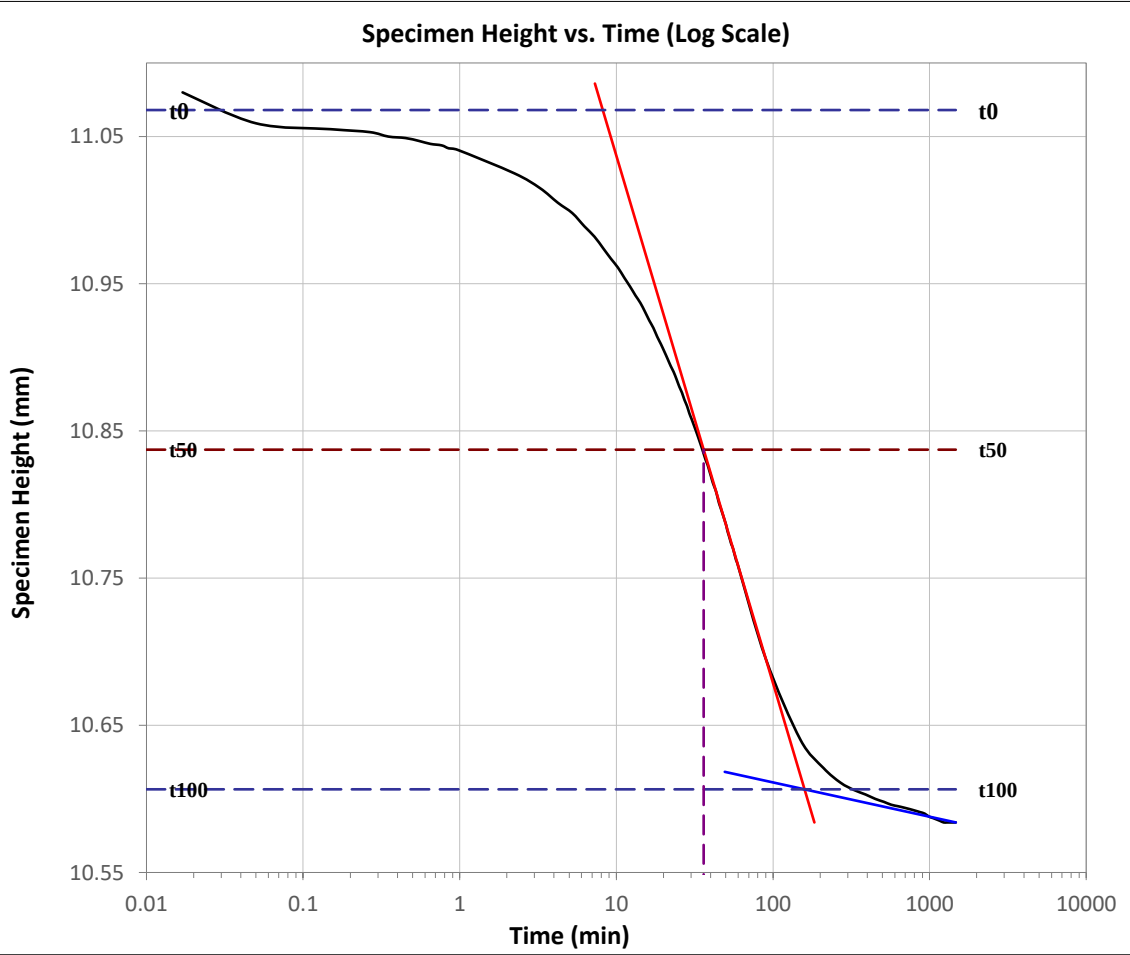


Macquarie Geotechnical
14 Carter Street
Lidcombe NSW 2141

One-Dimensional Consolidation Report - Stage 1



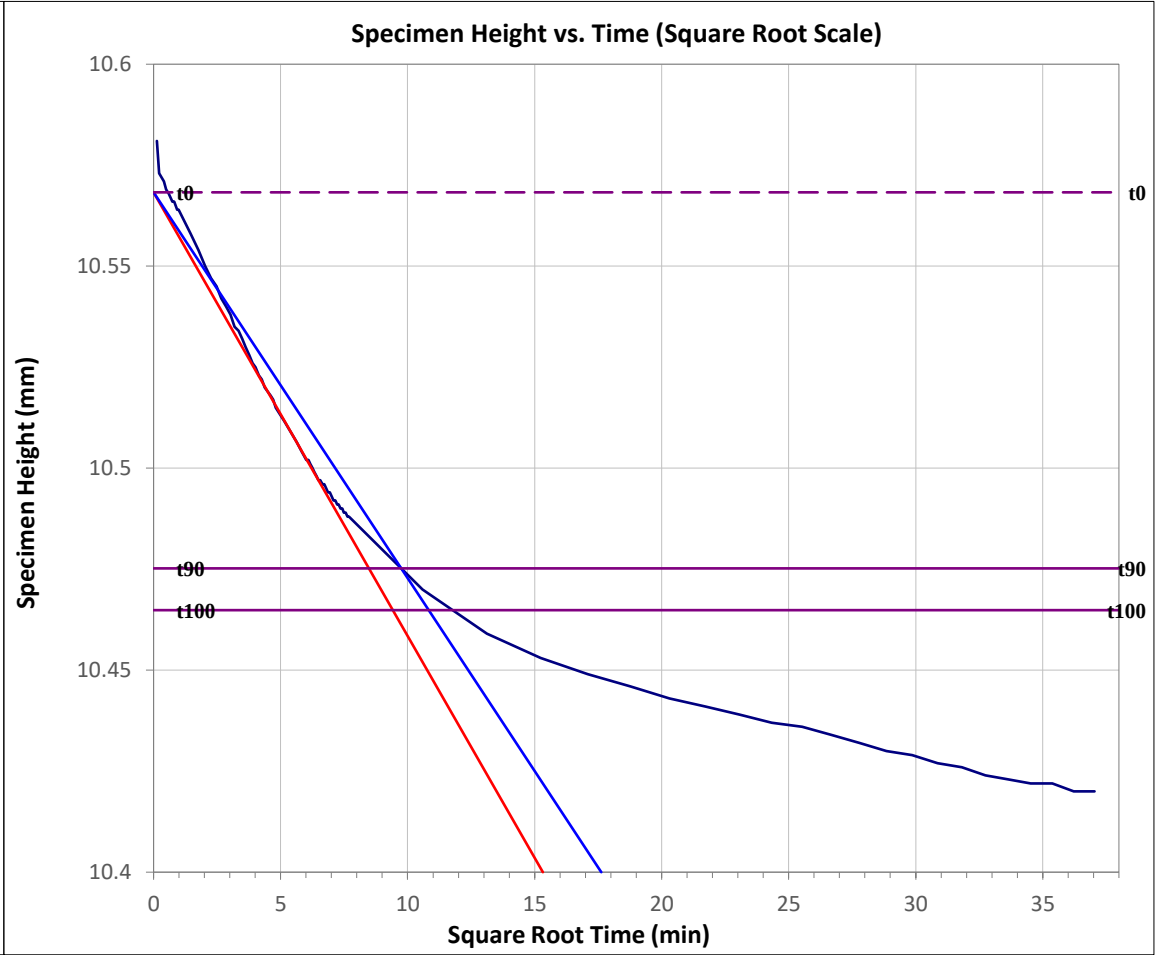
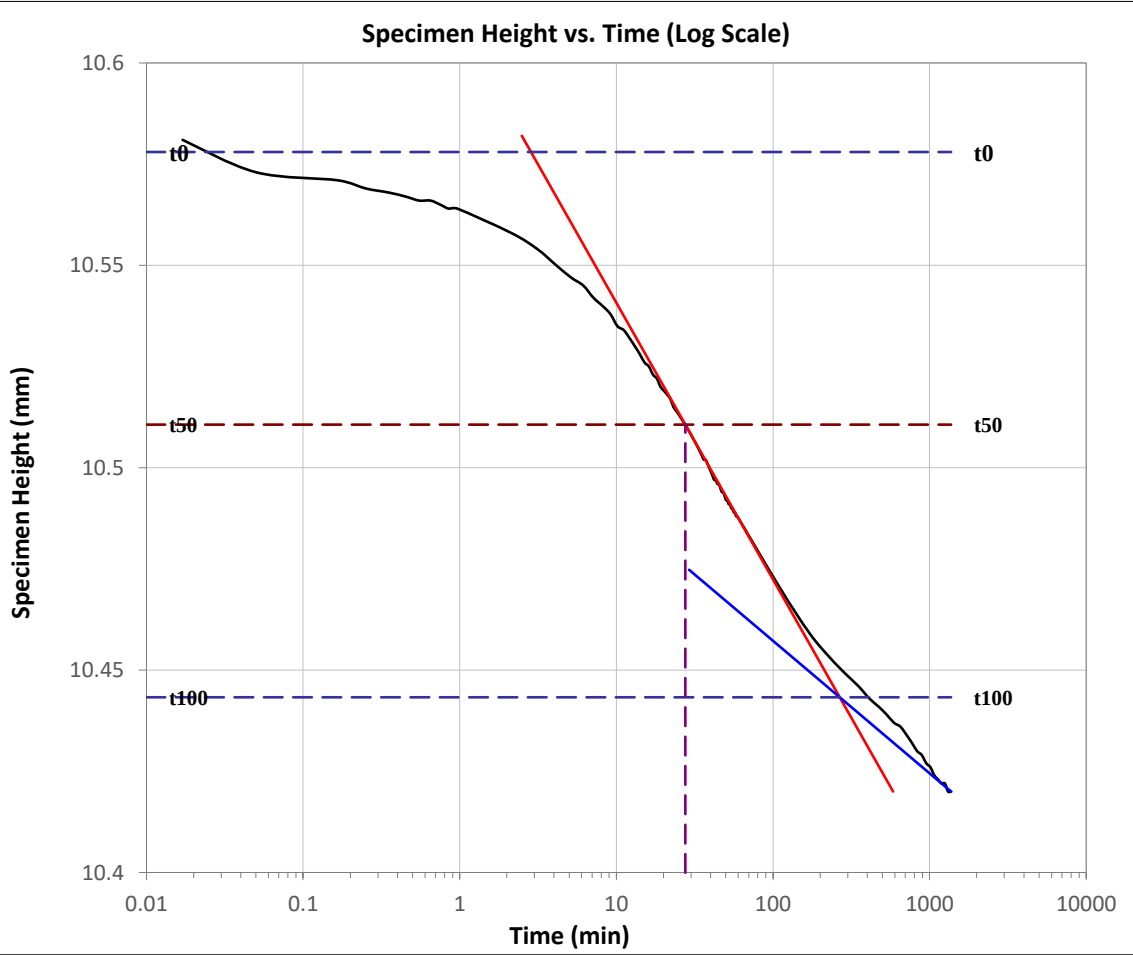
Source	BH-006 12.5-12.7m	Stage Load (kPa)	6.25
Report No.	S96742-CON	Stage (kPa)	3 - 6.25
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 2



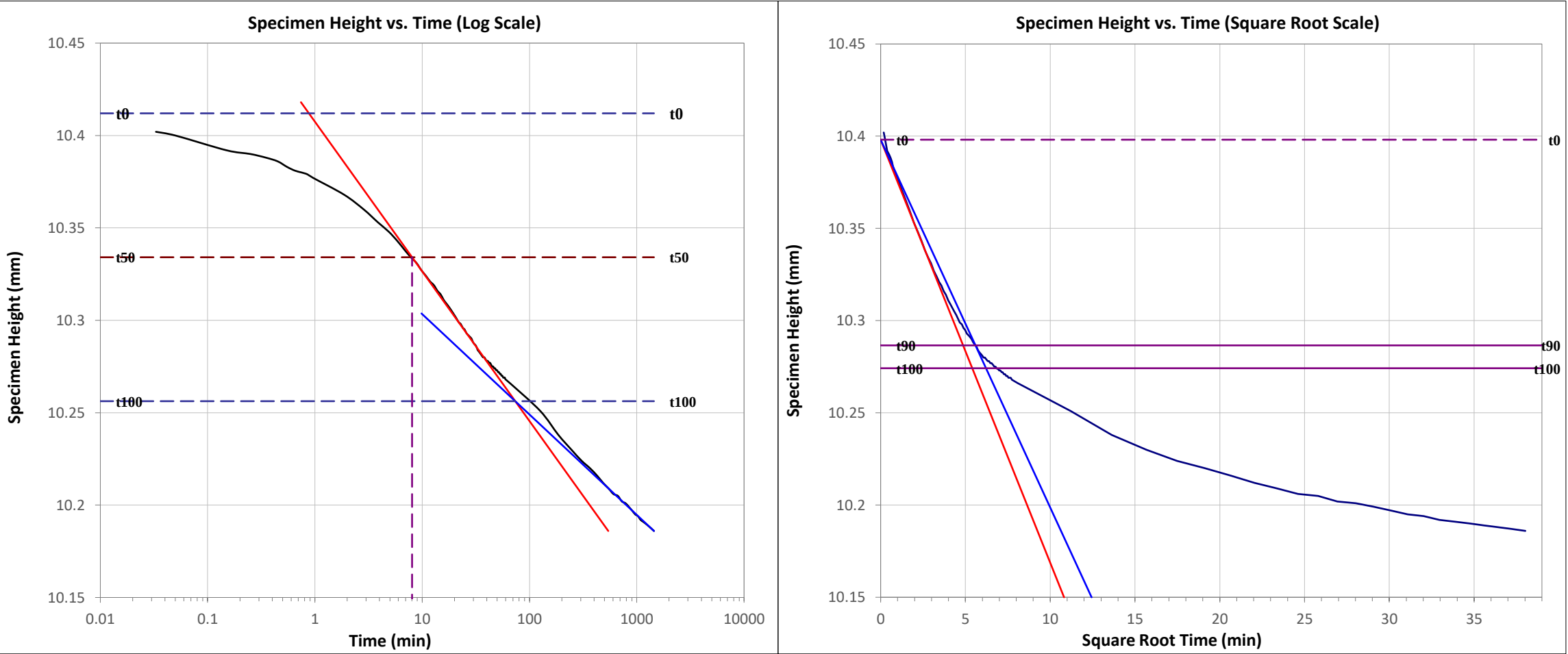
Source	BH-006 12.5-12.7m	Stage Load (kPa)	12.5
Report No.	S96742-CON	Stage (kPa)	6.25 - 12.5
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 3



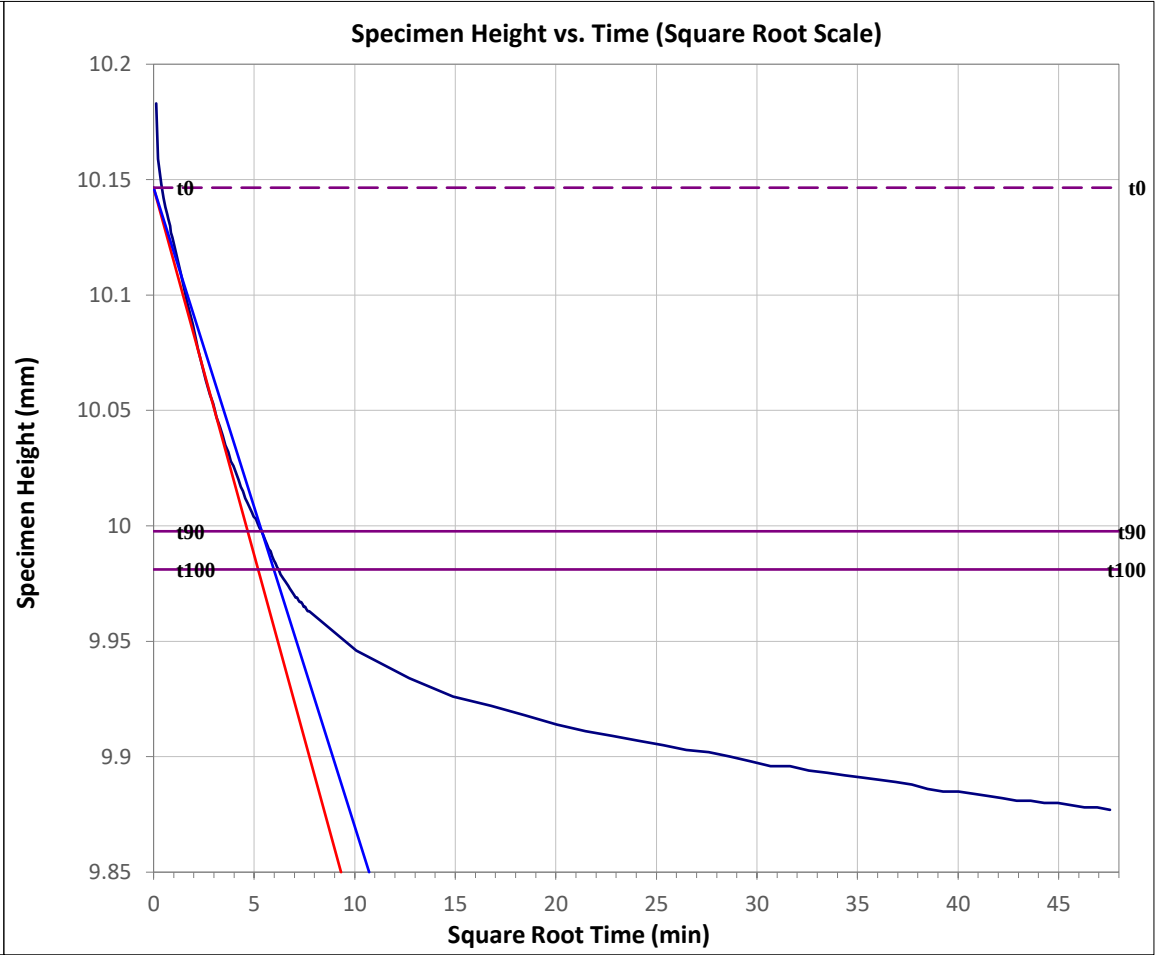
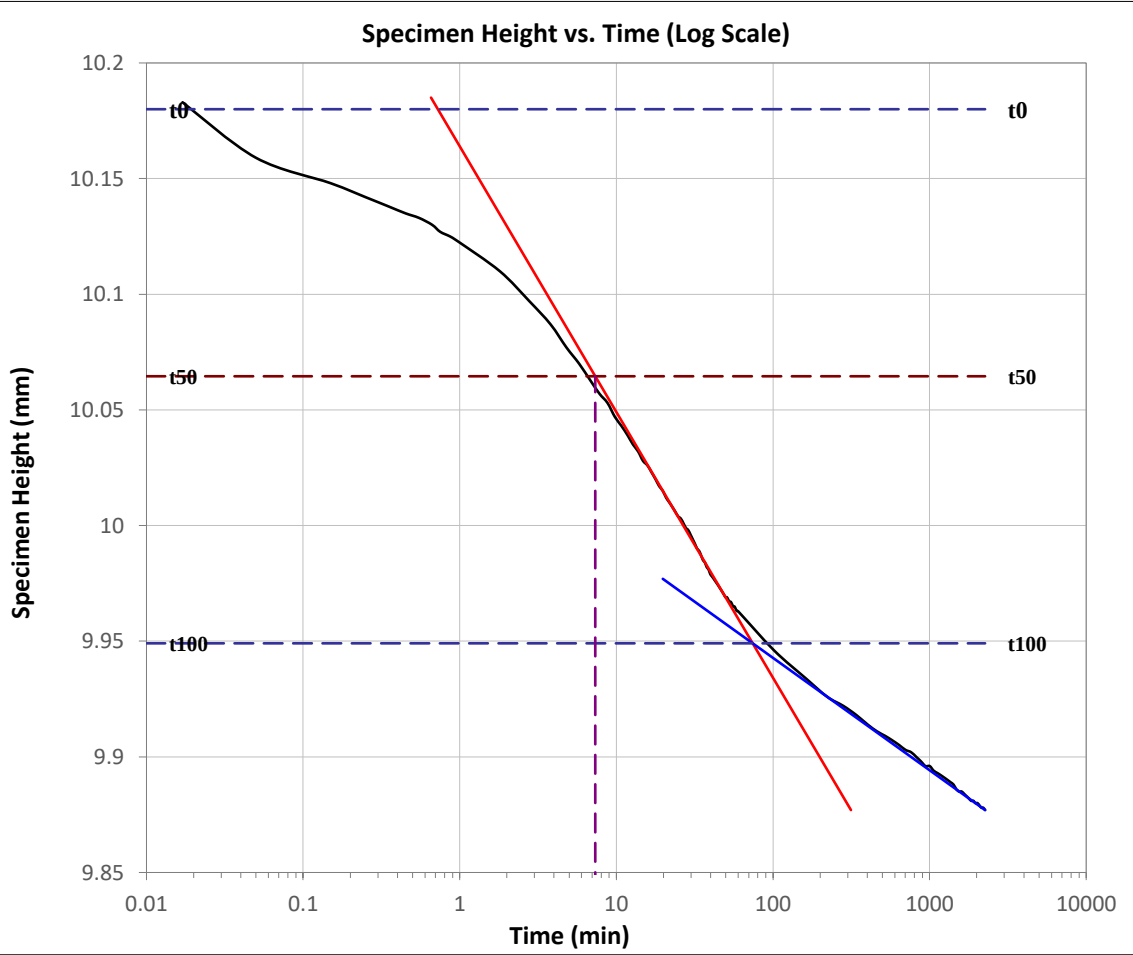
Source	BH-006 12.5-12.7m	Stage Load (kPa)	25
Report No.	S96742-CON	Stage (kPa)	12.5 - 25
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 4



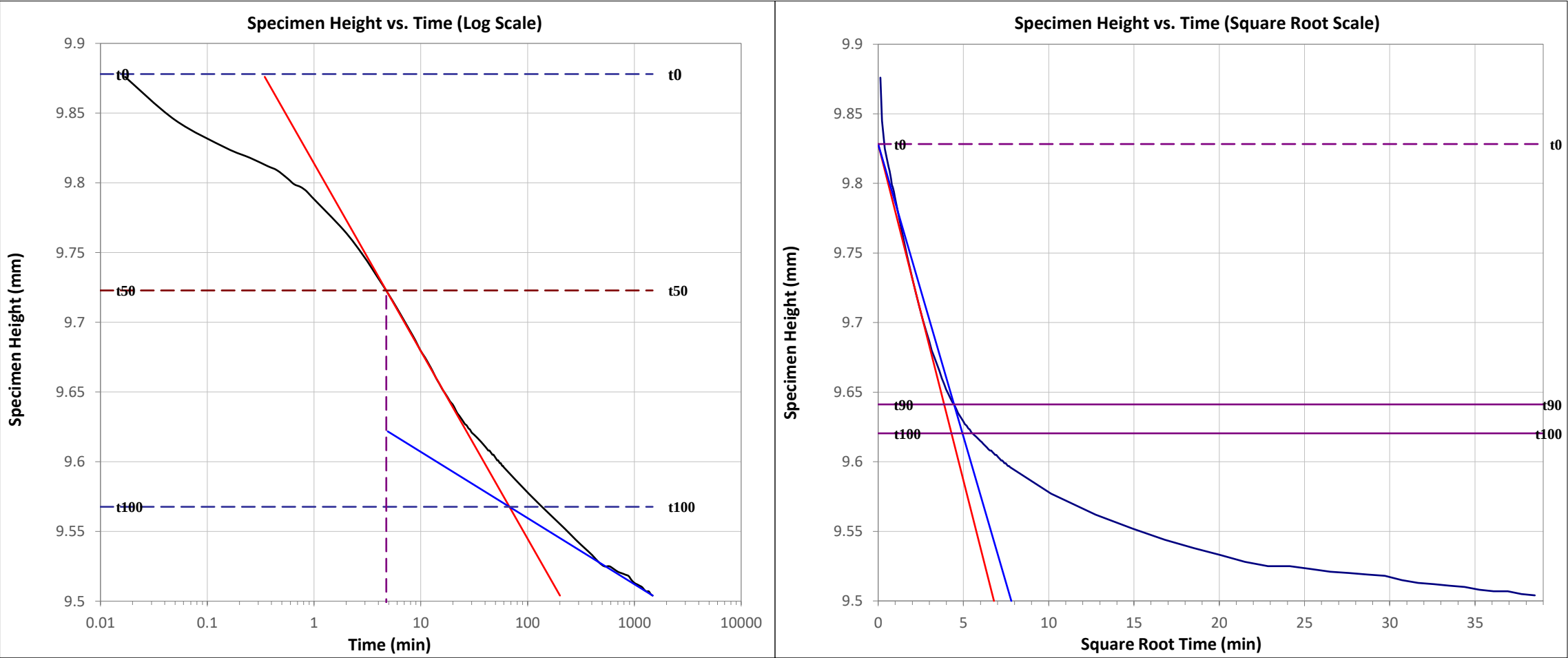
Source	BH-006 12.5-12.7m	Stage Load (kPa)	50
Report No.	S96742-CON	Stage (kPa)	25 - 50
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 5

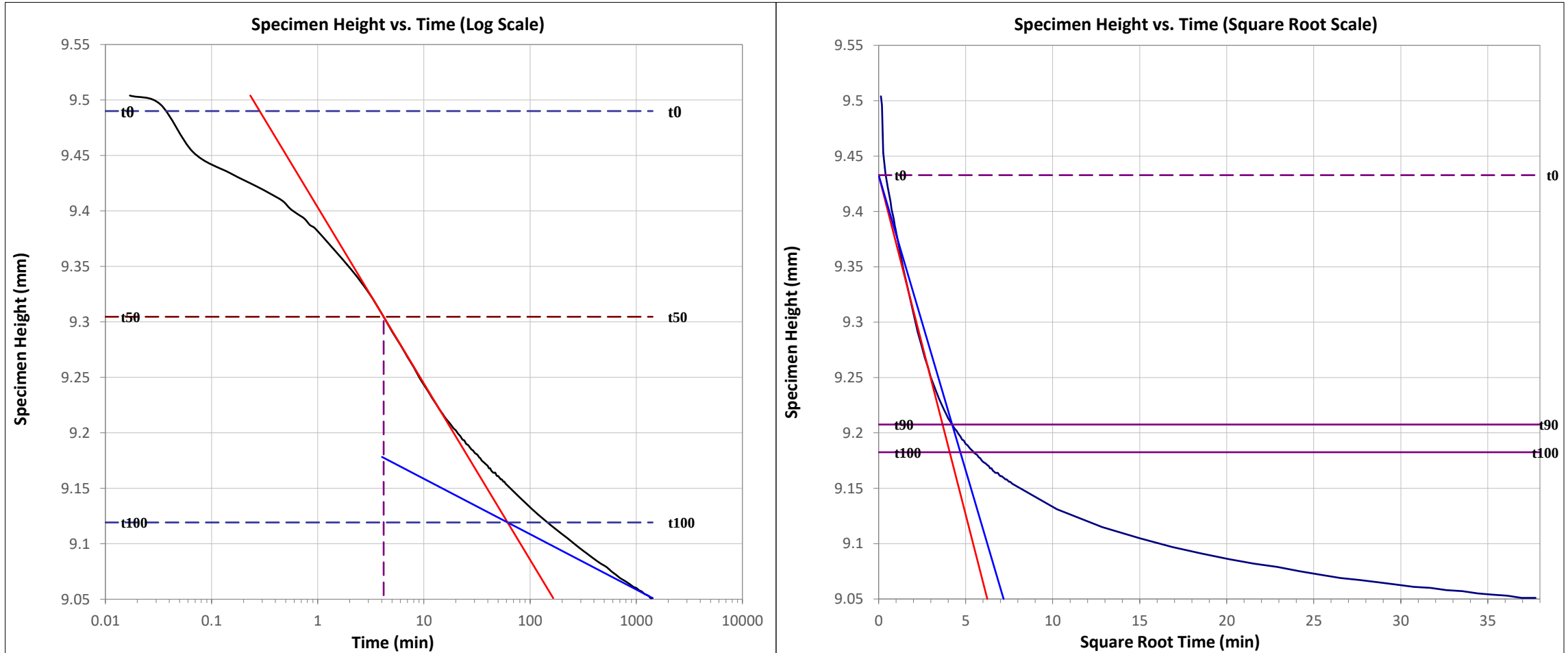


Source	BH-006 12.5-12.7m	Stage Load (kPa)	100
Report No.	S96742-CON	Stage (kPa)	50 - 100
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 6

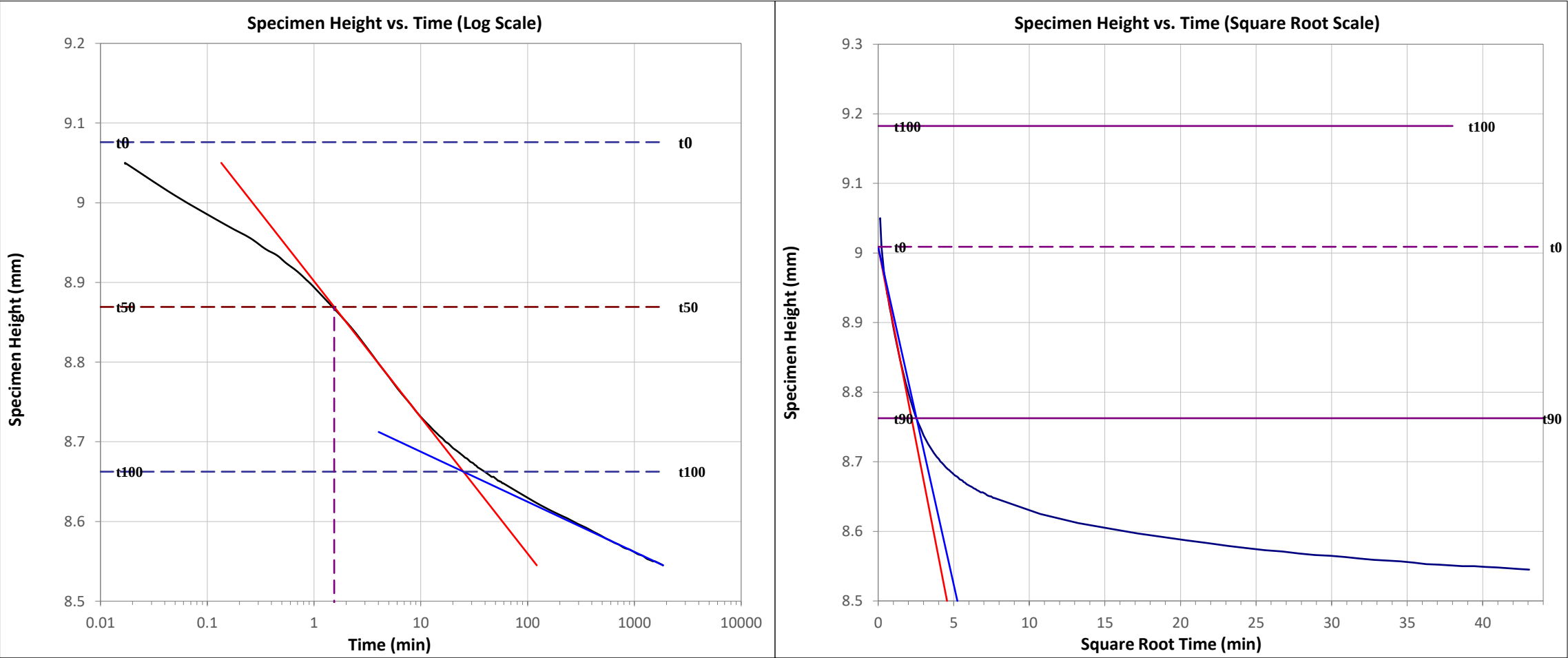
Source	BH-006 12.5-12.7m	Stage Load (kPa)	200
Report No.	S96742-CON	Stage (kPa)	100 - 200
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 7



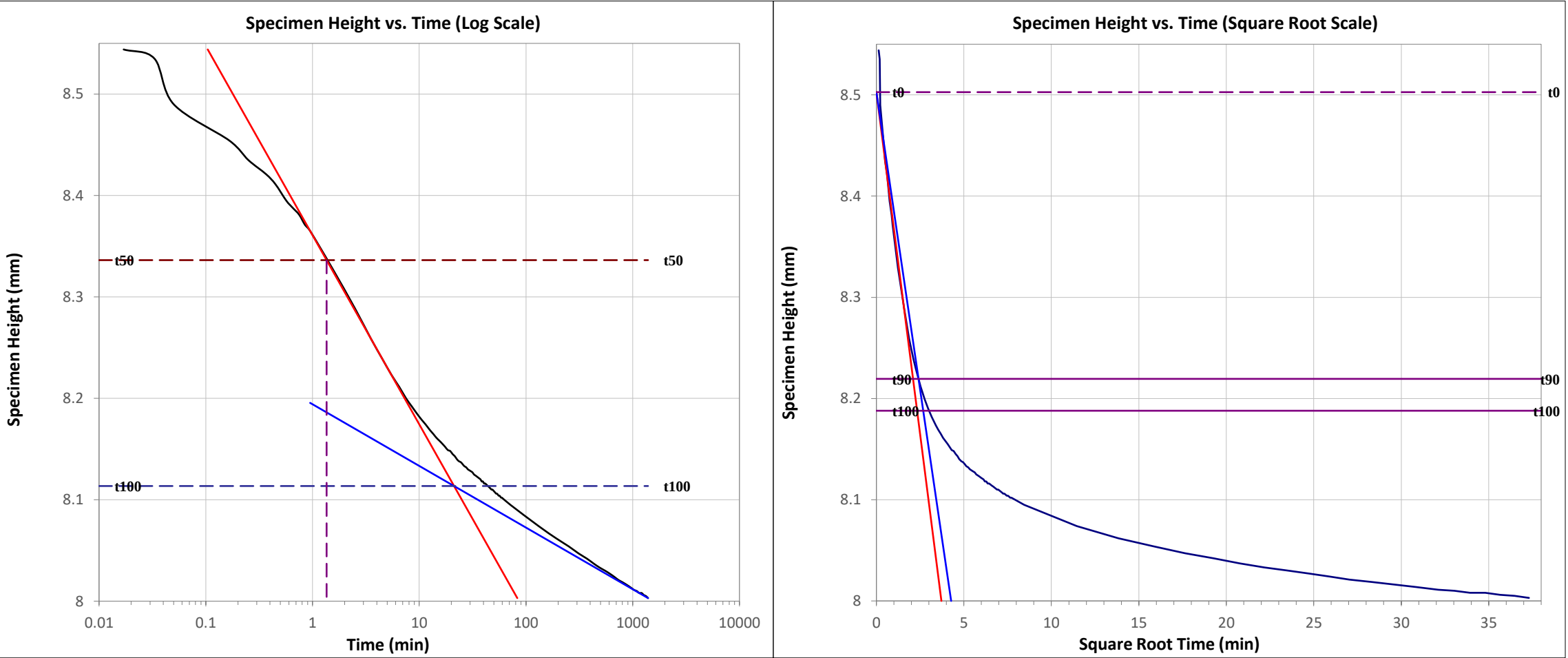
Source	BH-006 12.5-12.7m	Stage Load (kPa)	400
Report No.	S96742-CON	Stage (kPa)	200 - 400
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 8



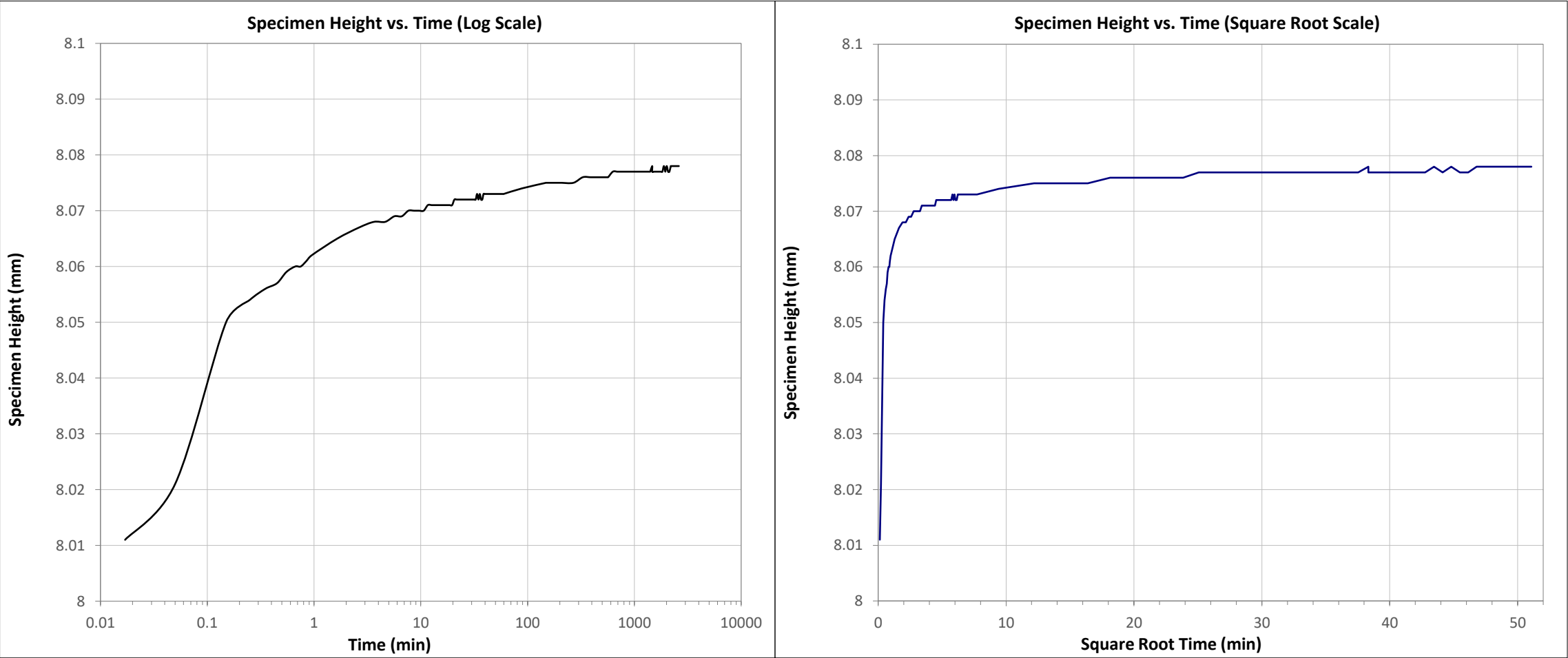
Source	BH-006 12.5-12.7m	Stage Load (kPa)	800
Report No.	S96742-CON	Stage (kPa)	400 - 800
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 9



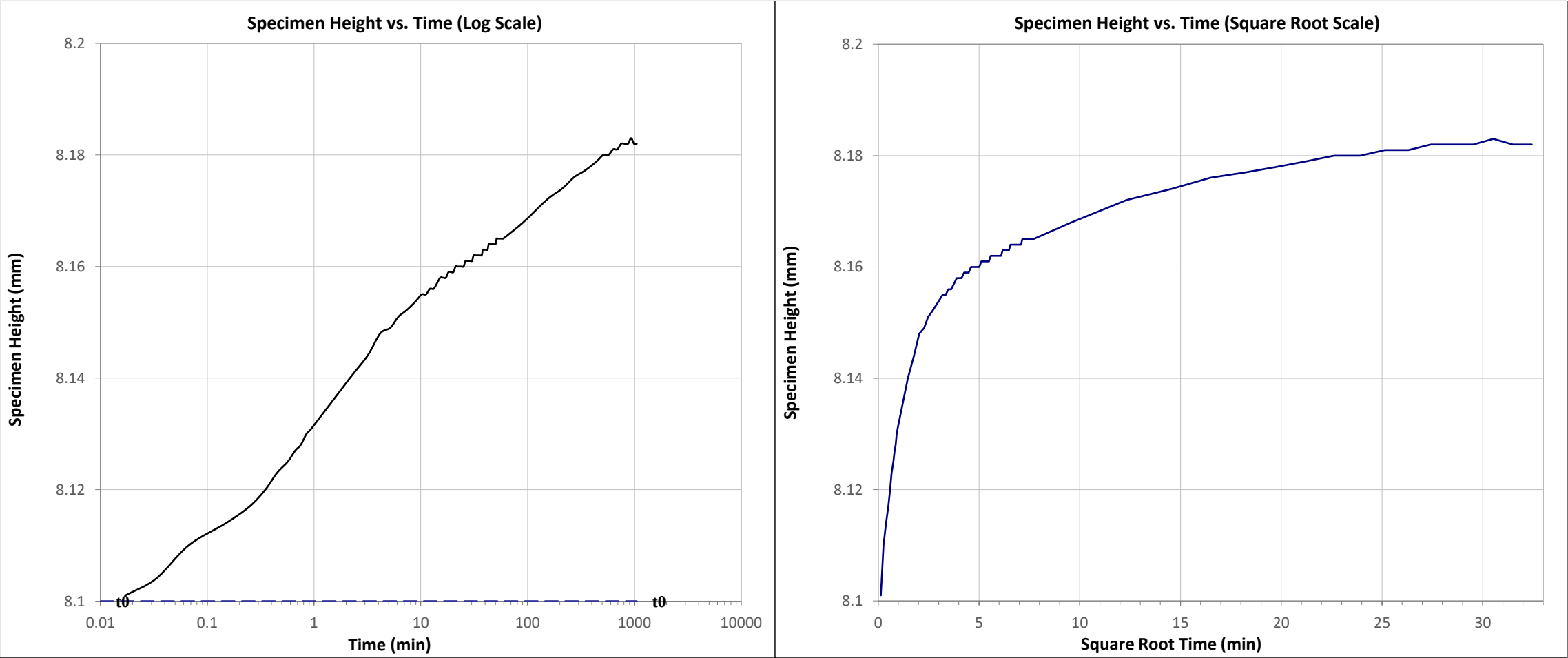
Source	BH-006 12.5-12.7m	Stage Load (kPa)	200
Report No.	S96742-CON	Stage (kPa)	800 - 200
Lab No.	S96742	Oedometer Rig No.	2



One-Dimensional Consolidation Report - Stage 10



Source	BH-006 12.5-12.7m	Stage Load (kPa)	50
Report No.	S96742-CON	Stage (kPa)	200 - 50
Lab No.	S96742	Oedometer Rig No.	2

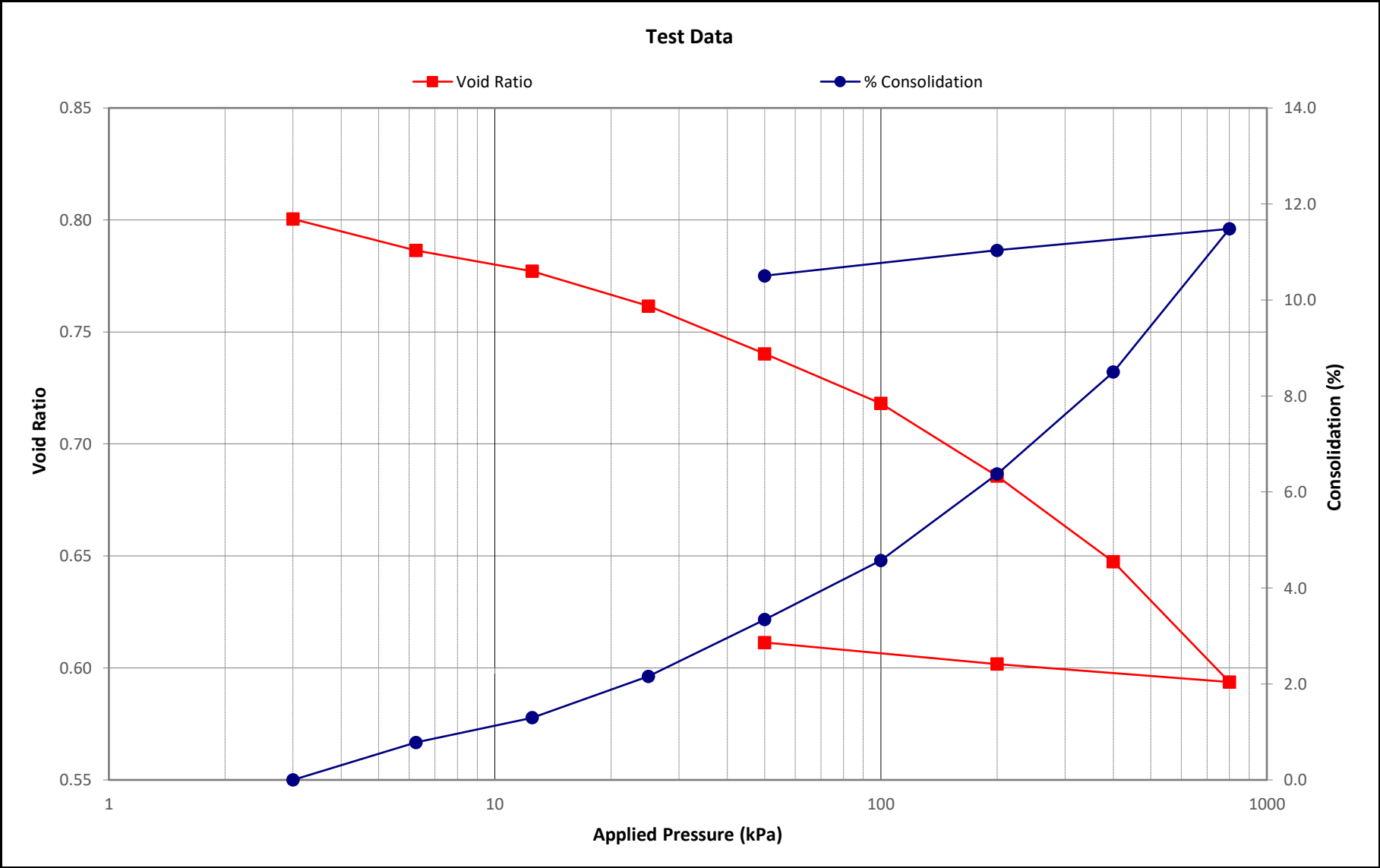


One-Dimensional Consolidation Report

Client	WSP Australia Pty Ltd	Source	BH-014 4-4.5m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Gravelly Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96779-CON
Job No.	S24245-1	Lab No.	S96779

Test Procedure	AS 1289.6.6.1 Determination of the one-dimensional consolidation properties of a soil - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	10/06/2024

Specimen Type	Undisturbed	Initial Voids Ratio	0.800	Particle Density (t/m ³)	2.49
Test Condition	Inundated on load	Initial Degree of Saturation (%)	96.3	Dry Density (t/m ³)	1.38
Post-Test Observations	-	Initial Height (mm)	19.95	Final Height (mm)	17.86
Particle Density Method	AS 1289.3.5.1	Initial Moisture Content (%)	30.9	Final Moisture Content (%)	26.4



Notes	
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One-Dimensional Consolidation Report

Client	WSP Australia Pty Ltd	Source	BH-014 4-4.5m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Gravelly Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96779-CON
Job No.	S24245-1	Lab No.	S96779

Test Procedure	AS 1289.6.6.1 Determination of the one-dimensional consolidation properties of a soil - Standard method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	10/06/2024

Test Data

[illegible]

Notes	
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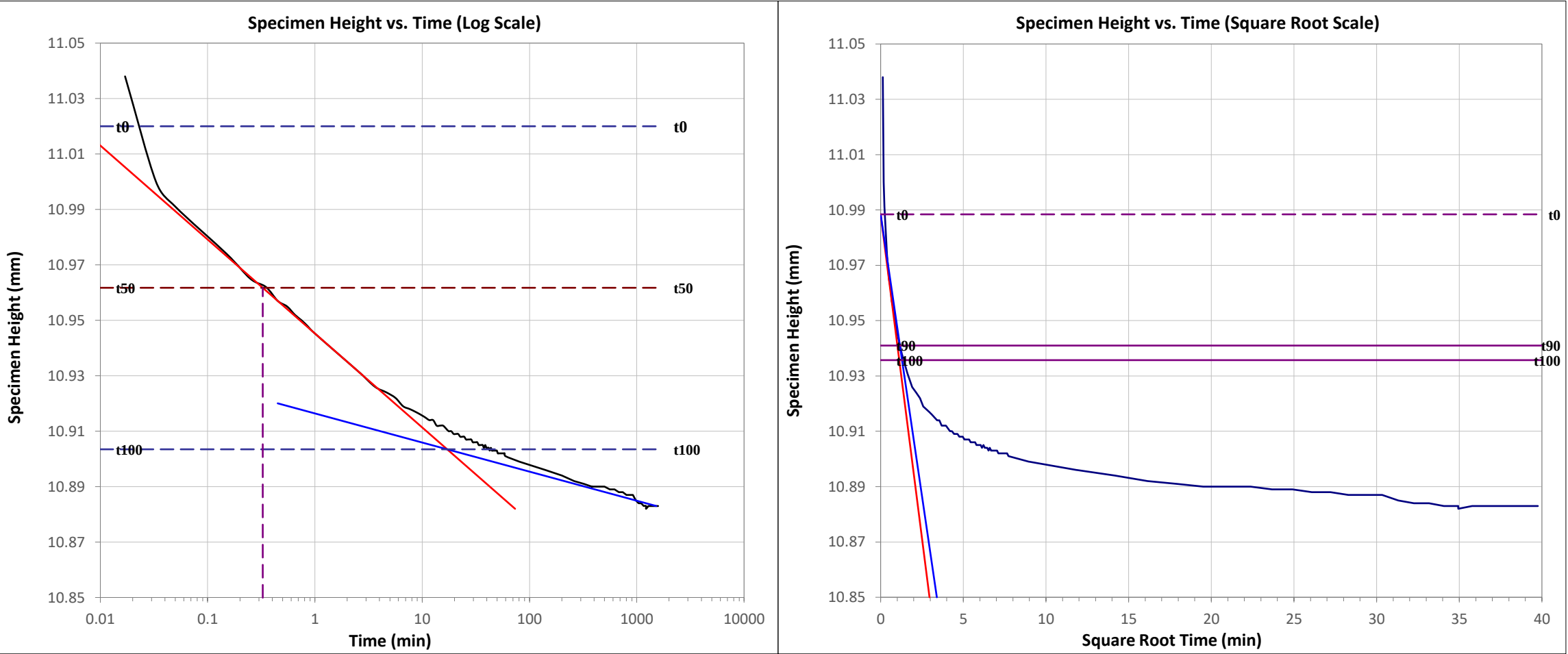


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One-Dimensional Consolidation Report - Stage 1



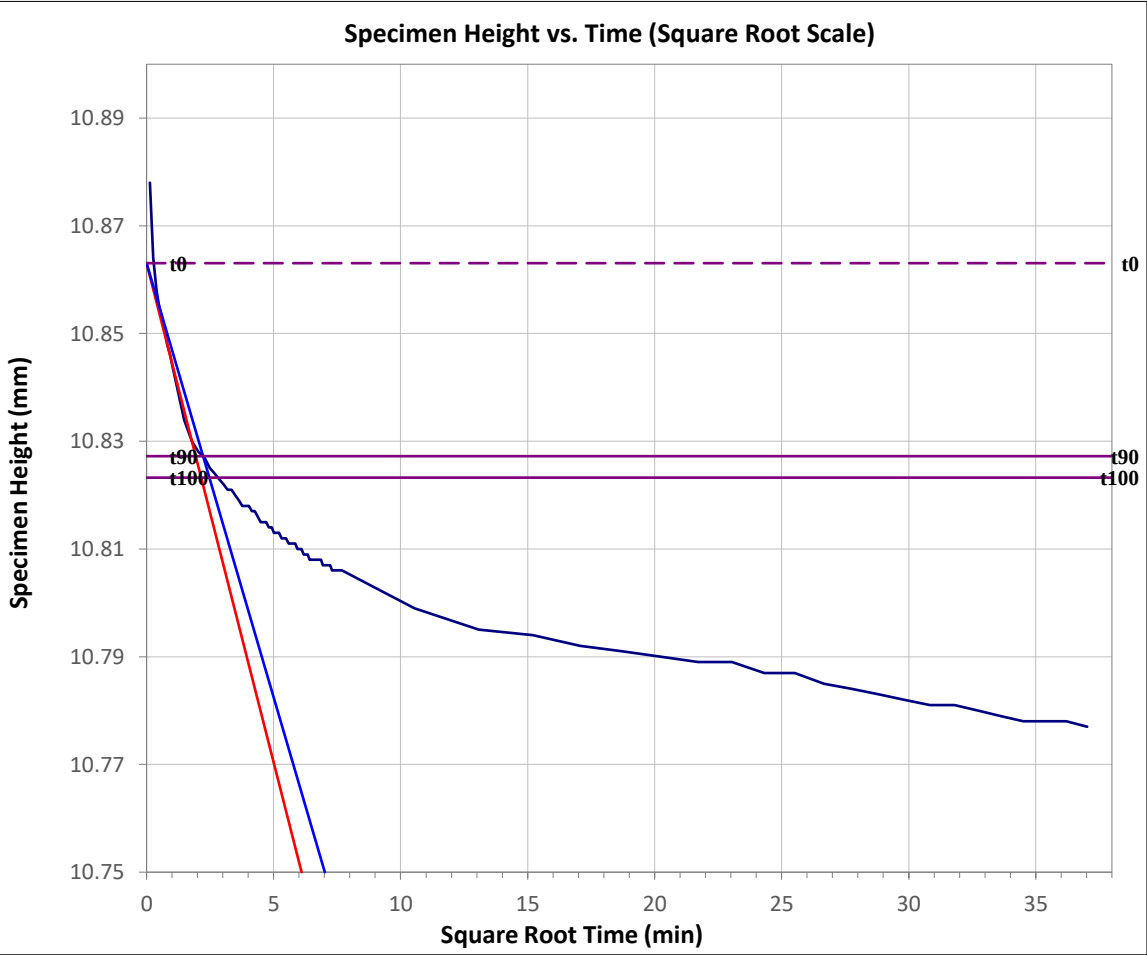
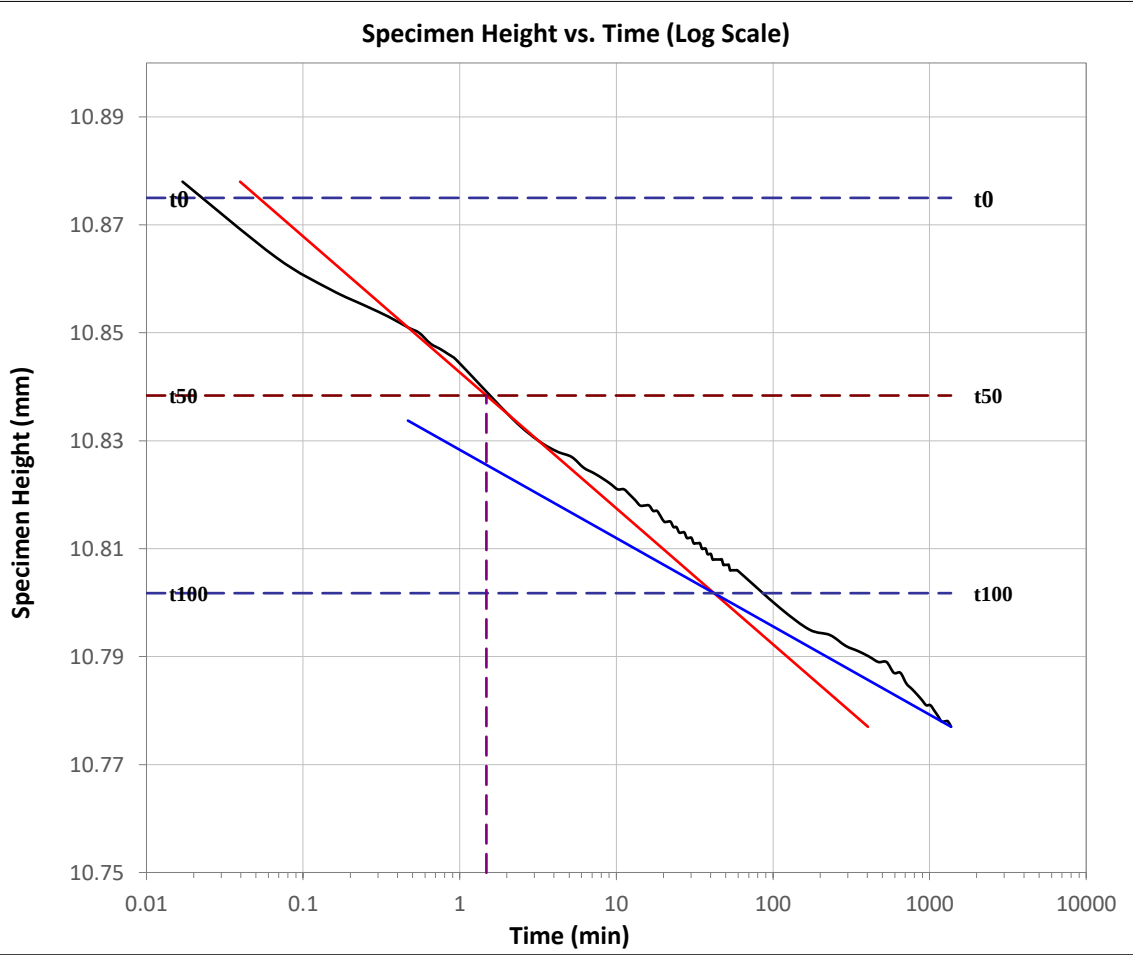
Source	BH-014 4-4.5m	Stage Load (kPa)	6.25
Report No.	S96779-CON	Stage (kPa)	3 - 6.25
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 2



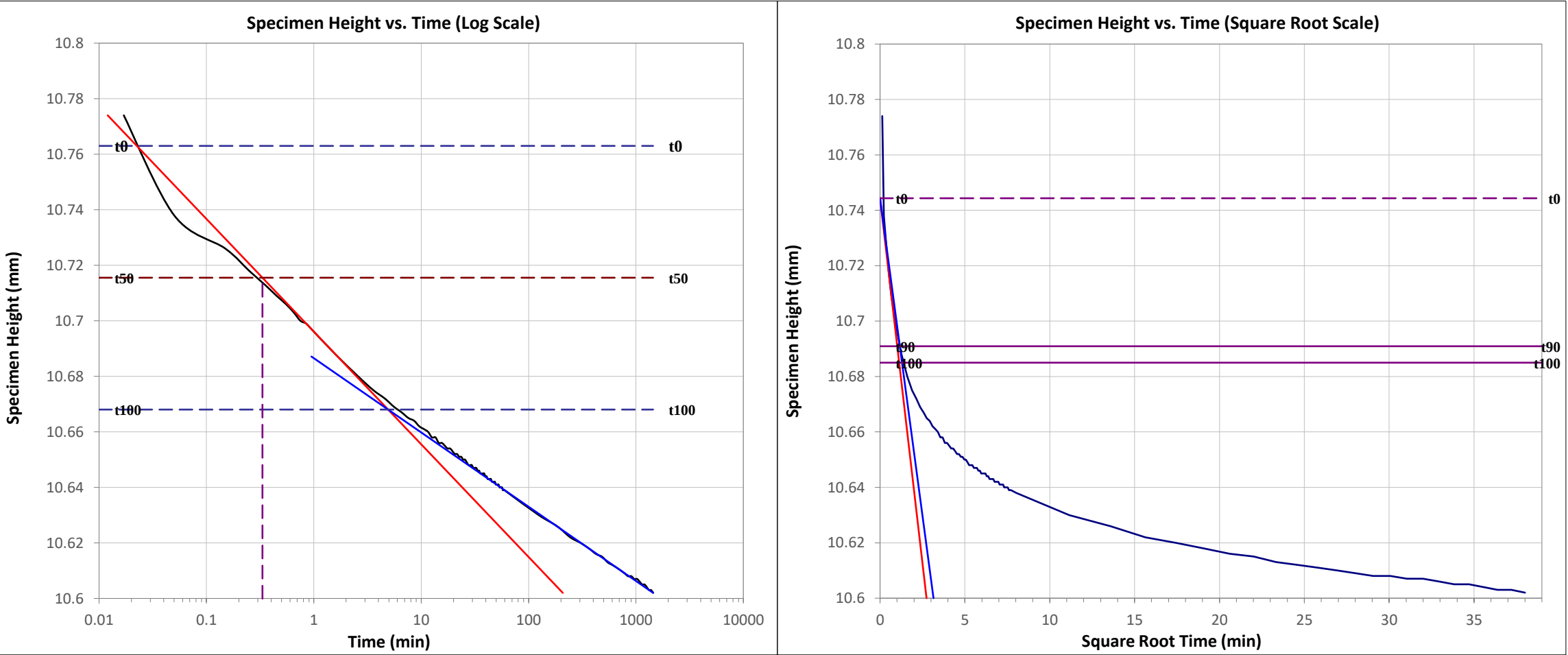
Source	BH-014 4-4.5m	Stage Load (kPa)	12.5
Report No.	S96779-CON	Stage (kPa)	6.25 - 12.5
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 3



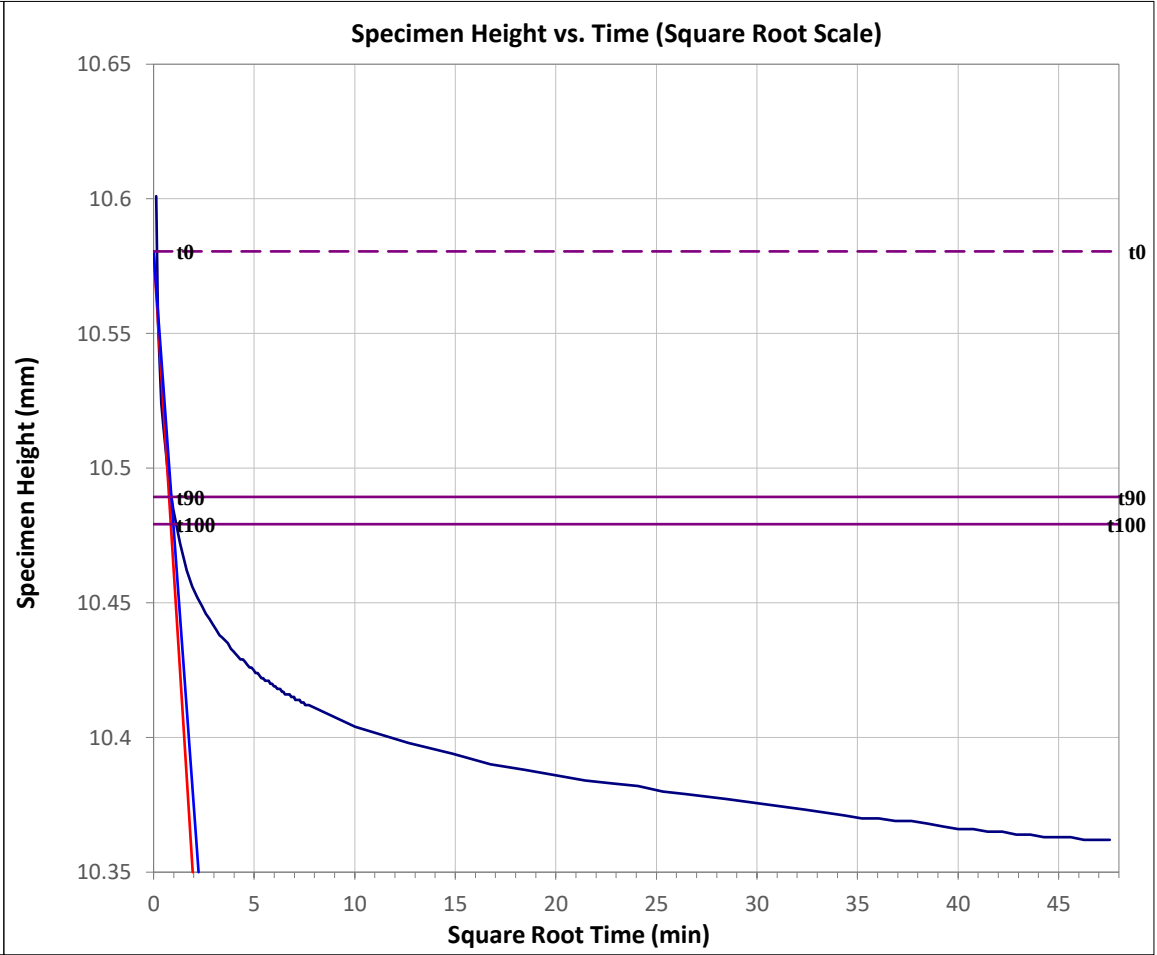
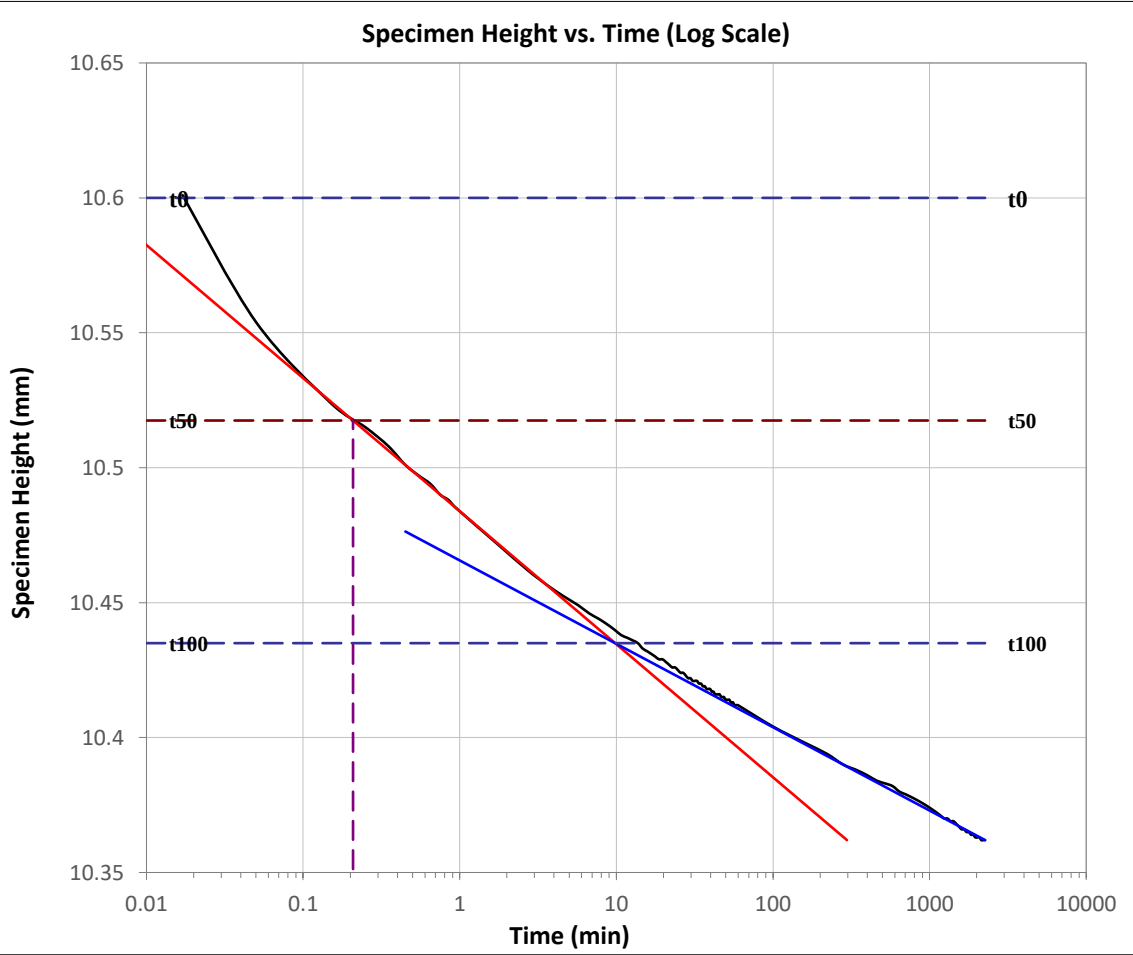
Source	BH-014 4-4.5m	Stage Load (kPa)	25
Report No.	S96779-CON	Stage (kPa)	12.5 - 25
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 4



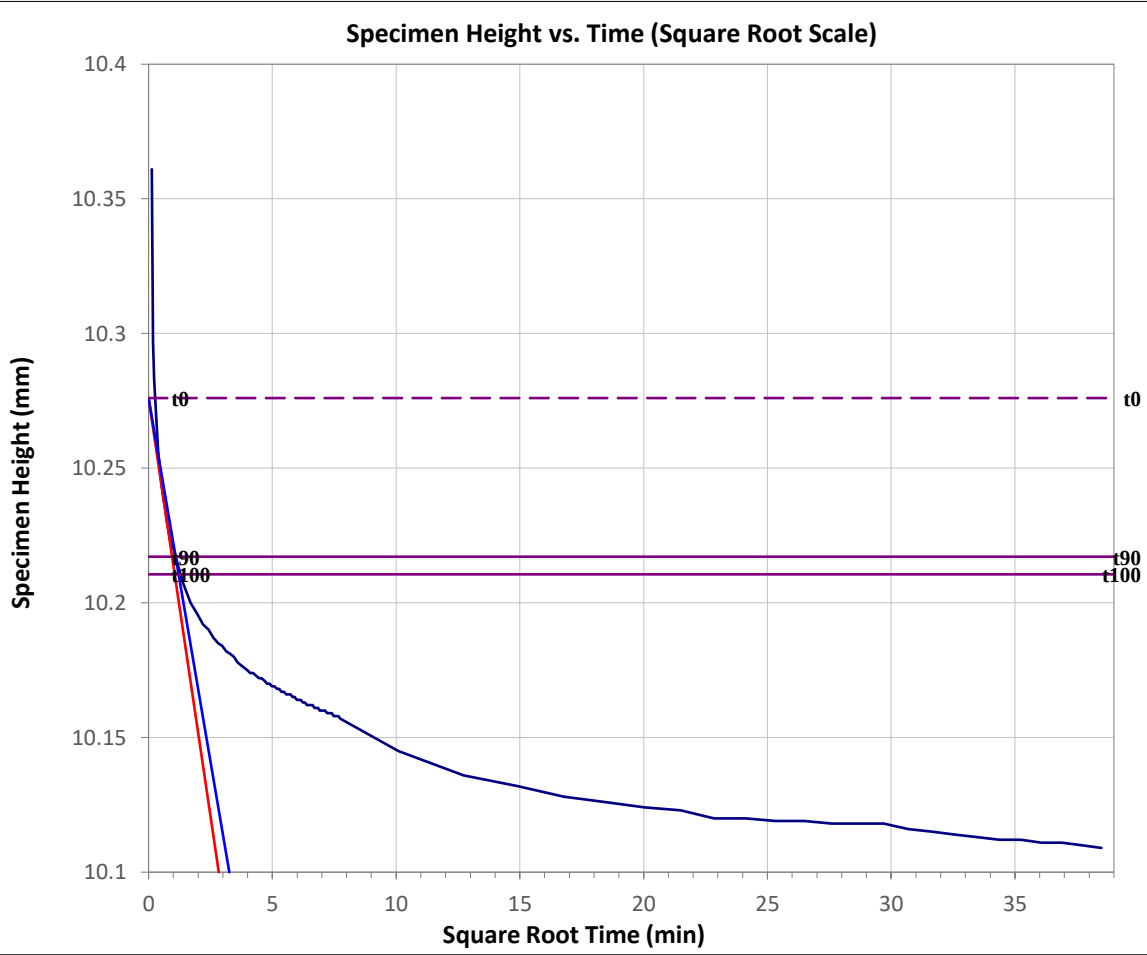
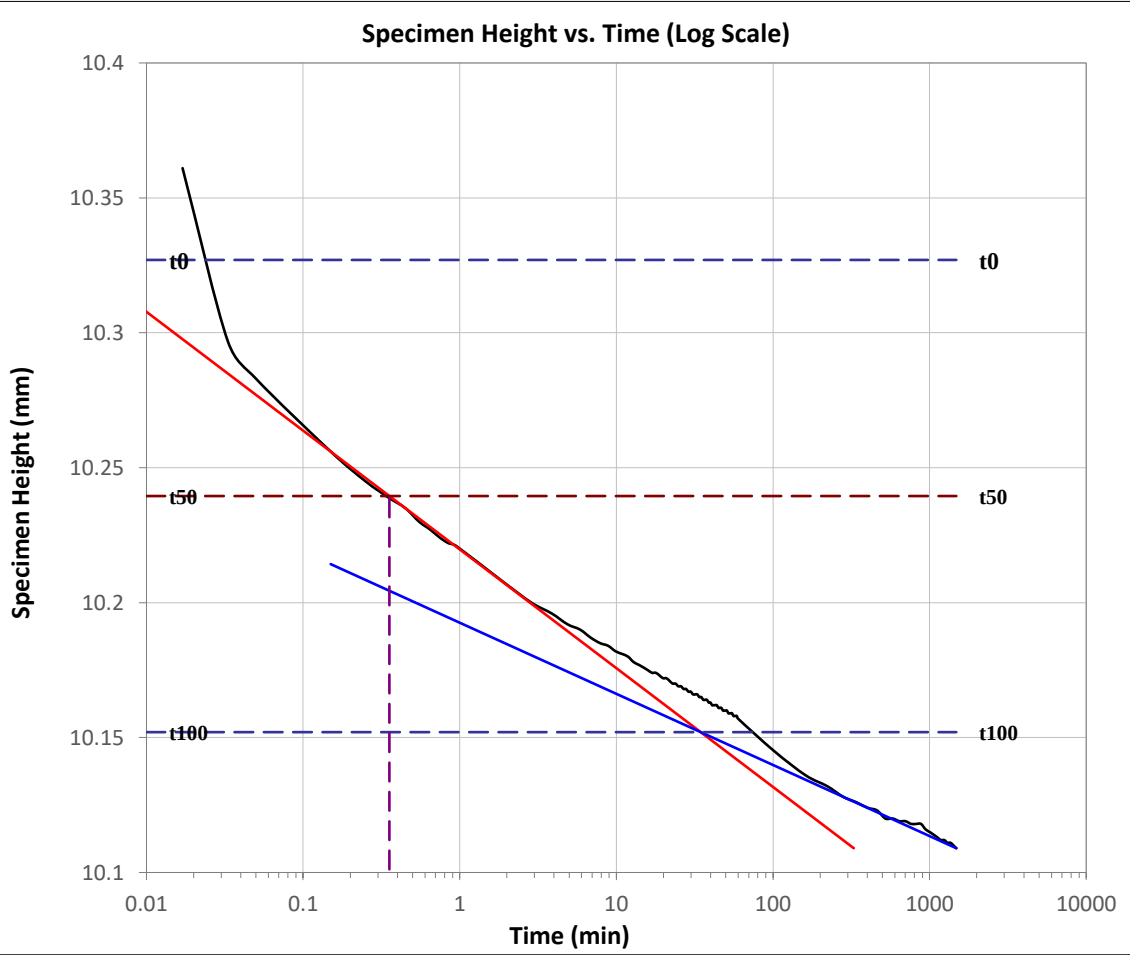
Source	BH-014 4-4.5m	Stage Load (kPa)	50
Report No.	S96779-CON	Stage (kPa)	25 - 50
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 5



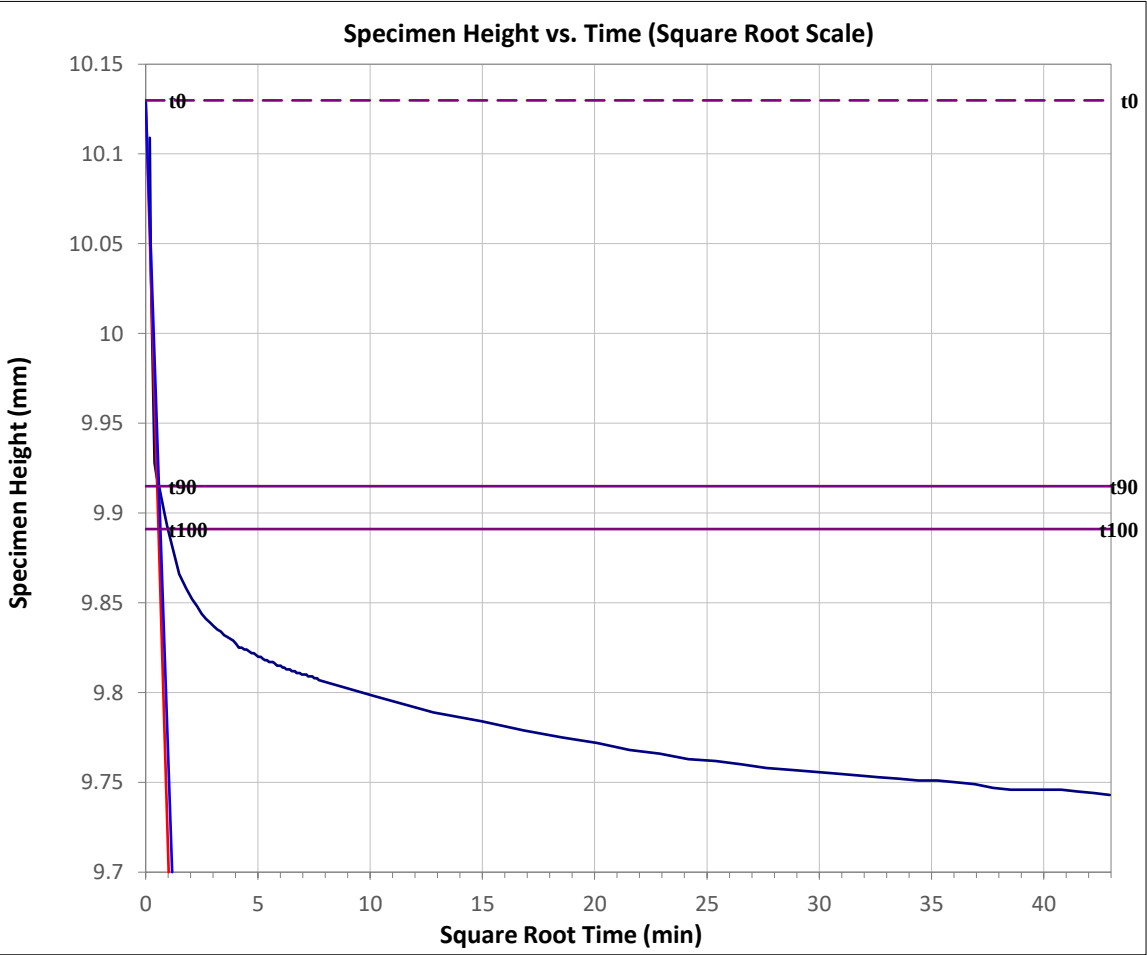
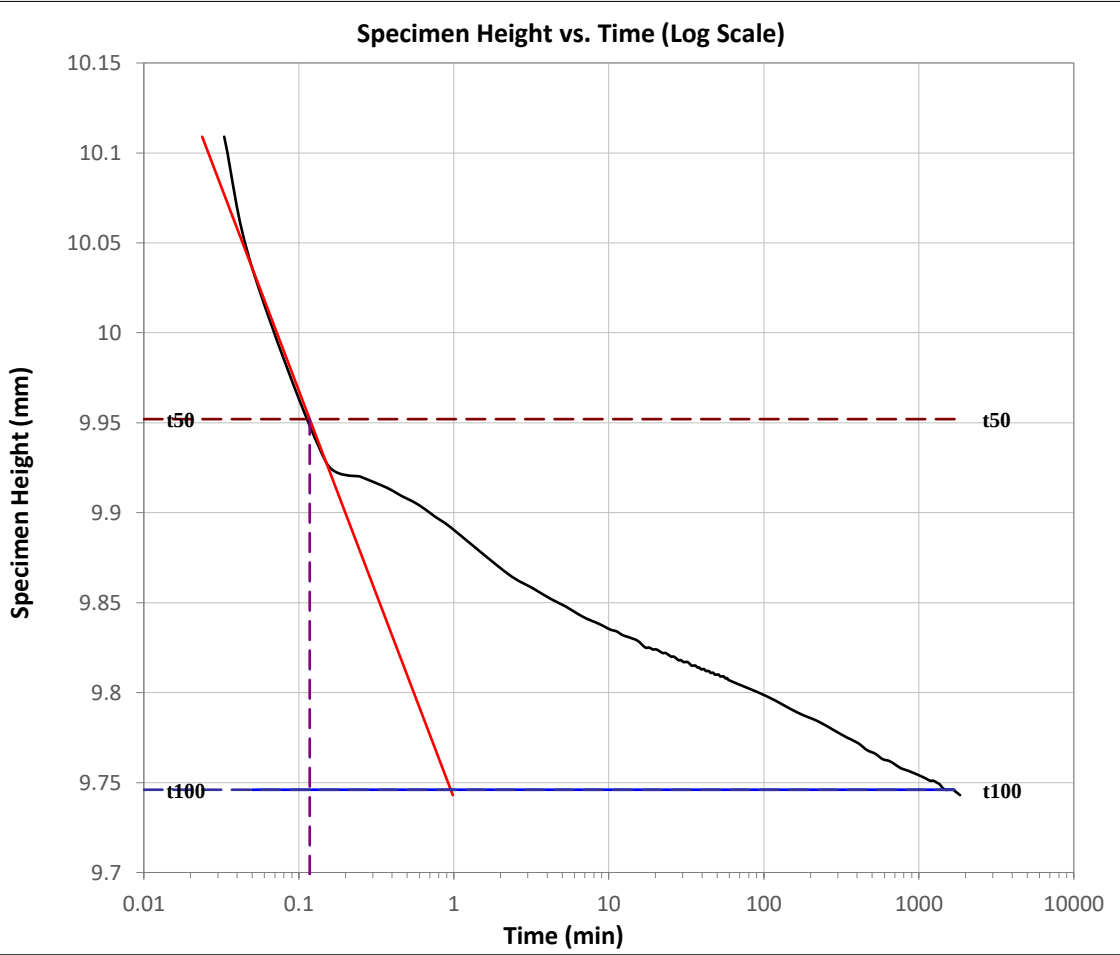
Source	BH-014 4-4.5m	Stage Load (kPa)	100
Report No.	S96779-CON	Stage (kPa)	50 - 100
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 6



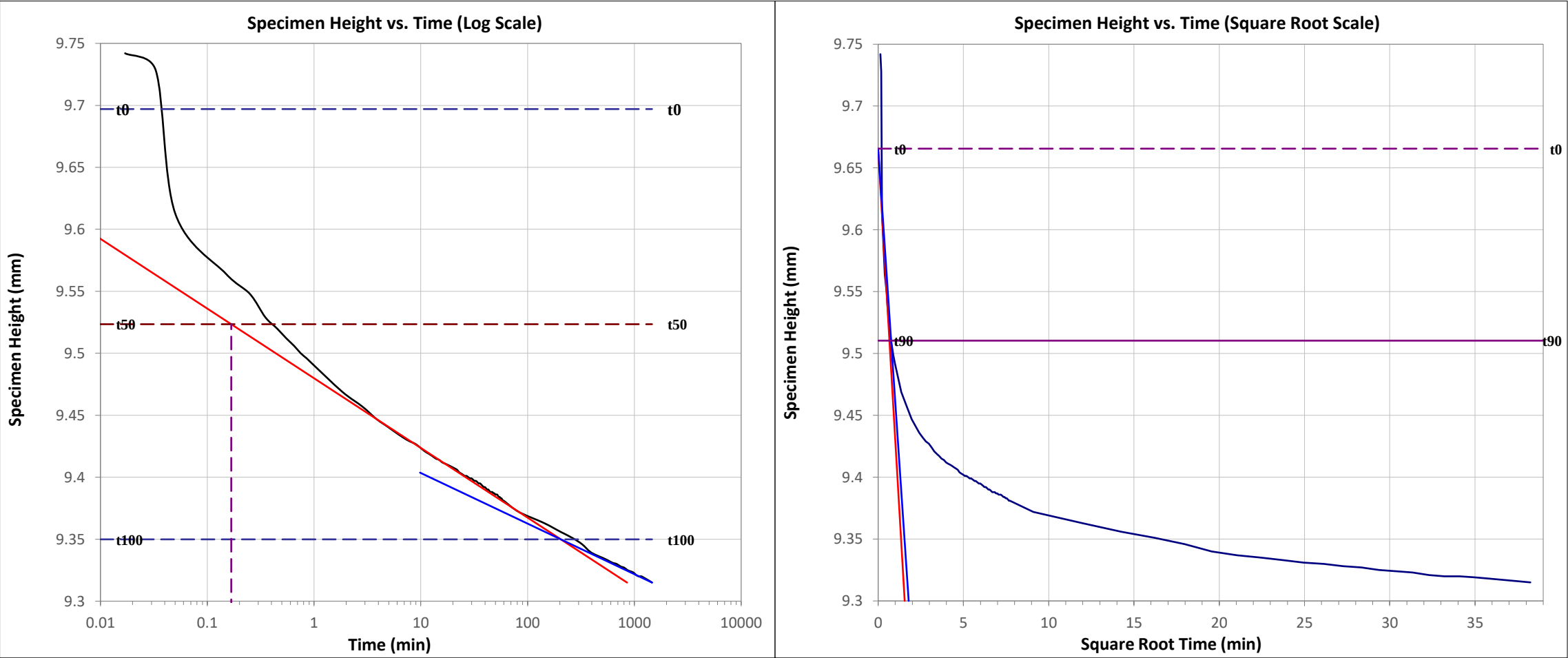
Source	BH-014 4-4.5m	Stage Load (kPa)	200
Report No.	S96779-CON	Stage (kPa)	100 - 200
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 7



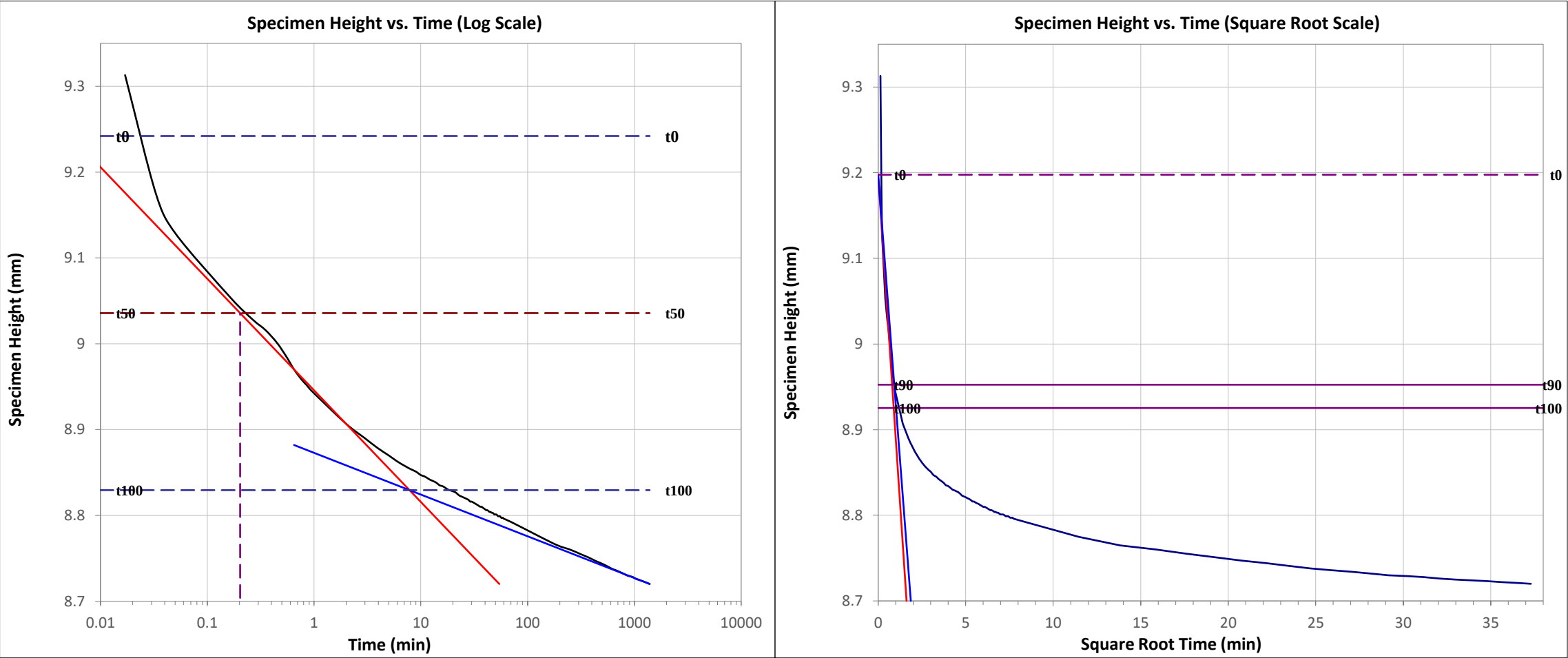
Source	BH-014 4-4.5m	Stage Load (kPa)	400
Report No.	S96779-CON	Stage (kPa)	200 - 400
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 8



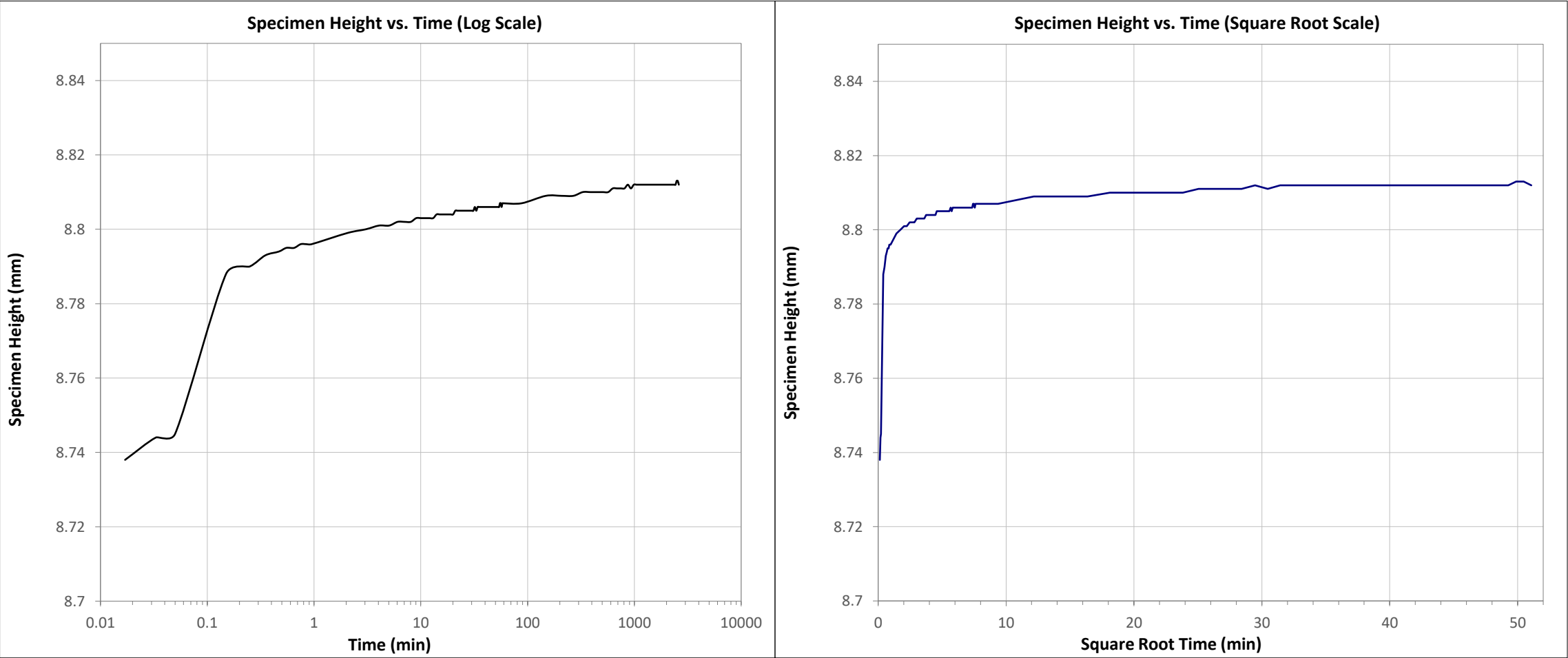
Source	BH-014 4-4.5m	Stage Load (kPa)	800
Report No.	S96779-CON	Stage (kPa)	400 - 800
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 9



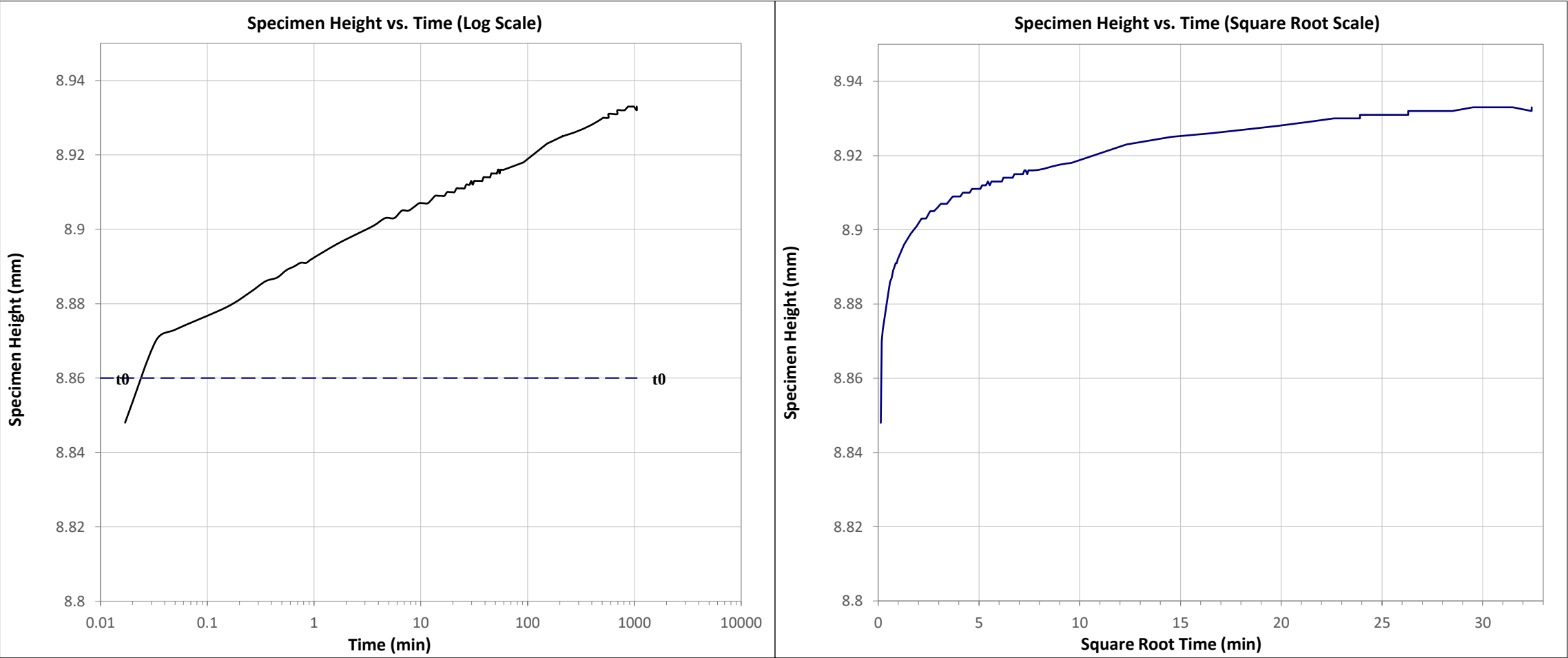
Source	BH-014 4-4.5m	Stage Load (kPa)	200
Report No.	S96779-CON	Stage (kPa)	800 - 200
Lab No.	S96779	Oedometer Rig No.	6



One-Dimensional Consolidation Report - Stage 10



Source	BH-014 4-4.5m	Stage Load (kPa)	50
Report No.	S96779-CON	Stage (kPa)	200 - 50
Lab No.	S96779	Oedometer Rig No.	6

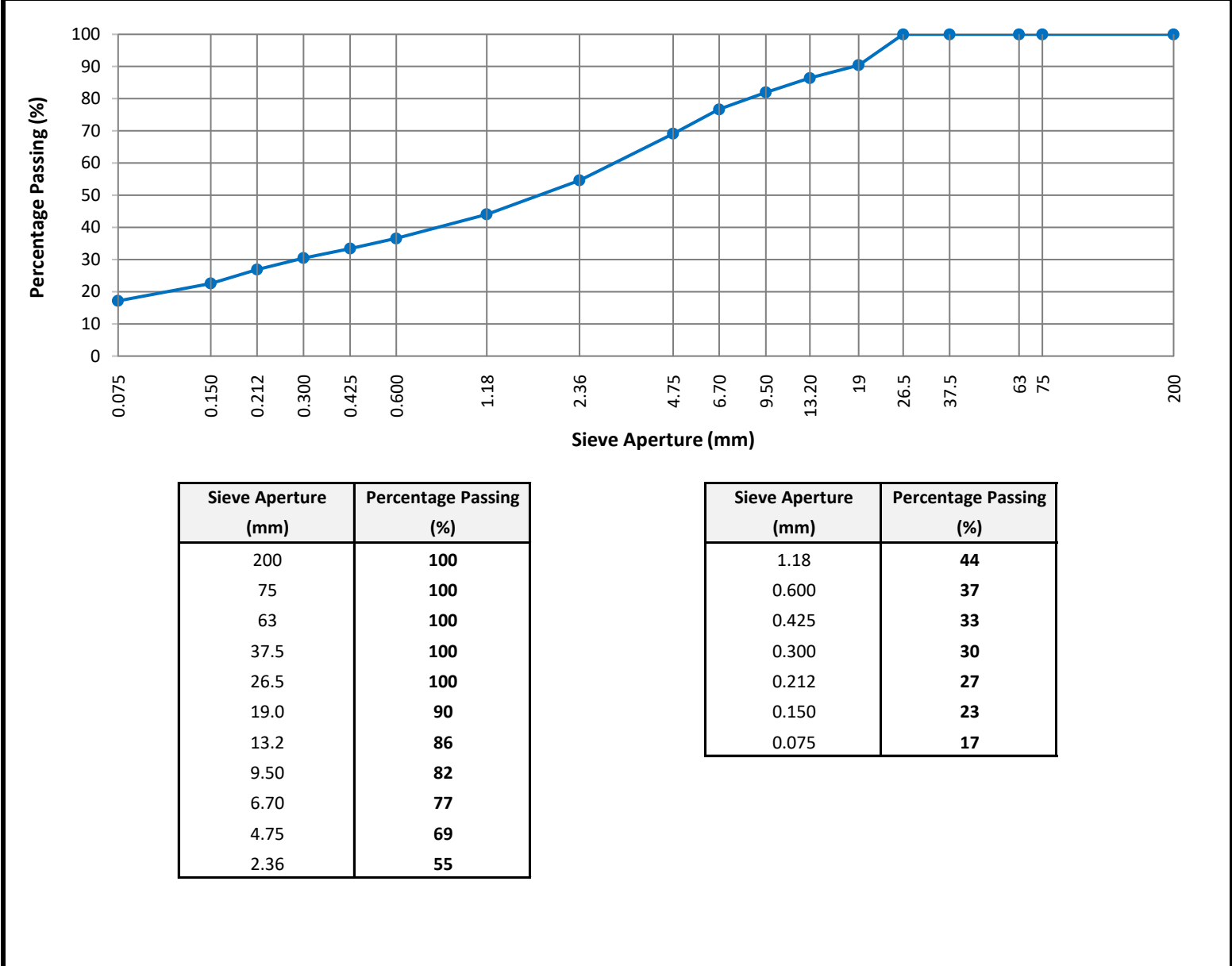


E6 Particle Size Distribution Testing

Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-001 0.6-0.7m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty Sandy GRAVEL
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96707-PSD
Job No	S24245-1	Lab No	S96707

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	11/06/2024



Notes



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11/06/2024

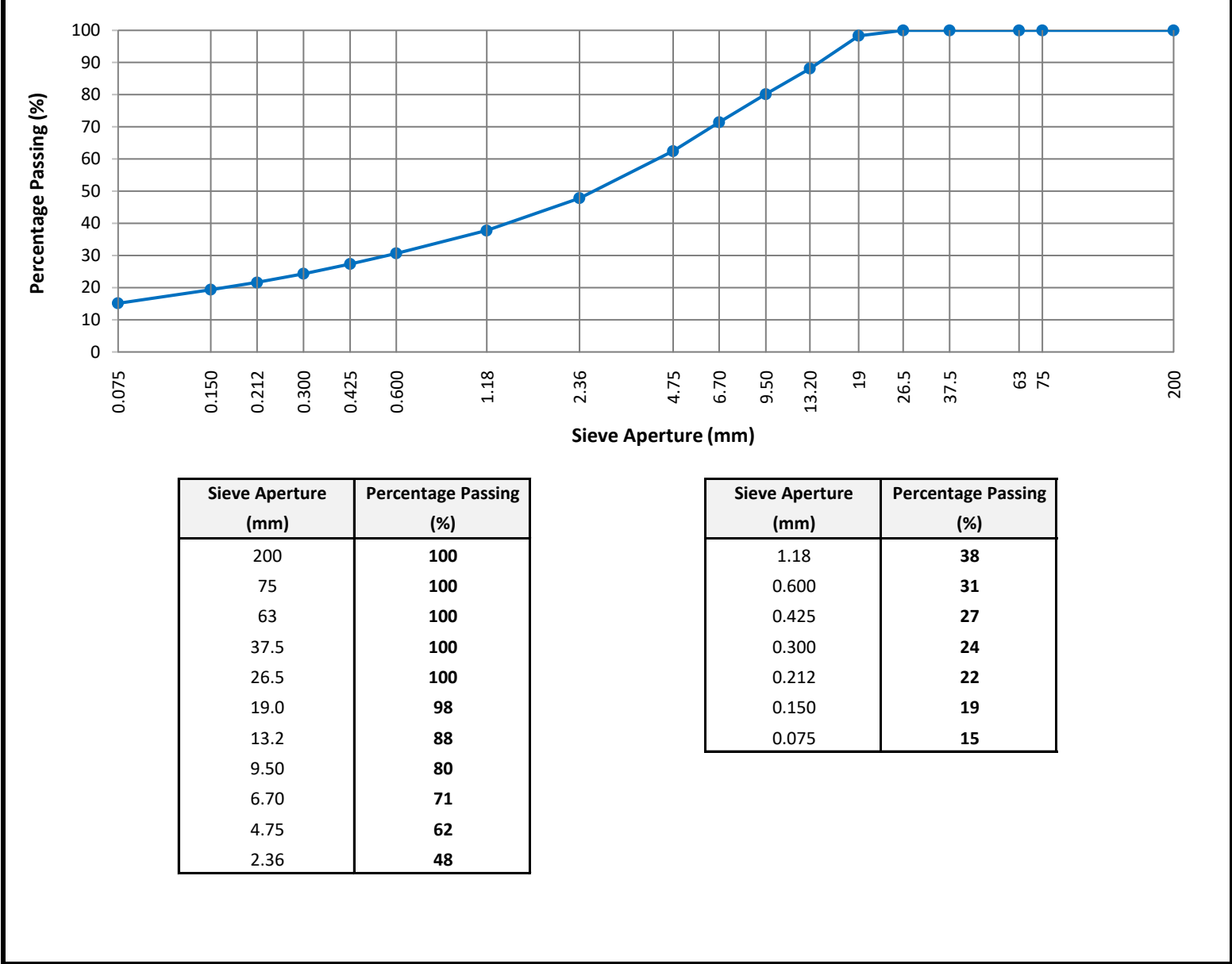


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Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-002 3.4-3.5m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty Sandy GRAVEL
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96713-PSD
Job No	S24245-1	Lab No	S96713

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	11/06/2024



Notes



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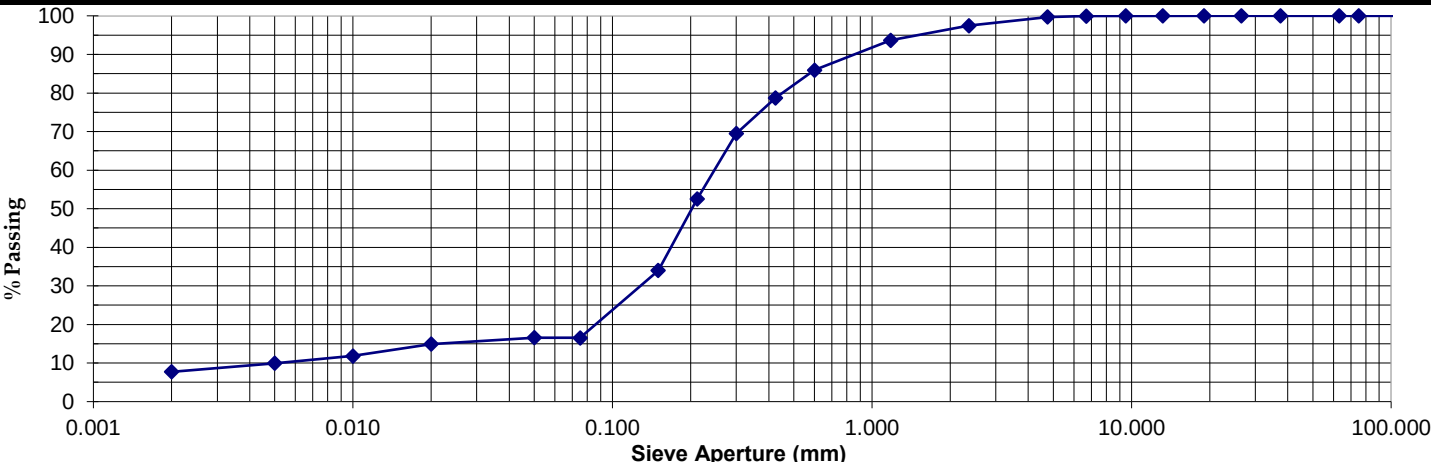
Particle Size Distribution with Hydrometer Report

Client	WSP Australia Pty Ltd	Source	BH-004 6.5-6.6m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	SAND with Silt and Clay, trace of Gravel
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96722-HYD
Job No	S24245-1	Lab No	S96722

Test Procedure	AS1289.3.6.3 Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
	AS1289.3.6.1 Determination of particle size distribution of a soil standard method sieving

Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
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Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024
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Clay	Silt		Sand		Gravel		Cobbles
	Sieve	Specification	Sieve	Specification			
	Aperture:	%	Aperture:	%			
	(mm)	Passing	(mm)	Passing			
	200	-	1.180	94			
	75	-	0.600	86			
	63	-	0.425	79			
	37.5	-	0.300	69			
	26.5	-	0.212	53			
	19.0	-	0.150	34			
	13.2	-	0.075	17			
	9.5	100	0.050	17			
	6.7	100	0.020	15			
	4.75	100	0.010	12			
2.36	97	0.005	10				
		0.002	8				

Loss in Pre-treatment of Material (%):	0	Particle Density (t/m ³):	2.65
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate	Assumed	
Method of Preparation:	As received from natural state	Hydrometer Type:	ASTM E100

Notes



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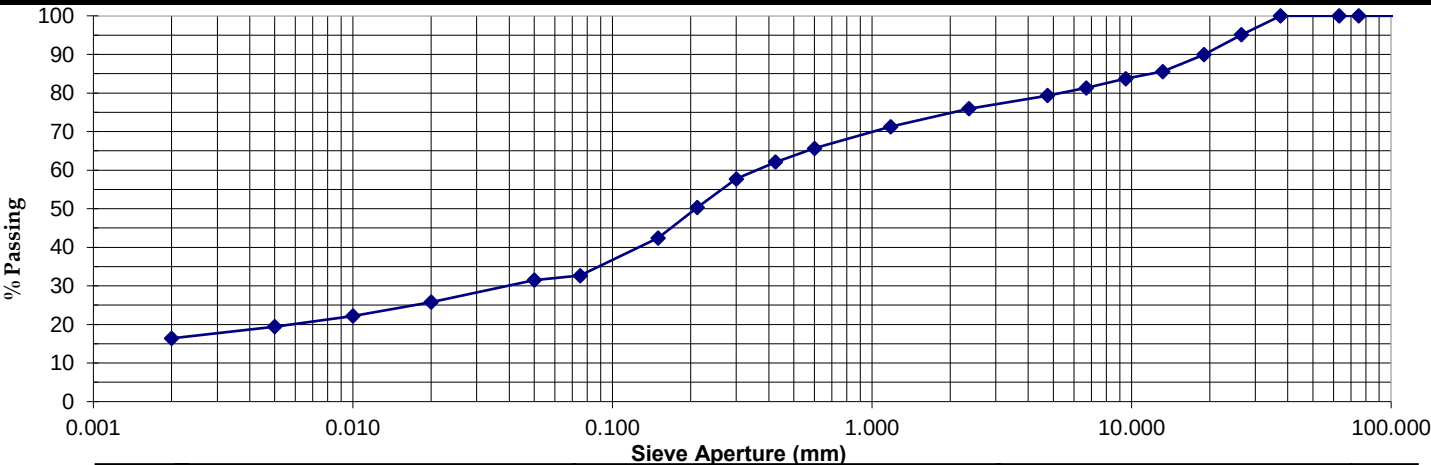
Particle Size Distribution with Hydrometer Report

Client	WSP Australia Pty Ltd	Source	BH-005 1.2-1.3m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty Clayey SAND with Gravel
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96728-HYD
Job No	S24245-1	Lab No	S96728

Test Procedure	AS1289.3.6.3 Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
	AS1289.3.6.1 Determination of particle size distribution of a soil standard method sieving

Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
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Preparation	Prepared in accordance with the test method	Date Tested	9/06/2024
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Clay	Silt		Sand		Gravel		Cobbles
	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	
	200	-		1.180	71		
	75	-		0.600	66		
	63	-		0.425	62		
	37.5	100		0.300	58		
	26.5	95		0.212	50		
	19.0	90		0.150	42		
	13.2	86		0.075	33		
	9.5	84		0.050	32		
	6.7	81		0.020	26		
	4.75	79		0.010	22		
	2.36	76		0.005	19		
				0.002	16		

Loss in Pre-treatment of Material (%):	0	Particle Density (t/m ³):	2.65
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate	Assumed	
Method of Preparation:	As received from natural state	Hydrometer Type:	ASTM E100

Notes

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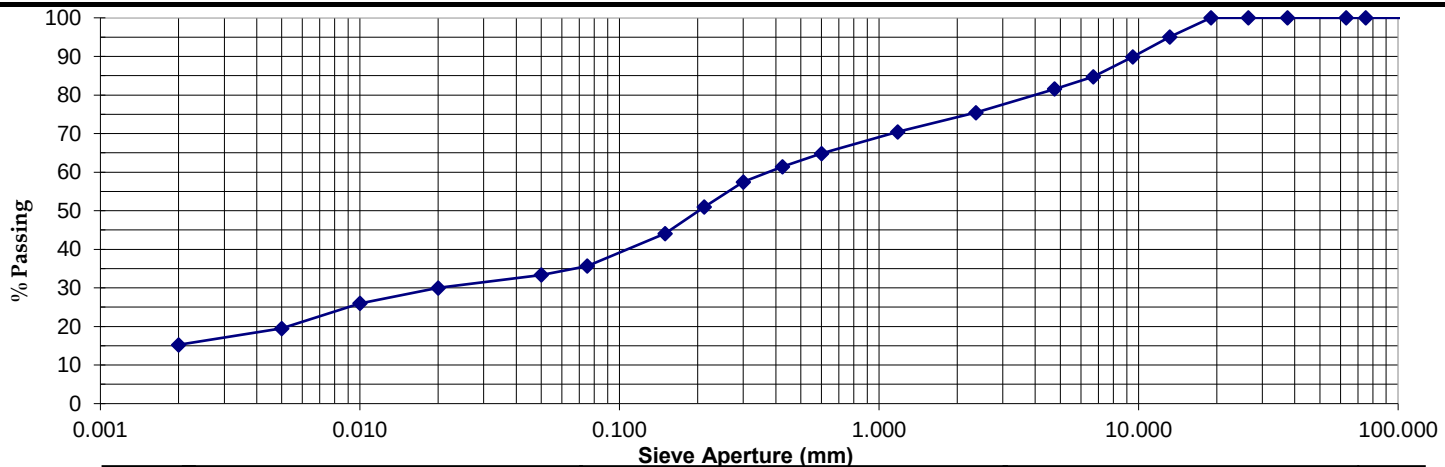
Particle Size Distribution with Hydrometer Report

Client	WSP Australia Pty Ltd	Source	BH-006 3-3.25m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty Sandy CLAY with Gravel
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96739-HYD
Job No	S24245-1	Lab No	S96739

Test Procedure	AS1289.3.6.3 Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
	AS1289.3.6.1 Determination of particle size distribution of a soil standard method sieving

Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
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Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024
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Clay	Silt		Sand		Gravel		Cobbles
	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	
	200	-		1.180	70		
	75	-		0.600	65		
	63	-		0.425	61		
	37.5	-		0.300	57		
	26.5	-		0.212	51		
	19.0	100		0.150	44		
	13.2	95		0.075	36		
	9.5	90		0.050	33		
	6.7	85		0.020	30		
	4.75	82		0.010	26		
	2.36	75		0.005	19		
				0.002	15		

Loss in Pre-treatment of Material (%):	0	Particle Density (t/m ³):	2.65
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate	Assumed	
Method of Preparation:	As received from natural state	Hydrometer Type:	ASTM E100

Notes



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Authorised Signatory:  Date: 6/06/2024

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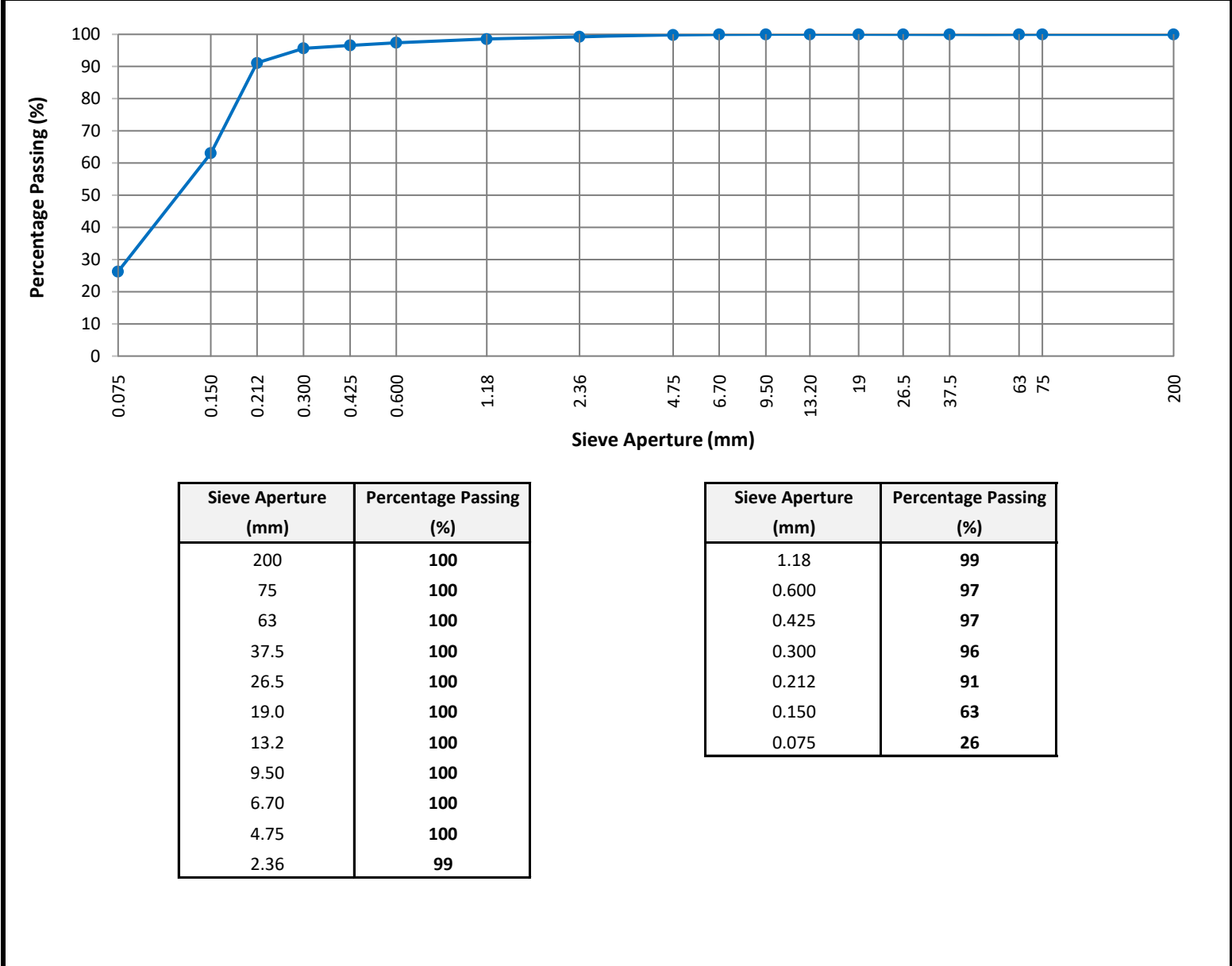


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Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-007 6.2-6.3m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Clayey SAND, trace of Gravel
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96745-PSD
Job No	S24245-1	Lab No	S96745

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024



Notes



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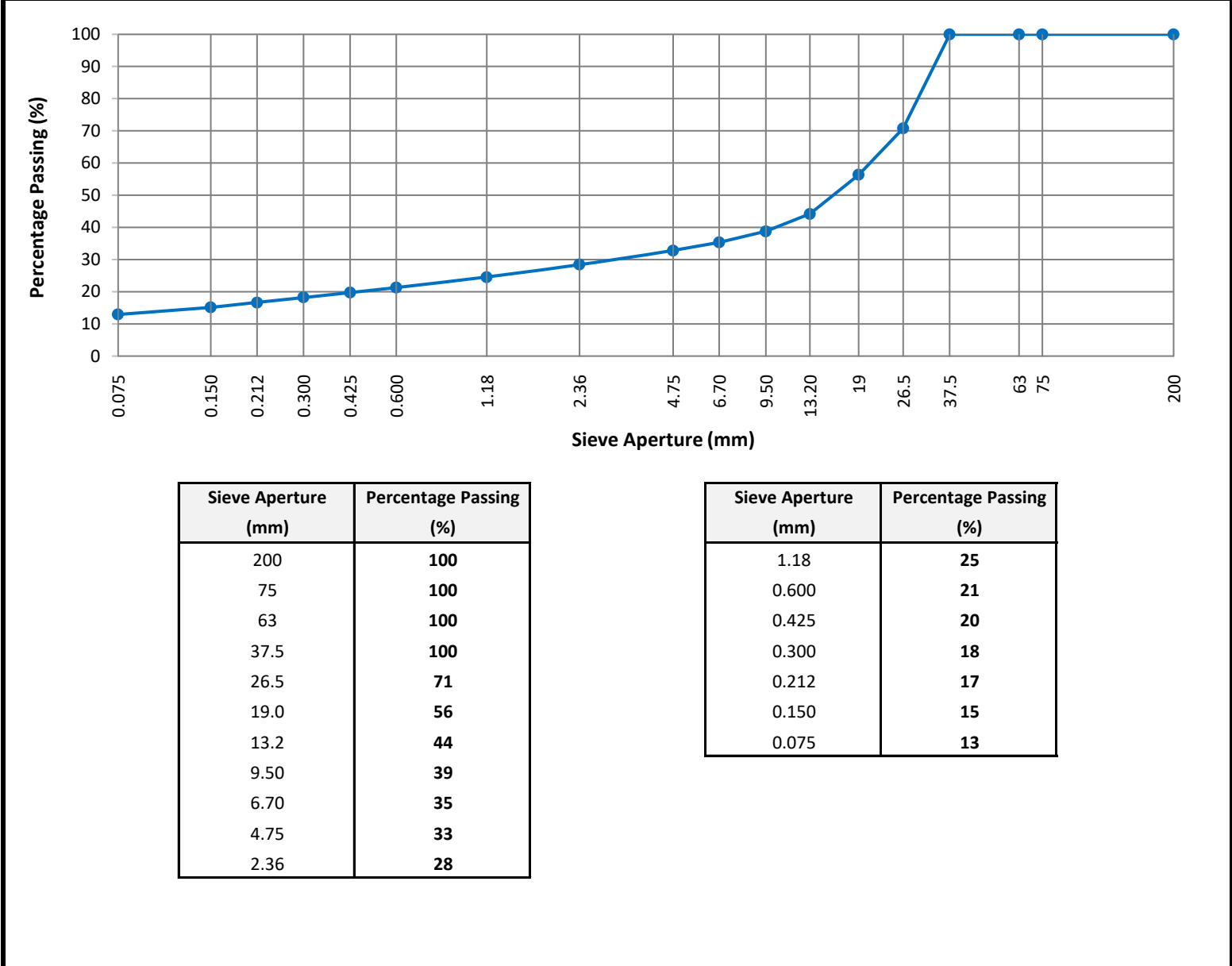


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Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-008 1.7-1.8m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty GRAVEL with Sand
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96749-PSD
Job No	S24245-1	Lab No	S96749

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	6/06/2024



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Date:

6/06/2024



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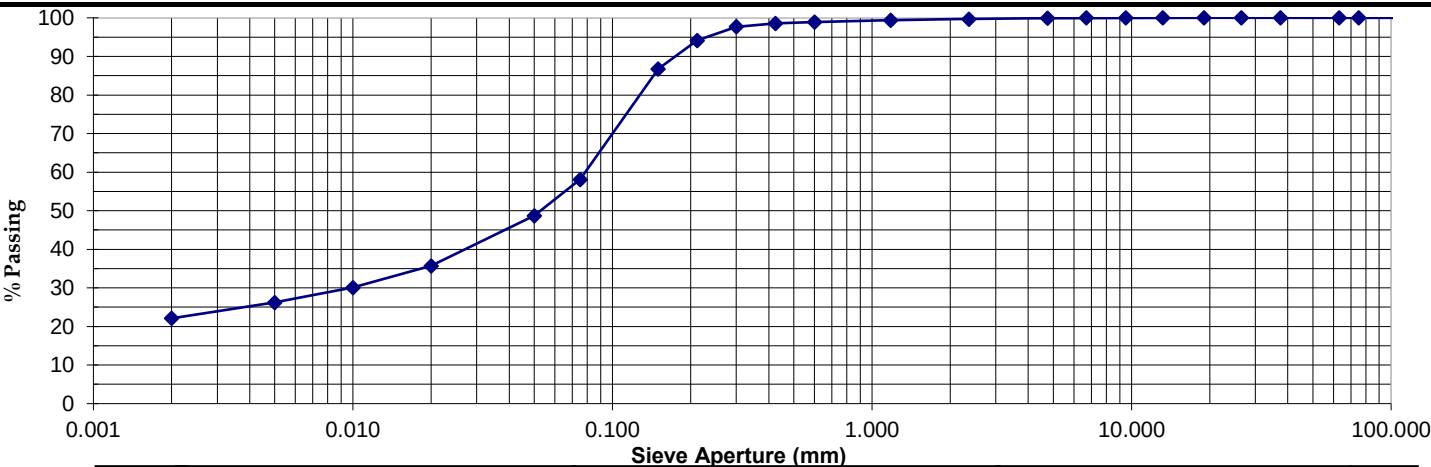
Particle Size Distribution with Hydrometer Report

Client	WSP Australia Pty Ltd	Source	BH-009 6.8-6.9m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96755-HYD
Job No	S24245-1	Lab No	S96755

Test Procedure	AS1289.3.6.3 Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
	AS1289.3.6.1 Determination of particle size distribution of a soil standard method sieving

Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
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Preparation	Prepared in accordance with the test method	Date Tested	7/06/2024
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Clay	Silt		Sand		Gravel		Cobbles
	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	
	200	-		1.180	99		
	75	-		0.600	99		
	63	-		0.425	99		
	37.5	-		0.300	98		
	26.5	-		0.212	94		
	19.0	-		0.150	87		
	13.2	-		0.075	58		
	9.5	-		0.050	49		
	6.7	100		0.020	36		
	4.75	100		0.010	30		
	2.36	100		0.005	26		
				0.002	22		

Loss in Pre-treatment of Material (%):	0	Particle Density (t/m ³):	2.65
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate	Assumed	
Method of Preparation:	As received from natural state	Hydrometer Type:	ASTM E100

Notes



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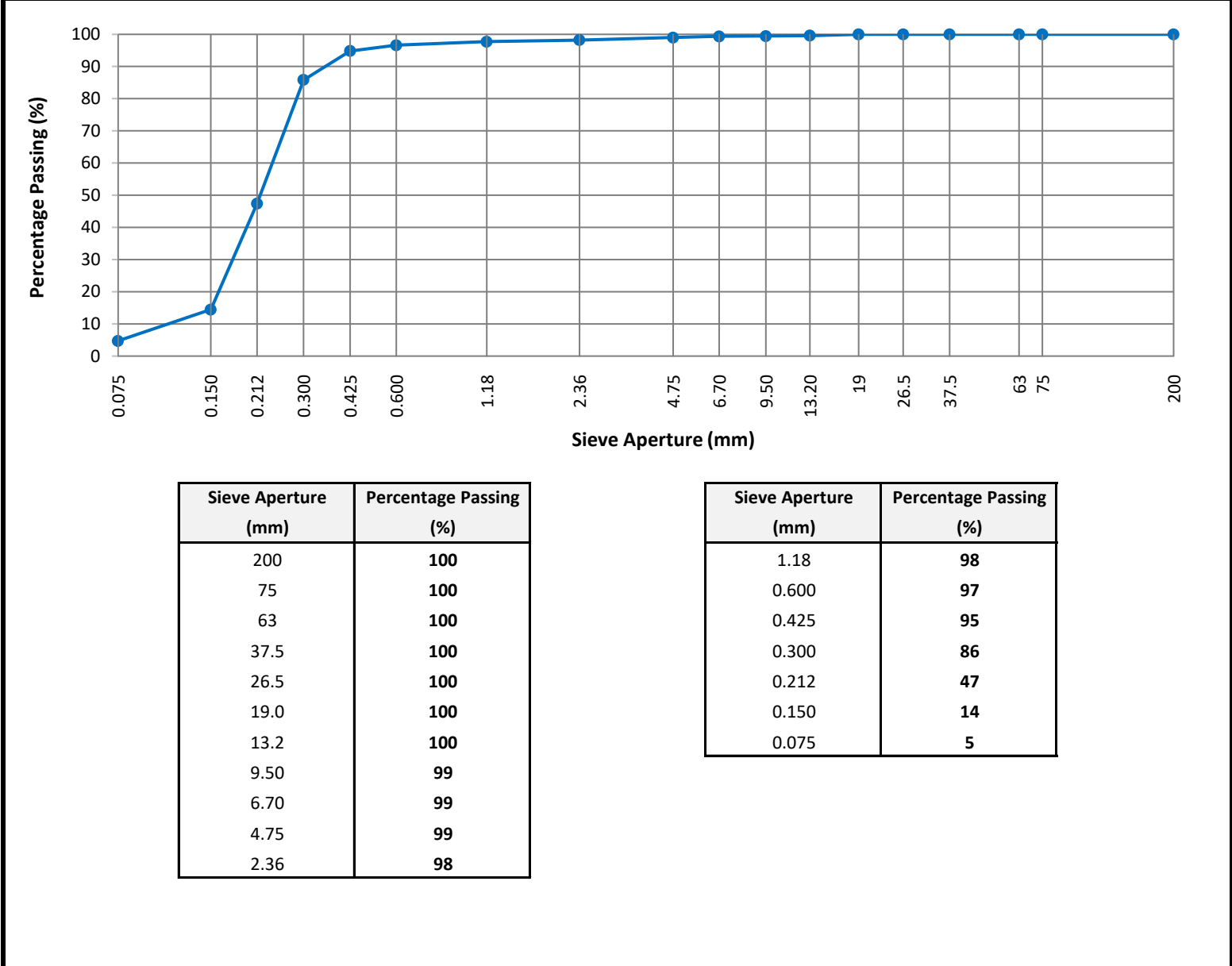


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Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-010 4.5-4.95m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	SAND, trace of Silt and Gravel
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96763-PSD
Job No	S24245-1	Lab No	S96763

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	7/06/2024



Notes



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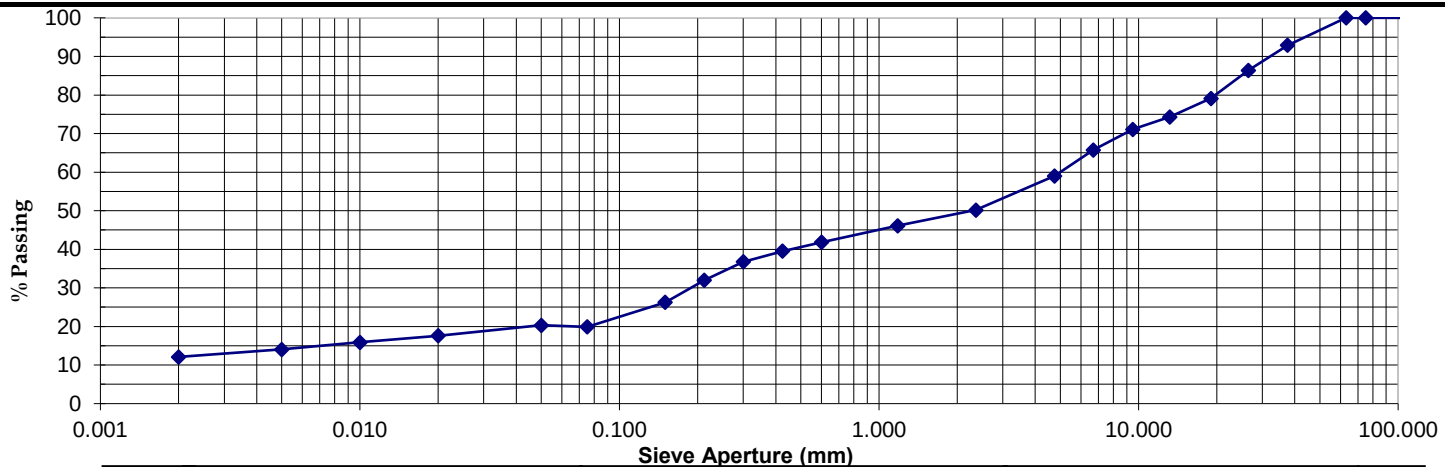
Particle Size Distribution with Hydrometer Report

Client	WSP Australia Pty Ltd	Source	BH-010 3.4-3.5m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Sandy GRAVEL with Silt and Clay
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96760-HYD
Job No	S24245-1	Lab No	S96760

Test Procedure	AS1289.3.6.3 Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
	AS1289.3.6.1 Determination of particle size distribution of a soil standard method sieving

Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
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Preparation	Prepared in accordance with the test method	Date Tested	9/06/2024
--------------------	---	--------------------	-----------



Clay	Silt		Sand		Gravel		Cobbles
	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	
	200	-		1.180	46		
	75	-		0.600	42		
	63	100		0.425	40		
	37.5	93		0.300	37		
	26.5	86		0.212	32		
	19.0	79		0.150	26		
	13.2	74		0.075	20		
	9.5	71		0.050	20		
	6.7	66		0.020	18		
	4.75	59		0.010	16		
	2.36	50		0.005	14		
				0.002	12		

Loss in Pre-treatment of Material (%):	0	Particle Density (t/m ³):	2.65
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate	Assumed	
Method of Preparation:	As received from natural state	Hydrometer Type:	ASTM E100

Notes



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Particle Size Distribution with Hydrometer Report

Client	WSP Australia Pty Ltd	Source	BH-011 5.3-5.4m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	SAND with Clay, trace of Silt and Gravel
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96770-HYD
Job No	S24245-1	Lab No	S96770

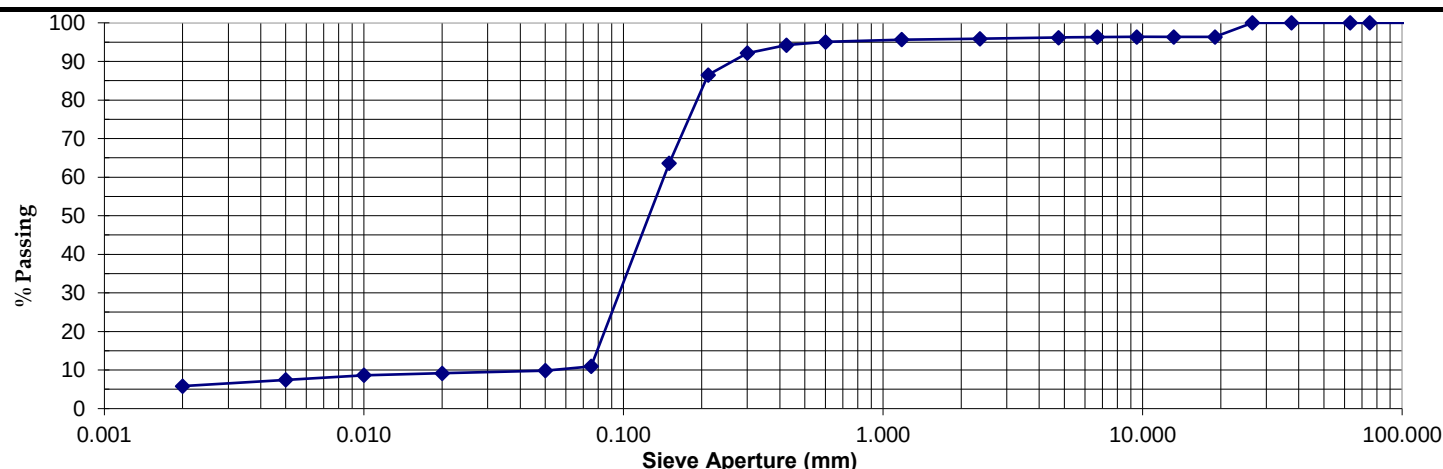
Test Procedure	AS1289.3.6.3	Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
	AS1289.3.6.1	Determination of particle size distribution of a soil standard method sieving

Sampling Sampled by Client - results apply to the sample as received

Date Sampled Unknown

Preparation	Prepared in accordance with the test method
--------------------	---

Date Tested 7/06/2024



Clay	Silt		Sand		Gravel		Cobbles
	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope	
	200	-		1.180	96		
	75	-		0.600	95		
	63	-		0.425	94		
	37.5	-		0.300	92		
	26.5	100		0.212	86		
	19.0	96		0.150	64		
	13.2	96		0.075	11		
	9.5	96		0.050	10		
	6.7	96		0.020	9		
	4.75	96		0.010	9		
	2.36	96		0.005	7		
				0.002	6		

Loss in Pre-treatment of Material (%):	0
--	---

Particle Density (t/m ³):	2.65
---------------------------------------	------

Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate
-----------------------	---

Assumed

Method of Preparation:	As received from natural state
------------------------	--------------------------------

Hydrometer Type:	ASTM E100
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Notes



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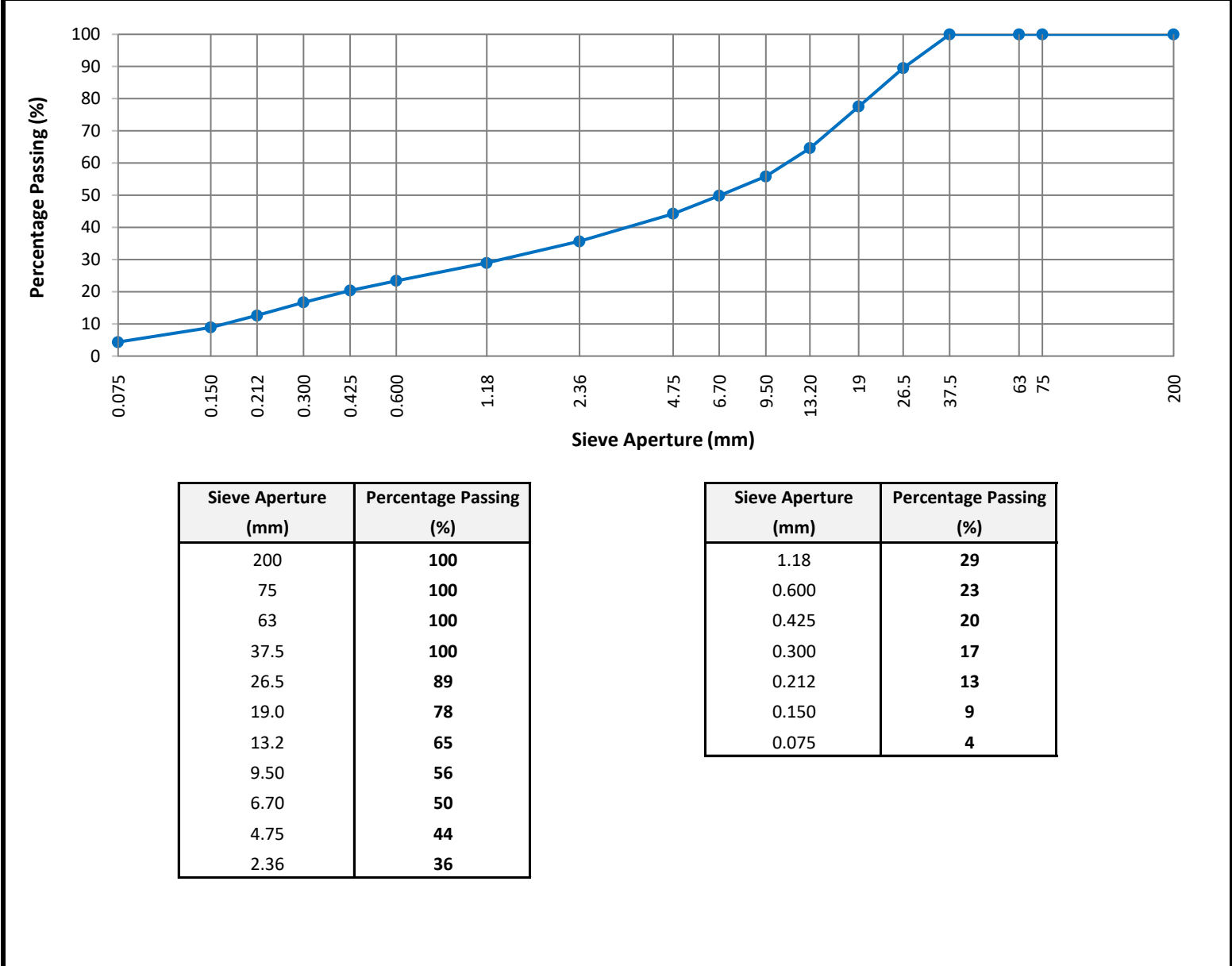
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Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-013 12.7-12.8m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Sandy GRAVEL, trace of Silt
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96777-PSD
Job No	S24245-1	Lab No	S96777

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	5/06/2024



Notes



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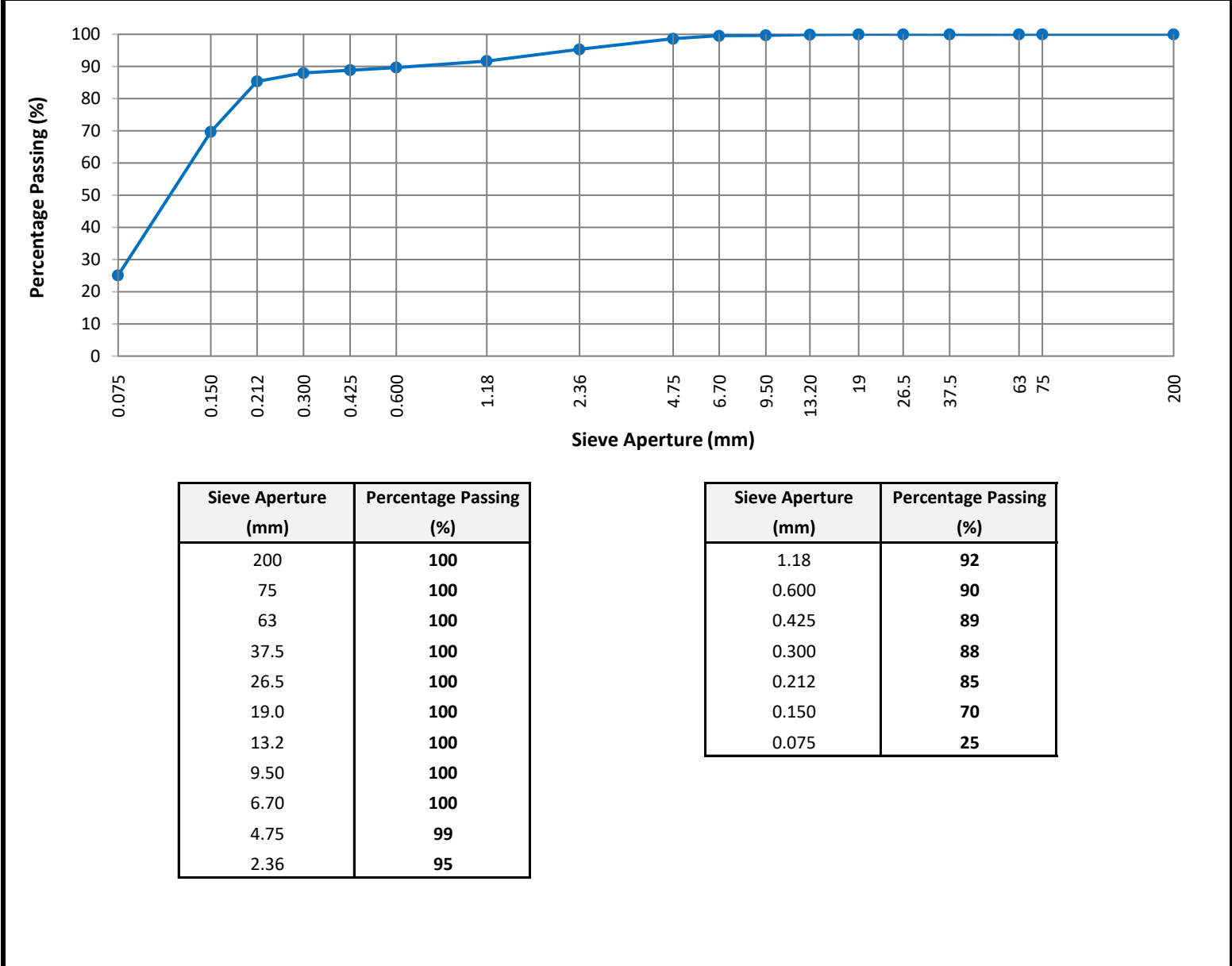


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Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-014 6.7-6.8m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty SAND, trace of Gravel
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96781-PSD
Job No	S24245-1	Lab No	S96781

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	11/06/2024



Notes



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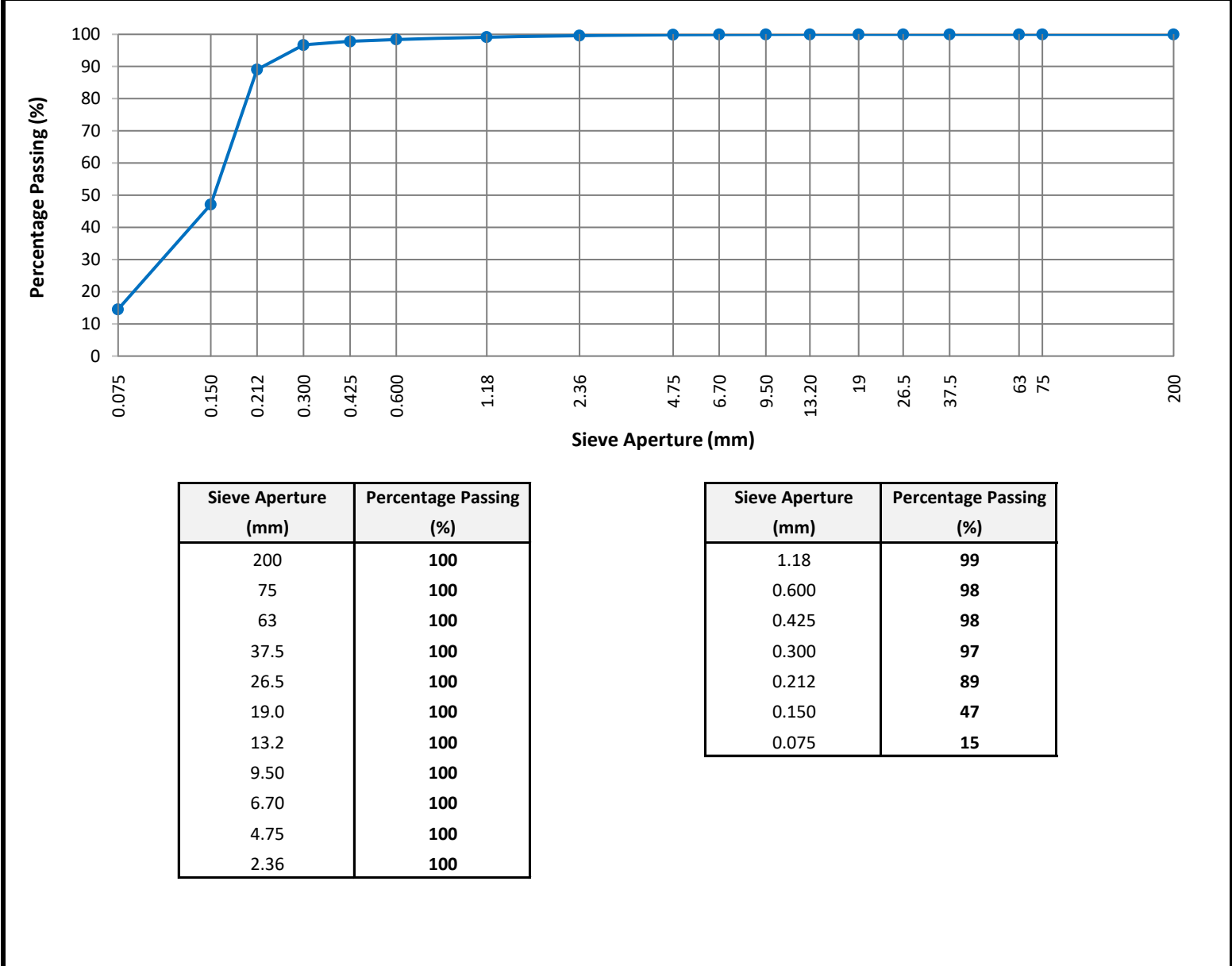


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Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-015 5.8-5.9m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty SAND
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96783-PSD
Job No	S24245-1	Lab No	S96783

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	11/06/2024



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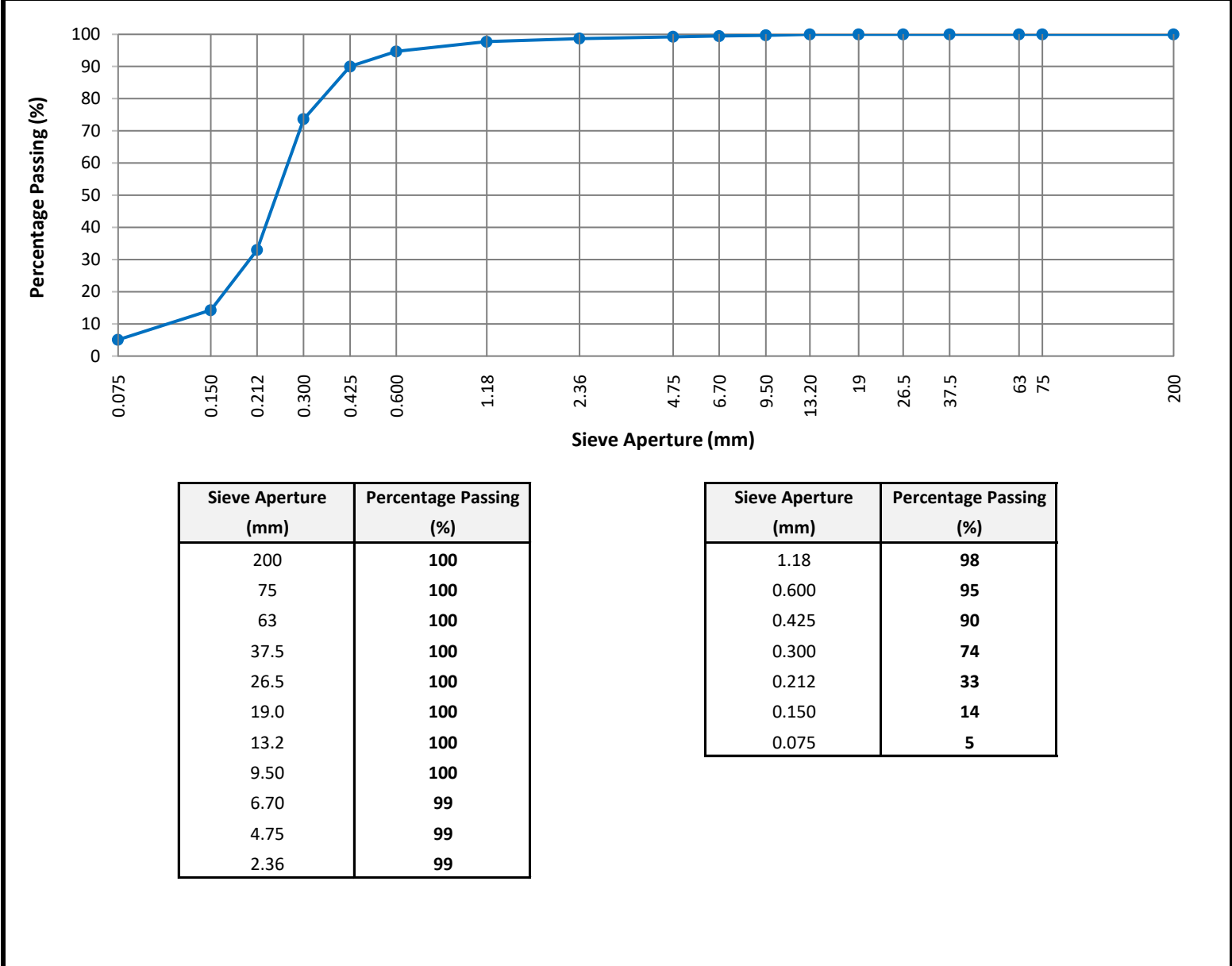


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Particle Size Distribution Report

Client	WSP Australia Pty Ltd	Source	BH-016 7.8-7.9m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	SAND, trace of Sand and Gravel
Project	PS212776 - Mac Point Geotechnical Investigation	Report No	S96786-PSD
Job No	S24245-1	Lab No	S96786

Test Procedure	AS 1289.3.6.1 Determination of the particle size distribution of a soil - Standard method of analysis by sieving		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	11/06/2024



Notes



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E7 Rock Abrasion Testing

Cerchar

Taber

J Value

E8 Triaxial Testing - Unconsolidated Undrained

Undrained Triaxial Compression (UU - Single Stage) Report

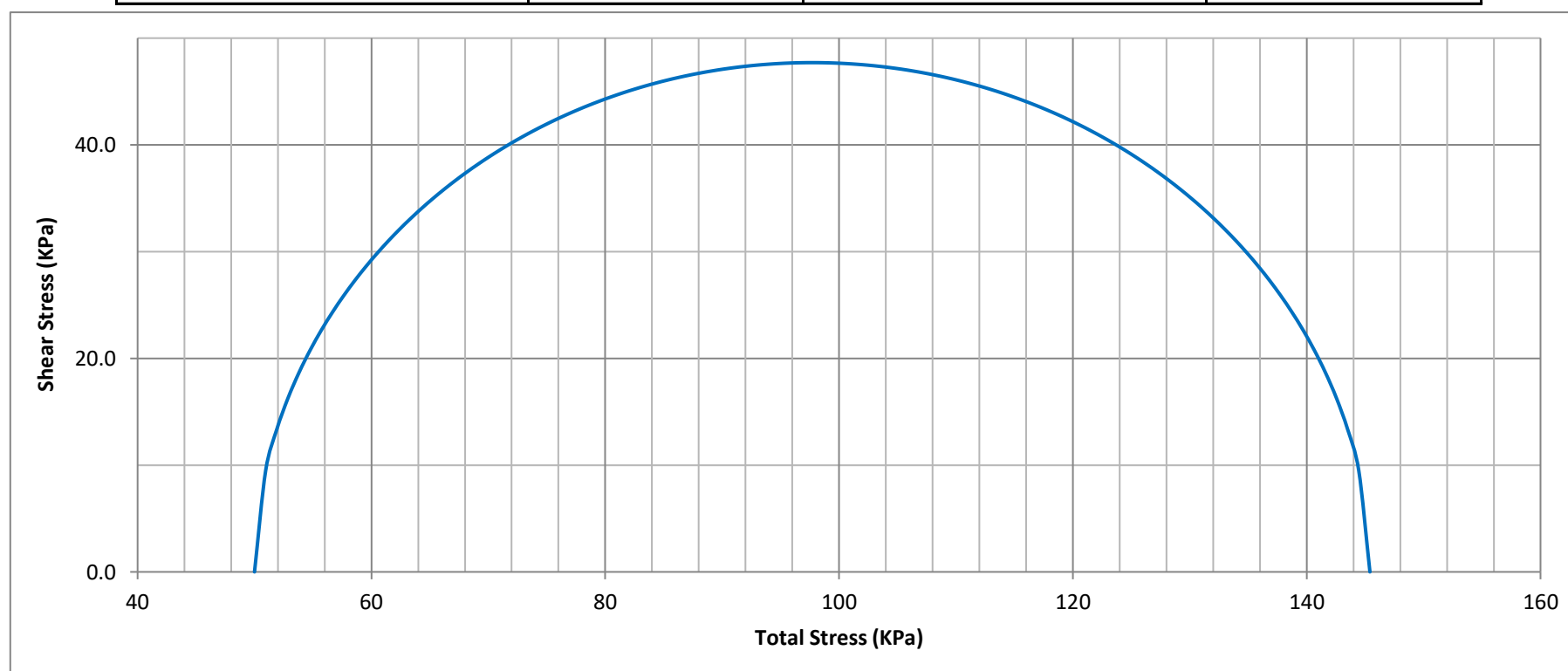
Client	WSP Australia Pty Ltd	Source	BH-005 3.5-3.85m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Gravelly Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96731-UU
Job No	S24245-1	Lab No.	S96731

Test Procedure	AS 1289.6.4.1 Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure AS 1289.2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	31/05/2024

Sample Details

Sample Condition	Undisturbed	Stage Number	1
Height (mm)	126.67	Cell Pressure (kPa)	50
Diameter (mm)	63.31	Axial Strain Rate (mm/min)	1.0
Moisture Content (%)	50.4	Strain at Failure (%)	16.6
Dry Density (t/m ³)	1.01	Maximum Deviator Stress (kPa)	95.4

Test Details



Graph for visual representation only

Su (kPa)	47.7
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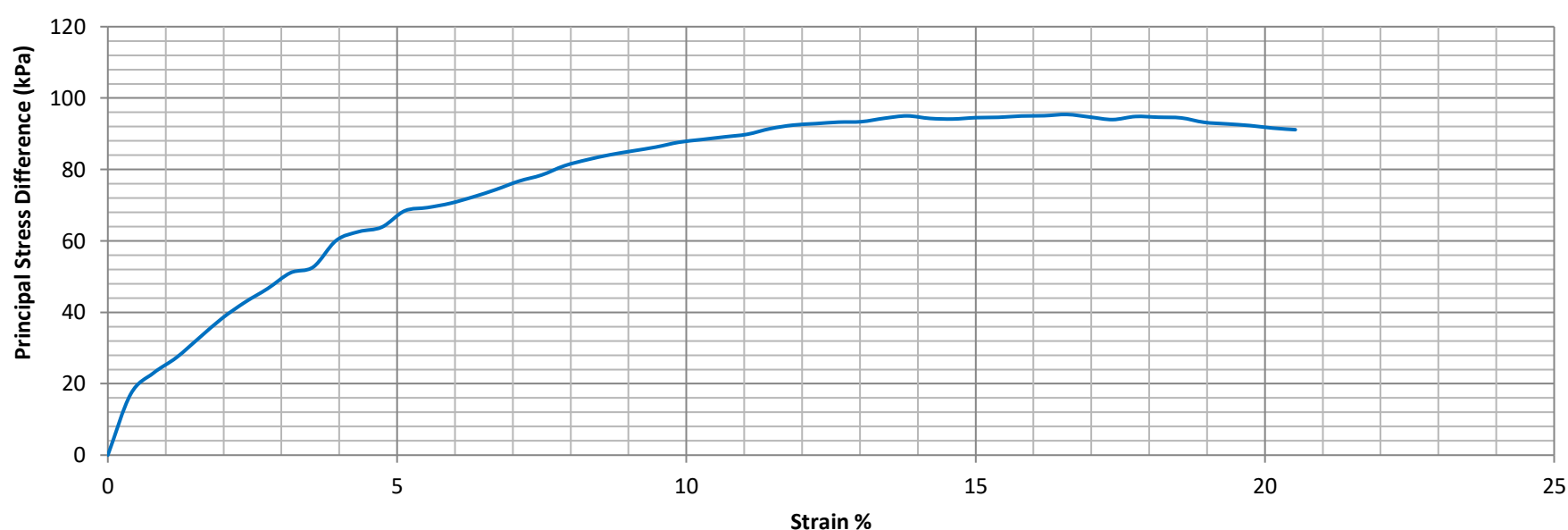
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Undrained Triaxial Compression (UU - Single Stage) Report

Client	WSP Australia Pty Ltd	Source	BH-005 3.5-3.85m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Gravelly Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96731-UU
Job No	S24245-1	Lab No.	S96731

Test Procedure	AS 1289.6.4.1 Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure AS 1289.2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	31/05/2024

Stage 1



After Test Photo

Failure Mode	Plastic
Description of the specimen as broken after test	As per sample description
Test Comments	Unsaturated



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Undrained Triaxial Compression (UU - Single Stage) Report

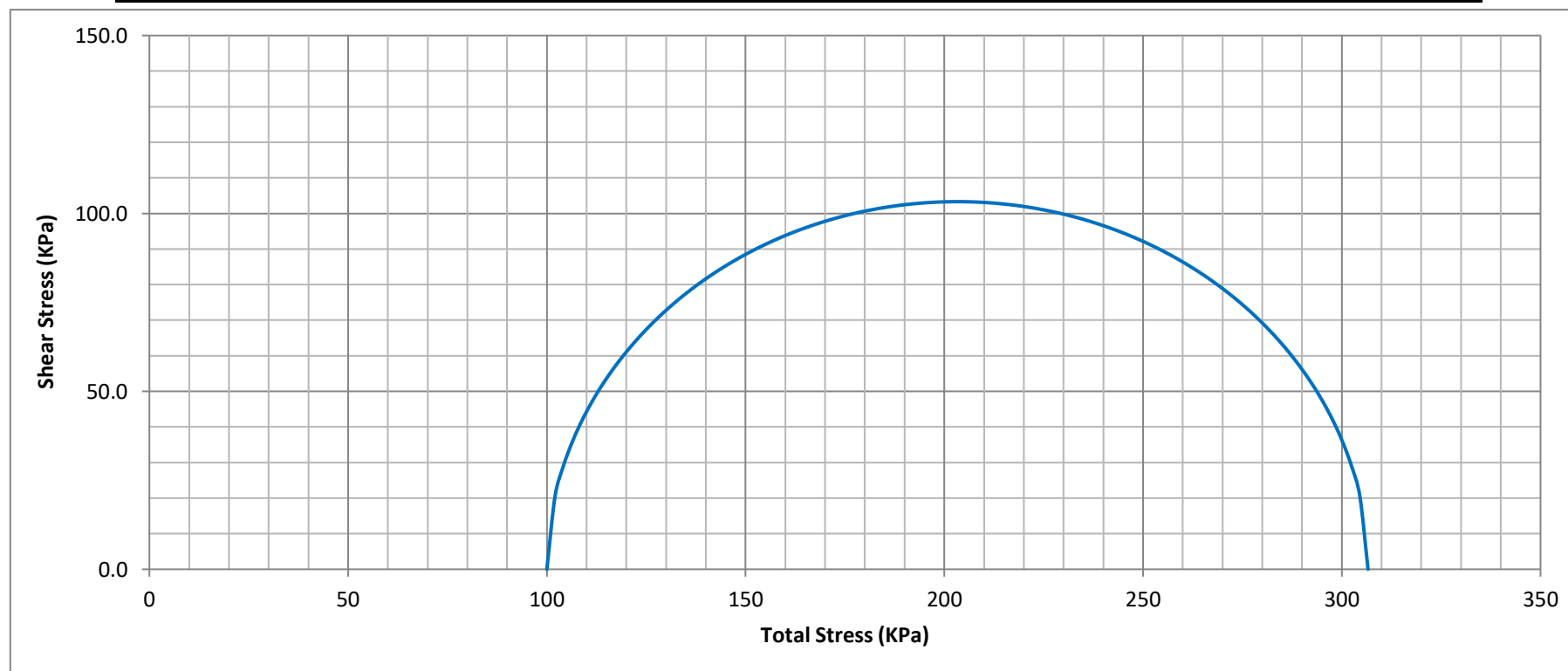
Client	WSP Australia Pty Ltd	Source	BH-005 12-12.32m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96732-UU
Job No	S24245-1	Lab No.	S96732

Test Procedure	AS 1289.6.4.1 Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure AS 1289.2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	31/05/2024

Sample Details

Sample Condition	Undisturbed	Stage Number	1
Height (mm)	127.65	Cell Pressure (kPa)	100
Diameter (mm)	63.84	Axial Strain Rate (mm/min)	1.0
Moisture Content (%)	24.4	Strain at Failure (%)	14.9
Dry Density (t/m ³)	1.60	Maximum Deviator Stress (kPa)	206.6

Test Details



Graph for visual representation only

Su (kPa)	103.3
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Notes



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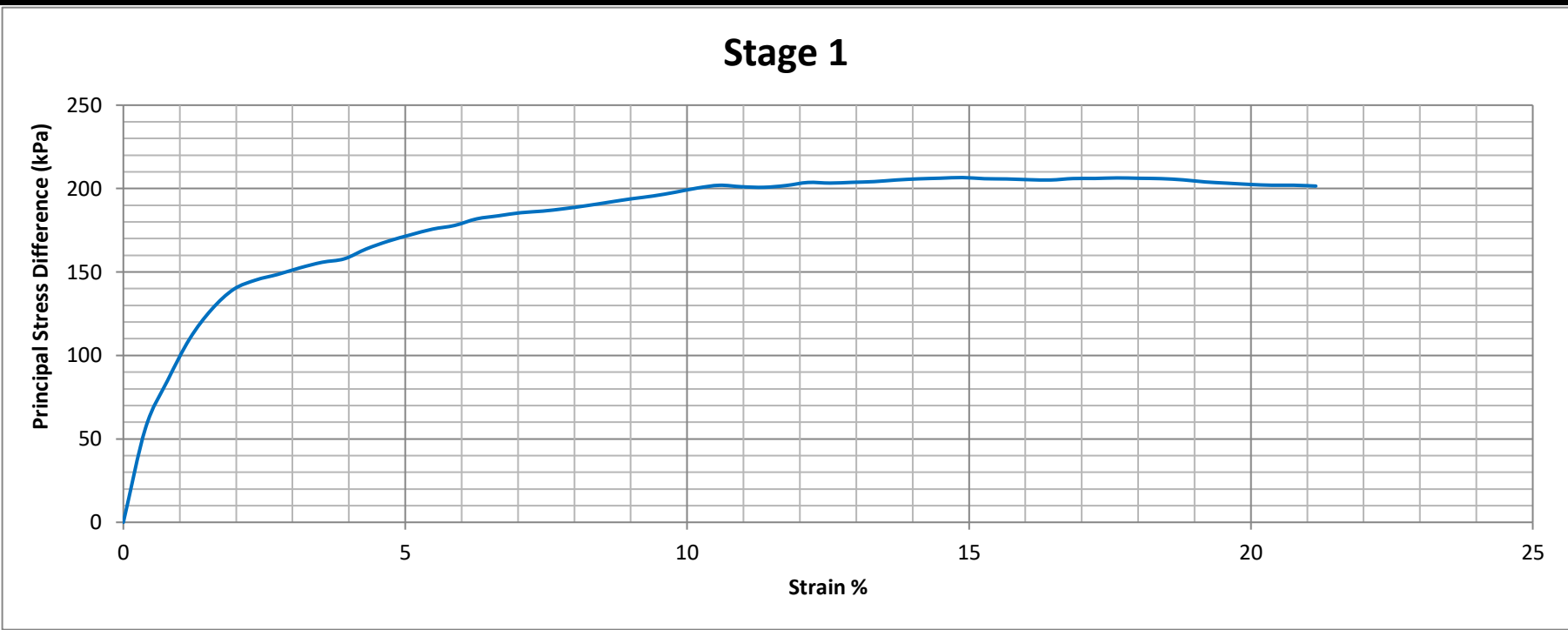


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Undrained Triaxial Compression (UU - Single Stage) Report

Client	WSP Australia Pty Ltd	Source	BH-005 12-12.32m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Silty CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96732-UU
Job No	S24245-1	Lab No.	S96732

Test Procedure	AS 1289.6.4.1 Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure AS 1289.2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	31/05/2024



After Test Photo

Failure Mode	Plastic
Description of the specimen as broken after test	As per sample description
Test Comments	Unsaturated

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Undrained Triaxial Compression (UU - Single Stage) Report

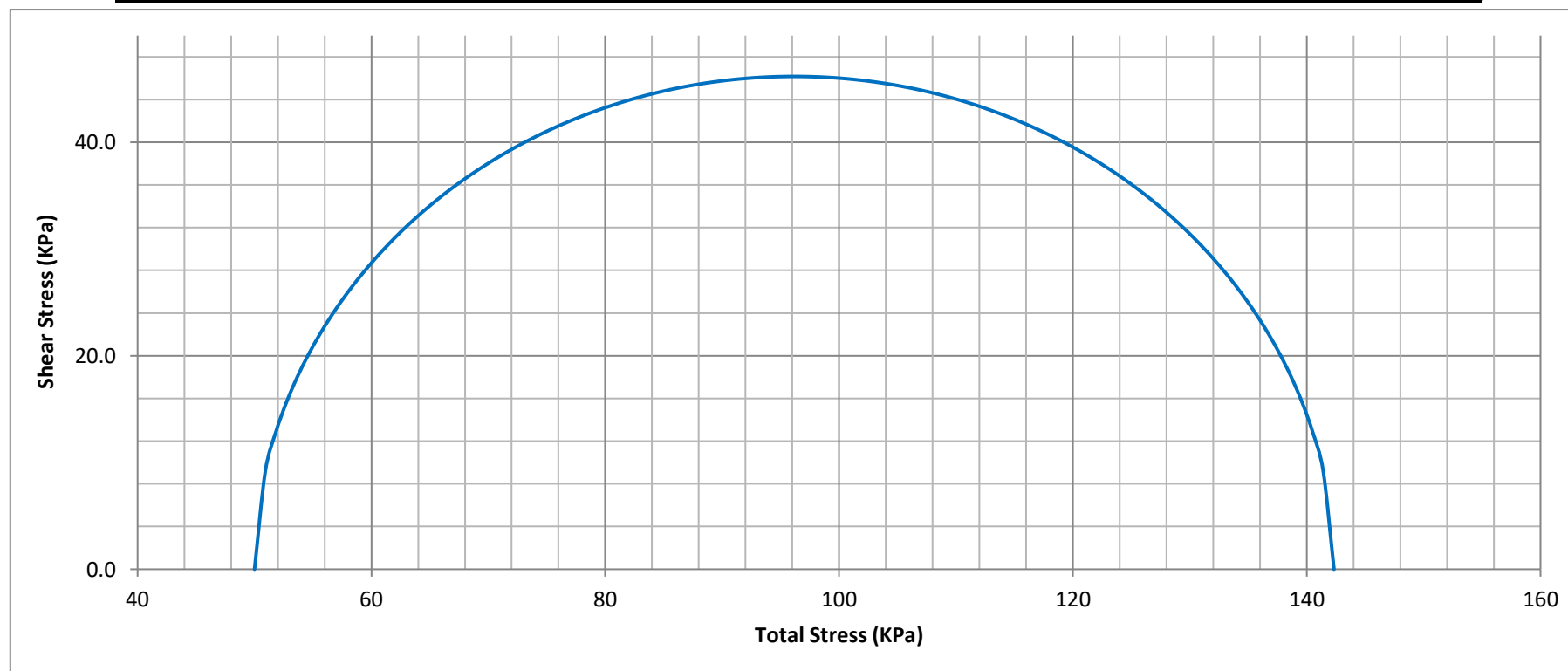
Client	WSP Australia Pty Ltd	Source	BH-014 4-4.5m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Gravelly Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96779-UU
Job No	S24245-1	Lab No.	S96779

Test Procedure	AS 1289.6.4.1 Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure AS 1289.2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	31/05/2024

Sample Details

Sample Condition	Undisturbed	Stage Number	1
Height (mm)	126.61	Cell Pressure (kPa)	50
Diameter (mm)	63.27	Axial Strain Rate (mm/min)	1.0
Moisture Content (%)	31.9	Strain at Failure (%)	19.4
Dry Density (t/m ³)	1.35	Maximum Deviator Stress (kPa)	92.3

Test Details



Su (kPa)	46.2
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Notes

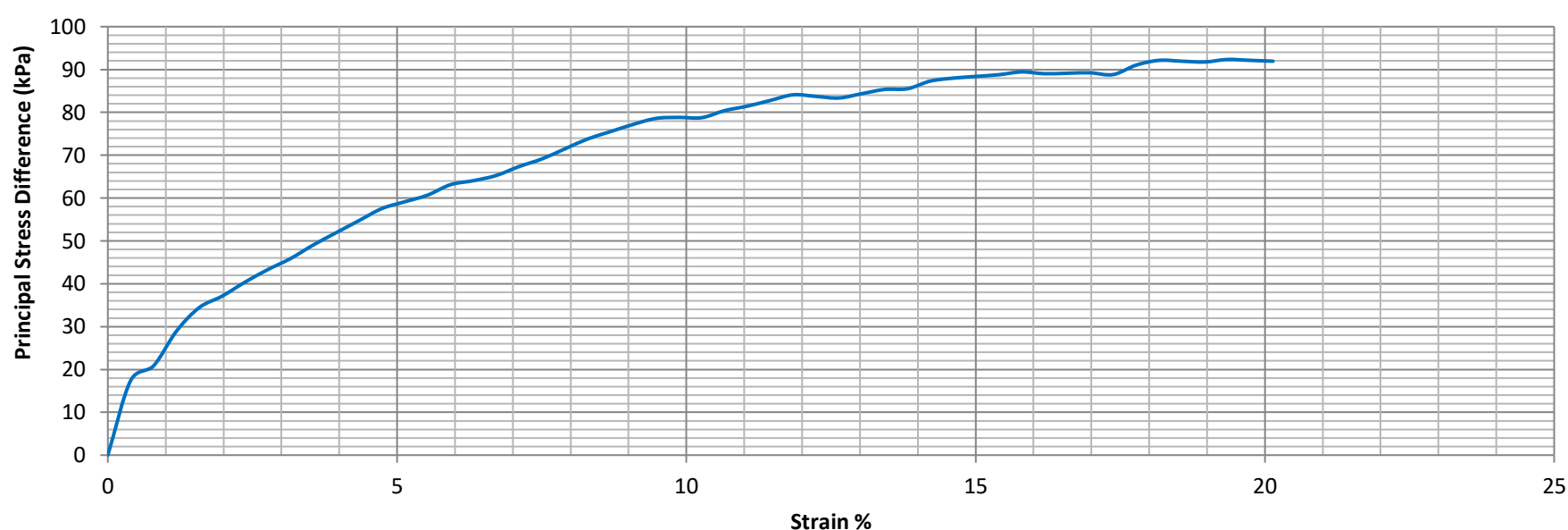
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Undrained Triaxial Compression (UU - Single Stage) Report

Client	WSP Australia Pty Ltd	Source	BH-014 4-4.5m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Gravelly Silty Sandy CLAY
Project	PS212776 - Mac Point Geotechnical Investigation	Report No.	S96779-UU
Job No	S24245-1	Lab No.	S96779

Test Procedure	AS 1289.6.4.1 Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure AS 1289.2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Preparation	Prepared in accordance with the test method	Date Tested	31/05/2024

Stage 1



After Test Photo

Failure Mode	Compound
Description of the specimen as broken after test	As per sample description
Test Comments	Unsaturated



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Date:

3/06/2024

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E9 Unconfined Compressive Strength Testing

Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-002 9.72-10m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96714-UCS
Job #	S24245-1	Sample #	S96714
Test Procedure	AS 4133.4.2.2 Determination of uniaxial compressive strength-Rock strength less than 50 MPa		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		23	MPa
Date Tested:	4/06/2024	Moisture Content:	0.2 %
Specimen Height:	173.7 mm	Duration of Test:	600 seconds
Average Specimen Diameter:	60.9 mm	Rate of Displacement:	< 0.1 mm/min
Failure Type:	Other - see photo		
Other Pertinent Observations:	Failure influenced by defect		
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-003 6.7-6.9m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96719-UCS
Job #	S24245-1	Sample #	S96719
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		138	MPa
Date Tested:	4/06/2024	Moisture Content:	0.2 %
Specimen Height:	172.6 mm	Duration of Test:	894 seconds
Average Specimen Diameter:	61.0 mm		
Failure Type:	Single shear plane		
Other Pertinent Observations:			
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NATA Accredited Laboratory Number: 14874		Date:	6/06/2024
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-004 23.28-23.55m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96727-UCS
Job #	S24245-1	Sample #	S96727
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		140	MPa
Date Tested:	4/06/2024	Moisture Content:	0.5 %
Specimen Height:	171.3 mm	Duration of Test:	834 seconds
Average Specimen Diameter:	61.0 mm		
Failure Type:	Tensile dominated		
Other Pertinent Observations:			
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-005 27.71-28m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96737-UCS
Job #	S24245-1	Sample #	S96737
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength 100 MPa			
Date Tested:	5/06/2024	Moisture Content:	0.3 %
Specimen Height:	173.6 mm	Duration of Test:	850 seconds
Average Specimen Diameter:	60.7 mm		
Failure Type:	Tensile dominated		
Other Pertinent Observations:			
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-006 25.08-25.4m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96743-UCS
Job #	S24245-1	Sample #	S96743
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		172	MPa
Date Tested:	5/06/2024	Moisture Content:	0.4 %
Specimen Height:	172.6 mm	Duration of Test:	847 seconds
Average Specimen Diameter:	60.8 mm		
Failure Type:	Tensile dominated		
Other Pertinent Observations:			
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-007 16.4-16.75m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96747-UCS
Job #	S24245-1	Sample #	S96747
Test Procedure	AS 4133.4.2.2 Determination of uniaxial compressive strength-Rock strength less than 50 MPa		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		46	MPa
Date Tested:	5/04/2024	Moisture Content:	0.3 %
Specimen Height:	173.4 mm	Duration of Test:	610 seconds
Average Specimen Diameter:	60.9 mm	Rate of Displacement:	< 0.1 mm/min
Failure Type:	Single shear plane		
Other Pertinent Observations:			
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-008 11.74-12m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96751-UCS
Job #	S24245-1	Sample #	S96751
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		98.6	MPa
Date Tested:	5/04/2024	Moisture Content:	0.6 %
Specimen Height:	174.6 mm	Duration of Test:	720 seconds
Average Specimen Diameter:	60.8 mm		
Failure Type:	Other - see photo		
Other Pertinent Observations:	Failure influenced by defects		
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-009 11.45-11.66m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96756-UCS
Job #	S24245-1	Sample #	S96756
Test Procedure	AS 4133.4.2.2 Determination of uniaxial compressive strength-Rock strength less than 50 MPa		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		1.1	MPa
Date Tested:	5/04/2024	Moisture Content:	1.0 %
Specimen Height:	175.2 mm	Duration of Test:	608 seconds
Average Specimen Diameter:	60.8 mm	Rate of Displacement:	< 0.1 mm/min
Failure Type:	Other - see photo		
Other Pertinent Observations:	Failure influenced by defects		
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-009 18.65-19m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96758-UCS
Job #	S24245-1	Sample #	S96758
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		153	MPa
Date Tested:	5/06/2024	Moisture Content:	0.5 %
Specimen Height:	175.7 mm	Duration of Test:	834 seconds
Average Specimen Diameter:	60.9 mm		
Failure Type:	Tensile dominated		
Other Pertinent Observations:			
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-010 14.4-14.65m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96764-UCS
Job #	S24245-1	Sample #	S96764
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		89.7	MPa
Date Tested:	5/06/2024	Moisture Content:	0.7 %
Specimen Height:	172.1 mm	Duration of Test:	710 seconds
Average Specimen Diameter:	60.8 mm		
Failure Type:	Tensile dominated		
Other Pertinent Observations:			
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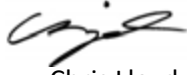
Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-011 15.72-15.87m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96772-UCS
Job #	S24245-1	Sample #	S96772
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		96	MPa
Date Tested:	5/06/2024	Moisture Content:	0.6 %
Specimen Height:	126.3 mm	Duration of Test:	843 seconds
Average Specimen Diameter:	60.6 mm		
Failure Type:	Mixed mode		
Other Pertinent Observations:			
Deviation from Standard:	Test specimen length to diameter ratio falls outside of standard limitations of 2.5-3.0.		
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Uniaxial Compressive Strength			
Client	WSP Australia Pty Ltd	Sample Source	BH-016 23-23.23m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96787-UCS
Job #	S24245-1	Sample #	S96787
Test Procedure	AS 4133.4.2.1 Determination of uniaxial compressive strength of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Sample Curing	-	Testing Machine	Matest 2000 kN Compression Machine
			
Uniaxial Compressive Strength		229	MPa
Date Tested:	5/06/2024	Moisture Content:	0.3 %
Specimen Height:	170.4 mm	Duration of Test:	898 seconds
Average Specimen Diameter:	60.7 mm		
Failure Type:	Tensile dominated		
Other Pertinent Observations:			
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Deformability of Rock Materials in Uniaxial Compression			
Client Address Project Job #	WSP Australia Pty Ltd	Sample Source Sample Description Report # Sample #	BH-003 12.45-12.67m
	Level 27, 680 George St, Sydney NSW 2000		Dolerite
	PS212776 - Mac Point Geotechnical Investigation		S96720-MOD
	S24245-1		S96720
Test Procedure AS 4133.4.3.1 Deformability of rock materials in uniaxial compression-Strengths of 50 MPa and greater			
Sampling Sampled by Client - results apply to the sample as received		Date Sampled	Unknown
Storage History Sealed		Storage Environment	Sealed at as received moisture condition
Axial Stress vs Strain Plots			
Axial 1 Axial 2 Avg Axial Diametral Secant Tangent Axial Stress (σ) 250 200 150 100 50 0 Strain (ε) -200 100 400 700 1000			
Uniaxial Compressive Strength		211	MPa
	Young's Modulus	Poisson's Ratio	
Tangent	91 GPa	0.11	from 20 % to 27 % of Max UCS
Secant	92 GPa	0.10	from 0 % to 24 % of Max UCS
Notes			
NATA	Accredited for compliance with ISO/IEC 17025 - Testing.		
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	Macquarie Geotechnical 14 Carter Street Lidcombe NSW 2141		

Deformability of Rock Materials in Uniaxial Compression															
Client Address Project Job #	WSP Australia Pty Ltd	Sample Source	BH-003 12.45-12.67m												
	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite												
	PS212776 - Mac Point Geotechnical Investigation	Report #	S96720-MOD												
	S24245-1	Sample #	S96720												
Test Procedure AS 4133.4.3.1 Deformability of rock materials in uniaxial compression-Strengths of 50 MPa and greater Sampling Sampled by Client - results apply to the sample as received Storage History Sealed Date Sampled Unknown Storage Environment Sealed at as received moisture condition															
Average Specimen Diameter (mm)		60.9	Moisture Content (%) 0												
Average Specimen Height (mm)		170	Wet Density (t/m³) 2.89												
Length to Diameter Ratio		2.8	Dry Density (t/m³) 2.87												
Duration of Test (min)		12.00	Rate of Loading (MPa/min): 8.3497499												
Date of Test: 9/6/24		Specimen Curing -													
Mode of Failure Tensile dominated		Test Apparatus	Matest Compression Machine with Axial and Circumferential Extensometers.												
  Before Test After Test															
Uniaxial Compressive Strength		211	MPa												
<table> <tr> <th></th><th><u>Young's Modulus</u></th><th><u>Poisson's Ratio</u></th><th></th></tr> <tr> <td>Tangent</td><td>91 GPa</td><td>0.11</td><td>from 20 % to 27 % of Max UCS</td></tr> <tr> <td>Secant</td><td>92 GPa</td><td>0.10</td><td>from 0 % to 24 % of Max UCS</td></tr> </table>					<u>Young's Modulus</u>	<u>Poisson's Ratio</u>		Tangent	91 GPa	0.11	from 20 % to 27 % of Max UCS	Secant	92 GPa	0.10	from 0 % to 24 % of Max UCS
	<u>Young's Modulus</u>	<u>Poisson's Ratio</u>													
Tangent	91 GPa	0.11	from 20 % to 27 % of Max UCS												
Secant	92 GPa	0.10	from 0 % to 24 % of Max UCS												
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Deformability of Rock Materials in Uniaxial Compression																			
Client Address Project Job #	WSP Australia Pty Ltd	Sample Source	BH-005 21.43-21.61m																
	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite																
	PS212776 - Mac Point Geotechnical Investigation	Report #	S96736-MOD																
	S24245-1	Sample #	S96736																
Test Procedure		AS 4133.4.3.1 Deformability of rock materials in uniaxial compression-Strengths of 50 MPa and greater																	
Sampling		Sampled by Client - results apply to the sample as received	Date Sampled Unknown																
Storage History		Sealed	Storage Environment Sealed at as received moisture condition																
Axial Stress vs Strain Plots Axial 1 Axial 2 Avg Axial Diametral Secant Tangent <table> <tr> <td colspan="2">Uniaxial Compressive Strength</td><td>114</td><td>MPa</td></tr> <tr> <td></td><td>Young's Modulus</td><td>Poisson's Ratio</td><td></td></tr> <tr> <td>Tangent</td><td>95 GPa</td><td>0.14</td><td>from 42 % to 58 % of Max UCS</td></tr> <tr> <td>Secant</td><td>96 GPa</td><td>0.14</td><td>from 0 % to 50 % of Max UCS</td></tr> </table>				Uniaxial Compressive Strength		114	MPa		Young's Modulus	Poisson's Ratio		Tangent	95 GPa	0.14	from 42 % to 58 % of Max UCS	Secant	96 GPa	0.14	from 0 % to 50 % of Max UCS
Uniaxial Compressive Strength		114	MPa																
	Young's Modulus	Poisson's Ratio																	
Tangent	95 GPa	0.14	from 42 % to 58 % of Max UCS																
Secant	96 GPa	0.14	from 0 % to 50 % of Max UCS																
Notes																			
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			Macquarie Geotechnical																
			14 Carter Street Lidcombe NSW 2141																

Deformability of Rock Materials in Uniaxial Compression			
Client	WSP Australia Pty Ltd	Sample Source	BH-005 21.43-21.61m
Address	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
Project	PS212776 - Mac Point Geotechnical Investigation	Report #	S96736-MOD
Job #	S24245-1	Sample #	S96736
Test Procedure	AS 4133.4.3.1 Deformability of rock materials in uniaxial compression-Strengths of 50 MPa and greater		
Sampling	Sampled by Client - results apply to the sample as received	Date Sampled	Unknown
Storage History	Sealed	Storage Environment	Sealed at as received moisture condition
Average Specimen Diameter (mm)	60.9	Moisture Content (%)	0
Average Specimen Height (mm)	171	Wet Density (t/m³)	2.88
Length to Diameter Ratio	2.8	Dry Density (t/m³)	2.87
Duration of Test (min)	10.65	Rate of Loading (MPa/min):	10.470674
Date of Test:	11/6/24	Specimen Curing	-
Mode of Failure	Mixed mode	Test Apparatus	Matest Compression Machine with Axial and Circumferential Extensometers.
 Before Test  After Test			
Uniaxial Compressive Strength		114	MPa
	<u>Young's Modulus</u>	<u>Poisson's Ratio</u>	
Tangent	95 GPa	0.14	from 42 % to 58 % of Max UCS
Secant	96 GPa	0.14	from 0 % to 50 % of Max UCS
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Deformability of Rock Materials in Uniaxial Compression			
Client Address Project Job #	WSP Australia Pty Ltd	Sample Source	BH-007 14.08-14.53m
	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
	PS212776 - Mac Point Geotechnical Investigation	Report #	S96746-MOD
	S24245-1	Sample #	S96746
Test Procedure		AS 4133.4.3.1 Deformability of rock materials in uniaxial compression-Strengths of 50 MPa and greater	
Sampling		Sampled by Client - results apply to the sample as received	Date Sampled Unknown
Storage History		Sealed	Storage Environment Sealed at as received moisture condition
Axial Stress vs Strain Plots			
Uniaxial Compressive Strength		128	MPa
Young's Modulus Poisson's Ratio			
Tangent	84 GPa	0.10	from 59 % to 72 % of Max UCS
Secant	88 GPa	0.09	from 0 % to 66 % of Max UCS
Notes			
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		Authorised Signatory: Chris Lloyd Date: 12/06/2024	
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Deformability of Rock Materials in Uniaxial Compression			
Client Address Project Job #	WSP Australia Pty Ltd	Sample Source	BH-007 14.08-14.53m
	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
	PS212776 - Mac Point Geotechnical Investigation	Report #	S96746-MOD
	S24245-1	Sample #	S96746
Test Procedure		AS 4133.4.3.1 Deformability of rock materials in uniaxial compression-Strengths of 50 MPa and greater	
Sampling		Date Sampled	Unknown
Storage History		Storage Environment	Sealed at as received moisture condition
Average Specimen Diameter (mm)		Moisture Content (%)	
60.9		0	
Average Specimen Height (mm)		Wet Density (t/m ³)	
171		2.85	
Length to Diameter Ratio		Dry Density (t/m ³)	
2.8		2.84	
Duration of Test (min)		Rate of Loading (MPa/min):	
9.73		10.319703	
Date of Test:		Specimen Curing	
11/6/24		-	
Mode of Failure		Test Apparatus	
Tensile dominated		Matest Compression Machine with Axial and Circumferential Extensometers.	
 Before Test  After Test			
Uniaxial Compressive Strength		128 MPa	
Young's Modulus		Poisson's Ratio	
Tangent	84 GPa	0.10	from 59 % to 72 % of Max UCS
Secant	88 GPa	0.09	from 0 % to 66 % of Max UCS
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Deformability of Rock Materials in Uniaxial Compression			
Client Address Project Job #	WSP Australia Pty Ltd	Sample Source	BH-009 14-14.21m
	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite
	PS212776 - Mac Point Geotechnical Investigation	Report #	S96757-MOD
	S24245-1	Sample #	S96757
Test Procedure		AS 4133.4.3.1 Deformability of rock materials in uniaxial compression-Strengths of 50 MPa and greater	
Sampling		Sampled by Client - results apply to the sample as received	Date Sampled Unknown
Storage History		Sealed	Storage Environment Sealed at as received moisture condition
Axial Stress vs Strain Plots			
Uniaxial Compressive Strength		71	MPa
Young's Modulus Poisson's Ratio			
Tangent		58.0 GPa	0.12 from 42 % to 58 % of Max UCS
Secant		60 GPa	0.12 from 0 % to 50 % of Max UCS
Notes			
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Deformability of Rock Materials in Uniaxial Compression															
Client Address Project Job #	WSP Australia Pty Ltd	Sample Source	BH-009 14-14.21m												
	Level 27, 680 George St, Sydney NSW 2000	Sample Description	Dolerite												
	PS212776 - Mac Point Geotechnical Investigation	Report #	S96757-MOD												
	S24245-1	Sample #	S96757												
Test Procedure AS 4133.4.3.1 Deformability of rock materials in uniaxial compression-Strengths of 50 MPa and greater Sampling Sampled by Client - results apply to the sample as received Storage History Sealed Date Sampled Unknown Storage Environment Sealed at as received moisture condition															
Average Specimen Diameter (mm)		60.8	Moisture Content (%) 1												
Average Specimen Height (mm)		176	Wet Density (t/m³) 2.63												
Length to Diameter Ratio		2.9	Dry Density (t/m³) 2.60												
Duration of Test (min)		6.82	Rate of Loading (MPa/min): 10.426817												
Date of Test:		11/6/24	Specimen Curing -												
Mode of Failure		Mixed mode	Test Apparatus Matest Compression Machine with Axial and Circumferential Extensometers.												
  Before Test After Test															
Uniaxial Compressive Strength		71	MPa												
<table> <tr> <th></th><th><u>Young's Modulus</u></th><th><u>Poisson's Ratio</u></th><th></th></tr> <tr> <td>Tangent</td><td>58.0 GPa</td><td>0.12</td><td>from 42 % to 58 % of Max UCS</td></tr> <tr> <td>Secant</td><td>60 GPa</td><td>0.12</td><td>from 0 % to 50 % of Max UCS</td></tr> </table>					<u>Young's Modulus</u>	<u>Poisson's Ratio</u>		Tangent	58.0 GPa	0.12	from 42 % to 58 % of Max UCS	Secant	60 GPa	0.12	from 0 % to 50 % of Max UCS
	<u>Young's Modulus</u>	<u>Poisson's Ratio</u>													
Tangent	58.0 GPa	0.12	from 42 % to 58 % of Max UCS												
Secant	60 GPa	0.12	from 0 % to 50 % of Max UCS												
 Accredited for compliance with ISO/IEC 17025 - Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. This document shall not be reproduced, except in full. Results relate only to the samples tested. NATA Accredited Laboratory Number: 14874 Authorised Signatory:  Chris Lloyd Date: 12/06/2024  Macquarie Geotechnical 14 Carter Street Lidcombe NSW 2141															

Appendix F

Limitations





Limitation Statement: Geotechnical Site Investigation

SCOPE OF SERVICES

This geotechnical site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

RELIANCE ON DATA

In preparing the report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP 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 WSP.

GEOTECHNICAL INVESTIGATION

Geotechnical engineering is based extensively on judgment and opinion. It is far less exact than other engineering disciplines. Geotechnical engineering reports are prepared to meet the specific needs of individuals. A report prepared for a consulting civil engineer may not be adequate for a construction contractor or even some other consulting civil engineer. This report was prepared expressly for the client and expressly for purposes indicated by the client or his representative. Use by any other persons for any purpose, or by the client for a different purpose, might result in problems. The client should not use this report for other than its intended purpose without seeking additional geotechnical advice.

THIS GEOTECHNICAL REPORT IS BASED ON PROJECT-SPECIFIC FACTORS

This geotechnical engineering report is based on a subsurface investigation which was designed for project-specification factors, including the nature of any development, its size and configuration, the location of any development on the site and its orientation, and the location of access roads and parking areas. Unless further geotechnical advice is obtained this geotechnical engineering report cannot be used:

- when the nature of any proposed development is changed
- when the size, configuration location or orientation of any proposed development is modified.

This geotechnical engineering report cannot be applied to an adjacent site.

THE LIMITATIONS OF SITE INVESTIGATION

In making an assessment of a site from a limited number of boreholes or test pits there is the possibility that variations may occur between test locations. Site exploration identifies specific subsurface conditions only at those points from which samples have been taken. The risk that variations will not be detected can be reduced by increasing the frequency of test locations; however this often does not result in any overall cost savings for the project. The investigation program undertaken is a professional estimate of the scope of investigation required to provide a general profile of the subsurface conditions. The data derived from the site investigation program 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 borehole logs are the subjective interpretation of subsurface conditions at a particular location, made by trained personnel. The interpretation may be limited by the method of investigation, and can not always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigation, however, such methods are limited by depth and site disturbance restrictions. In borehole investigation, the actual interface between materials may be more gradual or abrupt than a report indicates.



Limitation Statement: Geotechnical Site Investigation

SUBSURFACE CONDITIONS ARE TIME DEPENDENT

Subsurface conditions may be modified by changing natural forces or man-made influences. A geotechnical engineering report is based on conditions which existed at the time of subsurface exploration.

Construction operations at or adjacent to the site, and natural events such as floods, or groundwater fluctuations, may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. The geotechnical engineer should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

AVOID MISINTERPRETATION

A geotechnical engineer should be retained to work with other appropriate design professionals explaining relevant geotechnical findings and in reviewing the adequacy of their plans and specifications relative to geotechnical issues.

BORE/PROFILE LOGS SHOULD NOT BE SEPARATED FROM THE ENGINEERING REPORT

Final bore/profile logs are developed by geotechnical engineers based upon their interpretation of field logs and laboratory evaluation of field samples. Customarily, only the final bore/profile logs are included in geotechnical engineering reports. These logs should not under any circumstances be redrawn for inclusion in architectural or other design drawings. To minimise the likelihood of bore/profile log misinterpretation, contractors should be given access to the complete geotechnical engineering report prepared or authorised for their use. Providing the best available information to contractors helps prevent costly construction problems. For further information on this matter reference should be made to 'Guidelines for the Provision of Geotechnical Information in Construction Contracts' published by the Institution of Engineers Australia, National Headquarters, Canberra 1987.

GEOTECHNICAL INVOLVEMENT DURING CONSTRUCTION

During construction, excavation is frequently undertaken which exposes the actual subsurface conditions. For this reason geotechnical consultants should be retained through the construction stage, to identify variations if they are exposed and to conduct additional tests which may be required and to deal quickly with geotechnical problems if they arise.

REPORT FOR BENEFIT OF CLIENT

The report has been prepared for the benefit of the client and no other party. WSP 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 WSP 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 enquiries and obtain independent advice in relation to such matters.

OTHER LIMITATIONS

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