Geotechnical Investigation Report

Riverbend Development, Mirani

Project Number: 304570195

10 March 2025

Prepared for:

62 Monash Road Pty Ltd t/a
Certainty Wealth

Prepared by:

Stantec Australia Pty Ltd

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Prepared by 

Luke Armstrong *CDec BEng(Hons)(Civil)*
Geotechnical Engineer

Reviewed by 

Michael Large *DipProjMgmt BA(Geog/Arch)*
Senior Geoscientist

Approved by 

Trudie Bradbury *BSc(Hons) MSc MMinRes FGS*
Principal Engineering Geologist

Certainty Wealth
Suite 103, 2 Miami Key
BROADBEACH QLD 4218

Attention: Chris Doolan

Dear Chris,

REPORT ON GEOTECHNICAL INVESTIGATION – RIVERBEND DEVELOPMENT, MIRANI QLD

This report presents the findings of the geotechnical investigation undertaken by Stantec Australia Pty Ltd (herein referred to as 'Stantec') at the site of the proposed Riverbend Development situated in Mirani, QLD. The objective of the investigation was to assess the subsurface conditions to help aid pavement design for the proposed residential subdivision.

The fieldwork scope comprised the excavation of ten (10 no.) test pits utilising a 5-t excavator to a target depth of 2 metres below ground level (mbgl) or prior refusal. Dynamic Cone Penetrometer (DCP) testing was also undertaken adjacent to each test pit to a target depth of 2 mbgl or early refusal (majority refused early).

Laboratory testing was conducted on representative soil samples from each test pit taken at the time of the field investigation. The scope of work was directed by the client and the laboratory testing regime was direct by Stantec.

We trust this report meets your requirements. Should you wish to discuss any matters raised in the report, please do not hesitate to contact the undersigned.

Yours Faithfully,

Trudie Bradbury *BSc(Hons) MSc MMinRes FGS*
Principal Engineering Geologist

For **Stantec Australia Pty Ltd**

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1.0 INTRODUCTION

Stantec Australia Pty Ltd were commissioned by Certainty Wealth to undertake a geotechnical investigation for the proposed pavements at Riverbend Development, Mirani (**Figure 1-1**, below). We understand the investigation was required to assess the subsurface conditions to help aid pavement design for the proposed residential subdivision. It should be noted that a contamination investigation, acid sulfate soils assessment and slope stability analysis did not form part of this investigation. The aim of this report is to provide an overview of the geotechnical conditions encountered at each investigation location.

The geotechnical investigation and advice provided in this report is based generally in accordance with the following standards/documents:

- AS 1726:2017 – Geotechnical site investigations;
- AS 1289 – Methods of testing soil for engineering purposes;
- AS 3798:2007 – Guidelines on earthworks for commercial and residential developments;
- AS 2870:2011 – Residential slabs and footings;
- Department of Transport and Main Roads (August 2024) – Materials Testing Manual, Edition 6, Amendment 2; and
- Austroads Section 2.5.3 – Guide to Road Design - Geotechnical Investigation and Design.

Figure 1-1 Riverbend Development Proposed Roadworks Plan[1].

[1] Tetra Consulting (2023), Riverbend Development, Roadworks Plan, DRG No. 1107-1-1-SK010.

2.0 SCOPE OF WORKS

The commission has been carried out to meet the scope of works requested by the client. The scope of work involved an intrusive investigation which included the following:

- Project setup;
- Contact BYDA and, arrange for a service locator to mark the locations of underground utilities that may be present in the study area;
- Undertaking of all required workplace health and safety documentation with Stantec and sub-contracted workers, including SWMS review, Pre-starts, RMS documents etc.;
- Desktop review of previous geotechnical reports for the site and surrounding areas from our files and of published geological maps;
- The field investigation, comprising of:
    - Site walkover by a principal geologist to identify areas of instability or erosion;
    - Excavation of ten (10 no.) test pits to a depth of 2.0 m below surface level, or prior refusal using a subcontracted excavator;
    - Dynamic Cone Penetrometer (DCP) testing in accordance with AS 1289.6.3.2 and Q114B at each test pit location, to 2.0 m or early refusal;
    - Logging of all material layers from surface to maximum test pit depth with reference to AS 1726;
    - Recovery of sufficient disturbed samples of all major soil stratums (keeping uniform layers or material types separate) to facilitate laboratory testing;
    - Photographs of general site conditions, spoil and test pit side wall;
    - Tests pits reinstated with spoil material under limited compaction.
- Geotechnical laboratory testing conducted at Stantec's testing laboratory in Mackay; and
- Final interpretive reporting on findings collected from fieldwork, including the following:
    - A description of the fieldwork including details of testing procedures;
    - Photographs of general site, spoil, and points of interest;
    - Tabulated laboratory results and test reports;
    - A summarised description of the subsurface conditions across the study area;
    - Engineering logs and site plan detailing test locations (handheld GPS +- 5 m accuracy);
    - Dynamic Cone Penetrometer (DCP) reports (GeoTester generated) with equivalent CBR values;
    - Excavatability of in-situ materials;
    - Commentary on the observed stability and conditions across the site; and
    - Presence of groundwater / seepage / rock etc.

3.0 SITE CONDITIONS

3.1 SITE DESCRIPTION

The proposed land development site is located in Mirani along Mirani Eton Road and is characterised by a mixed-use landscape comprising residential buildings and agricultural land. The site is bordered by densely vegetated cane fields, cattle-grazing paddocks, and the Pioneer River, which runs adjacent to the northwestern boundary. The area features a combination of low-density vegetation and mature trees reaching heights of approximately 10 to 20 meters. The northwestern portion of the site is defined by a two terraced slope that transitions into the Pioneer River. At the time of the field investigation, recent high levels of rainfall had occurred at the site causing ground conditions to be wet and boggy.

A site figure is provided in **Appendix A** at the end of this report which shows the extent of the site and test locations. Select photographs showing the general site conditions at the time of investigation are shown in **Figure 3-1**, below, with full site photographs shown in **Appendix D**.

Figure 3-1 Select Site Photographs at the Time of the Field Investigation.

3.2 REGIONAL GEOLOGY

Based on the published compiled geological map of the area by QLD Department of Natural Resources, Mines and Energy (2014)[2], the site is likely to comprise of clay, silt, sand and clayey to sandy gravel; alluvial fans, sheetwash and floodout sheets. The underlying rock is likely to comprise of the Early Permian Carmila beds unit. Material encountered on site was generally in agreeance with the mapped lithology shown in **Figure 3-2**, below.

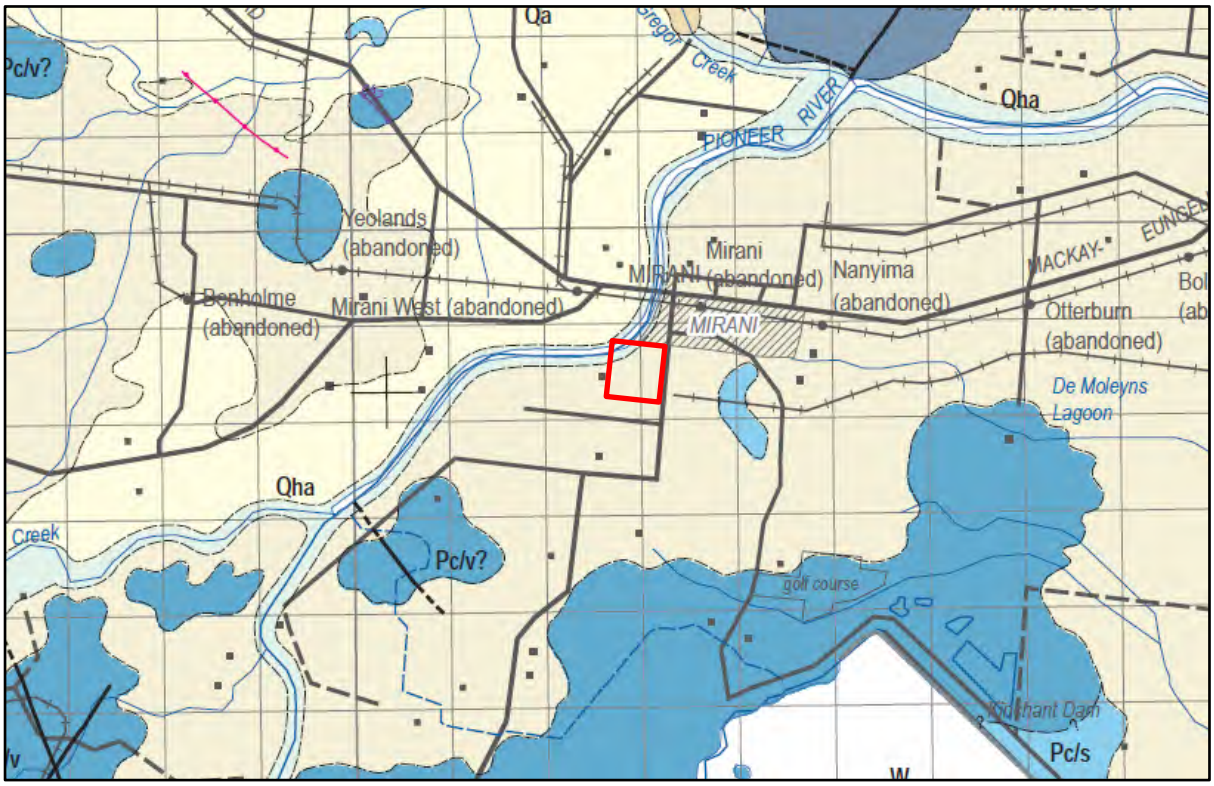


Figure 3-2 **Mirani Local Geology (Site Marked as Red Square).**

Table 3-1 **Regional Geology Map Legend**

Symbol	Unit	Age	Lithology Summary
Qf	-	Quaternary	Clay, silt sand and clayey to sandy gravel; alluvial fans, sheetwash and floodout sheets.
Qa	-	Quaternary	Clay, silt, sand and gravel; flood-plain alluvium.
Qha	-	Holocene	Sand, gravel, silt and clay; active stream channels and low terraces.
Pc/v	Carmila beds	Early Permian	Rhyolitic to dacitic volcaniclastic rocks (poorly sorted, volcanic sandstone and breccia and ignimbrite); minor altered basalt.
Pc/s	Carmila beds	Early Permian	Siltstone and mudstone, volcanilithic sandstone and conglomerate; minor altered basalt and local rhyolitic to dacitic volcanic rocks.

[2] QLD Department of Natural Resources, Mines and Energy (2014), Australia 1:100 000 Geological Compilation Series, Mirani Surface Geology, Sheet 8655.

4.0 INVESTIGATION FINDINGS

4.1 FIELD INVESTIGATION

The fieldwork was carried out on 18 & 19 February 2025 by a Stantec Engineer, in accordance with the project scope. Test pit locations were selected based on the proposed infrastructure with consideration to existing under/above ground services and plant access. The investigation comprised the excavation of ten (10 no.) test pits to a target depth of 2 mbgl or early refusal utilising a 5-t excavator (bladed bucket) owned and operated by Seaforth Civil. Test pits were backfilled using spoil material under limited compaction. Representative samples were recovered from each test pit at the time of the investigation and subsequently submitted for laboratory testing. Dynamic Cone Penetrometer (DCP) testing was also conducted to both Australian and DTMR Standards adjacent to each test pit to a target depth of 2 mbgl or early refusal. DCP results can be found in **Appendix C**.

Each test location was recorded with a handheld GPS to an accuracy of ±5m. A site plan detailing the test locations is presented in **Appendix A** with a summary shown in **Table 4-1**, below.

Table 4-1 Summary of Test Locations

Location	Coordinates GDA94 UTM 55 K		Termination Depth (m)
	Easting (E)	**Northing** (N)	
TP01	693042	7658733	2.00
TP02	692919	7658670	2.00
TP03	693169	7658660	2.00
TP04	693030	7658579	2.00
TP05	692848	7658550	2.00
TP06	692850	7658516	2.00
TP07	693177	7658471	2.00
TP08	692842	7658415	2.00
TP09	692984	7658391	2.00
TP10	693151	7658333	2.00

4.2 SUBSURFACE CONDITIONS

Material layers encountered in each test pit were visually classified and logged in accordance with AS 1726. Descriptive engineering logs are provided in **Appendix B**, with photographs of the spoil and pit side walls presented in **Appendix D**. Subsurface ground conditions encountered in each test pit are summarised in **Table 4-2**, overleaf.

Table 4-2 Summary of Strata Encountered

Location	**Organic** (PEAT, Decomposed Grasses, Organics) (m)	**Fill** (Sandy CLAY) (m)	**Topsoil** (Sandy CLAY) (m)	**Alluvial** (CLAY, Sandy CLAY) (m)
TP01	0.00-0.05	-	0.05-0.40	0.40-2.00*
TP02	0.00-0.05	-	0.05-0.25	0.25-2.00*
TP03	0.00-0.05	-	0.05-0.35	0.35-2.00*
TP04	0.00-0.05	-	0.05-0.35	0.35-2.00*
TP05	0.00-0.05	-	0.05-0.25	0.25-2.00*
TP06	0.00-0.05	-	0.05-0.35	0.35-2.00*
TP07	0.00-0.02	0.02-0.20	0.20-0.40	0.40-2.00*
TP08	0.00-0.05	-	0.05-0.40	0.40-2.00*
TP09	0.00-0.05	-	0.05-0.40	0.40-2.00*
TP10	0.00-0.05	-	0.05-0.40	0.40-2.00*

Note: *Test Pit Termination Depth

4.3 GROUNDWATER

At the time of the investigation (February 2025), groundwater/seepage was not encountered in any of the test pits. It should be noted that the groundwater tends to be variable based on seasonal falls and it is likely that some seepage will occur throughout the year.

5.0 LABORATORY TESTING

At the time of the investigation, representative soil samples were recovered for soil classification and geomechanical laboratory testing. Soil classification of selected samples was undertaken to provide data for engineering assessment and to validate the material properties described in the field logs. Subsurface characteristics such as composition and mechanical properties are evaluated through a range of laboratory testing. Selected soil samples recovered from the test pits were submitted to the laboratory for the following tests:

- Moisture Content (AS 1289.2.1.1);
- Atterberg Limits incl. Linear Shrinkage (4 Point) (AS 1289.3.1.1,3.2.1,3.3.1,3.4.1);
- Particle Size Distribution (AS 1289.3.6.1);
- Maximum Dry Density (AS 1289.5.1.1); and
- California Bearing Ratio, 1 Point, 4-Day Soaked (AS 1289.6.1.1).

Testing was completed at our construction materials testing laboratory in Mackay to the relevant Australian Standards. A summary of the geotechnical test results is presented in **Table 5-1** and **Table 5-2**, below, with laboratory testing reports presented in **Appendix E**.

Table 5-1 Summary of Test Results – Soil Classification

Location	Depth (m)	Gravel (%)	Sand (%)	Silt / Clay (%)	Liquid Limit (%)	Plastic Index (%)	Linear Shrinkage (%)	Moisture Content (%)
TP01	0.40-1.10	5	18	77	59	21	13.5	21.7
TP04	0.50	4	25	71	62	21	13.0	-
TP06	0.90	2	29	69	44	17	12.0	-
TP07	0.40-0.70	1	17	82	61	20	16.0	22.6
TP07	0.70-1.10	1	16	83	46	17	13.0	14.4
TP09	0.40-1.10	1	25	74	46	17	11.5	20.1
TP09	1.10-2.00	2	50	48	32	17	7.0	13.6

Table 5-2 Summary of Test Results – MDD& CBR

Location	Depth (m)	Maximum Dry Density (MDD) (t/m3)	Optimum Moisture Content (OMC) (%)	California Bearing Ratio CBR (%)
TP01	0.40-1.10	1.63	21.5	4.0
TP07	0.40-0.70	1.66	20.5	5.0
TP07	0.70-1.10	1.77	15.5	2.5
TP09	0.40-1.10	1.69	19.0	4.0
TP09	1.10-2.00	1.92	12.0	6.0

6.0 ENGINEERING ASSESSMENT

The following section presents the engineering assessment that was carried out for the project based on the encountered materials during fieldwork activities, in-situ testing, laboratory testing results and site walkthrough.

6.1 DESIGN INSITU CBR VALUES & SUBGRADE SUPPORT CBR

Table 6-1 below summarises the results of the laboratory CBR tests and field DTMR (Q114B) DCP tests on the subgrade layer within each of the test pits. DCP tests were undertaken from surface level to a target depth of 2.0 m or earlier refusal. DCP testing values were used to produce equivalent CBR values through the method described in Q114B. DCP test reports are presented in **Appendix C**.

Table 6-1 In-Situ CBR Values & Laboratory CBR Values

Test Pit	Layer Thickness (mm)	Equivalent In-Situ CBR Value from DCP		Laboratory CBR (4-Day Soaked)	
		Depth (mm)	CBR Value (%)	Sample Depth (m)	CBR Value (%)
TP01	400	0 - 400	1.5		
	200	400 - 600	3.5	0.40-1.10	4.0
	200	600 - 800	7		
	200	800 - 1000	20		
	500	1000 - 1500	>60		
TP02	200	0 - 200	1.5		
	399	200 - 599	4.5		
	301	599 - 900	11		
	300	900 - 1200	30		
	300	1200 - 1500	>60		
TP03	200	0 - 200	1.5		
	400	200 - 600	4.5		
	200	600 - 800	9		
	299	800 - 1099	25		
	501	1099 - 1600	60		
TP04	400	0 - 400	1.5		
	400	400 - 800	5.0		
	300	800 - 1100	15		
	200	1100 -1300	30		
	300	1300 - 1600	>60		
TP05	500	0 - 500	1.5		
	300	500 - 800	4.0		
	199	800 - 999	10		
	301	999 -1300	30		

Test Pit	Layer Thickness (mm)	Equivalent In-Situ CBR Value from DCP		Laboratory CBR (4-Day Soaked)	
		Depth (mm)	CBR Value (%)	Sample Depth (m)	CBR Value (%)
	500	1300 - 1800	50		
TP06	300	0 - 300	1.5		
	399	300 - 699	4.0		
	200	699 - 899	10		
	301	899 - 1200	30		
	400	1200 - 1600	60		
TP07	300	200 - 500	1.5	0.40 - 0.70	5.0
	100	500 - 600	3.5		
	199	600 - 799	11		
	201	799 - 1000	25	0.70 - 1.10	2.5
	300	1000 - 1300	>60		
TP08	100	0 – 100	1.5		
	799	100 -899	4.0		
	401	899 - 1300	12		
	300	1300 – 1600	25		
	400	1600 - 2000	50		
TP09	200	0 – 200	1.5		
	300	200 – 500	3.5	0.40 - 1.10	4.0
	399	500 – 899	10		
	200	899 – 1099	20		
	501	1099 - 1600	60	1.10- 2.00	6.0
TP10	200	0 - 200	1.5		
	400	200 - 600	3.5		
	199	600 - 799	10		
	101	799 - 900	17		
	100	900 - 1000	40		
	600	1000 - 1600	60		

Note: All values assume that adequate drainage is incorporated into the design.

The subgrade support CBR values have been calculated using the methods described in the Mackay Planning Scheme Policy – Pavement Design v1.1)[3], The following subgrade support values should be adopted for the site:

Cohesive Material (Clayey Soils) 2.5%.

[3] Mackay Regional Council (2021), Mackay Region Planning Scheme, Planning Scheme Policy - Pavement Design, Version 1.1, Amendment 3.

6.2 SLOPE INSPECTION

The proposed development footprint is generally flat or gently sloping. During the investigation, we undertook an inspection on the slope situated on the northwest portion of the property (**Figure 6-1**, below). Photographs captured at the time of the inspection can be seen in **Appendix D**. The northwest portion of the site is boarded by the Pioneer River and consists of approximately two terraces (potentially sloping more than 15%). The lower terrace was densely vegetated with mature aged trees and minimal grass cover. The upper terrace consisted of sparse tree cover and densely vegetated grasses. Several washouts were noted within the sloped area. We understand there is no development planned for this area. Should development be proposed in this area, a full slope stability assessment will be required.

Figure 6-1 Riverbend Development Slope Location (Marked as Blue Box)[4].

6.3 EARTHWORKS

It is recommended that any earthworks are carried out with consideration to *Section 8.2* of AS 3798 and in strict accordance with compaction, supervision and testing requirements specified in the project specifications and drawings.

In order to minimise foundation movement, it is important that site management for the existing soil conditions are observed both at the time of construction and throughout the life span of the proposed development. We recommend that appropriate drainage be provided around the infrastructure to prevent water ponding, which could negatively affect infrastructure performance.

[4] Nearmap AU (2024), Aerial Maps, Mirani - Eton Road Mirani QLD 4754 Australia.

6.3.1 TRAFFICABILITY

Given the clayey nature of the natural subsurface soil profile, the trafficability of the site is expected to be accessible for all plant/vehicles during the dry. Trafficability during the wet season is expected to be poor (incl. general periods of wet weather) due to the accumulation of surface water and poor drainage. The site should be ok for tracked plant such as excavators.

6.3.2 STRIPPING REQUIREMENTS

It is recommended that all topsoil, fill, deleterious and unsuitable material encountered during construction be stripped off the site. Exposed soils below the stripped and grubbed zones should be left in place only if they can be satisfactorily moisture conditioned and compacted to specified densities. If any soils are considered soft or wet they must be stripped as well.

Exposed stripped surfaces should be compacted to a minimum of 95% dry density or 70% density index at ±1.5% of Optimum Moisture Content (OMC) under AS 1289.5.1.1 and AS 1289.5.3.1 or AS 1289.5.8.1. In order for material to be considered suitable for reuse it must satisfy the requirements of AS 3798, as well as any site–specific requirements, and undergo laboratory testing to confirm its suitability.

6.3.3 EXCAVATABILITY

Based on the field investigation and testing, we would estimate that the excavatability of the soils to termination depth would range from Class 2 to 4 as per the Kirsten H. A. D. (1982) Classification System[5] shown in **Table 6-2,** below**.**

Table 6-2 Definition of Eight-Point Excavation Classification System

Material Type	Material Excavation Classification(1)		Description of Excavatability
	Class	Class Index Boundaries	
Soil / Detritus	1	N < 0.01	Hand spade
	2	0.01 < N < 0.1	Hand pick and spade
	3	0.1 < N < 1.0	Power tools / Easy excavation
Rock	4	1.0 < N < 10	Easy ripping
	5	10 < N < 100	Hard ripping
	6	100 < N < 1,000	Very hard ripping
	7	1,000 < N 10,000	Extremely hard ripping / blasting
	8	N > 10,000	Blasting

[5] Kirsten H. A. D. (1982), A classification system for excavation in natural materials, Volume 24, Issue 7, Appendix C: Definition of excavation class intervals, Table C1, Page 307.

6.3.4 EXCAVATION WALL STABILITY

During the investigation, no spalling was observed during the excavation of the test pits and were subsequently considered stable short term. The site mostly consisted of moist cohesive soils. Proper monitoring and support systems, such as shoring or bracing, should still be in place to ensure continued stability, especially in varying weather conditions or prolonged exposure. Should any seepage or water ingress be observed within excavations, the stability should be reassessed by a geotechnical professional prior to undertaking the works.

7.0 LIMITATIONS

Geotechnical services are provided by Stantec Australia Pty Ltd accordance with generally accepted professional engineering and geological practice in the area where these services are rendered. The client acknowledges that the present standard in the engineering, geological and environmental profession does not include a guarantee of perfection, and no other warranty, expressed or implied, is extended by Stantec Australia.

It is the reader's responsibility to verify the correct interpretation and intention of the results presented herein. Stantec Australia assumes no responsibility for misunderstandings or improper interpretations that result in unsatisfactory or unsafe work products. It is the reader's further responsibility to acquire copies of any supplemental reports, addenda or responses to public agency reviews that may supersede recommendations in this report.

The findings presented in this report have been based on the investigation described herein. There are always some variations in subsurface conditions across a site, which cannot be fully defined by investigation. It is unlikely that the measurements and values obtained from sampling and testing during the investigation will represent the extremes of conditions that may exist within the site. Hence, it is recommended that if any ground conditions significantly different to those described in this report are encountered during construction, further advice should be immediately sought from Stantec Australia.

This report has been prepared specifically for Certainty Wealth and their project designers. Information contained in this report should not be construed as appropriate for other purposes or other users.

APPENDICES

Appendix A SITE MAP

TEST PIT LOCATION GDA94 MGA56

ID	Easting	Northing
TP01	693042.00	7658733.00
TP02	692919.00	7658670.00
TP03	693169.00	7658660.00
TP04	693030.00	7658579.00
TP05	692848.00	7658550.00
TP06	692850.00	7658516.00
TP07	693177.00	7658471.00
TP08	692842.00	7658415.00
TP09	692984.00	7658391.00
TP10	693151.00	7658333.00

Site Location Plan

72 Mirani Eton Road, Mirani

Project Code: 304570195
Drawn By: JAC, Checked By: LA
Figure No: 1 | Rev: 1
Date: 2025-02-17

Legend

- Site Location
- Test Pit
- Cadastre (DoR, 2022)

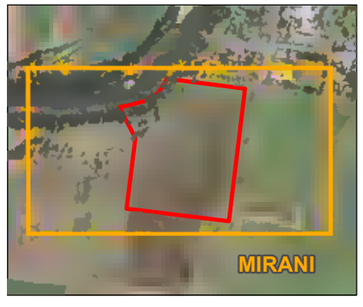
Notes:
1. Coordinate System: GDA 1994 MGA Zone 55

References:
1. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

DRAFT - NOT FOR CONSTRUCTION

0 100 Meters

Scale at A3 1:3,000



Stantec

Appendix B TEST PIT LOGS

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP01

Sheet: 1 of 1

Coordinates: E 693042 N 7658733 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket **Excavated by Stantec**

Date Excavated: 18 Feb 2025 **Logged By: CS** **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description						
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX		Stable	Groundwater Not Encountered			0		Pt	0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics	W	VS	ORGANIC
	VE							CL	**TOPSOIL: Sandy CLAY**: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, roots and rootlets, Field Estimate MPS 3 LL 30 P75 60	M to W		TOPSOIL
									0.40m			
	E			B 0.40 - 1.10 m		0.5		CH	**CLAY** with sand trace gravel: mottled brown, light brown, brown-orange, grey, high plasticity, sand, fine to medium grained, gravel, fine to medium grained, sub-rounded, MPS 5 LL 59 P75 77		S to F	ALLUVIAL
						1.0			1.10m			
	H			B 1.10 - 2.00 m	R	1.5		CL	**Sandy CLAY**: brown-orange, mottled grey, low plasticity, sand, fine to coarse grained, cemented, Field Estimate MPS 2 LL 35 P75 40	M	St to VSt	
						2.0			2.00m			
									TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
AD/T Solid flight auger: TC-Bit
WB Washbore drilling
RR Rock roller

RESISTANCE
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
Water Inflow
Water Outflow

SAMPLES
B Bulk disturbed sample
D Disturbed sample
ES Environmental sample
U50 Tube sample 50 mm
SPT SPT sample

FIELD TESTS
SPT Standard Penetration Test (Split Spoon)
SCSPT Standard Penetration Test (Solid Cone)
PP Hand/Pocket Penetrometer
PID Photoionisation Detector
VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
MPS - Maximum Particle Size (mm)
LL - Liquid Limit (%)
P75 - Passing 75 µm sieve (%)

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard
Fr - Friable

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP02

Sheet: 1 of 1

Coordinates: E 692919 N 7658670 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket | **Excavated by Stantec**

Date Excavated: 18 Feb 2025 | **Logged By: CS** | **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description						
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX	VE	Stable	Groundwater Not Encountered			0.0		Pt	0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics	W		ORGANIC
								CL	**TOPSOIL: Sandy CLAY**: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, roots and rootlets, Field Estimate MPS 3 LL 30 P75 60	M to W	VS	TOPSOIL
									0.25m			
								CH	**CLAY** with sand: dark grey, grey, high plasticity, sand, fine to coarse grained, Field Estimate MPS 2 LL 60 P75 75			ALLUVIAL
	E			B 0.45 - 0.70 m 0.60m		0.5			0.45m			
								CI	**Sandy CLAY** trace gravel: mottled brown, pale brown, orange, medium plasticity, sand, fine to medium grained, gravel, fine to medium grained, sub-angular to sub-rounded, Field Estimate MPS 8 LL 45 P75 55		S to F	
									0.70m			
	H				R	1.0		CL	**Sandy CLAY**: brown-orange, mottled grey, low plasticity, sand, fine to coarse grained, cemented, Field Estimate MPS 2 LL 35 P75 40	M	St to VSt	
						1.5						
						2.0			2.00m TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
AD/T Solid flight auger: TC-Bit
WB Washbore drilling
RR Rock roller

RESISTANCE
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
Water Inflow
Water Outflow

SAMPLES
B Bulk disturbed sample
D Disturbed sample
ES Environmental sample
U50 Tube sample 50 mm
SPT SPT sample

FIELD TESTS
SPT Standard Penetration Test (Split Spoon)
SCSPT Standard Penetration Test (Solid Cone)
PP Hand/Pocket Penetrometer
PID Photoionisation Detector
VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
MPS - Maximum Particle Size (mm)
LL - Liquid Limit (%)
P75 - Passing 75 µm sieve (%)

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard
Fr - Friable

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP03

Sheet: 1 of 1

Coordinates: E 693169 N 7658660 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket **Excavated by Stantec**

Date Excavated: 18 Feb 2025 **Logged By: CS** **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX	VE	Stable	Groundwater Not Encountered					Pt	0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics	W		ORGANIC
								CL	**TOPSOIL: Sandy CLAY**: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, roots and rootlets, Field Estimate MPS 3 LL 30 P75 60	M to W	VS	TOPSOIL
									0.35m			
	E			B 0.35 - 0.75 m 0.60m		0.5		CH	**CLAY** with sand: grey, mottled brown, high plasticity, sand, fine to coarse grained, Field Estimate MPS 2 LL 65 P75 80	M	S to F	ALLUVIAL
									0.75m			
	H			B 0.75 - 1.10 m 1.00m		1.0		CI	**Sandy CLAY** trace gravel: dark grey, dark brown, medium plasticity, sand, fine to medium grained, gravel, fine to coarse grained, rounded, calcite nodules, Field Estimate MPS 25 LL 45 P75 50	D to M	St to VSt	
									1.10m			
				B 1.10 - 2.00 m 1.50m	R	1.5		CL	**Sandy CLAY** trace gravel: brown, light brown-orange, low plasticity, sand, fine to medium grained, gravel, fine to medium grained, sub-angular to sub-rounded, cemented, Field Estimate MPS 12 LL 35 P75 40			
						2.0			2.00m			
									TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- AD/T Solid flight auger: TC-Bit
- WB Washbore drilling
- RR Rock roller

RESISTANCE
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- Water Inflow
- Water Outflow

SAMPLES
- B Bulk disturbed sample
- D Disturbed sample
- ES Environmental sample
- U50 Tube sample 50 mm
- SPT SPT sample

FIELD TESTS
- SPT Standard Penetration Test (Split Spoon)
- SCSPT Standard Penetration Test (Solid Cone)
- PP Hand/Pocket Penetrometer
- PID Photoionisation Detector
- VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
- DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
- MPS - Maximum Particle Size (mm)
- LL - Liquid Limit (%)
- P75 - Passing 75 µm sieve (%)

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard
- Fr - Friable

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP04

Sheet: 1 of 1

Coordinates: E 693030 N 7658579 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket | **Excavated by Stantec**

Date Excavated: 19 Feb 2025 | **Logged By: CS** | **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX	VE	Stable	Groundwater Not Encountered					Pt	0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics			ORGANIC
								CL	**TOPSOIL: Sandy CLAY**: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, roots and rootlets, Field Estimate MPS 3 LL 30 P75 60	W	VS	TOPSOIL
									0.35m			
	E			B 0.35 - 0.75 m 0.50m		0.5		CH	**CLAY** with sand trace gravel: grey, mottled brown-orange, high plasticity, sand, fine to coarse grained, gravel, fine grained, sub-angular to sub-rounded, MPS 5 LL 62 P75 71	M to W		ALLUVIAL
									0.75m			
	F			B 0.75 - 1.10 m 0.90m		1.0		CI	**Sandy CLAY** trace gravel: orange-brown, mottled grey, medium plasticity, sand, fine to medium grained, gravel, fine grained, sub-angular to sub-rounded, Field Estimate MPS 5 LL 45 P75 60		S to F	
									1.10m			
	H			B 1.10 - 2.00 m 1.50m	R	1.5		CL	**Sandy CLAY** trace gravel: brown-orange, mottled grey, low plasticity, sand, fine to medium grained, gravel, fine grained, sub-angular to sub-rounded, cemented, Field Estimate MPS 4 LL 35 P75 40	M	St to VSt	
						2.0			2.00m			
									TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- AD/T Solid flight auger: TC-Bit
- WB Washbore drilling
- RR Rock roller

RESISTANCE
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- Water Inflow
- Water Outflow

SAMPLES
- B Bulk disturbed sample
- D Disturbed sample
- ES Environmental sample
- U50 Tube sample 50 mm
- SPT SPT sample

FIELD TESTS
- SPT Standard Penetration Test (Split Spoon)
- SCSPT Standard Penetration Test (Solid Cone)
- PP Hand/Pocket Penetrometer
- PID Photoionisation Detector
- VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
- DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
- MPS - Maximum Particle Size (mm)
- LL - Liquid Limit (%)
- P75 - Passing 75 µm sieve (%)

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard
- Fr - Friable

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP05

Sheet: 1 of 1

Coordinates: E 692848 N 7658550 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket | **Excavated by Stantec**

Date Excavated: 18 Feb 2025 | **Logged By: CS** | **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description						
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX	VE	Stable	Groundwater Not Encountered					Pt	0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics	W		ORGANIC
								CL	**TOPSOIL: Sandy CLAY**: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, roots and rootlets, 0.25m Field Estimate MPS 3 LL 25 P75 60			TOPSOIL
	E			B 0.25 - 0.60 m 0.40m		0.5		Cl	**Sandy CLAY** trace gravel: grey, mottled brown, medium plasticity, sand, fine grained, gravel, fine to medium grained, sub-rounded, rootlets present, 0.60m Field Estimate MPS 15 LL 45 P75 50	M to W	VS	ALLUVIAL
	F			B 0.60 - 1.10 m 0.80m		1.0		Cl	**Sandy CLAY** trace gravel: mottled grey, brown, medium plasticity, sand, fine to medium grained, gravel, fine to medium grained, sub-angular to sub-rounded, 1.10m Field Estimate MPS 8 LL 45 P75 65		S to F	
	H			B 1.10 - 2.00 m 1.50m	R	1.5		CL	**Sandy CLAY**: brown-orange, mottled grey, low plasticity, sand, fine to coarse grained, cemented, 2.00m Field Estimate MPS 2 LL 35 P75 40	M	St to VSt	
						2.0			TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
AD/T Solid flight auger: TC-Bit
WB Washbore drilling
RR Rock roller

RESISTANCE
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
Water Inflow
Water Outflow

SAMPLES
B Bulk disturbed sample
D Disturbed sample
ES Environmental sample
U50 Tube sample 50 mm
SPT SPT sample

FIELD TESTS
SPT Standard Penetration Test (Split Spoon)
SCSPT Standard Penetration Test (Solid Cone)
PP Hand/Pocket Penetrometer
PID Photoionisation Detector
VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
MPS - Maximum Particle Size (mm)
LL - Liquid Limit (%)
P75 - Passing 75 µm sieve (%)

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard
Fr - Friable

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP06

Sheet: 1 of 1

Coordinates: E 692850 N 7658516 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket | **Excavated by Stantec**

Date Excavated: 18 Feb 2025 | **Logged By: CS** | **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description						
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX	VE	Stable	Groundwater Not Encountered				Pt		0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics	M		ORGANIC
							CL		**TOPSOIL: Sandy CLAY**: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, roots and rootlets, Field Estimate MPS 3 LL 30 P75 60		VS	TOPSOIL
									0.35m			
	E			B 0.35 - 0.75 m 0.50m		0.5	CI		**CLAY** with sand trace gravel: mottled light grey, light brown, medium plasticity, sand, fine to medium grained, gravel, fine to medium grained, sub-rounded, Field Estimate MPS 14 LL 45 P75 75	M to W		ALLUVIAL
									0.75m		S to F	
	F			B 0.75 - 1.20 m 0.90m		1.0	CI		**CLAY** with sand trace gravel: orange-brown, mottled grey, medium plasticity, sand, fine to medium grained, gravel, fine grained, sub-angular to sub-rounded, MPS 3 LL 44 P75 69			
									1.20m			
	H			B 1.20 - 2.00 m 1.60m	R	1.5	CL		**Sandy CLAY** trace gravel: brown-orange, mottled grey, low plasticity, sand, fine to medium grained, gravel, fine grained, sub-angular to sub-rounded, cemented, Field Estimate MPS 4 LL 35 P75 40	M	St to VSt	
									2.00m			
						2.0			TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- AD/T Solid flight auger: TC-Bit
- WB Washbore drilling
- RR Rock roller

RESISTANCE
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- Water Inflow
- Water Outflow

SAMPLES
- B Bulk disturbed sample
- D Disturbed sample
- ES Environmental sample
- U50 Tube sample 50 mm
- SPT SPT sample

FIELD TESTS
- SPT Standard Penetration Test (Split Spoon)
- SCSPT Standard Penetration Test (Solid Cone)
- PP Hand/Pocket Penetrometer
- PID Photoionisation Detector
- VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
- DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
- MPS - Maximum Particle Size (mm)
- LL - Liquid Limit (%)
- P75 - Passing 75 µm sieve (%)

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard
- Fr - Friable

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP07

Sheet: 1 of 1

Coordinates: E 693177 N 7658471 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket | **Excavated by Stantec**

Date Excavated: 19 Feb 2025 | **Logged By: CS** | **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description						
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX	VE	Stable	Groundwater Not Encountered			0.02m		Pt	**PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics	W		ORGANIC
								CL	**FILL: Sandy CLAY** with gravel: very dark brown, very dark grey, low plasticity, sand, fine to coarse grained, gravel, fine to coarse grained, sub-rounded, Field Estimate MPS 80 LL 30 P75 40	M to W		FILL
						0.20m		CL	**TOPSOIL: Sandy CLAY**: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, rootlets, Field Estimate MPS 3 LL 30 P75 60		VS	TOPSOIL
	E			B 0.40 - 0.70 m		0.5		CH	**CLAY** with sand trace gravel: mottled grey, brown, high plasticity, sand, fine to medium grained, gravel, fine to coarse grained, sub-rounded, Field Estimate MPS 3 LL 61 P75 83			ALLUVIAL
	F			B 0.70 - 1.10 m		1.0		CI	**CLAY** with sand trace gravel: mottled brown, grey, medium plasticity, sand, fine to medium grained, gravel, fine to coarse grained, sub-rounded, Field Estimate MPS 16 LL 46 P75 74		S to F	
	H			B 1.10 - 2.00 m	R	1.5		CL	**Sandy CLAY** trace gravel: grey, mottled brown, low plasticity, sand, fine to medium grained, gravel, medium to coarse grained, sub-rounded, cemented, Field Estimate MPS 8 LL 35 P75 40 1.10-1.50m: calcite nodules	M	St to VSt	
						2.0			TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- AD/T Solid flight auger: TC-Bit
- WB Washbore drilling
- RR Rock roller

RESISTANCE
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- Water Inflow
- Water Outflow

SAMPLES
- B Bulk disturbed sample
- D Disturbed sample
- ES Environmental sample
- U50 Tube sample 50 mm
- SPT SPT sample

FIELD TESTS
- SPT Standard Penetration Test (Split Spoon)
- SCSPT Standard Penetration Test (Solid Cone)
- PP Hand/Pocket Penetrometer
- PID Photoionisation Detector
- VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
- DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
- MPS - Maximum Particle Size (mm)
- LL - Liquid Limit (%)
- P75 - Passing 75 µm sieve (%)

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard
- Fr - Friable

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP08

Sheet: 1 of 1

Coordinates: E 692842 N 7658415 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket | **Excavated by Stantec**

Date Excavated: 18 Feb 2025 | **Logged By: CS** | **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX	VE	Stable	Groundwater Not Encountered					Pt	0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics	W	VS	ORGANIC
									TOPSOIL: Sandy CLAY: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, roots and rootlets, Field Estimate MPS 3 LL 30 P75 60	M to W		TOPSOIL
								CL	0.40m			
				B 0.40 - 1.00 m 0.70m		0.5			**Sandy CLAY**: mottled grey, light brown, orange, medium plasticity, sand, fine to coarse grained, Field Estimate MPS 3 LL 45 P75 55			ALLUVIAL
	E							Cl	1.00m		S to F	
				B 1.00 - 2.00 m 1.50m		1.0			**Sandy CLAY**: light brown, orange, mottled grey, low plasticity, sand, fine to coarse grained, cemented, Field Estimate MPS 2 LL 35 P75 50	M		
	H					1.5		CL	1.60-2.00m: increasing sand content		St to VSt	
									2.00m			
						2.0			TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
AD/T Solid flight auger: TC-Bit
WB Washbore drilling
RR Rock roller

RESISTANCE
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
Water Inflow
Water Outflow

SAMPLES
B Bulk disturbed sample
D Disturbed sample
ES Environmental sample
U50 Tube sample 50 mm
SPT SPT sample

FIELD TESTS
SPT Standard Penetration Test (Split Spoon)
SCSPT Standard Penetration Test (Solid Cone)
PP Hand/Pocket Penetrometer
PID Photoionisation Detector
VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
MPS - Maximum Particle Size (mm)
LL - Liquid Limit (%)
P75 - Passing 75 µm sieve (%)

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard
Fr - Friable

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP09

Sheet: 1 of 1

Coordinates: E 692984 N 7658391 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket **Excavated by Stantec**

Date Excavated: 18 Feb 2025 **Logged By: CS** **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description						
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX		Stable	Groundwater Not Encountered			0		Pt	0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics	W		ORGANIC
	VE							Cl	**TOPSOIL: Sandy CLAY**: light brown, orange, mottled grey, medium plasticity, sand, fine to coarse grained, roots and rootlets, Field Estimate MPS 3 LL 40 P75 60	M to W	VS	TOPSOIL
				B 0.40 - 1.10 m		0.5		Cl	0.40m **CLAY** with sand trace gravel: mottled grey, light brown, brown, medium plasticity, sand, fine to coarse grained, gravel, fine to medium grained, sub-rounded, MPS 3 LL 46 P75 74			ALLUVIAL
	E										S to F	
				B 1.10 - 2.00 m		1.0			1.10m			
	H				R	1.5		CL	**Sandy CLAY**: light brown-orange, low plasticity, sand, fine to coarse grained, black flecs, cemented, MPS 5 LL 32 P75 48	M	St to VSt	
						2.0			2.00m			
									TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
AD/T Solid flight auger: TC-Bit
WB Washbore drilling
RR Rock roller

RESISTANCE
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
Water Inflow
Water Outflow

SAMPLES
B Bulk disturbed sample
D Disturbed sample
ES Environmental sample
U50 Tube sample 50 mm
SPT SPT sample

FIELD TESTS
SPT Standard Penetration Test (Split Spoon)
SCSPT Standard Penetration Test (Solid Cone)
PP Hand/Pocket Penetrometer
PID Photoionisation Detector
VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
MPS - Maximum Particle Size (mm)
LL - Liquid Limit (%)
P75 - Passing 75 µm sieve (%)

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard
Fr - Friable

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Stantec

Client: Certainty Wealth
Project: Riverbend Development Mirani
Location: Mirani, QLD
Job No: 304570195

Pit No: TP10

Sheet: 1 of 1

Coordinates: E 693151 N 7658333 55 GDA94

Machine Type: 5 tonne Excavator

Bucket Type: 450mm Bucket | **Excavated by Stantec**

Date Excavated: 18 Feb 2025 | **Logged By: CS** | **Checked By: TB**

Excavation				Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 100 mm) 2 4 8 16		Graphic Log	Classification	SOIL TYPE: colour, plasticity or particle characteristic, secondary and minor components ROCK TYPE: grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	SOIL ORIGIN Structure & Other Observations
EX	VE	Stable	Groundwater Not Encountered					Pt	0.05m **PEAT**: dark brown, brown, fibrous, decomposed grasses, slashed grass, organics			ORGANIC
									TOPSOIL: Sandy CLAY: very dark grey, very dark brown, low plasticity, sand, fine to coarse grained, roots and rootlets, Field Estimate MPS 3 LL 30 P75 60	W	VS	TOPSOIL
								CL	0.40m			
				B 0.40 - 1.00 m		0.5			**CLAY** with sand: very dark grey, mottled brown, high plasticity, sand, fine to coarse grained, Field Estimate MPS 2 LL 65 P75 75			ALLUVIAL
	E							CH			S to F	
									1.00m			
				B 1.00 - 2.00 m		1.0			**Sandy CLAY**: orange-brown, low plasticity, sand, fine to coarse grained, black flecs, cemented, Field Estimate MPS 1 LL 35 P75 45	M		
	H				R	1.5		CL			St to VSt	
									2.00m			
						2.0			TERMINATED AT 2.00 m Target depth			
						2.5						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- AD/T Solid flight auger: TC-Bit
- WB Washbore drilling
- RR Rock roller

RESISTANCE
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- Water Inflow
- Water Outflow

SAMPLES
- B Bulk disturbed sample
- D Disturbed sample
- ES Environmental sample
- U50 Tube sample 50 mm
- SPT SPT sample

FIELD TESTS
- SPT Standard Penetration Test (Split Spoon)
- SCSPT Standard Penetration Test (Solid Cone)
- PP Hand/Pocket Penetrometer
- PID Photoionisation Detector
- VS Vane Shear; P=Peak R=Residual (uncorrected kPa)
- DCP Dynamic Cone Pentrometer

SOIL DESCRIPTORS
- MPS - Maximum Particle Size (mm)
- LL - Liquid Limit (%)
- P75 - Passing 75 µm sieve (%)

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard
- Fr - Friable

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

Stantec Australia Pty Ltd

Appendix C DCP REPORTS

Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Report Number: **304570195-1**
Issue Number: 1
Date Issued: 19/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project: 304570195 - Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6638
Dates Tested: 18/02/2025 - 19/02/2025
Remarks: DCP Reports
Location: Riverbend Development Mirani

Luke Armstrong (Engineer)

Dynamic Cone Penetrometer AS 1289 6.3.2					
Sample Number	25-6638A	25-6638B	25-6638C	25-6638D	25-6638E
Location	TP01	TP02	TP03	TP04	TP05
Date Tested	18/02/2025	18/02/2025	18/02/2025	19/02/2025	18/02/2025
Soil Description	Refer to Logs	Refer to Logs	Refer to Logs	Refer to Logs	Refer to Logs
Reduced Level (mm)	-	-	-	-	-
Moisture Condition	Moist	Moist	Moist	Moist	Moist
Start Depth (mm)	0 (Surface)	0 (Surface)	0 (Surface)	0 (Surface)	0 (Surface)
0-100 blows/100 mm	0 (HW)	1	1	0 (HW)	0 (HW)
100-200 blows/100 mm	1	1	1	1	1
200-300 blows/100 mm	1	2	2	1	1
300-400 blows/100 mm	1	2	2	1	1
400-500 blows/100 mm	2	3	3	2	1
500-600 blows/100 mm	2	3	3	2	2
600-700 blows/100 mm	3	4	4	3	2
700-800 blows/100 mm	4	6	5	4	3
800-900 blows/100 mm	8	7	10	6	4
900-1000 blows/100 mm	12	10	11	7	6
1000-1100 blows/100 mm	18	12	12	9	11
1100-1200 blows/100 mm	20	16	20	11	14
1200-1300 blows/100 mm	25	20	19	16	16
1300-1400 blows/100 mm	26	22	20	18	18
1400-1500 blows/100 mm	30 R	30 R	25	25	18
1500-1600 blows/100 mm			30 R	30 R	20
1600-1700 blows/100 mm					25
1700-1800 blows/100 mm					30 R
1800-1900 blows/100 mm					
1900-2000 blows/100 mm					
Ground Water Level	-	-	-	-	-
Remarks	Refusal Blows	Refusal Blows	Refusal Blows	Refusal Blows	Refusal Blows

Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Report Number: **304570195-1**
Issue Number: 1
Date Issued: 19/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project: 304570195 - Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6638
Dates Tested: 18/02/2025 - 18/02/2025
Remarks: DCP Reports
Location: Riverbend Development Mirani

Luke Armstrong (Engineer)

Dynamic Cone Penetrometer AS 1289 6.3.2					
Sample Number	25-6638F	25-6638G	25-6638H	25-6638I	25-6638J
Location	TP06	TP07	TP08	TP09	TP10
Date Tested	18/02/2025	19/02/2025	18/02/2025	18/02/2025	18/02/2025
Soil Description	Refer to Logs	Refer to Logs	Refer to Logs	Refer to Logs	Refer to Logs
Reduced Level (mm)	-	-	-	-	-
Moisture Condition	Moist	Moist	Moist	Moist	Moist
Start Depth (mm)	0 (Surface)	0 (Surface)	0 (Surface)	0 (Surface)	0 (Surface)
0-100 blows/100 mm	0 (HW)	0 (HW)	0 (HW)	0 (HW)	0 (HW)
100-200 blows/100 mm	1	1	2	1	1
200-300 blows/100 mm	1	1	2	2	2
300-400 blows/100 mm	2	2	2	2	2
400-500 blows/100 mm	2	2	2	2	2
500-600 blows/100 mm	2	2	2	5	2
600-700 blows/100 mm	3	3	3	5	4
700-800 blows/100 mm	4	4	3	5	6
800-900 blows/100 mm	6	6	3	6	8
900-1000 blows/100 mm	11	11	5	8	16
1000-1100 blows/100 mm	13	13	5	12	20
1100-1200 blows/100 mm	16	16	6	18	19
1200-1300 blows/100 mm	18	18	7	20	20
1300-1400 blows/100 mm	18	18	9	22	26
1400-1500 blows/100 mm	25	25	12	22	26
1500-1600 blows/100 mm	30 R	30 R	15	30 R	30 R
1600-1700 blows/100 mm			18		
1700-1800 blows/100 mm			20		
1800-1900 blows/100 mm			20		
1900-2000 blows/100 mm			25		
Ground Water Level	-	-	-	-	-
Remarks	Refusal Blows	Refusal Blows	Target Depth	Refusal Blows	Refusal Blows

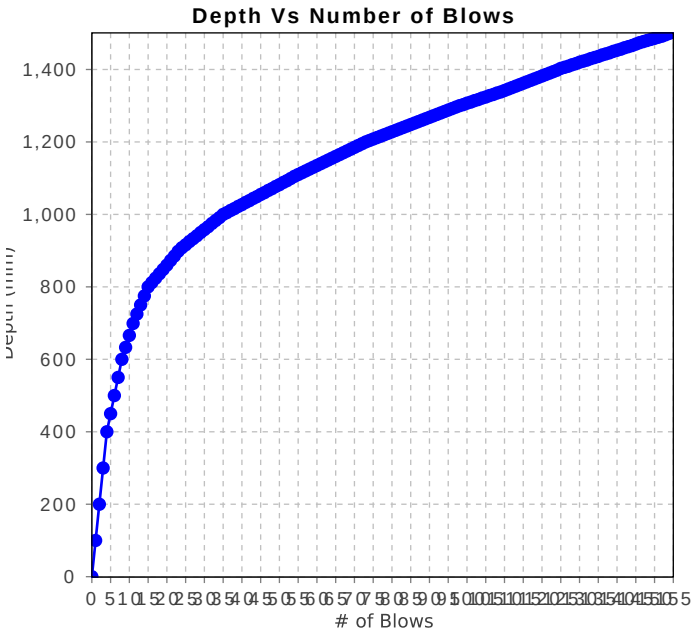
Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640A
Date Sampled: 18/02/2025
Dates Tested: 18/02/2025 - 18/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Remarks: Q114B DCPs
Sample Location: **TP01**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	400	0 - 400	1.5
2	200	400 - 600	3.5
3	200	600 - 800	7
4	200	800 - 1000	20
5	500	1000 - 1500	> 60



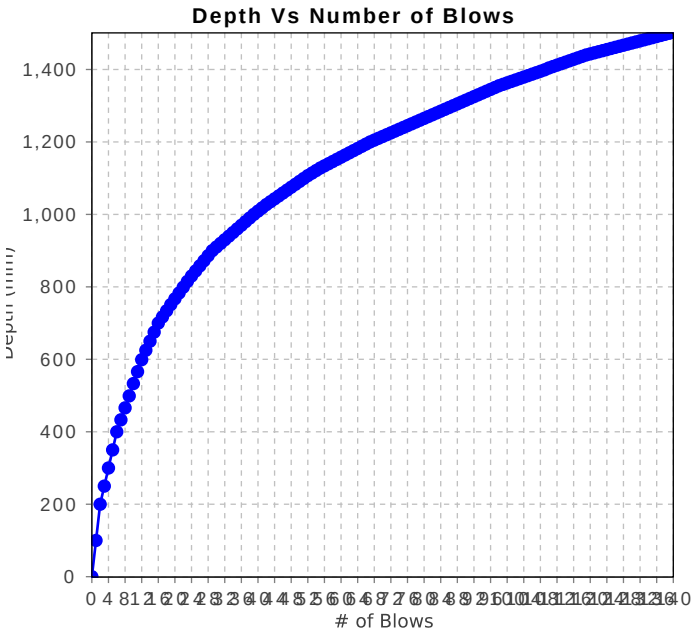
Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640B
Date Sampled: 18/02/2025
Dates Tested: 18/02/2025 - 18/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Remarks: Q114B DCPs
Sample Location: **TP02**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	200	0 - 200	1.5
2	399	200 - 599	4.5
3	301	599 - 900	11
4	300	900 - 1200	30
5	300	1200 - 1500	> 60



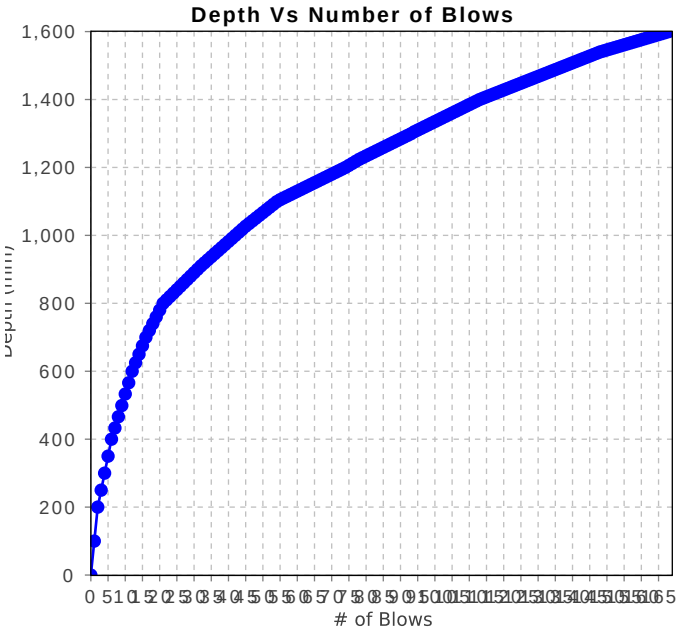
Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640C
Date Sampled: 18/02/2025
Dates Tested: 18/02/2025 - 18/02/2025
Sampling Method: AS 1289.1.2.1 6.5.1 - Sampling from hand excavated pit or trench
Remarks: Q114B DCPs
Sample Location: **TP03**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	200	0 - 200	1.5
2	400	200 - 600	4.5
3	200	600 - 800	9
4	299	800 - 1099	25
5	501	1099 - 1600	60



Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
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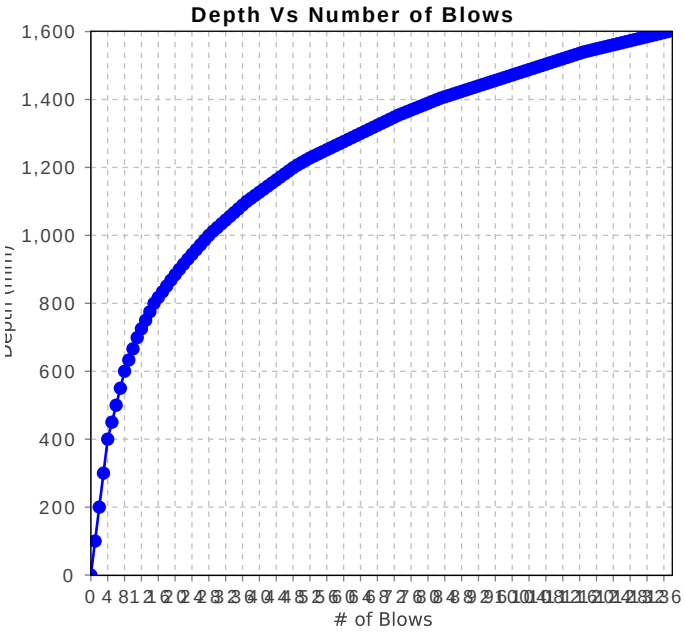
Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640D
Date Sampled: 19/02/2025
Dates Tested: 19/02/2025 - 19/02/2025
Sampling Method: AS 1289.1.2.1 6.5.1 - Sampling from hand excavated pit or trench
Remarks: Q114B DCPs
Sample Location: **TP04**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	400	0 - 400	1.5
2	400	400 - 800	5.0
3	300	800 - 1100	15
4	200	1100 - 1300	30
5	300	1300 - 1600	> 60



Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
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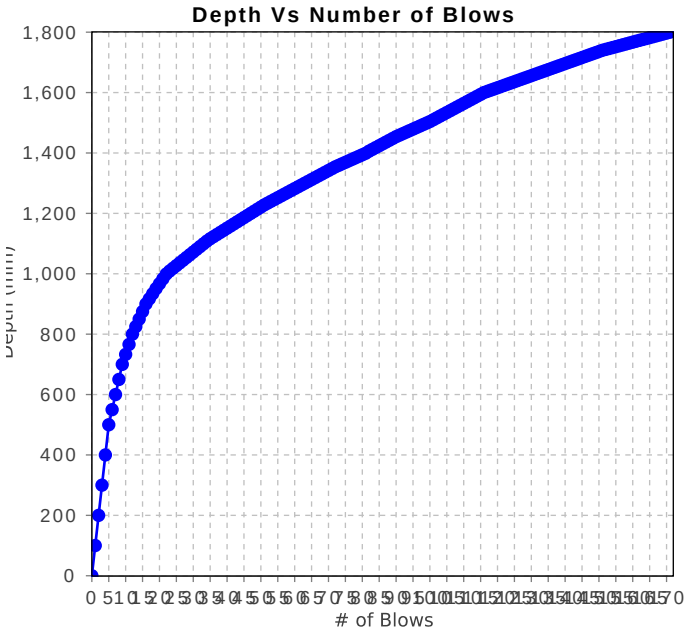
Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640E
Date Sampled: 18/02/2025
Dates Tested: 18/02/2025 - 18/02/2025
Remarks: Q114B DCPs
Sample Location: **TP05**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	500	0 - 500	1.5
2	300	500 - 800	4.0
3	199	800 - 999	10
4	301	999 - 1300	30
5	500	1300 - 1800	50



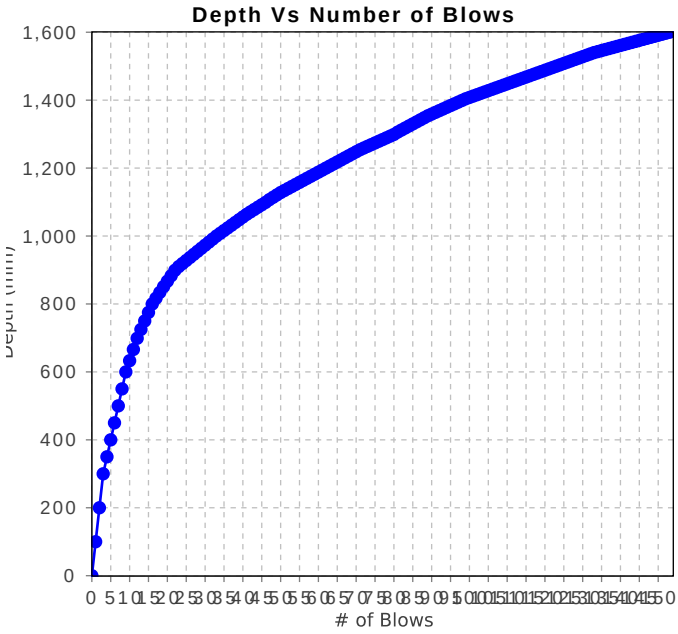
Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640F
Date Sampled: 18/02/2025
Dates Tested: 18/02/2025 - 18/02/2025
Remarks: Q114B DCPs
Sample Location: **TP06**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	300	0 - 300	1.5
2	399	300 - 699	4.0
3	200	699 - 899	10
4	301	899 - 1200	30
5	400	1200 - 1600	60



Material Test Report

Stantec Australia Pty Ltd
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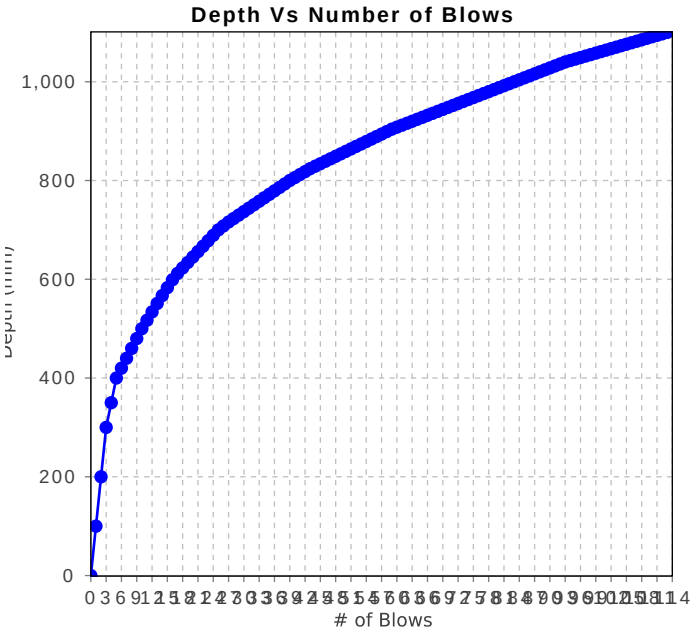
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640G
Date Sampled: 19/02/2025
Dates Tested: 19/02/2025 - 19/02/2025
Remarks: Q114B DCPs
Sample Location: **TP07**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		200 (Below Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	300	200 - 500	1.5
2	100	500 - 600	3.5
3	199	600 - 799	11
4	201	799 - 1000	25
5	300	1000 - 1300	> 60



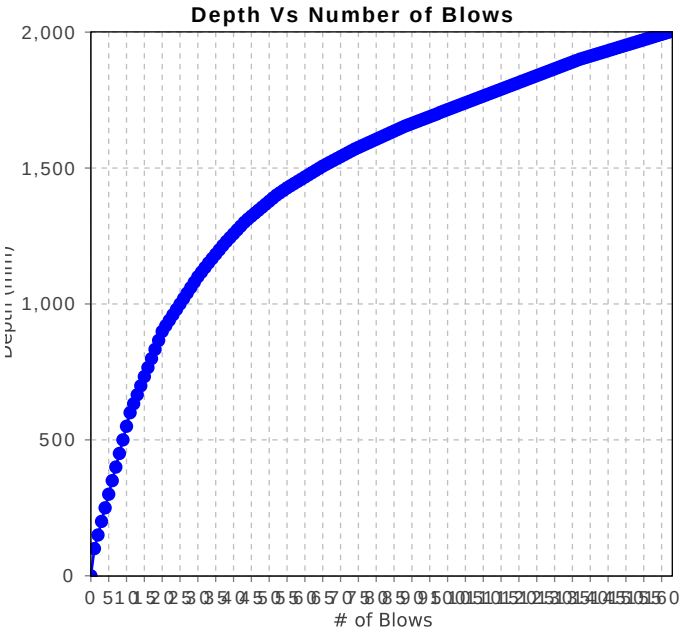
Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640H
Date Sampled: 18/02/2025
Dates Tested: 18/02/2025 - 18/02/2025
Remarks: Q114B DCPs
Sample Location: **TP08**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	100	0 - 100	1.5
2	799	100 - 899	4.0
3	401	899 - 1300	12
4	300	1300 - 1600	25
5	400	1600 - 2000	50



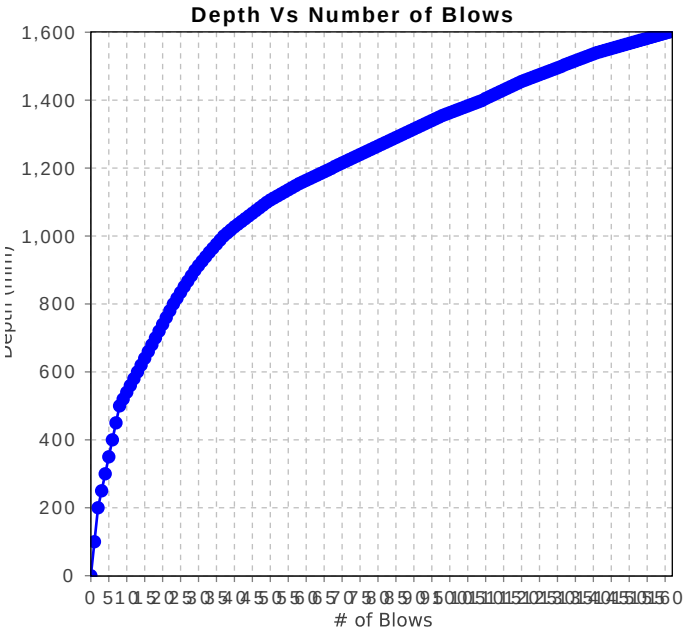
Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640I
Date Sampled: 18/02/2025
Dates Tested: 18/02/2025 - 18/02/2025
Remarks: Q114B DCPs
Sample Location: **TP09**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	200	0 - 200	1.5
2	300	200 - 500	3.5
3	399	500 - 899	10
4	200	899 - 1099	20
5	501	1099 - 1600	60



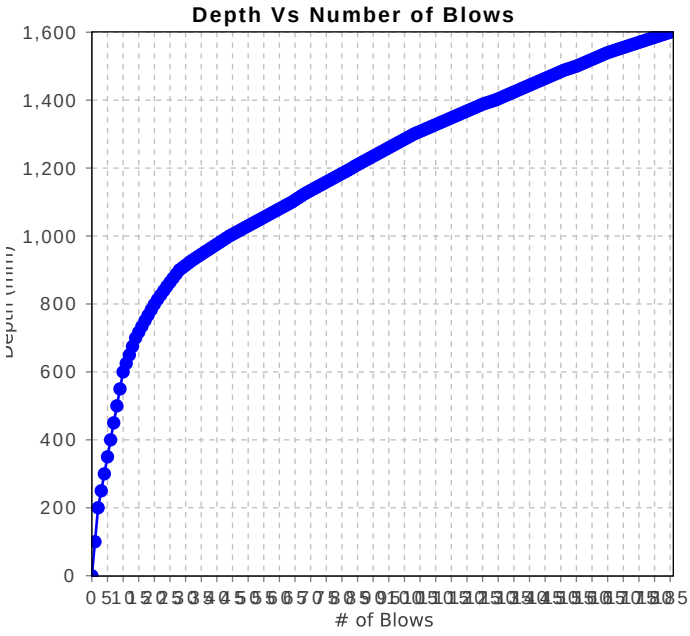
Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: Soils@stantec.com

Luke Armstrong (Geotechnical Engineer)

Report Number: **304570195-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason:
Date Issued: 21/02/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6640
Sample Number: 25-6640J
Date Sampled: 18/02/2025
Dates Tested: 18/02/2025 - 18/02/2025
Remarks: Q114B DCPs
Sample Location: **TP10**

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist to Wet	
Starting Reference Point		0 (Surface)	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	200	0 - 200	1.5
2	400	200 - 600	3.5
3	199	600 - 799	10
4	101	799 - 900	17
5	100	900 - 1000	40
6	600	1000 - 1600	60



Appendix D SITE PHOTOGRAPHS

Image 1000: TP01

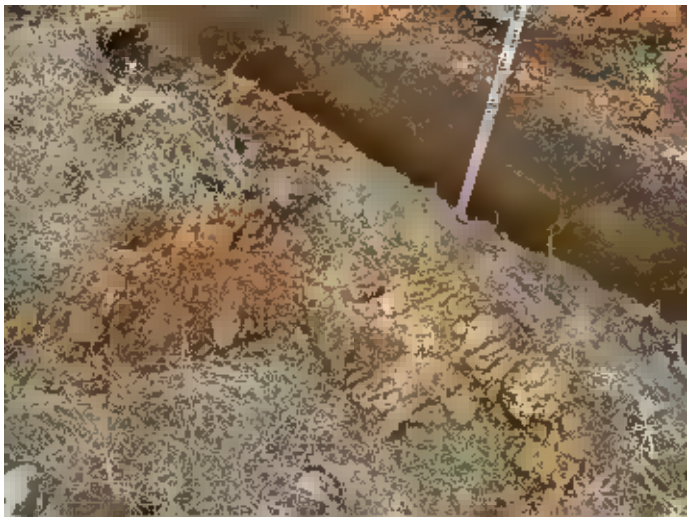


Image 1001: TP01 Spoil

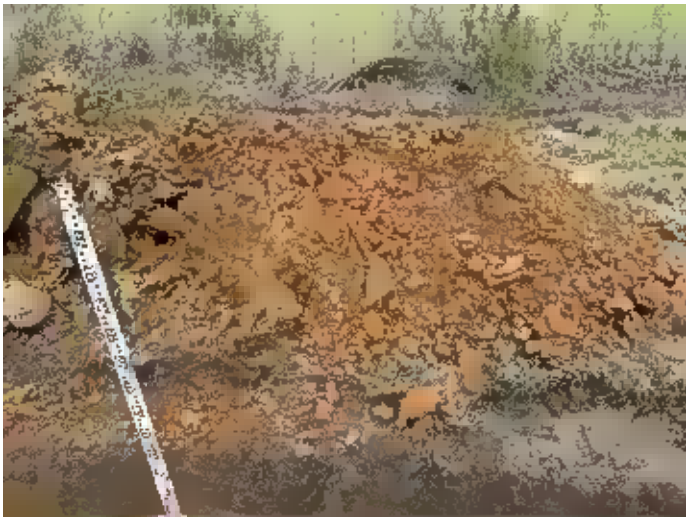


Image 1002: TP01 Spoil

Image 1003: TP01 Spoil

Image 1004: TP01 Side Wall Profile

Image 1005: TP02

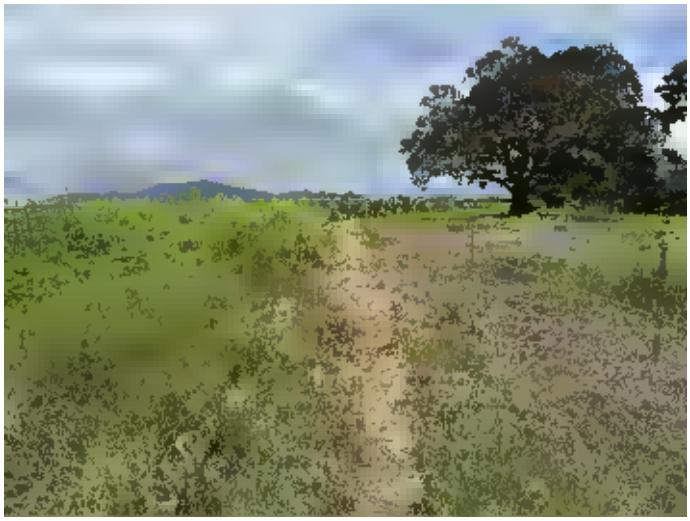


Image 1006: TP02 Entrance

Image 1007: TP02 Base

Image 1008: TP02 Spoil

Image 1009: TP02 Spoil

Image 1010: TP02 Side Wall Profile

Image 1011: TP03

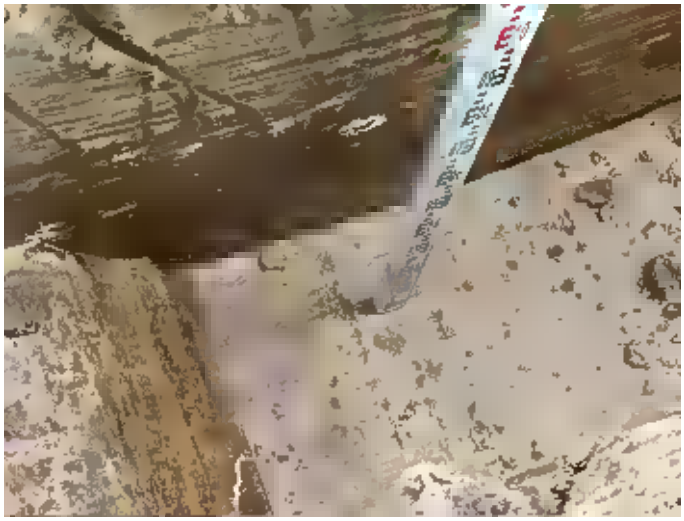


Image 1012: TP03 Base

Image 1013: TP03 Spoil

Image 1014: TP03 Spoil

Image 1015: TP03 Spoil

Image 1016: TP03 Spoil

Image 1017: TP03 Side Wall Profile

Image 1018: TP04

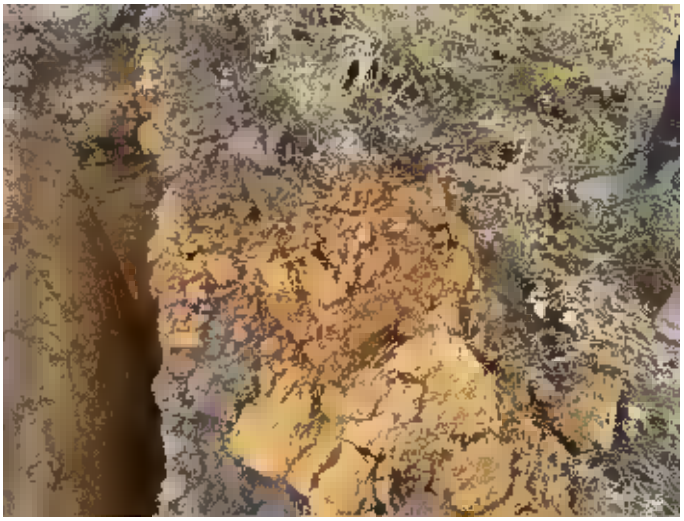


Image 1019: TP04 Spoil

Image 1020: TP04 Spoil

Image 1021: TP04 Spoil

Image 1022: TP04 Side Wall Profile

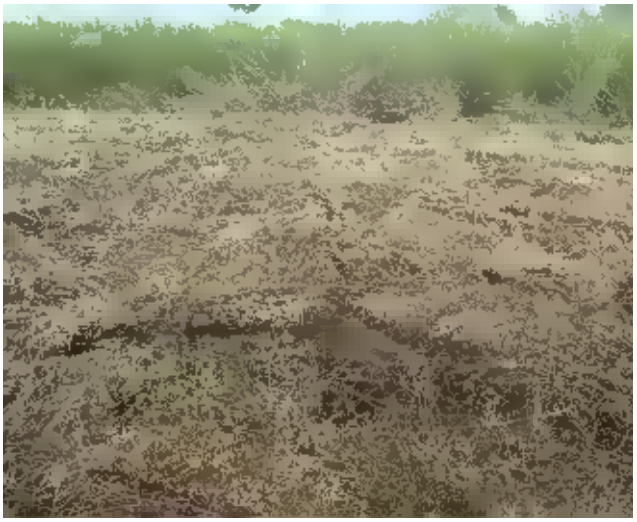


Image 1023: TP05

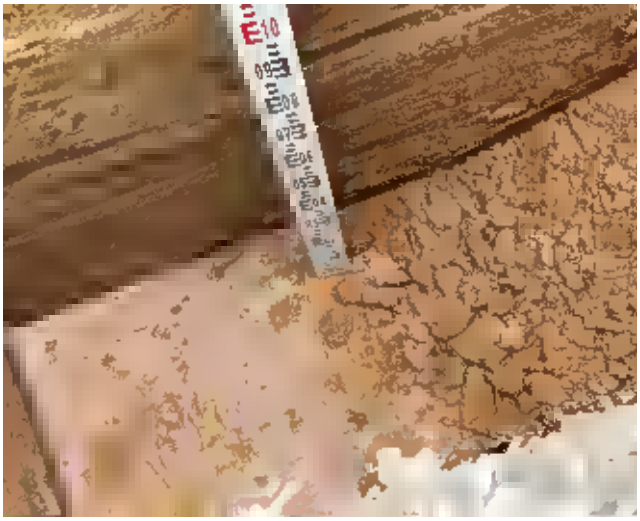


Image 1024: TP05 Base

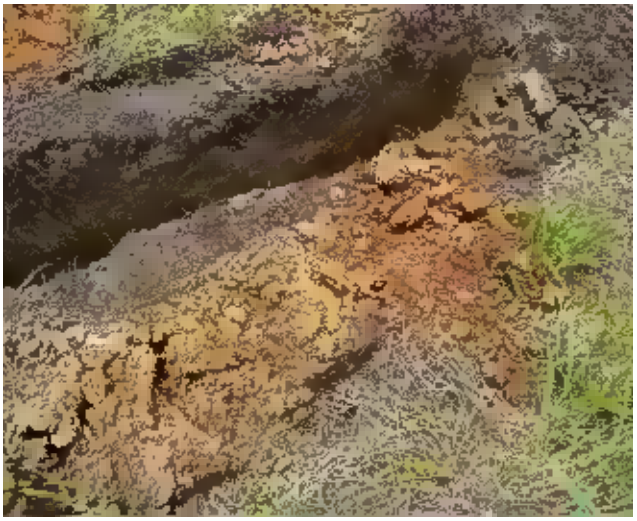


Image 1025: TP05 Spoil

Image 1026: TP05 Spoil

Image 1027: TP05 Spoil

Image 1028: TP05 Side Wall Profile

Image 1029: TP06

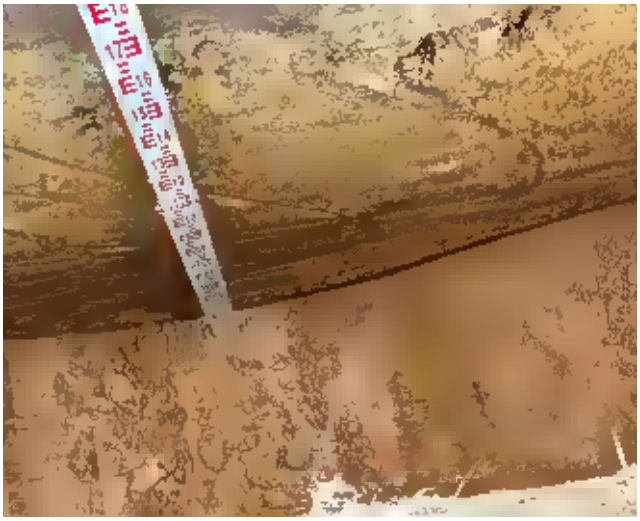


Image 1030: TP06 Base

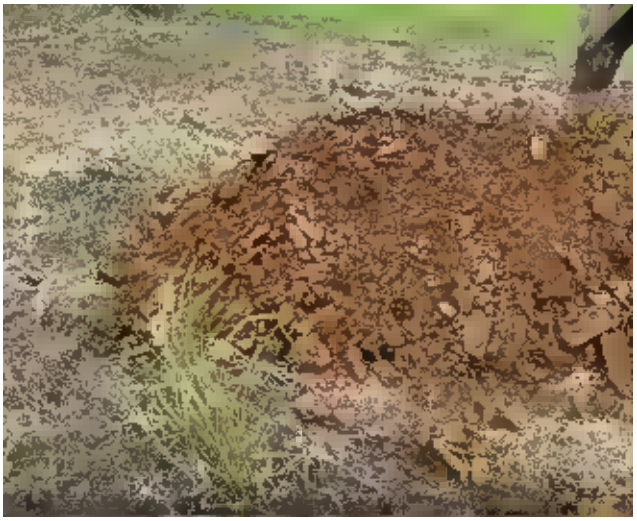


Image 1031: TP06 Spoil

Image 1032: TP06 Spoil

Image 1033: TP02 Side Wall Profile

Image 1034: TP07

Image 1035: TP07 Base

Image 1036: TP07 Spoil

Image 1037: TP07 Spoil

Image 1038: TP07 Spoil

Image 1039: TP07 Side Wall Profile

Image 1040: TP08

Image 1041: TP08 Base

Image 1042: TP08 Spoil

Image 1043: TP08 Spoil

Image 1044: TP08 Side Wall Profile


Image 1045: TP09


Image 1046: TP09

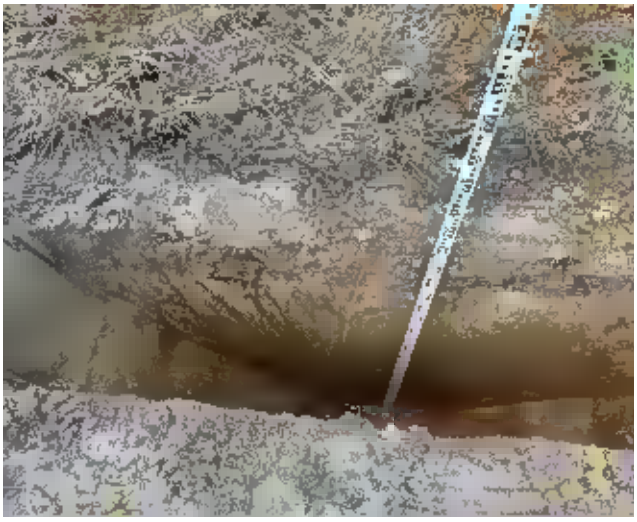


Image 1047: TP09

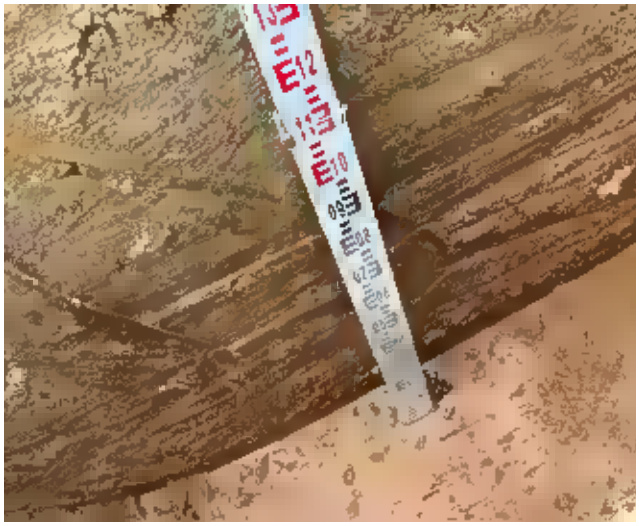


Image 1048: TP09 Base


Image 1049: TP09 Spoil


Image 1050: TP09 Spoil

Image 1051: TP09 Side Wall Profile

Image 1052: TP10

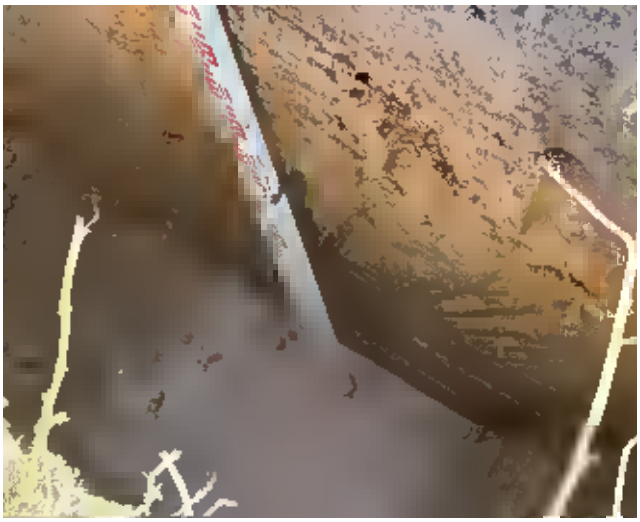


Image 1053: TP10 Base

Image 1054: TP10 Spoil

Image 1055: TP10 Spoil

Image 1056: TP10 Side Wall Profile


Image 1057: Slope Inspection


Image 1058: Slope Inspection


Image 1059: Slope Inspection


Image 1060: Slope Inspection


Image 1061: Slope Inspection


Image 1062: Slope Inspection


Image 1063: Slope Inspection


Image 1064: Slope Inspection


Image 1065: Slope Inspection


Image 1066: Slope Inspection


Image 1067: Slope Inspection


Image 1068: Slope Inspection

Image 1069: Slope Inspection

Image 1070: Slope Inspection

Image 1071: Slope Inspection

Image 1072: Slope Inspection

Image 1073: Slope Inspection

Image 1074: Slope Inspection

Image 1075: Slope Inspection

Image 1076: Slope Inspection

Image 1077: Slope Inspection

Image 1078: Slope Inspection

Image 1079: Slope Inspection

Image 1080: Slope Inspection


Image 1081: Slope Inspection


Image 1082: Slope Inspection


Image 1083: Slope Inspection


Image 1084: Slope Inspection


Image 1085: Slope Inspection


Image 1086: Slope Inspection


Image 1087: Slope Inspection


Image 1088: Slope Inspection


Image 1089: Slope Inspection


Image 1090: Slope Inspection


Image 1091: Slope Inspection


Image 1092: Slope Inspection

Appendix E LABORATORY TEST REPORTS

Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

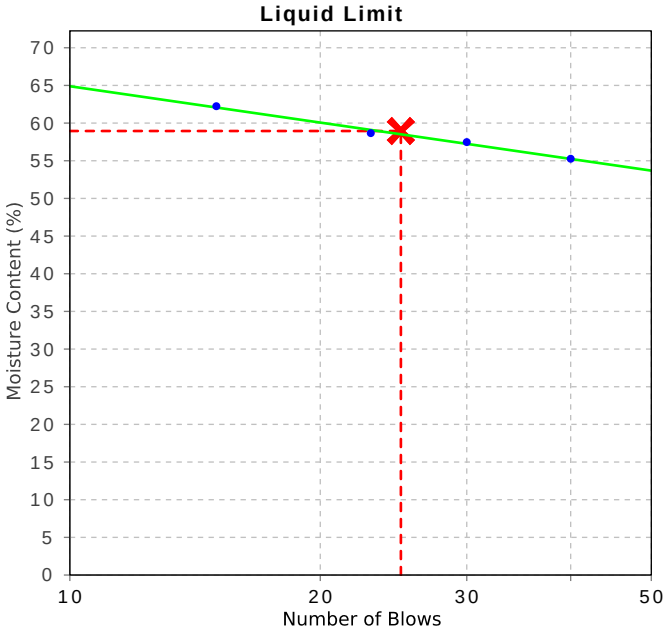
Stephanie Honan (Laboratory Manager)

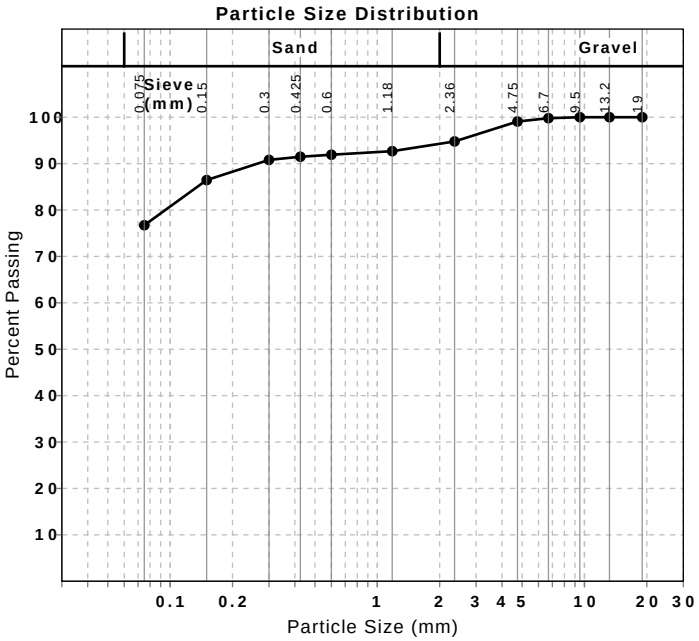
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637A
Date Sampled: 18/02/2025
Dates Tested: 19/02/2025 - 26/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP01, Depth: 0.40-1.10**

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	59		
Plastic Limit (%)	21		
Plasticity Index (%)	**38**		
Weighted Plasticity Index (%)	3476		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	**13.5**		
Cracking Crumbling Curling	Cracking & Curling		

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**99**			1		
2.36 mm	**95**			4		
1.18 mm	**93**			2		
0.6 mm	**92**			1		
0.425 mm	**91**			0		
0.3 mm	**91**			1		
0.15 mm	**86**			4		
0.075 mm	**77**			10		





Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

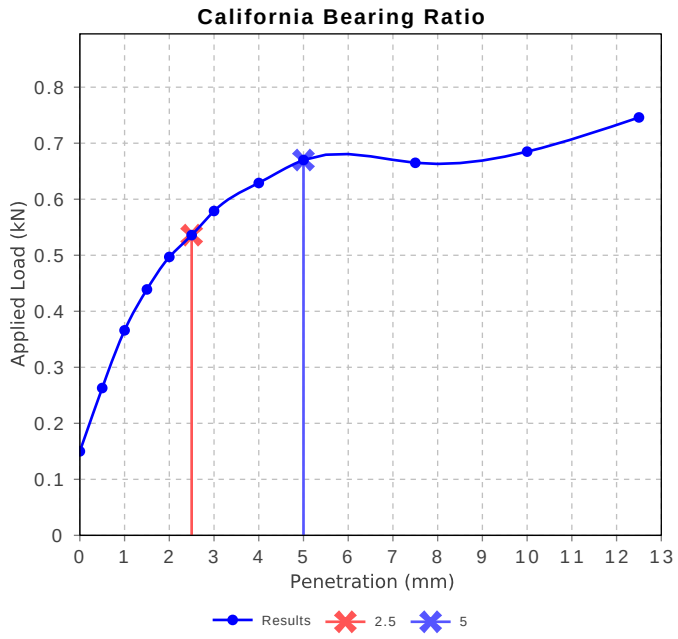
Stephanie Honan (Laboratory Manager)

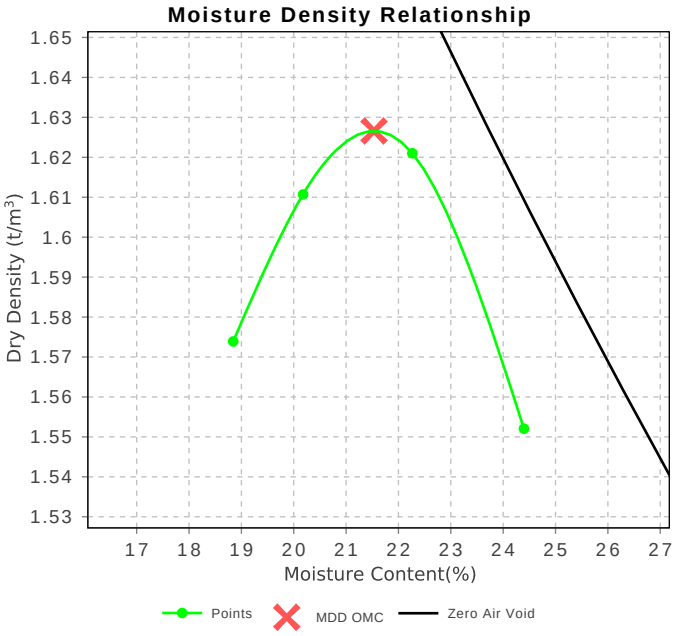
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637A
Date Sampled: 18/02/2025
Dates Tested: 19/02/2025 - 22/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP01, Depth: 0.40-1.10**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**4.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	1289.5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.63		
Optimum Moisture Content (%)	21.5		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	100.0		
Moisture Content at Placement (%)	21.6		
Moisture Content Top 30mm (%)	25.8		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	46.4		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)		Min	Max
Mould Type	1 LITRE MOULD A		
Compaction	Standard		
Maximum Dry Density (t/m^3)	1.63		
Optimum Moisture Content (%)	21.5		
Oversize Sieve (mm)	19.0		
Oversize Material Wet (%)	0		
Method used to Determine Plasticity	Visual		
Curing Hours (h)	25.3		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	21.7





Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

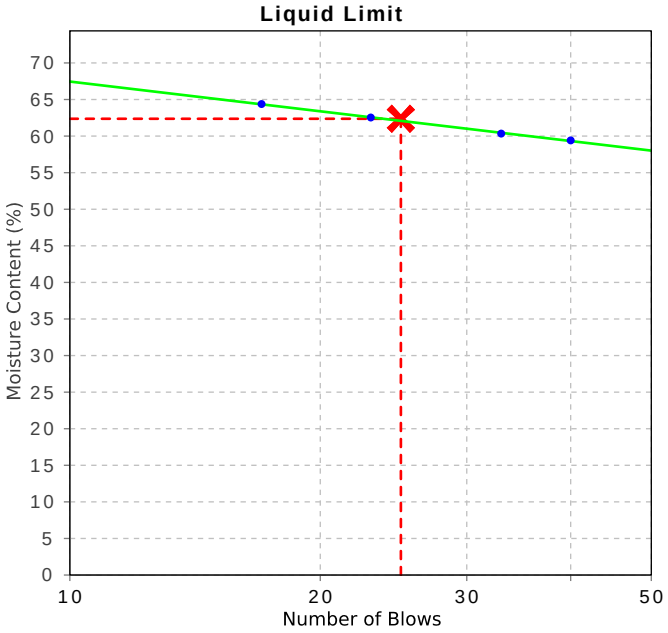
Stephanie Honan (Laboratory Manager)

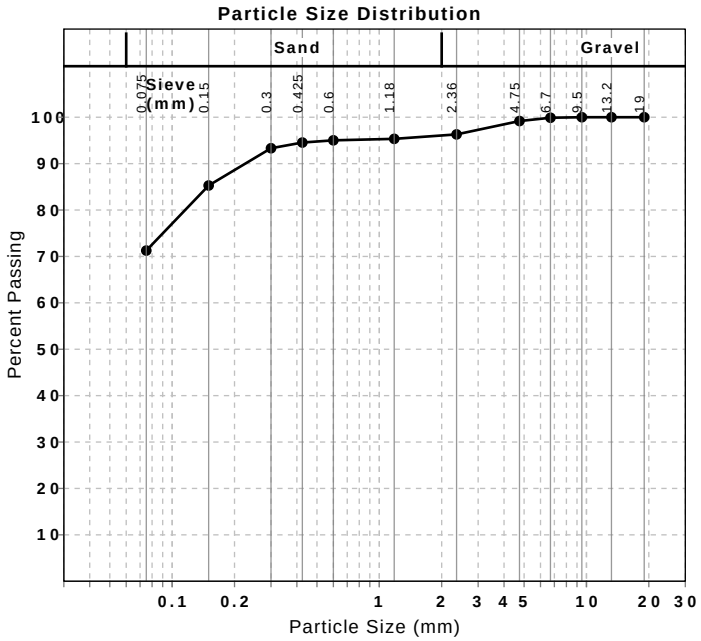
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637B
Date Sampled: 19/02/2025
Dates Tested: 19/02/2025 - 28/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP04, Depth: 0.50**

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	62		
Plastic Limit (%)	21		
Plasticity Index (%)	**41**		
Weighted Plasticity Index (%)	3876		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	**13.0**		
Cracking Crumbling Curling	Curling		

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**99**			1		
2.36 mm	**96**			3		
1.18 mm	**95**			1		
0.6 mm	**95**			0		
0.425 mm	**95**			0		
0.3 mm	**93**			1		
0.15 mm	**85**			8		
0.075 mm	**71**			14		





Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

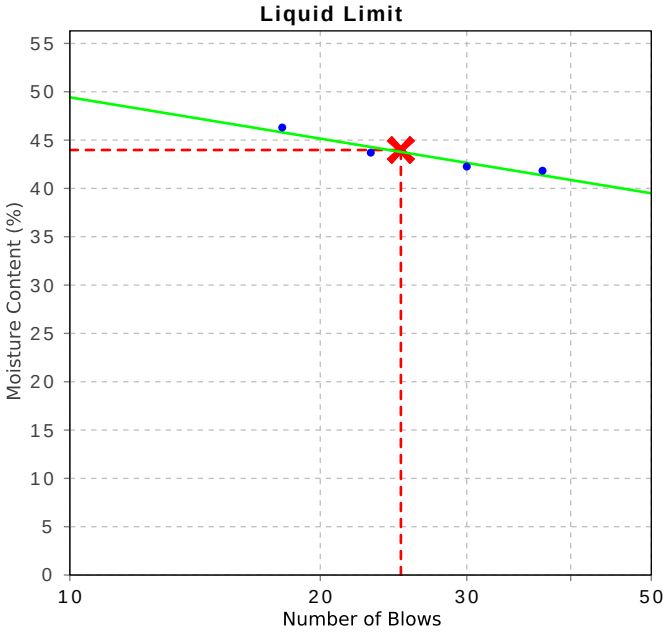
Stephanie Honan (Laboratory Manager)

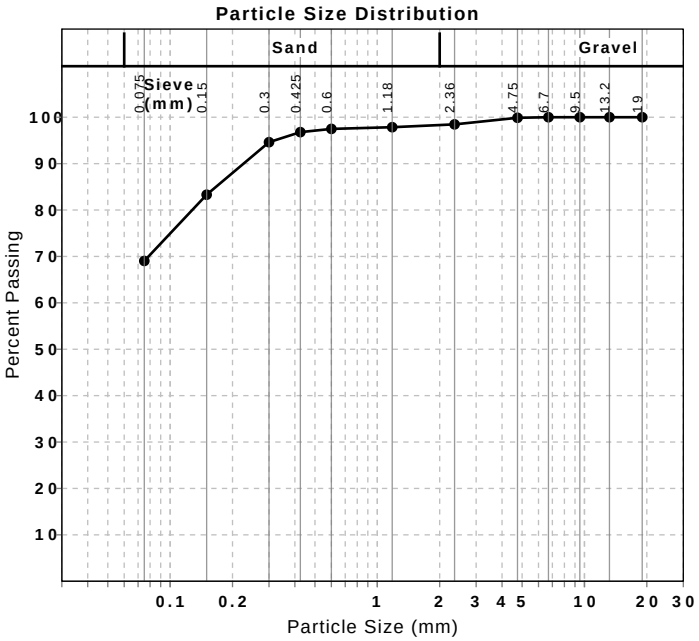
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637C
Date Sampled: 18/02/2025
Dates Tested: 19/02/2025 - 26/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP06, Depth: 0.90**

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	44		
Plastic Limit (%)	17		
Plasticity Index (%)	**27**		
Weighted Plasticity Index (%)	2613		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	**12.0**		
Cracking Crumbling Curling	Curling		

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**100**			0		
2.36 mm	**98**			1		
1.18 mm	**98**			1		
0.6 mm	**97**			0		
0.425 mm	**97**			1		
0.3 mm	**95**			2		
0.15 mm	**83**			11		
0.075 mm	**69**			14		





Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

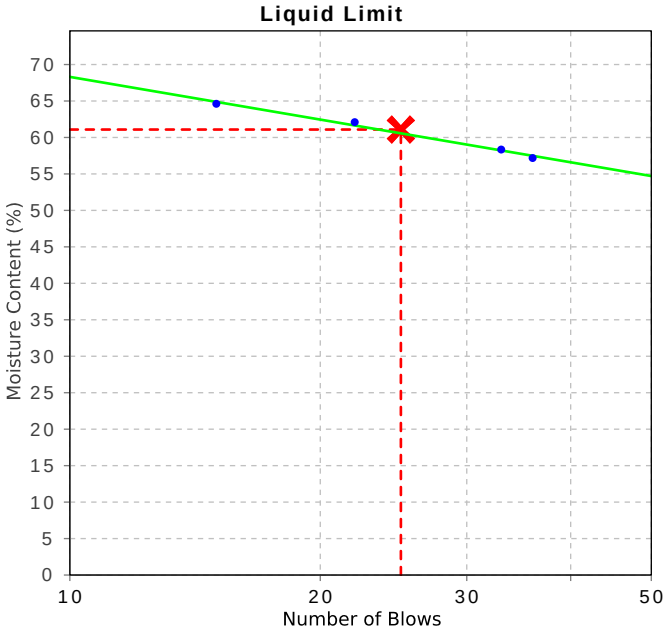
Stephanie Honan (Laboratory Manager)

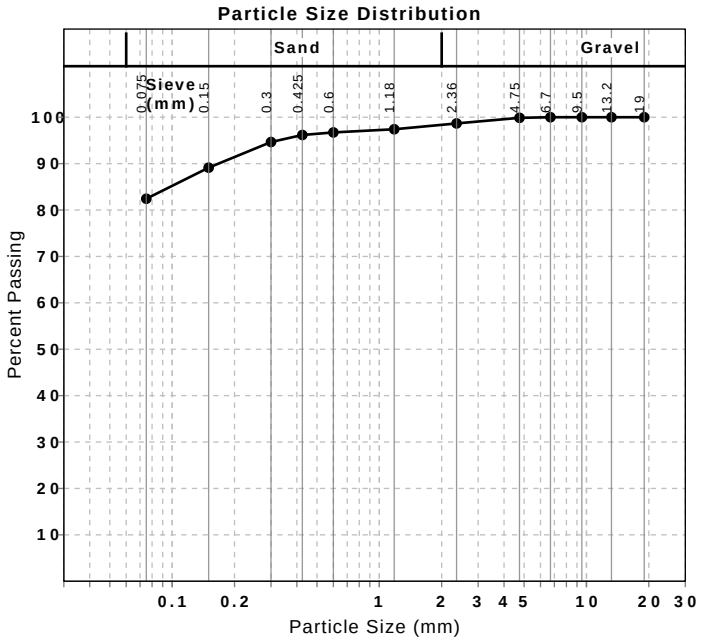
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637D
Date Sampled: 19/02/2025
Dates Tested: 19/02/2025 - 28/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP07, Depth: 0.40-0.70**

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	61		
Plastic Limit (%)	20		
Plasticity Index (%)	**41**		
Weighted Plasticity Index (%)	3943		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	**16.0**		
Cracking Crumbling Curling	Cracking & Curling		

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**100**			0		
2.36 mm	**99**			1		
1.18 mm	**97**			1		
0.6 mm	**97**			1		
0.425 mm	**96**			1		
0.3 mm	**95**			2		
0.15 mm	**89**			6		
0.075 mm	**82**			7		





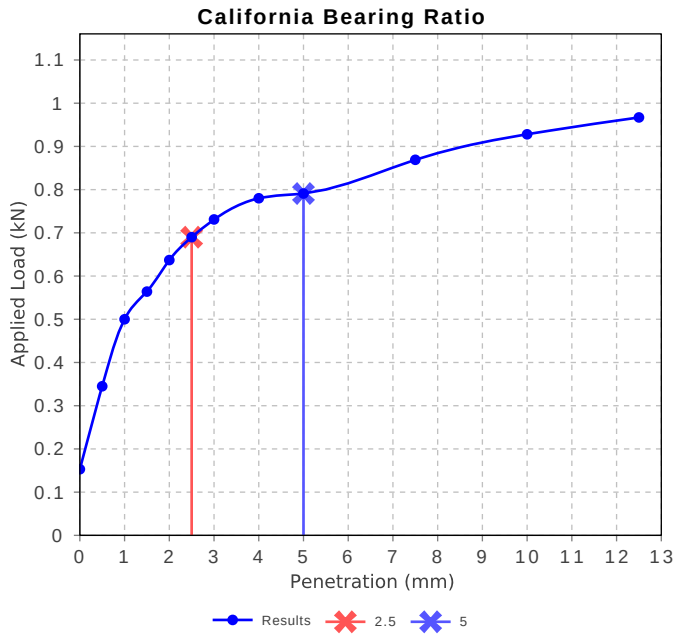
Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

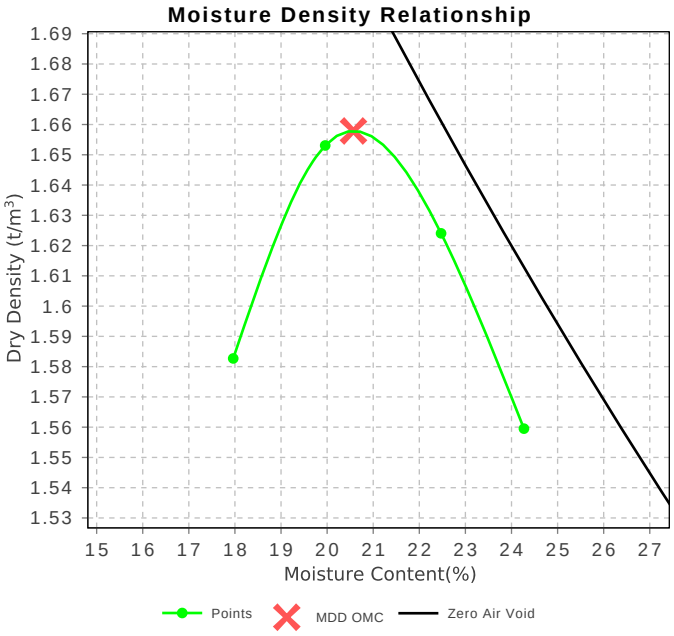
Stephanie Honan (Laboratory Manager)

Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637D
Date Sampled: 19/02/2025
Dates Tested: 19/02/2025 - 22/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP07, Depth: 0.40-0.70**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS1289.5.1.1&2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.66		
Optimum Moisture Content (%)	20.5		
Laboratory Density Ratio (%)	94.5		
Laboratory Moisture Ratio (%)	101.5		
Moisture Content at Placement (%)	20.8		
Moisture Content Top 30mm (%)	26.1		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	26.2		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			



Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)		Min	Max
Mould Type	1 LITRE MOULD A		
Compaction	Standard		
Maximum Dry Density (t/m^3)	1.66		
Optimum Moisture Content (%)	20.5		
Oversize Sieve (mm)	19.0		
Oversize Material Wet (%)	0		
Method used to Determine Plasticity	Visual		
Curing Hours (h)	22.1		



Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	22.6

Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

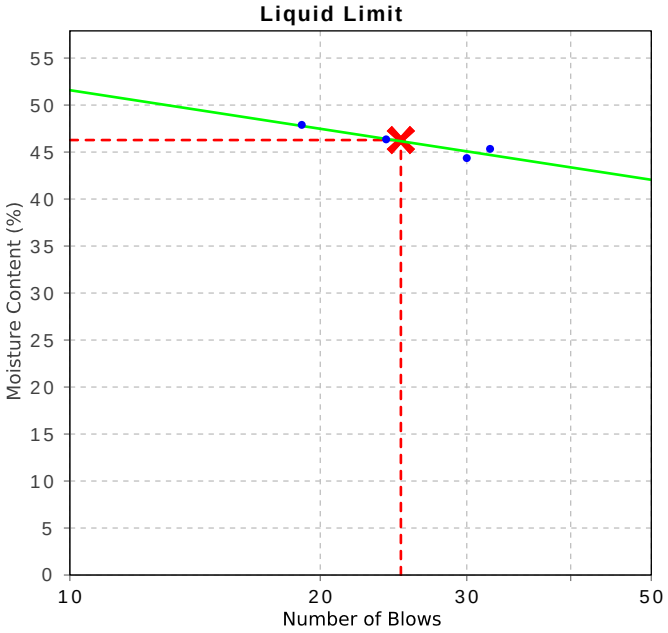
Stephanie Honan (Laboratory Manager)

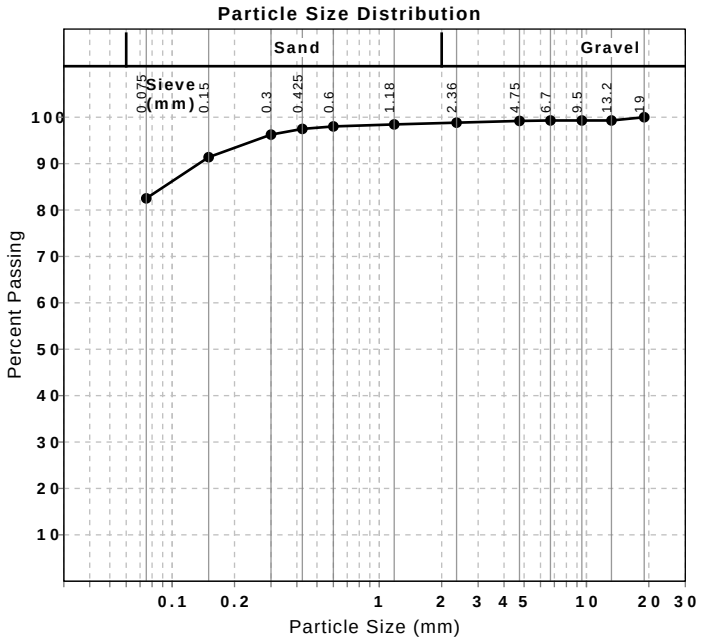
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637E
Date Sampled: 19/02/2025
Dates Tested: 19/02/2025 - 28/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP07, Depth: 0.70-1.10**

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	46		
Plastic Limit (%)	17		
Plasticity Index (%)	**29**		
Weighted Plasticity Index (%)	2827		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	**13.0**		
Cracking Crumbling Curling	Cracking & Curling		

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
19 mm	**100**			0		
13.2 mm	**99**			1		
9.5 mm	**99**			0		
6.7 mm	**99**			0		
4.75 mm	**99**			0		
2.36 mm	**99**			0		
1.18 mm	**98**			0		
0.6 mm	**98**			0		
0.425 mm	**97**			1		
0.3 mm	**96**			1		
0.15 mm	**91**			5		
0.075 mm	**83**			9		





Material Test Report

Stantec Australia Pty Ltd
Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

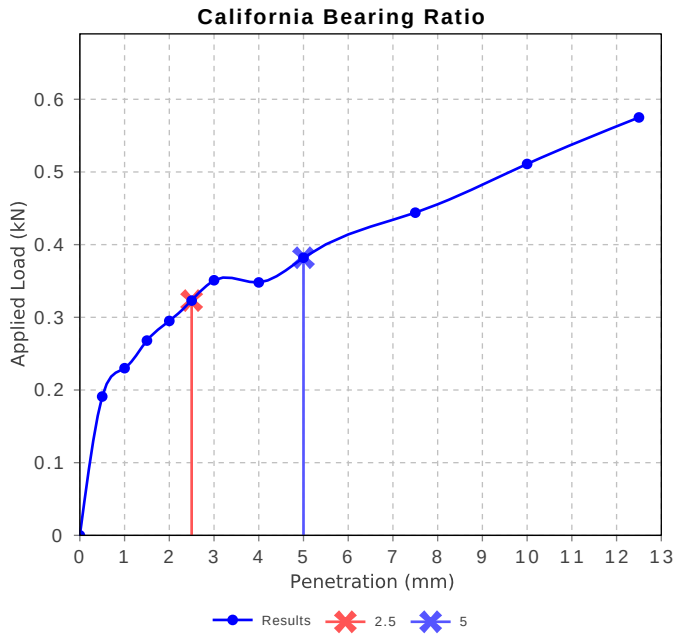
Stephanie Honan (Laboratory Manager)

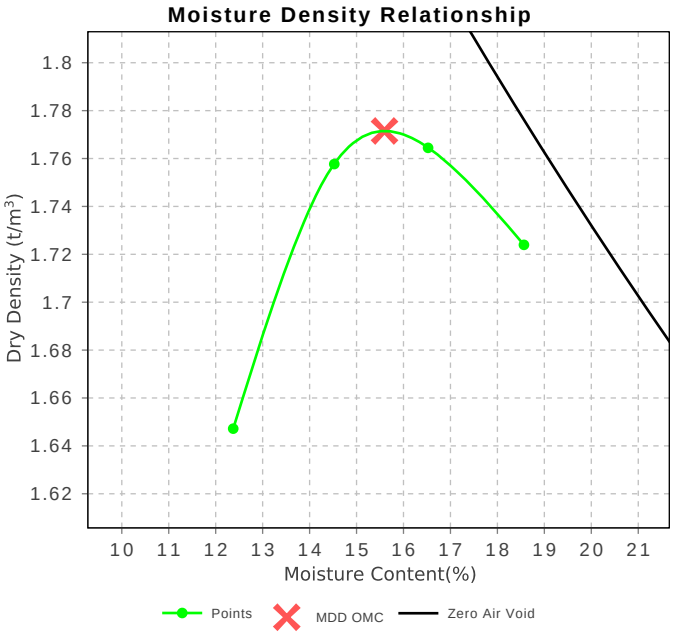
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637E
Date Sampled: 19/02/2025
Dates Tested: 19/02/2025 - 22/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP07, Depth: 0.70-1.10**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**2.5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	1289.5.1.1&2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.77		
Optimum Moisture Content (%)	15.5		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	97.5		
Moisture Content at Placement (%)	15.1		
Moisture Content Top 30mm (%)	24.0		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	24.4		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)		Min	Max
Mould Type	1 LITRE MOULD A		
Compaction	Standard		
Maximum Dry Density (t/m^3)	1.77		
Optimum Moisture Content (%)	15.5		
Oversize Sieve (mm)	19.0		
Oversize Material Wet (%)	0		
Method used to Determine Plasticity	Visual		
Curing Hours (h)	20.7		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	14.4





Material Test Report

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Mackay Laboratory
71 Maggiolo Drive Paget QLD 4740
Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

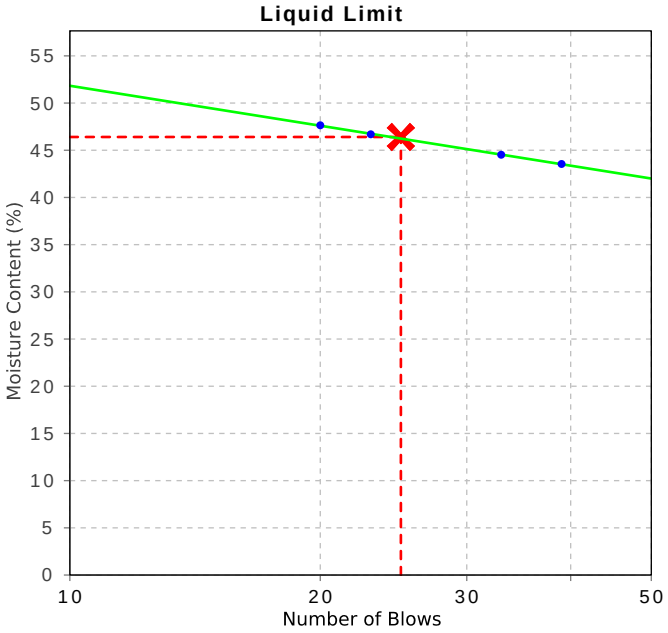
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637F
Date Sampled: 18/02/2025
Dates Tested: 19/02/2025 - 28/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP09, Depth: 0.40-1.10**

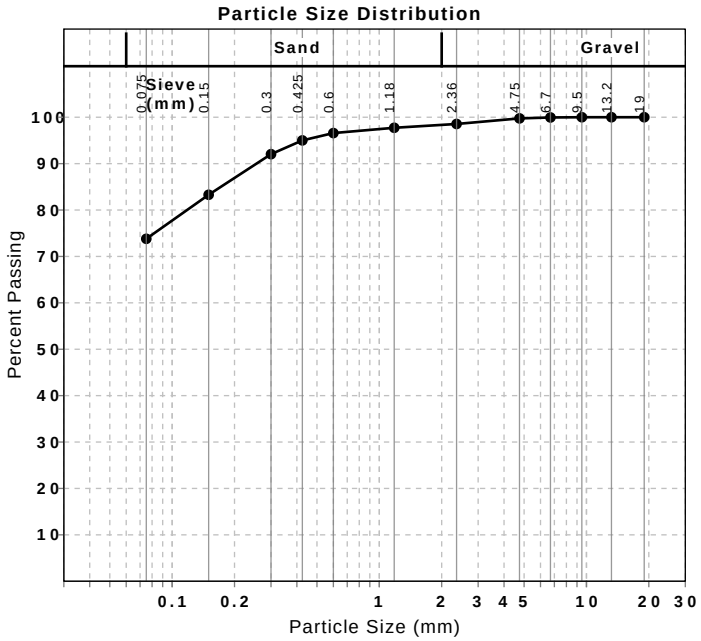
Stephanie Honan (Laboratory Manager)

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	46		
Plastic Limit (%)	17		
Plasticity Index (%)	**29**		
Weighted Plasticity Index (%)	2755		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	**11.5**		
Cracking Crumbling Curling	Cracking & Curling		

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**100**			0		
2.36 mm	**99**			1		
1.18 mm	**98**			1		
0.6 mm	**97**			1		
0.425 mm	**95**			2		
0.3 mm	**92**			3		
0.15 mm	**83**			9		
0.075 mm	**74**			9		





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Phone: (07) 4952 5255
Email: stephanie.honan@stantec.com

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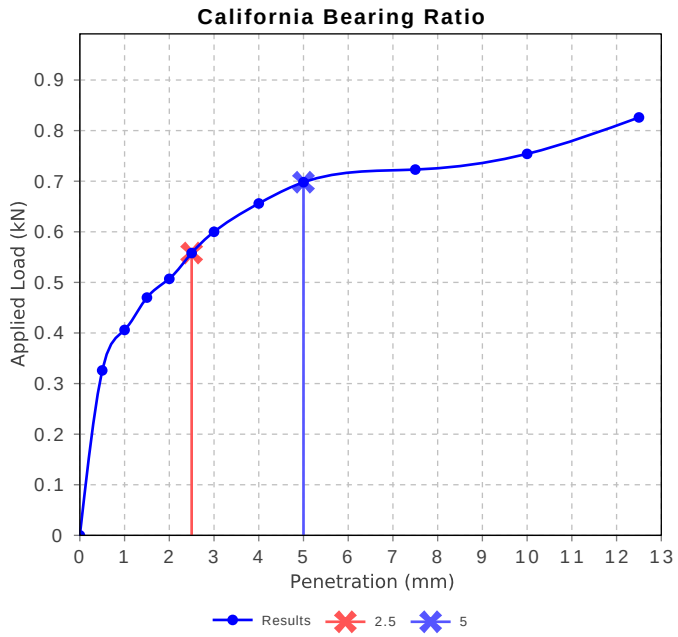
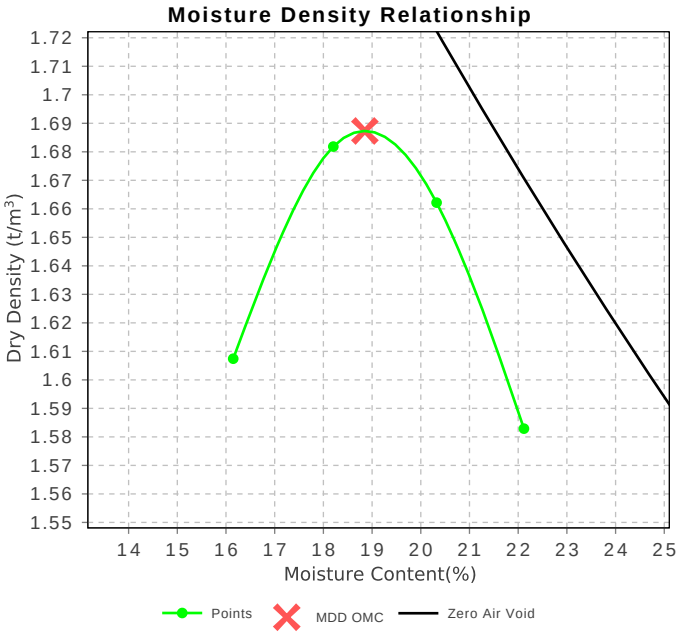
Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637F
Date Sampled: 18/02/2025
Dates Tested: 19/02/2025 - 22/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP09, Depth: 0.40-1.10**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**4.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS1289.5.1.1&2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.69		
Optimum Moisture Content (%)	19.0		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	100.5		
Moisture Content at Placement (%)	19.1		
Moisture Content Top 30mm (%)	22.5		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	25.3		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)		Min	Max
Mould Type	1 LITRE MOULD A		
Compaction	Standard		
Maximum Dry Density (t/m^3)	1.69		
Optimum Moisture Content (%)	19.0		
Oversize Sieve (mm)	19.0		
Oversize Material Wet (%)	0		
Method used to Determine Plasticity	Visual		
Curing Hours (h)	22.4		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	20.1





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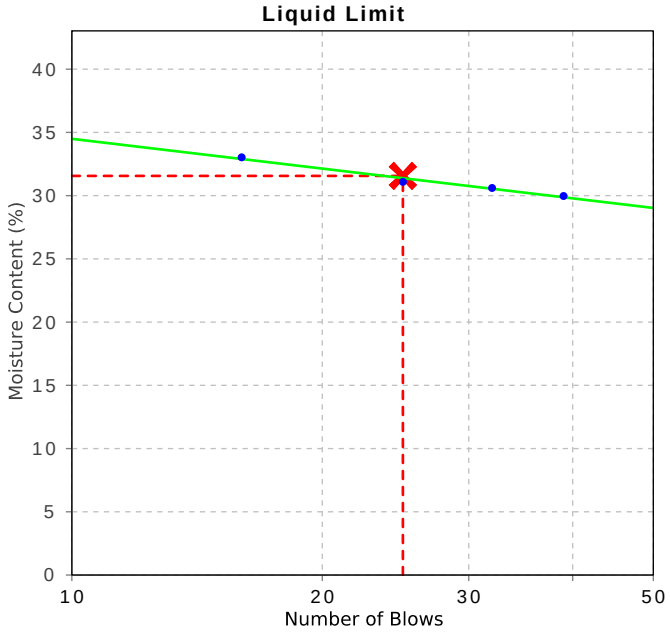
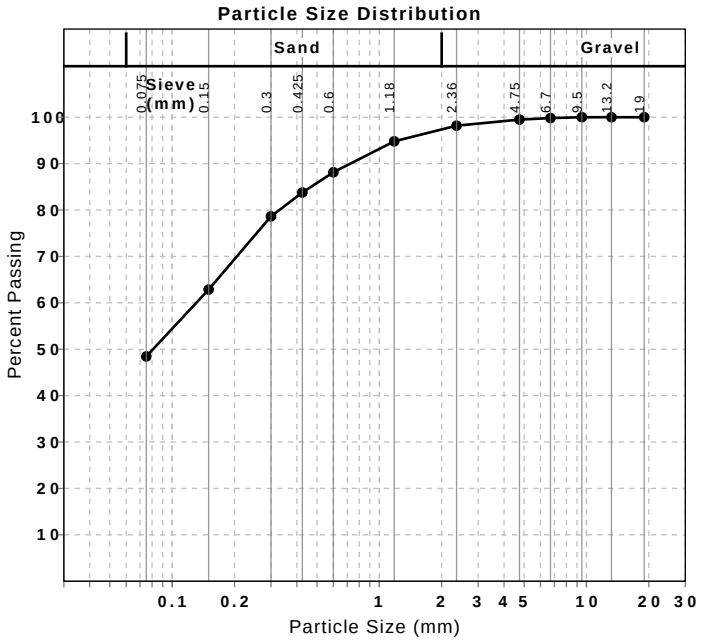
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637G
Date Sampled: 18/02/2025
Dates Tested: 19/02/2025 - 28/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP09, Depth: 1.10-2.00**

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	32		
Plastic Limit (%)	17		
Plasticity Index (%)	**15**		
Weighted Plasticity Index (%)	1257		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	**7.0**		
Cracking Crumbling Curling	Cracking & Curling		

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**99**			0		
2.36 mm	**98**			1		
1.18 mm	**95**			3		
0.6 mm	**88**			7		
0.425 mm	**84**			4		
0.3 mm	**79**			5		
0.15 mm	**63**			16		
0.075 mm	**48**			14		





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Email: stephanie.honan@stantec.com

Stephanie Honan (Laboratory Manager)

Report Number: **304570195-3**
Issue Number: 1
Date Issued: 03/03/2025
Client: Certainty Wealth
Suite 103, 2 Miami Key, Broadbeach QLD 4218, Broadbeach QLD 4218
Contact: Chris Doolan
Project Number: 304570195
Project Name: Riverbend Development Mirani Geotechnical Investigation
Project Location: 72 Mirani Eton Road, Mirani QLD 4754
Work Request: 6637
Sample Number: 25-6637G
Date Sampled: 18/02/2025
Dates Tested: 19/02/2025 - 22/02/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: **TP09, Depth: 1.10-2.00**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**6**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	1289.5.1.1&2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.92		
Optimum Moisture Content (%)	12.0		
Laboratory Density Ratio (%)	94.5		
Laboratory Moisture Ratio (%)	102.0		
Moisture Content at Placement (%)	12.2		
Moisture Content Top 30mm (%)	17.2		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	24.8		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)		Min	Max
Mould Type	1 LITRE MOULD A		
Compaction	Standard		
Maximum Dry Density (t/m^3)	1.92		
Optimum Moisture Content (%)	12.0		
Oversize Sieve (mm)	19.0		
Oversize Material Wet (%)	0		
Method used to Determine Plasticity	Visual		
Curing Hours (h)	23.2		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	13.6