Geotechnical Investigation Report

Redland Coast Regional Sport & Recreational Precinct

277-293 Heinemann Road, Mount Cotton



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Executive Summary

This report presents the results of a geotechnical investigation carried out for a proposed sport and recreation precinct at 277 to 293 Heinemann Road, Mount Cotton.

The proposed development is to comprise large volumes of cut to fill earthworks. Cuts of up to about 4 m and filling up to 4 m are anticipated to develop level platforms. The Precinct will provide formal sporting facilities for touch football, rugby league, BMX and cycling and will further support the wider community with an all-abilities playground, kickabout space, pump track, boardwalks, picnic areas, trails through conservation areas, together with internal roads, driveways and carparking. Design details and building loads for proposed structures (i.e. new clubhouses etc.) have not been provided at this stage, however we anticipate that these will likely comprise one to two storey buildings. Upgrades to approximately 2.8 km of Heinemann Road are also proposed as a part of the project, including widening of the existing road carriageway and roundabouts at the Precinct entrances and exits.

Test pit excavation and in situ testing was carried out at forty-six locations within the Precinct Area to depths of between 1.7 m and 5 m below ground level (BGL), using a 20-tonne excavator, fitted with a combination of 0.6 m and 1 m wide toothed buckets. Dynamic Cone Penetrometer (DCP) testing was undertaken at each test location to assess the soil density/consistency. Pocket penetrometer tests were carried out in test pit sidewalls where suitable.

Twenty-eight boreholes (designated BH1 to BH28) were also drilled along Heinemann Road at approximately 100 m spacings to depths of 1.5 m BGL, using a combination of a 4WD mounted auger rig fitted with a 250 mm auger attachment, and a 6-tonne excavator fitted with a 300 mm auger attachment. DCP testing was undertaken in the subgrade at each test location to assess the soil density/consistency.

Selected soil samples were forwarded to NATA accredited laboratories for geotechnical laboratory testing.

The subsurface conditions encountered in the test pits in the higher parts of the site and proposed lake excavations, where cut earthworks are currently proposed, generally comprised a layer of silty clayey sand and silty clay topsoil, underlain by firm to hard residual soils (and extremely weathered material) comprising silty/sandy/gravelly clay and clay, and dense to very dense clayey gravelly sand and clayey gravel to depths of between 1.4 m and 5 m BGL. The residual soils and extremely weathered materials were underlain by extremely to moderately weathered, inferred low to high strength, and typically highly fractured siltstone, sandstone, and conglomerate. A ripper attachment was used in several test pits once excavation rates became relatively slow. Groundwater seepage/inflow was encountered in some of the test pits at depths of between 0.3 m and 3.8 BGL. It is likely that groundwater conditions may vary, and seepage will permeate from excavations during construction following periods of prolonged or heavy rainfall.

In the lower lying drainage corridor area the subsurface conditions encountered in the test pits generally comprised a weaker clay layer in the upper part of the profile comprising soft to firm clay to depths of up to 0.7 m BGL. Groundwater was encountered at the surface in the test pits in these lower lying parts. Standing water was also observed at the surface in other parts of the lower-lying area at the time of investigation.

The subsurface conditions encountered in the boreholes along Heinemann Road (below the bitumen/asphalt seal) generally comprised base and subbase pavement gravel layers to depths of between 0.3 m to 0.45 m BGL, underlain mostly by residual soils comprising predominately firm to hard, medium to high plasticity sandy clay and clay (and at one location medium dense silty sand). The residual soil was also underlain at some locations by extremely weathered material comprising very dense silty/gravelly sand and very stiff to hard silty sandy/gravelly clay. Fill materials comprising low to medium plasticity, firm to very stiff silty/sandy/gravelly clay and dense clayey sandy gravel and gravel was encountered below the pavement layers in seven of the boreholes to depths of between 0.3 m and the maximum depth of investigation (i.e. 1.5 m BGL). Alluvial soil comprising low plasticity, stiff to very stiff sandy clay was also encountered in one borehole (BH21) below the base layer to a depth of 1.1 m BGL.

Geotechnical advice for the proposed development is provided within this report. The key geotechnical constraints identified during the investigation include:

- The residual clay materials ranged between low to high plasticity and may exhibit the equivalent of Class H or Class E shrink-swell movement, particularly if re-used as fill. The use of high plasticity residual clay

soils should be avoided directly under proposed buildings and other movement sensitive structures. The high plasticity clay materials will also present difficulties with handling, placement, and compaction should they become too moist.

- Excavatability of the underlying rock where cut earthworks are proposed. The earthworks contractor will need to make provision for alternative excavation/ripping techniques if the siltstone/sandstone/conglomerate becomes difficult to excavate (e.g. ripper and pneumatic rock breaking attachments, expansive grouts or low-level explosives).
- Relatively saturated and 'weak' clay materials within the low-lying drainage corridor area. It will be necessary to adequately 'drain' affected areas to improve foundation strength and trafficability. The site was relatively well grassed at the time of investigation which made the area marginally trafficable in a 4WD vehicle, however once this grass layer was broken through, relatively 'boggy' conditions were encountered. Drainage measures may include, but not be limited to, construction of open swale drains, and grading the ground surface to shed surface runoff. Subsurface drainage may be required in badly affected areas. Dewatering could also comprise pumping from deepened sump(s) for low to moderate seepage rates. The use of compacted granular fill, possibly with geotextile materials, may be required in these parts of the site, particularly in haul road areas.

A few other key points include:

- Prior to any earthworks activities, organic rich topsoil and severely root affected soils must be stripped and removed from the construction areas where future filling, structures or pavements are proposed. Based on the test pit findings, we estimate stripping depths of approximately 0.1 m to 0.2 m. Localised deeper stripping/excavation may also be required where larger tree root systems need to be removed. Organic rich topsoil must not be used as fill in proposed pavement areas, however it may be used for non-structural purposes (i.e. landscaping).
- Conventional high-level strip and pad footings could be considered provided that characteristic ground surface movements (y_s) can be tolerated. High level footings could be founded in controlled certified fill, residual soil or weathered rock. Such footings could be designed using the allowable bearing capacity values presented in this report. Alternatively, if required, piles could be adopted and designed using the design parameters and reduction factors provided within this report.
- Vegetation (e.g. trees/shrubs) has the potential to significantly increase the magnitude and depth of soil suction change, which could lead to a significant increase in potential reactive soil movement adjacent to existing (or proposed) vegetation. While we recommend existing vegetation surrounding the constructed development is removed in advance of construction, we understand that certain trees within the development area may be heritage listed, and it is proposed to keep and maintain some of these trees in the development area. Further advice regarding the management of vegetation and potential impacts on the new development (from a geotechnical viewpoint) is provided within this report.
- The anticipated subgrade in the Precinct area is expected to comprise a combination of residual/extremely weathered clayey/gravelly materials and siltstone/sandstone and re-used (potentially treated) site-won clay fill materials. Based on the results of the investigation and our experience with such materials, it is recommended that a subgrade CBR value of 3% be adopted for preliminary design purposes. Construction validation testing should be carried out on pavement subgrades to confirm design parameters prior to pavement construction. Where low strength (or stronger), moderately weathered (or fresher) siltstone/sandstone is present at the subgrade level following cut earthworks, higher CBR values may be available but will be subject to further geotechnical assessment and testing during construction.
- The anticipated subgrade along Heinemann Road is expected to be variable and comprise a combination of clayey alluvial soil, clayey residual soil, sandy residual soil, extremely weathered clayey materials and clayey and gravelly fill. Based on our experience with such materials it is recommended that a subgrade CBR value of 1.5% be adopted for the clayey subgrade materials, while a value of 7% could be adopted where sandy materials at the subgrade level.
- Soils are generally slightly dispersive and will require careful control to prevent erosion.

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Appendix A Reports of Test Pits & Explanatory Notes - Precinct Area

Appendix B Reports of Boreholes & Laboratory Test Certificates (Previous Investigation by others) – Precinct Area

Appendix C Geotechnical Laboratory Test Certificates - Precinct area

Appendix D Reports of Boreholes & Explanatory Notes - Heinemann Road

Appendix E Geotechnical Laboratory Test Certificates - Heinemann Road

Appendix F Limitations

1.0 INTRODUCTION

This draft report presents the results of a geotechnical investigation carried out by Core Consultants Pty Ltd (Core) for a proposed sport and recreation precinct at 277 to 293 Heinemann Road, Mount Cotton.

The work was carried out for Bligh Tanner, in accordance with our proposal Q003113-001-L-Rev1, dated 6 October 2021.

Presented in this report is a summary of the site conditions and method of investigation; along with comments and recommendations regarding site preparation, excavatability, groundwater and dewatering, trafficability, filling, reuse of materials, batter slopes, erosion control, suitable footing types, foundation and retaining wall design parameters, site classification to AS2870-2011, and pavement (CBR) design parameters.

2.0 OUR UNDERSTANDING OF THE PROJECT

The proposed 'Precinct' is to comprise large volumes of cut to fill earthworks. Cuts of up to about 4 m and filling up to 4 m depth are anticipated to develop level platforms. Figure 1 (attached) shows the contour shading of the current proposed cut to fill earthworks.

The Precinct will provide formal sporting facilities for touch football, rugby league, BMX and cycling and will further support the wider community with an all-abilities playground, kickabout space, pump track, boardwalks, picnic areas, trails through conservation areas, together with internal roads, driveways and carparking. Design details and building loads for proposed structures (i.e. new clubhouses etc.) have not been provided at this stage, however we anticipate that these will likely comprise one to two storey buildings.

Due to vegetation overlay constraints, some of the more densely vegetated parts of the site will remain in their current condition. A number of large heritage listed trees surrounding proposed structures and associated infrastructure will also remain.

Upgrades to approximately 2.8 km of Heinemann Road are also proposed as a part of the project, including widening of the existing road carriageway and roundabouts at the Precinct entrances and exits.

3.0 PREVIOUS INVESTIGATION BY OTHERS

In 2017 and 2019, Redland City Council commissioned others to carry out geotechnical investigations for the proposed development (report ref. Pacific Geotech (PG) PG-0442, dated September 2019).

The 2017 investigation comprised eight boreholes (designated PGBH01 to PGBH08) to depths of between 1.8 m and 6 m, while the 2019 investigation comprised a further thirty boreholes (designated PGBH9 to PGBH38) to depths of between 1.4 m and 6 m, together with associated laboratory testing to assess soil reactivity and classification.

That (2019) report provided the results of the investigations together with geotechnical advice and recommendations regarding earthworks, footings, retaining walls, pavement design, and construction considerations, together with anticipated geotechnical constraints for the development.

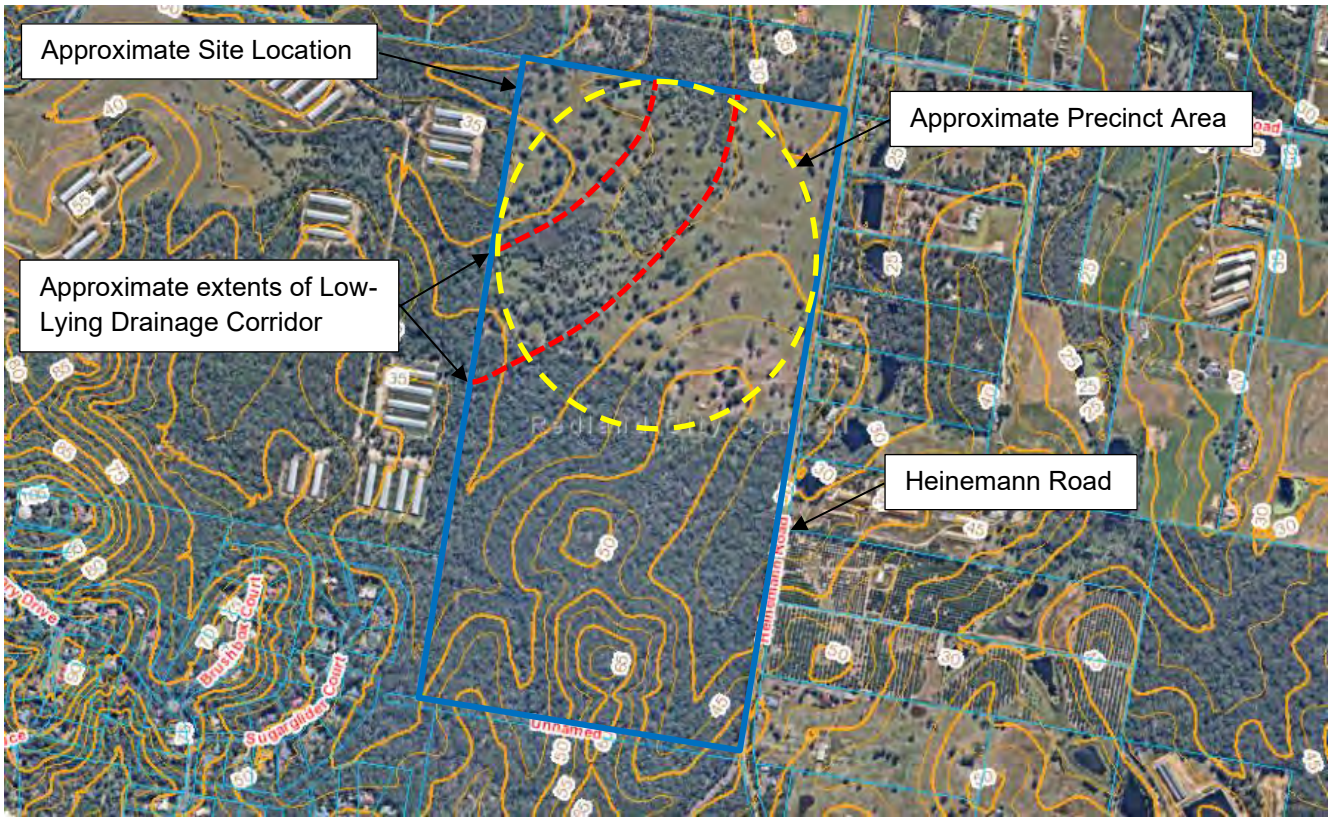
Such constraints included the presence and handling of highly reactive clay soils and the presence of weak clay soils in the low-lying drainage corridor in the central portion of the site.

Information from that report has been used within this report.

4.0 SITE DESCRIPTION

The site of the proposed Precinct development is located at 277 to 293 Heinemann Road, Mount Cotton. The site is surrounded by a rural residential property to the north, Heinemann Road to the east, and dense vegetation to the south and west. The proposed sport and recreation precinct is mostly located in the relatively cleared, lightly vegetated parts of the site (ref. Text Figure 1).

The topography of the site is characterised by gently rolling slopes in the eastern and western parts, which are separated by a low-lying drainage corridor in the central parts of the site. Refer Photographs 1 to 3.



Text Figure 1: Extract from Redland City Council Red-e-Map (Annotations by Core)



Photograph 1: General site conditions (view north from southern end of site)



Photograph 2: General site conditions in low-lying drainage corridor (view approximately south-west)



Photograph 3: General site conditions along Heinemann Road (view from borehole BH21 at CH800)

5.0 METHOD OF INVESTIGATION

5.1 Review of Available Information

To assess likely ground conditions a review of the published geological maps and available geotechnical information was undertaken (refer Section 6.1).

5.2 Test Pitting (Precinct Area)

The Precinct fieldwork was carried out between 18 and 22 October 2021.

Forty-six (46) test pits were excavated approximately at the locations agreed upon with Bligh Tanner. This comprised the following breakdown:

- 19 test pits in proposed pavement/driveway/carparking areas to 2 m to 3 m depth (or shallower refusal) (denoted P-TP).
- 16 test pits in proposed fill areas up to 3 m depth (or shallower refusal) (denoted F-TP).
- 11 test pits in proposed cut areas up to 5 m depth (or shallower refusal) (denoted C-TP).

The test pits were advanced using a 20-tonne excavator fitted with a combination of 0.6 m and 1 m wide toothed buckets. A ripper attachment was also used to advance some of the test pits in the cut areas once practical bucket refusal or slow digging was encountered in competent rock (ref. Photographs 4 to 6).

Dynamic Cone Penetrometer (DCP) testing was undertaken at each test location to assess the soil density/consistency. Pocket penetrometer tests were carried out in test pit sidewalls where possible.

Disturbed, bulk disturbed, and undisturbed (U50 tube) samples were recovered from the test pits for subsequent laboratory testing (refer. Section 5.4).

The test pits were backfilled with compacted spoil, with excess material mounded on the surface to allow for settlement.

Test pit positions were recorded in the field using a handheld GPS unit.

Test pit locations are shown on Figure 1, together with the test locations from the previous investigations. Results of the fieldwork are presented in the Reports of Test Pits in Appendix A, along with Explanatory Notes. The Reports of Boreholes from the previous investigation by PG are also attached in Appendix B. Subsurface conditions are discussed in Section 6.3.

The fieldwork was carried out in the presence of a geotechnical engineer from Core, who also logged the subsurface conditions in accordance with Australian Standard *AS1726-2017 Geotechnical site investigations*.



Photograph 4: 20-tonne excavator fitted with 1 m wide toothed bucket




Photographs 5 and 6: 1 m wide toothed bucket (left); ripper attachment (right)

5.3 Borehole Drilling (Heinemann Road)

The Heinemann Road fieldwork was carried out between 5 and 10 November 2021.

Twenty-eight boreholes (designated BH1 to BH28) were drilled along Heinemann Road at approximately 100 m spacings to depths of 1.5 m BGL, using a combination of a 4WD mounted auger rig fitted with a 250 mm auger attachment, and a 6-tonne excavator fitted with a 300 mm auger attachment.

DCP testing was undertaken in the subgrade at each test location to assess the soil density/consistency.

Disturbed and bulk soil samples were recovered from the boreholes, with selected samples dispatched for laboratory testing (refer Section 5.4).

Borehole positions were recorded in the field using a handheld GPS unit.

The fieldwork was carried out in the presence of a geotechnical engineer from Core, who also logged the subsurface conditions in accordance with Australian Standard *AS1726-2017 Geotechnical site investigations*.

Reports of Boreholes are attached in Appendix D, together with explanatory notes. Subsurface conditions are discussed in Section 6.3.

The boreholes were reinstated in accordance with Table 1.

Table 1: Reinstatement method (Heinemann Road).

Test Type	Reinstatement
Borehole – On pavement **(In shoulder or centre of lane)**	▪ Backfill subgrade with cement blended suitable spoil and or granular imported fill, machine-compact in layers <100 mm thick ▪ Reinstate pavement with cement-blended gravel, to 100 mm below pavement surface level ▪ Tack coat with emulsion HOLD POINT: Take photograph ▪ Fill with compacted 'cold-mix' asphalt HOLD POINT: Take photograph ▪ Sweep/clean work area HOLD POINT: Take photograph

NOTES:

- All reinstatement was undertaken under the full-time direction of a geotechnical engineer from Core.
- Photographs were taken on completion of reinstatement at each borehole, as well as during reinstatement at pavement boreholes (refer Hold Points above).

5.4 Geotechnical Laboratory Testing

Samples collected from the test pits and boreholes were dispatched to NATA accredited laboratories for the following testing:

Precinct Area:

- Shrink-Swell Index (for site reactivity/soil classification purposes) (6 No.)
- Atterberg limits and/or particle size distribution testing (for soil classification purposes) (20 No.)
- Emerson Class Number for soil dispersion (12 No.)
- 4-Day-Soaked California Bearing Ratio (CBR) (Single point) on subgrade materials (12 No.)
- Soil aggressivity to steel and concrete in structure areas (12 No.)

Heinemann Road:

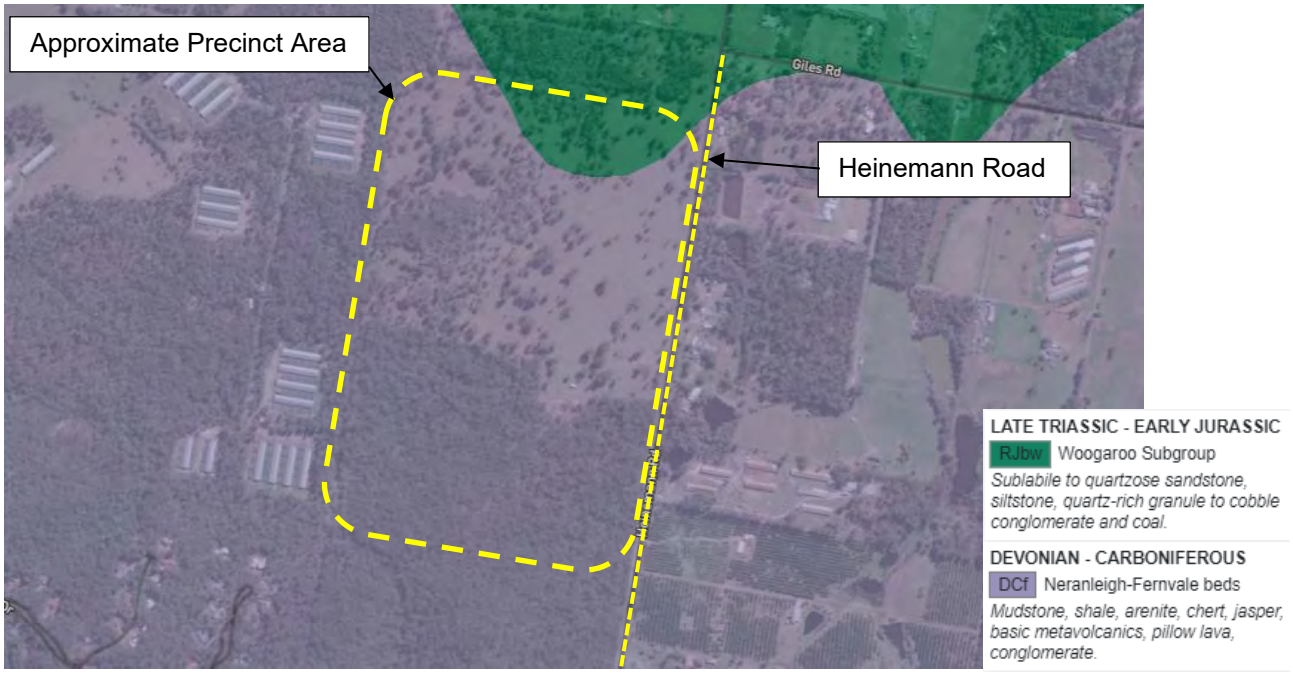
- Atterberg limits and particle size distribution testing (for soil classification purposes) (28 No.)
- Emerson Class Number for soil dispersion (4 No.)
- 4-Day-Soaked California Bearing Ratio (Single point) on subgrade materials (14 No.)

Subgrade CBR testing was undertaken on remoulded samples compacted to 95% Dry Density Ratio (DDR) (standard). The results are provided in Section 6.2.

6.0 RESULTS OF INVESTIGATION

6.1 Published Geological Information

Published information[1] indicates that the majority of the site is underlain by Devonian to Carboniferous Age Neranleigh Fernvale Beds comprising '*Mudstone, shale, arenite, chert, jasper, basic metavolcanics, pillow lava and conglomerate'*. The northern most parts of the site comprise Late Triassic to Early Jurassic Age Woogaroo Subgroup comprising *'Sublabile to quartzose sandstone, siltstone, quartz-rich granule to cobble conglomerate and coal'*. An extract of the geological map is shown in Text Figure 2. The subsurface conditions encountered in the test pits (described below) generally confirm the published geology.



Text Figure 2: Extract from geology mapping

[1] Queensland Geotechnical Database Website

6.2 Geotechnical Laboratory Testing

Laboratory results are summarised in Tables 2 to 4. Laboratory test certificates for the Precinct area are attached in Appendix C, while the test certificates for Heinemann Road are attached in Appendix E.

The laboratory test results from the previous investigation by PG are also included in Table 2. Laboratory test certificates are attached in Appendix B.

Table 2: Summary of geotechnical laboratory test results (Precinct Area)

Test ID	Sample Depth (m BGL)	Material Type (Origin)	Field Moisture Content (%)	Optimum Moisture Content (%)	Particle Size Distribution			Atterberg Limits			Soaked CBR(note 1)		Emerson Class Number	Shrink Swell Index (%)
					% Fines (Silt/Clay)	Sand (%)	Gravel (%)	Liquid Limit (%)	Plastic Index (%)	Linear Shrinkage (%)	Swell (%)	CBR Value (%)		
P-TP2	0.1 – 0.6	Silty CLAY (Residual Soil)	24.8	17.0	-	-	-	27	12	6.0	1.0	6	5	-
P-TP12	0.2 – 0.6	CLAY (Residual Soil)	29.4	27.5	-	-	-	59	41	15.5	1.5	4.5	5	-
P-TP12	0.75 – 1.15	CLAY (Residual Soil)	28.1	-	-	-	-	-	-	-	-	-	-	5.0
P-TP15	0.3 – 0.8	CLAY (Residual Soil)	30.0	28.0	-	-	-	73	49	15.5	2.5	4.0	5	-
P-TP17	0.15 – 0.25	Gravelly CLAY (Residual Soil)	13.1	12.0	-	-	-	21	7	3.0	0.0	5.0	5	-
P-TP19	0.2 – 0.6	Silty CLAY (Residual Soil)	15.3	10.5	-	-	-	19	6	3.0	0.0	7.0	-	-
P-TP23	0.2 – 0.4	Silty CLAY (Residual Soil)	16.3	13.5	-	-	-	22	7	3.5	0.0	4.0	-	-
P-TP27	0.1 – 0.4	Silty CLAY (Residual Soil)	19.3	13.5	-	-	-	24	10	4.0	0.0	3.0	3	-
P-TP30	0.2 – 0.9	CLAY (Residual Soil)	23.4	14.5	-	-	-	31	15	7.5	1.0	4.0	-	-
P-TP31	0.2 – 0.5	CLAY (Residual Soil)	22.5	14.0	-	-	-	28	10	4.5	0.5	10.0	-	-
P-TP34	0.2 – 0.6	CLAY (Residual Soil)	23.8	17.5	-	-	-	36	17	8.0	2.5	3.0	-	-
P-TP42	0.2 – 0.6	CLAY (Residual Soil)	14.4	14.5	-	-	-	28	11	5.5	0.0	4.5	5	-
P-TP42	0.3 – 0.8	CLAY (Residual Soil)	26.9	-	-	-	-	-	-	-	-	-	-	2.8
P-TP44	0.1 – 0.4	Silty CLAY (Residual Soil)	23.8	12.0	-	-	-	20	3	1.5	0.0	6.0	-	-
C-TP1	0.7 – 1.2	CLAY (Residual Soil)	19.1	-	-	-	-	44	22	10.5	-	-	5	-
C-TP1	0.4 – 0.8	Silty CLAY (Residual Soil)	26.0	-	-	-	-	-	-	-	-	-	-	3.3
C-TP13	1.6 – 2.0	CLAY (Residual Soil)	24.1	-	-	-	-	41	20	10.0	-	-	3	-
C-TP25	1.8 – 2.5	CLAY (Residual Soil)	21.3	-	-	-	-	29	17	9.0	-	-	5	-
C-TP28	0.25 – 0.75	Silty CLAY (Residual Soil)	18.7	-	-	-	-	-	-	-	-	-	-	0.9
C-TP28	0.8 – 1.5	CLAY (Residual Soil)	20.3	-	-	-	-	46	31	13.0	-	-	6	-
C-TP28	2.0 – 3.0	Clayey GRAVEL w/ sand (XW Conglomerate)	10.7	-	15	29	56	40	27	11.0	-	-	6	-
C-TP37	2.1 – 2.5	Sandy Gravelly CLAY (XW Material)	10.3	-	-	-	-	38	26	10.5	-	-	6	-
C-TP38	0.6 – 1.0	CLAY (Residual Soil)	18.9	-	-	-	-	-	-	-	-	-	-	2.4

Test ID	Sample Depth (m BGL)	Material Type (Origin)	Field Moisture Content (%)	Optimum Moisture Content (%)	Particle Size Distribution			Atterberg Limits			Soaked CBR[note 1]		Emerson Class Number	Shrink Swell Index (%)
					% Fines (Silt/Clay)	Sand (%)	Gravel (%)	Liquid Limit (%)	Plastic Index (%)	Linear Shrinkage (%)	Swell (%)	CBR Value (%)		
C-TP38	3.0 – 3.5	CLAY (XW Material)	21.6	-	-	-	-	58	36	14.5	-	-	-	-
C-TP43	1.8 – 2.5	CLAY (Residual Soil)	20.4	-	-	-	-	45	28	11.0	-	-	-	-
F-TP46	0.3 – 0.8	Silty CLAY (Residual Soil)	16.2	-	-	-	-				-	-	-	0.6
PGBH13	0.2 - 0.5	Sandy CLAY	-	-	-	-	-	38.7	6.1	11.5	-	-	-	-
PGBH13	0.9 – 1.15	Sandy CLAY	17.4	-	-	-	-	-	-	-	-	-	-	5.3
PGBH16	2.6 – 3.0	Sandy Silty CLAY	-	-	-	-	-	32.2	7.4	11.2	-	-	-	-
PGBH16	0.9 – 1.15	Sandy CLAY	15.1	-	-	-	-	-	-	-	-	-	-	3.0
PGBH17	0.4 – 0.5	Sandy CLAY	-	-	-	-	-	31.4	6.4	11.1	-	-	-	-
PGBH27	0.9 – 1.2	Sandy Silty CLAY	15.6	-	-	-	-	-	-	-	-	-	-	1.9
PGBH27	0.7 – 1.0	Sandy CLAY	-	-	-	-	-	37.1	8.9	11.7	-	-	-	-
PGBH38	0.9 – 1.09	Sandy CLAY	16.1	-	-	-	-	-	-	-	-	-	-	3.0

Notes:
CBR testing was undertaken on samples remoulded to 95% DDR (standard) at optimum moisture content.

The results of the Emerson class number (ECN) testing indicate that the residual soils tested range from dispersive (ECN 3) to non-dispersive (ECN 6), while the extremely weathered materials are non-dispersive. ECN results are further discussed in Section 7.1.5.

The test results indicate that the clay fraction of the residual soil ranges from low to highly plastic, most commonly moderately plastic, but with two shrink-swell index results from the residual soil indicating extremely reactive soils.

The laboratory CBR values were achieved on samples compacted at optimum moisture content (OMC) and the field moisture contents in the residual soils were up to 12% wet of the OMC. Variation of soil moisture content from the OMC typically results in lower CBR results. Laboratory CBR testing can also over-estimate in situ CBR values for sandy materials. Recommended design CBR values are discussed in Section 7.4.

Table 3: Summary of soil aggressivity testing (Precinct Area).

Test ID	Sample Depth (m BGL)	Material Type (Origin)	pH	Sulphate (SO_4), mg/kg	Chloride, mg/kg
F-TP4	0.3 - 0.6	CLAY (Residual Soil)	7.5	< 30	250
F-TP46	0.3 - 0.5	Silty CLAY (Residual Soil)	6.0	63	34

Test ID	Sample Depth (m BGL)	Material Type (Origin)	pH	Sulphate (SO_4), mg/kg	Chloride, mg/kg
P-TP12	0.2 - 0.6	CLAY (Residual Soil)	7.0	41	26
C-TP13	0.8 - 1.0	CLAY (Residual Soil)	6.0	180	290
C-TP16	1.5-2.0	CLAY (XW Material)	6.9	49	250
C-TP28	0.4 - 0.8	CLAY (Residual Soil)	6.8	48	150
C-TP28	2.0 - 3.0	Clayey GRAVEL w/ sand (XW Conglomerate)	6.3	36	75
C-TP37	0.4 - 0.9	CLAY (Residual Soil)	7.7	< 30	320
C-TP37	0.9 - 1.5	CLAY (Residual Soil)	4.8	68	600
P-TP42	0.2 - 0.6	CLAY (Residual Soil)	7.5	51	280
C-TP43	0.6 - 1.0	CLAY (Residual Soil)	6.4	51	260
C-TP43	1.8 - 2.5	CLAY (Residual Soil)	7.5	50	62

Test results are further discussed in Section 7.3.6.

Table 4: Summary of geotechnical laboratory test results (Heinemann Road)

Test ID	Sample Depth (m BGL)	Material Type (Origin)	Field Moisture Content (%)	Optimum Moisture Content (%)	Particle Size Distribution			Atterberg Limits			Soaked CBR		Emerson Class Number
					% Fines (Silt/Clay)	Sand (%)	Gravel (%)	Liquid Limit (%)	Plastic Index (%)	Linear Shrinkage (%)	Swell (%)	CBR Value (%)	
BH1	0.3 – 0.8	Sandy CLAY (Residual Soil)	16.8	17.5	42	42	16	50	26	13.5	0.5	11	6
BH2	0.3 – 0.8	Sandy CLAY (Residual Soil)	13.8	-	42	51	7	37	16	8.0	-	-	-
BH3	0.4 – 0.8	Silty SAND (Residual Soil)	7.4	8.5	31	68	1	14	2	2.0	0.0	8	-
BH4	0.4 – 0.9	Sandy CLAY (Residual Soil)	13.2	-	45	46	9	45	27	13.0	-	-	-
BH5	0.4 – 1.0	Gravelly CLAY (Fill)	12.4	11.5	36	28	36	33	17	9.0	1.5	4.0	6
BH6	0.5 – 1.0	CLAY (Fill)	12.6	-	45	29	26	30	12	7.0	-	-	-
BH7	0.3 – 0.7	Sandy CLAY (Residual Soil)	9.5	9.5	39	59	2	25	12	5.5	0.0	7	-

Test ID	Sample Depth (m BGL)	Material Type (Origin)	Field Moisture Content (%)	Optimum Moisture Content (%)	Particle Size Distribution			Atterberg Limits			Soaked CBR		Emerson Class Number
					% Fines (Silt/Clay)	Sand (%)	Gravel (%)	Liquid Limit (%)	Plastic Index (%)	Linear Shrinkage (%)	Swell (%)	CBR Value (%)	
BH8	0.4 – 1.0	Gravelly CLAY (Residual Soil)	13.3	-	38	26	36	44	26	11.5	-	-	-
BH9	0.35 – 0.8	Sandy CLAY (Residual Soil)	14.6	15.0	39	41	20	48	28	13.0	1.5	3.5	-
BH10	0.4 – 1.0	Sandy CLAY (Residual Soil)	14.3	-	48	36	16	34	16	9.0	-	-	-
BH11	0.5 – 1.1	CLAY (Residual Soil)	20.9	22.0	-	-	-	74	52	18.5	3.5	2.0	-
BH12	0.4 – 1.0	CLAY (Residual Soil)	15.1	-	73	23	4	64	45	18.5	-	-	-
BH13	0.4 – 0.8	CLAY (Residual Soil)	23.5	24.5	70	15	15	73	48	21.0	1.0	5.0	-
BH14	0.4 – 0.9	CLAY (Residual Soil)	19.7	-	70	13	17	48	29	15.0	-	-	-
BH15	0.3 – 0.9	CLAY (Residual Soil)	19.8	21.5	75	10	15	52	33	14.5	1.5	3.5	-
BH16	0.3 – 0.8	CLAY (Residual Soil)	17.0	-	72	16	12	36	20	11.0	-	-	-
BH17	0.3 – 0.8	CLAY (Residual Soil)	22.0	22.0	61	14	25	72	52	19.0	4.5	1.5	-
BH18	0.3 – 0.8	CLAY (Residual Soil)	19.2	-	82	8	10	74	54	19.0	-	-	-
BH19	0.3 – 0.9	CLAY (Residual Soil)	15.8	-	68	14	18	51	34	14.5	-	-	-
BH20	0.3 – 0.9	Sandy CLAY (Fill)	16.4	14.0	51	32	17	38	20	10.5	3.0	2.0	-
BH21	0.2 – 0.8	Sandy CLAY (Alluvial Soil)	16.5	15.0	51	31	18	24	9	5.5	-0.5	5.0	5
BH22	0.2 – 0.7	CLAY (Residual Soil)	18.2	-	80	17	3	62	40	17.0	-	-	-
BH23	0.25 – 0.6	Clayey SAND (Extremely Weathered Material)	5.1	-	26	48	26	27	12	6.0	-	-	-
BH24	0.3 – 0.7	Sandy Gravelly CLAY (Fill)	15.4	14.5	40	30	30	39	22	10.5	2.0	2.5	-
BH25	0.3 – 0.8	Clayey SAND (Extremely Weathered Material)	8.8	-	34	42	24	36	19	8.5	-	-	-
BH26	0.3 – 0.8	CLAY (Residual Soil)	11.6	-	51	19	30	65	42	15.5	-	-	-
BH27	0.2 – 0.6	CLAY (Residual Soil)	12.3	15.5	48	29	23	37	18	9.0	2.0	2.5	-
BH28	0.2 – 0.8	Clayey Sandy GRAVEL (Fill)	12.4	13.5	27	34	39	32	15	7.5	0.5	3.5	5

Notes:
CBR testing was undertaken on samples remoulded to 95% DDR (standard) at optimum moisture content.

The results of the Emerson class number (ECN) testing indicate that the residual soil sample tested is non-dispersive, while the clayey fill and alluvial materials are slightly dispersive. ECN results are further discussed in Section 7.1.5.

The test results indicate that the clay fraction of the residual soil is typically moderately to highly plastic.

The laboratory CBR values were achieved on samples compacted at optimum moisture content (OMC) and the field moisture contents in the samples tested were generally within about ± 3% of the OMC along Heinemann Road. Variation of soil moisture content from the OMC typically results in lower CBR results. Laboratory CBR testing can also over-estimate in situ CBR values for sandy materials. Recommended design CBR values are discussed in Section 7.4.

6.3 Subsurface & Groundwater Conditions

6.3.1 Precinct Area

Proposed Cut Earthworks Areas (C-TP Test Pits)

The subsurface conditions encountered in the test pits (denoted by the C-TP naming) in the higher parts of the site and proposed lake excavations, where cut earthworks are currently proposed, generally comprised a layer of silty clayey sand and silty clay topsoil to depths of between 0.1 m and 0.2 m BGL, underlain by firm to hard residual soils (and extremely weathered material) comprising silty/sandy/gravelly clay and clay, and dense to very dense clayey gravelly sand and clayey gravel to depths of between 1.4 m and 5 m BGL. Some fissuring was also observed in the residual clay soils within some of the test pits. The residual soils and extremely weathered materials were underlain by extremely to moderately weathered, inferred low to high strength, and typically highly fractured siltstone and sandstone. A ripper attachment was used in several test pits once excavation rates became relatively slow.

Groundwater seepage/inflow was encountered in some of the test pits at depths of between 0.3 m and 3.8 BGL. It is likely that groundwater conditions may vary, and seepage will likely permeate from excavations during construction following periods of prolonged or heavy rainfall.

Proposed Fill Earthworks (F-TP) & Pavement Areas (P-TP)

Where fill earthworks and/or pavements are currently proposed, the subsurface conditions encountered in the test pits (denoted by F-TP and P-TP) generally comprised a similar profile as discussed above.

Lower Lying Drainage Corridor Area (includes C-TP, F-TP and P-TP test pits)

In the lower lying parts of the site the subsurface conditions encountered in the test pits generally comprised a weaker clay layer in the upper part of the profile comprising soft to firm clay to depths of up to 0.7 m BGL. Groundwater was encountered at the surface in the test pits in these lower lying parts. Standing water was also observed at the surface at other locations in the lower-lying parts at the time of investigation.

The previous investigation by PG reported soft and firm clay soils and loose sands to depths of up to 1.4 m in these lower lying parts, however on review of those borehole logs, the DCP testing indicates that the strength appears to be generally higher than previously reported, and the soft and firm clays do not appear to extend as deep as indicated in the PG report.

6.3.2 Heinemann Road

The subsurface conditions encountered in the boreholes along Heinemann Road were generally consistent with published geological information and generally comprised the following:

- BITUMEN/ASPHALT SEAL: from the surface to depths of between 0.03 and 0.09 m BGL; overlying
- BASE LAYER: comprising very dense sandy gravel and gravelly sand to depths of between 0.1 m and 0.33 m BGL; overlying
- SUBBASE LAYER: comprising very dense silty/gravelly sand and silty/sandy gravel to depths of between 0.3 m to 0.45 m BGL; overlying

- RESIDUAL SOILS: comprising predominately firm to hard, low to high plasticity sandy clay, gravelly clay and clay (at one location medium dense silty sand) to depths of between 0.7 m and 1.5 m (i.e. maximum depth of investigation); underlain by
- EXTREMELY WEATHERED MATERIAL: comprising dense to very dense silty/clayey/gravelly sand and very stiff to hard silty sandy clay to the depth of investigation in boreholes BH2, BH9, BH23, BH25, BH26 and BH27 (i.e. 1.5 m BGL).

Fill materials comprising low to medium plasticity, firm to very stiff silty/sandy/gravelly clay and dense clayey sandy gravel and gravel was encountered below the base and subbase layers in boreholes BH5, BH6, BH12, BH17, BH20, BH24 and BH28 to depths of between 0.3 m and the maximum depth of investigation (i.e. 1.5 m BGL).

Alluvial soil comprising low plasticity, stiff to very stiff sandy clay was also encountered in borehole BH21 below the base layer to a depth of 1.1 m BGL.

Groundwater seepage/inflow was not encountered in any of the boreholes at the time of our investigation.

7.0 GEOTECHNICAL COMMENTS & RECOMMENDATIONS

7.1 Earthworks

Earthworks in the Precinct area is expected to comprise stripping of topsoil and rootlets, removal of selected trees and vegetation and cut to fill bulk earthworks. Cuts of up to about 4 m and filling up to 4 m depth are anticipated to develop level platforms.

Along Heinemann Road, earthworks are expected to comprise the removal of the existing pavement materials, widening of the road carriageway, and formation of roadside drainage.

7.1.1 Site Preparation & Trafficability

Prior to the placement of fill or construction at-grade, the following works are recommended:

- Strip the surface of existing vegetation (grass and weeds) and root affected soils (expected to range between 0.1 m and 0.2 m BGL in the Precinct area) based on the results of the investigation. Localised deeper stripping/excavation may also be required where larger tree root systems need to be removed. Any organic rich topsoil must not be used as fill in proposed building and/or pavement areas, however it may be used for non-structural purposes (i.e. landscaping).
- 'Proof roll' the stripped surface (in the higher parts of the site) by several passes of a minimum 10 tonne smooth drum roller to identify loose/soft areas. The clayey subgrade materials will undergo strength loss if they become wet, and trafficability may be poor during and following periods of wet weather.
- A suitably qualified and experienced geotechnical engineer should carry out inspections of the subgrade to help identify any areas of unsuitable material or weak subgrade that may be present following stripping. Loose/soft or wet material will require moisture adjustment and compaction, or removal and replacement.
- Loose/soft areas identified by proof rolling could be treated by either of the following methods:
  - Over-excavation and replacement with clean granular fill (i.e. containing less than 5% fines) compacted in layers; or
  - Tyning, drying and re-compaction of the loose/soft material provided that it does not contain substantial organic matter. It should be noted that tyning, drying and re-compaction of loose/soft areas requires more time than excavation and replacement with granular fill and is more prone to be affected by wet weather.

Relatively saturated and 'weak' clay materials were encountered at several test locations within the low-lying drainage corridor area at the time of our investigation. A combination of filling, and potentially cut earthworks,

is proposed in this area and consideration must be given to the handling of such materials during design and earthworks.

Standing surface water was also observed in some parts of this area during our investigation (ref. Photograph 7).

It will be necessary to adequately 'drain' affected areas to improve foundation strength and trafficability. The site was relatively well grassed at the time of investigation which made the area marginally trafficable in a 4WD vehicle, however once this grass layer was broken through, relatively 'boggy' conditions were encountered (ref. Photograph 8). Drainage measures may include, but not be limited to, construction of open swale drains, and grading the ground surface to shed surface runoff. Subsurface drainage may be required in badly affected areas. Dewatering could also comprise pumping from deepened sump(s) for low to moderate seepage rates. The use of compacted granular fill, possibly with geotextile materials, may be required in these parts of the site, particularly in haul road areas.



Photograph 7: Standing water observed at surface in low-lying drainage corridor



Photograph 8: Boggy conditions encountered in low-lying parts of the site

7.1.2 Excavatability

Based on the materials encountered during the previous and current investigations, typical earthmoving equipment for a project of this type (i.e. large 20 to 30 tonne excavators fitted with toothed buckets and ripper attachments, and medium to large dozers (D6 to D9 Caterpillar)) are expected to be sufficient. The use of pneumatic rock breaking attachments, or even expansive grouts or low-level explosives may also be required where bucket or auger refusal was encountered, and/or to improve excavation production/efficiency rates. The excavatability/rippability of the rock will depend on defect orientation and spacing within the rock mass.

If deeper excavations are proposed (e.g. for underground water storage), it would be prudent to carry out additional geotechnical investigation to assess the excavatability of such materials. Depending on the required excavation depths, such investigation could be carried out using techniques such as cored borehole drilling and MASW seismic surveys. If relatively high strength rock is encountered that is difficult/expensive to excavate, the adoption of underground water storage may be an uneconomical solution.

7.1.3 Material Re-use as Fill

Based on the subsurface conditions encountered, soil/rock from potential excavation areas will generally be suitable for reuse as structural fill provided materials are free from deleterious material, oversize particles (>75 mm size), and organic matter. The following issues should also be considered with regard to re-use of the site materials for structural fill:

- Material containing organics must not be used for structural fill.
- The clay component of the residual soil is generally moderately to highly reactive, and may present difficulties with handling, placement, and compaction if it becomes too moist. It is recommended that this material be moisture conditioned to +1 to -2% of optimum moisture content (OMC) for compaction. Blending with less reactive (i.e. relatively inert material) and/or granular soils may produce a more workable material.
- Site-won materials will likely need to be moisture conditioned to achieve adequate compaction. It is recommended that moisture density relationship testing (i.e. laboratory compaction test) be undertaken to help assess the extent of moisture conditioning required. The laboratory testing generally indicates that the field moisture contents ranged between about 1% to 12% wet of OMC in the Precinct area, however this will be subject to weather conditions leading up to, and during the earthworks.
- The residual clay materials may exhibit the equivalent of Class H or Class E shrink-swell movement, particularly if re-used as fill. The use of high plasticity residual clay soils should be avoided directly (within about 1 m depth) under proposed buildings and other movement sensitive structures. The high plasticity clay materials will also present difficulties with handling, placement, and compaction should they become too moist.
- Excavation spoil from the underlying rock may contain a significant proportion of ‘oversize’ particles. Some of this rock may not break down easily during handling or compaction. Such oversize particles will need to be crushed or removed from excavation spoil prior to re-using as structural fill. This may be costly and time-consuming.

7.1.4 Filling and Compaction

It is recommended that filling is carried out with Level 1 supervision and testing in accordance with Australian Standard 3798-2007.

Where filling is proposed, the following measures should be adopted:

- Fill should be compacted at moisture contents within the range of ±2% of optimum moisture content for Standard Compaction.
- Confirmatory compaction testing must be carried out at regular intervals. Guidance on testing frequency is provided in AS 3798-2007 Table 8.1.

- Fill should have a maximum particle size of 100 mm.
- Fill should be compacted in layers, typically about 250 mm thick (loose thickness). However, layer thickness will be dependent upon the type/size of compaction plant, use of vibration, material type and condition.
- Fill shall be compacted by repeated rolling to achieve a dry density ratio of at least 95% of the Maximum Standard Dry Density for cohesive soils, or 70% Dry Density Index for cohesionless soils. Higher grades of compaction will be required for pavement sub-bases and base courses.
- Imported fill (if required) should be cohesive in nature and have a plasticity index of < 15%, a maximum particle size of 100 mm, and a soaked CBR of > 10%.
- Slopes and existing drainage channels should be benched to assist with fill placement and compaction.

Further details for control and testing of fill are given in Australian Standard AS 3798-2007 Guidelines on Earthworks for Commercial and Residential Developments.

In accordance with good construction practice, fill embankments should be 'over built' then trimmed back to the well compacted material.

In poor subgrade areas the use of geotextiles and/or rock/gravel blankets may be required.

7.1.5 Soil Dispersion & Erosion Protection

Any excavations or disturbance of materials should be carefully monitored and managed during the construction phase to minimise potential for scour/erosion and sediment run off. The results of Emerson Class Number (ECN) (i.e. soil dispersion) testing carried out on thirteen disturbed samples of the residual clay and extremely weathered rock materials returned ECN values ranging between 3 and 6 (i.e. dispersive to non-dispersive), but most typically 5 (i.e. slightly dispersive) to 6 (i.e. non-dispersive). Two disturbed samples of fill and one sample of alluvial clay from the Heinemann Road boreholes also returned ECN values of 5 and 6.

Based on the results of field and laboratory testing, it is assessed that there is a moderate potential for erosion if the subgrade soils are exposed during or following construction.

Exposed soil (i.e. on batters or drains etc.) should be protected from erosion by appropriate measures such as re-vegetation and hydro-seeding, protective matting, or hard facings. Temporary sediment control should be adopted during construction where surface water will flow offsite. Concentrating surface runoff should be avoided unless adequate erosion protection and flow dissipation structures are constructed.

7.1.6 Batter Slopes

For short-term construction periods, excavated unsurcharged faces up to 3 m in vertical height could be battered at 1V:1H in the residual soils and extremely weathered rock.

Flatter batters or temporary support systems (e.g. 'shields' or 'shoring boxes' for trenches) may be required if significant groundwater seepage is encountered or if exposed faces are not protected from erosion by rainfall. Flatter batters may also be required where fissuring is observed within the clay soils. Shoring would be required to enable safe personnel entry into trenches (with vertical sides) deeper than 1 m.

Permanent fill embankment and excavation batters should be less than 3 m high and formed no steeper than:

- 1V:2H in the controlled fill, stiff (or stronger) residual soils and extremely weathered rock. Slopes may need to be battered to 1V:3H if fissured clays are exposed.
- 1V:1H in the highly weathered (or fresher) rock (possibly steeper subject to inspection by a geotechnical engineer).

Cut batters must be assessed by a geotechnical engineer during excavation. Such assessments should be undertaken progressively, with excavated face heights prior to assessment being limited to 1.5 m.

Fill batters should be 'overfilled' then trimmed back to the compacted materials.

Permanent batters that are not retained should be protected from erosion with some form of surface protection (e.g. revegetation or geotextile matting) and drainage.

The following general recommendations should be considered in the design:

- Batters should be vegetated as soon as possible after construction with quickly establishing vegetation suitable for the expected climate. This could possibly be carried out by hydroseeding. Alternatively, batters could be covered with *Geoweb* or *Grassroots* (or equivalent) erosion control matting.
- Construct cut-off drainage at the crest of cuts and fill embankments to intercept any surface water flow and direct it away from the slope.
- Incorporate an outer verge material with low erosion potential in the construction of ponds/basins/lakes and embankments. Laboratory Emerson Class Number testing carried out indicates residual soils are generally slightly dispersive, and probably unsuitable. Imported fill could be used providing that it is non-dispersive.

Notwithstanding the above, routine maintenance of the batters may be required, particularly after heavy rainfall events.

Positive support by engineer designed retained structures will be required where space restrictions prevent trimming of batters to safe slopes and where slopes are surcharged or near movement sensitive structures.

The above recommendations do not supersede any existing safety regulations or legislation applicable to excavations (e.g. limits on personnel entry into trenches).

7.2 Retaining Wall Design Parameters

The design of flexible retaining walls (either fully cantilevered, or single propped) may be undertaken using a triangular pressure distribution and the earth pressure coefficients given below in Table 5.

Flexible walls are those which are free to rotate or tilt (i.e. cantilevered walls or single anchored or propped walls) and should be designed using an 'active' earth pressure coefficient (K_a). Where the walls are rigid and cannot rotate or tilt, then an 'at-rest' earth pressure coefficient (K_0) should be used.

Passive pressure should be ignored where there is potential for in-ground services trenches (or similar) in front of the wall.

Table 5: Lateral Earth Pressure Coefficients.

Retained Material	Bulk Density (kN/m^3)	Friction Angle (degrees)	Cohesion c_u (kPa)	Lateral Earth Pressure Coefficients					
				K_a Angle of Retained Slope				K_p	K_o
				0	10	20	30		
Firm clay	17	-	25	0.46	0.48	0.64	-	2.20	0.63
Stiff clay	18	-	50	0.41	0.42	0.51	-	2.46	0.58
Very stiff clay	19	-	100	0.36	0.37	0.43	-	2.77	0.53
Hard clay	20	-	200	0.31	0.32	0.35	0.50	3.25	0.47
Dense sand/gravel	18-19	32	-	0.31	0.32	0.35	0.50	3.26	0.47
Very dense sand/gravel	19-20	34	-	0.28	0.29	0.32	0.41	3.54	0.44
Very low strength (or stronger) rock	21	40	-	0.22	0.24	0.27	0.32	4.5	0.35
Fill (future)	*	*	*	*	*	*	*	*	*

Notes:
* Depends on fill material type and level of compaction

K_a - active; K_o - at rest; K_p - passive

Retained Material	Bulk Density (kN/m³)	Friction Angle (degrees)	Cohesion c_u (kPa)	Lateral Earth Pressure Coefficients					
				K_a				K_p	K_o
				Angle of Retained Slope					
				0	10	20	30		

For yielding walls active state develops when: Deflection > 0.001H to 0.004H (granular soil), or deflection > 0.01H to 0.04H (cohesive soil)

Active earth pressure coefficients are calculated based on Coulomb earth pressure theory; with the assumption that there is zero friction between the wall and the backfill material.

If appropriate, an allowance of 10 kPa should be made for lateral stresses induced by compaction plant operating behind the walls. The effects of surcharge should be included by multiplying the vertical pressure developed by the surcharge by the appropriate lateral earth pressure coefficient from Table 5. Allowance should be made for sloping backfill if applicable.

Drainage material behind the wall should be installed for the full height of the wall, for a width of at least 0.3 m. The material must be free draining and granular and have a perforated or slotted drainage pipe at the heel of the wall to rapidly remove the water into the stormwater system. Alternatively, the wall will need to be designed for full hydrostatic pressure.

Footings for retaining walls should be founded following the recommendations in Section 7.3. It should be noted that each footing should have geotechnical inspection/testing to confirm the required design bearing pressure has been achieved.

7.3 Foundation Design

7.3.1 Shrink-Swell Potential

The site classification derived in accordance with Australian Standard AS 2870-2011 *Residential slabs and footings* is not directly applicable to developments of this type; but can provide an indication of the likely magnitude of reactive (shrink and swell) movements associated with normal seasonal soil moisture variations (y_s).

The estimated range of y_s is calculated in accordance with the methodology presented in AS2870-2011, by assessment of the soil suction change, factored for lateral restraint multiplied by the soil layer thickness and the instability index (estimated from Shrink-Swell index (I_{ss})).

For the Brisbane region AS2870-2011 recommends a depth of design suction change H_s of 1.5 m.

Shrink-Swell Index testing provided values ranging between 0.6% and 5.3% for the residual clay materials. Soil materials (including extremely weathered material) were encountered to depths of up to 5 m BGL.

The underlying siltstone and sandstone materials in this area contain varying amounts of clay content which are generally reactive to moisture variations. Laboratory shrink-swell index testing has not been carried out on the reactivity of the underlying rock, however based on our experience with similar materials, we have allowed for a Shrink-Swell Index (I_{ss}) value of 1% in our calculated characteristic ground surface movements (Ys) in Table 6 below.

Bulk earthworks are proposed to achieve the design levels across the site. The earthworks methodology and depth of cut and fill will affect the I_{ss} value, and subsequent y_s.

Based on the above information we have carried out a number of calculations using the maximum I_{ss} value and natural/fill soil profile scenarios to estimate y_s.

The range of results and the conditions for which those results were calculated are presented in Table 6 and Diagram 1 below.

Table 6: Estimated Characteristic Ground Surface Movements (y_s)

Assumed I_{ss} Value	Estimated characteristic ground surface movement y_s (mm) at relevant locations on constructed platform			
	Natural surface (mm)			2 m Fill
	Cut to rock* level	1m Soil over Rock	2m Soil over Rock	
I_{ss} = 5.3%	17 mm	45 mm	50 mm	120 mm

Note: * Assumes an I_{ss} value for the underlying rock of 1%.

The results are presented graphically below with an illustration of earthworks scenarios. The fill scenario has been included to demonstrate that where the highly reactive site won materials are re-used alone to construct fill embankments (without some form of treatment to reduce potential reactivity), relatively high ground surface movements should be anticipated (see below).

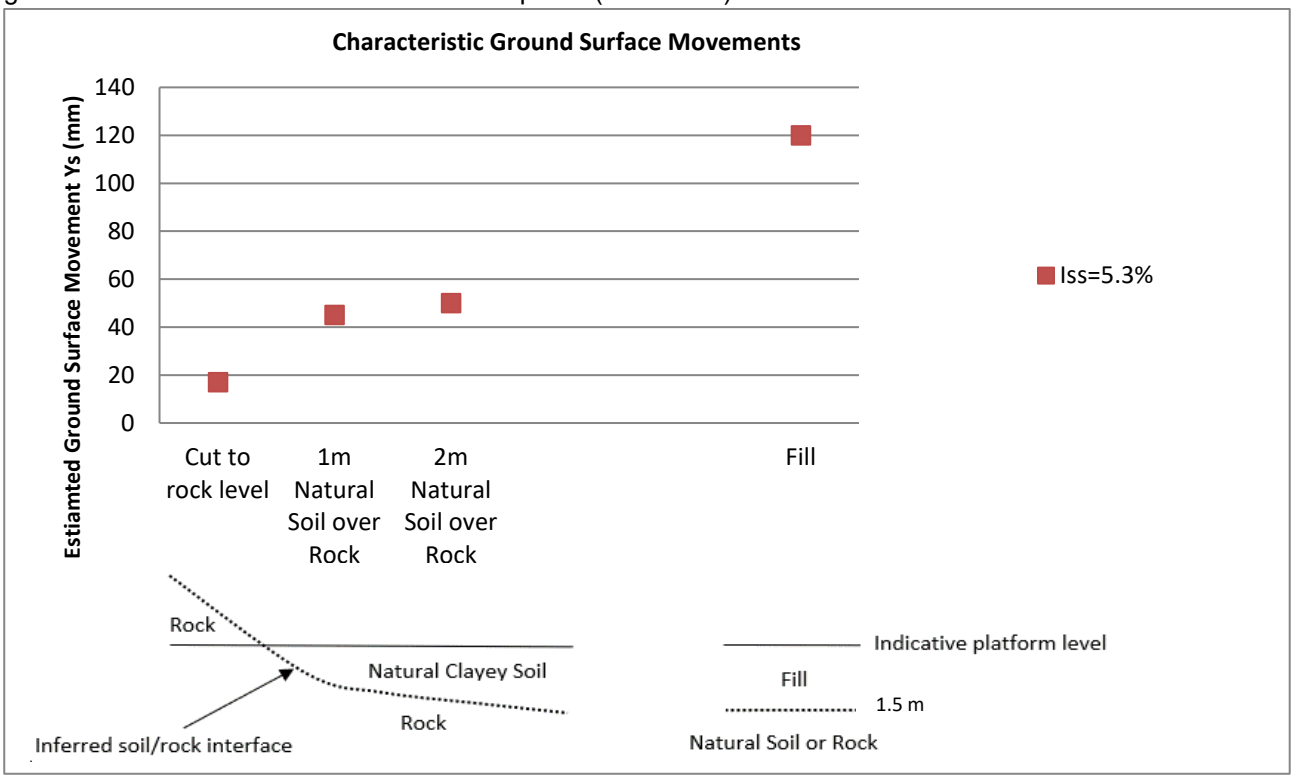


Diagram 1: Characteristic Ground Surface Movements.

The results presented in Table 6 indicate characteristic ground surface movements (y_s) ranging between approximately 17 mm and 50 mm for the existing ground profile. The maximum settlement/movement tolerances of the proposed structures would need to be less than the minimum estimated characteristic ground surface movements (y_s) provided above. Recommendations to minimise reactive movements are provided in Section 7.3.2.

7.3.2 Recommendations to Reduce Reactive Movements

To minimise potential reactive movements across the construction area, the following measures should be considered in the design, construction and general maintenance of the development:

- The use of high plasticity clay soils should be avoided directly (within about 1 m) under proposed buildings and other movement sensitive structures.
- Blending the highly reactive soils with imported, non-reactive fill or the underlying weathered rock. This may, however, increase the handling required of such material, which may be uneconomical. This should be verified through lab trials prior to construction if this approach is to be adopted.

- Removing the clay soils from the upper profile in cut areas and replacing them with less reactive (i.e. inert) materials will reduce the characteristic ground surface movements. It is important that the imported fill contains some fines (i.e. between approximately 15% and 30%) to prevent / reduce moisture ingress to the existing natural profile below.
- Sealed pavements around ground slabs or footings should act to reduce seasonal variations in moisture content and resultant reactive ground surface movements.
- Relatively high variations in subgrade moisture content could potentially result in adverse, non-uniform reactive movements that are significantly greater than those estimated above for 'normal' seasonal moisture changes. The risk of these high variations in moisture content occurring could be minimised by ensuring that ponding of water, leaking pipes, planting trees/shrubs close to structures, etc. is avoided.
- The construction area should be graded to shed surface water runoff and prevent ponding around footings and other movement sensitive areas. Surface gradients should be confirmed during earthworks design, however, a gradient of not less than 1V:20H is suggested to prevent ponding.
- Services should be designed to be flexible to help maintain their serviceability.
- Lime treatment of the site-won fill, and subgrade materials may reduce potential for reactive ground surface movements. The effectiveness of such treatments requires verification. It is recommended that a trial earthworks area be established to quantify the effectiveness of possible treatments to reduce reactive soil movements. A dosing ratio of 3% to 5% of lime by volume should be sufficient for preliminary design / costing purposes; however, it is recommended that this is verified through lab trials. The lime should be applied using a high energy stabilising machine (possibly a pug mill) capable of ensuring the lime is properly mixed into the excavated soil. This lime-treated material should have three benefits:

    1) It may is likely to be inert (i.e. non-reactive) and therefore will contribute to reduced vertical movements.

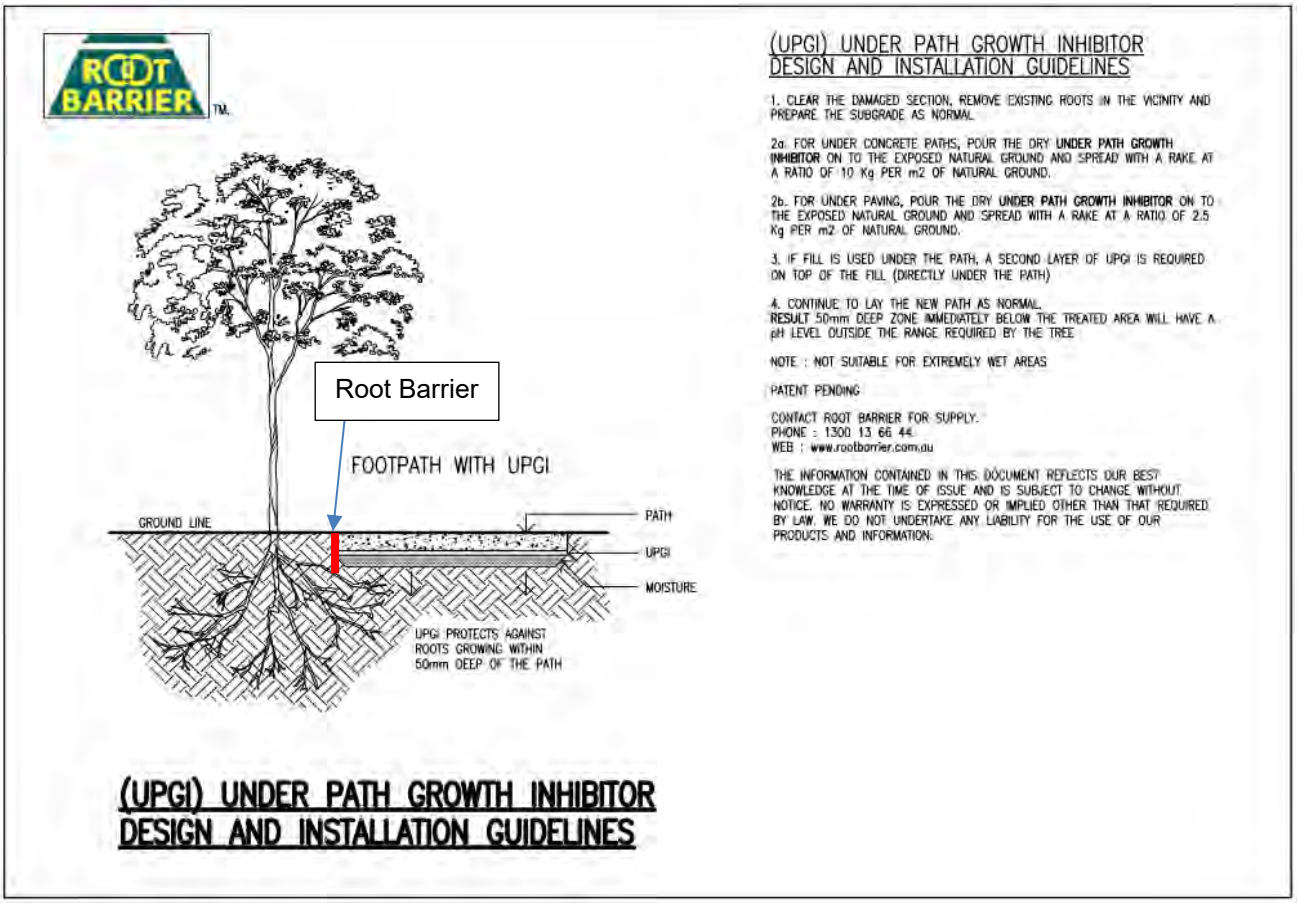
    2) It should act as a barrier to moisture ingress, in combination with the slope to direct run-off away from the foundation perimeter.

    3) It should improve the CBR of the material and reduce the design thickness of pavements.
- Any vegetation should not remain (or be planted) closer than twice their mature height to movement sensitive structures unless significantly greater reactive movements than those nominated above are allowed for in design.
- The presence (and preservation) of large vegetation (i.e. trees/shrubs), often exhibit large root systems. Such root systems in close proximity to structures, buried infrastructure and pavements can have the potential to significantly increase the magnitude and depth of soil suction change, which could lead to a significant increase in potential reactive soil movement adjacent to existing vegetation, and in our experience can result in damage to property. We have recent experience on a project where existing tree root systems surrounding sporting fields has resulted in jacking/cracking of the surrounding concrete pathways, together with roots impacting on the quality of the turfed playing surfaces. While we recommend existing vegetation surrounding the constructed development is removed in advance of construction, we understand that certain trees within the development area may be heritage listed, and it is proposed to keep and maintain some of these trees in the development area. If trees are going to remain within close proximity of future development features, consideration will need to be given to the installation of root barriers and Under Path Root Inhibitors (UPGI).

We recommend engaging a qualified arborist to discuss the risks associated with cutting root structures and installing root barriers. The arborist will be able to provide advice regarding root barrier design and recommended minimum offsets from the trees. In general, tree roots should not be cut within the structural root zone. The proposed location of certain development features may need to be adjusted to reduce the likelihood of causing distress to the trees.

Products such as an Under Path Root Inhibitor (UPGI) could also be applied to the subgrade surface prior to constructing pathways/slabs etc. UPGI's create a 50 mm deep zone under the structure which is outside the

pH range that trees like to feed on. Roots in this immediate area will not develop to damage the path. An example of this application is provided in Text Figure 3 below (courtesy of www.rootbarrier.com.au).



Text Figure 3: Example of root barrier & UPGI application (root barrier annotation by Core Consultants)

7.3.3 High Level Footings

Conventional high-level strip and pad footings could be considered provided that characteristic ground surface movements (y_s) can be tolerated. High level footings could be founded in controlled certified fill, residual soil or weathered rock. Such footings could be designed using the allowable bearing capacity values presented in Table 7.

Table 7: Allowable Bearing Capacity Design Values

Material Type	Compaction/Consistency/Strength	Allowable Bearing Capacity* (kPa)
Level 1 Certified Fill	98% Standard MDD (Minimum)	100
Residual/XW Clay	Stiff	100
	Very Stiff	200
	Hard	400
Residual/XW Sand/Gravel	Dense	200
	Very Dense	400
Siltstone/Sandstone/Conglomerate	Very Low	600
	Low/Medium	1500

Note:* Allowable Bearing Capacities for soils presented are based on a factor of safety of 3.0 from ultimate values. The values provided are based on the assumption that suitable foundation preparation has been carried out and that the ground strength profile is uniform through each layer (with no underlying lower strength material).

At the pressures nominated above, footing settlements would not be expected to exceed around 1 % of footing width for pads, and 3 % of footing width for strips, under serviceability loads. Differential settlements

between adjacent footings would not be expected to exceed approximately 50 % of the total settlement for individual footings. Additional stiffening may be required where footings are founded in both soil and rock.

A geotechnical engineer must confirm the design bearing pressures during construction.

7.3.4 Piles

If higher dead and/or live loads are expected, the buildings could alternatively be supported by piled foundations.

Continuous flight auger (CFA), bored, or screw piles could be considered. Such piles could found in residual soils, extremely weathered rock (or fresher rock). Bored piers may need liners where groundwater is encountered.

Ultimate geotechnical capacities ($R_{d,ug}$) determined from the parameters provided in Table 8 must be multiplied by a geotechnical strength reduction factor ($ø_g$) in accordance with Section 4 of AS 2159-2009 Piling – Design and installation, to determine the design geotechnical strength ($R_{d,g}$). The geotechnical strength reduction factor should be determined in accordance with AS 2159-2009 and is expected to be in the range of 0.45 to 0.55. An upper bound value may be adopted if supervision and certification of pile construction is carried out by a geotechnical engineer. Settlement of piled footings are expected to be in the order of 0.5% to 1% of the pile diameter.

The soils to a depth 1.5 times the pile diameter below the excavated surface should be ignored in the assessment of lateral capacity. The lateral capacity of piles may be determined using various methods, and which generally require an estimation of the Young's modulus (Es) of the founding stratum.

Specialist piling contractors should be consulted with respect to selection of suitable pile types, detailed design of piles, and suitable dynamic pile testing methods and testing frequency. Table 8 shows representative values of ultimate (unfactored) geotechnical parameters for pile design. A sensitivity analysis should be undertaken to assess effects for the range of parameters.

Table 8: Design values for pile design.

Material type	Unit weight Y (kN/m^3)	ϕ (degrees)	C_u (kPa) / UCS (MPa)	Elastic Modulus (MPa)	Ultimate skin friction (kPa)	Ultimate base resistance (kPa)
Dense to Very Dense Sand/Gravel/XW Rock	18-19	34	-	50-80	50	2000
Stiff to Very Stiff Clay	18-19	-	100 kPa	15-40	30	900
Hard Clay/XW Rock	20	-	200 kPa	40-70	50	1800
Very Low strength (or stronger) Rock	21	-	2 MPa	70-100	150	4000

Notes:

1) *Skin friction should be discounted for sections of pile shafts where liners are in place.*
2) *Indicative values taken from published paper, Site Characterisation, Terence Wiesner, Australian Geomechanics – Dec 1999 and 'Foundation Analysis & Design (Bowles, 4th Edition)*

Due to potential shrinkage of the high plasticity clay stratum away from pile shafts in dry weather conditions, the skin friction and fixity over the length of the soil profile (up to 1.5 m depth (H_s) or shallower where rock is encountered) on the pile should be neglected when assessing uplift and lateral restraint capacity. Similarly, potential swell over the soil profile (up to 1.5 m depth (H_s) or shallower where rock is encountered) will need to be allowed for when assessing pile tensile force requirements.

7.3.5 General Comments on Footings

All proposed footings should found such that they are not adversely affected by any adjacent excavations, batter slopes, trenches, or retaining walls that are not designed to support structure/equipment loads. To minimise the potential for any adverse interaction effects, footings should found at least below a plane

extending 1 m horizontally from the base of trenches/batter slopes/excavations/retaining walls, then rising up at 1V:1H, as illustrated in Diagram 2.

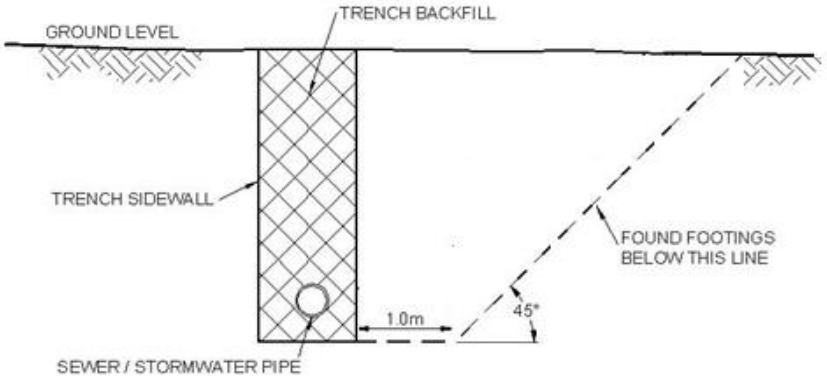


Diagram 2

Excavations adjacent to existing structures/equipment must be careful not to undermine existing footings.

Any high-level footing excavations should be cleaned following mechanical excavation to expose undisturbed materials over the full base area. It is recommended that footings be inspected by a suitably qualified and experienced geotechnical engineer prior to placement of blinding/mass concrete or steel reinforcement to confirm allowable bearing pressures and cleanliness of excavations.

If any soil conditions encountered during construction are found to differ from those noted in the geotechnical investigation, Core should be notified immediately, and an inspection carried out to determine if changes to footing design are required.

Adequate site drainage should be carried out to ensure that natural runoff is directed off construction area platforms and away from any footings. If water is allowed to pond on the platform, associated softening of the soil may occur, and the allowable bearing capacity is likely to be less than those values given above. Increased soil reactivity may also result.

7.3.6 Aggressivity of Soils

Chemical analysis can provide an indication of the potential for long term damage to foundations, buried pipelines, in-ground structures, services and other infrastructure. Soil texture is also important in this regard, as granular soils allow oxygen exchange (oxidation) to occur more readily and are also more permeable.

Australian Standard AS 2159-2009 Piling - Design and installation provides the range of exposure classification of the surface of steel piles and concrete piles based on the range of chemical conditions in the soil and the possibility of changes in groundwater levels.

The results of laboratory analysis undertaken on the residual clay soil and extremely weathered materials samples from the test pits, indicates an exposure classification of *'Non-Aggressive'* (with one sample indicating a classification of '*Mild')* in accordance with Table 6.4.2(C) of AS 2159-2009.

7.4 Preliminary Pavement Design (CBR) Parameters

Design parameters for pavements will be dependent upon the subgrade materials present after earthworks and the type, depth and quality of any fill used to bring the site to design levels. If subgrade conditions exposed following earthworks differ from those encountered in the test pits and boreholes, further subgrade evaluation (including further testing) should be undertaken during the construction stage.

The anticipated subgrades in the Precinct area are expected to mainly comprise a combination of residual/extremely weathered clayey/gravelly materials and siltstone/sandstone and re-used (potentially treated) site-won clay fill materials.

Laboratory test results indicate a soaked CBR range of 3% to 10% for the clayey materials encountered in the test pits within the Precinct area.

Based on our experience with such materials it is recommended that a subgrade CBR value of 3% be adopted for the residual clayey materials. Where low strength (or stronger), moderately weathered (or fresher) siltstone/sandstone/conglomerate is present at the subgrade level following cut earthworks, higher CBR values may be available but will be subject to further assessment and testing.

The anticipated subgrades along Heinemann Road are expected to be variable and comprise a combination of clayey alluvial soil, clayey residual soil, sandy residual soil, extremely weathered clayey materials and clayey fill.

Laboratory test results indicate a range of soaked CBR values for the various geological units encountered in the boreholes along Heinemann Road, including:

- Clayey Fill 2% to 4%
- Clayey Alluvial Soil 5%
- Clayey Residual Soil 1.5% to 11%
- Sandy Residual Soil 8%

Based on our experience with such materials it is recommended that a subgrade CBR value of 1.5% be adopted for the clayey subgrade materials, while a value of 7% could be adopted where sandy materials are at and within the design subgrade thickness.

The preliminary pavement design values given above are applicable for properly drained subgrades only and should be confirmed by further CBR testing and inspection during earthworks. Properly drained subgrades should allow for open graded drains that shed water and prevent ponding.

Rolling of the subgrade materials must be carried out prior to any fill placement. If subgrade materials are allowed to ‘dry out’, significant softening (and resulting subgrade strength less than nominated above) could occur on ‘wetting up’.

Compaction testing should be carried out on pavement subgrades to confirm in situ densities prior to pavement construction. Areas of subgrade not compacted to the minimum relative dry density ratio should be moisture conditioned and recompacted to achieve performance in line with that inferred from recommended CBR design values in the Redland City Council Planning Scheme Policy (i.e. Top 300 mm – 100% DDR (standard), Below 300 mm – 95% DDR (standard)).

8.0 LIMITATIONS

Should you require any further information please contact the undersigned. We draw your attention to the document, Limitations, which is included in Appendix F.

Core Consultants Pty Ltd



Simon Maggiora BE(Civil) CPEng NER RPEQ 12467

Associate/Senior Geotechnical Engineer

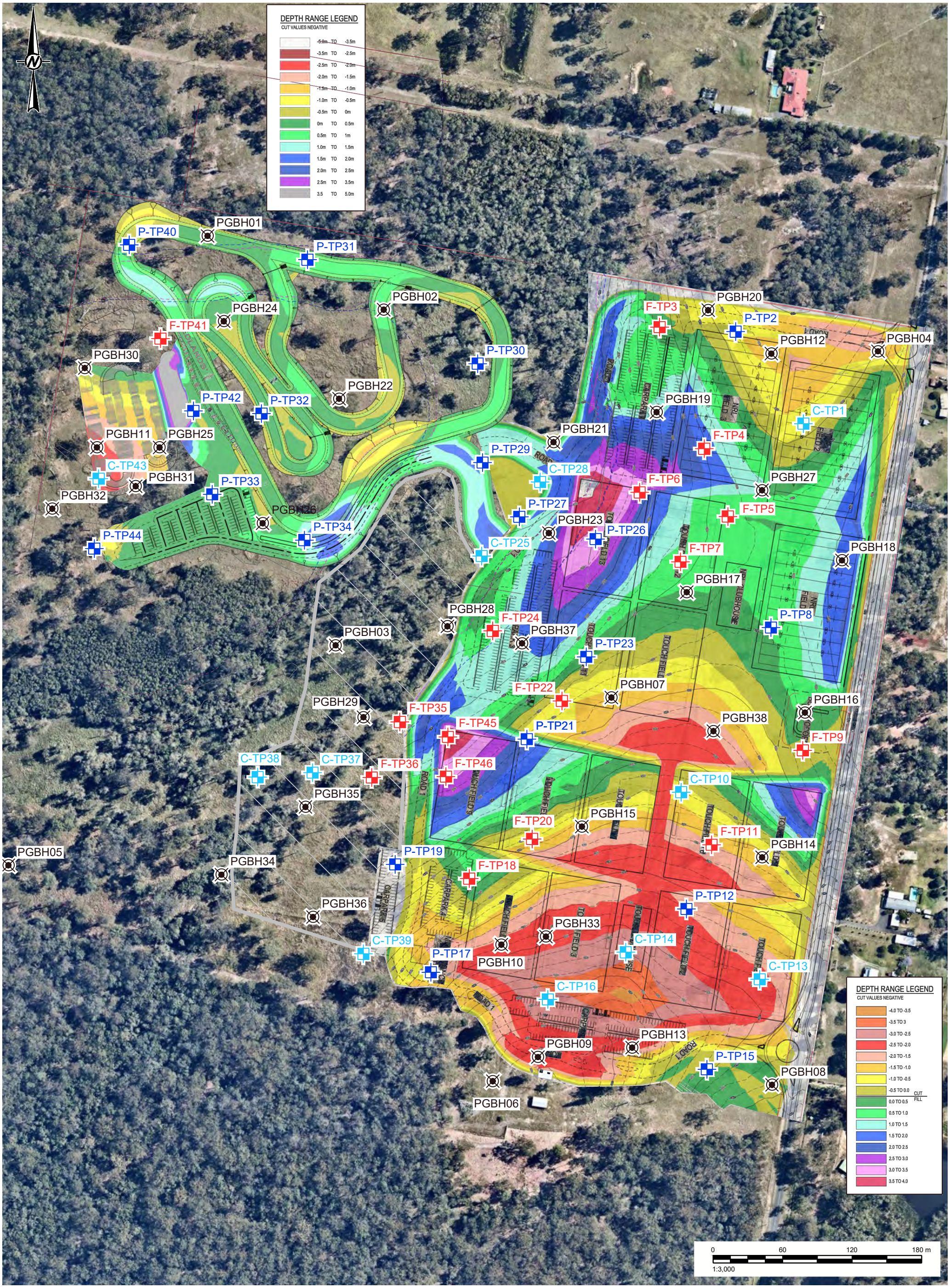


Geoff Hurley MSc DIC C.Geol RPEQ 5716

Managing Director

SM/GAH/sm

A.B.N. 75 603 384 050



LEGEND

- DENOTES APPROXIMATE BOREHOLE LOCATION (PACIFIC GEOTECH)
- DENOTES APPROXIMATE TEST PIT LOCATION - PAVEMENT/AT GRADE
- DENOTES APPROXIMATE TEST PIT LOCATION - CUT AREA
- DENOTES APPROXIMATE TEST PIT LOCATION - FILL AREA
- DENOTES APPROXIMATE PLAY AREA FOOTPRINT

Bulk earthworks in play area to be resolved.
Base plan drawn by Bligh Tanner. Drawing Title - CUT FILL PLAN - CYCLE PRECINCT. Drawing No.- 2021.0054_CIV_CSK-101.
& Title - CUT FILL PLANS - FIELDS. Drawing No. - 2021.0054_CIV_CSK-111
Annotations by Core Consultants Pty Ltd. Aerial image sourced from Nearmap Pty Ltd, image dated 8th November 2021

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CLIENT: BLIGH TANNER					PROJECT: REDLAND COAST REGIONAL SPORT & RECREATION PRECINCT		
DRAWN BY: MJC	DATE: 14/12/2021				DRAWING TITLE: GEOTECHNICAL TEST LOCATION PLAN: PRECINCT AREA		
CHECKED BY: SM	DATE: 15/12/2021						
SCALE: 1:3,000	SHEET SIZE: A3	PROJECT No: J001424	DOC No: 002	DOC TYPE: R	FIGURE No: 001	REVISION: 1	SHEET 1 OF 1

Plot Date: 15 December 2021 Time:12:30:37 PM By: CAD Path: J:\2021 - J1228 -\J001424 - Bligh Tanner-Sports Precinct-Redland Coast\PHASE 1000\Figures Drawings - File Name:J001424-002-R-Rev1-F001.dwg

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LEGEND

DENOTES APPROXIMATE BOREHOLE LOCATION

0 100 200 300 400 m

1:10000

Aerial image sourced from Nearmap Pty Ltd, image dated 08 October 2021. Annotations by Core Consultants.

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CLIENT: BLIGH TANNER			PROJECT: REDLAND COAST REGIONAL SPORT & RECREATION PRECINCT					
DRAWN BY: MD	DATE: 25/11/2021		DRAWING TITLE: GEOTECHINCAL TEST LOCATION PLAN: HEINEMANN ROAD					
CHECKED BY: SM	DATE: 01/12/2021							
SCALE: 1:10000	SHEET SIZE: A3		PROJECT No: J001424	DOC No: 002	DOC TYPE: R	FIGURE No: F002	REVISION: 0	SHEET 1 OF 1

Plot Date: 1 Dec 2021 Time: 2:04 PM Path: J:\2021 - J1228 -\J001424 - Bligh Tanner-Sports Precinct-Redland Coast\PHASE 1000\Figures Drawings\QGIS

Appendix A
Reports of Test Pits & Explanatory Notes - Precinct Area

REPORT OF TEST PIT: C-TP1

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Client	Bligh Tanner	East	525483.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945629.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm / 600 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L	Groundwater seepage encountered at 1.0 m & 2.2 m BGL	0.0	0.20	BDS 0.20-0.70 m P.P. = 150 kPa U50 0.40-0.80 m P.P. = 200 kPa BDS 0.70-1.20 m P.P. = 200 kPa			SM-SC	Silty Clayey SAND (TOPSOIL): fine to medium grained, poorly graded, brown; clay medium plasticity; with rootlets.	D	L		
			0.5	0.70				CI-CH	Silty CLAY (RESIDUAL SOIL): medium to high plasticity, grey brown.	w ≈ PL	St		
			1.0	1.20				CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, grey to grey brown.			Excavated to this depth before re-commencing test	
			1.5					CH	CLAY (RESIDUAL SOIL) trace silt: high plasticity, pale grey with mottled orange brown; tending to extremely weathered siltstone.	w < PL	H		
	M		2.0	2.10					SILTSTONE: fine grained, pale grey and grey, medium strength, highly weathered, zones of extremely weathered material, highly fractured.				
			2.5	2.70					Pale grey and orange brown.				
			3.0	3.30					High strength, highly to moderately weathered, highly fractured.	D			
	M-H		3.5										
			4.0										
			4.5										
			5.0	5.00					Hole Terminated at 5.00 m Target depth Backfilled				
			5.5										

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

CORE 2.01.1 LIB.GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:22 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: C-TP10

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Client	Bligh Tanner	East	525378.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945311.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm / 600 mm toothed / Ripper	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 0.8 m BGL	0.0	0.15	DS 0.20-0.50 m			CI-CH	Silty CLAY (TOPSOIL): medium to high plasticity, dark brown; with rootlets.			
			0.5		U50 0.60-1.00 m			CI	CLAY (RESIDUAL SOIL) with silt: medium to high plasticity, brown with mottled red brown.	w ≈ PL	F / St	
	L-M		1.0	0.90	BDS 1.00-1.50 m			CI	CLAY (RESIDUAL SOIL) with sand: medium plasticity, grey with red brown; sand fine to medium grained.	w < PL	VSt	Excavated to this depth before re-commencing test
	M		1.5	1.50				SM	Silty SAND (EXTREMELY WEATHERED SANDSTONE) trace clay: fine to coarse grained, poorly graded, sub-angular, pale brown.		H	
R	M-H		2.0	1.60					SANDSTONE: fine to coarse grained, pale brown, medium strength, moderately to highly weathered, highly fractured to fractured.	D	VD	
			2.5									
			3.0									
	H		3.5	3.60					Medium to high strength.			
			4.0									
			4.5	4.50					Hole Terminated at 4.50 m Practical bucket refusal on rock Backfilled Ripper attachment used below 1.6 m BGL Slow excavation below 3.6 m (10 min / 1m depth of penetration)			
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: C-TP13

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Client	Bligh Tanner	East	525443.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945151.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	18/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed / Ripper	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.13				CI	Silty CLAY (TOPSOIL): medium plasticity, brown; with rootlets.	w < PL	F	0 5 10 15 20 25
				0.30	DS 0.15-0.30 m			SC	Clayey Gravelly SAND (RESIDUAL SOIL): medium to coarse grained, poorly graded, sub-angular, grey; gravel fine to medium grained, sub-rounded, poorly graded; clay medium plasticity.	D	D	
			0.5		DS 0.30-0.50 m			CI	CLAY (RESIDUAL SOIL) trace sand: medium plasticity, orange brown with mottled grey; sand fine to medium grained.			
					U 0.60-1.00 m P.P. = 150 kPa							
				0.80					Becoming grey and red brown.		F / St	Excavated to this depth before re-commencing test
			1.0									
			1.5	1.60	DS 1.60-2.00 m			CI	CLAY (RESIDUAL SOIL) with sand: medium plasticity, pale brown with mottled orange brown and red brown; sand fine to medium grained.	w ≈ PL	H	
	L-M		2.0									
			2.5	2.70					SANDSTONE: fine to medium grained, pale brown and orange brown, low strength, highly weathered, fractured.			
	M		3.0									
	M-H		3.5	3.70					Becoming medium strength.			
R	H		4.0		DS 4.00-4.80 m					D		
			4.5	5.00								
			5.0						Hole Terminated at 5.00 m Target depth Backfilled Ripper attachment used below 3.7 m BGL Slow digging below 3.7 m BGL			
			5.5									

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REPORT OF TEST PIT: C-TP14

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Client	Bligh Tanner	East	525328.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945177.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	18/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed / Ripper	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.10				CI	Silty CLAY (TOPSOIL): medium plasticity, brown; with rootlets.			
					BDS 0.20-0.50 m			CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, brown; trace rootlets.	w < PL	VSt	
			0.5	0.50	DS 0.50-1.00 m P.P. = 500 kPa			CH	CLAY (RESIDUAL SOIL) trace sand: high plasticity, red brown and grey; sand fine to medium grained; roots encountered.		St / VSt	
				0.80					Becoming grey.	w ≈ PL		
			1.0								VSt	Excavated to this depth before re-commencing test
				1.40								
	M		1.5						SILTSTONE: fine grained, grey, low strength, highly weathered, fractured.			
	M-H			1.70	DS 1.70-2.00 m				Becoming medium to high strength.			
R	H		2.0							D		
			2.5									
			3.0									
			3.5	3.80								
			4.0						Hole Terminated at 3.80 m Practical bucket refusal on rock Backfilled Slow digging below 1.7 m (Approx 20 min/m depth of penetration) Ripper attachment used below 1.7 m			
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:22 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: C-TP16

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Client	Bligh Tanner	East	525263.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945136.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.10				CI-CH	Silty CLAY (TOPSOIL) trace sand: medium to high plasticity, dark brown; sand fine to medium grained; with rootlets.	w < PL	F	
				0.20	DS 0.10-0.20 m BDS 0.20-0.60 m P.P. = 250 kPa			CI	Gravelly Sandy CLAY (RESIDUAL SOIL): medium plasticity, pale brown; sand medium to coarse grained; gravel fine to medium grained, sub-angular.			
			0.5					CI-CH	CLAY (RESIDUAL SOIL) trace sand: medium to high plasticity, red brown with mottled grey; sand fine to medium grained.		F / St	
					0.70 m P.P. = 250 kPa					w ≈ PL		
			1.0		1.10 m P.P. = 300 kPa						St	Excavated to this depth before re-commencing test
				1.50	DS 1.50-2.00 m			CI	CLAY (EXTREMELY WEATHERED SILTSTONE) with gravel trace sand: medium plasticity, pale grey; gravel fine to medium grained, angular; sand fine to medium grained.		VSt	
	M		2.0							w < PL	H	
			2.5									
			3.0	3.00					SILTSTONE: fine grained, pale brown, low to medium strength, highly weathered. highly fractured to fractured, with zones of extremely weathered material.			
			3.5									
			4.0							D		
	M-H		4.5									
			5.0	5.00					Hole Terminated at 5.00 m Target depth Backfilled			
			5.5									

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REPORT OF TEST PIT: C-TP25

core consultants pty ltd

Client	Bligh Tanner	East	525205.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945516.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L		0.0	0.12				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.				
								CI	Silty CLAY (RESIDUAL SOIL) trace sand: medium plasticity, grey brown; sand fine to medium grained; trace roots.	w < PL	F		
			0.5	0.50	0.30 m P.P. = 50 kPa			CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, grey and pale brown.				
				0.80	BDS 0.50-0.80 m P.P. = 80 kPa			CI-CH	CLAY (RESIDUAL SOIL): medium to high plasticity, grey with mottled orange brown.		St	Excavated to this depth before re-commencing test	
			1.0	1.10	0.90 m P.P. = 130 kPa U 1.00-1.50 m P.P. = 350 kPa				Becoming grey with mottled red brown.				
			1.5							w ≈ PL	VSt		
	M			1.80	DS 1.80-2.50 m P.P. = 200 kPa			CL	CLAY (RESIDUAL SOIL) trace gravel: low plasticity, grey; gravel fine to coarse grained, sub-rounded; tending to extremely weathered material.				
			2.0										
			2.5	2.80									
	H	Groundwater seepage encountered at 3.8 m BGL	3.0		DS 2.80-3.50 m			CI	Silty CLAY (EXTREMELY WEATHERED MATERIAL) with gravel trace sand: medium plasticity, pale grey with mottled orange brown; gravel fine to medium grained, sub-rounded, sub-angular to angular; sand medium to coarse grained; tending to low strength rock.	w < PL	H		
			3.5										
			4.0										
			4.5										
			5.0	5.00					Hole Terminated at 5.00 m Target depth Backfilled				
			5.5										

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: C-TP28

core consultants pty ltd

Client	Bligh Tanner	East	525255.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945580.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L		0.0	0.15				CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.	w ≈ PL		
					U 0.25-0.75 m P.P. = 50 kPa			CI	Silty CLAY (RESIDUAL SOIL) trace sand: medium plasticity, grey; sand fine to medium grained.	w > PL	S / F	
			0.5	0.40	BDS 0.40-0.80 m P.P. = 100 kPa			CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, grey with mottled pale brown.		F	
				0.80	DS 0.80-1.50 m P.P. = 250 kPa			CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, grey and red brown.		St	Excavated to this depth before re-commencing test
			1.0							w ≈ PL		
			1.5								VSt	
											H	
			2.0	2.10	2.00 m P.P. = 300 kPa DS 2.00-3.00 m			GC	Clayey GRAVEL (EXTREMELY WEATHERED CONGLOMERATE) with sand: fine to coarse grained, well graded, sub-rounded to sub-angular, grey; clay medium plasticity; sand fine to coarse grained, sub-angular.	W	VD	
	M	Groundwater seepage encountered at 2.1 m BGL	2.5									
			3.0							D		
				3.50	DS 3.50-4.00 m			CL-CI	CLAY (EXTREMELY WEATHERED SILTSTONE): low to medium plasticity, pale grey with mottled orange brown.			
	M-H		4.0							w < PL	H	
			4.5									
			5.0	5.00					Hole Terminated at 5.00 m Target depth Backfilled			
			5.5									

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REPORT OF TEST PIT: C-TP37

core consultants pty ltd

Client	Bligh Tanner	East	525059.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	69445329.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm / 600 mm tooth / Ripper	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered below 0.5 m BGL	0.0	0.15				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.		F	
					DS 0.15-0.40 m P.P. = 200 kPa			CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, pale brown; roots encountered.			
			0.5	0.40	DS 0.40-0.90 m P.P. = 200 kPa			CI	CLAY (RESIDUAL SOIL): medium plasticity, brown and red brown.		St	
			1.0	0.90	DS 0.90-1.50 m P.P. = 250 kPa			CL	CLAY (RESIDUAL SOIL): low plasticity, grey and red brown.		VSt	
	L-M		1.5							w ≈ PL	St / VSt	Excavated to this depth before re-commencing test
			2.0	2.10	DS 2.10-2.50 m			CI	Sandy Gravelly CLAY (EXTREMELY WEATHERED MATERIAL): medium plasticity, grey with mottled red brown; gravel fine to coarse grained, sub-angular, poorly graded; sand fine to coarse grained, sub-angular, poorly graded.		VSt	
	M		2.5								H	
			3.0	3.50	DS 3.50-4.00 m				SILTSTONE: fine grained, pale grey, low strength, highly weathered, with extremely weathered zones.			
R	H		4.0							D		
			4.5	5.00					Hole Terminated at 5.00 m Target depth Backfilled Ripper attachment used below 3.5 m BGL Slow digging below 3.5 m BGL			
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: C-TP38

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Client	Bligh Tanner	East	525010.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945324.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/11/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater inflow encountered at 0.3 m BGL	0.0	0.10				CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.	w ≈ PL	S / F	0 5 10 15 20 25
				0.30	DS 0.30-0.50 m			CH	Silty CLAY (RESIDUAL SOIL): high plasticity, dark brown.			
			0.5	0.50	BDS 0.50-1.00 m U50 0.60-1.00 m			CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, pale brown.	w > PL		
								CH	CLAY (RESIDUAL SOIL): high plasticity, brown and red brown.		St	Excavated to this depth before re-commencing test
	L-M		1.0	1.00	BDS 1.00-1.50 m			CH	CLAY (EXTREMELY WEATHERED MATERIAL) with gravel: high plasticity, red brown; gravel fine to coarse grained, sub-rounded.			
	M		1.5							w ≈ PL	VSt	
			2.0									
			2.5	2.60				CI	Gravelly CLAY (EXTREMELY WEATHERED CONGLOMERATE): medium plasticity, dark grey; gravel fine to coarse grained, sub-rounded, poorly graded.			
	H			3.00								
	M		3.0		DS 3.00-3.50 m			CH	CLAY (EXTREMELY WEATHERED MATERIAL): high plasticity, pale grey.		H	
			3.5									
			4.0							w < PL		
			4.5									
			5.0	5.00					Hole Terminated at 5.00 m Target depth Backfilled			
			5.5									

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REPORT OF TEST PIT: C-TP39

core consultants pty ltd

Client	Bligh Tanner	East	525106.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945171.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.18				CI	Silty Sandy CLAY (TOPSOIL): medium plasticity, dark brown; sand fine to medium grained, poorly graded; with rootlets.	w < PL	F	
				0.40	DS 0.20-0.40 m			CI	CLAY (RESIDUAL SOIL) with gravel with sand: medium plasticity, pale brown; gravel fine to medium grained, angular and sub-angular; sand medium to coarse grained, sub-angular; trace rootlets.			
			0.5		U 0.60-1.00 m P.P. = 220 kPa			CH	CLAY (RESIDUAL SOIL) trace gravel trace sand: medium plasticity, brown and red brown; gravel fine to medium grained, sub-rounded; sand fine to medium grained; trace silt.		St / VSt	
				0.90				CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.	w ≈ PL		Excavated to this depth before re-commencing test
			1.0		DS 1.00-1.20 m P.P. = 250 kPa							
			1.5								VSt / H	
				1.70	BDS 1.70-2.00 m			CI	CLAY (EXTREMELY WEATHERED MATERIAL) with sand: medium plasticity, pale grey with red brown; sand fine to medium grained.			
			2.0									
			2.5									
	M			3.00					With low strength sandstone cobbles.	w < PL	H	
			3.5									
				4.00					With medium strength sandstone cobbles.			
			4.5									
				5.00					Hole Terminated at 5.00 m Target depth Backfilled			
			5.5									

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REPORT OF TEST PIT: C-TP43

core consultants pty ltd

Client	Bligh Tanner	East	524875.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945584.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	22/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm tooth	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 0.6 m BGL	0.0					CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.			
				0.20	DS 0.20-0.40 m P.P. = 50 kPa			CI	Silty CLAY (RESIDUAL SOIL) with sand trace gravel: medium plasticity, pale brown; sand fine to medium grained; gravel fine to medium grained, sub-angular; roots encountered.	w < PL	F	
				0.40	DS 0.40-0.60 m P.P. = 200 kPa			CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, pale brown with red brown.			
			0.5	0.60	BDS 0.60-1.00 m U50 0.70-1.20 m P.P. = 150 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.			Excavated to this depth before re-commencing test
			1.0								St / VSt	
			1.5	1.80								
	L-M				DS 1.80-2.50 m P.P. = 250 kPa			CI	CLAY (RESIDUAL SOIL): medium plasticity, pale grey with mottled red brown.	w ≈ PL	VSt	
			2.0									
			2.5									
			3.0									
				3.50								
	M		3.5		DS 3.50-4.00 m			CI	Silty CLAY (EXTREMELY WEATHERED MATERIAL): medium plasticity, pale grey with mottled red brown; cobbles of low strength rock encountered throughout.	w < PL	H	
			4.0									
				4.50					Tending to low strength rock.			
			4.5									
				5.00								
			5.0						Hole Terminated at 5.00 m Target depth Backfilled			
			5.5									

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REPORT OF TEST PIT: F-TP3

core consultants pty ltd

Client	Bligh Tanner	East	525359.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945712.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 1.0 m BGL	0.0	0.15				SM-SC	Silty Clayey SAND (TOPSOIL): fine to medium grained, poorly graded, dark grey; clay medium plasticity; trace rootlets.	D	L	
				0.40				SM	Silty SAND (RESIDUAL SOIL) trace clay: fine to medium grained, poorly graded, pale grey brown.	M / W	MD	
			0.5		0.40 m P.P. = 300 kPa			CH	CLAY (RESIDUAL SOIL) trace sand: high plasticity, grey and red brown; sand fine to medium grained.			
			1.0		0.80 m P.P. = 300 kPa					w ≈ PL	St	Excavated to this depth before re-commencing test
			1.5		1.20 m P.P. = 300 kPa						VSt	
			2.0	2.00				CI	Sandy CLAY (EXTREMELY WEATHERED MATERIAL): medium plasticity, pale grey with mottled orange brown; sand fine to medium grained, poorly graded.			
	M		2.5							w < PL	H	
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: F-TP4

core consultants pty ltd

Client	Bligh Tanner	East	525345.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945607.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L	Groundwater seepage encountered at 0.8 m BGL	0.0	0.12				CI-CH	Silty CLAY (TOPSOIL): medium to high plasticity, dark brown; with rootlets.	w < PL	S / F	0 5 10 15 20 25	
				0.30	DS 0.20-0.30 m			CI	Silty CLAY (RESIDUAL SOIL) trace sand trace gravel: medium plasticity, pale brown; sand fine to coarse grained; gravel fine to medium grained.				
			0.5		DS 0.30-0.60 m P.P. = 200 kPa			CI-CH	CLAY (RESIDUAL SOIL) trace sand: medium to high plasticity, pale brown with red brown; sand fine to medium grained.				
				0.60	DS 0.60-1.00 m P.P. = 150 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, red brown with pale grey.				
			1.0								St	Excavated to this depth before re-commencing test	
				1.20					Becoming pale grey with red brown.	w ≈ PL			
			1.5										
			2.0		2.00 m P.P. = 200 kPa								
	L-M			2.30					Trace sand: sand fine to medium grained.		St / VSt		
			2.5										
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled				
			3.5										
			4.0										
			4.5										
			5.0										
			5.5										

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REPORT OF TEST PIT: F-TP5

core consultants pty ltd

Client	Bligh Tanner	East	525415.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945550.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm / 600 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 0.4 m BGL	0.0	0.15				CI-CH	Silty CLAY (TOPSOIL): medium to high plasticity, dark brown; with rootlets.		F	
			0.5	0.50	DS 0.20-0.50 m P.P. = 100 kPa			CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, pale brown; trace rootlets.			
			1.0		DS 0.50-1.00 m P.P. = 200 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, pale grey with mottled red brown and orange brown.	w ≈ PL	St	Excavated to this depth before re-commencing test
			1.5									
			2.0								VSt	
	L-M		2.30					CI	Silty CLAY (EXTREMELY WEATHERED MATERIAL): medium plasticity, pale grey with mottled red brown; with cobble sized sandstone zones encountered throughout soil matrix.		H	
			2.5									
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP6

core consultants pty ltd

Client	Bligh Tanner	East	525340.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945870.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 1.0 m BGL	0.0	0.13				CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.			
				0.40	0.20 m P.P. = 70 kPa			CI-CH	Silty CLAY (RESIDUAL SOIL) trace sand trace gravel: medium to high plasticity, pale brown; sand fine to medium grained; gravel fine to medium grained, sub-angular.		F	
			0.5		0.40 m P.P. = 70 kPa 0.50 m P.P. = 150 kPa			CI-CH	CLAY (RESIDUAL SOIL) with silt trace sand: medium to high plasticity, red brown and brown; sand fine to medium grained.		VSt	
					0.80 m P.P. = 250 kPa							Excavated to this depth before re-commencing test
			1.0		1.00 m P.P. = 200 kPa						St	
				1.40						w ≈ PL		
			1.5		1.40 m P.P. = 250 kPa			CH	CLAY (RESIDUAL SOIL) trace sand: high plasticity, red brown and grey; sand medium to coarse grained, sub-angular.			
	L-M		2.0		2.00 m P.P. = 250 kPa						VSt	
			2.5									
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP7

core consultants pty ltd

Client	Bligh Tanner	East	525377.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945512.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 0.4 m BGL	0.0	0.12				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	
			0.5	0.50	0.15 m P.P. = 150 kPa			CI-CH	Silty CLAY (RESIDUAL SOIL): medium to high plasticity, pale brown.		F / St	
					0.50 m P.P. = 150 kPa			CH	CLAY (RESIDUAL SOIL) trace silt: high plasticity, grey with mottled red brown.			
			1.0								St	Excavated to this depth before re-commencing test
			1.5							w ≈ PL		
				1.80	1.70 m P.P. = 150 kPa			CI	CLAY (RESIDUAL SOIL) trace sand trace silt: medium plasticity, grey with mottled red brown; sand fine to medium grained.			
	L-M		2.0		2.00 m P.P. = 300 kPa						VSt	
			2.5		2.50 m P.P. = 400 kPa							
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB.GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP9

core consultants pty ltd

Client	Bligh Tanner	East	525482.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945249.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.12				CI-CH	Silty CLAY (TOPSOIL): medium to high plasticity, dark brown; with rootlets.		S	
								CI	CLAY (RESIDUAL SOIL): medium to high plasticity, grey with mottled pale brown.		F	
			0.5	0.60	0.50 m P.P. = 100 - 200 kPa							
				0.70					Becoming pale brown.		St	
								CH	CLAY (RESIDUAL SOIL): high plasticity, grey with red brown.		VSt	
			1.0		0.80 m P.P. = 200 kPa							Excavated to this depth before re-commencing test
					1.10 m P.P. = 100 kPa						F / St	
			1.5	1.60					Trace sand: sand fine to medium grained.	w ≈ PL		
	L-M		2.0	2.00					With sand trace silt: sand fine to medium grained.		VSt	
			2.5									
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP11

core consultants pty ltd

Client	Bligh Tanner	East	525402.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945273.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	18/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.10	DS 0.10-0.40 m P.P. = 100 kPa			CI-CH	Silty CLAY (TOPSOIL): medium to high plasticity, dark brown; with rootlets.	w < PL	F	
								CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, brown with mottled red brown and grey.			
			0.5	0.45	DS 0.50-1.00 m P.P. = 150 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, red brown and grey; roots encountered.			
			1.0		1.00 m P.P. = 200 kPa						F / St	
			1.5		1.50 m P.P. = 150 kPa					w ≈ PL		
			2.0	2.00	DS 2.00-2.50 m			CH	CLAY (RESIDUAL SOIL) with silt: high plasticity, pale grey and red brown.		H	
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP18

core consultants pty ltd

Client	Bligh Tanner	East	525195.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945235.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 1.0 m BGL	0.0	0.13				CI-CH	Silty CLAY (TOPSOIL): medium to high plasticity, dark brown; with rootlets.			
					0.20 m P.P. = 150 kPa			CI-CH	Silty CLAY (RESIDUAL SOIL) trace gravel trace sand: medium to high plasticity, grey brown; gravel fine to medium grained, sub-angular and angular; sand fine to coarse grained.	w < PL	F	
			0.5	0.40	0.40 m P.P. = 150 kPa			CI-CH	CLAY (RESIDUAL SOIL) with silt: medium to high plasticity, red brown.		St	
				0.90	0.90 m P.P. = 200 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey with red brown.		F / St	Excavated to this depth before re-commencing test
			1.5		1.50 m P.P. = 200 kPa					w ≈ PL		
			2.0		2.00 m P.P. = 300 kPa						St	
			2.5	2.50					Trace sand: becoming red brown with grey; sand fine to medium grained.		VSt	
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP20

core consultants pty ltd

Client	Bligh Tanner	East	525249.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945273.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.08	0.10 m P.P. = 200 kPa			CI-CH	Silty CLAY (TOPSOIL) trace sand: medium to high plasticity, dark brown; sand fine to medium grained; with rootlets.		F	
				0.30				CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, pale brown grey.			
			0.5		0.30 m P.P. = 250 kPa			CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, brown and red brown.	w < PL	F / St	
					0.50 m P.P. = 250 kPa							
				0.90				CH	CLAY (RESIDUAL SOIL): high plasticity, grey with red brown.	w ≈ PL		Excavated to this depth before re-commencing test
			1.0		1.00 m P.P. = 300 kPa							
	L-M			1.30				CI	Sandy CLAY (RESIDUAL SOIL): medium plasticity, grey; sand medium to coarse grained, sub-angular, poorly graded.	w < PL	H	
			1.5									
			2.0	2.00					SILTSTONE: fine grained, grey, medium strength, highly to moderately weathered, highly fractured.	D		
	M-H		2.5									
				3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP22

core consultants pty ltd

Client	Bligh Tanner	East	525276.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945392.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 1.0 m BGL	0.0	0.10	0.10 m P.P. = 200 kPa			CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.			
								CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, brown and red brown.		F	
			0.5	0.70	0.60 m P.P. = 200 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.			
					0.80 m P.P. = 300 kPa							
			1.0		1.10 m P.P. = 300 kPa							Excavated to this depth before re-commencing test
			1.5	1.50	1.50 m P.P. = 150 - 200 kPa				Fissuring observed.	w ≈ PL	St	
	L-M		2.5	2.50	2.50 m P.P. = 300 kPa				Trace sand: sand fine to medium grained.		VSt	
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: F-TP24

core consultants pty ltd

Client	Bligh Tanner	East	525215.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945447.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 0.3 m BGL	0.0					CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.	w < PL	F	
				0.20								
				0.30	0.20 m P.P. = 100 kPa			CL-CI	Silty CLAY (RESIDUAL SOIL) trace sand: low to medium plasticity, grey; sand fine to medium grained; with rootlets, roots encountered.			
			0.5		0.40 m P.P. = 100-150 kPa			CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, grey and pale brown.		St	
				0.70	0.70 m P.P. = 150 kPa			CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, grey and red brown.		St / VSt	Excavated to this depth before re-commencing test
			1.0		1.00 m P.P. = 200 kPa							
			1.5		1.50 m P.P. = 300 kPa					w ≈ PL		
				2.00								
			2.0		2.00 m P.P. = 300 kPa				Grey with mottled red brown and orange brown.		VSt	
			2.5									
	M			2.80					Tending to extremely weathered material.			
				3.00								
			3.0						Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP35

core consultants pty ltd

Client	Bligh Tanner	East	525133.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945371.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	22/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L	Groundwater seepage encountered at 1.0 m BGL	0.0	0.14				CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.		F		
			0.5	0.60	0.20 m P.P. = 100 kPa 0.30 m P.P. = 100-200 kPa			CI	Silty CLAY (RESIDUAL SOIL) trace sand: medium plasticity, grey brown; sand fine to medium grained.				
			1.0		0.60 m P.P. = 100-200 kPa			CI-CH	CLAY (RESIDUAL SOIL): medium to high plasticity, grey with mottled red brown.	w ≈ PL	St	Excavated to this depth before re-commncing test	
			1.5		1.50 m P.P. = 200 kPa						VSt		
			2.0	1.90				CI	CLAY (EXTREMELY WEATHERED CONGLOMERATE) trace sand trace gravel: grey with mottled red brown; sand medium to coarse grained, sub-angular; gravel fine to coarse grained, sub-angular.		H		
	M		2.5	2.30					CONGLOMERATE: fine grained, grey, medium to high strength, highly weathered, with extremely weathered zones of sandy clay.	D			
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled				
			3.5										
			4.0										
			4.5										
			5.0										
			5.5										

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB.GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:23 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: F-TP36

core consultants pty ltd

Client	Bligh Tanner	East	525110.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945326.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm / 600 mm toothed / Ripper	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L		0	0.10				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	0 5 10 15 20 25
				0.30	0.20 m P.P. = 70 kPa			CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, grey brown.			32
				0.70	0.50 m P.P. = 150 kPa			CI	CLAY (RESIDUAL SOIL): medium plasticity, brown, red brown and grey.	w ≈ PL	St	
			1		1.00 m P.P. = 200 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.		St / VSt	Excavated to this depth before re-commencing test
				1.60				CI	CLAY (EXTREMELY WEATHERED SILTSTONE): medium plasticity, grey with red brown and orange brown.	w < PL	H	
	M			1.90	1.80 m P.P. = 400 kPa							
R	M-H		2						SILTSTONE: fine grained, grey, medium to high strength, highly to moderately weathered, fractured.			
	H			2.20					Becoming high strength, becoming slightly fractured.	D		
				2.70					Hole Terminated at 2.70 m Practical bucket refusal on rock Backfilled Ripper attachment used below 1.9 m BGL Very slow digging below 2.2 m BGL			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

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REPORT OF TEST PIT: F-TP41

core consultants pty ltd

Client	Bligh Tanner	East	524926.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945705.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	22/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L	Not Encountered	0.0	0.15				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F		
				0.30	0.20 m P.P. = 300 kPa			CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, brown; trace rootlets.				
			0.5		0.50 m P.P. = 400 kPa			CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, brown and red brown.		St		
				0.90				CH	CLAY (RESIDUAL SOIL) trace silt: high plasticity, grey and red brown.	w ≈ PL		Excavated to this depth before re-commencing test	
			1.0		1.00 m P.P. = 250-300 kPa								
			1.5		1.50 m P.P. = 250 kPa						VSt		
			2.0	2.30									
	M		2.5					CI	CLAY (EXTREMELY WEATHERED SANDSTONE) with gravel trace sand: medium plasticity, pale grey with mottled orange brown; gravel fine to medium grained, angular and sub-angular; sand fine to coarse grained, sub-angular.	w < PL	H		
	H		3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled				
			3.5										
			4.0										
			4.5										
			5.0										
			5.5										

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: F-TP45

core consultants pty ltd

Client	Bligh Tanner	East	525186.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945354.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm tooth	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.10				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	
								CH	CLAY (RESIDUAL SOIL) trace silt: high plasticity, grey brown.			
			0.5		U50 0.30-0.80 m P.P. = 200 kPa						St	
				0.60				CH	CLAY (RESIDUAL SOIL) trace silt: high plasticity, brown with grey and orange brown.		VSt	
				0.90				CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.			Excavated to this depth before re-commencing test
			1.0		0.90 m P.P. = 250 kPa							
			1.5		1.50 m P.P. = 300 kPa					w ≈ PL		
			2.0	2.00	2.00 m P.P. = 270 kPa				Becoming grey with mottled red brown and brown.		St / VSt	
	L-M		2.5	2.70					With sand trace silt: sand fine to medium grained; tending to extremely weathered material.			
			3.0	3.00	3.00 m P.P. = 200 kPa				Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: F-TP46

core consultants pty ltd

Client	Bligh Tanner	East	525094.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945275.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm tooth	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.20				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	
			0.5	0.50	U50 0.30-0.80 m P.P. = 50-100 kPa			CI	Silty CLAY (RESIDUAL SOIL) with sand trace gravel: medium plasticity, grey brown; sand fine to coasrse grained; gravel fine to medium grained, sub-angular; roots encountered.	w > PL	F / St	
				0.90				CI	CLAY (RESIDUAL SOIL) trace gravel: medium plasticity, grey and pale brown; gravel fine grained, angular.			
			1.0		DS 0.90-1.50 m P.P. = 100-150 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, pale grey with mottled red brown; fissuring evident.			Excavated to this depth before re-commencing test
			1.5							w ≈ PL	St	
			2.0		2.00 m P.P. = 120 kPa							
			2.5	2.50					Trace gravel: gravel coarse grained, sub-rounded, iron stained; tending to extremely weathered material.			
			3.0	3.00	3.00 m P.P. = 150 kPa				Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: P-TP2

core consultants pty ltd

Client	Bligh Tanner	East	525422.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945710.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.10	BDS 0.10-0.60 m P.P. = 150 kPa			CI	Silty Sandy CLAY (TOPSOIL): medium plasticity, dark grey; sand fine to medium grained, poorly graded; with rootlets.			
								CL	Silty CLAY (RESIDUAL SOIL): low plasticity, pale brown; trace rootlets.		F	
			0.5	0.40					Without rootlets.			
				0.60				CH	CLAY (RESIDUAL SOIL): high plasticity, grey with mottled red brown.			
			1.0		0.80 m P.P. = 250 kPa 1.00 m P.P. = 250 kPa					w ≈ PL	St	Excavated to this depth before re-commencing test
			1.5								VSt	
			2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: P-TP8

core consultants pty ltd

Client	Bligh Tanner	East	525454.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945454.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.13	BDS 0.15-0.50 m			CI-CH	Silty CLAY (TOPSOIL): medium to high plasticity, dark grey; with rootlets.		F	
			0.5	0.60	BDS 0.60-1.00 m			CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, pale brown.			
			1.0	1.10				CH	CLAY (RESIDUAL SOIL): high plasticity, grey with mottled red brown.	w ≈ PL	St	Excavated to this depth before re-commencing test
	L-M		1.5						Trace sand: sand fine to medium grained.		VSt / H	>20
			2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

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REPORT OF TEST PIT: P-TP12

core consultants pty ltd

Client	Bligh Tanner	East	525382.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945212.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	18/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.15				CI	Silty CLAY (TOPSOIL): medium plasticity, dark grey; with rootlets.	w < PL	F	
			0.5		BDS 0.20-0.60 m			CH	CLAY (RESIDUAL SOIL) trace silt: high plasticity, brown; trace rootlets.			
				0.75	U50 0.75-1.15 m P.P. = 200 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey with mottled red brown.	w ≈ PL	F / St	Excavated to this depth before re-commencing test
			1.0	1.30	1.30 m P.P. = 200 kPa				Becoming pale grey with mottled red brown and orange brown.			
			1.5								St	
			2.0	2.20	2.20 m P.P. = 200 kPa				Hole Terminated at 2.20 m Target depth Backfilled		VSt	
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: P-TP15

core consultants pty ltd

Client	Bligh Tanner	East	525397.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945073.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	18/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.15				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	
				0.35				CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, brown.			
			0.5		BDS 0.35-0.80 m P.P. = 200 kPa			CH	CLAY (RESIDUAL SOIL) trace sand: high plasticity, red brown with mottled pale grey; sand fine to medium grained.	w ≈ PL	F / St	
			1.0	1.30							St	Excavated to this depth before re-commencing test
	M				DS 1.30-1.60 m			CH	CLAY (EXTREMELY WEATHERED SANDSTONE) trace sand trace silt: high plasticity, pale grey; sand fine to medium grained.		VSt	
			1.5	1.60								>20
	H			1.70					SANDSTONE: fine to medium grained, pale grey and orange brown, low strength, highly weathered, zones of extremely weathered material encountered throughout.	D / M		
									Hole Terminated at 1.70 m Practical bucket refusal on rock Backfilled			
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: P-TP17

core consultants pty ltd

Client	Bligh Tanner	East	525157.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945158.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.15				CI-CH	Silty CLAY (TOPSOIL) with sand: medium to high plasticity, dark brown; sand fine to medium grained; with rootlets.	w < PL	F	
				0.25	BDS 0.15-0.25 m P.P. = 150 kPa BDS 0.25-0.60 m P.P. = 250 kPa			CL	Silty Gravelly CLAY (RESIDUAL SOIL) trace sand: low plasticity, pale brown; gravel fine to medium grained, angular, poorly graded; sand fine to coarse grained.			
			0.5					CI-CH	CLAY (RESIDUAL SOIL) trace silt: medium to high plasticity, red brown and pale brown.		St	
				0.80	0.80 m P.P. = 250 kPa			CI-CH	CLAY (RESIDUAL SOIL): medium to high plasticity, grey.	w ≈ PL		Excavated to this depth before re-commencing test
			1.0	1.10					Trace sand: sand fine to medium grained.		VSt	
			1.5	1.60				CI	Sandy CLAY (EXTREMELY WEATHERED MATERIAL) trace gravel trace silt: medium plasticity, pale grey; sand medium to coarse grained, sub-angular, poorly graded; gravel fine to medium grained, sub-angular, poorly graded.	w < PL	H	
	M		2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF TEST PIT: P-TP19

core consultants pty ltd

Client	Bligh Tanner	East	525131.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945251.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L	Not Encountered	0.0	0.15	BDS 0.20-0.60 m P.P. = 100 kPa			CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.				
			0.5	0.60	0.60 m P.P. = 100 kPa 0.70 m P.P. = 350 kPa			CL	Silty CLAY (RESIDUAL SOIL): low plasticity, grey brown.	w < PL	F		
			1.0	1.00	1.00 m P.P. = 200 kPa 1.10 m P.P. = 250 kPa			CI	Silty CLAY (RESIDUAL SOIL) trace gravel: medium plasticity, pale brown with mottled red brown and grey; gravel fine to medium grained, sub-angular.				
			1.5					CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.		St	Excavated to this depth before re-commencing test	
			2.0							w ≈ PL			
	L-M		2.5	2.30				CI	CLAY (EXTREMELY WEATHERED MATERIAL) trace sand trace silt: medium plasticity, pale grey with mottled red brown; sand fine to medium grained.		VSt		
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled				
			3.5										
			4.0										
			4.5										
			5.0										
			5.5										

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP21

core consultants pty ltd

Client	Bligh Tanner	East	525245.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945357.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.13				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL		0 5 10 15 20 25
					BDS 0.15-0.40 m P.P. = 100 kPa			CI	Silty CLAY (RESIDUAL SOIL) trace gravel: medium plasticity, pale brown; gravel fine to medium grained, sub-angular.		F	
				0.40	BDS 0.40-0.70 m P.P. = 250 kPa			CI	CLAY (RESIDUAL SOIL) trace sand: medium plasticity, brown and red brown; sand fine to medium grained.			
			0.5	0.70				CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.			
			1.0		1.10 m P.P. = 250 kPa					w ≈ PL	St	Excavated to this depth before re-commencing test
			1.5									
			2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP23

core consultants pty ltd

Client	Bligh Tanner	East	525295.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945429.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L	Not Encountered	0.0	0.12				CH	Silty CLAY (TOPSOIL) trace gravel trace sand: high plasticity, dark brown; gravel fine to medium grained, sub-angular; sand medium to coarse grained; with rootlets.	w < PL			
					BDS 0.20-0.40 m P.P. = 150 kPa			CL	Silty CLAY (RESIDUAL SOIL) trace sand: low plasticity, pale brown; sand fine grained.		F		
				0.40	DS 0.40-1.00 m P.P. = 300 kPa			CI	CLAY (RESIDUAL SOIL) trace sand: medium plasticity, grey brown with mottled red brown; sand fine grained.				
			0.5								St		
			1.0	1.10	1.00 m P.P. = 250 kPa			CH	CLAY (RESIDUAL SOIL) trace sand: high plasticity, grey and red brown; sand fine to coarse grained, sub-angular.	w ≈ PL			
			1.5		1.50 m P.P. = 300 kPa						VSt		
			2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled				
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										
			5.5										

Excavated to this depth before re-commencing test

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP26

core consultants pty ltd

Client	Bligh Tanner	East	525303.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945531.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	19/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 0.9 m BGL	0.0					CH	Silty CLAY (TOPSOIL) trace sand: high plasticity, dark brown; sand fine grained; with rootlets.		S	
				0.20	BDS 0.20-0.70 m P.P. = 50 kPa			CI	Silty CLAY (RESIDUAL SOIL) trace sand: medium plasticity, pale grey brown; sand fine to medium grained.		F	
			0.5									
				0.90	DS 0.90-1.20 m P.P. = 200 kPa			CI	Silty CLAY (RESIDUAL SOIL) trace sand: medium plasticity, red brown and grey; sand fine grained.	w ≈ PL	St / VSt	Excavated to this depth before re-commencing test
			1.0									
			1.5									
				2.00								
			2.0						Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP27

core consultants pty ltd

Client	Bligh Tanner	East	525236.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945551.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	20/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered below 0.6 m BGL	0.0	0.10	BDS 0.10-0.40 m P.P. = 50 kPa			CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.			
								CL	Silty CLAY (RESIDUAL SOIL): low plasticity, grey brown; trace rootlets, roots encountered.		F	
				0.40				CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, grey and pale brown.			
			0.5		0.60 m P.P. = 100-200 kPa						St	
				0.90				CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.	w ≈ PL		Excavated to this depth before re-commencing test
			1.0		1.00 m P.P. = 200 kPa							
			1.5									
				1.70							VSt	
	M							CI	Gravelly CLAY (EXTREMELY WEATHERED MATERIAL): medium plasticity, pale grey; gravel fine to coarse grained, sub-rounded and sub-angular, poorly graded.			
			2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP29

core consultants pty ltd

Client	Bligh Tanner	East	525206.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945597.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L	Groundwater seepage encountered below 0.0 m BGL	0.0	0.15	BDS 0.30-0.80 m			CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.	w ≈ PL	F	0 5 10 15 20 25	
				0.25				CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, grey.				
			0.5					CI	CLAY (RESIDUAL SOIL): medium plasticity, grey and pale brown; roots encountered.	w > PL	VSt		
				0.90				CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.	w ≈ PL	St	Excavated to this depth before re-commencing test	
			1.5								VSt		
	M			1.70				CI	Gravelly CLAY (EXTREMELY WEATHERED CONGLOMERATE): medium plasticity, dark grey; gravel fine to coarse grained, sub-angular to sub-rounded.		H		
			2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled				
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										
			5.5										

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP30

core consultants pty ltd

Client	Bligh Tanner	East	525202.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945679.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
EX	L	Groundwater inflow encountered at 0.2 m BGL	0.0	0.12				CH	Silty CLAY (TOPSOIL): high plasticity, dark brown; with rootlets.	w > PL	F		
				0.20	0.15 m P.P. = 100 kPa BDS 0.20-0.90 m P.P. = 50-100 kPa			CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, dark brown; trace rootlets.				
			0.5					CL	CLAY (RESIDUAL SOIL) with silt: low plasticity, grey and pale brown; trace rootlets.		S		
											F		
				0.90				CH	CLAY (RESIDUAL SOIL) trace silt: high plasticity, grey and red brown.	w ≈ PL	St / VSt		
			1.0		1.00 m P.P. =200 kPa								
			1.5								VSt		
				2.00							H		
			2.0						Hole Terminated at 2.00 m Target depth Backfilled				
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										
			5.5										

Excavated to this depth before re-commencing test

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP31

core consultants pty ltd

Client	Bligh Tanner	East	525053.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945772.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 1.0 m BGL	0.0	0.13				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.			
					BDS 0.20-0.50 m P.P. = 100 kPa			CL	CLAY (RESIDUAL SOIL) with silt: low plasticity, pale brown and grey.	w < PL	S / F	
			0.5	0.50	0.60 m P.P. = 150 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown; fissuring evident.		St	Excavated to this depth before re-commencing test
			1.0		1.00 m P.P. = 250 kPa					w ≈ PL		
				1.30	1.30 m P.P. = 150 kPa				Becoming pale grey with mottled red brown and orange brown.		VSt	
	L-M		1.5	1.80	1.80 m P.P. = 150 kPa			CI	Silty CLAY: medium plasticity, pale grey; tending to low strength rock.	w < PL	H	
			2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP32

core consultants pty ltd

Client	Bligh Tanner	East	525012.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945640.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm / 600 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.18				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	
				0.30				CL	Silty Sandy CLAY (RESIDUAL SOIL): low plasticity, pale brown; sand fine to medium grained, poorly graded.			
			0.5		BDS 0.30-0.60 m P.P. = 100-200 kPa			CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, grey and pale brown.		F / St	
				0.60	0.60 m P.P. = 200 kPa			CI	CLAY (RESIDUAL SOIL): medium plasticity, grey and red brown.	w ≈ PL	St	
			1.0	1.00	1.00 m P.P. = 350 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.		VSt	Excavated to this depth before re-commencing test
	M-H			1.30					CONGLOMERATE: fine to coarse grained, grey, sub-angular and sub-rounded clasts, very low to low strength, highly weathered with extremely weathered zones of fine to coarse grained clasts supported by fine grained matrix.	D		
			1.5	2.00								
			2.0						Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP33

core consultants pty ltd

Client	Bligh Tanner	East	524973.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945568.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.17				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	
				0.30	BDS 0.20-0.30 m P.P. = 100 kPa			CI	Silty CLAY (RESIDUAL SOIL) trace sand: medium plasticity, pale brown; sand fine to medium grained; roots encountered.			
			0.5		0.50 m P.P. = 200 kPa			CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, pale brown and orange brown.		F / St	
				0.70				CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.	w ≈ PL	St / VSt	Excavated to this depth before re-commencing test
			1.0		1.00 m P.P. = 350 kPa							
				1.30				CI	Silty CLAY (EXTREMELY WEATHERED MATERIAL): medium plasticity, pale grey with mottled orange brown.			
	M		1.5	1.70					Zones of low strength rock encountered.	w < PL	H	
				2.00								
			2.0						Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP34

core consultants pty ltd

Client	Bligh Tanner	East	525052.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945530.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	22/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Groundwater seepage encountered at 0.8 m BGL	0.0	0.15				CI	Silty CLAY (TOPSOIL) trace gravel: medium plasticity, dark brown; gravel fine to medium grained, sub-angular; with rootlets.	w < PL	F	
					BDS 0.20-0.60 m P.P. = 200 kPa			CI	Silty CLAY (RESIDUAL SOIL) trace gravel: medium plasticity, pale grey; gravel fine to medium grained, sub-rounded.			
			0.5	0.60				CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, brown and red brown.			
					0.70 m P.P. = 200 kPa				CLAY (RESIDUAL SOIL) trace gravel: medium plasticity, pale grey with mottled red brown and orange brown; gravel fine to medium grained, sub-angular.	w ≈ PL	St	
	L-M		1.0		1.00 m P.P. = 300 kPa							Excavated to this depth before re-commencing test
			1.5								VSt	
				1.80								
	M			2.00					CONGLOMERATE: fine to coarse grained, grey, low strength, highly weathered, sub-angular and sub-rounded clasts.	D		
			2.0						Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP40

core consultants pty ltd

Client	Bligh Tanner	East	524901.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945784.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm toothed	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.10				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	
								CI	CLAY (RESIDUAL SOIL) with silt: medium plasticity, pale brown.		F / St	
				0.40	0.30 m P.P. = 150 kPa			CI	CLAY (RESIDUAL SOIL): medium plasticity, pale brown and red brown.			
			0.5	0.60	0.50 m P.P. = 200 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown; fissuring evident.			
					0.70 m P.P. = 200-300 kPa					w ≈ PL	St / VSt	Excavated to this depth before re-commencing test
			1.0		1.00 m P.P. = 200-300 kPa							
			1.5	1.60					Becoming pale grey with mottled red brown.			
			2.0	2.00					Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP42

core consultants pty ltd

Client	Bligh Tanner	East	524954.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945640.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	21/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm tooth	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.18				CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.	w < PL	F	
			0.5	0.60	BDS 0.20-0.60 m U 0.30-0.80 m P.P. = 200 kPa			CL-CI	CLAY (RESIDUAL SOIL) with silt: low to medium plasticity, brown and grey.		St	
			1.0		1.00 m P.P. = 350 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.	w ≈ PL	St / VSt	Excavated to this depth before re-commencing test
	L-M		1.5	1.50	1.50 m P.P. = 250-300 kPa			CI	CLAY (RESIDUAL SOIL): medium plasticity, pale grey.	w < PL	H	
			3.0	3.00					Hole Terminated at 3.00 m Target depth Backfilled			
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB.GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF TEST PIT: P-TP44

core consultants pty ltd

Client	Bligh Tanner	East	524870.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945522.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	22/10/21
Job No.	J001424	Machine	20 t Excavator	Checked:	SM
		Bucket Size	1000 mm tooth	Checked Date:	02/12/21

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
EX	L	Not Encountered	0.0	0.10	BDS 0.10-0.40 m P.P. = 200 kPa			CI	Silty CLAY (TOPSOIL): medium plasticity, dark brown; with rootlets.		F	
								CL	Silty CLAY (RESIDUAL SOIL): low plasticity, pale brown; roots encountered.	w < PL		
				0.40				CI	CLAY (RESIDUAL SOIL) trace silt: medium plasticity, pale brown and pale orange brown.			
			0.5		0.50 m P.P = 200 kPa							
				0.80							St	
					0.80 m P.P. = 300 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown; fissuring evident.			Excavated to this depth before re-commencing test
			1.0							w ≈ PL		
			1.5									
				1.70							VSt	
	L-M							CI	Silty CLAY (RESIDUAL SOIL): medium plasticity, pale grey and mottled red brown.			
				2.00								
			2.0						Hole Terminated at 2.00 m Target depth Backfilled			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:24 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

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

DRILLING/EXCAVATION METHOD

AS	Auger Screwing	RD	Rotary blade or drag bit	NQ	Diamond Core - 47 mm
AD	Auger Drilling	RT	Rotary Tricone bit	NMLC	Diamond Core - 52 mm
*V	V - Bit	RAB	Rotary Air Blast	HQ	Diamond Core - 63 mm
T	TC - Bit, e.g. ADT	RC	Reverse Circulation	HMLC	Diamond Core – 63mm
HA	Hand Auger	PT	Push Tube	BH	Tractor Mounted Backhoe
ADH	Hollow Auger	CT	Cable Tool Rig	EX	Tracked Hydraulic Excavator
DTC	Diatubre Coring	JET	Jetting	EE	Existing Excavation
WB	Washbore or Bailer	NDD	Non-destructive digging	HAND	Excavated by Hand Methods

PENETRATION/EXCAVATION RESISTANCE

L **Low resistance** . Rapid penetration possible with little effort from the equipment used

M **Medium resistance.** Excavation possible at an acceptable rate with moderate effort from equipment used

H **High resistance to penetration/excavation**. Further penetration is possible at a slow rate

R **Refusal or Practical Refusal.** No further progress possible without the risk of damage or unacceptable wear to the digging implement or machine.

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

WATER

▽	Water level shown at date	◁	Partial water loss
▷	Water inflow	◀	Complete water loss

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

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm N = Blows per 300mm penetration following 150mm seating
30/80mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil
DS	Disturbed Sample
BDS	Bulk disturbed sample
G	Gas Sample
W	Water sample
FP	Field permeability test over section noted
FV	Field vane shear test expressed as uncorrected shear strength (sv = peak value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket penetrometer test expressed as instrument reading in kPa
U63	Thin walled tube sample - number indicates nominal sample diameter in millimetres
WPT	Water pressure tests
DCP	Dynamic cone penetration test
CPT	Dynamic cone penetration test
CPTu	Static cone penetration test with pore pressure (u) measurement

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)

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

SCR = Solid Core Recovery (%)

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

RQD = Rock Quantity Designation (%)

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

METHOD OF SOIL DESCRIPTION USED ON BOREHOLE AND TEST PIT REPORTS

	FILL		CLAY (CL,CI, or CH)
	GRAVEL (GP or SW)		ORGANIC SOILS (OL or OH or Pt)
	SAND (SP or SW)		COBBLES or BOULDERS
	SILT (ML or MH)		

Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay.

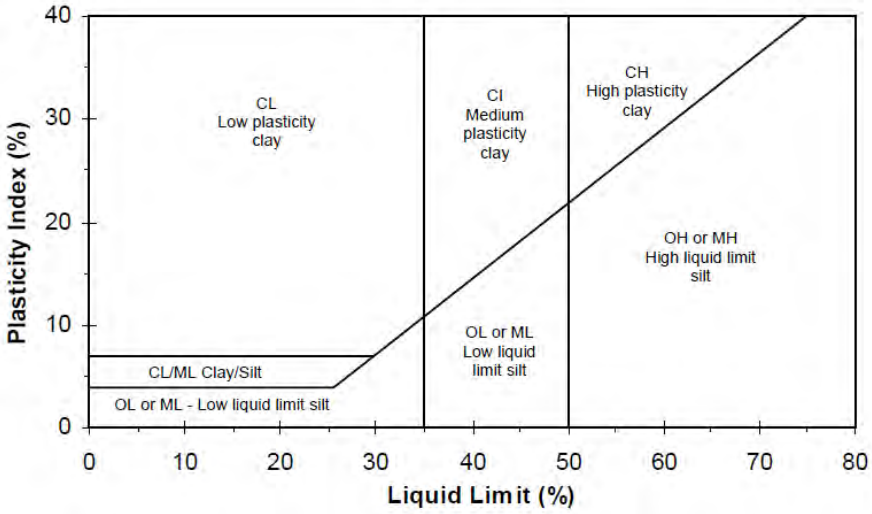
CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil and Rock is classified and described in Reports of Boreholes and Test Pits using the preferred method given in AS 1726 - 2017. The material properties are assessed in the field by visual/tactile methods.

PARTICLE SIZE

Major Division	Sub Division	Particle Size
Boulders		>200 mm
Cobbles		63 - 200 mm
Gravel	Coarse	20 - 63 mm
Gravel	Medium	6.7 - 20 mm
Gravel	Fine	2.36 - 6.7 mm
Sand	Coarse	0.6 - 2.36 mm
Sand	Medium	0.21 - 0.6 mm
Sand	Fine	0.075 - 0.21 mm
Silt		0.002 - 0.075 mm
Clay		<0.002 mm

PLASTIC PROPERTIES



MOISTURE CONDITION FOR COARSE GRAINED SOIL — AS 1726 - 2017

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

MOISTURE CONDITION FOR FINE GRAINED SOIL — AS1726 - 2017

Symbol	Term	Description
W<PL	Moist dry of liquid limit	Hard and friable or powdery
W = PL	Moist near plastic limit	Soils can be molded at a moisture condition approximately equal to the plastic limit
W >PL	Moist, wet of plastic limit	Soils usually weakened and free water forms on hands when handling
W = LL	Wet near plastic limit	
W > LL	Wet, wet of liquid limit	

CONSISTENCY TERMS FOR COHESIVE SOILS — AS1726—2017

Symbol	Term	Undrained Shear Strength
VS	Very Soft	0 to 12 kPa
S	Soft	12 to 25 kPa
F	Firm	25 to 50 kPa
St	Stiff	50 to 100 kPa
VSt	Very Stiff	100 to 200 kPa
H	Hard	Above 200 kPa

RELATIVE DENSITY OF COARSE GRAINED SOILS — AS1726—2017

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

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.

TERMS FOR ROCK MATERIAL STRENGTH & WEATHERING AND ABBREVIATIONS FOR DEFECT DESCRIPTIONS

ROCK MATERIAL STRENGTH CLASSIFICATION				AS1726—2017
Symbol	**Term**	**Uniaxial Compressive Strength (MPa)**	**Point Load Strength $I_{s\ (50)}$ (MPa)**	**Field Guide**
VL	Very Low Strength	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick. Pieces up to 30 mm thick can be broken with finger pressure.
L	Low Strength	2 to 6	0.1 to 0.3	Easily scored with knife. Indentations 1 mm to 3 mm show in the specimen with firm blows of the pick point. A piece of core 150 mm by 50 mm may be broken by hand. Sharp edges of core are friable and break during handling.
M	Medium Strength	6 to 20	0.3 to 1	Readily scored with a knife. A piece of core 150 mm by 50 mm can be broken by hand with difficulty.
H	High Strength	20 to 60	1 to 3	A piece of core 150 mm by 50 mm cannot be broken by hand but can be broken by a pick with a single firm blow. Rock rings under hammer.
VH	Very High Strength	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow. Rock rings under hammer.
EH	Extremely High Strength	Above 200	Above 10	Specimen requires many blows with geological pick to break through intact material. Rock rings under hammer.

● = Diametral Point Load Test ▼ = Axial Point Load Test

CLASSIFICATION OF MATERIAL WEATHERING		AS1726—2017
Symbol	**Term**	**Field Guide**
RS	Residual Soil *(Note 1)*	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible but the soil has not been significantly transported.
XW	Extremely Weathered *(Note 1)*	Material is weathered to such an extent that is has soil properties. Mass structure and material texture and fabric of original rock are still visible.
HW	Highly Weathered *(Note 2)*	The whole rock mass is discoloured, usually by iron staining or beaching to the extent that the colour of the original rock is not recognizable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
MH	Moderately Weathered *(Note 2)*	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognizable, but shows little or no change in strength from fresh rock.
SW	Slightly Weathered	Pock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
FR	Fresh	Rock shows no signs of decomposition of individual minerals or colour change.
Note 1	The term 'Extremely Weathered rock' is misleading as the material has soil properties. The word 'rock' should be replaced with the name of the original rock of the word 'material', eg. Extremely Weathered granite or Extremely Weathered material.	
Note 2	Where it is not possible to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock the term 'Distinctly Weathered' may be used.	

DEFECT TYPE/DESCRIPTION			
B	Bedding Parting	V	Vein
J	Joint	HB/DB	Handling/Drilling Break
EW	Extremely Weathered Seam	C	Contact
FZ	Fracture Zone	L	Cleavage
CZ/S	Crushed Zone/Seam	X	Foliation
IS	Infilled Seam	S	Schistocity
SZ/S	Sheared Zone/Seam		

DEFECT PROFILE	
Symbol	**Description**
PL	Planar
St	Stepped
Un	Undulating

DEFECT INFILL DESCRIPTION	
Symbol	**Description**
Cn	Clean: No visible coating
Sn	Stain: Coated 1 to 3 mm
Vr	Veneer: < 1 mm
Ct	Coating: 1 to 3 mm

DEFECT ROUGHNESS DESCRIPTION	
Symbol	**Description**
Sl	Slickenside
Sm	Smooth
Ro	Rough

Vertical Boreholes - The dip (inclination from horizontal) for the defect is given.

Inclined Boreholes - The inclination is measured as the acute angle to the core axis.

Appendix B
Reports of Boreholes & Laboratory Test Certificates (Previous Investigation by others) – Precinct Area

PRECISE GEOTECHNICAL
Consulting Geotechnical Engineers

Borehole No.
BH 01
Page 1 of 1

Project No.: PG-0442

Client:	Redland Investment Corporation	Commenced:	19/04/2017
Project Name:	Recreation & Sports Precinct	Logged By:	TTE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524968.0 m E 6945793.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: TTE

Drilling Information						Depth (m)	Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)		Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
AD/T			U50 0.60-0.75 m PP=320kPa			0.10		SC	NATURAL Silty Clayey SAND (SC) Very loose, fine to medium grained, dark grey, low plasticity fines, organics throughout, moist.	0 5 10 15 20 25
								CH	Silty CLAY (CH) Very stiff to hard, high plasticity, mottled red brown and grey, moist.	
						0.90		CH	Silty CLAY (CH) Hard, high plasticity, light grey, moist.	
						1.40			SANDSTONE (DW) Distinctly weathered, medium strong, light grey and yellow brown, moist.	
						1.80			Hole Terminated at 1.80 m	
						2				
						4				
						6				
						8				

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal met at 1.32m.
3. Maximum 'TC' bit refusal met at 1.8m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

PRECISE 1.01 LIB.GLB Log PRECISE BOREHOLE PG-0442.GPJ <<DrawingFile>> 21/04/2017 13:08 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: Precise 1.01 2016-11-23 Prj: Precise 1.01 2016-11-23

PRECISE GEOTECHNICAL
Consulting Geotechnical Engineers

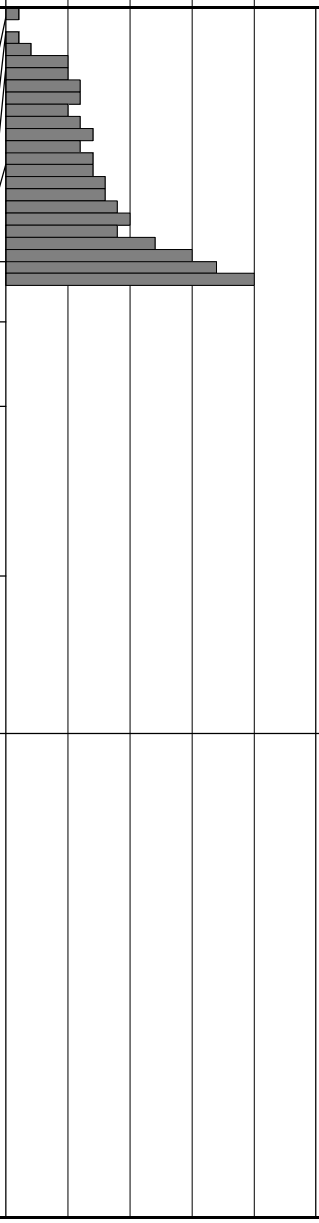
Borehole No.
BH 02
Page 1 of 1

Project No.: PG-0442

Client:	Redland Investment Corporation	Commenced:	19/04/2017
Project Name:	Recreation & Sports Precinct	Logged By:	TTE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525120.0 m E 6945728.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	TTE

Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional
AD/T		▽	U50 0.30-0.66 m PP=310-400kPa			0.08		SC	NATURAL Silty Clayey SAND (SC) Very loose, fine to medium grained, dark grey, low plasticity fines, organics throughout, moist.
						0.20		CH	
						0.50		CH	Silty CLAY (CH) Firm to stiff, high plasticity, mottled grey and orange brown, moist.
								CH	Silty CLAY (CH) Stiff, high plasticity, mottled grey and orange brown, moist. (with seepage)
						1.30		CH	Silty CLAY (CH) Very stiff, high plasticity, mottled grey and red brown, moist.
									Silty CLAY (CH) Very stiff, high plasticity, mottled red brown and grey streaks, moist.
						2.10		CH	Gravelly CLAY (CH) Very stiff to hard, high plasticity mottled grey and red brown, fine sized gravel, moist.
						2.60		CH	Silty CLAY (CH) Hard, high plasticity, grey, moist.
						3.30		MH	Clayey SILT (MH) Hard, high plasticity, light grey, moist.
						4.70			SILTSTONE (XW) Extremely weathered, very weak, light grey and yellow brown, moist.
						6.00			Hole Terminated at 6.00 m

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
0 5 10 15 20 25



Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater seepage noted at 0.2m.
2. DCP refusal met at 2.3m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

PRECISE 1.01 LIB.GLB Log PRECISE BOREHOLE PG-0442.GPJ <<DrawingFile>> 02/05/2017 16:08 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: Precise 1.01 2016-11-23 Prj: Precise 1.01 2016-11-23

PRECISE GEOTECHNICAL
Consulting Geotechnical Engineers

Borehole No.
BH 03
Page 1 of 1

Project No.: PG-0442

Client:	Redland Investment Corporation	Commenced:	19/04/2017
Project Name:	Recreation & Sports Precinct	Logged By:	TTE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	530881.0 m E 6948377.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: TTE

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
AD/T			U50 1.40-1.56 m PP=>600kPa			0.10		SC	NATURAL Silty Clayey SAND (SC) Very loose, fine to medium grained, dark grey, low plasticity fines, organics throughout, moist.	0 5 10 15 20 25
								CH	Silty CLAY (CH) Very stiff to hard, high plasticity, mottled red brown and grey, moist.	
						1.30		MH	Clayey SILT (MH) Hard, high plasticity, light grey, moist.	
						2				
						2.40			SILTSTONE (XW) Extremely weathered, very weak, light grey, moist.	
						3.00			Hole Terminated at 3.00 m	
						4				
						6				
						8				

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal met at 2.47m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

PRECISE 1.01 LIB.GLB Log PRECISE BOREHOLE PG-0442.GPJ <<DrawingFile>> 21/04/2017 13:08 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: Precise 1.01 2016-11-23 Prj: Precise 1.01 2016-11-23

PRECISE GEOTECHNICAL
Consulting Geotechnical Engineers

Borehole No.
BH 04
Page 1 of 1

Project No.: PG-0442

Client:	Redland Investment Corporation	Commenced:	19/04/2017
Project Name:	Recreation & Sports Precinct	Logged By:	TTE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525547.0 m E 6945693.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: TTE

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
AD/T						0.15		SC	NATURAL Silty Clayey SAND (SC) Very loose, fine to medium grained, dark grey, low plasticity fines, organics throughout, moist.	0 5 10 15 20 25
								CH	Silty CLAY (CH) Hard, high plasticity, red brown and grey streaks, trace of fine sized gravel, moist.	
						1.40				
						1.60		MH	Clayey SILT (MH) Hard, high plasticity, light grey and red brown, trace of fine sized gravel, moist.	
						2			SANDSTONE (XW) Extremely weathered, weak, light grey and yellow brown, moist.	
						2.40			SANDSTONE (DW) Distinctly weathered, medium strong, light grey and yellow brown, moist.	
						2.70			Hole Terminated at 2.70 m	
						4				
						6				
						8				

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal met at 1.51m.
3. Maximum 'TC' bit refusal met at 2.7m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Consulting Geotechnical Engineers

Borehole No.
BH 05
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Project No.: PG-0442

Client:	Redland Investment Corporation	Commenced:	19/04/2017
Project Name:	Recreation & Sports Precinct	Logged By:	TTE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524236.0 m E 6944112.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: TTE

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
AD/T			U50 1.00-1.23 m PP=580kPa			0.10		SC	NATURAL Silty Clayey SAND (SC) Very loose, fine to medium grained, dark grey, low plasticity fines, organics throughout, moist.	0 5 10 15 20 25
								CH	Silty CLAY (CH) Very stiff to hard, high plasticity, mottled red brown and grey, moist.	
						1.90				
						2			SANDSTONE (XW) Extremely weathered, weak, light grey, moist.	
						2.30				
						2.50			SANDSTONE (DW) Distinctly weathered, medium strong, light grey and yellow brown, moist.	
									Hole Terminated at 2.50 m	
						4				
						6				
						8				

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal met at 1.85m.
3. Maximum 'TC' bit refusal met at 2.5m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 06
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Project No.: PG-0442

Client:	Redland Investment Corporation	Commenced:	19/04/2017
Project Name:	Recreation & Sports Precinct	Logged By:	TTE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524755.0 m E 6944853.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: TTE

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
AD/T						0.10		SC	NATURAL Silty Clayey SAND (SC) Very loose, fine to medium grained, dark grey, low plasticity fines, organics throughout, moist.	
								CH	Silty CLAY (CH) Very stiff, high plasticity, grey and orange brown, moist.	
						1.40			SANDSTONE (XW) Extremely weathered, weak, light grey and yellow brown, moist.	
						1.90			SANDSTONE (DW) Distinctly weathered, medium strong, light grey and yellow brown, moist.	
						2.30			Hole Terminated at 2.30 m	

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

2 4 6 8

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.
2. DCP refusal met at 1.33m.
3. Maximum 'TC' bit refusal met at 2.3m.

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Borehole No.
BH 07
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Project No.: PG-0442

Client:	Redland Investment Corporation	Commenced:	19/04/2017
Project Name:	Recreation & Sports Precinct	Logged By:	TTE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525316.0 m E 6945394.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: TTE

Drilling Information						Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
AD/T						0.10		SC	NATURAL Silty Clayey SAND (SC) Very loose, fine to medium grained, dark grey, low plasticity fines, organics throughout, moist.	0 5 10 15 20 25
								CH	Silty CLAY (CH) Very stiff, high plasticity, red brown and grey, moist.	
						1.80		CI-CH	Silty Sandy CLAY (CI-CH) Hard, medium to high plasticity, light grey and orange brown, fine to medium grained sand, moist.	
						2.60			SANDSTONE (XW) Extremely weathered, weak, light grey and yellow brown, moist.	
						3.00			Hole Terminated at 3.00 m	
						2				
						4				
						6				
						8				

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal met at 2.38m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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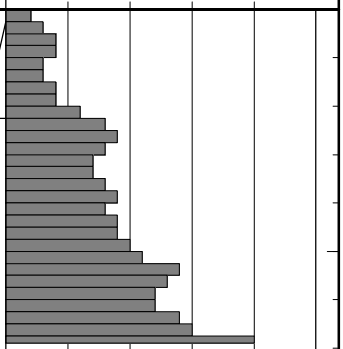
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Borehole No.
BH 08
Page 1 of 1

Project No.: PG-0442

Client:	Redland Investment Corporation	Commenced:	19/04/2017
Project Name:	Recreation & Sports Precinct	Logged By:	TTE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525456.0 m E 6945060.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	TTE

Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional
AD/T						0.10		SC	NATURAL Silty Clayey SAND (SC) Very loose, fine to medium grained, dark grey, low plasticity fines, organics throughout, moist.
								CH	Silty CLAY (CH) Very stiff, high plasticity, orange brown and grey, moist.
						0.90		CH	Silty CLAY (CH) Very stiff to hard, high plasticity, grey and red brown, moist.
						2			
						3.30			SANDSTONE (XW) Extremely weathered, weak, light grey, moist.
						3.70			SANDSTONE (DW) Distinctly weathered, medium strong, light grey and yellow brown, moist.
						4			
						4.20			Hole Terminated at 4.20 m
						6			
						8			



Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.
2. DCP refusal met at 2.76m.
3. Maximum 'TC' bit refusal met at 4.2m.

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Borehole No.
BH 09
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	14/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525254.0 m E 6945084.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: JP

Drilling Information								***Soil Description***	
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional
AD/T						0.10		SM	FILL Silty SAND (SM) Medium dense, fine to medium grained, grey brown, with organics, moist. (topsoil)
								CH	NATURAL Silty CLAY (CH) Very stiff, high plasticity, grey mottled red brown, trace of fine to medium grained gravel and fine to medium grained sand, moist.
						0.80		CI	Sandy CLAY (CI) Hard, medium plasticity, grey mottled orange brown, fine to medium grained, some fine to medium grained gravel, moist.
			SPT 1.50-1.63 m 30/130mm			1.60		CI	Sandy CLAY (CI) Hard, medium plasticity, grey mottled orange brown, fine to medium grained, some fine to medium grained gravel, trace fine to medium grained gravel, moist.
						2			
			SPT 3.00-3.15 m 30			3.10			SILTSTONE (XW) Extremely weathered, very low strength, pale grey mottled orange brown, with quartzite throughout.
						4			
			SPT 4.50-4.65 m 30						
						6			
						6.00			Hole Terminated at 6.00 m
						8			

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 10
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	14/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525222.0 m E 6945182.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: JP

Drilling Information									***Soil Description***
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional
AD/T						0.15		SM	FILL Silty SAND (SM) Loose to medium dense, fine to medium grained, dark brown, with organics, moist. (topsoil)
								CH	NATURAL Silty CLAY (CH) Very stiff, high plasticity, brown mottled red brown, moist.
						0.80		CH	Silty CLAY (CH) Stiff, high plasticity, grey mottled red brown, trace of fine to medium grained ironstone gravel, moist.
			SPT 1.50-1.95 m 2,2,2 N=4			1.90		CI-CH	Silty CLAY (CI-CH) Hard, medium to high plasticity, grey mottled red brown, trace of fine to medium grained ironstone gravel, moist.
			SPT 3.00-3.45 m 6,14,20 N=34			4.00		CI-CH	Silty CLAY (CI-CH) Hard, medium to high plasticity, grey mottled red brown, trace of fine to medium grained ironstone gravel, tending to extremely weathered siltstone, moist.
			SPT 4.50-4.80 m 9,30 N=30/150mm			6.00			Hole Terminated at 6.00 m

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 11
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	14/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524873.0 m E 6945611.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: JP

Drilling Information									***Soil Description***
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional
AD/T						0.20		SM	FILL Silty SAND (SM) Loose to medium dense, fine to medium grained, brown, with organics, moist. (topsoil)
						0.50		CH	NATURAL Silty CLAY (CH) Very stiff, high plasticity, brown mottled orange brown, some fine to medium grained sand, moist.
								CH	Silty CLAY (CH) Very stiff, high plasticity, grey mottled red brown, some fine to medium grained sand, moist.
			SPT 1.50-1.95 m 6,6,7 N=13			2			
						2.00		CI	Silty CLAY (CI) Hard, medium plasticity, grey mottled red and orange brown, some fine to medium grained sand, tending to extremely weathered siltstone, moist.
			SPT 3.00-3.45 m 6,11,16 N=27			4			
			SPT 4.50-4.95 m 13,20,22 N=42			6			
						6.00			Hole Terminated at 6.00 m
						8			

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 12
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	14/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525454.0 m E 6945691.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga Explora 60	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: JP

Drilling Information							Soil Description		
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional
AD/T						0.20		SM	FILL Silty SAND (SM) Loose to medium dense, fine to medium grained, dark grey, with organics, moist. (topsoil)
						0.30		CH	NATURAL Silty CLAY (CH) Very stiff, high plasticity, brown mottled red brown, trace of fine to medium grained sand, moist.
								CH	Silty CLAY (CH) Very stiff, high plasticity, grey mottled red brown, trace of fine to medium grained sand and fine to medium grained ironstone gravel, moist.
			SPT 1.50-1.95 m 5,8,9 N=17			1.70		CI-CH	Silty CLAY (CI-CH) Hard, medium to high plasticity, grey mottled red brown, trace of fine to medium grained sand and fine to medium grained ironstone gravel, moist.
						2.70		CH	Silty CLAY (CH) Stiff, high plasticity, dark grey and black, trace of fine to medium grained sand and fine to medium grained ironstone gravel, moist.
			SPT 3.00-3.45 m 3,6,7 N=13			3.30		CH	Silty CLAY (CH) Hard, high plasticity, grey brown mottled, trace of fine to medium grained sand and fine to medium grained ironstone gravel, moist.
			SPT 4.50-4.95 m 15,18,25 N=43			4.80			SILTSTONE (XW) Extremely weathered, very low strength, grey mottled red brown.
						6.00			Hole Terminated at 6.00 m

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Support
C - Casing

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

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Borehole No.
BH 13
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	18/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	523325.0 m E 6945114.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							***Soil Description***			***DCP***
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T			D 0.20 m			0.10		SM	FILL Silty SAND (SM) Medium dense, fine to medium grained, brown, with organics, moist.	
						0.50		CH	NATURAL Sandy CLAY (CH) Hard, high plasticity, red brown, fine to medium grained sand, moist.	
			U50 0.50-0.70 m PP >600					CH	Sandy CLAY (CH) Hard, high plasticity, grey and red brown, fine to medium grained sand, moist.	
			U50 0.90-1.15 m PP >600			1.20		CH	Sandy CLAY (CH) Hard, high plasticity, grey brown, fine to medium grained sand, moist.	
			D 1.20-1.50 m							
			U50 1.50-1.71 m PP >600			1.80				
						1.90		CI	Sandy CLAY (CI) Hard, medium plasticity, grey brown, fine to medium grained sand, moist.	
					2	2.10			SANDSTONE (XW) Extremely weathered, very low to low strength, grey brown, moist.	
						2.40		CI	SANDSTONE (XW) Extremely weathered, low strength, grey brown, moist.	
			D 2.60-3.00 m						Sandy CLAY (CI) Hard, medium plasticity, grey brown, fine to medium grained sand, moist.	
						3.20		CL-CI	Sandy Silty CLAY (CL-CI) Very stiff, low to medium plasticity, grey brown, fine to medium grained sand, moist.	
						3.70		CL-CI	Sandy Silty CLAY (CL-CI) Very stiff, low to medium plasticity, brown, fine to medium grained sand, moist.	
					4	4.10		CL-CI	Sandy Silty CLAY (CL-CI) Very stiff, low to medium plasticity, grey brown, fine to medium grained sand, moist.	
			D 4.10-4.40 m			4.40			SANDSTONE (XW) Extremely weathered, low strength, grey brown, moist.	
						4.90			SANDSTONE (XW) Extremely weathered, low to medium strength, grey brown, moist.	
						5.00			Hole Terminated at 5.00 m	
					6					
					8					

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

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BH 14
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	18/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525447.0 m E 6945256.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm
AD/T			U50 0.50-0.70 m PP = 360			0.10		SC	FILL Clayey SAND (SC) Loose, fine to medium grained, dark brown, low plasticity clay fines, moist.	
						0.30		CI		
						0.60		CH	NATURAL Sandy CLAY (CI) Stiff, medium plasticity, grey brown, fine to medium grained sand, moist.	
								CH	Silty CLAY (CH) Very stiff, high plasticity, brown mottled grey, moist.	
									Silty CLAY (CH) Very stiff, high plasticity, red brown mottled grey, moist.	
			U50 2.00-2.30 m PP >600			1.70		CH	Sandy Silty CLAY (CH) Hard, high plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						2.60		CI	Sandy Silty CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						3.20		CI	Sandy Silty CLAY (CI) Hard, medium plasticity, brown mottled grey, fine to medium grained sand, trace of fine grained gravel, moist.	
						3.60		CH	Silty CLAY (CH) Hard, high plasticity, grey, fine to medium grained sand, trace of fine grained gravel, moist.	
						3.80		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to coarse grained sand, moist.	
			D 4.10-4.50 m			4.10		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						4.70		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist.	
						5.60		SM	Silty SAND (SM) Dense, fine to medium grained, light grey, low plasticity clay fines, moist.	
						6.00			Hole Terminated at 6.00 m	

DCP TEST: 0, 5, 10, 15, 20, 25 Blows per 100 mm

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 15
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	22/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525291.0 m E 6945283.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T		▽				0.10		CI-CH	NATURAL Sandy CLAY (CI-CH) Stiff, low to medium plasticity, dark grey and dark brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						0.60		CI-CH		
						0.70		CI	Sandy CLAY (CI-CH) Stiff, low to medium plasticity, grey brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						1.20		CI-CH	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist.	
						1.60		CI-CH	Sandy CLAY (CI-CH) Hard, medium to high plasticity, light grey and light brown, fine to medium grained sand, moist.	
						1.80		CI	Sandy CLAY (CI-CH) Hard, medium to high plasticity, light grey, fine to medium grained sand, moist.	
						2		SC		
						2.20		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey and light brown, fine to medium grained sand, moist.	
						2.60		CI	Clayey SAND (SC) Dense, fine to coarse grained, light orange brown, low plasticity clay fines, moist.	
						2.90		CI	Sandy CLAY (CI) Hard, medium plasticity, light orange brown, fine to medium grained sand, moist.	
						3.20		CI-CH	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist.	
									Sandy CLAY (CI) Hard, medium plasticity, brown and light grey, fine to medium grained sand, trace of fine grained gravel, moist.	
						4				
						4.10		CI	Sandy CLAY (CI-CH) Hard, medium to high plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						4.70		CI	Sandy CLAY (CI) Hard, medium plasticity, grey brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						5.20		CL	Sandy CLAY (CI) Very stiff, medium plasticity, brown, fine to medium grained sand, wet.	
						5.50		CL	Sandy CLAY (CL) Hard, low plasticity, brown, fine to medium grained sand, moist.	
						6.00			Sandy CLAY (CL) Hard, low to medium plasticity, light grey, fine to medium grained sand, moist.	
						6			Hole Terminated at 6.00 m	
						8				

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater encountered 4.7m
2. DCP refusal at 1.37m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 16
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	19/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525483.0 m E 6945381.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm
AD/T			D 0.10-0.50 m			0.10		CL-CI	NATURAL Sandy CLAY (CL-CI) Stiff, low to medium plasticity, dark grey, fine to medium grained sand, moist.	
			U50 0.50-0.63 m PP = 250			0.80		CI	Sandy CLAY (CI) Stiff, medium plasticity, grey brown, fine to medium grained sand, moist.	
			D 0.80-1.00 m U50 0.90-1.15 m PP = 200			1.20		CI	Sandy CLAY (CI) Very stiff, medium plasticity, grey brown, fine to medium grained sand, moist.	
						1.70		CI	Sandy CLAY (CI) Very stiff, medium plasticity, light red brown, fine to medium grained sand, moist.	
					2	2.20		CI	Sandy CLAY (CI) Very stiff, medium plasticity, brown mottled light grey, fine to medium grained sand, moist.	
						2.60		CI	Sandy CLAY (CI) Very stiff, medium plasticity, light grey mottled light red brown, fine to medium grained sand, trace of fine grained gravel, moist.	
			D 2.60-3.00 m			3.20		CI	Sandy Silty CLAY (CI) Hard, medium plasticity, light grey, fine to medium grained sand, moist.	
						3.60		CI	Sandy CLAY (CI) Hard, medium plasticity, brown mottled light grey, fine to medium grained sand, moist.	
					4	3.80		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey, fine to medium grained sand, moist.	
						4.60		CI	Sandy CLAY (CI) Hard, medium plasticity, brown and light grey, fine to medium grained sand, moist.	
						5.20		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist.	
						5.70		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey, fine to medium grained sand, moist.	
					6	6.00		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey, fine to medium grained sand, trace of fine grained gravel, moist.	
									Hole Terminated at 6.00 m	
					8					

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater encountered at 4.6m.
2. Seepage encountered at 2.9m.

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Borehole No.
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	22/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525381.0 m E 6945485.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T		▽	D 0.40-0.50 m U50 0.50-0.64 m PP = 350 U50 0.90-1.09 m PP = 200 U50 1.50-1.80 m PP = 340			0.10		CL	NATURAL Sandy CLAY (CL) Stiff, low plasticity, dark grey, fine to medium grained sand, moist.	
						0.30		CI-CH		
						0.40		CI	Sandy CLAY (CL-CI) Stiff, low to medium plasticity, grey, fine to medium grained sand, moist.	
						0.70		CH	Sandy CLAY (CI) Very stiff, medium plasticity, grey brown and light orange brown, fine to medium grained sand, moist.	
						1.20		CH	Sandy CLAY (CH) Hard, high plasticity, grey brown and light orange brown, fine to medium grained sand, moist.	
						1.80		CI	Sandy Silty CLAY (CH) Hard, high plasticity, grey and light red brown, fine to medium grained sand, moist.	
						2			Silty CLAY (CH) Hard, high plasticity, grey, moist.	
						2.20		CI	Sandy CLAY (CI) Hard, medium plasticity, grey brown, fine to medium grained sand, moist.	
						2.60		CI	Sandy CLAY (CI) Hard, medium plasticity, grey brown and light orange brown, fine to medium grained sand, moist.	
						2.80		CI	Sandy CLAY (CI) Hard, medium plasticity, grey brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						3.20		CL-CI	Gravelly Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, fine grained gravel, moist.	
						3.70		CL-CI	Sandy CLAY (CL-CI) Hard, low to medium plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						4			Sandy CLAY (CL-CI) Hard, low to medium plasticity, grey, fine to medium grained sand, moist.	
						5.00		CL	Sandy CLAY (CL) Hard, low plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						6.00			Hole Terminated at 6.00 m	
						6				
						8				

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater encountered at 2.6m.
2. DCP refusal at 1.0m.
3. Steady water depth encountered at 1.0m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	19/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525515.0 m E 6945512.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional
AD/T			D 0.40-0.50 m U50 0.50-0.60 m PP = 360 D 0.60-1.00 m U50 0.90-1.16 m PP = 230 U50 1.50-1.74 m PP >600			0.20		CL-CI	NATURAL Sandy CLAY (CL-CI) Stiff, low to medium plasticity, dark grey, fine to medium grained sand, moist.
						0.40		CI	
						0.60		CH	Sandy CLAY (CI) Stiff, medium plasticity, grey brown, fine to medium grained sand, moist.
								CH	Sandy CLAY (CH) Very stiff, high plasticity, grey brown mottled light orange brown, fine to medium grained sand, trace of fine grained gravel, moist.
						1.10		CH	Sandy Silty CLAY (CH) Hard, high plasticity, brown mottled grey, fine to medium grained sand, moist.
						1.70		CI	Sandy Silty CLAY (CH) Hard, high plasticity, light grey mottled light orange and red brown, fine to medium grained sand, moist.
					2	2.20		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey and light red brown, fine to medium grained sand, moist.
						2.60		CI	Sandy CLAY (CI) Hard, medium plasticity, grey brown, fine to medium grained sand, trace of fine grained gravel, moist.
						2.80		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist.
						3.20		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey, fine to medium grained sand, moist.
						3.70		CI	Sandy CLAY (CI) Hard, medium plasticity, brown mottled light grey, fine to medium grained sand, moist.
					4	4.10		CI	Sandy CLAY (CI) Hard, medium plasticity, grey brown, fine to medium grained sand, moist.
									Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist.
						5.10		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.
						6.00			
					6				Hole Terminated at 6.00 m
					8				

DCP TEST
Blows per 100 mm
0 5 10 15 20 25

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 19
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525355.0 m E 6945640.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T			U50 0.20 m PP = 90-100 U50 0.30 m PP = 200			0.10 0.30 0.60 1.60 3.70 5.30 6.00 2 4 6 8		SM CH CH CH CH CH CL-CI	FILL Silty SAND (SM) Medium dense, fine to medium grained, dark grey, with organics, moist. NATURAL Sandy CLAY (CH) Firm to stiff, high plasticity, grey mottled orange brown, fine to medium grained sand, moist. NATURAL Sandy CLAY (CH) Stiff to very stiff, high plasticity, grey mottled orange brown, fine to medium grained sand, moist. Silty CLAY (CH) Very stiff, high plasticity, red brown mottled grey, trace of fine to medium grained sand, moist. Silty CLAY (CH) Very stiff, high plasticity, pale grey mottled red brown and orange brown, trace of fine to medium grained sand, moist. Silty CLAY (CH) Hard, high plasticity, pale grey mottled red brown and orange brown, trace of fine to medium grained sand and fine to medium grained ironstone gravel, moist. Silty CLAY (CL-CI) Hard, low to medium plasticity, pale grey mottled red brown and orange brown, trace of fine to medium grained sand and fine to medium grained ironstone gravel, tending to extremely weathered metasiltstone, moist. Hole Terminated at 6.00 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 20
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	22/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525399.0 m E 6945729.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							***Soil Description***			***DCP***
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T			D 0.70-1.00 m U50 1.00-1.14 m PP = 220 D 1.30-1.50 m			0.20		SM	NATURAL Silty SAND (SM) Very loose to loose, fine to medium grained, dark grey and dark brown, low plasticity clay fines, moist.	
						0.30		SM	Silty SAND (SM) Very loose, fine to medium grained, light grey and light brown, low plasticity clay fines, moist.	
						0.70		CL-CI	Sandy CLAY (CL-CI) Hard, low to medium plasticity, light grey light brown and light orange brown, fine to medium grained sand, moist.	
						1.30		CI	Sandy Silty CLAY (CI) Very stiff, medium plasticity, light brown, fine to medium grained sand, moist.	
						1.60		CH	Sandy Silty CLAY (CH) Very stiff, high plasticity, light grey, fine to medium grained sand, moist.	
						1.80		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist.	
						2		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey, fine to medium grained sand, moist.	
						2.20		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist.	
						2.90		CL-CI	Sandy CLAY (CL-CI) Hard, low to medium plasticity, dark brown, fine to medium grained sand, moist.	
						3.20		SC	Clayey SAND (SC) Medium dense, fine to medium grained, brown, low plasticity clay fines, moist.	
						3.70		CI	Sandy CLAY (CI) Hard, medium plasticity, dark brown, fine to medium grained sand, moist.	
						4		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey and light brown, fine to medium grained sand, moist.	
						4.10		CI	Sandy CLAY (CI) Hard, medium plasticity, dark grey and dark brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						4.70		CI	Sandy CLAY (CI) Hard, medium plasticity, dark grey, fine to medium grained sand, moist.	
						5.10		CI		
						6				
						6.00			Hole Terminated at 6.00 m	
						8				

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 21
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525267.0 m E 6945615.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information								***Soil Description***			***DCP***
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional		DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T		▽	U50 0.50 m PP = 130			0.15		CI	FILL Sandy CLAY (CI) Firm, high plasticity, dark grey, fine to medium grained sand, with organics, wet.		
						0.50		CH	NATURAL Sandy CLAY (CH) Soft, high plasticity, grey, fine to medium grained sand, wet.		
								CH	Sandy CLAY (CH) Stiff, high plasticity, brown mottled red brown, fine to medium grained sand, wet.		
						1.60		CH	Sandy CLAY (CH) Very stiff, high plasticity, brown mottled red brown, fine to medium grained sand, trace of fine to medium grained gravel, wet.		
						1.90		SC	Clayey Gravelly SAND (SC) Medium dense to dense, fine to coarse grained, grey mottled orange brown, fine to medium grained gravel, medium plasticity clay fines, wet.		
						2.50		GC	Clayey Sandy GRAVEL (GC) Dense, fine to medium grained gravel, grey mottled orange brown, fine to coarse grained sand, medium plasticity clay fines, tending to gravelly clay (CI).		
						3.00			Hole Terminated at 3.00 m		
						2					
						4					
						6					
						8					

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater encountered at 2.0m.
2. Steady water depth noted at 1.9m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 22
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525081.0 m E 6945653.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm
AD/T			U50 0.30 m PP = 350 U50 0.70 m PP = 130			0.20		SM	FILL Silty SAND (SM) Loose, fine to medium grained, dark grey, with organics, moist.	
								CH	NATURAL Silty CLAY (CH) Very stiff, high plasticity, orange brown mottled grey, trace of fine to medium grained sand, moist.	
						0.70		CH	Silty CLAY (CH) Stiff, high plasticity, red brown mottled grey, trace of fine to medium grained sand, moist.	
						1.50		CL-CI	Silty CLAY (CL-CI) Hard, low to medium plasticity, red brown mottled grey, trace of fine to medium grained sand, moist.	
						2.00		CL	Sandy CLAY (CL) Hard, low plasticity, pale grey, fine to medium grained sand, trace of fine to medium grained ironstone gravel, moist.	
						4.00		CL	Sandy CLAY (CL) Hard, low plasticity, pale grey, fine to medium grained sand, trace of fine to medium grained ironstone gravel, tending to extremely weathered metasiltstone, moist.	
						6.00			Hole Terminated at 6.00 m	

DCP TEST: Blows per 100 mm — 0, 5, 10, 15, 20, 25

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525263.0 m E 6945536.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							***Soil Description***			***DCP***
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T		▽	U50 1.40 m PP = 350			0.10 0.30 1.40 2.00 2.70 3.00 2 4 6 8		CH CH CH CH GC Cl	FILL Silty CLAY (CH) Firm, high plasticity, dark grey, with organics, moist to wet. NATURAL Silty CLAY (CH) Firm, high plasticity, dark grey, moist to wet. Silty CLAY (CH) Soft, high plasticity, grey mottled orange brown, some fine to medium grained sand, moist to wet. Silty CLAY (CH) Very stiff, high plasticity, grey, some fine to medium grained sand, trace of fine to medium grained gravel, moist to wet. Clayey Sandy GRAVEL (GC) Dense, fine to medium grained, grey, fine to medium grained sand, medium plasticity clay fines, wet. Gravelly CLAY (Cl) Stiff to very stiff, medium plasticity, grey, fine to medium grained gravel, some fine to coarse grained sand, moist. Hole Terminated at 3.00 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater encountered at 2.0m.
2. Steady water depth noted at 1.9m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 24
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524982.0 m E 6945719.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information								***Soil Description***			***DCP***
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional		DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T		▽	U50 0.30 m PP = 310 U50 0.60 m PP = 340 U50 1.00 m PP = 390-400			0.15		SM	FILL Silty SAND (SM) Loose, fine to medium grained, dark grey, with organics, moist.		
						0.30		SM	NATURAL Silty SAND (SM) Loose, fine to medium grained, dark grey, trace of fine to medium grained gravel, moist.		
						0.50		CH	Silty CLAY (CH) Very stiff, high plasticity, brown mottled grey, trace of fine to medium grained sand, moist.		
						1.00		CH	Silty CLAY (CH) Very stiff, high plasticity, red brown, trace of fine to medium grained sand and fine grained gravel, moist.		
						1.60		CH	Silty CLAY (CH) Very stiff to hard, high plasticity, red brown mottled grey, trace of fine to medium grained sand, moist.		
					2	2.00		CH	Sandy CLAY (CH) Very stiff, high plasticity, grey mottled orange brown, fine to medium grained sand, moist.		
						2.50		CH	Sandy CLAY (CH) Firm to stiff, high plasticity, grey mottled orange brown, fine to medium grained sand, moist.		
									Sandy CLAY (CH) Firm, high plasticity, grey mottled orange brown, fine to medium grained sand, tending to clayey sand (SC), wet.		
						3.20			SANDSTONE (XW) Extremely weathered, very low strength, grey mottled orange brown, fine to medium grained.		
						3.70			SANDSTONE (XW) Extremely weathered, low strength, grey mottled orange brown, fine to medium grained.		
					4	4.00			Hole Terminated at 4.00 m		
					6						
					8						

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater encountered at 2.5m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 25
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524927.0 m E 6945610.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm
AD/T			U50 0.30 m PP = 260			0.15		SM	FILL Silty SAND (SM) Loose, fine to medium grained, dark grey, with organics, moist.	
						0.30		SM	NATURAL Silty SAND (SM) Loose, fine to medium grained, dark grey, trace of fine to medium grained gravel, moist.	
						0.60		CH	Silty CLAY (CH) Very stiff, high plasticity, brown mottled grey, moist.	
								CH	Silty CLAY (CH) Very stiff, high plasticity, orange brown, trace of fine to medium grained sand, moist.	
						1.20			SANDSTONE (XW) Extremely weathered, very low strength, pale grey, fine to coarse grained.	
						1.60 1.70			SANDSTONE (XW) Extremely weathered, low strength, pale grey, fine to coarse grained.	
									Hole Terminated at 1.70 m	
						2				
						4				
						6				
						8				

DCP TEST: 0 5 10 15 20 25

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. TC bit refusal at 1.7m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 26
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525016.0 m E 6945545.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information								***Soil Description***	
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional
AD/T			U50 0.40 m PP = 220 U50 0.70 m PP = 180			0.15		SM	FILL Silty SAND (SM) Loose to medium dense, fine to medium grained, dark brown and black, with clay fines and organics, moist.
						0.40		ML	NATURAL Sandy SILT (ML) Stiff, low plasticity, grey, fine to medium grained sand, moist.
						0.65		CH	Silty CLAY (CH) Very stiff, high plasticity, brown mottled grey, trace of fine to medium grained sand, moist.
						1.00		CH	Silty CLAY (CH) Stiff, high plasticity, orange brown, trace of fine to medium grained sand, moist.
						1.15		CL	Silty CLAY (CL) Hard, low plasticity, pale grey, some fine to medium grained sand, moist.
						1.20			SANDSTONE (XW) Extremely weathered, very low strength, pale grey mottled orange brown, fine to medium grained.
						1.50			SANDSTONE (XW) Extremely weathered, low strength, pale grey mottled orange brown, fine to medium grained.
									Hole Terminated at 1.50 m
						2			
						4			
						6			
						8			

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. TC bit refusal at 1.2m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 27
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	19/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525446.0 m E 6945573.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T		▽	D 0.30-0.50 m			0.10		CL	NATURAL Silty Sandy CLAY (CL) Stiff, low plasticity, dark grey, fine to medium grained sand, moist.	
						0.30		CL-CI	Gravelly Sandy CLAY (CL-CI) Very stiff, low to medium plasticity, grey brown, fine to medium grained sand, fine grained gravel, moist.	
			D 0.70-1.00 m			0.50		CI	Sandy CLAY (CI) Hard, medium plasticity, grey brown mottled light orange brown, fine to medium grained sand, with fine grained gravel, moist.	
			U50 0.90-1.20 m			0.70		CI	Gravelly Sandy CLAY (CI) Hard, medium plasticity, grey brown mottled light orange brown, fine to medium grained sand, fine grained gravel, moist.	
			PP = 380			1.20		CI	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						1.70		GC	Sandy CLAY (CI) Hard, medium plasticity, brown mottled light grey, fine to medium grained sand, trace of fine grained gravel, moist.	
			D 2.20-2.50 m			2.20		CI	Clayey Sandy GRAVEL (GC) Medium dense, fine grained, grey brown, fine to medium grained sand, low plasticity clay fines, moist.	
						2.60		GC	Sandy CLAY (CI) Hard, medium plasticity, light orange brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						3.70		CI	Sandy Clayey GRAVEL (GC) Dense, fine grained, light grey mottled light brown, medium plasticity clay fines, fine to medium grained sand, moist.	
						5.00		GC	Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	
						6.00			Clayey Sandy GRAVEL (GC) Dense, fine grained, grey brown, fine to medium grained sand, low to medium plasticity clay fines, wet.	
									Hole Terminated at 6.00 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater encountered at 4.7m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525175.0 m E 6945456.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information								Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional		DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T		▽	U50 0.60 m PP = 180			0.15 0.25 0.60 2.00 2.70 3.00		CH SM CI CH CH SC	NATURAL Sandy CLAY (CH) Firm, high plasticity, dark brown and black, fine to medium grained sand, with organics, moist to wet. Silty SAND (SM) Loose, fine to medium grained, grey, some clay fines, moist to wet. Sandy CLAY (CI) Firm, medium plasticity, grey, fine to medium grained sand, moist to wet. Silty CLAY (CH) Stiff, high plasticity, grey mottled red brown, some fine to medium grained sand, moist. Sandy CLAY (CH) Stiff, high plasticity, grey, fine to medium grained sand, trace of fine to medium grained gravel, moist. Clayey Gravelly SAND (SC) Medium dense, fine to coarse grained, grey, fine to medium grained gravel, medium plasticity clay fines, wet. Hole Terminated at 3.00 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater encountered at 2.7m.

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Borehole No.
BH 29
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525103.0 m E 6945377.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T			U50 0.30 m PP = 100			0.15		CH	FILL Silty CLAY (CH) Firm, high plasticity, dark brown and black, with organics, moist to wet.	
						0.30		CH	NATURAL Silty CLAY (CH) Firm, high plasticity, dark brown and black, moist to wet.	
								CH	Silty CLAY (CH) Firm to stiff, high plasticity, grey mottled orange brown, some fine to medium grained sand, moist to wet.	
			U50 1.10 m PP = 120			1.10		CH	Silty CLAY (CH) Stiff, high plasticity, red brown mottled grey, some fine to medium grained sand, moist to wet.	
						2.00		CI	Gravelly CLAY (CI) Stiff, medium plasticity, grey mottled orange brown, fine to medium grained gravel, some fine to medium grained sand, moist.	
						2.60		CI	Gravelly CLAY (CI) Stiff, medium plasticity, grey, fine to medium grained gravel, some fine to medium grained sand, moist.	
						3.00			Hole Terminated at 3.00 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Support
C - Casing

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

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Borehole No.
BH 30
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524863.0 m E 6945679.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T			U50 0.30 m PP = 350 U50 0.70 m PP = 285			0.15 0.30 0.65 2.00 2.70 4.00 5.00 5.30 5.40		SM SM CH CH CI CI CI	FILL Silty SAND (SM) Medium dense, fine to medium grained, dark grey, with organics, moist. FILL Silty SAND (SM) Medium dense, fine to medium grained, dark grey, trace of fine to medium grained gravel, moist. NATURAL Silty CLAY (CH) Very stiff, high plasticity, brown mottled grey, some fine to medium grained sand, moist. Silty CLAY (CH) Very stiff, high plasticity, grey mottled red brown, moist. Silty CLAY (CI) Very stiff, medium plasticity, pale grey mottled red brown, some fine to medium grained sand, moist. Silty CLAY (CI) Hard, medium plasticity, pale grey mottled red brown, some fine to medium grained sand, trace of fine to medium grained ironstone gravel, moist. Silty CLAY (CI) Hard, medium plasticity, pale grey mottled red brown, some fine to medium grained sand, trace of fine to medium grained ironstone gravel, tending to extremely weathered sandstone, moist. SANDSTONE (XW) Extremely weathered, very low strength, pale grey mottled orange brown, fine to medium grained. SANDSTONE (XW) Extremely weathered, low strength, pale grey mottled orange brown, fine to medium grained. Hole Terminated at 5.40 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. TC bit refusal at 5.4m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 31
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524906.0 m E 6945576.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T			U50 0.40 m PP = 235			0.15		SM	FILL Silty SAND (SM) Loose, fine to medium grained, dark grey and black, with organics, moist.	
						0.25		SM	NATURAL Silty SAND (SM) Loose, fine to medium grained, dark grey, moist.	
								CH	Silty CLAY (CH) Very stiff, high plasticity, brown mottled grey, trace of fine to medium grained sand, moist.	
						0.80		CH	Silty CLAY (CH) Stiff, high plasticity, brown mottled grey, trace of fine to medium grained sand, moist.	
			U50 1.00 m PP = 180			1				
						1.10		CL	Silty CLAY (CL) Hard, low plasticity, pale grey mottled orange brown, trace of fine to medium grained sand, moist.	
						1.50		CL	Silty CLAY (CL) Hard, low plasticity, pale grey mottled orange brown, trace of fine to medium grained sand, tending to extremely weathered sandstone, trace of fine to medium grained ironstone gravel, moist.	
						2				
						3				
						3.80			SANDSTONE (XW) Extremely weathered, very low strength, orange brown, fine to medium grained sand.	
						4				
						4.40				
						4.50			SANDSTONE (XW) Extremely weathered, low strength, orange brown, fine to medium grained sand.	
									Hole Terminated at 4.50 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. TC bit refusal at 4.5m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 32
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524834.0 m E 6945558.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm
			U50 0.40 m PP = 340			0.10		SM	FILL Silty SAND (SM) Loose to medium dense, fine to medium grained, dark grey, with organics, trace of fine to medium grained gravel, moist.	
						0.30		SM	NATURAL Silty SAND (SM) Loose to medium dense, fine to medium grained, dark grey, trace of fine to medium grained gravel, moist.	
						0.70		CH	Silty CLAY (CH) Very stiff, high plasticity, orange brown, trace of fine to medium grained sand, moist.	
						1.10		CL-CI	Silty CLAY (CL-CI) Very stiff, low to medium plasticity, grey mottled red brown, trace of fine to medium grained sand, moist.	
						1.25			SANDSTONE (XW) Extremely weathered, very low strength, pale grey brown mottled red brown, fine to medium grained.	
						1.40			SANDSTONE (XW) Extremely weathered, low strength, pale grey brown mottled red brown, fine to medium grained.	
									Hole Terminated at 1.40 m	
						2				
						4				
						6				
						8				

DCP TEST: Blows per 100 mm — 0 5 10 15 20 25

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal at 1.06m.
3. TC bit refusal at 1.4m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 33
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	22/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525261.0 m E 6945188.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm
AD/T			D 0.30-0.50 m U50 0.50-0.61 m PP = 260 U50 0.90-1.09 m PP = 180 D 1.30-1.50 m			0.10 0.30 0.70 1.30 1.80 2.20 3.20 4.10 4.70 5.60 6.00		CL CH CH CH CI CI-CH CI CI CI CI CI	NATURAL Gravelly Sandy CLAY (CL) Stiff, low plasticity, dark grey, fine to medium grained sand, fine grained gravel, moist. Sandy CLAY (CH) Hard, high plasticity, grey brown and light orange brown, fine to meidum grained sand, moist. Sandy CLAY (CH) Hard, high plasticity, brown, fine to meidum grained sand, moist. Sandy CLAY (CH) Very stiff, medium plasticity, brown, fine to meidum grained sand, moist. Sandy Silty CLAY (CI) Hard, medium plasticity, light red brown, fine to medium grained sand, moist. Sandy CLAY (CI-CH) Hard, medium to high plasticity, grey and light red brown, fine grained sand, trace of fine grained gravel, moist. Sandy CLAY (CI) Hard, medium plasticity, light grey and light red brown, fine to medium grained sand, moist. Sandy CLAY (CI) Hard, medium plasticity, brown and light grey, fine to medium grained sand, moist. Sandy CLAY (CI) Hard, medium plasticity, grey brown, fine to medium grained sand, moist. Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, moist. Sandy CLAY (CI) Hard, medium plasticity, brown, fine to medium grained sand, trace of fine grained gravel, moist.	0 5 10 15 20 25
						6.00			Hole Terminated at 6.00 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

PREGISE 1.01 LIB.GLB Log PRECISE BOREHOLE PG-0442 - AUGUST 2019.GPJ <<DrawingFile>> 15/08/2019 18:30 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: Precise 1.01 2016-11-23 Prj: Precise 1.01 2016-11-23

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Borehole No.
BH 34
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	524980.0 m E 6945242.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T			U50 0.70 m PP = 370			0.15		SM	FILL Silty SAND (SM) Medium dense, fine to medium grained, dark grey, with organics, moist.	
								CH	NATURAL Silty CLAY (CH) Stiff, high plasticity, brown grey, moist.	
						0.70		CH	Silty CLAY (CH) Stiff, high plasticity, grey mottled red brown, moist.	
			U50 1.60 m PP = 240			1.60		CH	Silty CLAY (CH) Stiff, high plasticity, red brown mottled grey, moist.	
						2.00		CI	Sandy CLAY (CI) Stiff, medium plasticity, dark grey, fine to coarse grained sand, trace of fine grained gravel, moist.	
						2.70		CI	Gravelly CLAY (CI) Stiff, medium plasticity, grey, fine to medium grained gravel, some fine to coarse grained sand, moist.	
						3.00			Hole Terminated at 3.00 m	

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

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Borehole No.
BH 35
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	22/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525053.0 m E 6945299.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T		▽	D 0.90-1.00 m U50 1.00-1.14 m PP = 150 D 1.30-1.50 m			0.10		CL-CI	NATURAL Sandy CLAY (CL-CI) Stiff, low to medium plasticity, dark grey, fine to medium grained sand, moist.	
						0.30		CI	Sandy CLAY (CI) Stiff, medium plasticity, dark grey and brown, fine to medium grained sand, moist.	
						0.70		CI	Sandy CLAY (CI) Very stiff, medium plasticity, light orange brown, fine to medium grained sand, moist.	
						0.90		CH	Sandy Silty CLAY (CI) Very stiff, medium plasticity, brown, fine to medium grained sand, moist.	
						1.30		CH	Sandy Silty CLAY (CH) Very stiff, high plasticity, grey brown, fine to medium grained sand, moist.	
						1.60		CI-CH	Sandy Silty CLAY (CH) Very stiff, high plasticity, light grey, fine to medium grained sand, moist.	
						1.80		CI	Sandy Silty CLAY (CI-CH) Hard, medium to high plasticity, light grey and light brown, fine to medium grained sand, moist.	
					2	2.20		CI	Sandy CLAY (CI) Hard, medium plasticity, light grey and light brown, fine to medium grained sand, moist.	
						3.20		CH	Sandy CLAY (CI) Hard, medium plasticity, light grey, fine to medium grained sand, moist.	
						3.70		CH	Silty CLAY (CH) Hard, high plasticity, light grey, moist.	
			D 4.10-4.50 m		4	4.10		CH	Silty CLAY (CH) Hard, high plasticity, light grey and light red brown, trace of fine grained gravel, moist.	
						4.50		CI	Silty CLAY (CH) Hard, high plasticity, grey trace of fine grained gravel, moist.	
						5.60		GP	Sandy CLAY (CI) Hard, medium plasticity, grey brown and grey, fine to medium grained sand, with fine grained gravel, moist.	
					6	6.00			Clayey Sandy GRAVEL (GP) Dense, fine grained, grey brown, fine to medium grained sand, low to medium plasticity clay fines, moist.	
									Hole Terminated at 6.00 m	
					8					

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater encountered at 2.6m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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Borehole No.
BH 36
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525059.0 m E 6945204.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm
AD/T			U50 0.30 m PP = 250 U50 0.70 m PP = 110 U50 1.50 m PP = 270			0.10 0.30 0.70 1.50 2.30 3.10 4.00 4.40 4.50		SM SM CH CH CH	FILL Silty SAND (SM) Medium dense, fine to medium grained, dark grey, with organics, moist. NATURAL Silty SAND (SM) Loose, fine to medium grained, orange brown, with organics, some fine grained gravel, moist. Sandy CLAY (CH) Very stiff, high plasticity, brown mottled grey, fine to medium grained sand, moist. Sandy CLAY (CH) Stiff, high plasticity, pale brown, fine to medium grained sand, moist. Silty CLAY (CH) Very stiff, high plasticity, grey mottled orange brown, trace of fine to medium grained sand, moist. Sandy CLAY (CI-CH) Hard, medium to high plasticity, grey mottled orange brown, fine to medium grained sand, with extremely weathered sandstone inclusions, moist. Sandy CLAY (CL-CI) Hard, low to medium plasticity, grey mottled orange brown, fine to medium grained sand, with extremely weathered sandstone inclusions and fine to medium grained ironstone gravel, moist. SANDSTONE (XW) Extremely weathered, very low strength, pale grey mottled orange brown, fine to coarse grained. SANDSTONE (XW) Extremely weathered, low strength, pale grey mottled orange brown, fine to coarse grained. Hole Terminated at 4.50 m	0 5 10 15 20 25

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. TC bit refusal at 4.5m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

PREGISE 1.01 LIB.GLB Log PRECISE BOREHOLE PG-0442 - AUGUST 2019.GPJ <<DrawingFile>> 15/08/2019 18:31 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: Precise 1.01 2016-11-23 Prj: Precise 1.01 2016-11-23

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Borehole No.
BH 37
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	08/08/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	BE
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525240.0 m E 6945440.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD
		Operator:	EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm
AD/T		▽	U50 0.60 m PP = 170 U50 1.10 m PP = 380			0.15		SC	FILL Clayey SAND (SC) Loose, fine to medium grained, dark grey, medium plasticity clay fines, moist to wet.	
						0.60		CI	NATURAL Sandy CLAY (CI) Firm, medium plasticity, grey, fine to medium grained sand, moist to wet.	
						1.10		CH	Silty CLAY (CH) Stiff, high plasticity, brown mottled grey, some fine to medium grained sand, moist.	
						2		CH	Silty CLAY (CH) Very stiff, high plasticity, grey, some fine to medium grained sand, moist.	
						2.10		CH	Gravelly CLAY (CH) Very stiff, high plasticity, grey, fine to medium grained gravel, some fine to coarse grained sand, moist.	
						3.00			Hole Terminated at 3.00 m	
						4				
						6				
						8				

0 5 10 15 20 25

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater encountered at 0.15m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

PREGISE 1.01 LIB.GLB Log PRECISE BOREHOLE PG-0442 - AUGUST 2019.GPJ <<DrawingFile>> 15/08/2019 18:31 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: Precise 1.01 2016-11-23 Prj: Precise 1.01 2016-11-23

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Borehole No.
BH 38
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Project No.: PG-0442

Client:	Redland City Council	Commenced:	19/07/2019
Project Name:	Proposed Sport and Leisure Precinct	Logged By:	EA
Hole Location:	277 Heinemann Road, Mount Cotton	Checked By:	
Hole Position:	525405.0 m E 6945365.0 m N MGA94 Zone 56		
Drill Model and Mounting:	Digga PDT1	RL Surface:	No survey
Hole Diameter:		Datum:	AHD Operator: EA

Drilling Information							Soil Description			DCP
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	DCP TEST Blows per 100 mm (0 5 10 15 20 25)
AD/T			D 0.30-0.50 m U50 0.50-0.62 m PP = 310 U50 0.90-1.09 m PP = 330 D 2.00-2.50 m			0.05 0.30 0.80 1.20 1.70 2 2.60 2.90 3.70 4 4.10 4.40 5.10 5.60 6 6.00 8		CL CL Cl Cl Cl Cl Cl CL-Cl Cl Cl Cl Cl Cl	NATURAL Sandy CLAY (CL) Stiff, low plasticity, dark grey, fine to medium grained sand, moist. Sandy CLAY (CL) Stiff, low plasticity, grey brown, fine to medium grained sand, moist. Sandy Silty CLAY (Cl) Very stiff, medium plasticity, grey brown, fine to medium grained sand, moist. Sandy Silty CLAY (Cl) Hard, medium plasticity, brown, fine to medium grained sand, moist. Sandy CLAY (Cl) Hard, medium plasticity, light grey and brown, fine to medium grained sand, moist. Sandy CLAY (Cl) Hard, medium plasticity, light grey, fine to medium grained sand, moist. Sandy CLAY (Cl) Hard, medium plasticity, brown, fine to medium grained sand, moist. Sandy CLAY (CL-Cl) Hard, low to medium plasticity, light grey, fine to medium grained sand, moist. Sandy CLAY (Cl) Hard, medium plasticity, brown, fine to medium grained sand, moist. Sandy CLAY (Cl) Hard, medium plasticity, light grey mottled light red brown, fine to medium grained sand, moist. Sandy CLAY (Cl) Stiff, medium plasticity, brown, fine to medium grained sand, moist. Sandy CLAY (Cl) Hard, medium plasticity, grey brown, fine to medium grained sand, with fine grained gravel, moist. Sandy CLAY (Cl) Medium dense, medium plasticity, grey brown, fine to medium grained sand, moist. Hole Terminated at 6.00 m

Method
AS - Auger
RR - Rock Roller
WB - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater encountered at 4.1m.

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APPENDIX C

LABORATORY TEST CERTIFICATES

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SHRINK SWELL INDEX REPORT

CLIENT:	Redland City Council	PROJECT NUMBER:	PG-0442
ADDRESS:	Heinemann Road, Mount Cotton	REPORT NUMBER:	PG-0442-SS-01
PROJECT NAME:	Proposed Sports & Leisure Precinct	REPORT DATE:	13/08/2019
		TEST METHOD:	AS 1289.7.1.1

SAMPLE LOCATION:	**BH13 @ 0.9m**
SAMPLING METHOD:	U50
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	21/07/2019
DATE TESTED:	12/08/2019
MATERIAL TYPE:	Silty Clay

SHRINKAGE MOISTURE CONTENT (%):	18.3
SHRINKAGE (%):	7.0
SWELL MOISTURE CONTENT INITIAL (%):	17.4
SWELL MOISTURE CONTENT FINAL (%):	29.3
SWELL (%):	5.9
UNIT WEIGHT (t/m³):	1.87
SHRINK SWELL INDEX Iss (%):	**5.3**
CRACKING:	slight
CRUMBLING:	no

REMARKS:

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SHRINK SWELL INDEX REPORT

CLIENT:	Redland City Council	PROJECT NUMBER:	PG-0442
ADDRESS:	Heinemann Road, Mount Cotton	REPORT NUMBER:	PG-0442-SS-02
PROJECT NAME:	Proposed Sports & Leisure Precinct	REPORT DATE:	13/08/2019
		TEST METHOD:	AS 1289.7.1.1

SAMPLE LOCATION:	**BH27 @ 0.9m**
SAMPLING METHOD:	U50
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	
DATE TESTED:	12/08/2019
MATERIAL TYPE:	Silt Clay

SHRINKAGE MOISTURE CONTENT (%):	13.9
SHRINKAGE (%):	3.2
SWELL MOISTURE CONTENT INITIAL (%):	15.6
SWELL MOISTURE CONTENT FINAL (%):	18.6
SWELL (%):	0.7
UNIT WEIGHT (t/m³):	2.03
SHRINK SWELL INDEX Iss (%):	**1.9**
CRACKING:	slight
CRUMBLING:	no

REMARKS:

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SHRINK SWELL INDEX REPORT

CLIENT:	Redland City Council	PROJECT NUMBER:	PG-0442
ADDRESS:	Heinemann Road, Mount Cotton	REPORT NUMBER:	PG-0442-SS-03
PROJECT NAME:	Proposed Sports & Leisure Precinct	REPORT DATE:	13/08/2019
		TEST METHOD:	AS 1289.7.1.1

SAMPLE LOCATION:	**BH 16 @ 0.9m**
SAMPLING METHOD:	U50
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	21/07/2019
DATE TESTED:	12/08/2019
MATERIAL TYPE:	Silty Clay

SHRINKAGE MOISTURE CONTENT (%):	16.7
SHRINKAGE (%):	4.6
SWELL MOISTURE CONTENT INITIAL (%):	15.1
SWELL MOISTURE CONTENT FINAL (%):	23.9
SWELL (%):	2.0
UNIT WEIGHT (t/m³):	1.94
SHRINK SWELL INDEX Iss (%):	**3.0**
CRACKING:	no
CRUMBLING:	no

REMARKS:

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SHRINK SWELL INDEX REPORT

CLIENT:	Redland City Council	PROJECT NUMBER:	PG-0442
ADDRESS:	Heinemann Road, Mount Cotton	REPORT NUMBER:	PG-0442-SS-04
PROJECT NAME:	Proposed Sports & Leisure Precinct	REPORT DATE:	13/08/2019
		TEST METHOD:	AS 1289.7.1.1

SAMPLE LOCATION:	**BH38 @ 0.9m**
SAMPLING METHOD:	U50
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	21/07/2019
DATE TESTED:	12/08/2019
MATERIAL TYPE:	Silty Clay

SHRINKAGE MOISTURE CONTENT (%):	15.4
SHRINKAGE (%):	4.0
SWELL MOISTURE CONTENT INITIAL (%):	16.1
SWELL MOISTURE CONTENT FINAL (%):	25.1
SWELL (%):	3.4
UNIT WEIGHT (t/m³):	1.88
SHRINK SWELL INDEX Iss (%):	**3.0**
CRACKING:	slight
CRUMBLING:	no

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ATTERBERG LIMITS INDEX REPORT

CLIENT:	Redland City Council	PROJECT NUMBER:	PG-0442
ADDRESS:	Heinemann Road, Mount Cotton	REPORT NUMBER:	PG-0442-ATT-01
PROJECT NAME:	Proposed Sports & Leisure Precinct	REPORT DATE:	15/08/2019
		TEST METHOD:	AS 1289.3.1.2

SAMPLE LOCATION:	**BH13 @ 0.2-0.5m**
SAMPLING METHOD:	DISTURBED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	
DATE TESTED:	15/08/2019
PREPERATION METHOD:	DRY
MOISTURE METHOD:	AS 1289.2.1.1
MATERIAL TYPE:	Silty Clay

MOULD LENGTH (mm):	140
LIQUID LIMIT (%):	**38.7**
PLASTIC LIMIT (%):	**32.6**
PLASTICITY INDEX (%):	**6.1**
LINEAR SHRINKAGE (%):	**11.5**
CRACKING:	yes
CURLING:	no

REMARKS:

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ATTERBERG LIMITS INDEX REPORT

CLIENT:	Redland City Council	PROJECT NUMBER:	PG-0442
ADDRESS:	Heinemann Road, Mount Cotton	REPORT NUMBER:	PG-0442-ATT-02
PROJECT NAME:	Proposed Sports & Leisure Precinct	REPORT DATE:	
		TEST METHOD:	AS 1289.3.1.2

SAMPLE LOCATION:	**BH16 @ 2.6-3.0m**
SAMPLING METHOD:	DISTURBED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	
DATE TESTED:	15/08/2019
PREPERATION METHOD:	DRY
MOISTURE METHOD:	AS 1289.2.1.1
MATERIAL TYPE:	Silty Clay

MOULD LENGTH (mm):	140
LIQUID LIMIT (%):	**32.2**
PLASTIC LIMIT (%):	**24.8**
PLASTICITY INDEX (%):	**7.4**
LINEAR SHRINKAGE (%):	**11.2**
CRACKING:	no
CURLING:	yes

REMARKS:

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ATTERBERG LIMITS INDEX REPORT

CLIENT:	Redland City Council	PROJECT NUMBER:	PG-0442
ADDRESS:	Heinemann Road, Mount Cotton	REPORT NUMBER:	PG-0442-ATT-03
PROJECT NAME:	Proposed Sports & Leisure Precinct	REPORT DATE:	15/08/2019
		TEST METHOD:	AS 1289.3.1.2

SAMPLE LOCATION:	**BH17 @ 0.4-0.5m**
SAMPLING METHOD:	DISTURBED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	
DATE TESTED:	15/08/2019
PREPERATION METHOD:	DRY
MOISTURE METHOD:	AS 1289.2.1.1
MATERIAL TYPE:	Silty Clay

MOULD LENGTH (mm):	140
LIQUID LIMIT (%):	**31.4**
PLASTIC LIMIT (%):	**25.0**
PLASTICITY INDEX (%):	**6.4**
LINEAR SHRINKAGE (%):	**11.1**
CRACKING:	yes
CURLING:	no

REMARKS:

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ATTERBERG LIMITS INDEX REPORT

CLIENT:	Redland City Council	PROJECT NUMBER:	PG-0442
ADDRESS:	Heinemann Road, Mount Cotton	REPORT NUMBER:	PG-0442-ATT-04
PROJECT NAME:	Proposed Sports & Leisure Precinct	REPORT DATE:	15/08/2019
		TEST METHOD:	AS 1289.3.1.2

SAMPLE LOCATION:	**BH27 @ 0.7-1.0m**
SAMPLING METHOD:	DISTURBED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	
DATE TESTED:	15/08/2019
PREPERATION METHOD:	DRY
MOISTURE METHOD:	AS 1289.2.1.1
MATERIAL TYPE:	Silty Clay

MOULD LENGTH (mm):	140
LIQUID LIMIT (%):	**37.1**
PLASTIC LIMIT (%):	**28.2**
PLASTICITY INDEX (%):	**8.9**
LINEAR SHRINKAGE (%):	**11.7**
CRACKING:	yes
CURLING:	no

REMARKS:

P: (07) 5636 4680 F: (07) 5636 0286 E: info@pacgeo.com.au
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ABN: 62 615 248 952

Appendix C
Geotechnical Laboratory Test Certificates - Precinct area

Sunshine Coast Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08254-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08254
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP2
0.1-0.6m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	24.8	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	6.0	
Mould Length (mm)		250	
Liquid Limit (%)	AS 1289.3.1.2	27	
Plastic Limit (%)	AS 1289.3.2.1	15	
Plasticity Index (%)	AS 1289.3.3.1	12	
Date Tested		9/11/2021	
Emerson Class Number	AS 1289.3.8.1	5	
Soil Description		Silty Clay	
Type of Water		Distilled	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.73**	
Standard OMC (%)		**17.0**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		52	
LL Method		Visual / Tactile Assessment	
Date Tested		2/11/2021	
CBR at 2.5mm (%)	AS 1289.6.1.1	**6**	
Dry Density before Soaking (t/m³)		1.65	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		16.8	
Moisture Ratio before Soaking (%)		99.5	
Dry Density after Soaking (t/m³)		1.63	
Density Ratio after Soaking (%)		94.5	
Swell (%)		1.0	

Comments

*Results relate only to the items tested or sampled.

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08254-1
Issue No: 1

Client:	Core Consultants Pty Ltd Unit 1 / 2 Neumann Court Kunda Park QLD 4556
Principal:	
Project No.:	TESTSCOA00169AA
Project Name:	J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.:	**TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	SCOA21S-08254
Date Sampled:	22/10/2021
Source:	On-site
Material:	In-situ
Specification:	No Specification
Sampling Method:	Submitted by client*
Project Location:	Heinemann Road, Mount Cotton
Sample Location:	P-TP2 0.1-0.6m

Test Results

Description	Method	Result	Limits
Moisture Content of Top 30mm (%)		22.4	
Moisture Content of Remaining Depth (%)		21.5	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		73	
Plasticity Method		Visual/Tactile Assessment	
Date Tested		12/11/2021	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08255-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08255
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP12
0.2-.6m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	29.4	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.5	
Mould Length (mm)		249.9	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	59	
Plastic Limit (%)	AS 1289.3.2.1	18	
Plasticity Index (%)	AS 1289.3.3.1	41	
Date Tested		9/11/2021	
Emerson Class Number	AS 1289.3.8.1	5	
Soil Description		Silty Clay	
Type of Water		Distilled	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.48**	
Standard OMC (%)		**27.5**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		50	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 2.5mm (%)	AS 1289.6.1.1	**4.5**	
Dry Density before Soaking (t/m³)		1.41	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		27.6	
Moisture Ratio before Soaking (%)		100.0	
Dry Density after Soaking (t/m³)		1.39	
Density Ratio after Soaking (%)		93.5	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
Unit 1, 50 Hoopers Road
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08255-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08255
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP12
0.2-.6m

Test Results

Description	Method	Result	Limits
Swell (%)		1.5	
Moisture Content of Top 30mm (%)		33.5	
Moisture Content of Remaining Depth (%)		31.4	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		49	
Plasticity Method		AS 1289.3.1.2	
Sample Moisture Content		AS 1289.2.1.1	
Date Tested		4/11/2021	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08256-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08256
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP15
0.3-0.8m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	30.0	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.5	
Mould Length (mm)		250.2	
Cracking		Yes	
Liquid Limit (%)	AS 1289.3.1.2	73	
Plastic Limit (%)	AS 1289.3.2.1	24	
Plasticity Index (%)	AS 1289.3.3.1	49	
Date Tested		9/11/2021	
Emerson Class Number	AS 1289.3.8.1	5	
Soil Description		Sandy Clay	
Type of Water		Distilled	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.46**	
Standard OMC (%)		**28.0**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		50	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 2.5mm (%)	AS 1289.6.1.1	**4.0**	
Dry Density before Soaking (t/m³)		1.39	
Density Ratio before Soaking (%)		95.5	
Moisture Content before Soaking (%)		27.9	
Moisture Ratio before Soaking (%)		99.0	
Dry Density after Soaking (t/m³)		1.36	
Density Ratio after Soaking (%)		93.0	

Comments

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Coffey Testing Pty Ltd
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08256-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

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Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08256
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP15
0.3-0.8m

Test Results

Description	Method	Result	Limits
Swell (%)		2.5	
Moisture Content of Top 30mm (%)		36.2	
Moisture Content of Remaining Depth (%)		32.7	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		51	
Plasticity Method		AS 1289.3.1.2	
Sample Moisture Content		AS 1289.2.1.1	
Date Tested		4/11/2021	

Comments

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Sunshine Coast Laboratory

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Unit 1, 50 Hoopers Road
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08257-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08257
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP17
0.15-0.25m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	13.1	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	3.0	
Mould Length (mm)		250.1	
Liquid Limit (%)	AS 1289.3.1.2	21	
Plastic Limit (%)	AS 1289.3.2.1	14	
Plasticity Index (%)	AS 1289.3.3.1	7	
Date Tested		9/11/2021	
Emerson Class Number	AS 1289.3.8.1	5	
Soil Description		Silty Clay	
Type of Water		Distilled	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.92**	
Standard OMC (%)		**12.0**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		50	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 5.0mm (%)	AS 1289.6.1.1	**5.0**	
Dry Density before Soaking (t/m³)		1.83	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		12.2	
Moisture Ratio before Soaking (%)		100.0	
Dry Density after Soaking (t/m³)		1.83	
Density Ratio after Soaking (%)		95.0	
Swell (%)		0.0	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08257-1
Issue No: 1

Client:	Core Consultants Pty Ltd Unit 1 / 2 Neumann Court Kunda Park QLD 4556
Principal:	
Project No.:	TESTSCOA00169AA
Project Name:	J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.:	**TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	SCOA21S-08257
Date Sampled:	22/10/2021
Source:	On-site
Material:	In-situ
Specification:	No Specification
Sampling Method:	Submitted by client*
Project Location:	Heinemann Road, Mount Cotton
Sample Location:	P-TP17 0.15-0.25m

Test Results

Description	Method	Result	Limits
Moisture Content of Top 30mm (%)		14.6	
Moisture Content of Remaining Depth (%)		14.2	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		53	
Plasticity Method		AS 1289.3.1.2	
Sample Moisture Content		AS 1289.2.1.1	
Date Tested		4/11/2021	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08258-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08258
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP19
0.2-0.6m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	15.3	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	3.0	
Mould Length (mm)		249.9	
Liquid Limit (%)	AS 1289.3.1.2	19	
Plastic Limit (%)	AS 1289.3.2.1	13	
Plasticity Index (%)	AS 1289.3.3.1	6	
Date Tested		9/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.95**	
Standard OMC (%)		**10.5**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		79	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 5.0mm (%)	AS 1289.6.1.1	**7**	
Dry Density before Soaking (t/m³)		1.85	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		10.5	
Moisture Ratio before Soaking (%)		100.0	
Dry Density after Soaking (t/m³)		1.85	
Density Ratio after Soaking (%)		95.0	
Swell (%)		0.0	
Moisture Content of Top 30mm (%)		12.7	
Moisture Content of Remaining Depth (%)		13.8	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	

Comments

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Sunshine Coast Laboratory

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ABN 92 114 364 046
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08258-1
Issue No: 1

Client:	Core Consultants Pty Ltd Unit 1 / 2 Neumann Court Kunda Park QLD 4556
Principal:	
Project No.:	TESTSCOA00169AA
Project Name:	J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.:	**TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	SCOA21S-08258
Date Sampled:	22/10/2021
Source:	On-site
Material:	In-situ
Specification:	No Specification
Sampling Method:	Submitted by client*
Project Location:	Heinemann Road, Mount Cotton
Sample Location:	P-TP19 0.2-0.6m

Test Results

Description	Method	Result	Limits
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		144	
Plasticity Method		AS 1289.3.1.2	
Date Tested		4/11/2021	

Comments

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Sunshine Coast Laboratory

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Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08259-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08259
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP23
0.2-0.4m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	16.3	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	3.5	
Mould Length (mm)		254	
Liquid Limit (%)	AS 1289.3.1.2	22	
Plastic Limit (%)	AS 1289.3.2.1	15	
Plasticity Index (%)	AS 1289.3.3.1	7	
Date Tested		9/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.85**	
Standard OMC (%)		**13.5**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		74	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 2.5mm (%)	AS 1289.6.1.1	**4.0**	
Dry Density before Soaking (t/m³)		1.76	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		13.8	
Moisture Ratio before Soaking (%)		100.5	
Dry Density after Soaking (t/m³)		1.76	
Density Ratio after Soaking (%)		95.0	
Swell (%)		0.0	
Moisture Content of Top 30mm (%)		15.2	
Moisture Content of Remaining Depth (%)		16.1	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08259-1
Issue No: 1

Client:	Core Consultants Pty Ltd Unit 1 / 2 Neumann Court Kunda Park QLD 4556
Principal:	
Project No.:	TESTSCOA00169AA
Project Name:	J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.:	**TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	SCOA21S-08259
Date Sampled:	22/10/2021
Source:	On-site
Material:	In-situ
Specification:	No Specification
Sampling Method:	Submitted by client*
Project Location:	Heinemann Road, Mount Cotton
Sample Location:	P-TP23 0.2-0.4m

Test Results

Description	Method	Result	Limits
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		72	
Plasticity Method		AS 1289.3.1.2	
Date Tested		12/11/2021	

Comments

*Results relate only to the items tested or sampled.

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08260-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08260
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP27
0.1-0.4m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	19.3	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	4.0	
Mould Length (mm)		250.2	
Liquid Limit (%)	AS 1289.3.1.2	24	
Plastic Limit (%)	AS 1289.3.2.1	14	
Plasticity Index (%)	AS 1289.3.3.1	10	
Date Tested		10/11/2021	
Emerson Class Number	AS 1289.3.8.1	3	
Soil Description		Silty Clay	
Type of Water		Distilled	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.81**	
Standard OMC (%)		**13.5**	
Retained Sieve (mm)		37.5	
Oversize Material (%)		0	
Curing Time (h)		74	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 2.5mm (%)	AS 1289.6.1.1	**3.0**	
Dry Density before Soaking (t/m³)		1.73	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		13.6	
Moisture Ratio before Soaking (%)		99.5	
Dry Density after Soaking (t/m³)		1.73	
Density Ratio after Soaking (%)		95.0	
Swell (%)		0.0	

Comments

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Coffey Testing Pty Ltd
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08260-1
Issue No: 1

Client:	Core Consultants Pty Ltd Unit 1 / 2 Neumann Court Kunda Park QLD 4556
Principal:	
Project No.:	TESTSCOA00169AA
Project Name:	J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.:	**TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	SCOA21S-08260
Date Sampled:	22/10/2021
Source:	On-site
Material:	In-situ
Specification:	No Specification
Sampling Method:	Submitted by client*
Project Location:	Heinemann Road, Mount Cotton
Sample Location:	P-TP27 0.1-0.4m

Test Results

Description	Method	Result	Limits
Moisture Content of Top 30mm (%)		15.4	
Moisture Content of Remaining Depth (%)		17.0	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		73	
Plasticity Method		AS 1289.3.1.2	
Date Tested		12/11/2021	

Comments

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Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08261-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08261
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP30
0.2-0.9m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	23.4	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	7.5	
Mould Length (mm)		250	
Liquid Limit (%)	AS 1289.3.1.2	31	
Plastic Limit (%)	AS 1289.3.2.1	16	
Plasticity Index (%)	AS 1289.3.3.1	15	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.78**	
Standard OMC (%)		**14.5**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		52	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 5.0mm (%)	AS 1289.6.1.1	**4.0**	
Dry Density before Soaking (t/m³)		1.70	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		14.6	
Moisture Ratio before Soaking (%)		100.0	
Dry Density after Soaking (t/m³)		1.68	
Density Ratio after Soaking (%)		94.0	
Swell (%)		1.0	
Moisture Content of Top 30mm (%)		21.3	
Moisture Content of Remaining Depth (%)		19.0	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	

Comments

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Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08261-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08261
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP30
0.2-0.9m

Test Results

Description	Method	Result	Limits
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		72	
Plasticity Method		AS 1289.3.1.2	
Date Tested		12/11/2021	

Comments

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Material Test Report

Report No: SCOA21S-08262-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08262
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP31
0.2-0.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	22.5	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	4.5	
Mould Length (mm)		250.1	
Liquid Limit (%)	AS 1289.3.1.2	28	
Plastic Limit (%)	AS 1289.3.2.1	18	
Plasticity Index (%)	AS 1289.3.3.1	10	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.79**	
Standard OMC (%)		**14.0**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		51	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 2.5mm (%)	AS 1289.6.1.1	**10**	
Dry Density before Soaking (t/m³)		1.70	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		14.2	
Moisture Ratio before Soaking (%)		100.0	
Dry Density after Soaking (t/m³)		1.69	
Density Ratio after Soaking (%)		94.5	
Swell (%)		0.5	
Moisture Content of Top 30mm (%)		18.7	
Moisture Content of Remaining Depth (%)		19.1	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	

Comments

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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08262-1
Issue No: 1

Client:	Core Consultants Pty Ltd Unit 1 / 2 Neumann Court Kunda Park QLD 4556
Principal:	
Project No.:	TESTSCOA00169AA
Project Name:	J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.:	**TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	SCOA21S-08262
Date Sampled:	22/10/2021
Source:	On-site
Material:	In-situ
Specification:	No Specification
Sampling Method:	Submitted by client*
Project Location:	Heinemann Road, Mount Cotton
Sample Location:	P-TP31 0.2-0.5m

Test Results

Description	Method	Result	Limits
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		72	
Plasticity Method		AS 1289.3.1.2	
Date Tested		12/11/2021	

Comments

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Sunshine Coast Laboratory

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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08263-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08263
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP34
0.2-0.6m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	23.8	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	8.0	
Mould Length (mm)		250	
Liquid Limit (%)	AS 1289.3.1.2	36	
Plastic Limit (%)	AS 1289.3.2.1	19	
Plasticity Index (%)	AS 1289.3.3.1	17	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.70**	
Standard OMC (%)		**17.5**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		98	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 5.0mm (%)	AS 1289.6.1.1	**3.0**	
Dry Density before Soaking (t/m³)		1.61	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		17.6	
Moisture Ratio before Soaking (%)		99.5	
Dry Density after Soaking (t/m³)		1.58	
Density Ratio after Soaking (%)		93.0	
Swell (%)		2.5	
Moisture Content of Top 30mm (%)		27.3	
Moisture Content of Remaining Depth (%)		22.1	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08263-1
Issue No: 1

Client:	Core Consultants Pty Ltd Unit 1 / 2 Neumann Court Kunda Park QLD 4556
Principal:	
Project No.:	TESTSCOA00169AA
Project Name:	J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.:	**TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	SCOA21S-08263
Date Sampled:	22/10/2021
Source:	On-site
Material:	In-situ
Specification:	No Specification
Sampling Method:	Submitted by client*
Project Location:	Heinemann Road, Mount Cotton
Sample Location:	P-TP34 0.2-0.6m

Test Results

Description	Method	Result	Limits
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		72	
Plasticity Method		AS 1289.3.1.2	
Date Tested		8/11/2021	

Comments

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Unit 1, 50 Hoopers Road
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08264-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08264
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP42
0.2-0.6m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	14.4	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	5.5	
Mould Length (mm)		249.8	
Cracking		Yes	
Liquid Limit (%)	AS 1289.3.1.2	28	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	11	
Date Tested		10/11/2021	
Emerson Class Number	AS 1289.3.8.1	5	
Soil Description		Silty Clay	
Type of Water		Distilled	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.79**	
Standard OMC (%)		**14.5**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		53	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 2.5mm (%)	AS 1289.6.1.1	**4.5**	
Dry Density before Soaking (t/m³)		1.70	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		14.7	
Moisture Ratio before Soaking (%)		100.0	
Dry Density after Soaking (t/m³)		1.70	
Density Ratio after Soaking (%)		95.0	

Comments

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Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08264-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08264
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP42
0.2-0.6m

Test Results

Description	Method	Result	Limits
Swell (%)		0.0	
Moisture Content of Top 30mm (%)		18.7	
Moisture Content of Remaining Depth (%)		20.2	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		73	
Plasticity Method		AS 1289.3.1.2	
Sample Moisture Content		AS 1289.2.1.1	
Date Tested		12/11/2021	

Comments

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Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08265-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08265
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP44
0.1-0.4m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	23.8	
Date Tested		1/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	1.5	
Mould Length (mm)		249.9	
Liquid Limit (%)	AS 1289.3.1.2	20	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	3	
Date Tested		10/11/2021	
Standard MDD (t/m³)	AS 1289.5.1.1	**1.83**	
Standard OMC (%)		**12.0**	
Retained Sieve (mm)		19	
Oversize Material (%)		0	
Curing Time (h)		55	
LL Method		AS 1289.3.1.2	
Date Tested		2/11/2021	
CBR at 2.5mm (%)	AS 1289.6.1.1	**6**	
Dry Density before Soaking (t/m³)		1.74	
Density Ratio before Soaking (%)		95.0	
Moisture Content before Soaking (%)		11.8	
Moisture Ratio before Soaking (%)		100.0	
Dry Density after Soaking (t/m³)		1.74	
Density Ratio after Soaking (%)		95.0	
Swell (%)		0.0	
Moisture Content of Top 30mm (%)		15.2	
Moisture Content of Remaining Depth (%)		16.9	
Compaction Hammer Used		Standard	
Surcharge Mass (kg)		4.50	

Comments

*Results relate only to the items tested or sampled.

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08265-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Cameron Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID: SCOA21S-08265
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: P-TP44
0.1-0.4m

Test Results

Description	Method	Result	Limits
Period of Soaking (Days)		4	
Retained on 19 mm Sieve (%)		0	
CBR Moisture Content Method		AS 1289.2.1.1	
Sample Curing Time (h)		72	
Plasticity Method		AS 1289.3.1.2	
Date Tested		12/11/2021	

Comments

*Results relate only to the items tested or sampled.

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08266-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Sam Markham
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 15/11/2021

Sample Details

Sample ID: SCOA21S-08266
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: C-TP1
0.7-1.2m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	19.1	
Date Tested		29/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	10.5	
Mould Length (mm)		250	
Liquid Limit (%)	AS 1289.3.1.2	44	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	22	
Date Tested		11/11/2021	
Emerson Class Number	AS 1289.3.8.1	5	
Soil Description		Silty Clay	
Type of Water		Distilled	
Date Tested		9/11/2021	

Comments

*Results relate only to the items tested or sampled.

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08267-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Sam Markham
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 15/11/2021

Sample Details

Sample ID: SCOA21S-08267
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: C-TP13
1.6-2.0m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	24.1	
Date Tested		29/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	10.0	
Mould Length (mm)		250	
Liquid Limit (%)	AS 1289.3.1.2	41	
Plastic Limit (%)	AS 1289.3.2.1	21	
Plasticity Index (%)	AS 1289.3.3.1	20	
Date Tested		11/11/2021	
Emerson Class Number	AS 1289.3.8.1	3	
Soil Description		Sandy Clay	
Type of Water		Distilled	
Date Tested		9/11/2021	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08268-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Sam Markham
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 15/11/2021

Sample Details

Sample ID: SCOA21S-08268
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: C-TP25
1.8-2.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	21.3	
Date Tested		29/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	9.0	
Mould Length (mm)		250	
Cracking		Yes	
Liquid Limit (%)	AS 1289.3.1.2	29	
Plastic Limit (%)	AS 1289.3.2.1	12	
Plasticity Index (%)	AS 1289.3.3.1	17	
Date Tested		11/11/2021	
Emerson Class Number	AS 1289.3.8.1	5	
Soil Description		Silty Clay	
Type of Water		Distilled	
Date Tested		9/11/2021	

Comments

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Material Test Report

Report No: SCOA21S-08269-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Sam Markham
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 15/11/2021

Sample Details

Sample ID: SCOA21S-08269
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: C-TP28
0.8-1.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	20.3	
Date Tested		29/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	13.0	
Mould Length (mm)		250	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	46	
Plastic Limit (%)	AS 1289.3.2.1	15	
Plasticity Index (%)	AS 1289.3.3.1	31	
Date Tested		11/11/2021	
Emerson Class Number	AS 1289.3.8.1	6	
Soil Description		Sandy Clay	
Type of Water		Distilled	
Date Tested		9/11/2021	

Comments

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Sunshine Coast Laboratory

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Material Test Report

Report No: SCOA21S-08270-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Sam Markham
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 15/11/2021

Sample Details

Sample ID: SCOA21S-08270
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: C-TP28
2.0-3.0m

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	10.7	
Date Tested		29/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	11.0	
Mould Length (mm)		250	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	40	
Plastic Limit (%)	AS 1289.3.2.1	13	
Plasticity Index (%)	AS 1289.3.3.1	27	
Date Tested		11/11/2021	
Emerson Class Number	AS 1289.3.8.1	6	
Soil Description		Sandy Clay	
Type of Water		Distilled	
Date Tested		9/11/2021	

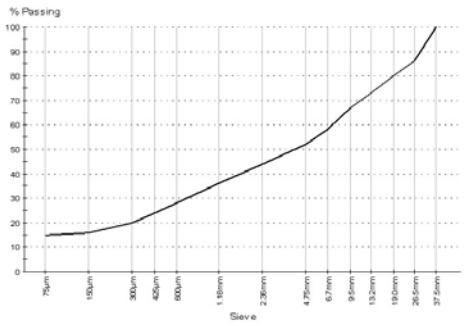
Particle Size Distribution

Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 4/11/2021

Note: Sample Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	86	
19.0mm	80	
13.2mm	73	
9.5mm	67	
6.7mm	58	
4.75mm	52	
2.36mm	44	
1.18mm	36	
600µm	28	
425µm	24	
300µm	20	
150µm	16	
75µm	15	

Chart



Comments

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Sunshine Coast Laboratory

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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08271-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Sam Markham
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 15/11/2021

Sample Details

Sample ID: SCOA21S-08271
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: C-TP37
2.1-2.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	10.3	
Date Tested		29/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	10.5	
Mould Length (mm)		250	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	38	
Plastic Limit (%)	AS 1289.3.2.1	12	
Plasticity Index (%)	AS 1289.3.3.1	26	
Date Tested		11/11/2021	
Emerson Class Number	AS 1289.3.8.1	6	
Soil Description		Sandy Clay	
Type of Water		Distilled	
Date Tested		9/11/2021	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
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Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08272-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Sam Markham
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 15/11/2021

Sample Details

Sample ID: SCOA21S-08272
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: C-TP38
3.0-3.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	21.6	
Date Tested		29/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	14.5	
Mould Length (mm)		254	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	58	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	36	
Date Tested		11/11/2021	

Comments

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Sunshine Coast Laboratory

Coffey Testing Pty Ltd
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Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Phone: +61 7 5445 4952

Material Test Report

Report No: SCOA21S-08273-1
Issue No: 1

Client: Core Consultants Pty Ltd
Unit 1 / 2 Neumann Court
Kunda Park QLD 4556

Principal:
Project No.: TESTSCOA00169AA
Project Name: J001424 - Redland Coast Regional Sport and Recreation Precinct
Lot No.: **TRN:**

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Sam Markham
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 15/11/2021

Sample Details

Sample ID: SCOA21S-08273
Date Sampled: 22/10/2021
Source: On-site
Material: In-situ
Specification: No Specification
Sampling Method: Submitted by client*
Project Location: Heinemann Road, Mount Cotton
Sample Location: C-TP43
1.8-2.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	20.4	
Date Tested		29/11/2021	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	11.0	
Mould Length (mm)		250	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	45	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	28	
Date Tested		11/11/2021	

Comments

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Brisbane Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
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Phone: +61 7 3569 8920

Report No: SSI:BRIS21S-05922
Issue No: 1

Shrink Swell Index Report

Client:	Coffey Testing Pty Ltd (Sunshine Coast) Unit 1, 50 Hoopers Road Kunda Park QLD 4556
Principal:	
Project No.:	TESTBRIS00068AA
Project Name:	QINT-SCOA - Sunshine Coast Laboratory
Lot No.:	- **TRN:** -

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Joseph Langley
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 9/11/2021

Sample Details

Sample ID:	BRIS21S-05922	**Sampling Method:**	Submitted by client*
Date Sampled:	19/10/2021	**Material:**	
Date Submitted:	27/10/2021	**Source:**	In situ
Date Tested:	1/11/2021		
Project Location:	Mount Cotton, QLD		
Sample Location:	Heinemann Road, C-TP1, 0.4-0.8m		
Borehole Number:			
Borehole Depth (m):			

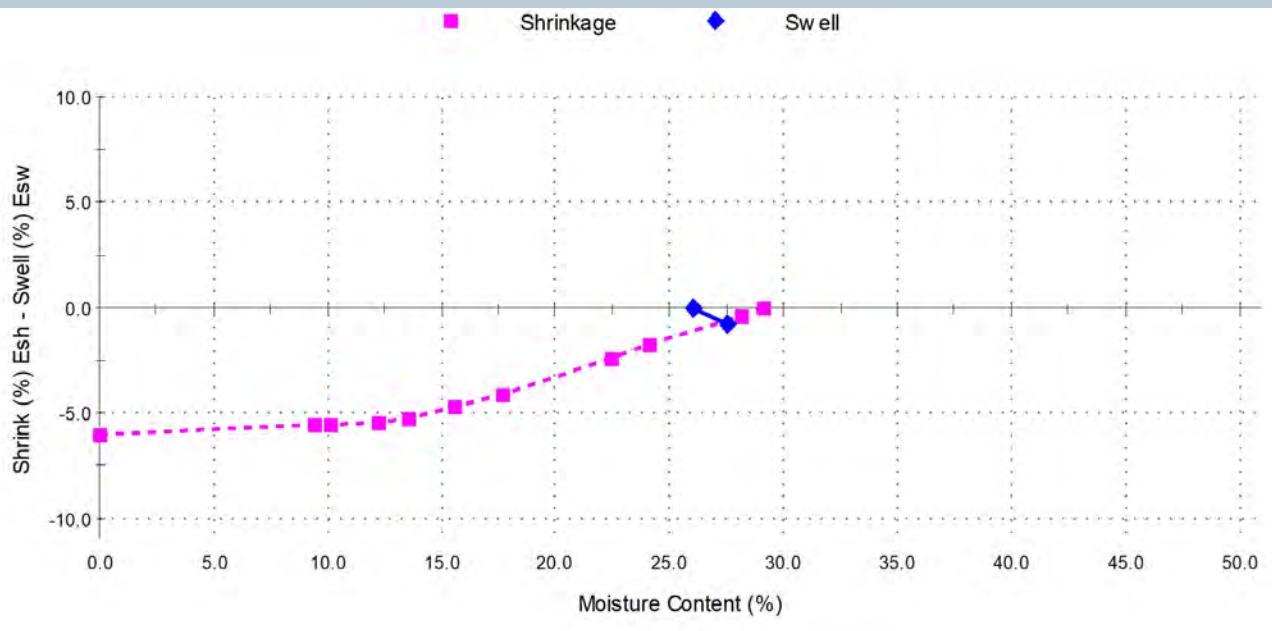
Swell Test — AS 1289.7.1.1

Swell on Saturation (%):	-0.8
Moisture Content before (%):	26.0
Moisture Content after (%):	27.5
Est. Unc. Comp. Strength before (kPa):	
Est. Unc. Comp. Strength after (kPa):	

Shrink Test — AS 1289.7.1.1

Shrink on drying (%):	6.0
Shrinkage Moisture Content (%):	29.1
Est. inert material (%):	1
Crumbling during shrinkage:	0
Cracking during shrinkage:	0

Shrink Swell



Shrink Swell Index - Iss (%): 3.3

Comments

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Brisbane Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
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Phone: +61 7 3569 8920

Report No: SSI:BRIS21S-05922
Issue No: 1

Shrink Swell Index Report

Client:	Coffey Testing Pty Ltd (Sunshine Coast) Unit 1, 50 Hoopers Road Kunda Park QLD 4556
Principal:	
Project No.:	TESTBRIS00068AA
Project Name:	QINT-SCOA - Sunshine Coast Laboratory
Lot No.:	- **TRN:** -

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Joseph Langley
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 9/11/2021

Sample Details

Sample ID:	BRIS21S-05922	**Sampling Method:**	Submitted by client*
Date Sampled:	19/10/2021	**Material:**	
Date Submitted:	27/10/2021	**Source:**	In situ
Date Tested:	1/11/2021		
Project Location:	Mount Cotton, QLD		
Sample Location:	Heinemann Road, C-TP1, 0.4-0.8m		
Borehole Number:			
Borehole Depth (m):			

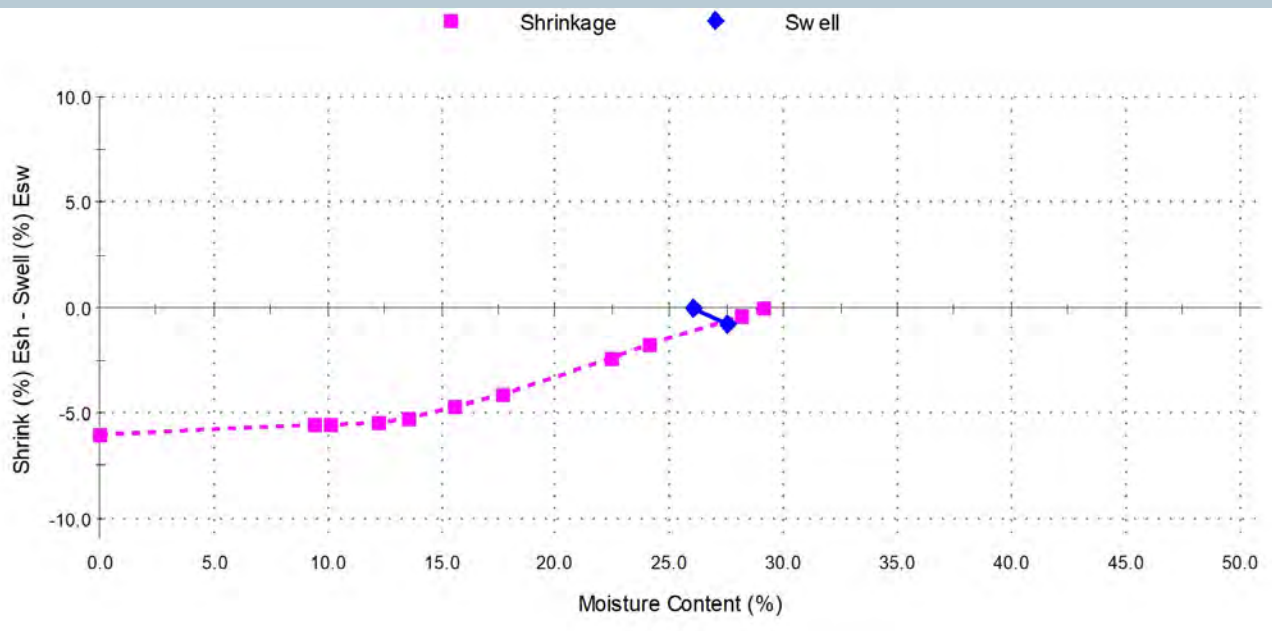
Swell Test — AS 1289.7.1.1

Swell on Saturation (%):	-0.8
Moisture Content before (%):	26.0
Moisture Content after (%):	27.5
Est. Unc. Comp. Strength before (kPa):	
Est. Unc. Comp. Strength after (kPa):	

Shrink Test — AS 1289.7.1.1

Shrink on drying (%):	6.0
Shrinkage Moisture Content (%):	29.1
Est. inert material (%):	1
Crumbling during shrinkage:	0
Cracking during shrinkage:	0

Shrink Swell



Shrink Swell Index - Iss (%): 3.3

Comments

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Brisbane Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
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Virginia QLD 4014

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Shrink Swell Index Report

Report No: SSI:BRIS21S-05923
Issue No: 1

Client: Coffey Testing Pty Ltd (Sunshine Coast)
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Principal:
Project No.: TESTBRIS00068AA
Project Name: QINT-SCOA - Sunshine Coast Laboratory
Lot No.: - **TRN:** -

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Joseph Langley
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 9/11/2021

Sample Details

Sample ID:	BRIS21S-05923	**Sampling Method:**	Submitted by client*
Date Sampled:	18/10/2021	**Material:**	
Date Submitted:	27/10/2021	**Source:**	In situ
Date Tested:	2/11/2021		
Project Location:	Mount Cotton, QLD		
Sample Location:	Heinemann Road, P-TP12, 0.75-1.15m		
Borehole Number:			
Borehole Depth (m):			

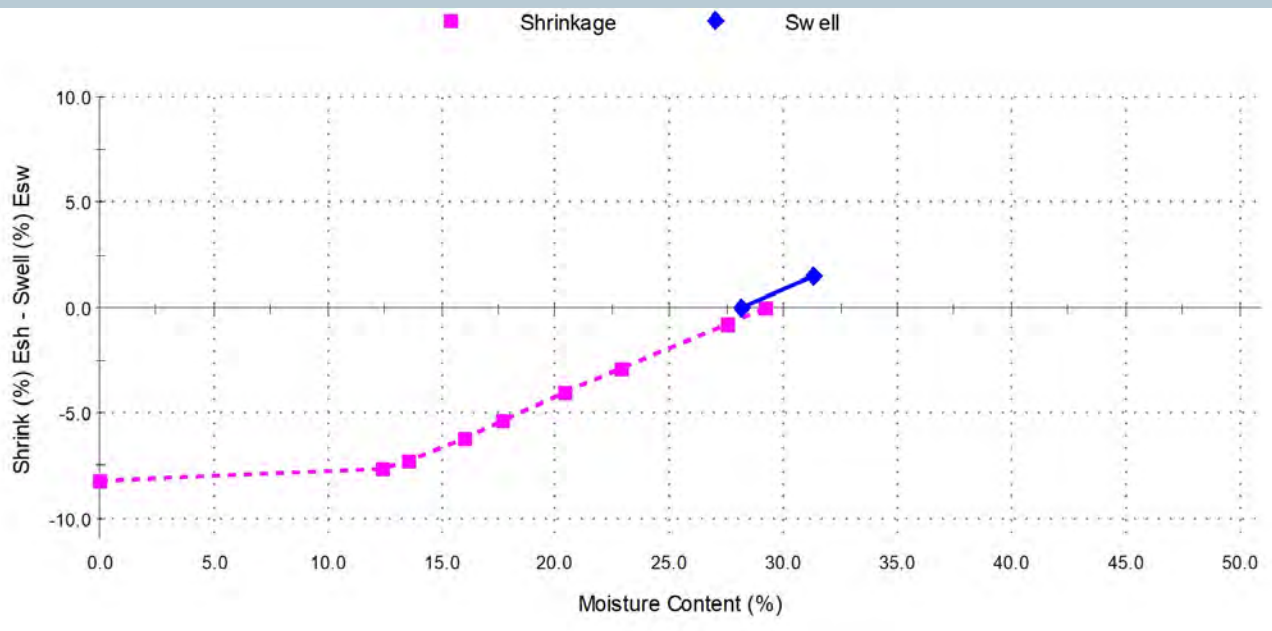
Swell Test — AS 1289.7.1.1

Swell on Saturation (%):	1.5
Moisture Content before (%):	28.1
Moisture Content after (%):	31.3
Est. Unc. Comp. Strength before (kPa):	
Est. Unc. Comp. Strength after (kPa):	

Shrink Test — AS 1289.7.1.1

Shrink on drying (%):	8.2
Shrinkage Moisture Content (%):	29.2
Est. inert material (%):	0
Crumbling during shrinkage:	0
Cracking during shrinkage:	0

Shrink Swell



Shrink Swell Index - Iss (%): 5.0

Comments

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Brisbane Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
86A Yarraman Place
Virginia QLD 4014

Phone: +61 7 3569 8920

Shrink Swell Index Report

Report No: SSI:BRIS21S-05923
Issue No: 1

Client: Coffey Testing Pty Ltd (Sunshine Coast)
Unit 1, 50 Hoopers Road
Kunda Park QLD 4556

Principal:
Project No.: TESTBRIS00068AA
Project Name: QINT-SCOA - Sunshine Coast Laboratory
Lot No.: - **TRN:** -

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Joseph Langley
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 9/11/2021

Sample Details

Sample ID:	BRIS21S-05923	**Sampling Method:**	Submitted by client*
Date Sampled:	18/10/2021	**Material:**	
Date Submitted:	27/10/2021	**Source:**	In situ
Date Tested:	2/11/2021		
Project Location:	Mount Cotton, QLD		
Sample Location:	Heinemann Road, P-TP12, 0.75-1.15m		
Borehole Number:			
Borehole Depth (m):			

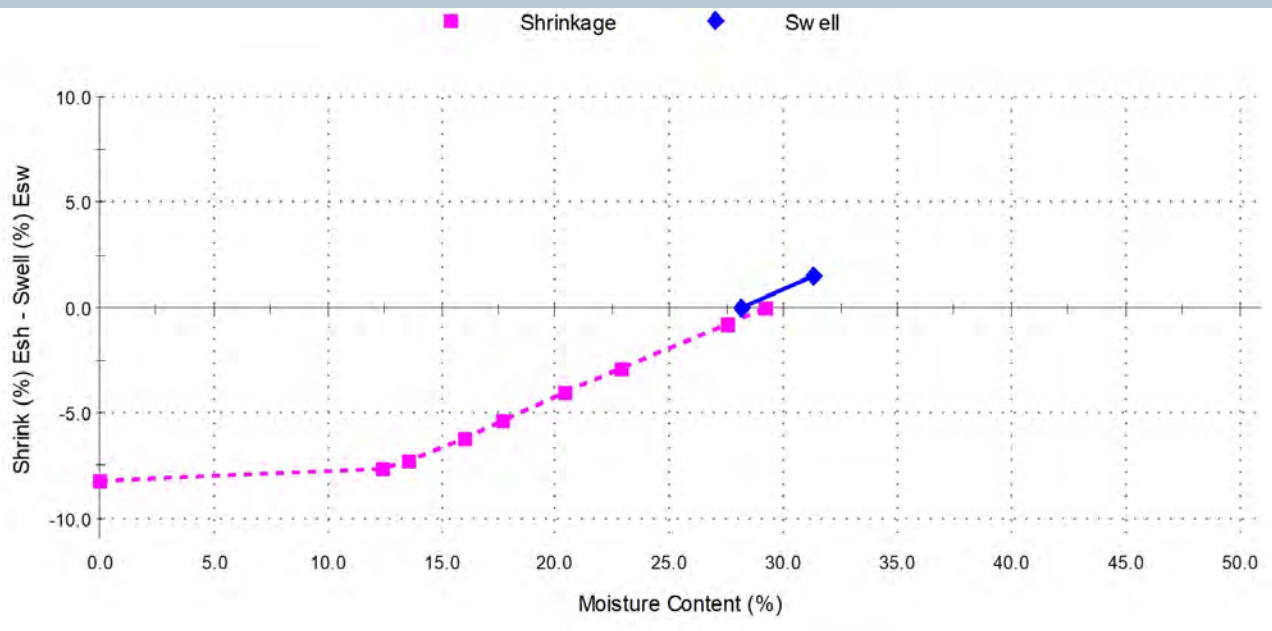
Swell Test — AS 1289.7.1.1

Swell on Saturation (%):	1.5
Moisture Content before (%):	28.1
Moisture Content after (%):	31.3
Est. Unc. Comp. Strength before (kPa):	
Est. Unc. Comp. Strength after (kPa):	

Shrink Test — AS 1289.7.1.1

Shrink on drying (%):	8.2
Shrinkage Moisture Content (%):	29.2
Est. inert material (%):	0
Crumbling during shrinkage:	0
Cracking during shrinkage:	0

Shrink Swell



Shrink Swell Index - Iss (%): 5.0

Comments

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Brisbane Laboratory

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Report No: SSI:BRIS21S-05924
Issue No: 1

Shrink Swell Index Report

Client:	Coffey Testing Pty Ltd (Sunshine Coast) Unit 1, 50 Hoopers Road Kunda Park QLD 4556
Principal:	
Project No.:	TESTBRIS00068AA
Project Name:	QINT-SCOA - Sunshine Coast Laboratory
Lot No.:	- **TRN:** -

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Joseph Langley
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 18/11/2021

Sample Details

Sample ID:	BRIS21S-05924	**Sampling Method:**	Submitted by client*
Date Sampled:	21/10/2021	**Material:**	
Date Submitted:	27/10/2021	**Source:**	In situ
Date Tested:	8/11/2021		
Project Location:	Mount Cotton, QLD		
Sample Location:	Heinemann Road, C-TP28, 0.25-0.75m		
Borehole Number:			
Borehole Depth (m):			

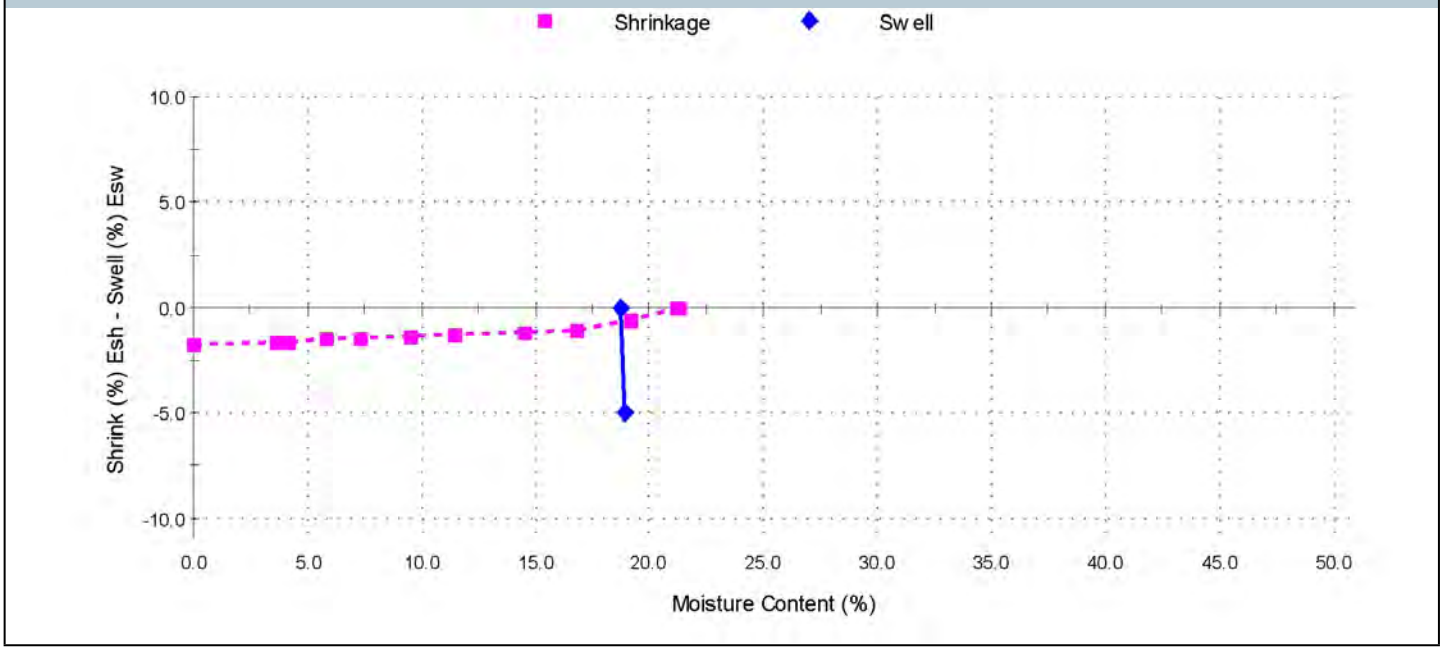
Swell Test — AS 1289.7.1.1

Swell on Saturation (%):	-4.9
Moisture Content before (%):	18.7
Moisture Content after (%):	18.9
Est. Unc. Comp. Strength before (kPa):	
Est. Unc. Comp. Strength after (kPa):	

Shrink Test — AS 1289.7.1.1

Shrink on drying (%):	1.7
Shrinkage Moisture Content (%):	21.2
Est. inert material (%):	0
Crumbling during shrinkage:	0
Cracking during shrinkage:	0

Shrink Swell



Shrink Swell Index - Iss (%): 0.9

Comments

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Brisbane Laboratory

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Report No: SSI:BRIS21S-05925
Issue No: 1

Shrink Swell Index Report

Client:	Coffey Testing Pty Ltd (Sunshine Coast) Unit 1, 50 Hoopers Road Kunda Park QLD 4556
Principal:	
Project No.:	TESTBRIS00068AA
Project Name:	QINT-SCOA - Sunshine Coast Laboratory
Lot No.:	- **TRN:** -

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Joseph Langley
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	BRIS21S-05925	**Sampling Method:**	Submitted by client*
Date Sampled:	20/10/2021	**Material:**	
Date Submitted:	27/10/2021	**Source:**	In situ
Date Tested:	8/11/2021		
Project Location:	Mount Cotton, QLD		
Sample Location:	Heinemann Road, C-TP38, 0.6-1.0m		
Borehole Number:			
Borehole Depth (m):			

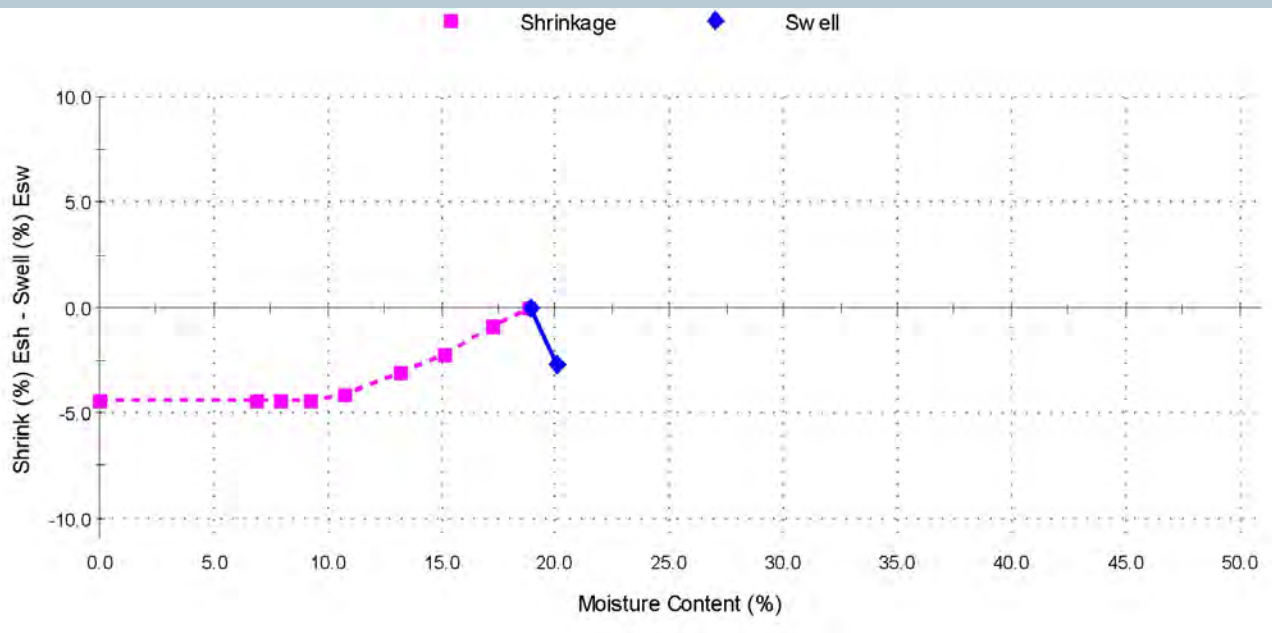
Swell Test — AS 1289.7.1.1

Swell on Saturation (%):	-2.7
Moisture Content before (%):	18.9
Moisture Content after (%):	20.1
Est. Unc. Comp. Strength before (kPa):	
Est. Unc. Comp. Strength after (kPa):	

Shrink Test — AS 1289.7.1.1

Shrink on drying (%):	4.4
Shrinkage Moisture Content (%):	18.8
Est. inert material (%):	5
Crumbling during shrinkage:	0
Cracking during shrinkage:	Light

Shrink Swell



Shrink Swell Index - Iss (%): 2.4

Comments

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Brisbane Laboratory

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Phone: +61 7 3569 8920

Report No: SSI:BRIS21S-05926
Issue No: 1

Shrink Swell Index Report

Client:	Coffey Testing Pty Ltd (Sunshine Coast) Unit 1, 50 Hoopers Road Kunda Park QLD 4556
Principal:	
Project No.:	TESTBRIS00068AA
Project Name:	QINT-SCOA - Sunshine Coast Laboratory
Lot No.:	- **TRN:** -

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Joseph Langley
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 17/11/2021

Sample Details

Sample ID:	BRIS21S-05926	**Sampling Method:**	Submitted by client*
Date Sampled:	21/10/2021	**Material:**	
Date Submitted:	27/10/2021	**Source:**	In situ
Date Tested:	8/11/2021		
Project Location:	Mount Cotton, QLD		
Sample Location:	Heinemann Road, P-TP42, 0.3-0.8m		
Borehole Number:			
Borehole Depth (m):			

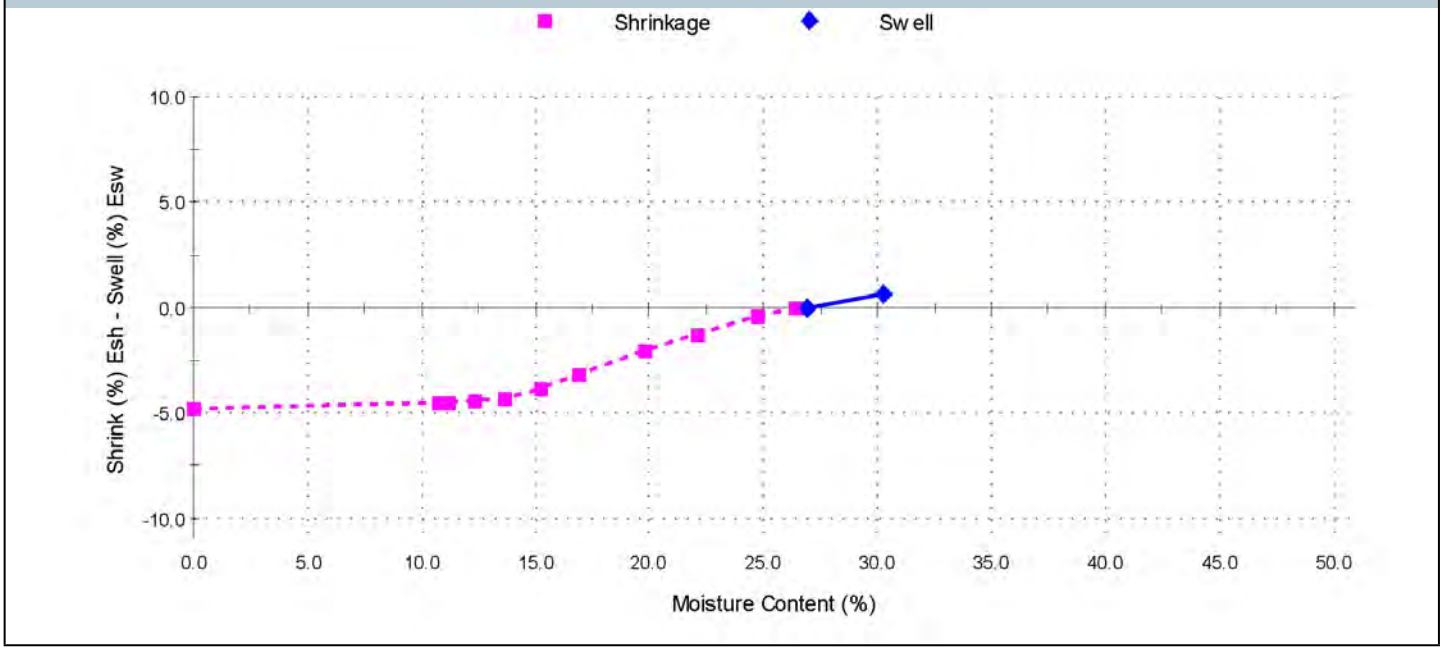
Swell Test — AS 1289.7.1.1

Swell on Saturation (%):	0.6
Moisture Content before (%):	26.9
Moisture Content after (%):	30.3
Est. Unc. Comp. Strength before (kPa):	
Est. Unc. Comp. Strength after (kPa):	

Shrink Test — AS 1289.7.1.1

Shrink on drying (%):	4.8
Shrinkage Moisture Content (%):	26.4
Est. inert material (%):	2
Crumbling during shrinkage:	0
Cracking during shrinkage:	0

Shrink Swell



Shrink Swell Index - Iss (%): 2.8

Comments

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Phone: +61 7 3569 8920

Report No: SSI:BRIS21S-05927
Issue No: 1

Shrink Swell Index Report

Client:	Coffey Testing Pty Ltd (Sunshine Coast) Unit 1, 50 Hoopers Road Kunda Park QLD 4556
Principal:	
Project No.:	TESTBRIS00068AA
Project Name:	QINT-SCOA - Sunshine Coast Laboratory
Lot No.:	- **TRN:** -

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Approved Signatory: Joseph Langley
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 18/11/2021

Sample Details

Sample ID:	BRIS21S-05927	**Sampling Method:**	Submitted by client*
Date Sampled:	21/10/2021	**Material:**	
Date Submitted:	27/10/2021	**Source:**	In situ
Date Tested:	8/11/2021		
Project Location:	Mount Cotton, QLD		
Sample Location:	Heinemann Road, F-TP46, 0.3-0.8m		
Borehole Number:			
Borehole Depth (m):			

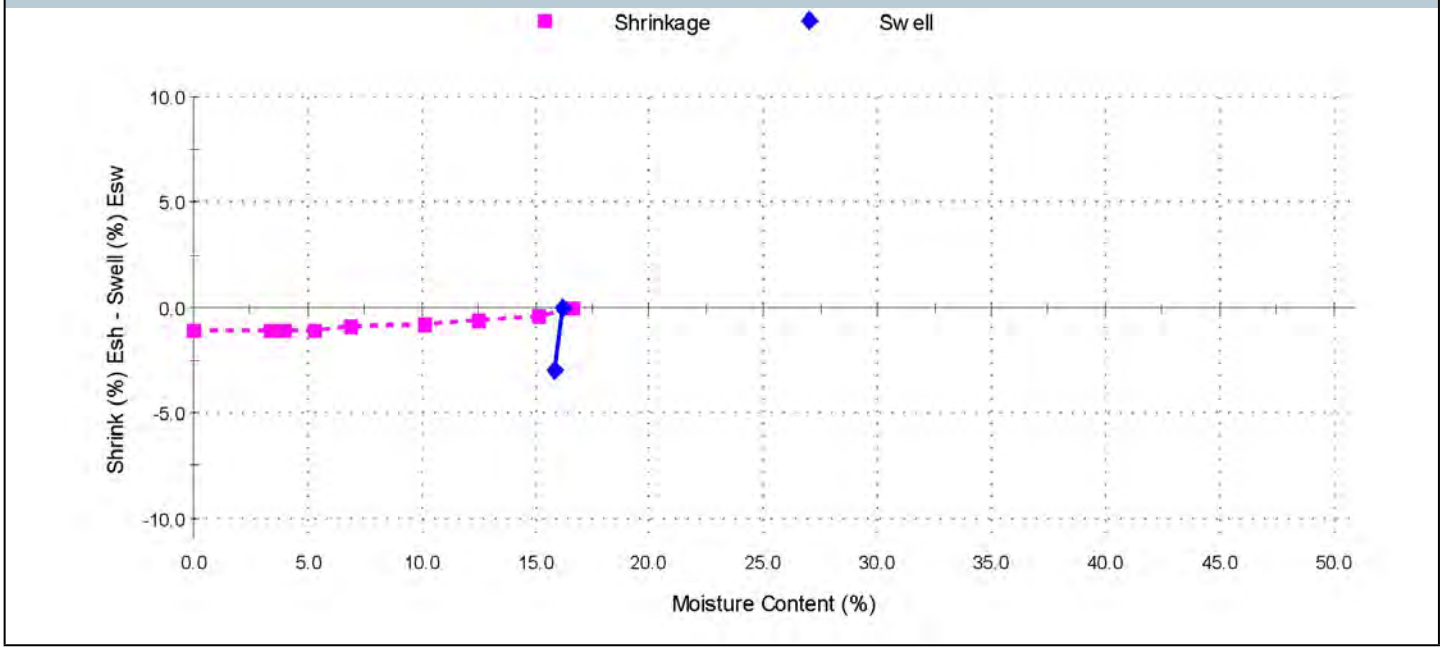
Swell Test — AS 1289.7.1.1

Swell on Saturation (%):	-3.0
Moisture Content before (%):	16.2
Moisture Content after (%):	15.8
Est. Unc. Comp. Strength before (kPa):	
Est. Unc. Comp. Strength after (kPa):	

Shrink Test — AS 1289.7.1.1

Shrink on drying (%):	1.1
Shrinkage Moisture Content (%):	16.6
Est. inert material (%):	1
Crumbling during shrinkage:	0
Cracking during shrinkage:	0

Shrink Swell



Shrink Swell Index - Iss (%): 0.6

Comments

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QLD 4556

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Simon Maggiora**

Report **835745-S-V2**
Project name SPORTS PRECINCT REDLAND COAST
Project ID J001424
Received Date Oct 27, 2021

Client Sample ID			**F-TP4 DS(0.3-0.6M)**	**P-TP12 BDS(0.2-0.6M)**	**C-TP13 DS(0.8-1.0M)**	**C-TP16 DS(1.5-2M)**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**B21-Oc58573**	**B21-Oc58574**	**B21-Oc58575**	**B21-Oc58576**
Date Sampled			**Oct 18, 2021**	**Oct 18, 2021**	**Oct 18, 2021**	**Oct 18, 2021**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	250	26	290	250
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	23	39	53	23
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.5	7.0	6.0	6.9
Resistivity*	0.5	ohm.m	440	260	190	430
Sulphate (as SO4)	30	mg/kg	< 30	41	180	49
% Moisture	1	%	26	24	28	16

Client Sample ID			**C-TP28 BDS(0.4-0.8M)**	**C-TP28 DS(2-3M)**	**C-TP37 DS(0.4-0.9M)**	**C-TP37 DS(0.9-1.5M)**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**B21-Oc58577**	**B21-Oc58578**	**B21-Oc58579**	**B21-Oc58580**
Date Sampled			**Oct 18, 2021**	**Oct 18, 2021**	**Oct 18, 2021**	**Oct 18, 2021**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	150	75	320	600
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	56	32	150	360
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.8	6.3	7.7	4.8
Resistivity*	0.5	ohm.m	180	310	66	28
Sulphate (as SO4)	30	mg/kg	48	36	< 30	68
% Moisture	1	%	16	8.1	15	20

Client Sample ID			**P-TP42 BDS(0.2-0.6M)**	**C-TP43 BDS(0.6-1M)**	**C-TP43 DS(1.8-2.5M)**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**B21-Oc58581**	**B21-Oc58582**	**B21-Oc58583**
Date Sampled			**Oct 18, 2021**	**Oct 18, 2021**	**Oct 18, 2021**
Test/Reference	LOR	Unit			
Chloride	5	mg/kg	280	260	62
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	34	93	110
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.5	6.4	7.5
Resistivity*	0.5	ohm.m	290	110	93
Sulphate (as SO4)	30	mg/kg	51	51	50
% Moisture	1	%	20	21	17

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Chloride	Melbourne	Nov 03, 2021	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Nov 03, 2021	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (1:5 Aqueous extract at 25°C as rec.)	Melbourne	Nov 03, 2021	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Sulphate (as SO4)	Melbourne	Nov 03, 2021	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
% Moisture	Melbourne	Oct 27, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
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NATA # 1261 Site # 20794

Newcastle
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Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
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Company Name: Core Consultants Pty Ltd
Address: Unit 1 / 2 Neumann Court
Kunda Park
QLD 4556

Project Name: SPORTS PRECINCT REDLAND COAST
Project ID: J001424

Order No.:
Report #: 835745
Phone: 07 5475 5900
Fax:

Received: Oct 27, 2021 10:15 AM
Due: Nov 4, 2021
Priority: 5 Day
Contact Name: Simon Maggiora

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Aggressivity Soil Set	Moisture Set
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
Sydney Laboratory - NATA # 1261 Site # 18217							
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	F-TP4 DS(0.3-0.6M)	Oct 18, 2021		Soil	B21-Oc58573	X	X
2	P-TP12 BDS(0.2-0.6M)	Oct 18, 2021		Soil	B21-Oc58574	X	X
3	C-TP13 DS(0.8-1.0M)	Oct 18, 2021		Soil	B21-Oc58575	X	X
4	C-TP16 DS(1.5-2M)	Oct 18, 2021		Soil	B21-Oc58576	X	X
5	C-TP28 BDS(0.4-0.8M)	Oct 18, 2021		Soil	B21-Oc58577	X	X
6	C-TP28 DS(2-	Oct 18, 2021		Soil	B21-Oc58578	X	X

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Phone : 0800 856 450
IANZ # 1290

Company Name: Core Consultants Pty Ltd
Address: Unit 1 / 2 Neumann Court
Kunda Park
QLD 4556

Project Name: SPORTS PRECINCT REDLAND COAST
Project ID: J001424

Order No.:
Report #: 835745
Phone: 07 5475 5900
Fax:

Received: Oct 27, 2021 10:15 AM
Due: Nov 4, 2021
Priority: 5 Day
Contact Name: Simon Maggiora

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Aggressivity Soil Set	Moisture Set
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
Sydney Laboratory - NATA # 1261 Site # 18217							
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
	3M)						
7	C-TP37 DS(0.4-0.9M)	Oct 18, 2021		Soil	B21-Oc58579	X	X
8	C-TP37 DS(0.9-1.5M)	Oct 18, 2021		Soil	B21-Oc58580	X	X
9	C-TP42 BDS(0.2-0.6M)	Oct 18, 2021		Soil	B21-Oc58581	X	X
10	C-TP43 BDS(0.6-1M)	Oct 18, 2021		Soil	B21-Oc58582	X	X
11	C-TP43 DS(1.8-2.5M)	Oct 18, 2021		Soil	B21-Oc58583	X	X
Test Counts						11	11

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Conductivity (1:5 aqueous extract at 25°C as rec.)			uS/cm	< 10			10	Pass	
Sulphate (as SO4)			mg/kg	< 30			30	Pass	
LCS - % Recovery									
Chloride			%	88			70-130	Pass	
Sulphate (as SO4)			%	88			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Chloride	B21-Oc57622	NCP	mg/kg	280	380	31	30%	Fail	Q15
Conductivity (1:5 aqueous extract at 25°C as rec.)	B21-Oc58573	CP	uS/cm	23	23	<1	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	B21-Oc58573	CP	pH Units	7.5	7.5	pass	30%	Pass	
Resistivity*	B21-Oc58573	CP	ohm.m	440	440	<1	30%	Pass	
Sulphate (as SO4)	B21-Oc57622	NCP	mg/kg	86	100	18	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	B21-Oc58579	CP	%	15	16	4.0	30%	Pass	

Comments

V2 issued to change sample C-TP42 to P-TP42

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Peter Brand	Analytical Services Manager
Scott Beddoes	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

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Company Name: Core Consultants Pty Ltd
Address: Unit 1 / 2 Neumann Court
Kunda Park
QLD 4556

Project Name: SPORTS PRECINCT REDLAND COAST
Project ID: J001424

Order No.:
Report #: 835745
Phone: 07 5475 5900
Fax:

Received: Oct 27, 2021 10:15 AM
Due: Nov 4, 2021
Priority: 5 Day
Contact Name: Simon Maggiora

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Aggressivity Soil Set	Moisture Set
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
Sydney Laboratory - NATA # 1261 Site # 18217							
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	F-TP4 DS(0.3-0.6M)	Oct 18, 2021		Soil	B21-Oc58573	X	X
2	P-TP12 BDS(0.2-0.6M)	Oct 18, 2021		Soil	B21-Oc58574	X	X
3	C-TP13 DS(0.8-1.0M)	Oct 18, 2021		Soil	B21-Oc58575	X	X
4	C-TP16 DS(1.5-2M)	Oct 18, 2021		Soil	B21-Oc58576	X	X
5	C-TP28 BDS(0.4-0.8M)	Oct 18, 2021		Soil	B21-Oc58577	X	X
6	C-TP28 DS(2-	Oct 18, 2021		Soil	B21-Oc58578	X	X

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Company Name: Core Consultants Pty Ltd
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Kunda Park
QLD 4556

Project Name: SPORTS PRECINCT REDLAND COAST
Project ID: J001424

Order No.:
Report #: 835745
Phone: 07 5475 5900
Fax:

Received: Oct 27, 2021 10:15 AM
Due: Nov 4, 2021
Priority: 5 Day
Contact Name: Simon Maggiora

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Aggressivity Soil Set	Moisture Set
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
Sydney Laboratory - NATA # 1261 Site # 18217							
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
	3M)						
7	C-TP37 DS(0.4-0.9M)	Oct 18, 2021		Soil	B21-Oc58579	X	X
8	C-TP37 DS(0.9-1.5M)	Oct 18, 2021		Soil	B21-Oc58580	X	X
9	C-TP42 BDS(0.2-0.6M)	Oct 18, 2021		Soil	B21-Oc58581	X	X
10	C-TP43 BDS(0.6-1M)	Oct 18, 2021		Soil	B21-Oc58582	X	X
11	C-TP43 DS(1.8-2.5M)	Oct 18, 2021		Soil	B21-Oc58583	X	X
Test Counts						11	11

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Sample Receipt Advice

Company name:	Core Consultants Pty Ltd
Contact name:	Simon Maggiora
Project name:	SPORTS PRECINCT REDLAND COAST
Project ID:	J001424
Turnaround time:	5 Day
Date/Time received	Oct 27, 2021 10:15 AM
Eurofins reference	835745

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Sample not received: C-TP46 DS(0.3-0.5M)

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Alana Wadsworth on phone : or by email: alanawadsworth@eurofins.com

Results will be delivered electronically via email to Simon Maggiora - smaggiora@coreconsultants.com.au.

Note: A copy of these results will also be delivered to the general Core Consultants Pty Ltd email address.

Core Consultants Pty Ltd
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QLD 4556

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Simon Maggiora**

Report **837100-S**
Project name SPORTS PRECINCT REDLAND COAST
Project ID J001424
Received Date Oct 28, 2021

Client Sample ID			**F-TP46**
Sample Matrix			**Soil**
Eurofins Sample No.			**B21-No03607**
Date Sampled			**Oct 18, 2021**
Test/Reference	LOR	Unit	
Chloride	5	mg/kg	34
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	28
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.0
Resistivity*	0.5	ohm.m	350
Sulphate (as SO4)	30	mg/kg	63
% Moisture	1	%	15

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Chloride	Melbourne	Nov 05, 2021	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Nov 05, 2021	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (1:5 Aqueous extract at 25°C as rec.)	Melbourne	Nov 05, 2021	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Sulphate (as SO4)	Melbourne	Nov 05, 2021	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
% Moisture	Melbourne	Nov 02, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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Company Name: Core Consultants Pty Ltd
Address: Unit 1 / 2 Neumann Court
Kunda Park
QLD 4556

Project Name: SPORTS PRECINCT REDLAND COAST
Project ID: J001424

Order No.:
Report #: 837100
Phone: 07 5475 5900
Fax:

Received: Oct 28, 2021 4:30 PM
Due: Nov 5, 2021
Priority: 5 Day
Contact Name: Simon Maggiora

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Aggressivity Soil Set	Moisture Set
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
Sydney Laboratory - NATA # 1261 Site # 18217							
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	F-TP46	Oct 18, 2021		Soil	B21-No03607	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery									
Chloride			%	116			70-130	Pass	
Sulphate (as SO4)			%	115			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	B21-No03607	CP	uS/cm	28	28	<1	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	B21-No03607	CP	pH Units	6.0	6.1	pass	30%	Pass	
Resistivity*	B21-No03607	CP	ohm.m	350	350	<1	30%	Pass	
% Moisture	M21-No03149	NCP	%	16	16	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Alana Wadsworth	Analytical Services Manager
Scott Beddoes	Senior Analyst-Inorganic (VIC)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Company Name: Core Consultants Pty Ltd
Address: Unit 1 / 2 Neumann Court
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Project Name: SPORTS PRECINCT REDLAND COAST
Project ID: J001424

Order No.:
Report #: 837100
Phone: 07 5475 5900
Fax:

Received: Oct 28, 2021 4:30 PM
Due: Nov 5, 2021
Priority: 5 Day
Contact Name: Simon Maggiora

Eurofins Analytical Services Manager : Alana Wadsworth

Sample Detail						Aggressivity Soil Set	Moisture Set
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Sydney Laboratory - NATA # 1261 Site # 18217							
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	F-TP46	Oct 18, 2021		Soil	B21-No03607	X	X
Test Counts						1	1

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Sample Receipt Advice

Company name:	Core Consultants Pty Ltd
Contact name:	Simon Maggiora
Project name:	SPORTS PRECINCT REDLAND COAST
Project ID:	J001424
Turnaround time:	5 Day
Date/Time received	Oct 28, 2021 4:30 PM
Eurofins reference	837100

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Alana Wadsworth on phone : or by email: alanawadsworth@eurofins.com

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Note: A copy of these results will also be delivered to the general Core Consultants Pty Ltd email address.

Appendix D
Reports of Boreholes & Explanatory Notes - Heinemann Road

REPORT OF BOREHOLE: BH1

core consultants pty ltd

Client	Bligh Tanner	East	525761.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946829.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	09/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.05					ASPHALT.			
								GP	FILL Sandy GRAVEL (BASE LAYER) trace silt: fine to coarse grained, well graded, sub-angular, pale red brown; sand fine to coarse grained, sub-angular.	D	VD	
			0.2	0.20	DS 0.20-0.30 m			SM	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to medium grained, poorly graded, pale brown; gravel fine to medium grained, sub-angular.			
				0.30	BDS 0.30-0.80 m			CI-CH	Sandy CLAY (RESIDUAL SOIL) with gravel: medium to high plasticity, orange brown to brown; sand fine to coarse grained, poorly graded; gravel fine to coarse grained, poorly graded.		St / VSt	Augered to this depth before commencing test
	L		0.4									
			0.6									
			0.8	0.80					Trace gravel: gravel fine to coarse grained, sub-angular, iron stained.	w < PL		
	M-H		1.0								VSt	
			1.2	1.20					Becoming red brown with pale grey; zones of weathered rock encountered within soil matrix.			
			1.4								H	
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:20 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH2

core consultants pty ltd

Client	Bligh Tanner	East	525746.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946718.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	09/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.05	DS 0.05-0.20 m				BITUMEN.	D	VD	0 5 10 15 20 25
			0.2	0.20	DS 0.20-0.30 m			GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained, sub-angular; with fines.			
				0.30	BDS 0.30-0.80 m			SW	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular.			Augered to this depth before commencing test
	L		0.4					Cl	Sandy CLAY (RESIDUAL SOIL) trace gravel: medium plasticity, red brown; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded.	w < PL	St	
			0.6								VSt	
			0.8									
			1.0	1.00					Tending to clayey sand.		H	
				1.10				SM	Silty SAND (EXTREMELY WEATHERD MATERIAL) trace clay: fine grained, poorly graded, red brown.			
	M-H		1.4	1.50						D	VD	
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:20 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH3

core consultants pty ltd

Client	Bligh Tanner	East	525727.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946620.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	09/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.04					BITUMEN.			
					DS 0.05-0.20 m			GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; trace fines.			
			0.2	0.20	DS 0.20-0.30 m			GP	FILL Sandy GRAVEL (SUBBASE LAYER): fine to medium grained, poorly graded, sub-angular, pale brown; sand fine to coarse grained; with fines.	D	VD	
				0.33				SM	Silty SAND (RESIDUAL SOIL) trace gravel: fine to coarse grained, poorly graded, pale brown; silt low plasticity; gravel fine to coarse grained, poorly graded.			Augered to this depth before commencing test
			0.4		BDS 0.40-0.80 m							
	L		0.6							D / M	MD	
			0.8									
			1.0									
			1.2	1.20				Cl	Sandy CLAY (RESIDUAL SOIL) trace gravel: medium plasticity, orange brown; sand fine to medium grained; gravel medium to coarse grained, sub-angular.	w < PL	St	
			1.4	1.40					Becoming red brown and orange brown.			
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:20 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH4

core consultants pty ltd

Client	Bligh Tanner	East	525712.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946529.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	09/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.09					BITUMEN.			0 5 10 15 20 25
				0.20				GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
			0.2		DS 0.20-0.30 m			GM	FILL Silty Sandy GRAVEL (SUBBASE LAYER): fine to medium grained, poorly graded, sub-angular, pale brown; sand fine to coarse grained.	D	VD	
				0.40								Augered to this depth before commencing test
	L		0.4		BDS 0.40-0.90 m			Cl	Sandy CLAY (RESIDUAL SOIL) trace gravel: medium plasticity, red brown; sand fine to coarse grained, poorly graded; gravel fine to coarse grained, poorly graded; zones of weathered rock encountered within soil matrix, medium strength, iron stained.	w < PL	St	
			0.6									
			0.8									
			1.0	1.00				Cl	CLAY (RESIDUAL SOIL): medium plasticity, pale grey; zones of weathered rock encountered within soil matrix, medium strength, iron stained.	w ≈ PL		
	M		1.2									
			1.4								St / VSt	
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

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REPORT OF BOREHOLE: BH5

core consultants pty ltd

Client	Bligh Tanner	East	525697.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946422.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	09/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.03	DS 0.05-0.15 m				BITUMEN.			
								GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained, sub-angular; with fines.			
				0.15				SW	FILL Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular; with fines.	D	VD	
			0.2	0.35				CL	FILL Gravelly CLAY with sand: low plasticity, pale brown; gravel fine to coarse grained, poorly graded; sand fine to coarse grained, poorly graded; cobbles encountered.			Augered to this depth before commencing test
	L		0.4		BDS 0.40-1.00 m							
			0.6									
			0.8							w ≈ PL	St / VSt	
			1.0									
			1.2									
			1.4	1.50								
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF BOREHOLE: BH6

core consultants pty ltd

Client	Bligh Tanner	East	525677.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946310.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	09/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.05	DS 0.05-0.14 m				BITUMEN.			
								GP	FILL Sandy GRAVEL (BASE LAYER): fine to medium grained, poorly graded, sub-angular, dark grey; sand fine to coarse grained; trace fines.			
				0.15				GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; trace fines.			
			0.2	0.20				SW	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular.	D	VD	
			0.4	0.45								Augered to this depth before commencing test
	L				BDS 0.50-1.00 m			CL	FILL CLAY with sand with gravel: low plasticity, pale red brown; sand fine to coarse grained, poorly graded; gravel fine to coarse grained, well graded.	w < PL	St / VSt	
			0.6									
			0.8									
			1.0								VSt	
			1.2	1.20				GP	FILL GRAVEL with sand: fine grained, poorly graded, angular, dark brown; sand fine to medium grained; geofabric encountered, possible bedding material.	D	D	
			1.4	1.40					Hole Terminated at 1.40 m Terminated due to possible service trench Backfilled			
			1.6									
			1.8									
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF BOREHOLE: BH7

core consultants pty ltd

Client	Bligh Tanner	East	5255665.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946231.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	09/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.04					BITUMEN.			
				0.10				GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
					DS 0.10-0.20 m			SP	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular.	D	VD	Augered to this depth before commencing test
			0.2	0.30	BDS 0.30-0.70 m			CL	Sandy CLAY (RESIDUAL SOIL) trace gravel: low plasticity, orange brown; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded.		VSt	
	L		0.4							M	St	
			0.6									
			0.8									
			1.0	1.00	DS 1.00-1.50 m			CI	Sandy CLAY (RESIDUAL SOIL): medium plasticity, orange brown; sand fine to medium grained.	w < PL		
			1.2									
			1.4	1.50							VSt	
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

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CORE 2.01.1 LIB.GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH8

core consultants pty ltd

Client	Bligh Tanner	East	525647.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946123.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	09/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 100 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.03					BITUMEN.			
				0.10				GW	FILL GRAVEL (BASE LAYER) with sand: fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
			0.2		DS 0.10-0.20 m			SM	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to coarse grained, sub-angular.	D	VD	
				0.35				CI	Gravelly CLAY (RESIDUAL SOIL) with sand: medium plasticity, pale red brown; gravel fine to coarse grained, poorly graded; sand fine to coarse grained, well graded; zones of weathered rock encountered within soil matrix.			Augered to this depth before commencing test
	L		0.4		BDS 0.40-1.00 m							
			0.6							w < PL	St	
			0.8									
			1.0	1.00	1.00 m P.P. = 100 kPa			CH	CLAY (RESIDUAL SOIL): high plasticity, pale grey.			
			1.2							w ≈ PL	F / St	
			1.4		1.40 m P.P. = 150 kPa						St	
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF BOREHOLE: BH9

core consultants pty ltd

Client	Bligh Tanner	East	525633.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6946027.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	10/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.03	DS 0.05-0.15 m			GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
				0.15	DS 0.15-0.30 m			SM	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular.	D	VD	
			0.2	0.33	BDS 0.35-0.80 m			Cl	Sandy CLAY (RESIDUAL SOIL) with gravel: medium plasticity, brown with mottled orange brown and red brown; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded; roots encountered, cobbles encountered.			Augered to this depth before commencing test
	L		0.4								St / VSt	
			0.6									
			0.8	0.80				Cl	CLAY (RESIDUAL SOIL) with sand: medium plasticity, grey; sand fine to coarse grained.	w < PL		
			1.0	1.10				Cl	Silty Sandy CLAY (EXTREMELY WEATHERED MATERIAL): medium plasticity, pale grey and red brown; sand fine to medium grained.		VSt	
	L-M		1.2	1.30					Becoming red brown.			
			1.4	1.50							VSt / H	
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH10

core consultants pty ltd

Client	Bligh Tanner	East	525611.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945922.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	08/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.05					BITUMEN.			0 5 10 15 20 25
				0.10				SW	FILL Gravelly SAND (BASE LAYER): fine to coarse grained, well graded, sub-angular, black; gravel fine to medium grained, sub-angular.			
								GP	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained.			
			0.2	0.20	DS 0.20-0.40 m			SW	FILL Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular; with fines.	D	VD	Augered to this depth before commencing test
			0.4	0.40	BDS 0.40-1.00 m			CL	Sandy CLAY (RESIDUAL SOIL) with gravel: low plasticity, red brown and pale grey; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded.			
	L-M		0.6	0.70					Sandstone cobbles encountered.	w < PL	St	
			0.8									
			1.0	1.10					Trace sand: becoming grey with mottled red brown and orange brown; sand fine to medium grained.	w ≈ PL		
			1.2									
			1.4	1.50								
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH11

core consultants pty ltd

Client	Bligh Tanner	East	525595.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945808.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	08/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02	DS 0.05-0.20 m			SW	BITUMEN. FILL Gravelly SAND (BASE LAYER) with silt: fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to coarse grained, sub-angular.	D	VD	Augered to this depth before commencing test
			0.2	0.30	BDS 0.30-0.50 m			SP	FILL SAND (SUBBASE LAYER) trace silt: fine to medium grained, poorly graded, pale grey brown.			Augered to this depth before re-commencing test
	L		0.4	0.50	BDS 0.50-1.10 m			CH	CLAY (RESIDUAL SOIL): high plasticity, brown.	w < PL	St	
			0.6									
			0.8									
			1.0									
			1.2	1.20				CH	CLAY (RESIDUAL SOIL): high plasticity, pale grey with mottled red brown.	w ≈ PL		
			1.4	1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH12

core consultants pty ltd

Client	Bligh Tanner	East	5255801.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945731.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	08/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02	DS 0.05-0.20 m			GW	BITUMEN.	D	VD	0 5 10 15 20 25
									FILL GRAVEL (BASE LAYER) with sand: fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
			0.2	0.25	DS 0.25-0.35 m			SM	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, brown; gravel fine to medium grained, sub-angular.			
	L-M			0.35	DS 0.35-0.40 m			CL-CI	FILL Silty CLAY with gravel: low to medium plasticity, brown; gravel fine to medium grained, sub-angular.			Augered to this depth before commencing test
			0.4	0.40	BDS 0.40-1.00 m			CH	CLAY (RESIDUAL SOIL) with sand trace gravel: high plasticity, brown; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded.	w < PL		
	L		0.6									
			0.8								VSt	
			1.0	1.00				CH	CLAY (RESIDUAL SOIL): high plasticity, grey with mottled red brown.	w ≈ PL		
			1.2									
			1.4	1.50								
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH13

core consultants pty ltd

Client	Bligh Tanner	East	525566.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945630.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	10/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
												0 5 10 15 20 25
			0.0	0.02					BITUMEN.			
					DS 0.05-0.15 m			GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
				0.15								
	M		0.2		DS 0.15-0.30 m			SM	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular.	D	VD	
				0.38								Augered to this depth before commencing test
			0.4		BDS 0.40-0.80 m			CH	CLAY (RESIDUAL SOIL) trace sand trace gravel: high plasticity, brown and red brown; sand fine to coarse grained, well graded; gravel fine to coarse grained, poorly graded.		St	
			0.6									
											St	
ADT		Not Encountered	0.8									
	L									w < PL		
			1.0	1.00				CI	CLAY (RESIDUAL SOIL) trace sand: medium plasticity, grey and red brown; sand fine to medium grained.			
			1.2								VSt	
				1.30					Becoming red brown.			
			1.4									
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH14

core consultants pty ltd

Client	Bligh Tanner	East	525549.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945533.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	08/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02	DS 0.05-0.20 m			GW	BITUMEN. FILL GRAVEL (BASE LAYER) with sand: fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
			0.2	0.20	DS 0.20-0.35 m			SM	FILL Silty Gravelly SAND (SUBBASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular.	D	VD	
				0.37								Augered to this depth before commencing test
	L		0.4		BDS 0.40-0.90 m			CI	CLAY (RESIDUAL SOIL) with gravel trace sand: medium plasticity, brown; gravel fine to coarse grained, poorly graded; sand fine to coarse grained, well graded.	w ≈ PL	St	
			0.6									
			0.8									
			1.0	1.00				CH	CLAY (RESIDUAL SOIL): high plasticity, grey with mottled red brown.			
			1.2									
			1.4									
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH15

core consultants pty ltd

Client	Bligh Tanner	East	525549.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945533.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	08/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02	DS 0.05-0.20 m			GW	BITUMEN.	D	VD	
									FILL GRAVEL (BASE LAYER) with sand: fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
			0.2	0.20				SM	FILL Silty SAND (SUBBASE LAYER): fine to medium grained, poorly graded, grey; cement treated, low cement content.		D	Augered to this depth before commencing test
	L			0.30	BDS 0.30-0.90 m			CH	CLAY (RESIDUAL SOIL) trace sand trace gravel: high plasticity, brown and red brown; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded.	w < PL	VSt	
			0.4									
			0.6									
			0.8									
			1.0	1.00	DS 1.00-1.20 m			CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.		St	
			1.2									
				1.30					Becoming pale grey.			
			1.4									
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

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REPORT OF BOREHOLE: BH16

core consultants pty ltd

Client	Bligh Tanner	East	525513.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945331.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	08/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02	DS 0.05-0.20 m			GW	BITUMEN.	D	VD	0 5 10 15 20 25
			0.2	0.25	BDS 0.30-0.80 m			CI	FILL GRAVEL (BASE LAYER) with sand: fine to coarse grained, well graded, sub-angular, pale red brown; sand fine to coarse grained; with fines.			Augered to this depth before commencing test
	L		0.4						CLAY (RESIDUAL SOIL) with sand trace gravel: medium plasticity, grey and pale brown; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded; organics encountered.	w < PL	St	
			0.6									
			0.8									
			1.0	1.00				CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.		VSt	
			1.2								H	
			1.4	1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH17

core consultants pty ltd

Client	Bligh Tanner	East	525499.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945234.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	08/10/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
ADT	M	Not Encountered	0.0	0.02				GW	BITUMEN. FILL GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale red brown; with fines.	D	VD		
			0.2	0.24				CL	FILL CLAY with silt trace gravel: low plasticity, grey; gravel fine to medium grained, sub-angular.		H	Augered to this depth before commencing test	
				0.30	BDS 0.30-0.80 m			CH	CLAY (RESIDUAL SOIL) with gravel trace sand: high plasticity, brown; gravel fine to medium grained, poorly graded; sand fine to coarse grained, well graded.				
			0.4										
			0.6								VSt		
			0.8							w < PL			
	L		1.0	1.00	DS 1.00-1.20 m			CI	CLAY (RESIDUAL SOIL): medium plasticity, grey and red brown.		St / VSt		
			1.2										
				1.30					Trace sand: becoming pale grey; sand medium to coarse grained, sub-angular.		VSt		
			1.4	1.50									
									Hole Terminated at 1.50 m Target depth Backfilled				
			1.6										
			1.8										
			2.0										

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH18

core consultants pty ltd

Client	Bligh Tanner	East	525482.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945137.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	08/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02	DS 0.05-0.20 m			GW	BITUMEN. FILL GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale red brown; with fines.	D	VD	Augered to this depth before commencing test
			0.2	0.30	BDS 0.30-0.80 m			CH	CLAY (RESIDUAL SOIL) trace sand trace gravel: high plasticity, brown with mottled pale brown and red grey; sand fine to coarse grained, well graded; gravel fine to medium grained, poorly graded.		St	
	L		0.4									
			0.6									
			0.8								VSt	
				0.90					With silt trace sand: becoming pale grey brown.	w < PL		
			1.0									
				1.10					Becoming red brown and grey.			
	L-M		1.2								H	
			1.4									
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH19

core consultants pty ltd

Client	Bligh Tanner	East	525463.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6945026.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	All-Tech Drilling	Logged Date:	05/11/21
Job No.	J001424	Drill Rig	Explora 50	Checked:	SM
		Inclination	-90° Hole Dia. 250 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	H	Not Encountered	0.0	0.02	DS 0.05-0.15 m			GW	BITUMEN.	D	VD	0 5 10 15 20 25
									FILL GRAVEL (BASE LAYER) with silt trace sand: fine to coarse grained, well graded, sub-angular, pale red brown; with fines.			
			0.2	0.25				CH	CLAY (RESIDUAL SOIL) with gravel trace sand: high plasticity, brown; gravel fine to medium grained, poorly graded; sand fine to coarse grained, well graded.			Augered to this depth before commencing test
	L-M		0.4		BDS 0.30-0.90 m					w < PL	VSt	
			0.6									
			0.8									
			1.0							w ≈ PL	St	
			1.2	1.20				CH	CLAY (RESIDUAL SOIL): high plasticity, red brown and grey.		St / VSt	
			1.4	1.50								
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									20/70 mm
			2.0									

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REPORT OF BOREHOLE: BH20

core consultants pty ltd

Client	Bligh Tanner	East	525445.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944941.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	All-Tech Drilling	Logged Date:	05/11/21
Job No.	J001424	Drill Rig	Explora 50	Checked:	SM
		Inclination	-90° Hole Dia. 250 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm	
ADT	H	Not Encountered	0.0		DS 0.05-0.20 m			GW	BITUMEN.	D	VD	0 5 10 15 20 25	
									FILL GRAVEL (BASE LAYER) trace sand: fine to coarse grained, well graded, sub-angular, pale red brown; sand fine to medium grained; with fines.				
			0.2	0.25								Augered to this depth before commencing test	
	M				BDS 0.30-0.90 m			Cl	FILL Sandy CLAY with gravel: medium plasticity; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded.	w < PL	F		
			0.4										
			0.6										
			0.8	0.90							St		
	L		1.0					Cl	CLAY (ALLUVIAL SOIL) trace sand trace silt: medium plasticity, grey with pale brown; sand fine grained.	w ≈ PL			
			1.2										
			1.4	1.50							VSt		
			1.6						Hole Terminated at 1.50 m Target depth Backfilled				
			1.8										
			2.0										

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REPORT OF BOREHOLE: BH21

core consultants pty ltd

Client	Bligh Tanner	East	525430.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944830.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	All-Tech Drilling	Logged Date:	05/11/21
Job No.	J001424	Drill Rig	Explora 50	Checked:	SM
		Inclination	-90° Hole Dia. 250 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	H	Not Encountered	0.0	0.02	DS 0.05-0.20 m			GW	BITUMEN.	D	VD	0 5 10 15 20 25
									FILL GRAVEL (BASE LAYER) trace sand: fine to coarse grained, well graded, sub-angular, pale red brown; sand fine to medium grained; with fines.			Augered to this depth before commencing test
			0.2	0.20	BDS 0.20-0.80 m			CL	Sandy CLAY (ALLUVIAL SOIL) with gravel: low plasticity, grey with pale brown; sand fine to coarse grained, poorly graded; gravel fine to coarse grained, poorly graded; trace organics.		VSt	
	L		0.4									
			0.6							w < PL	St / VSt	
			0.8									
			1.0									
				1.10				CH	CLAY (RESIDUAL SOIL): high plasticity, grey and red brown.	w ≈ PL	VSt	
			1.2									
			1.4									
				1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

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CORE 2.01.1 LIB:GLB Log IS AU BOREHOLE 3 J001424 REDLAND BAY.GPJ <<DrawingFile>> 2/12/2021 16:21 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Core 2.01.1 2020-05-19 Prj: Core 2.00 2020-03-24

REPORT OF BOREHOLE: BH22

core consultants pty ltd

Client	Bligh Tanner	East	525417.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944732.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	All-Tech Drilling	Logged Date:	05/11/21
Job No.	J001424	Drill Rig	Explora 50	Checked:	SM
		Inclination	-90° Hole Dia. 250 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02	DS 0.05-0.10 m			GW	BITUMEN.	D	VD	0 5 10 15 20 25
				0.15					GRAVEL (BASE LAYER) trace sand: fine to coarse grained, well graded, sub-angular, pale red brown; sand fine to coarse grained; with fines.			
	L-M		0.2		BDS 0.20-0.70 m			CH	CLAY (RESIDUAL SOIL) with sand trace gravel: high plasticity, brown with mottled red brown and grey; sand fine to coarse grained, poorly graded; gravel fine to medium grained, poorly graded.	w < PL	St	Augered to this depth before commencing test
			0.4									
			0.6									
			0.8								St / VSt	
			1.0									
			1.2								VSt	
			1.4	1.50								
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

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REPORT OF BOREHOLE: BH23

core consultants pty ltd

Client	Bligh Tanner	East	525398.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944631.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	10/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02	DS 0.05-0.20 m			GW	BITUMEN.	D		Augered to this depth before commencing test
									FILL Silty Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained.			
	L		0.2	0.22	BDS 0.25-0.60 m			SC	Clayey SAND (EXTREMELY WEATHERED MATERIAL) with gravel: fine to coarse grained, poorly graded, pale grey; clay low plasticity; gravel fine to coarse grained, poorly graded; low strength rock in parts.	M	VD	
	L-M		1.0									
			1.4	1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF BOREHOLE: BH24

consultants pty ltd

Client	Bligh Tanner	East	525385.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944533.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	10/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.03					BITUMEN.			
				0.10				GW	FILL Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale brown; sand fine to coarse grained; with fines.			
			0.2		DS 0.10-0.25 m			GM	FILL Silty GRAVEL (SUBBASE LAYER) with sand: fine to medium grained, poorly graded, sub-angular, pale brown; sand fine to coarse grained.	D	VD	
				0.26				CI	FILL Sandy Gravelly CLAY: medium plasticity, brown; gravel fine to coarse grained, poorly graded; sand fine to coarse grained, well graded.			Augered to this depth before commencing test
	L		0.4		BDS 0.30-0.70 m					w < PL	St / VSt	
			0.6									
			0.8									
			1.0									
			1.2									
			1.4	1.50								
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

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REPORT OF BOREHOLE: BH25

core consultants pty ltd

Client	Bligh Tanner	East	525304.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944438.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	All-Tech Drilling	Logged Date:	05/11/21
Job No.	J001424	Drill Rig	Explora 50	Checked:	SM
		Inclination	-90° Hole Dia. 250 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M-H	Not Encountered	0.0	0.02	DS 0.10-0.20 m			GW	BITUMEN.	D	VD	0 5 10 15 20 25
									FILL GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, pale orange brown; with fines.			
			0.2	0.30								Augered to this depth before commencing test
	L				BDS 0.30-0.80 m			SC	Clayey SAND (EXTREMELY WEATHERED MATERIAL) with gravel: fine to coarse grained, well graded, pale brown; clay low plasticity; gravel fine to coarse grained, poorly graded.	M	D	
			0.4									
			0.6									20/60 mm
			0.8								VD	
			1.0									
			1.2									
			1.4	1.50								
			1.6						Hole Terminated at 1.50 m Target depth Backfilled			
			1.8									
			2.0									

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REPORT OF BOREHOLE: BH26

core consultants pty ltd

Client	Bligh Tanner	East	525356.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944331.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	Downunder Earthworks Pty Ltd	Logged Date:	10/11/21
Job No.	J001424	Drill Rig	6 t Excavator	Checked:	SM
		Inclination	-90° Hole Dia. 300 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M	Not Encountered	0.0	0.02				GW	BITUMEN.			
			0.2						FILL Silty Sandy GRAVEL (BASE LAYER): fine to coarse grained, well graded, sub-angular, red brown; sand fine to coarse grained.	D	VD	
				0.27	BDS 0.30-0.80 m			CH	CLAY (RESIDUAL SOIL) with sand with gravel: high plasticity, red brown; sand fine to coarse grained, poorly graded; gravel fine to coarse grained, sub-angular, poorly graded.			Augered to this depth before commencing test
	L		0.4									
			0.6								VSt	
			0.8	0.80					Cobble encountered.			
	H			0.90				CI	Silty CLAY (EXTREMELY WEATHERED MATERIAL) trace sand: medium plasticity, pale grey and red brown; sand fine to medium grained.	w < PL		
	L		1.0									
			1.2								H	
			1.4	1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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REPORT OF BOREHOLE: BH27

core consultants pty ltd

Client	Bligh Tanner	East	525364.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944219.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	All-Tech Drilling	Logged Date:	05/11/21
Job No.	J001424	Drill Rig	Explora 50	Checked:	SM
		Inclination	-90° Hole Dia. 250/100 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	M-H	Not Encountered	0.0	0.02	DS 0.05-0.10 m			GW	BITUMEN. FILL GRAVEL (BASE LAYER) trace sand: fine to coarse grained, pale red brown; sand fine to coarse grained; with fines.	D	VD	Augered to this depth before commencing test
			0.2	0.20	BDS 0.20-0.60 m			Cl	CLAY (RESIDUAL SOIL) with sand with gravel: medium plasticity, pale brown; sand fine to coarse grained, well graded; gravel fine to coarse grained, poorly graded; roots encountered.	w < PL	St / VSt	
	L-M		0.4									
			0.6	0.70				SM	Silty Gravelly SAND (EXTREMELY WEATHERED MATERIAL): fine to coarse grained, well graded, sub-angular, pale brown; gravel fine to medium grained, sub-angular.			20/50 mm
	M		0.8							D	VD	
			1.0									
			1.2									
			1.4	1.50					Hole Terminated at 1.50 m Target depth Backfilled			
			1.6									
			1.8									
			2.0									

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REPORT OF BOREHOLE: BH28

core consultants pty ltd

Client	Bligh Tanner	East	525396.0 m	Sheet	1 OF 1
Project	Sport and Recreational Precinct	North	6944138.0 m MGA94 Zone 56	Logged:	HO
Location	277-293 Heinemann Road, Mount Cotton	Contractor	All-Tech Drilling	Logged Date:	05/11/21
Job No.	J001424	Drill Rig	Explora 50	Checked:	SM
		Inclination	-90° Hole Dia. 250 mm	Checked Date:	02/12/21

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm
ADT	H	Not Encountered	0.0	0.02	DS 0.05-0.20 m			GW	BITUMEN.	D	VD	Augered to this depth before commencing test
									FILL GRAVEL (BASE LAYER) with sand with: fine to coarse grained, well graded, sub-angular, pale red brown; sand fine to coarse grained; fines.			
			0.2	0.20	BDS 0.20-0.80 m			GC	FILL Clayey Sandy GRAVEL: fine to coarse grained, poorly graded, sub-angular to angular, pale brown; sand fine to coarse grained, poorly graded; clay low plasticity.	M	D	
	L-M		0.8	0.90				CI	FILL Silty CLAY with gravel: medium plasticity, pale brown; gravel fine to coarse grained, angular and sub-angular.	w < PL	St	
			1.4	1.50							VSt	
									Hole Terminated at 1.50 m Target depth Backfilled			
			2.0									

DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm: 0 5 10 15 20 25

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

DRILLING/EXCAVATION METHOD

AS	Auger Screwing	RD	Rotary blade or drag bit	NQ	Diamond Core - 47 mm
AD	Auger Drilling	RT	Rotary Tricone bit	NMLC	Diamond Core - 52 mm
*V	V - Bit	RAB	Rotary Air Blast	HQ	Diamond Core - 63 mm
T	TC - Bit, e.g. ADT	RC	Reverse Circulation	HMLC	Diamond Core – 63mm
HA	Hand Auger	PT	Push Tube	BH	Tractor Mounted Backhoe
ADH	Hollow Auger	CT	Cable Tool Rig	EX	Tracked Hydraulic Excavator
DTC	Diatubre Coring	JET	Jetting	EE	Existing Excavation
WB	Washbore or Bailer	NDD	Non-destructive digging	HAND	Excavated by Hand Methods

PENETRATION/EXCAVATION RESISTANCE

L **Low resistance** . Rapid penetration possible with little effort from the equipment used

M **Medium resistance.** Excavation possible at an acceptable rate with moderate effort from equipment used

H **High resistance to penetration/excavation**. Further penetration is possible at a slow rate

R **Refusal or Practical Refusal.** No further progress possible without the risk of damage or unacceptable wear to the digging implement or machine.

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

WATER

▽	Water level shown at date	◁	Partial water loss
▷	Water inflow	◀	Complete water loss

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

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm N = Blows per 300mm penetration following 150mm seating
30/80mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil
DS	Disturbed Sample
BDS	Bulk disturbed sample
G	Gas Sample
W	Water sample
FP	Field permeability test over section noted
FV	Field vane shear test expressed as uncorrected shear strength (sv = peak value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket penetrometer test expressed as instrument reading in kPa
U63	Thin walled tube sample - number indicates nominal sample diameter in millimetres
WPT	Water pressure tests
DCP	Dynamic cone penetration test
CPT	Dynamic cone penetration test
CPTu	Static cone penetration test with pore pressure (u) measurement

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)

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

SCR = Solid Core Recovery (%)

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

RQD = Rock Quantity Designation (%)

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

METHOD OF SOIL DESCRIPTION USED ON BOREHOLE AND TEST PIT REPORTS

	FILL		CLAY (CL,CI, or CH)
	GRAVEL (GP or SW)		ORGANIC SOILS (OL or OH or Pt)
	SAND (SP or SW)		COBBLES or BOULDERS
	SILT (ML or MH)		

Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay.

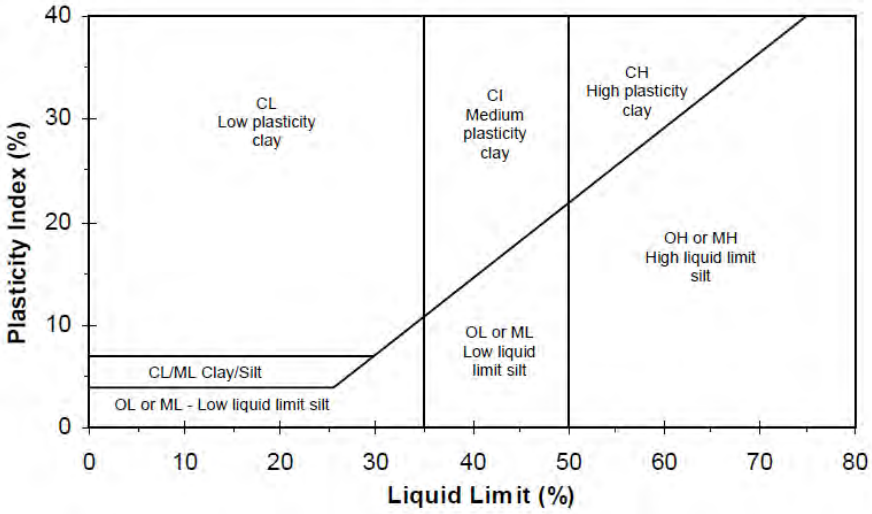
CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil and Rock is classified and described in Reports of Boreholes and Test Pits using the preferred method given in AS 1726 - 2017. The material properties are assessed in the field by visual/tactile methods.

PARTICLE SIZE

Major Division	Sub Division	Particle Size
Boulders		>200 mm
Cobbles		63 - 200 mm
Gravel	Coarse	20 - 63 mm
Gravel	Medium	6.7 - 20 mm
Gravel	Fine	2.36 - 6.7 mm
Sand	Coarse	0.6 - 2.36 mm
Sand	Medium	0.21 - 0.6 mm
Sand	Fine	0.075 - 0.21 mm
Silt		0.002 - 0.075 mm
Clay		<0.002 mm

PLASTIC PROPERTIES



MOISTURE CONDITION FOR COARSE GRAINED SOIL — AS 1726 - 2017

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

MOISTURE CONDITION FOR FINE GRAINED SOIL — AS1726 - 2017

Symbol	Term	Description
W<PL	Moist dry of liquid limit	Hard and friable or powdery
W = PL	Moist near plastic limit	Soils can be molded at a moisture condition approximately equal to the plastic limit
W >PL	Moist, wet of plastic limit	Soils usually weakened and free water forms on hands when handling
W = LL	Wet near plastic limit	
W > LL	Wet, wet of liquid limit	

CONSISTENCY TERMS FOR COHESIVE SOILS — AS1726—2017

Symbol	Term	Undrained Shear Strength
VS	Very Soft	0 to 12 kPa
S	Soft	12 to 25 kPa
F	Firm	25 to 50 kPa
St	Stiff	50 to 100 kPa
VSt	Very Stiff	100 to 200 kPa
H	Hard	Above 200 kPa

RELATIVE DENSITY OF COARSE GRAINED SOILS — AS1726—2017

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

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.

TERMS FOR ROCK MATERIAL STRENGTH & WEATHERING AND ABBREVIATIONS FOR DEFECT DESCRIPTIONS

ROCK MATERIAL STRENGTH CLASSIFICATION				AS1726—2017
Symbol	**Term**	**Uniaxial Compressive Strength (MPa)**	**Point Load Strength $I_{s\ (50)}$ (MPa)**	**Field Guide**
VL	Very Low Strength	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick. Pieces up to 30 mm thick can be broken with finger pressure.
L	Low Strength	2 to 6	0.1 to 0.3	Easily scored with knife. Indentations 1 mm to 3 mm show in the specimen with firm blows of the pick point. A piece of core 150 mm by 50 mm may be broken by hand. Sharp edges of core are friable and break during handling.
M	Medium Strength	6 to 20	0.3 to 1	Readily scored with a knife. A piece of core 150 mm by 50 mm can be broken by hand with difficulty.
H	High Strength	20 to 60	1 to 3	A piece of core 150 mm by 50 mm cannot be broken by hand but can be broken by a pick with a single firm blow. Rock rings under hammer.
VH	Very High Strength	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow. Rock rings under hammer.
EH	Extremely High Strength	Above 200	Above 10	Specimen requires many blows with geological pick to break through intact material. Rock rings under hammer.

● = Diametral Point Load Test ▼ = Axial Point Load Test

CLASSIFICATION OF MATERIAL WEATHERING		AS1726—2017
Symbol	**Term**	**Field Guide**
RS	Residual Soil *(Note 1)*	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible but the soil has not been significantly transported.
XW	Extremely Weathered *(Note 1)*	Material is weathered to such an extent that is has soil properties. Mass structure and material texture and fabric of original rock are still visible.
HW	Highly Weathered *(Note 2)*	The whole rock mass is discoloured, usually by iron staining or beaching to the extent that the colour of the original rock is not recognizable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
MH	Moderately Weathered *(Note 2)*	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognizable, but shows little or no change in strength from fresh rock.
SW	Slightly Weathered	Pock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
FR	Fresh	Rock shows no signs of decomposition of individual minerals or colour change.
Note 1	The term 'Extremely Weathered rock' is misleading as the material has soil properties. The word 'rock' should be replaced with the name of the original rock of the word 'material', eg. Extremely Weathered granite or Extremely Weathered material.	
Note 2	Where it is not possible to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock the term 'Distinctly Weathered' may be used.	

DEFECT TYPE/DESCRIPTION			
B	Bedding Parting	V	Vein
J	Joint	HB/DB	Handling/Drilling Break
EW	Extremely Weathered Seam	C	Contact
FZ	Fracture Zone	L	Cleavage
CZ/S	Crushed Zone/Seam	X	Foliation
IS	Infilled Seam	S	Schistocity
SZ/S	Sheared Zone/Seam		

DEFECT PROFILE	
Symbol	**Description**
PL	Planar
St	Stepped
Un	Undulating

DEFECT INFILL DESCRIPTION	
Symbol	**Description**
Cn	Clean: No visible coating
Sn	Stain: Coated 1 to 3 mm
Vr	Veneer: < 1 mm
Ct	Coating: 1 to 3 mm

DEFECT ROUGHNESS DESCRIPTION	
Symbol	**Description**
Sl	Slickenside
Sm	Smooth
Ro	Rough

Vertical Boreholes - The dip (inclination from horizontal) for the defect is given.

Inclined Boreholes - The inclination is measured as the acute angle to the core axis.

Appendix E
Geotechnical Laboratory Test Certificates - Heinemann Road

Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
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1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Email: martin.cook@douglaspartners.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

Report Number: **202937.00-49**
Issue Number: 1
Date Issued: 30/11/2021
Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979A
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 23/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH1 , Depth: 0.3 - 0.8 m**

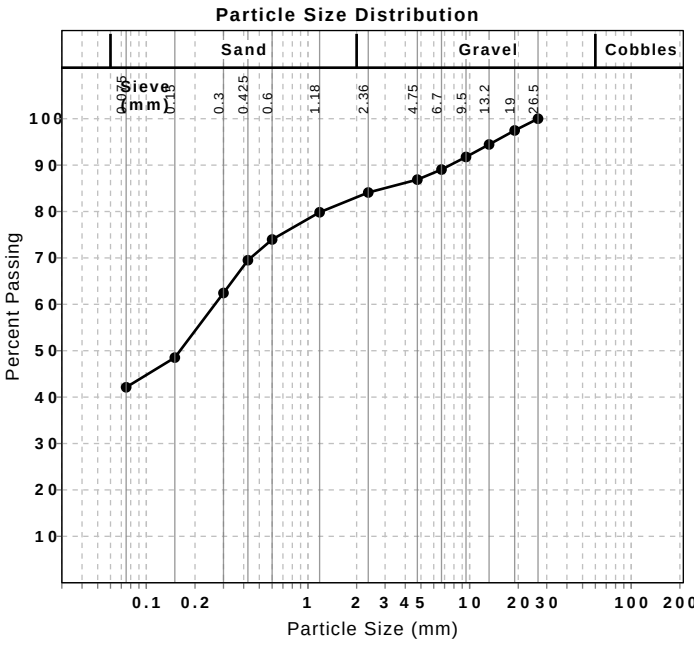
Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**97**		
13.2 mm	**94**		
9.5 mm	**92**		
6.7 mm	**89**		
4.75 mm	**87**		
2.36 mm	**84**		
1.18 mm	**80**		
0.6 mm	**74**		
0.425 mm	**70**		
0.3 mm	**62**		
0.15 mm	**49**		
0.075 mm	**42**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	50		
Plastic Limit (%)	24		
Plasticity Index (%)	**26**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	13.5		
Cracking Crumbling Curling	Cracking		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**6**		
Soil Description			
Nature of Water	Distilled		
Temperature of Water (^{o}C)	24		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	16.8



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Material Test Report

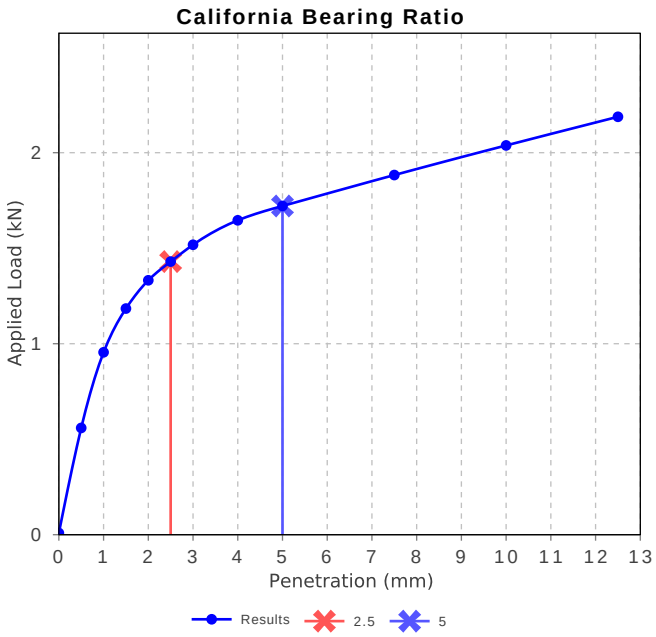
Douglas Partners
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Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979A
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH1 , Depth: 0.3 - 0.8 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**11**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.78		
Optimum Moisture Content (%)	17.5		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	98.5		
Dry Density after Soaking (t/m^3)	1.69		
Field Moisture Content (%)	16.8		
Moisture Content at Placement (%)	17.2		
Moisture Content Top 30mm (%)	18.7		
Moisture Content Rest of Sample (%)	19.7		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	3		



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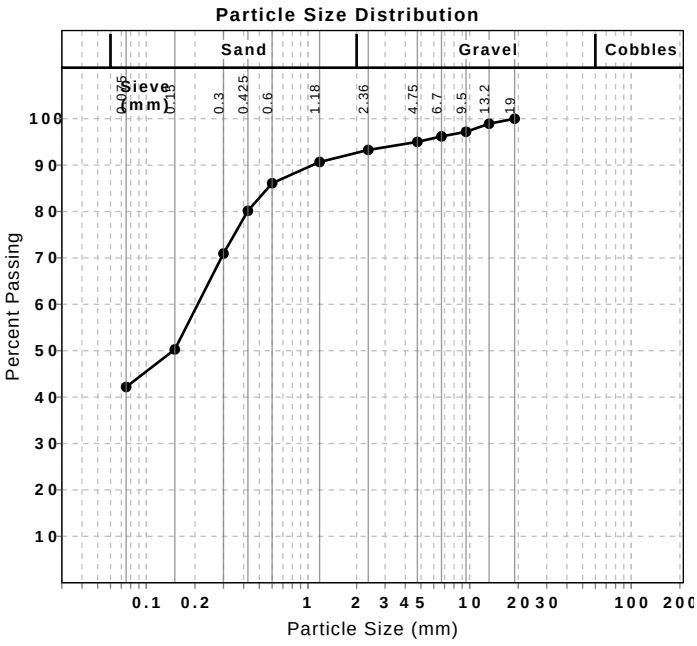
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Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979B
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 23/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH2 , Depth: 0.3 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
19 mm	**100**		
13.2 mm	**99**		
9.5 mm	**97**		
6.7 mm	**96**		
4.75 mm	**95**		
2.36 mm	**93**		
1.18 mm	**91**		
0.6 mm	**86**		
0.425 mm	**80**		
0.3 mm	**71**		
0.15 mm	**50**		
0.075 mm	**42**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	37		
Plastic Limit (%)	21		
Plasticity Index (%)	**16**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	8.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	13.8



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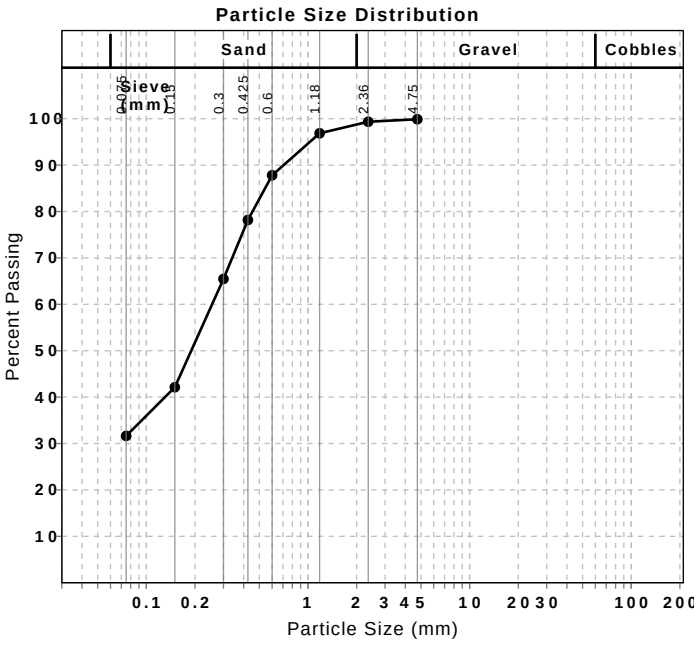
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Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979C
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 23/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH3 , Depth: 0.4 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
4.75 mm	**100**		
2.36 mm	**99**		
1.18 mm	**97**		
0.6 mm	**88**		
0.425 mm	**78**		
0.3 mm	**65**		
0.15 mm	**42**		
0.075 mm	**32**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	14		
Plastic Limit (%)	12		
Plasticity Index (%)	**2**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	2.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	7.4



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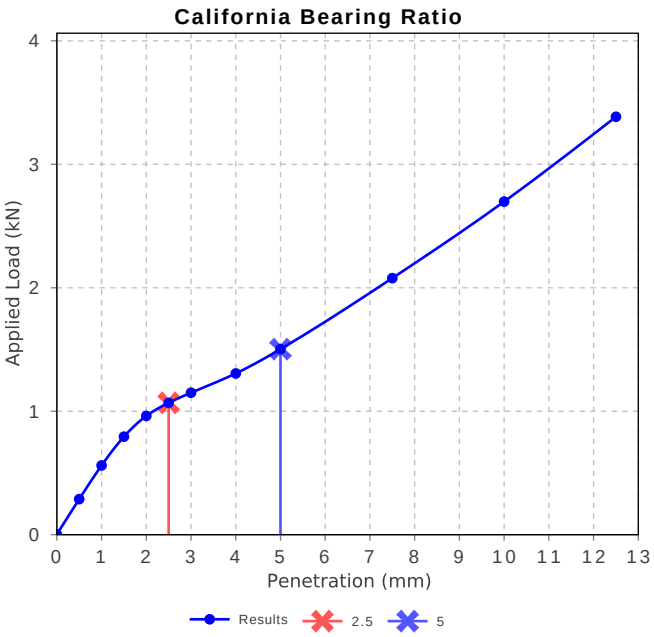
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Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979C
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH3 , Depth: 0.4 - 0.8 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**8**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	2.06		
Optimum Moisture Content (%)	8.5		
Laboratory Density Ratio (%)	95.5		
Laboratory Moisture Ratio (%)	96.0		
Dry Density after Soaking (t/m^3)	1.97		
Field Moisture Content (%)	7.4		
Moisture Content at Placement (%)	8.1		
Moisture Content Top 30mm (%)	9.5		
Moisture Content Rest of Sample (%)	9.8		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	2.0		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		



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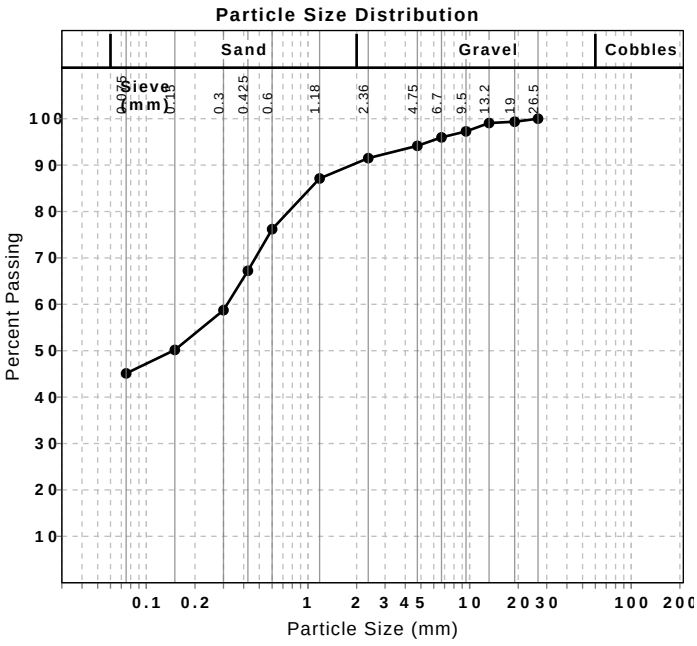
Report Number: **202937.00-49**
Issue Number: 1
Date Issued: 30/11/2021
Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979D
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 24/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH4 , Depth: 0.4 - 0.9 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**99**		
13.2 mm	**99**		
9.5 mm	**97**		
6.7 mm	**96**		
4.75 mm	**94**		
2.36 mm	**91**		
1.18 mm	**87**		
0.6 mm	**76**		
0.425 mm	**67**		
0.3 mm	**59**		
0.15 mm	**50**		
0.075 mm	**45**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	45		
Plastic Limit (%)	18		
Plasticity Index (%)	**27**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	13.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	13.2



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Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979E
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 23/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH5 , Depth: 0.4 - 1.0 m**

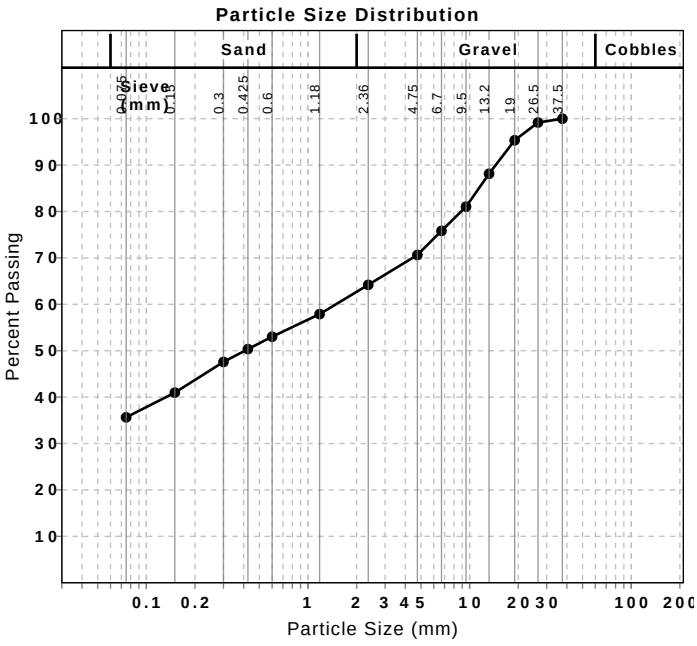
Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
37.5 mm	**100**		
26.5 mm	**99**		
19 mm	**95**		
13.2 mm	**88**		
9.5 mm	**81**		
6.7 mm	**76**		
4.75 mm	**71**		
2.36 mm	**64**		
1.18 mm	**58**		
0.6 mm	**53**		
0.425 mm	**50**		
0.3 mm	**48**		
0.15 mm	**41**		
0.075 mm	**36**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	33		
Plastic Limit (%)	16		
Plasticity Index (%)	**17**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	9.0		
Cracking Crumbling Curling	None		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**6**		
Soil Description			
Nature of Water	Distilled		
Temperature of Water (^{o}C)	24		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	12.4



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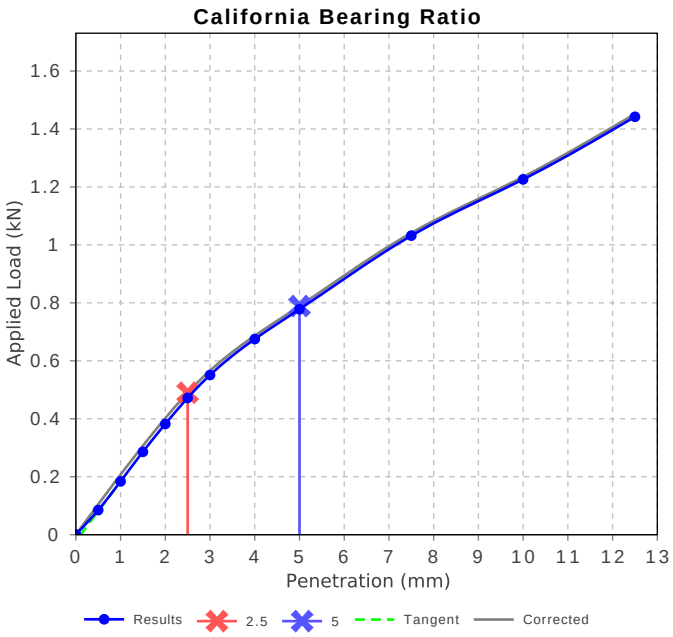
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Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979E
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH5 , Depth: 0.4 - 1.0 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**4.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.99		
Optimum Moisture Content (%)	11.5		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	104.5		
Dry Density after Soaking (t/m^3)	1.86		
Field Moisture Content (%)	12.4		
Moisture Content at Placement (%)	11.8		
Moisture Content Top 30mm (%)	15.1		
Moisture Content Rest of Sample (%)	14.2		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	120.0		
Swell (%)	1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	5		



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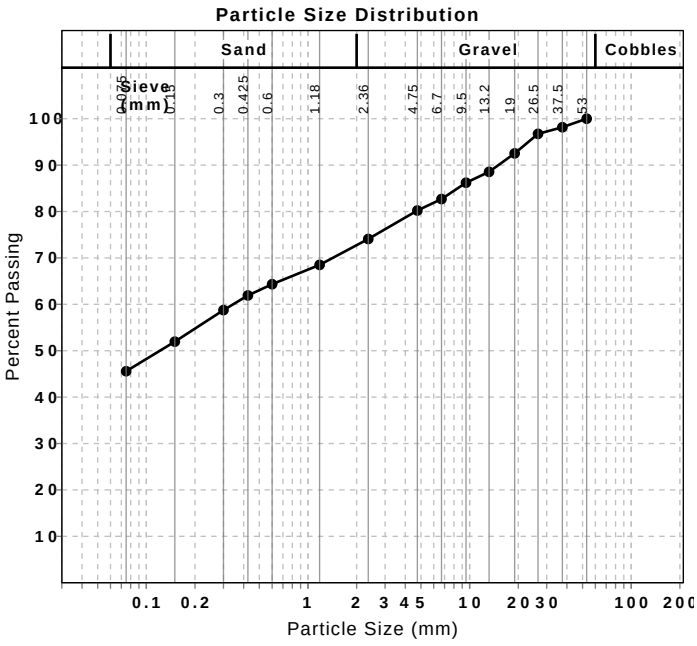
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Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979F
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 23/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH6 , Depth: 0.5 - 1.0 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
53 mm	**100**		
37.5 mm	**98**		
26.5 mm	**97**		
19 mm	**93**		
13.2 mm	**89**		
9.5 mm	**86**		
6.7 mm	**83**		
4.75 mm	**80**		
2.36 mm	**74**		
1.18 mm	**68**		
0.6 mm	**64**		
0.425 mm	**62**		
0.3 mm	**59**		
0.15 mm	**52**		
0.075 mm	**46**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	30		
Plastic Limit (%)	18		
Plasticity Index (%)	**12**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	7.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	12.6



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Laboratory Accreditation Number: 828

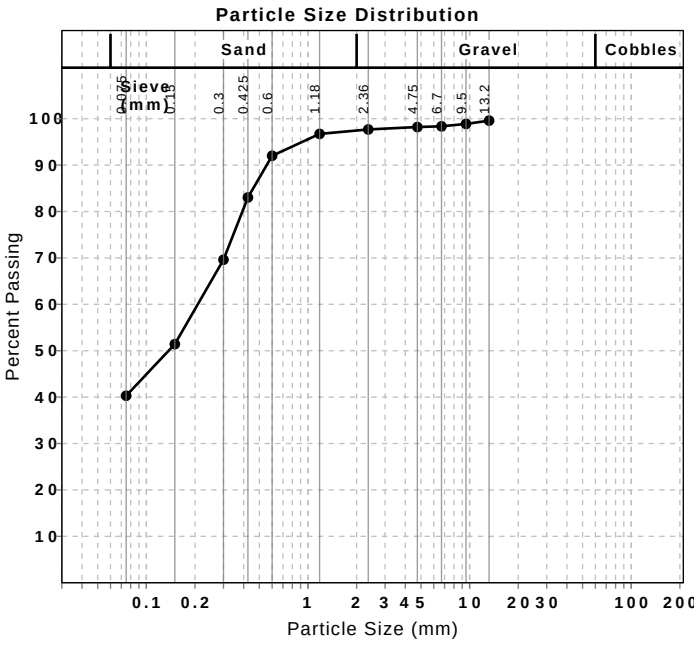
Report Number: **202937.00-49**
Issue Number: 1
Date Issued: 30/11/2021
Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979G
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 25/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH7 , Depth: 0.3 - 0.7 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	**100**		
9.5 mm	**99**		
6.7 mm	**98**		
4.75 mm	**98**		
2.36 mm	**98**		
1.18 mm	**97**		
0.6 mm	**92**		
0.425 mm	**83**		
0.3 mm	**70**		
0.15 mm	**51**		
0.075 mm	**40**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	25		
Plastic Limit (%)	13		
Plasticity Index (%)	**12**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	5.5		
Cracking Crumbling Curling	Cracking		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	9.5



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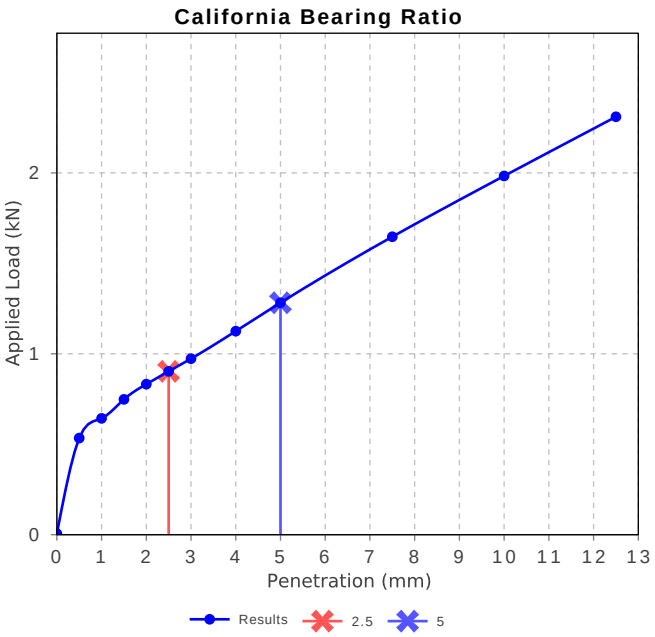
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979G
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH7 , Depth: 0.3 - 0.7 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**7**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	2.04		
Optimum Moisture Content (%)	9.5		
Laboratory Density Ratio (%)	95.5		
Laboratory Moisture Ratio (%)	91.5		
Dry Density after Soaking (t/m^3)	1.95		
Field Moisture Content (%)	9.5		
Moisture Content at Placement (%)	8.6		
Moisture Content Top 30mm (%)	14.8		
Moisture Content Rest of Sample (%)	10.6		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	120.0		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



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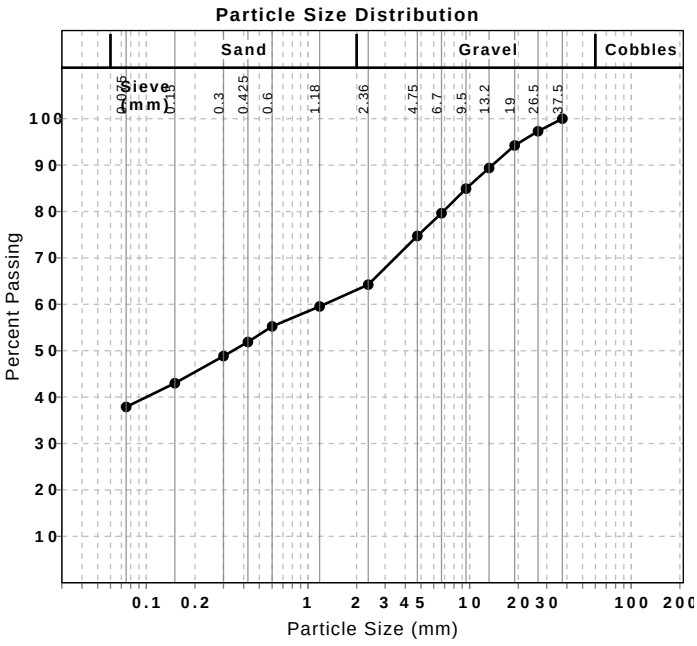
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Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979H
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 25/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH8 , Depth: 0.4 - 1.0 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
37.5 mm	**100**		
26.5 mm	**97**		
19 mm	**94**		
13.2 mm	**89**		
9.5 mm	**85**		
6.7 mm	**80**		
4.75 mm	**75**		
2.36 mm	**64**		
1.18 mm	**60**		
0.6 mm	**55**		
0.425 mm	**52**		
0.3 mm	**49**		
0.15 mm	**43**		
0.075 mm	**38**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	44		
Plastic Limit (%)	18		
Plasticity Index (%)	**26**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	11.5		
Cracking Crumbling Curling	Cracking		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	13.3



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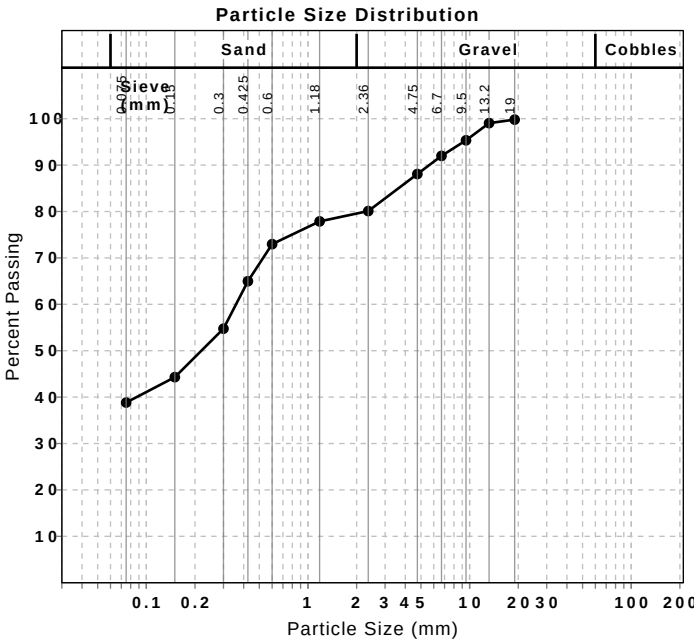
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Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979I
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH9 , Depth: 0.35 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
19 mm	**100**		
13.2 mm	**99**		
9.5 mm	**95**		
6.7 mm	**92**		
4.75 mm	**88**		
2.36 mm	**80**		
1.18 mm	**78**		
0.6 mm	**73**		
0.425 mm	**65**		
0.3 mm	**55**		
0.15 mm	**44**		
0.075 mm	**39**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	48		
Plastic Limit (%)	20		
Plasticity Index (%)	**28**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	13.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	14.6



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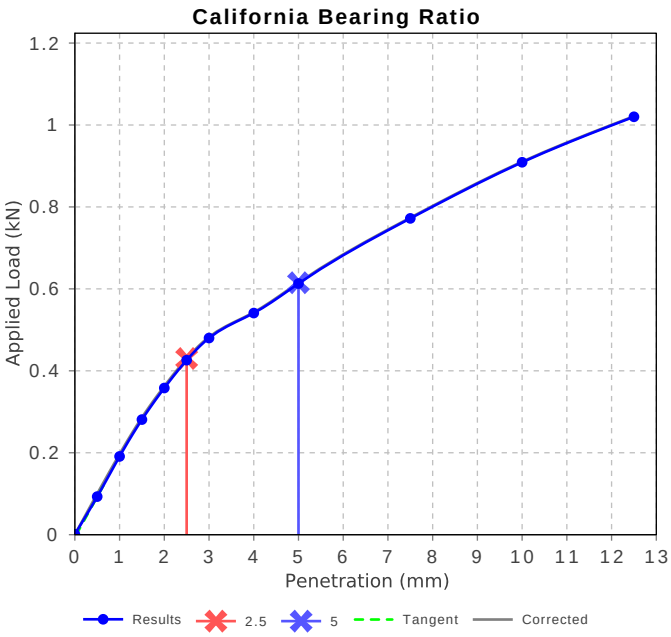
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979I
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH9 , Depth: 0.35 - 0.8 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**3.5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.81		
Optimum Moisture Content (%)	15.0		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	102.0		
Dry Density after Soaking (t/m^3)	1.69		
Field Moisture Content (%)	14.6		
Moisture Content at Placement (%)	15.4		
Moisture Content Top 30mm (%)	21.0		
Moisture Content Rest of Sample (%)	18.1		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	120.0		
Swell (%)	1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



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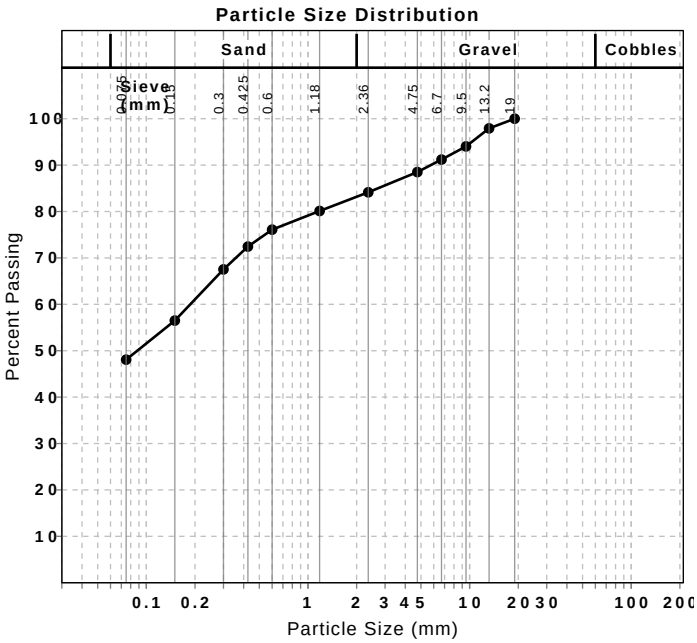
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979J
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH10 , Depth: 0.4 - 1.0 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
19 mm	**100**		
13.2 mm	**98**		
9.5 mm	**94**		
6.7 mm	**91**		
4.75 mm	**89**		
2.36 mm	**84**		
1.18 mm	**80**		
0.6 mm	**76**		
0.425 mm	**72**		
0.3 mm	**68**		
0.15 mm	**56**		
0.075 mm	**48**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	34		
Plastic Limit (%)	18		
Plasticity Index (%)	**16**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	9.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	14.3



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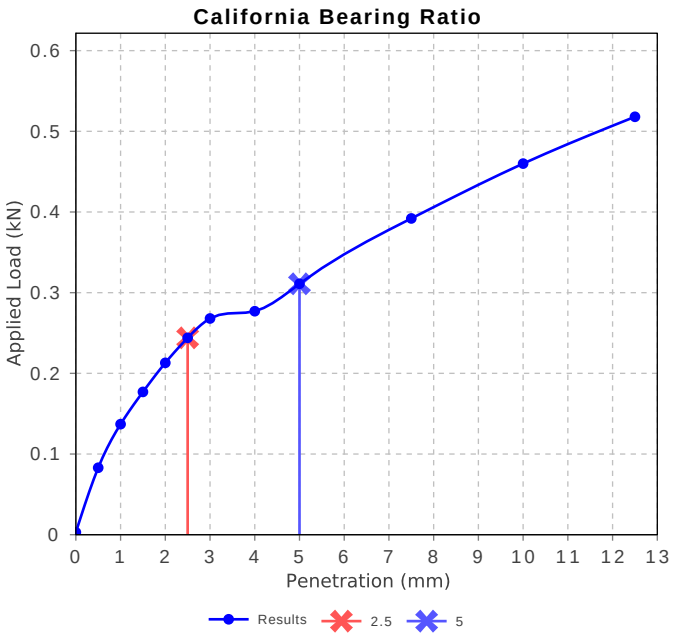
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979K
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH11 , Depth: 0.5 - 1.1 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**2.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.63		
Optimum Moisture Content (%)	22.0		
Laboratory Density Ratio (%)	94.5		
Laboratory Moisture Ratio (%)	104.0		
Dry Density after Soaking (t/m^3)	1.49		
Field Moisture Content (%)	20.9		
Moisture Content at Placement (%)	22.9		
Moisture Content Top 30mm (%)	30.1		
Moisture Content Rest of Sample (%)	25.0		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	120.0		
Swell (%)	3.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	74		
Plastic Limit (%)	22		
Plasticity Index (%)	**52**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	18.5		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	20.9



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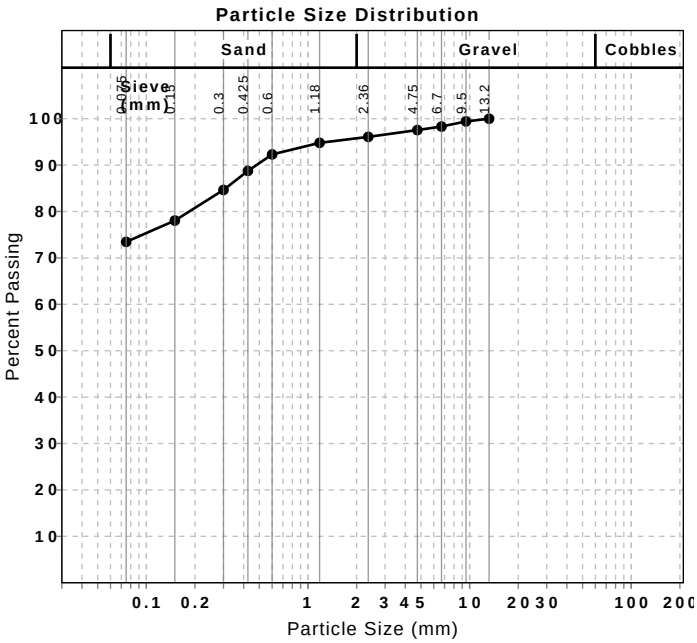
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Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979L
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH12 , Depth: 0.4 - 1.0 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	**100**		
9.5 mm	**99**		
6.7 mm	**98**		
4.75 mm	**98**		
2.36 mm	**96**		
1.18 mm	**95**		
0.6 mm	**92**		
0.425 mm	**89**		
0.3 mm	**85**		
0.15 mm	**78**		
0.075 mm	**73**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	64		
Plastic Limit (%)	19		
Plasticity Index (%)	**45**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	18.5		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	15.1



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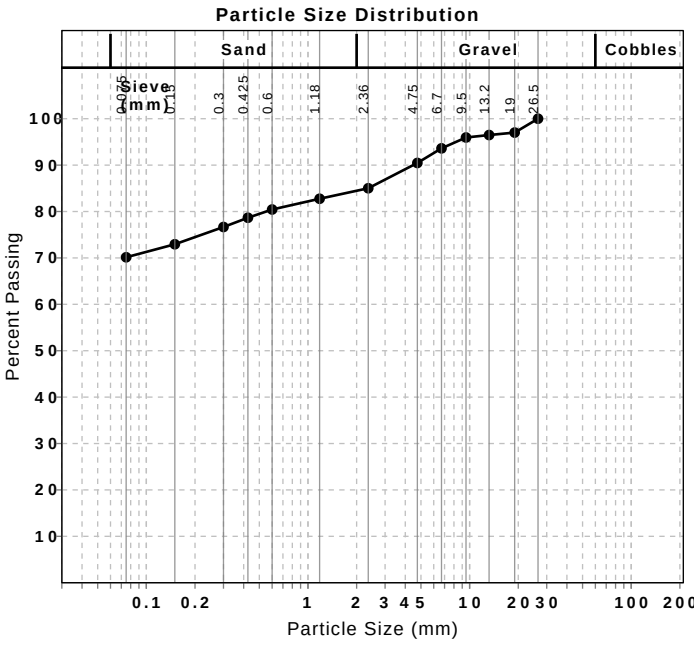
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Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979M
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH13 , Depth: 0.4 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**97**		
13.2 mm	**96**		
9.5 mm	**96**		
6.7 mm	**94**		
4.75 mm	**90**		
2.36 mm	**85**		
1.18 mm	**83**		
0.6 mm	**80**		
0.425 mm	**79**		
0.3 mm	**77**		
0.15 mm	**73**		
0.075 mm	**70**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	73		
Plastic Limit (%)	25		
Plasticity Index (%)	**48**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	21.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	23.5



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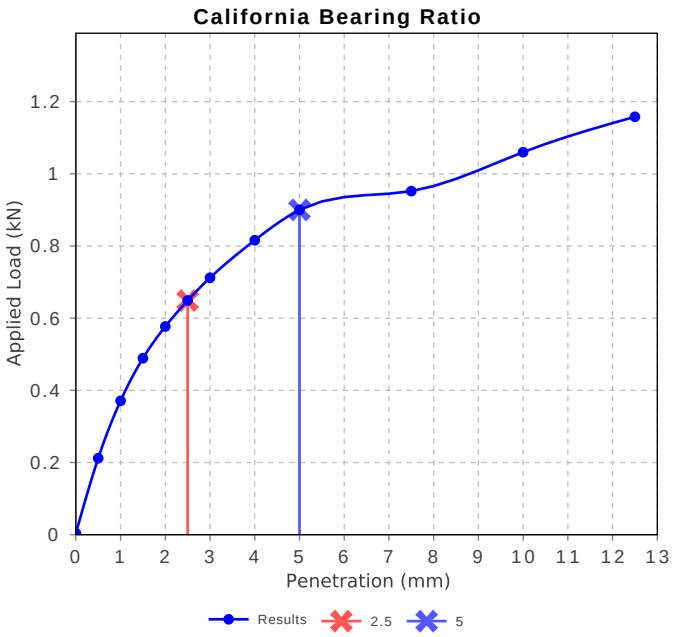
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Work Request: 15979
Sample Number: SS-15979M
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH13 , Depth: 0.4 - 0.8 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**5.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.57		
Optimum Moisture Content (%)	24.5		
Laboratory Density Ratio (%)	94.5		
Laboratory Moisture Ratio (%)	102.0		
Dry Density after Soaking (t/m^3)	1.47		
Field Moisture Content (%)	23.5		
Moisture Content at Placement (%)	25.2		
Moisture Content Top 30mm (%)	12.6		
Moisture Content Rest of Sample (%)	27.9		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	3		



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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

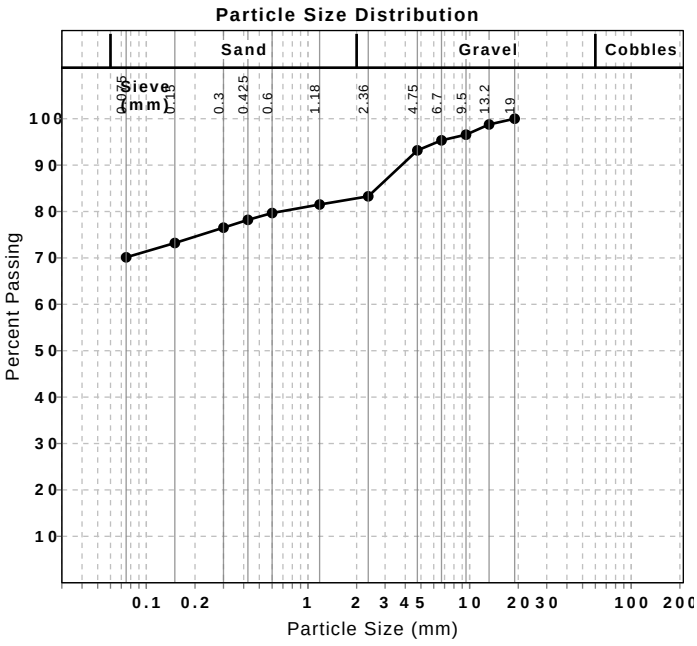
Report Number: **202937.00-49**
Issue Number: 1
Date Issued: 30/11/2021
Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979N
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH14 , Depth: 0.4 - 0.9 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
19 mm	**100**		
13.2 mm	**99**		
9.5 mm	**97**		
6.7 mm	**95**		
4.75 mm	**93**		
2.36 mm	**83**		
1.18 mm	**82**		
0.6 mm	**80**		
0.425 mm	**78**		
0.3 mm	**77**		
0.15 mm	**73**		
0.075 mm	**70**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	48		
Plastic Limit (%)	19		
Plasticity Index (%)	**29**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	15.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	19.7



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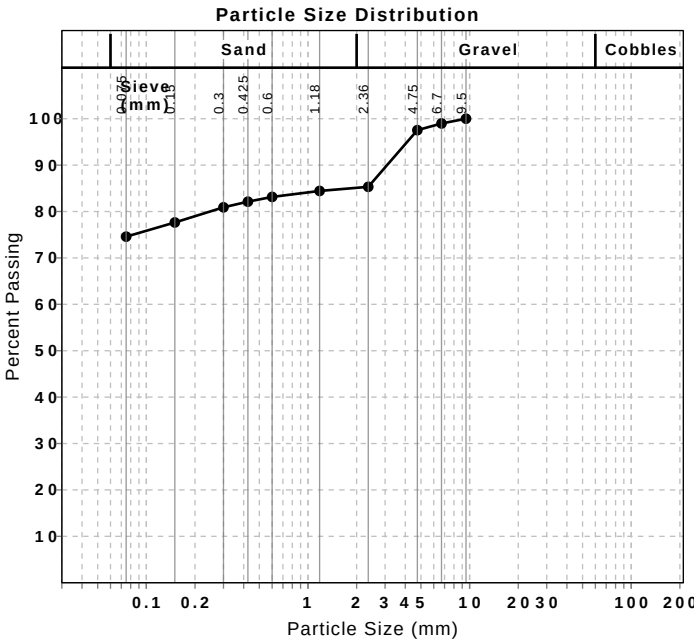
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Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979O
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH15 , Depth: 0.3 - 0.9 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
9.5 mm	**100**		
6.7 mm	**99**		
4.75 mm	**98**		
2.36 mm	**85**		
1.18 mm	**84**		
0.6 mm	**83**		
0.425 mm	**82**		
0.3 mm	**81**		
0.15 mm	**78**		
0.075 mm	**75**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	52		
Plastic Limit (%)	19		
Plasticity Index (%)	**33**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	14.5		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	19.8



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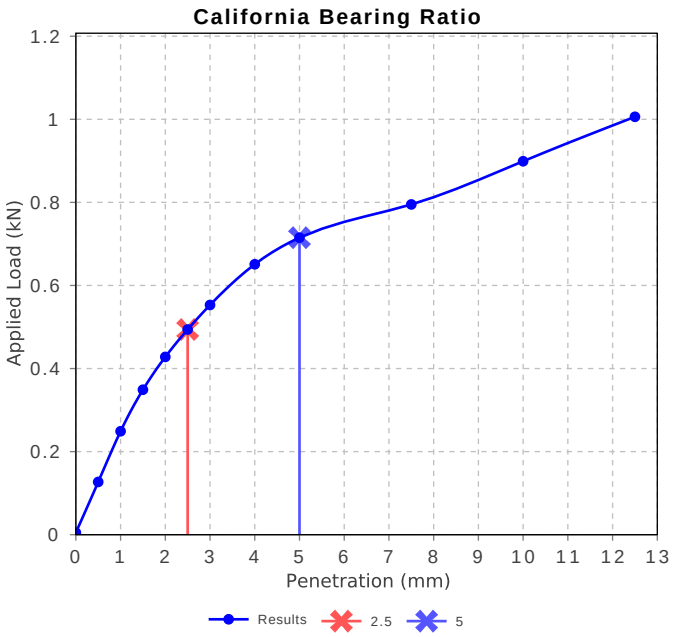
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Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979O
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH15 , Depth: 0.3 - 0.9 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**3.5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.64		
Optimum Moisture Content (%)	21.5		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	102.0		
Dry Density after Soaking (t/m^3)	1.53		
Field Moisture Content (%)	19.8		
Moisture Content at Placement (%)	21.8		
Moisture Content Top 30mm (%)	28.2		
Moisture Content Rest of Sample (%)	25.3		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



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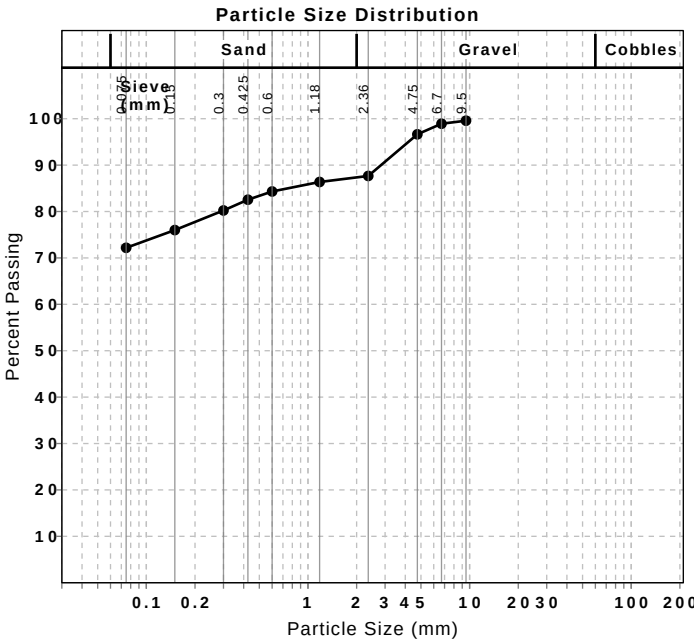
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Date Issued: 30/11/2021
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Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979P
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH16 , Depth: 0.3 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
9.5 mm	**100**		
6.7 mm	**99**		
4.75 mm	**97**		
2.36 mm	**88**		
1.18 mm	**86**		
0.6 mm	**84**		
0.425 mm	**83**		
0.3 mm	**80**		
0.15 mm	**76**		
0.075 mm	**72**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	36		
Plastic Limit (%)	16		
Plasticity Index (%)	**20**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	11.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	17.0



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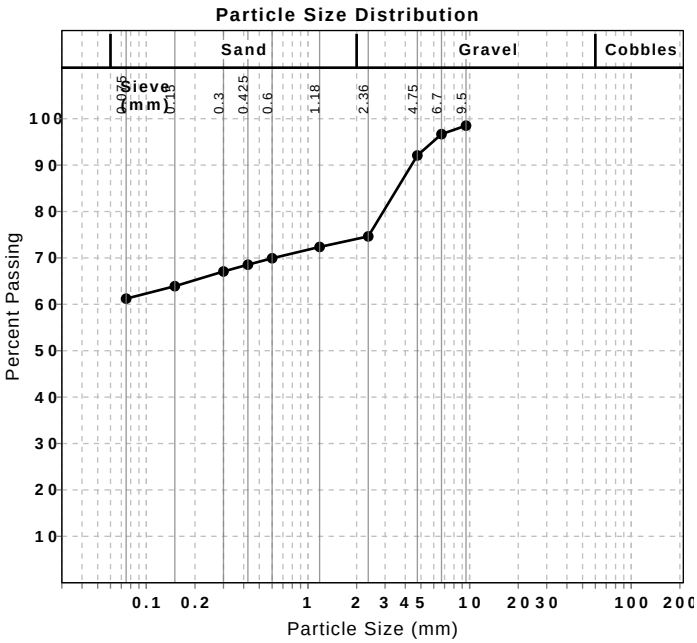
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Date Issued: 30/11/2021
Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979Q
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH17 , Depth: 0.3 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
9.5 mm	**99**		
6.7 mm	**97**		
4.75 mm	**92**		
2.36 mm	**75**		
1.18 mm	**72**		
0.6 mm	**70**		
0.425 mm	**69**		
0.3 mm	**67**		
0.15 mm	**64**		
0.075 mm	**61**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	72		
Plastic Limit (%)	20		
Plasticity Index (%)	**52**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	19.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	22.0



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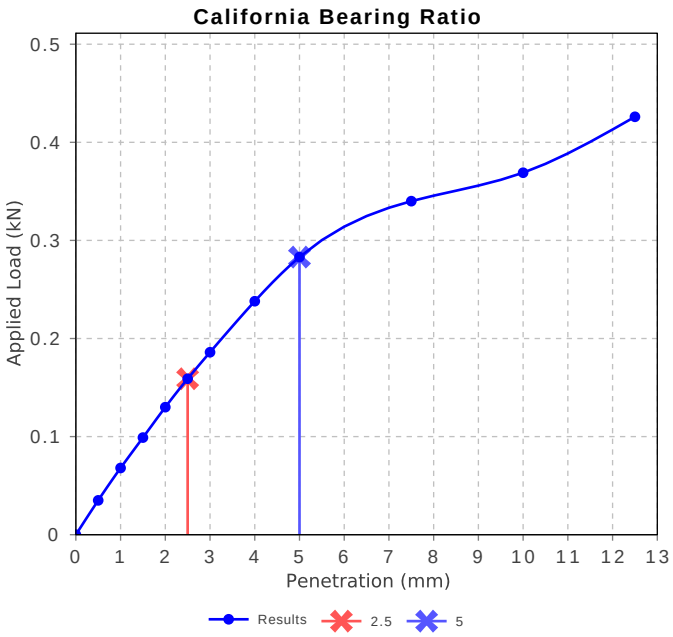
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Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979Q
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH17 , Depth: 0.3 - 0.8 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**1.5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.58		
Optimum Moisture Content (%)	22.0		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	101.5		
Dry Density after Soaking (t/m^3)	1.43		
Field Moisture Content (%)	22.0		
Moisture Content at Placement (%)	22.3		
Moisture Content Top 30mm (%)	36.1		
Moisture Content Rest of Sample (%)	27.4		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	4.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



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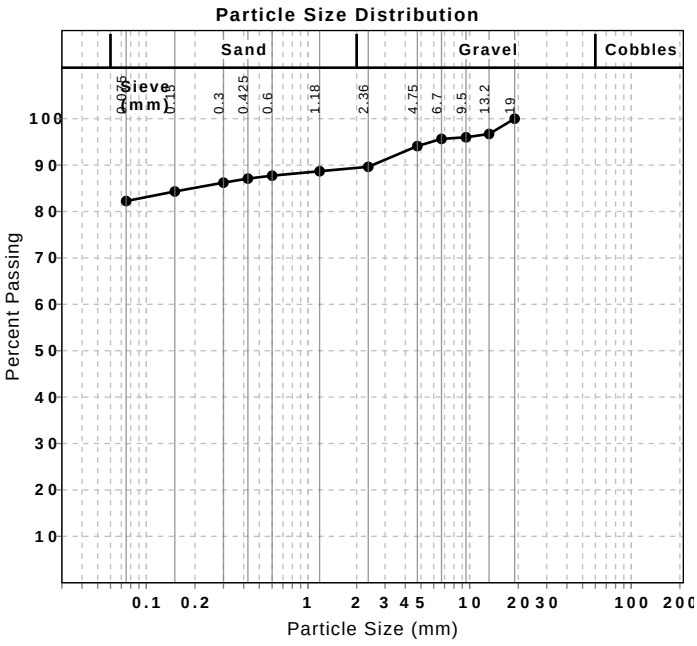
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Contact: Simon Maggiora
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979R
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH18 , Depth: 0.3 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
19 mm	**100**		
13.2 mm	**97**		
9.5 mm	**96**		
6.7 mm	**96**		
4.75 mm	**94**		
2.36 mm	**90**		
1.18 mm	**89**		
0.6 mm	**88**		
0.425 mm	**87**		
0.3 mm	**86**		
0.15 mm	**84**		
0.075 mm	**82**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	74		
Plastic Limit (%)	20		
Plasticity Index (%)	**54**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	19.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	19.2



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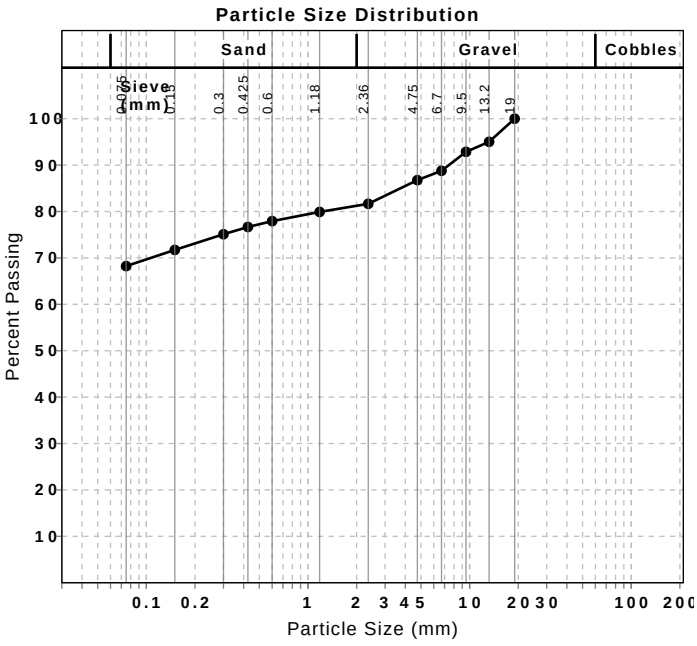
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979S
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH19 , Depth: 0.3 - 0.9 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
19 mm	**100**		
13.2 mm	**95**		
9.5 mm	**93**		
6.7 mm	**89**		
4.75 mm	**87**		
2.36 mm	**82**		
1.18 mm	**80**		
0.6 mm	**78**		
0.425 mm	**77**		
0.3 mm	**75**		
0.15 mm	**72**		
0.075 mm	**68**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	51		
Plastic Limit (%)	17		
Plasticity Index (%)	**34**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	14.5		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	15.8



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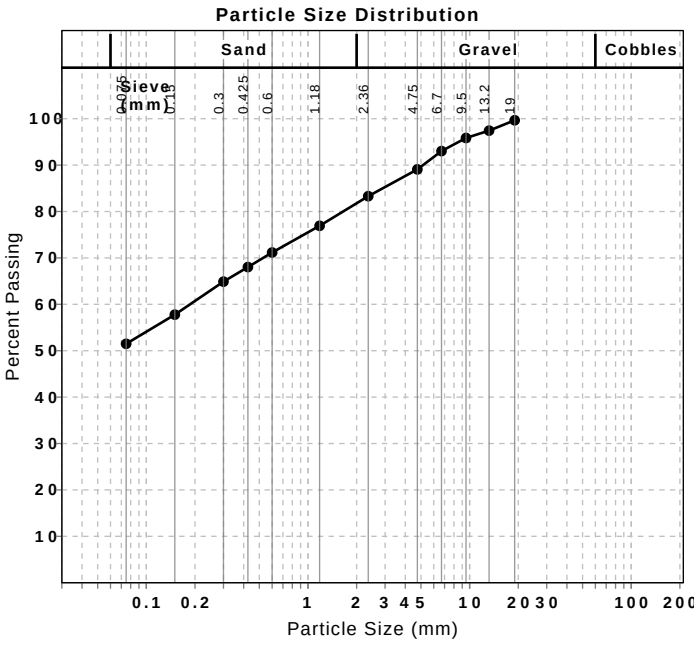
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979T
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH20 , Depth: 0.3 - 0.9 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
19 mm	**100**		
13.2 mm	**97**		
9.5 mm	**96**		
6.7 mm	**93**		
4.75 mm	**89**		
2.36 mm	**83**		
1.18 mm	**77**		
0.6 mm	**71**		
0.425 mm	**68**		
0.3 mm	**65**		
0.15 mm	**58**		
0.075 mm	**51**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	38		
Plastic Limit (%)	18		
Plasticity Index (%)	**20**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	10.5		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	16.4



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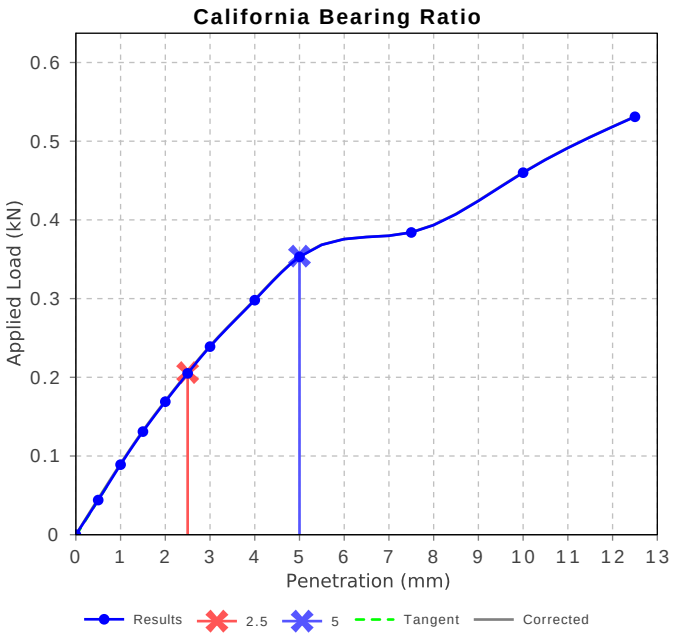
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Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979T
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH20 , Depth: 0.3 - 0.9 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**2.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.86		
Optimum Moisture Content (%)	14.0		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	99.0		
Dry Density after Soaking (t/m^3)	1.71		
Field Moisture Content (%)	16.4		
Moisture Content at Placement (%)	13.9		
Moisture Content Top 30mm (%)	21.6		
Moisture Content Rest of Sample (%)	17.2		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	3.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

Report Number: **202937.00-49**
Issue Number: 1
Date Issued: 30/11/2021
Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979U
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH21 , Depth: 0.2 - 0.8 m**

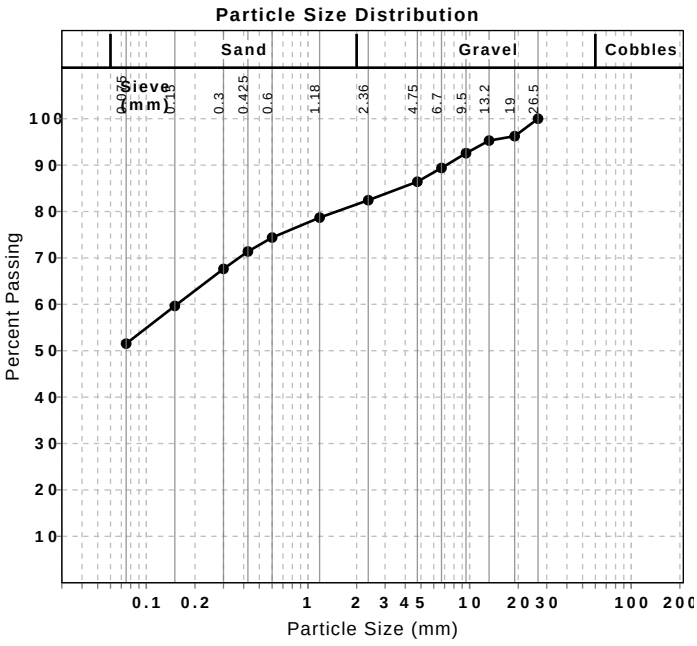
Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**96**		
13.2 mm	**95**		
9.5 mm	**93**		
6.7 mm	**89**		
4.75 mm	**86**		
2.36 mm	**82**		
1.18 mm	**79**		
0.6 mm	**74**		
0.425 mm	**71**		
0.3 mm	**68**		
0.15 mm	**60**		
0.075 mm	**52**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	24		
Plastic Limit (%)	15		
Plasticity Index (%)	**9**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	5.5		
Cracking Crumbling Curling	None		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**5**		
Soil Description			
Nature of Water	Distilled		
Temperature of Water (^{o}C)	24		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	16.5



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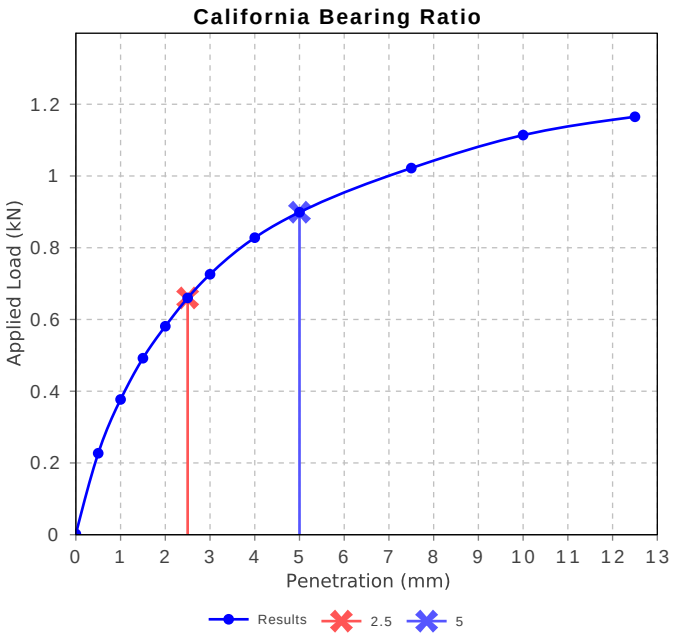
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Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979U
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH21 , Depth: 0.2 - 0.8 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	**5.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.78		
Optimum Moisture Content (%)	15.0		
Laboratory Density Ratio (%)	95.5		
Laboratory Moisture Ratio (%)	101.0		
Dry Density after Soaking (t/m^3)	1.70		
Field Moisture Content (%)	16.5		
Moisture Content at Placement (%)	15.2		
Moisture Content Top 30mm (%)	17.0		
Moisture Content Rest of Sample (%)	17.8		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	-0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	4		



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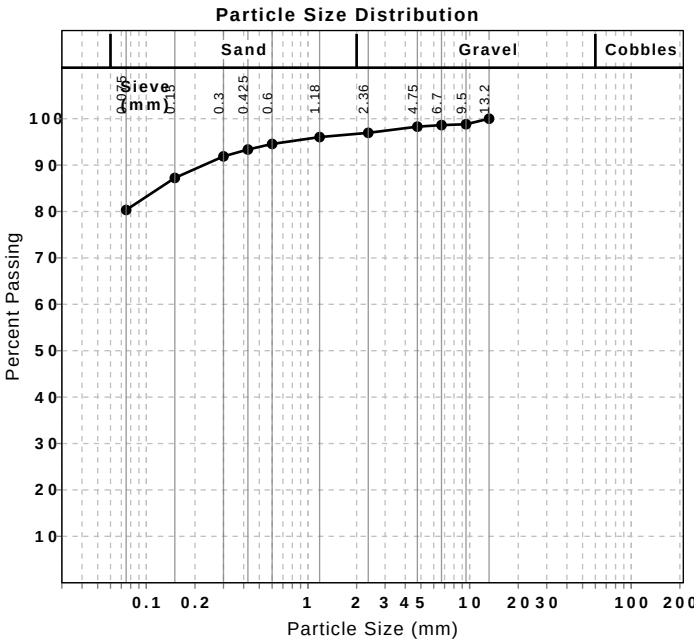
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Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979V
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH22 , Depth: 0.2 - 0.7 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	**100**		
9.5 mm	**99**		
6.7 mm	**99**		
4.75 mm	**98**		
2.36 mm	**97**		
1.18 mm	**96**		
0.6 mm	**95**		
0.425 mm	**93**		
0.3 mm	**92**		
0.15 mm	**87**		
0.075 mm	**80**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	62		
Plastic Limit (%)	22		
Plasticity Index (%)	**40**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	17.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	18.2



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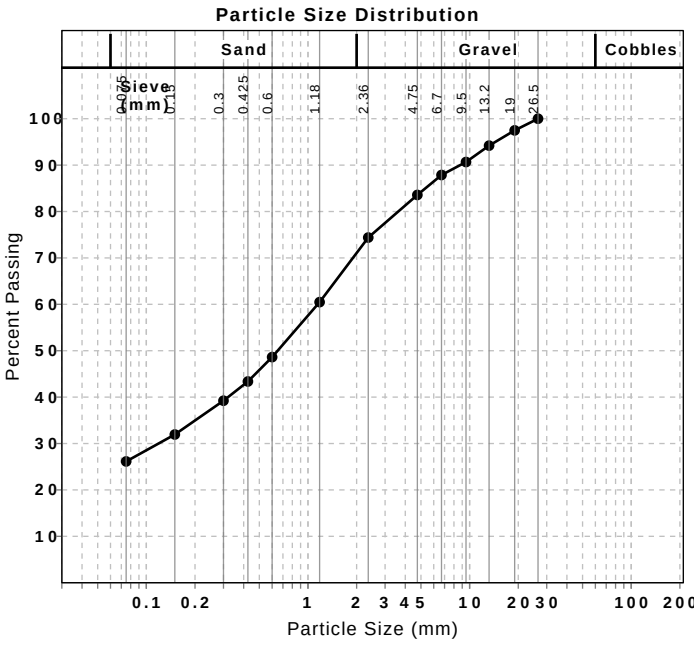
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Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979W
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH23 , Depth: 0.25 - 0.6 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**97**		
13.2 mm	**94**		
9.5 mm	**91**		
6.7 mm	**88**		
4.75 mm	**84**		
2.36 mm	**74**		
1.18 mm	**60**		
0.6 mm	**49**		
0.425 mm	**43**		
0.3 mm	**39**		
0.15 mm	**32**		
0.075 mm	**26**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	27		
Plastic Limit (%)	15		
Plasticity Index (%)	**12**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	6.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	5.1



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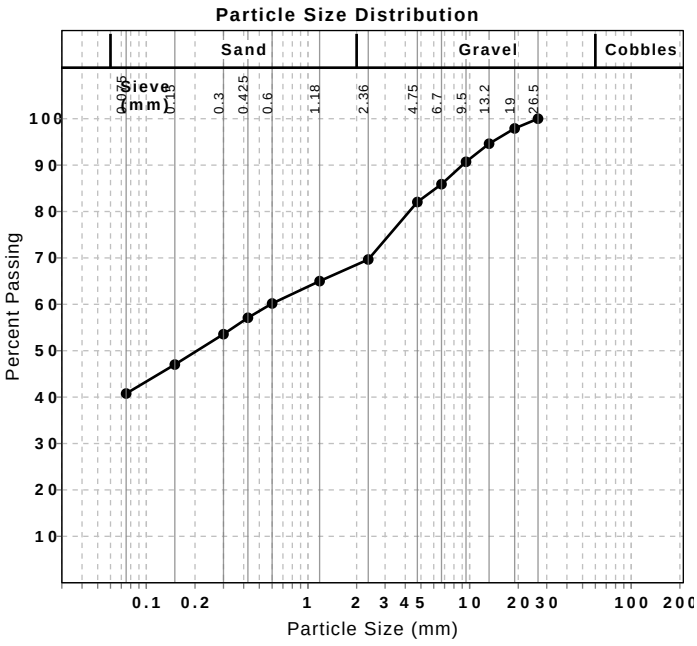
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979X
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH24 , Depth: 0.3 - 0.7 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**98**		
13.2 mm	**95**		
9.5 mm	**91**		
6.7 mm	**86**		
4.75 mm	**82**		
2.36 mm	**70**		
1.18 mm	**65**		
0.6 mm	**60**		
0.425 mm	**57**		
0.3 mm	**54**		
0.15 mm	**47**		
0.075 mm	**41**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	39		
Plastic Limit (%)	17		
Plasticity Index (%)	**22**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	10.5		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	15.4



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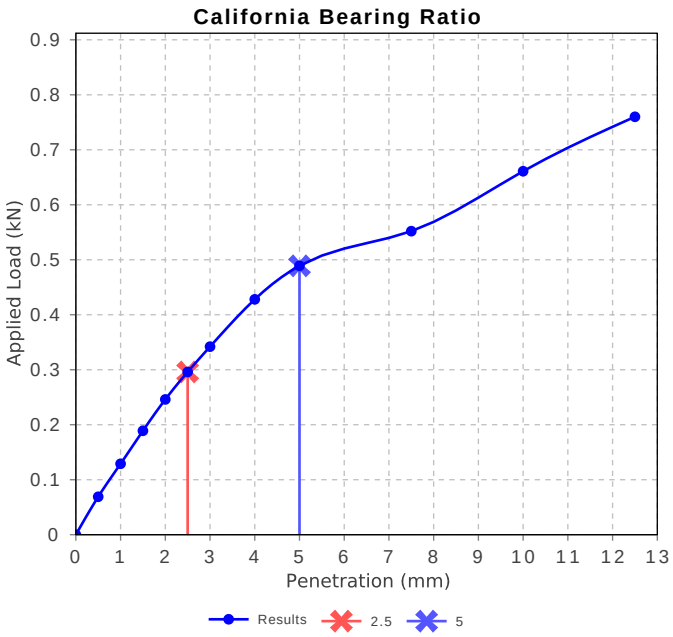
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Work Request: 15979
Sample Number: SS-15979X
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH24 , Depth: 0.3 - 0.7 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**2.5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.84		
Optimum Moisture Content (%)	14.5		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	102.5		
Dry Density after Soaking (t/m^3)	1.71		
Field Moisture Content (%)	15.4		
Moisture Content at Placement (%)	15.0		
Moisture Content Top 30mm (%)	21.5		
Moisture Content Rest of Sample (%)	18.3		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	2		



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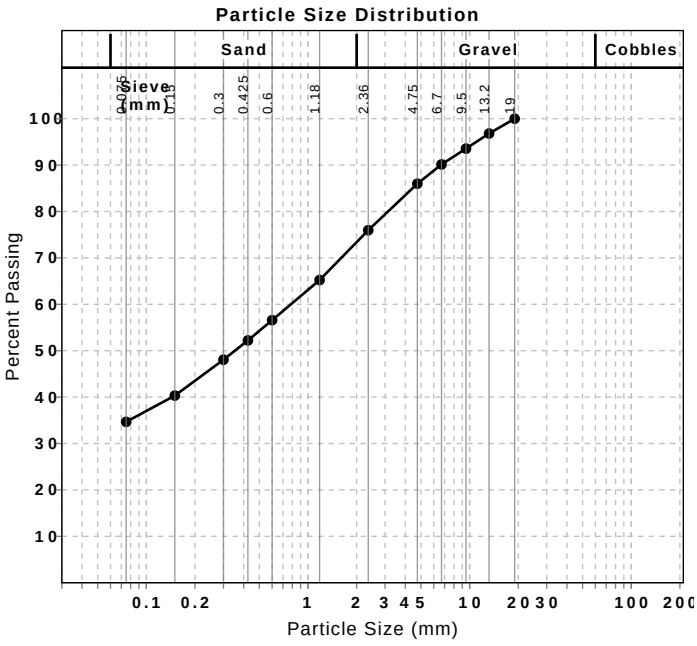
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Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979Y
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH25 , Depth: 0.3 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
19 mm	**100**		
13.2 mm	**97**		
9.5 mm	**94**		
6.7 mm	**90**		
4.75 mm	**86**		
2.36 mm	**76**		
1.18 mm	**65**		
0.6 mm	**57**		
0.425 mm	**52**		
0.3 mm	**48**		
0.15 mm	**40**		
0.075 mm	**35**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	36		
Plastic Limit (%)	17		
Plasticity Index (%)	**19**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	8.5		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	8.8



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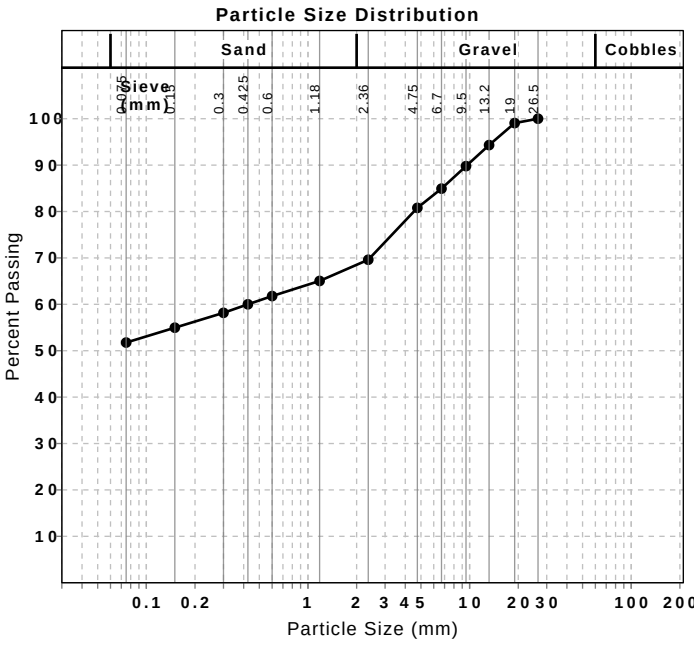
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Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979Z
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH26 , Depth: 0.3 - 0.8 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**99**		
13.2 mm	**94**		
9.5 mm	**90**		
6.7 mm	**85**		
4.75 mm	**81**		
2.36 mm	**70**		
1.18 mm	**65**		
0.6 mm	**62**		
0.425 mm	**60**		
0.3 mm	**58**		
0.15 mm	**55**		
0.075 mm	**52**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	65		
Plastic Limit (%)	23		
Plasticity Index (%)	**42**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	15.5		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	11.6



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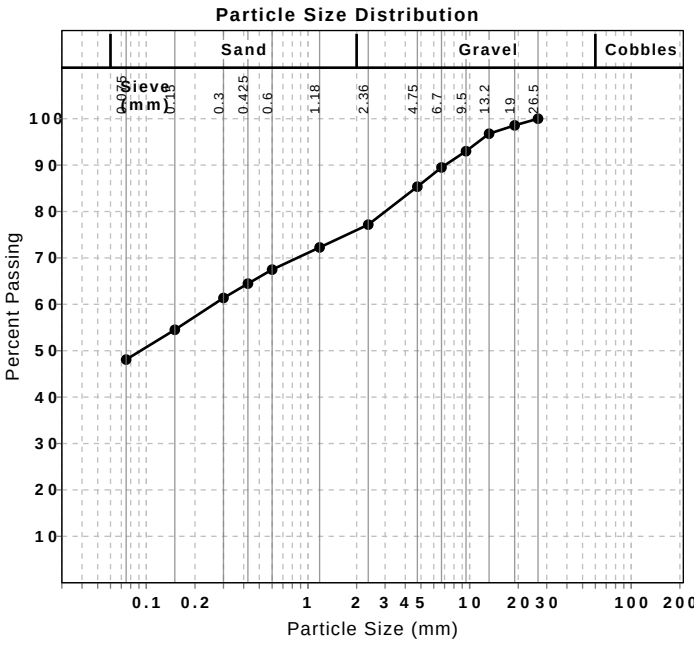
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Work Request: 15979
Sample Number: SS-15979AA
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH27 , Depth: 0.2 - 0.6 m**

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**99**		
13.2 mm	**97**		
9.5 mm	**93**		
6.7 mm	**89**		
4.75 mm	**85**		
2.36 mm	**77**		
1.18 mm	**72**		
0.6 mm	**67**		
0.425 mm	**64**		
0.3 mm	**61**		
0.15 mm	**55**		
0.075 mm	**48**		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	37		
Plastic Limit (%)	19		
Plasticity Index (%)	**18**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	9.0		
Cracking Crumbling Curling	None		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	12.3



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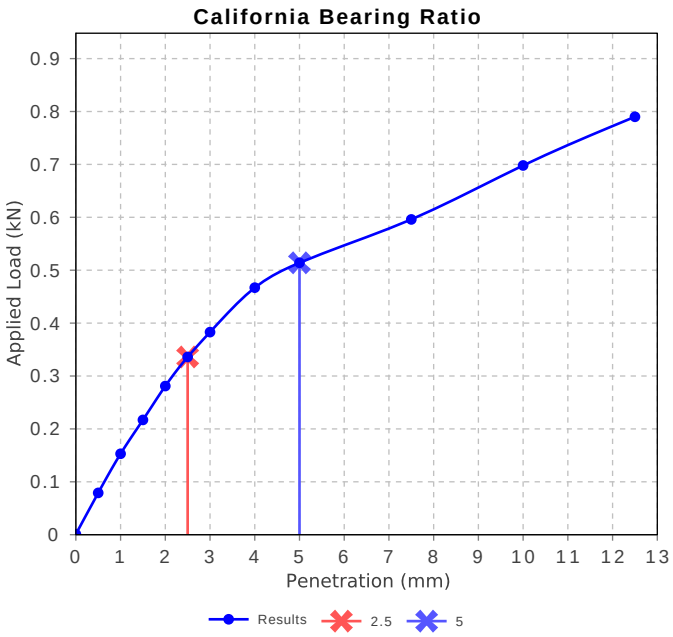
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Project Location: Material Testing, Maroochydore QLD
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Work Request: 15979
Sample Number: SS-15979AA
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 26/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH27 , Depth: 0.2 - 0.6 m**

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**2.5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.77		
Optimum Moisture Content (%)	15.5		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	100.5		
Dry Density after Soaking (t/m^3)	1.65		
Field Moisture Content (%)	12.3		
Moisture Content at Placement (%)	15.7		
Moisture Content Top 30mm (%)	24.0		
Moisture Content Rest of Sample (%)	20.3		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	1		



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Material Test Report

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Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

Report Number: **202937.00-49**
Issue Number: 1
Date Issued: 30/11/2021
Client: Core Consultants Pty Ltd
Unit 1/2 Neumann Court, Kunda Park QLD 4556
Contact: Simon Maggiora
Project Number: 202937.00
Project Name: Proposed Development
Project Location: Material Testing, Maroochydore QLD
Client Reference: J001424
Work Request: 15979
Sample Number: SS-15979AB
Date Sampled: 11/11/2021
Dates Tested: 12/11/2021 - 29/11/2021
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: **BH28 , Depth: 0.2 - 0.8 m**

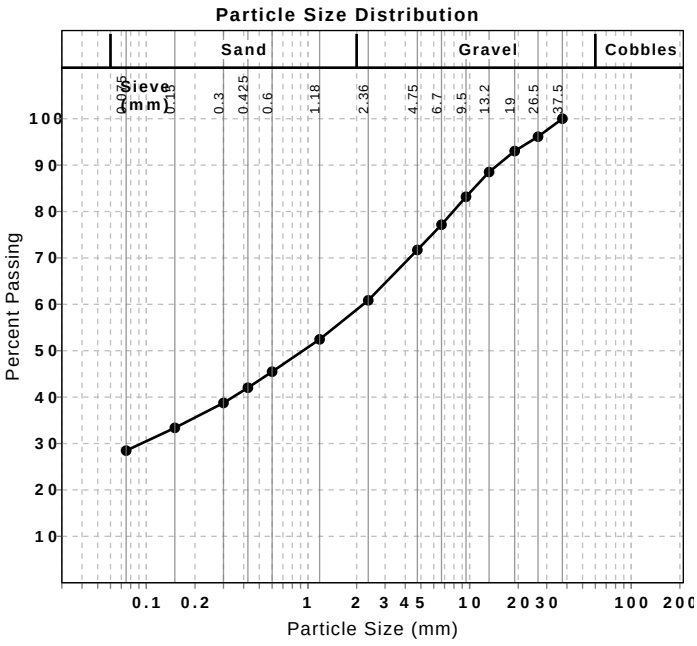
Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
37.5 mm	**100**		
26.5 mm	**96**		
19 mm	**93**		
13.2 mm	**89**		
9.5 mm	**83**		
6.7 mm	**77**		
4.75 mm	**72**		
2.36 mm	**61**		
1.18 mm	**52**		
0.6 mm	**45**		
0.425 mm	**42**		
0.3 mm	**39**		
0.15 mm	**33**		
0.075 mm	**28**		

Atterberg Limit (AS1289 3.1.2 & 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**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	7.5		
Cracking Crumbling Curling	None		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**5**		
Soil Description			
Nature of Water	Distilled		
Temperature of Water (^{o}C)	24		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	12.4



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Material Test Report

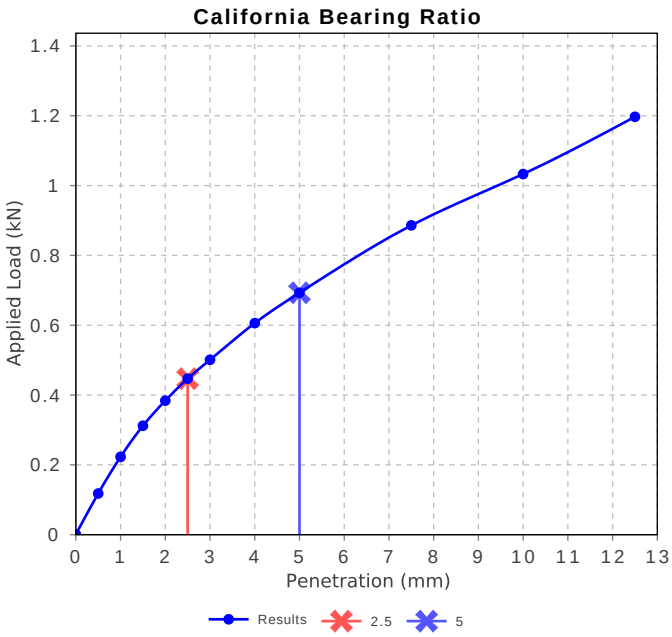
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California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**3.5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS1289 3.1.2		
Maximum Dry Density (t/m^3)	1.88		
Optimum Moisture Content (%)	13.5		
Laboratory Density Ratio (%)	95.0		
Laboratory Moisture Ratio (%)	101.5		
Dry Density after Soaking (t/m^3)	1.77		
Field Moisture Content (%)	12.4		
Moisture Content at Placement (%)	13.9		
Moisture Content Top 30mm (%)	16.3		
Moisture Content Rest of Sample (%)	16.6		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	72.0		
Swell (%)	0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	7		



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Appendix F
Limitations

LIMITATIONS

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