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21 June 2024

Shepherdsons Road Rehabilitation

Factual Report

SHEPHERDSONS ROAD REHABILITATION PROJECT

Hartecs

Job No. NQL2023-0036 | Version 0

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Review and update history

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01	21 June 2024	FINAL Report

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1.0 INTRODUCTION

1.1 General

CMW Geosciences (CMW) was engaged by Hartecs to carry out a geotechnical investigation of a site for the rehabilitation of the Shepherdsons road in Biloela.

This report presents the factual findings of our geotechnical investigation based on the encountered ground conditions. The scope of work and associated terms and conditions of our engagement were detailed in our services proposal letter referenced 2128E.Q.1277 Rev0 Proposal_231027 dated 27 October 2023.

1.2 Proposed Development

The project comprises of rehabilitation of the Shepherdsons Road with an approximate length of four (04) kilometres. Proposed Shepherdsons Road for rehabilitation is highlighted in orange colour in Figure 1.

Figure 1: Site Location Plan

1.3 Scope and Objectives

The objective of the geotechnical study along Shepherdsons Road was to gain an appreciation of the geological conditions for the site.

2.0 SITE DESCRIPTION

The Shepherdson Road is located in Biloela, off Jambin Dakenbah Road, approximately 6 km north of Biloela town. The existing road has deformations such as rutting, and several pothole patches were observed as well.

The vegetation surrounds along the route was observed at the time of investigations to being moderately sparse. Access to the respective sites was along the Shepherdsons Road.

2.1 Surface Conditions and Geology

The overall underlying soil/rock formations across the site comprises of Qr>To Biloela formation. The lithological summary consists of clay, silt, sand, gravel, and soil from colluvial and residual deposits.

Geological map of the proposed area of investigation is shown in the Figure 1 below with detailed descriptions of the units under Table 1.

Figure 2: Regional Geology – Shepherdsons Road

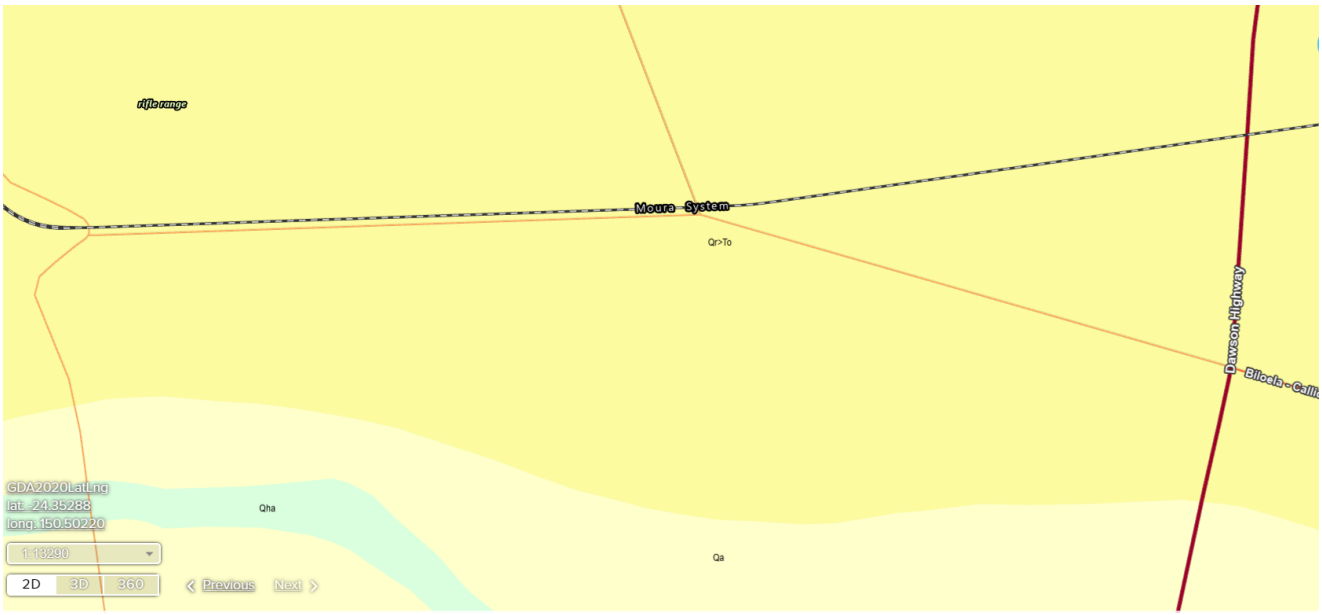

Table 1: Regional Geology of Site

Rock Unit Key (Surface)	Rock Unit Name	Map Symbol	Lithological Summary	Dominant Rock	Rock Type	Age	Legend
11420	Qr-QLD>Biloela Formation	Qr>To	Clay, silt, sand, gravel, and soil: colluvial and residual deposits.	Colluvium	Composite Unit (Dominantly Stratified)	Quaternary	Lorray Qr-QLD Biloela Formation (Qr>To)

3.0 FIELD INVESTIGATION

Prior to carrying out the fieldwork, an Occupational Health, Safety and Environmental Management (OHSEM) plan, along with relevant Safe Work Method Statements (SWMS) and Job Hazard Analysis (JHA) documents were prepared to support the safe operation of the field investigation. Following a dial before you dig search, the field investigation was undertaken on 14 May 2024 and 15 May 2024. Field work was carried out under full time observations of a CMW Geotechnical engineer / engineering geologist in general accordance with the AS1726 (2017).

Investigation locations were positioned using a GPS unit to the units' inherent accuracy (typically ± 5m).

3.1 Test Pits

Fieldwork was carried out using 5 Tonne excavator on 14 May 2024 and 15 May 2024. Test pits were excavated by contractor Shaw Bob Cat Hire with a 5-Tonne excavator. Test pits were advanced until the termination criteria were achieved.

Dynamic Cone Penetrometer (DCP) test was carried out from natural subgrade level to 1 m depth or until refusal. Following the investigation, the test pits were reinstated with 2.1 road base material and capped with cold mix. The compaction of the fill material was achieved using Wacker packer and plate compacter. Table 2 summarises the Test Pit ID, depth, and location of the geotechnical investigation conducted.

Engineering logs of the subsurface conditions are presented in Appendix B. The locations of the respective sites referred to above are shown in Appendix A.

Table 2: Summary of Test Pit Locations

Location ID	Drilling Date	Test Pit Depth (m)	Reason for termination	Easting (m)	Northing (m)
TP1	14/05/2024	0.86	Target Depth	246347	7304557
TP2	15/05/2024	1.05	Target Depth	246975	7304583
TP3	15/05/2024	1.05	Target Depth	248139	7304648
TP4	15/05/2024	1.05	Target Depth	248879	7304474
TP5	15/05/2024	1.07	Target Depth	249874	7304206

3.2 Groundwater

No ground water was encountered during the investigation.

3.3 Subsurface Conditions

The excavations conducted at site intersected similar soil stratigraphy. The investigation showed that, generally, the road fill material comprises of Gravelly Clayey sand, which is then underlain by alluvial clays.

For details of the strata encountered at each test location, investigation logs for boreholes and test pits are both provided in Appendix B. A summary of the encountered ground conditions is provided in Table 4 below.

Table 3: Subsurface Conditions

Location ID	Road Surface Seal	Fill	Colluvium	Termination Depth (m)	Termination Reason
	SEAL	SAND/GRAVEL	CLAY		
TP1	0.0-0.01	0.01-0.26 0.26-0.36	0.36-0.86	0.86	Target Depth
TP2	0.0-0.01	0.01-0.3 0.3-0.4	0.4-1.05	1.05	Target Depth
TP3	0.0-0.01	0.01-0.3 0.3-0.4	0.4-1.05	1.05	Target Depth
TP4	0.0-0.01	0.01-0.4	0.4-1.05	1.05	Target Depth
TP5	0.0-0.01	0.01-0.26 0.26-0.4	0.4-1.07	1.07	Target Depth

4.0 LABORATORY TESTING

4.1 Soil Testing

Laboratory testing was carried out in accordance with the requirements of the current edition of AS1289. Where a test was not covered by an Australian Standard, a local or international standard was adopted. Laboratory testing was scheduled by CMW based on the provided brief and carried out by a NATA registered testing authority.

The extent of soil testing carried out to provide the geotechnical parameters required for this study are presented in Table 8.

Table 4: Summary of Soils Laboratory Tests Undertaken

Test	Standard	No. of Tests Scheduled	No. of Tests Received
Atterberg Limits with Linear Shrinkage	AS1289.3.1.1 - 3.4.1	4	4
Particle Size Distribution by Sieve	AS1289.3.6.1	5	5
California Bearing Ratio-single point	AS 1289.6.1.1	5	5

4.2 Laboratory Test Results

Table 5 Summary of Particle Size Distribution (Sieve) & Atterberg Limits

Sample Location	Sample Depth	Sample Description	Liquid Limit %	Linear Shrinkage %	Plasticity Index %	% Retained		
						Gravels	Sands	Fines
TP1	0.0-0.3	Clayey sandy GRAVEL	-	-	-	57	31	12
	0.4-0.86	CLAY	63	21.0	35	4	11	85
TP2	0.0-0.3	Clayey sandy GRAVEL	34	3.5	12	57	31	12
TP4	0.0-0.4	Clayey GRAVEL	38	9.0	20	65	15	20
TP5	0.4-1.07	Gravelly CLAY	56	14.0	27	34	16	50

Table 6 Summary of California Bearing Ratio Test Results

Sample Location	Sample Depth (m)	Maximum Dry Density (t/m^3)	Optimum Moisture Content (%)	CBR Value	Swell (%)
TP1	0.4-0.86	1.52	22.0	1.5	0.0
TP2	0.0-0.3	2.02	10.5	13	0.0
TP3	0.4-1.05	1.48	22.0	2.0	6.0
TP4	0.0-0.4	1.84	12.5	35	1.0
TP5	0.4-1.07	1.42	26.5	1.5	3.0

5.0 SAFETY IN DESIGN

The design landform requires site excavations that may include geotechnical works such as undercuts, temporary excavations, steep fill batters, shear key excavations, deep and shallow subsoil drains. Exposure to these works forms a significant safety risk for contractors and inspectors/ testers.

In conducting our scope of work, we have considered and addressed Safety in Design (SiD) aspects relevant to our understanding of the proposed design and construction work. SiD must consider the construction, operation, maintenance, and ultimate demolition phases of the relevant works.

It is noted that CMW are focussed on design aspects, and whilst we have attempted to be comprehensive in our assessment, it is the Contractors responsibility to cover construction related risks in a more comprehensive manner (being the competent party in that respect). The CMW designs/ specifications for undercuts and drainage elements have been made so that no personnel are ever expected to enter unbattered or unprotected excavations to complete the construction. If at any stage a contractor does not consider that a design for excavations can be safely constructed, then CMW must be contacted immediately to discuss alternative design and/ or methods and avoid risk to personnel.

6.0 CLOSURE

This report has been prepared for use by Hartecs in relation to the HTF Pipeline Project in accordance with the scope, proposed uses and limitations described in the report. Should you have further questions relating to the use of your report please do not hesitate to contact us.

Where a party other than Hartecs seeks to rely upon or otherwise use this report, the consent of CMW should be sought prior to any such use. CMW can then advise whether the report and its contents are suitable for the intended use by the other party.

USING YOUR CMW GEOTECHNICAL REPORT

Geotechnical reporting relies on interpretation of facts and collected information using experience, professional judgement, and opinion. As such it generally has a level of uncertainty attached to it, which is often far less exact than other engineering design disciplines. The notes below provide general advice on what can be reasonably expected from your report and the inherent limitations of a geotechnical report.

Preparation of your report

Your geotechnical report has been written for your use on your project. The contents of your report may not meet the needs of others who may have different objectives or requirements. The report has been prepared using generally accepted Geotechnical Engineering and Engineering Geology practices and procedures. The opinions and conclusions reached in your report are made in accordance with these accepted principles. Specific items of geotechnical or geological importance are highlighted in the report.

In producing your report, we have relied on the information which is referenced or summarised in the report. If further information becomes available or the nature of your project changes, then the findings in this report may no longer be appropriate. In such cases the report must be reviewed, and any necessary changes must be made by us.

Your geotechnical report is based on your project's requirements

Your geotechnical report has been developed based on your specific project requirements and only applies to the site in this report. Project requirements could include the type of works being undertaken; project locality, size and configuration; the location of any structures on or around the site; the presence of underground utilities; proposed design methodology; the duration or design life of the works; and construction method and/or sequencing.

The information or advice in your geotechnical report should not be applied to any other project given the intrinsic differences between different projects and site locations. Similarly geotechnical information, data and conclusions from other sites and projects may not be relevant or appropriate for your project.

Interpretation of geotechnical data

Site investigations identify subsurface conditions at discrete locations. Additional geotechnical information (e.g. literature and external data source review, laboratory testing etc) are interpreted by Geologists or Engineers to provide an opinion about a site specific ground models, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist due to the variability of geological environments. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. Interpretation of factual data can be influenced by design and/or construction methods. Where these methods change review of the interpretation in the report may be required.

Subsurface conditions can change

Subsurface conditions are created by natural processes and then can be altered anthropically or over time. For example, groundwater levels can vary with time or activities adjacent to your site, fill may be placed on a site, or the consistency of near surface conditions might be susceptible to seasonal changes. The report is based on conditions which existed at the time of investigation. It is important to confirm whether conditions may have changed, particularly when large periods of time have elapsed since the investigations were performed.

Interpretation and use by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical report. To help avoid misinterpretations, it is important to retain the assistance of CMW to work with other project design professionals who are affected by the contents of your report. CMW staff can explain the report implications to design professionals and then review design plans and specifications to see that they have correctly incorporated the findings of this report.

Your report's recommendations require confirmation during construction

Your report is based on site conditions as revealed through selective point sampling. Engineering judgement is then applied to assess how indicative of actual conditions throughout an area the point sampling might be. Any assumptions made cannot be substantiated until construction is complete. For this reason, you should retain geotechnical services throughout the construction stage, to identify variances from previous assumption, conduct additional tests if required and recommend solutions to problems encountered on site.

A Geotechnical Engineer, who is fully familiar with the site and the background information, can assess whether the report's recommendations remain valid and whether changes should be considered as the project develops. An unfamiliar party using this report increases the risk that the report will be misinterpreted.

Environmental matters are not covered

Unless specifically discussed in your report environmental matters are not covered by a CMW Geotechnical Report. Environmental matters might include the level of contaminants present of the site covered by this report, potential uses or treatment of contaminated materials or the disposal of contaminated materials. These matters can be complex and are often governed by specific legislation.

The personnel, equipment, and techniques used to perform an environmental study can differ significantly from those used in this report. For that reason, our report does not provide environmental recommendations. Unanticipated subsurface environmental problems can have large consequences for your site. If you have not obtained your own environmental information about the project site, ask your CMW contact about how to find environmental risk-management guidance.

APPENDIX A
Site Plans


Shepherdsons Road
Hartecs
Legend
Test Pit Location
Jambin Dakenbah Rd
Callide Dawson Clay Target Club
Dakenba
Shooting Complex
Dawson Hwy
TP1
TP2
TP3
TP4
TP5
Teys Australia Biloela
Biloela Callide Rd
60
Jambin Dakenbah
Google Earth
Image © 2024 Airbus
N
1 km

APPENDIX B

Test Pit Logs

TEST PIT LOG - TP1

Client: Hartecs
Project: Shepherdsons Road Rehabilitation
Location: Shepherdsons Road-Biloela
Project ID: NQL2023-0036
Date: 14/05/2024

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1:20 Sheet 1 of 1

Position: E.246347m N.7304557m
Checked By: PK
Elevation:
Dimensions : m x m

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description: Soil Type, Plasticity or Particle Characteristics, Colour, Secondary and Minor Components	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & other observations
	0.0 - 0.3	1 B				Road Surface Seal:				
	0.0 - 0.3	2 D				GM: Sandy GRAVEL: fine to coarse grained gravel, sub-angular to angular, pale brown, fine to medium grained sand, with low plasticity silt. (Fill)	M			
	0.3 - 0.4	3 B				SP: Clayey Gravelly SAND: fine to coarse grained, pale red mottled orange , fine to medium grained gravel, sub-angular to angular, low plasticity clay, (Fill)		VD	14	
	0.3 - 0.4	4 D				CH: CLAY: high plasticity, black, trace sand, fine to medium grained, trace gravel.(Natural)			4	
	0.4 - 0.9	5 B							4	
	0.4 - 0.9	6 D					<PL	St to VSt	5	
									5	
									5	
						Test pit terminated at 0.86 m			5	
				1					6	
									5	
									5	
				2						
				3						

Dynamic Cone Penetrometer (Blows/100mm) scale: 5, 10, 15

DCP Equipment Ref.:
In Situ Vane Equipment Ref.:
Pocket Penetrometer Equipment Ref.:

Termination Reason: Target Depth
Remarks:

This report must be read in conjunction with accompanying notes and abbreviations.

TESTPIT PHOTO: TP-01 – TEST PIT PROFILE

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	0.86 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TESTPIT PHOTO: TP-01 – EXCAVATED MATERIAL

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	0.86 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TEST PIT LOG - TP2

Client: Hartecs
Project: Shepherdsons Road Rehabilitation
Location: Shepherdsons Road-Biloela
Project ID: NQL2023-0036
Date: 15/05/2024

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1:20 Sheet 1 of 1

Position: E.246975m N.7304583m
Checked By: PK
Elevation:
Dimensions : m x m

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description: Soil Type, Plasticity or Particle Characteristics, Colour, Secondary and Minor Components	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & other observations
	0.0 - 0.3	1 B				Road Surface Seal:				
	0.0 - 0.3	2 D				GC: Clayey sandy GRAVEL: fine to coarse grained, sub-angular to angular, pale brown, fine to coarse grained sand, with low plasticity clay. (Fill)	M			
						SP: SAND: fine to coarse grained, pale red mottled brown, trace gravel, fine to medium grained, angular (Fill)		VD	13	
	0.4 - 1.0	3 B				CH: CLAY: high plasticity, black , (Natural)			5	
	0.4 - 1.0	4 D							3	
									3	
							<PL	St to VSt	4	
									5	
				1					4	
						Test pit terminated at 1.05 m			5	
									5	
									4	
									4	
				2					4	
				3						

DCP Equipment Ref.: | In Situ Vane Equipment Ref.: | Pocket Penetrometer Equipment Ref.:

Termination Reason: Target Depth

Remarks:

This report must be read in conjunction with accompanying notes and abbreviations.

TESTPIT PHOTO: TP-02 – TEST PIT PROFILE

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	1.05 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TESTPIT PHOTO: TP-02 – EXCAVATED MATERIAL

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	1.05 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TEST PIT LOG - TP3

Client: Hartecs
Project: Shepherdsons Road Rehabilitation
Location: Shepherdsons Road-Biloela
Project ID: NQL2023-0036
Date: 15/05/2024

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1:20 Sheet 1 of 1

Position: E.248139m N.7304648m
Checked By: PK
Elevation:
Dimensions : m x m

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil Type, Plasticity or Particle Characteristics, Colour, Secondary and Minor Components)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & other observations
	0.0 - 0.3	1 B				Road Surface Seal:				
	0.0 - 0.3	2 D				SP: Gravelly Clayey SAND: fine to coarse grained, pale brown , low plasticity clay, with gravel, fine to medium grained, sub-rounded to angular (Fill)	M			
						SP: Gravelly SAND: fine to coarse grained, pale red , fine to medium grained gravel, sub-angular to angular (Fill)		D	7	
	0.4 - 1.0	3 B				CH: CLAY: high plasticity, black (Natural)			4	
	0.4 - 1.0	4 D							4	
									4	
							<PL	St to VSt	3	
									4	
				1					5	
						Test pit terminated at 1.05 m			5	
									5	
									5	
									3	
									3	
				2						
				3						

DCP Equipment Ref.: | In Situ Vane Equipment Ref.: | Pocket Penetrometer Equipment Ref.:

Termination Reason: Target Depth

Remarks:

This report must be read in conjunction with accompanying notes and abbreviations.

TESTPIT PHOTO: TP-03 – TEST PIT PROFILE

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	1.05 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TESTPIT PHOTO: TP-03 – EXCAVATED MATERIAL

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	1.05 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TEST PIT LOG - TP4

Client: Hartecs
Project: Shepherdsons Road Rehabilitation
Location: Shepherdsons Road-Biloela
Project ID: NQL2023-0036
Date: 15/05/2024

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1:20 Sheet 1 of 1

Position: E.248879m N.7304474m
Checked By: PK
Elevation:
Dimensions : m x m

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description: Soil Type, Plasticity or Particle Characteristics, Colour, Secondary and Minor Components	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & other observations
	0.0 - 0.4	1 B				Road Surface Seal:				
	0.0 - 0.4	2 D				GC: Clayey GRAVEL: fine to medium grained, sub-angular to angular, pale brown, low plasticity clay, trace sand. (Fill)	M			
	0.4 - 1.0	3 B				CH: CLAY: high plasticity, black (Natural)	<PL	St	4	
	0.4 - 1.0	4 D							4	
									4	
									4	
									4	
				1					5	
						Test pit terminated at 1.05 m			4	
									5	
									4	
									5	
				2						
				3						

DCP Equipment Ref.: | In Situ Vane Equipment Ref.: | Pocket Penetrometer Equipment Ref.:

Termination Reason: Target Depth

Remarks:

This report must be read in conjunction with accompanying notes and abbreviations.

TESTPIT PHOTO: TP-04 – TEST PIT PROFILE

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	1.05 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TESTPIT PHOTO: TP-04 – EXCAVATED MATERIAL

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	1.05 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TEST PIT LOG - TP5

Client: Hartecs
Project: Shepherdsons Road Rehabilitation
Location: Shepherdsons Road-Biloela
Project ID: NQL2023-0036
Date: 15/05/2024

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1:20 Sheet 1 of 1

Position: E.249874m N.7304206m
Checked By: PK
Elevation:
Dimensions : m x m

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil Type, Plasticity or Particle Characteristics, Colour, Secondary and Minor Components)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & other observations
	0.0 - 0.3	1 B				Road Surface Seal:				
	0.0 - 0.3	2 D				SP: Gravelly Clayey SAND: fine to coarse grained, pale brown , low plasticity clay, fine to coarse grained gravel, sub-angular to angular (Fill)	M			
						SP: Gravelly SAND: fine to coarse grained, pale red mottled brown, fine to coarse grained gravel, sub-rounded and sub-angular (Fill)				
	0.4 - 1.1	3 B				CH: Gravelly CLAY: high plasticity, black, fine to medium grained, angular to sub-angular gravel, with fine to coarse grained sand. (Natural)			5	
	0.4 - 1.1	4 D					<PL	St	5	
									4	
									4	
									4	
				1					4	
						Test pit terminated at 1.07 m			4	
									4	
									4	
									4	
				2						
				3						

DCP Equipment Ref.: | In Situ Vane Equipment Ref.: | Pocket Penetrometer Equipment Ref.:

Termination Reason: Target Depth

Remarks:

This report must be read in conjunction with accompanying notes and abbreviations.

TESTPIT PHOTO: TP-05 – TEST PIT PROFILE

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	1.07 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

TESTPIT PHOTO: TP-05 – EXCAVATED MATERIAL

Client:	Hartecs Group Pty Ltd	**Project:**	Shepherdsons Road Rehabilitation
Location:	Shepherdsons Road, Queensland 4715	**Project No:**	NQL2023-0036
Plant:	5-Tonne Excavator	**Date:**	15/05/2024
Termination Depth:	1.07 m	**Contractor:**	Shaw Bobcat Hire
Logged by:	AK	**Checked by:**	PK

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APPENDIX C
Laboratory Testing Certificates

Construction Sciences

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
7 Lawson Street,
Parkhurst QLD 4702

Laboratory: **Rockhampton Laboratory**
Phone: 07 4886 2100
Fax: 07 4926 1286
Email: Rockhampton@constructionsciences.net

QUALITY OF MATERIALS REPORT

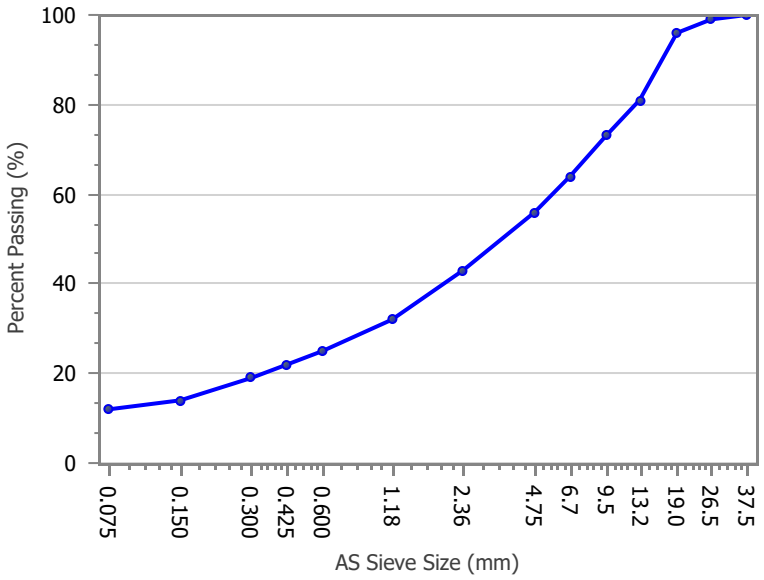
Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86436-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	17/06/2024 Page 1 of 5

Test Procedures	AS1289.3.6.1		
Sample Number	2128/S/170517	Test Pit No:	TP1
Sampling Method	Tested As Received	Depth (m)	0-0.3m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 1
Date Tested	1/06/2024	Material Source	Insitu
PSD Preparation	Washed	Material Type	-
Atterberg Preparation		Prep Material > 53.0mm (%)	

Material Description

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
37.5		**100**	
26.5		**99**	
19.0		**96**	
13.2		**81**	
9.5		**73**	
6.7		**64**	
4.75		**56**	
2.36		**43**	
1.18		**32**	
0.600		**25**	
0.425		**22**	
0.300		**19**	
0.150		**14**	
0.075		**12**	

PARTICLE SIZE DISTRIBUTION GRAPH



Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)	Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
Liquid Limit (%)				0.075/0.425 Fines Ratio		**0.54**	
Plastic Limit (%)				PI x 0.425 Ratio (%)		-	
Plastic Index (%)				LS x 0.425 Ratio (%)		-	
Linear Shrinkage (%)				Shrinkage Observations			

Remarks

Accredited for compliance with ISO/IEC 17025 – Testing

NATA

Accreditation Number: 1986
Corporate Site Number: 2128

Approved Signatory: Tai Battisson
Form ID: W85Rep Rev 3

Construction Sciences

Construction Sciences Pty Ltd
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Laboratory: **Rockhampton Laboratory**
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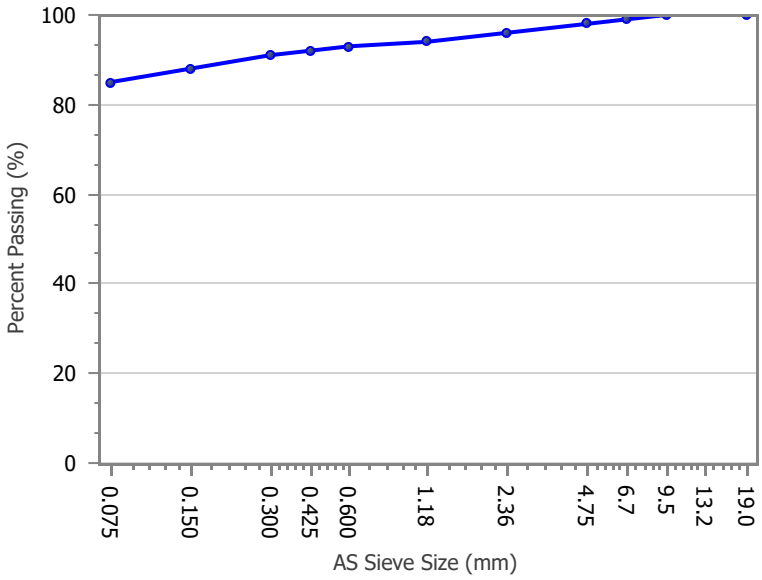
QUALITY OF MATERIALS REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86436-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	17/06/2024 Page 2 of 5

Test Procedures	AS1289.3.6.1, AS1289.3.1.2, AS1289.3.2.1, AS1289.3.4.1, AS1289.2.1.1, AS 1289.3.3.1		
Sample Number	2128/S/170518	Test Pit No:	TP1
Sampling Method	Tested As Received	Depth (m)	0.4-0.86m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 2
Date Tested	1/06/2024	Material Source	Insitu
PSD Preparation	Washed	Material Type	-
Atterberg Preparation	Dry Sieved / Oven Dried	Prep Material > 53.0mm (%)	
Material Description	Sandy Clay		

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
19.0		**100**	
9.5		**100**	
6.7		**99**	
4.75		**98**	
2.36		**96**	
1.18		**94**	
0.600		**93**	
0.425		**92**	
0.300		**91**	
0.150		**88**	
0.075		**85**	

PARTICLE SIZE DISTRIBUTION GRAPH



Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)	Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
Liquid Limit (%)		**63**		0.075/0.425 Fines Ratio		**0.93**	
Plastic Limit (%)		**28**		PI x 0.425 Ratio (%)		**3220.0**	
Plastic Index (%)		**35**		LS x 0.425 Ratio (%)		**1932.0**	
Linear Shrinkage (%)		**21.0**		Shrinkage Observations	-		

Remarks

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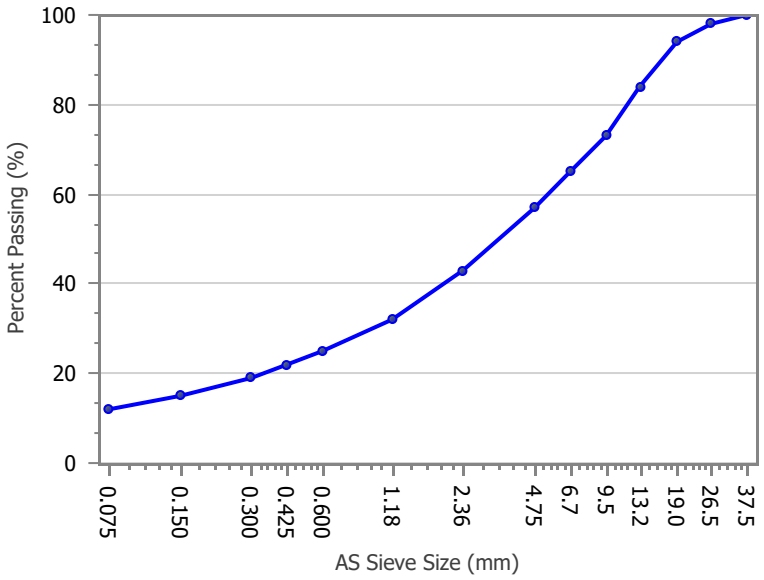
QUALITY OF MATERIALS REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86436-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	17/06/2024 Page 3 of 5

Test Procedures	AS1289.3.6.1, AS1289.3.1.2, AS1289.3.2.1, AS1289.3.4.1, AS1289.2.1.1, AS 1289.3.3.1		
Sample Number	2128/S/170519	Test Pit No:	TP2
Sampling Method	Tested As Received	Depth (m)	0-0.3m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 3
Date Tested	1/06/2024	Material Source	Insitu
PSD Preparation	Washed	Material Type	-
Atterberg Preparation	Dry Sieved / Oven Dried	Prep Material > 53.0mm (%)	
Material Description	Sandy Clay		

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
37.5		**100**	
26.5		**98**	
19.0		**94**	
13.2		**84**	
9.5		**73**	
6.7		**65**	
4.75		**57**	
2.36		**43**	
1.18		**32**	
0.600		**25**	
0.425		**22**	
0.300		**19**	
0.150		**15**	
0.075		**12**	

PARTICLE SIZE DISTRIBUTION GRAPH



Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)	Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
Liquid Limit (%)		**34**		0.075/0.425 Fines Ratio		**0.55**	
Plastic Limit (%)		**22**		PI x 0.425 Ratio (%)		**258.0**	
Plastic Index (%)		**12**		LS x 0.425 Ratio (%)		**75.3**	
Linear Shrinkage (%)		**3.5**		Shrinkage Observations	-		

Remarks

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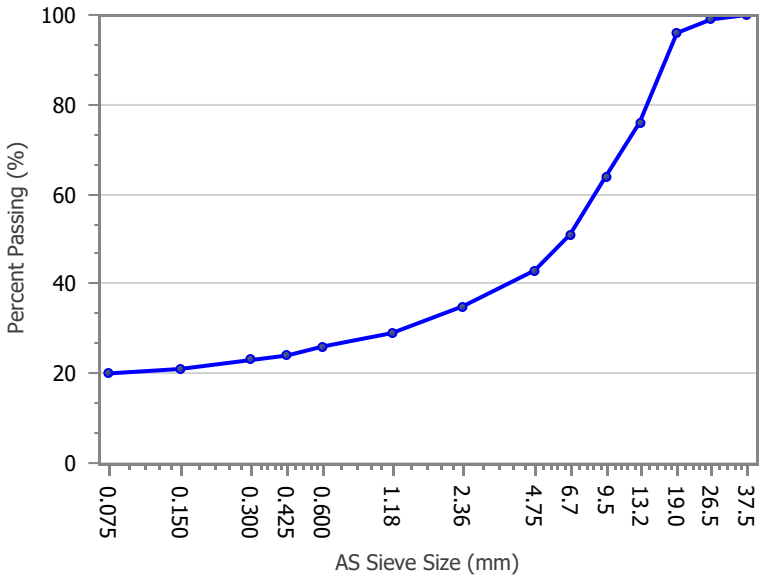
QUALITY OF MATERIALS REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86436-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	17/06/2024 Page 4 of 5

Test Procedures	AS1289.3.6.1, AS1289.3.1.2, AS1289.3.2.1, AS1289.3.4.1, AS1289.2.1.1, AS 1289.3.3.1		
Sample Number	2128/S/170521	Test Pit No:	TP4
Sampling Method	Tested As Received	Depth (m)	0-0.4m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 5
Date Tested	1/06/2024	Material Source	Insitu
PSD Preparation	Washed	Material Type	-
Atterberg Preparation	Dry Sieved / Air Dried	Prep Material > 53.0mm (%)	
Material Description	Sandy Clay		

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
37.5		**100**	
26.5		**99**	
19.0		**96**	
13.2		**76**	
9.5		**64**	
6.7		**51**	
4.75		**43**	
2.36		**35**	
1.18		**29**	
0.600		**26**	
0.425		**24**	
0.300		**23**	
0.150		**21**	
0.075		**20**	

PARTICLE SIZE DISTRIBUTION GRAPH



Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)	Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
Liquid Limit (%)		**38**		0.075/0.425 Fines Ratio		**0.84**	
Plastic Limit (%)		**18**		PI x 0.425 Ratio (%)		**484.1**	
Plastic Index (%)		**20**		LS x 0.425 Ratio (%)		**217.8**	
Linear Shrinkage (%)		**9.0**		Shrinkage Observations	-		

Remarks

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Laboratory: **Rockhampton Laboratory**
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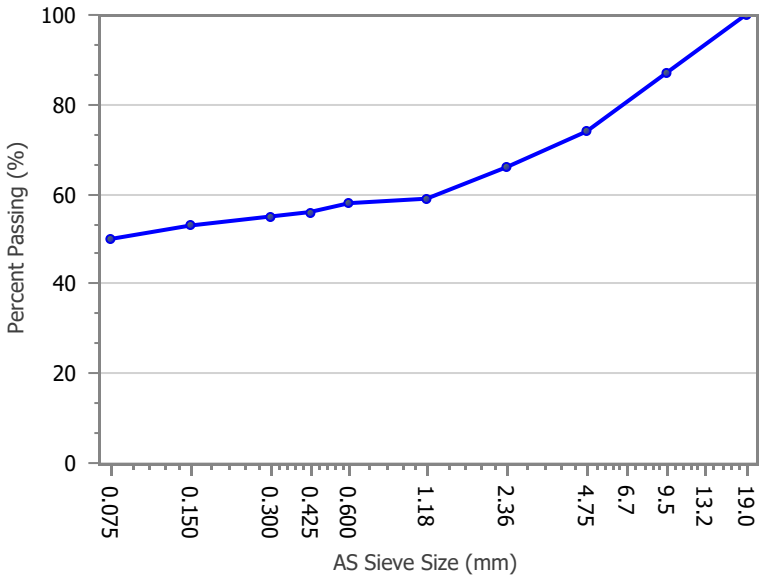
QUALITY OF MATERIALS REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86436-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	17/06/2024 Page 5 of 5

Test Procedures	AS1289.3.6.1, AS1289.3.1.2, AS1289.3.2.1, AS1289.3.4.1, AS1289.2.1.1, AS 1289.3.3.1		
Sample Number	2128/S/170522	Test Pit No:	TP5
Sampling Method	Tested As Received	Depth (m)	0.4-1.07m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 6
Date Tested	1/06/2024	Material Source	Insitu
PSD Preparation	Washed	Material Type	-
Atterberg Preparation	Dry Sieved / Oven Dried	Prep Material > 53.0mm (%)	
Material Description	Silty Clay		

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
19.0		**100**	
9.5		**87**	
4.75		**74**	
2.36		**66**	
1.18		**59**	
0.600		**58**	
0.425		**56**	
0.300		**55**	
0.150		**53**	
0.075		**50**	

PARTICLE SIZE DISTRIBUTION GRAPH



Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)	Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
Liquid Limit (%)		**56**		0.075/0.425 Fines Ratio		**0.89**	
Plastic Limit (%)		**29**		PI x 0.425 Ratio (%)		**1514.7**	
Plastic Index (%)		**27**		LS x 0.425 Ratio (%)		**785.4**	
Linear Shrinkage (%)		**14.0**		Shrinkage Observations	-		

Remarks

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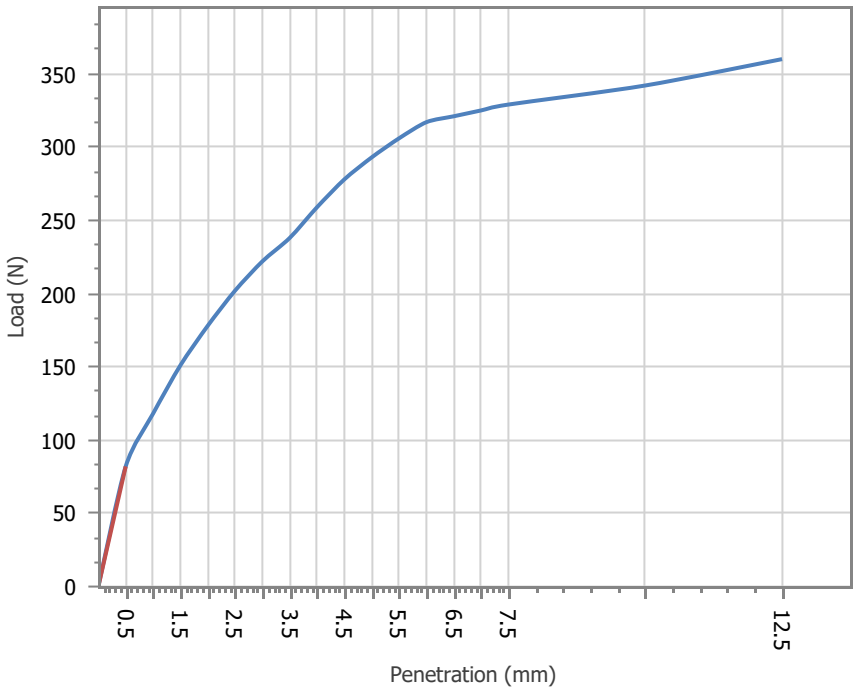
CALIFORNIA BEARING RATIO REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86553-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	20/06/2024 Page 1 of 5

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1		
Sample Number	2128/S/170518	Test Pit No:	TP1
Sampling Method	Tested As Received	Depth (m)	0.4-0.86m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 2
Date Tested	14/06/2024	Prep Material > 53mm (%)	-
Material Source	Insitu	Material Limit Start	-
Material Type	-	Material Limit End	-
Client Reference	-	Compactive Effort	Standard
Material Description	Sandy Clay		

Maximum Dry Density (t/m³):	1.52
Optimum Moisture Content (%):	22.0
Field Moisture Content (%):	19.1
Sample Percent Oversize (%)	0.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	95
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.44
Placement Dry Density Ratio (%):	95.0
Placement Moisture Content (%):	22.0
Placement Moisture Ratio (%):	99.5
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	4.5
Dry Density After Soak (t/m³):	1.44
Total Curing Time (hrs)	2
Liquid Limit Method	Estimation
Moisture (top 30mm) After Soak (%)	40.1
Moisture (remainder) After Soak (%)	33.2
CBR Swell (%):	0.0
Minimum CBR Specification (%):	-
CBR Value @ 5.0mm (%):	**1.5**

CBR PENETRATION PLOT



Remarks

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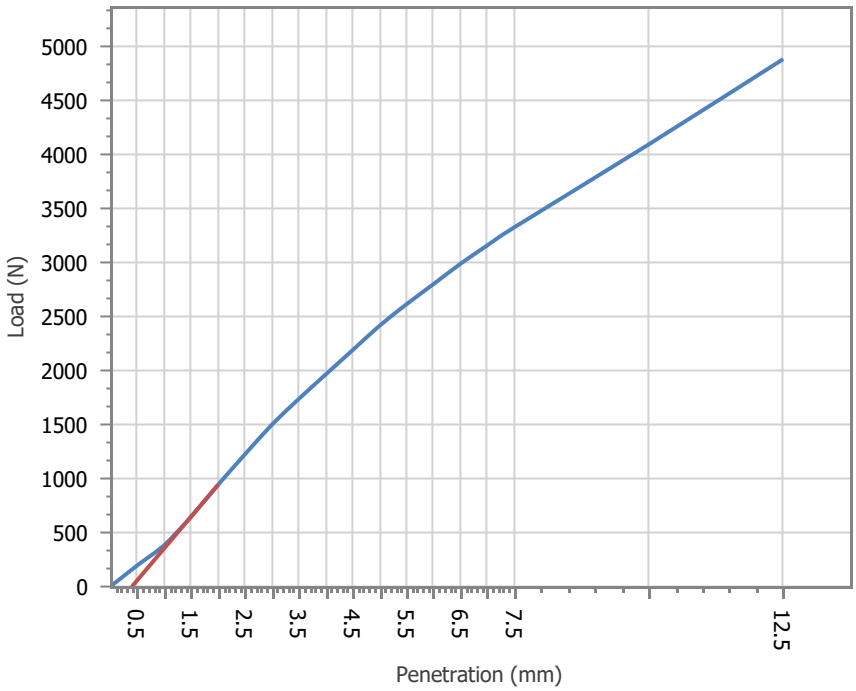
CALIFORNIA BEARING RATIO REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86553-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	20/06/2024 Page 2 of 5

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1		
Sample Number	2128/S/170519	Test Pit No:	TP2
Sampling Method	Tested As Received	Depth (m)	0-0.3m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 3
Date Tested	14/06/2024	Prep Material > 53mm (%)	-
Material Source	Insitu	Material Limit Start	-
Material Type	-	Material Limit End	-
Client Reference	-	Compactive Effort	Standard
Material Description	Sandy Clay		

Maximum Dry Density (t/m³):	2.02
Optimum Moisture Content (%):	10.5
Field Moisture Content (%):	5.2
Sample Percent Oversize (%)	8.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	95
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.92
Placement Dry Density Ratio (%):	95.0
Placement Moisture Content (%):	10.5
Placement Moisture Ratio (%):	100.0
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	4.5
Dry Density After Soak (t/m³):	1.92
Total Curing Time (hrs)	2
Liquid Limit Method	Estimation
Moisture (top 30mm) After Soak (%)	12.1
Moisture (remainder) After Soak (%)	11.8
CBR Swell (%):	0.0
Minimum CBR Specification (%):	-
CBR Value @ 5.0mm (%):	**13**

CBR PENETRATION PLOT



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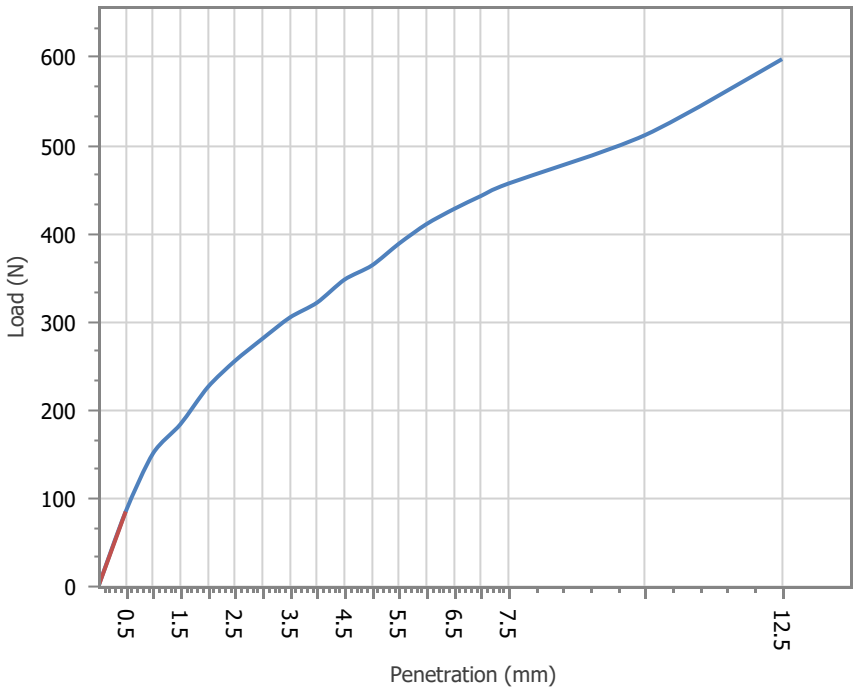
CALIFORNIA BEARING RATIO REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86553-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	20/06/2024 Page 3 of 5

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1		
Sample Number	2128/S/170520	Test Pit No:	TP3
Sampling Method	Tested As Received	Depth (m)	0.4-1.05m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 4
Date Tested	18/06/2024	Prep Material > 53mm (%)	-
Material Source	Insitu	Material Limit Start	-
Material Type	-	Material Limit End	-
Client Reference	-	Compactive Effort	Standard
Material Description	Silty Clay		

Maximum Dry Density (t/m³):	1.48
Optimum Moisture Content (%):	22.0
Field Moisture Content (%):	16.7
Sample Percent Oversize (%)	0.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	95
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.41
Placement Dry Density Ratio (%):	95.0
Placement Moisture Content (%):	22.0
Placement Moisture Ratio (%):	99.5
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	-
Dry Density After Soak (t/m³):	1.33
Total Curing Time (hrs)	4
Liquid Limit Method	Estimation
Moisture (top 30mm) After Soak (%)	38.3
Moisture (remainder) After Soak (%)	33.8
CBR Swell (%):	6.0
Minimum CBR Specification (%):	-
CBR Value @ 2.5mm (%):	**2.0**

CBR PENETRATION PLOT



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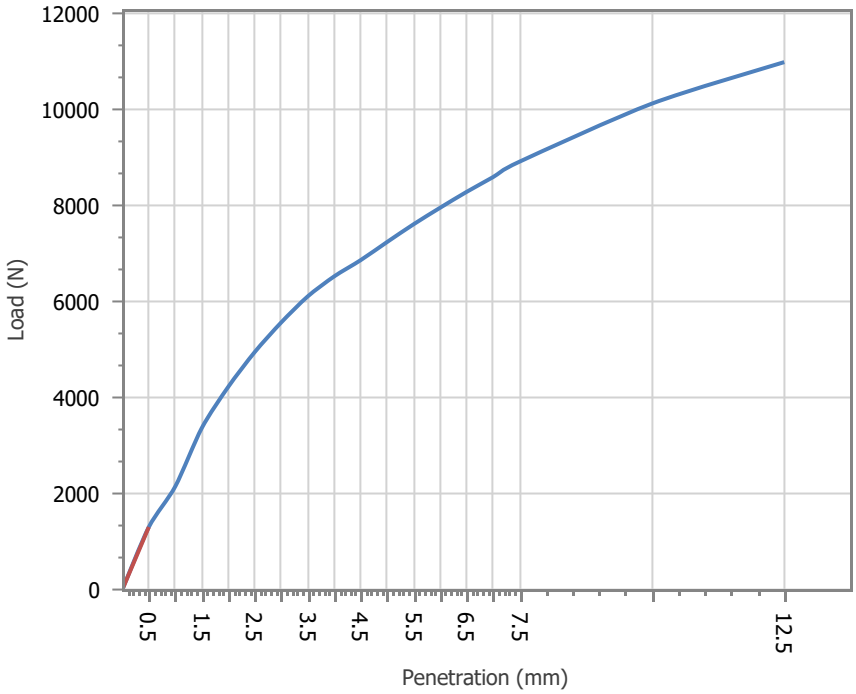
CALIFORNIA BEARING RATIO REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86553-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	20/06/2024 Page 4 of 5

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1		
Sample Number	2128/S/170521	Test Pit No:	TP4
Sampling Method	Tested As Received	Depth (m)	0-0.4m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 5
Date Tested	18/06/2024	Prep Material > 53mm (%)	-
Material Source	Insitu	Material Limit Start	-
Material Type	-	Material Limit End	-
Client Reference	-	Compactive Effort	Standard
Material Description	Sandy Clay		

Maximum Dry Density (t/m³):	1.84
Optimum Moisture Content (%):	12.5
Field Moisture Content (%):	6.3
Sample Percent Oversize (%)	3.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	95
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.75
Placement Dry Density Ratio (%):	95.0
Placement Moisture Content (%):	12.3
Placement Moisture Ratio (%):	100.0
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	4.5
Dry Density After Soak (t/m³):	1.74
Total Curing Time (hrs)	4
Liquid Limit Method	Estimation
Moisture (top 30mm) After Soak (%)	13.3
Moisture (remainder) After Soak (%)	15.5
CBR Swell (%):	1.0
Minimum CBR Specification (%):	-
CBR Value @ 2.5mm (%):	**35**

CBR PENETRATION PLOT



Remarks

Accredited for compliance with ISO/IEC 17025 – Testing

NATA

Accreditation Number: 1986
Corporate Site Number: 2128

Approved Signatory: Tai Battisson
Form ID: W2ASRep Rev 3

Construction Sciences

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
7 Lawson Street,
Parkhurst QLD 4702

Laboratory: **Rockhampton Laboratory**
Phone: 07 4886 2100
Fax: 07 4926 1286
Email: Rockhampton@constructionsciences.net

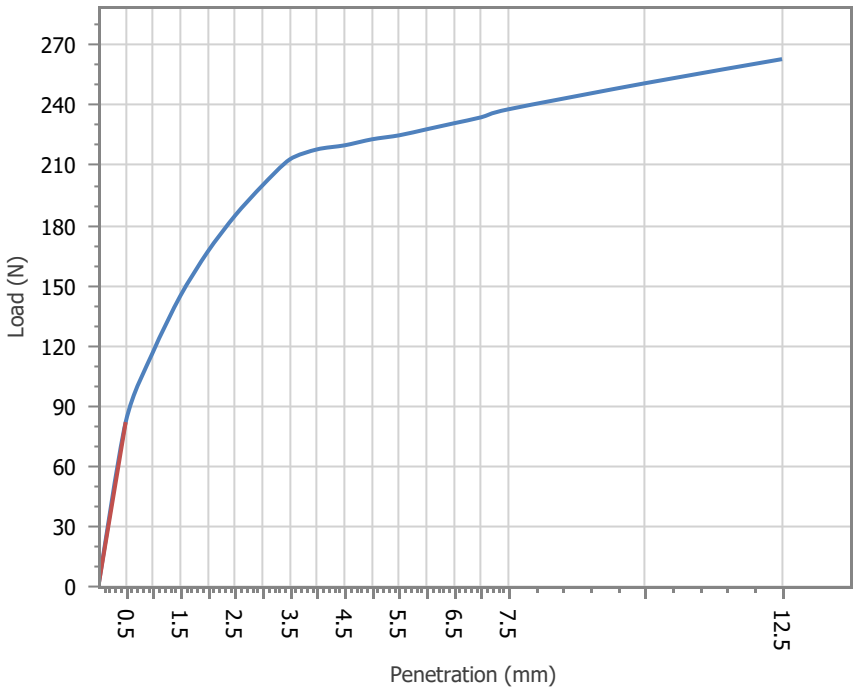
CALIFORNIA BEARING RATIO REPORT

Client:	CMW GEOSCIENCES (EAST COAST) PTY LTD.	Report Number:	2128/R/86553-1
Client Address:	Level 3 /1 Breakfast Creek Road, 60 Kingsford Smith Drive Al	Project Number:	2128/P/1502
Project:	NQL2023-0036: Shepherdsons Road	Lot Number:	
Location:	7 Lawson Street PARKHURST QLD 4702	Internal Test Request:	2128/T/37703
Component:	Hartess Group Pty Ltd	Client Reference/s:	NQL2023-0036
Area Description:	Shepherdsons Road	Report Date / Page:	20/06/2024 Page 5 of 5

Test Procedures	AS1289.6.1.1, AS1289.5.1.1, AS1289.2.1.1		
Sample Number	2128/S/170522	Test Pit No:	TP5
Sampling Method	Tested As Received	Depth (m)	0.4-1.07m
Date Sampled	30/05/2024		
Sampled By	Client/Subcontractor Supplied		Site 6
Date Tested	18/06/2024	Prep Material > 53mm (%)	-
Material Source	Insitu	Material Limit Start	-
Material Type	-	Material Limit End	-
Client Reference	-	Compactive Effort	Standard
Material Description	Silty Clay		

Maximum Dry Density (t/m³):	1.42
Optimum Moisture Content (%):	26.5
Field Moisture Content (%):	21.9
Sample Percent Oversize (%)	0.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	95
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.35
Placement Dry Density Ratio (%):	95.0
Placement Moisture Content (%):	26.7
Placement Moisture Ratio (%):	100.0
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	4.5
Dry Density After Soak (t/m³):	1.31
Total Curing Time (hrs)	3
Liquid Limit Method	Estimation
Moisture (top 30mm) After Soak (%)	41.4
Moisture (remainder) After Soak (%)	35.5
CBR Swell (%):	3.0
Minimum CBR Specification (%):	-
CBR Value @ 2.5mm (%):	**1.5**

CBR PENETRATION PLOT



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