

27th October 2021

Jamie Scheskie
19 Mooloolah Court
HILLCREST QLD 4118

Job No. **21-10-40337**
Report No. **R-13161**

Site Address

19 Mooloolah Court
HILLCREST QLD 4118

Commission

Geotechnical Investigation





1.0 INTRODUCTION

APOD Soil Testing Pty Ltd was commissioned to undertake a geotechnical investigation for **Jamie Scheskie**, (19/10/2021 by email), at the site of the proposed development located at **19 Mooloolah Court, Hillcrest**. Investigation was carried out on the 25/10/2021.

The aim of the investigation was to determine the following:

- The strength capacity of the subsurface profile;
- The nature and characteristics of the subsurface profile;
- Site classification in accordance with AS 2870-2011.

It is understood that the existing dwelling is to be extended.

2.0 SITE OBSERVATIONS

VEGETATION: Established garden and lawn. Sparse trees (height 5-10 metres) and moderate grass cover.

SLOPE: Virtually flat & slight. 3% slope (clinometer measurement). As this slope was not formally surveyed, the percentage and direction should be treated as approximate.

ON SITE DRAINAGE: Fair. Site generally drained from South to North.

WATER TABLE: No water table was encountered in the test holes drilled to the target depth of our commission.

3.0 INVESTIGATIONS

One test hole was drilled within the area of the proposed footings using a 4WD mounted 100mm diameter power auger. Due to restricted site access an 85mm diameter hand auger was used to excavate a second test hole. Numerous disturbed samples were collected and hand classified. One tube sample was returned to the laboratory and tested for its shrink/swell (Iss) parameters. A pocket penetrometer (PP) was used to determine the strength of the cohesive soils. The strength of the upper level profile at the rear of the existing dwelling was assessed using 9kg dynamic cone penetrometer (DCP).



4.0 SITE CONDITIONS

The existing soil encountered generally consists of a **silty sand(SM)** fill material underlain by a **natural silty sand(SM)** and **silty clay(CH)**. **Fill was encountered across the proposed site at the following depths:**

Bore Hole #1	Bore Hole #2	DCP #3
0-500mm	0-200mm	N/A

At the time of writing this report, documentation complying with AS 3798 had not been sighted, therefore the fill is described as **uncontrolled fill**.

Minimum allowable bearing capacity:

Bore Hole #1	Bore Hole #2	DCP #3
100kPa @ 600mm	100kPa @ 700mm	100kPa @ 800mm

For detailed soil descriptions and bore hole locations refer to the log section located in the appendix of this report.

5.0 RESULTS

Bore hole #1 @ 0.6m – 0.9m:- l.s.s. = 2.9% $Y_s = 45\text{mm}$

Y_s calculation for zone of influence of trees:- $Y_{st} = 70\text{mm}$

Y_{st} calculation is a guide only. Design engineer to refer to appendix H & CH of AS2870-2011. The predicted surface movement calculation in this report has been assessed using clause 2.3 of AS 2870 – 2011. Refer to the appendix of this report for full laboratory results.

6.0 CONCLUSIONS

The shrink/swell index of 2.9% indicates that the silty clay(CH) material is highly reactive. The calculation of predicted total surface movement of **Y_s 45mm (Class "H1" reactivity)** is subject to seasonal moisture variation due to climatic changes, but not abnormal moisture build up due to leaking pipes, excess watering, poor drainage, large trees or other similar scenarios.

Based on site conditions encountered, soil tests carried out and observations on site, the site is classified **Class "P"** in accordance with Australian Standard 2870-2011 "Residential Slabs and Footings". **Class "P" due to a poor bearing capacity and abnormal moisture conditions. As per AS 2870-2011 Clause 2.1.3 (a) & (e).**

The design engineer must ensure all footings, internal beams and load bearing supports are founded into competent natural ground through any fill.

The design engineer must be aware the above quoted Y_s does not take into account ground movements generated by "abnormal" conditions. The design engineer must use calculation provided in appendix H & CH of AS 2870-2011 to ensure that the design provides acceptable performance.



7.0 CONDITIONS OF CLASSIFICATION

The site classification is subject to the following conditions:

- a) Site drainage is adequately provided to direct water away from footings and walls.
- b) Trees are to be located well away from the house in order for aggressive root systems to not aggravate the soil moisture conditions.
- c) This classification does not support the scenario of plumbing leaks. Any identified anomalies are to be rectified immediately to prevent further damage to the superstructure.

Attached is a copy of the paper *CSIRO "Foundation Maintenance and Footing Performance: A Homeowner's Guide"* for further information.

8.0 SITE RECOMMENDATIONS

The ground immediately surrounding the residence is to be graded away from the residence with a fall of 1:20 for the first 1.0 metre to ensure adequate draining away from the residence. A spoon drain is recommended to be installed to drain the water away from the residence.

9.0 REPORT LIMITATIONS

This report does not take into consideration the long-term or short-term effects of any previous, current or potential subsurface work by mining companies or any other body, or potential slope instability problems. At the time of writing this report neither our clients nor the local authority (or any other agent) has made us aware of any problems affecting this allotment.

This investigation is limited in scope and extent, and it is possible that areas may exist which differ from those shown on the test hole records used for this classification. Should any variation from those shown be encountered during excavation work or subsequent earthworks carried out, reappraisal of the classification will be required. Should you require any further information or clarification regarding this report, please contact the undersigned.

APOD Soil Testing Pty Ltd
QBCC Act Licence No: 1064604

Patrice Le Pla
Managing Director
QBCC Act Licence No: 731863
Adv.Dip.Lab.Op

APPENDIX

Log Sections

TEST SITE 1					TEST SITE 2				
Address: 19 Mooloolah Court, Hillcrest					Date: 25/10/2021				
Job No: 21-10-40337					Technician: Mark Riordan				
Location: Refer to site sketch					Location: Refer to site sketch				
Depth (mm)	Description Soil Type-Colour-Consistency	FILL	DCP	PP kPa	Depth (mm)	Description Soil Type-Colour-Consistency	FILL	DCP	PP kPa
100	SILTY SAND(SM) (or-br-gy)				100	SILTY SAND(SM) (dk.br-or)			
200	- fine to medium grained				200	moist & uncontrolled			
300	- with trace gravels & clay lenses				300	SILTY SAND(SM) (gy-br)			
400	moist/very moist & uncontrolled				400	moist & loose			
500					500	SILTY CLAY(CH) (gy-br.mott.or)			
600	SILTY CLAY(CH) (gy-br.mott.or)			150	600	very moist & firm			110
700	- with sand & trace small gravels				700				
800					800				
900					900	moist & stiff/very stiff			
1000					1000				
1100					1100				
1200	moist/slightly moist & stiff				1200	(lt.gy.mott.or-yell-br)			
1300					1300				
1400					1400	slightly moist & very stiff			
1500					1500				
1600					1600	END – with hand auger			
1700	(lt.gy.mott.or-yell-br)				1700				
1800					1800				
1900	slightly moist & stiff/very stiff				1900				
2000					2000				
2100	END – with power auger				2100				
2200					2200				
2300					2300				
2400					2400				
2500					2500				
2600					2600				
2700					2700				
2800					2800				
2900					2900				
3000					3000				
3100					3100				

NOMENCLATURE: UTP=Unable to Penetrate DCP=9kg Dynamic Cone Penetrometer PP = Pocket Penetrometer A=Auger
 XW=ROCK=Extremely Weathered Rock Refer Tables 7.3.2 & 7.3.3 AS1726-2017 gy=grey or=orange yell=yellow rd=red
 wh=white br=brown bk=black bl=blue gr=green Refer AS1726-2017 Clause 6.1 for classifying soils.

TEST SITE 3

Address: 19 Mooloolah Court, Hillcrest			Job No: 21-10-40337			Date: 25/10/2021			Technician: Mark Riordan		
Location: Refer to site sketch											
Depth (mm)	Description Soil Type-Colour-Consistency	FILL	DCP	PP kPa	Depth (mm)	Description Soil Type-Colour-Consistency	FILL	DCP	PP kPa		
100	<u>DCP TEST ONLY</u>		1		100						
200			2		200						
300			3		300						
400			4		400						
500			4		500						
600			3		600						
700			2		700						
800			3		800						
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2900		2900									
3000		3000									
3100		3100									

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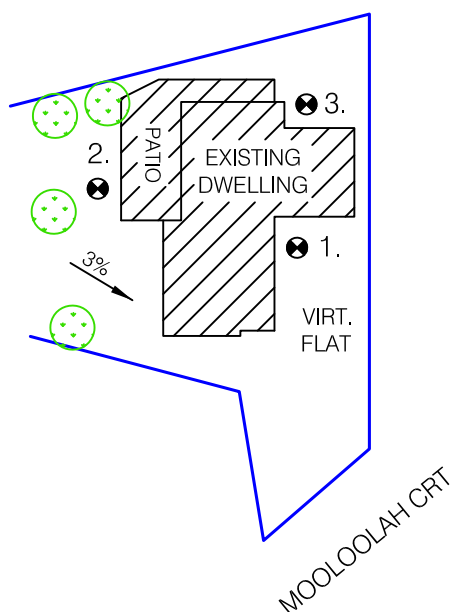
SITE SKETCH

NOT TO SCALE

Address: 19 Mooloolah Court, Hillcrest

Job No: 21-10-40337

Date: 25/10/2021



⊗ TEST SITES

→ SLOPE DIRECTION

TEST METHODS:

Hand Auger ☒ Small Rig(100mm dia.) ☒

SITING:

Existing ☒ Plans ☒ General Setback ☐

Pegged ☐ Met on site ☒ Cut/Fill Pad ☐

EXCAVATION PROBLEMS:

Access to Site ☒ Shallow Rock ☐

Rubbish in Fill ☐ Wet/Dry Collapse ☐

Gravels/Cobbles/Boulders ☐

Fluctuating Water Table ☐ Services ☐

VEGETATION: Sparse trees (5-10m) . . .
and moderate grass cover.

ON SITE DRAINAGE:

Poor ☐ Poor/Fair ☐ Fair ☒

Fair/Good ☐ Good ☐

SLOPE:

Virtually Flat ☒ Slight ☒ Gentle ☐

Moderate ☐ Steep ☐ Very Steep ☐

SHRINK / SWELL TEST RESULTS

Client:	JAMIE SCHESKIE	Lab. No:	31329
Project:	19 MOOLOOLAH CRT, HILLCREST	Job No:	21-10-40337
Location:	B.H. 1 @ 0.6m - 0.9m	Date Sampled:	25/10/2021
Test Procedure:	AS1289 7.1.1/2.1.1	Description:	gy-br.mott.or SILTY CLAY with sand & trace small gravels

Swell Test

Moisture Content - Initial %	27.5	Applied Load kPa	25
Moisture Content - Final %	30.0	Water Used:	Distilled

Shrink Test

Moisture Content %	29.0	Wet Density t/m3	1.94
Extent of Cracking of Specimen	Minor	Inert Inclusions %	-10
Extent of Crumbling of Specimen	Nil		

Shrinkage %	5.3	Swell %	0.0	Shrink/Swell Index %	2.9
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Prepared by:



Date: 27/10/2021





Form 15—Compliance certificate for building design or specification

Version 4 – July 2017

NOTE: This is to be used for the purposes of section 10 of the *Building Act 1975* and/or section 46 of the *Building Regulation 2006*.

RESTRICTION: A building certifier (class B) can only give a compliance certificate about whether building work complies with the BCA or a provision of the Queensland Development Code (QDC). A building certifier (Class B) cannot give a certificate regarding QDC boundary clearance and site cover provisions.

1. Property description

This section need only be completed if details of street address and property description are applicable.

Street address (include no., street, suburb/locality and postcode)

19 MOOLOOLAH CRT, HILLCREST 4118

Lot and plan details (attach list if necessary)

LOT 122 ON RP 858032

In which local government area is the land situated?

LOGAN CITY COUNCIL

2. Description of component/s certified

SITE CLASSIFICATION AS PER AS 2870-2011

3. Basis of certification

AS 2870-2011

4. Reference documentation

AS 2870-2011 – RESIDENTIAL SLABS & FOOTINGS - CONSTRUCTION

5. Building certifier reference number

Building certifier reference number

6. Competent person details

A competent person for building work, means a person who is assessed by the building certifier for the work as competent to practice in an aspect of the building and specification design, of the building work because of the individual's skill, experience and qualifications in the aspect. The competent person must also be registered or licensed under a law applying in the State to practice the aspect.

If no relevant law requires the individual to be licensed or registered to be able to give the help, the certifier must assess the individual as having appropriate experience, qualifications or skills to be able to give the help.

Name (in full)

PATRICE FAE LE PLA

Company name (if applicable)

APOD SOIL TESTING PTY LTD

Contact person

PATRICE LE PLA

Phone no. (business hours) **Mobile no.**

07 3264 6995

0411 278 525

Fax no.

Email address

apodsoil@bigpond.com

Postal address

53 DRAPERS RD, EATONS HILL QLD 4037

Licence or registration number (if applicable)

QBCC LICENCE NO. 1064604

7. Signature of competent person

This certificate must be signed by the individual assessed by the building certifier as competent.

Signature

Date

27/10/2021

LOCAL GOVERNMENT USE ONLY

Date received	Reference Number/s
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