

CIVILTEST ALBURY WODONGA

Soils Engineering Laboratory

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23.8.2017

Report No. : 17CT1026/48

Summit Group
C/- EDM Group
99 Hume Street
Wodonga, Vic, 3690

**Re: Site Classification for proposed residence
Lot 48 Sienna Ridge Estate
Hamilton Valley, NSW, 2641**

1. INTRODUCTION/DESCRIPTION

In accordance with your request on the 10th of July 2017, an investigation was conducted by Civiltest Albury/Wodonga to provide a site classification for the above site. The site is moderately sloping with good surface drainage.

2. FIELD PROCEDURE

On the 15th of August a Civiltest Albury/Wodonga representative completed two boreholes to assess the subsurface conditions.

Materials encountered during the field investigation are presented in the attached borehole logs and in general consist of clayey sands and sandy clays of low-high plasticity (SM-CH). A classification explanation sheet is attached outlining the terms and symbols used in the preparation of this report.

3. SITE CLASSIFICATION

Based on the results of the investigation the site has been classified as **Class "M" – Moderately Reactive**. The site classification has been undertaken in accordance with **AS 2870-2011** 'Site Classification - Residential Slabs and Footings' – Site Classification by surface movement calculation.

4. RECOMMENDATIONS

The footings system for a conventional slab may be designed as a **Class "M"** site classification with any external beams founded a minimum of **400mm** below existing surface level.

If piers, stumps or strip footings are used on this site they should be founded a minimum of **500mm** below existing surface level.

The footings for a waffle pod slab may be designed for a **Class "M"** site classification with the external beams founded a minimum of **350mm** below existing surface level.

It is suggested the site be stripped of all vegetation and topsoil, with any areas of soft, loose or wet material selectively excavated to provide a consistent and stable working platform.

The allowable bearing pressure for this site is 150kPa from **350mm** in depth.

5. SITE COMMENTS

If a cut and fill operation is to be performed onsite, it is recommended that that any fill be placed under controlled conditions to allow the footings to be placed in the fill.

6. FILL MATERIAL

Some building sites may contain areas of fill, which cannot be visually identified at the time of investigation. It is also often difficult to determine fill from natural insitu materials during a site investigation borehole. If fill is encountered during excavation of footings, and it is not described in the field investigation log, further advice must be obtained.

Where controlled (compacted) fill is encountered, the amount of compacted fill allowable is up to 800mm of "sand" fill or 400mm of "other" fill. AS 2870 - 2011 provides details of additional construction requirements for controlled fill sites.

7. GENERAL NOTE

The following general measures are recommended in reducing the potential of future building damage:

- Maintain a reasonable distance from building when planting trees or damaging vegetation.
- Monitor watering systems and avoid excessive garden watering
- Monitor underground services and attend any damage as soon as required.

8. APPLICATION

This site classification has been prepared specifically for the above mentioned project and any data or opinions that are given should not be used out of context or pertaining to any other job or purpose without analysis and overview from the undersigned. No other investigation work was provided that is not previously described.

This site classification has been based upon field and sample analysis from the locations mentioned, the nature and continuity below borehole depth is inferred and it must be considered that further investigation may be required to assess actual conditions of subsurface undisturbed soils.

During excavation it is suggested that footings are to be inspected carefully and if any irregularities occur further advice shall be sought.



Peter Vella (Manager)

**APPENDIX A
SITE CLASSIFICATION EXPLANATIONS:**

Class	Expected Surface Movement (Ys)	Explanation
A	0mm	Includes many sand, gravel and rock sites with little/no clays. These sites have little/no expected movement and as a result zero moisture variation.
S	0 - 20mm	Slightly reactive sites which exhibit only small movements with moisture variation.
M	20 - 40mm	Moderately reactive sites exhibit moderate amounts of movement with moisture variation. These sites commonly include red/brown silty soils, some sandy clays and loamy soils.
H1	40 - 60mm	Highly reactive sites exhibit high amounts of movement with moisture variation.
H2	60 - 75mm	Highly reactive sites exhibit high amounts of movement with moisture variation.
E	>75mm	Extremely reactive sites which exhibit greater than 75mm of surface movement. Typically, these sites include deep reactive clays, such as black and dark brown soils. These sites typically demand quite expensive footing systems.

As indicated previously, the Site Classification must consider many aspects of the site, not just the reactivity of the soil. P sites are those that include other factors that need to be brought to the attention of the owner, builder and footing designer. A "P" classification does not indicate a specific Ys value and is described as a "Problem" site.

The reasons for a P classification include:

- Growth &/or Removal of Trees will cause Abnormal moisture conditions in the subsurface soils;
- P**
- Unusually high moisture conditions caused by water flow, ponds, dams etc;
 - Sites with Loose fill which can be either "controlled" or "uncontrolled". The P Classification depends upon the depth and type of fill;
 - Sites with poor bearing capacity, soft soils, or soils which are prone to collapse;
 - Sites prone to mine subsidence, land slip, piping or coastal erosion;
 - Sites which for one reason or another cannot be classified as normal sites

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Form CT132/3

INVESTIGATION LOG
REPORT NO: 17CT1026

Borehole/Trench No: 1
Page: 1 of 1

Client: Summit Group Investigation For: Site Classification Location: Lot 48, Stage 3 & 4 Sienna Ridge Estate, Hamilton Valley Borehole/Trench Location: See Lot Plan	Date Logged: 15.08.2017 Logged By: PJ Checked By: PCV Date: 16.08.2017
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Method: Hand Auger Backhoe Drill Rig Other Alignment: **90°**

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
350	Clayey SAND, brown Fine to medium grained Low plasticity	Moist	Medium Dense			
700	Gravelly Sandy CLAY, red-brown Fine to coarse grained High plasticity		Very Stiff			
1100	Gravelly Sandy CLAY, brown Fine to coarse grained Low to medium plasticity		Stiff			
1600	Gravelly Sandy CLAY, yellow-brown Fine to coarse grained Low plasticity					
2100	Gravelly Clayey SAND, brown Fine to coarse grained Low plasticity		Medium Dense			
2100	Bore Terminated at 2.1m					

ISS - Shrink Swell Index

LL - Liquid Limit

LS - Linear Shrinkage

DRAINAGE: -General Good Fair Poor Free Water Swampy Subject to Flooding

TOPOGRAPHY:

-General Flat Undulating Hilly

-Local Flat Moderate Slope Dip Valley High Flat Low Flat Crest Steep Slope

----W---- - Water Level
 <----- - Water Inflow
MD - Medium Dense
Vst - Very Stiff

D -Disturbed Sample
U50 -Undisturbed Sample 50mm dia
CBR* -9kg Scala Dynamic Cone
MC -Moisture Content Taken

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Form CT132/3

INVESTIGATION LOG
REPORT NO: 17CT1026

Borehole/Trench No: 2
Page: 1 of 1

Client: Summit Group	Date Logged: 15.08.2017
Investigation For: Site Classification	Logged By: PJ
Location: Lot 48, Stage 3 & 4 Sienna Ridge Estate, Hamilton Valley	Checked By: PCV
Borehole/Trench Location: See Lot Plan	Date: 16.08.2017

Method: <input type="checkbox"/> Hand Auger <input type="checkbox"/> Backhoe <input checked="" type="checkbox"/> Drill Rig <input type="checkbox"/> Other	Alignment: 90°
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DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
200	Gravelly Sandy CLAY, dark brown Fine to coarse grained, low plasticity	Moist	Stiff			
450	Gravelly Clayey SAND, brown Fine to coarse grained Low plasticity		Medium Dense			
800	Gravelly Sandy CLAY, yellow-brown Fine to coarse grained Low plasticity		Stiff			
1200	Gravelly Clayey SAND, yellow-brown Fine to coarse grained Low plasticity		Medium Dense			
1800	Gravelly Silty SAND, brown Fine to coarse grained Low plasticity					
	Refusal at 1.8m					

ISS - Shrink Swell Index

LL - Liquid Limit

LS - Linear Shrinkage

DRAINAGE: -General Good Fair Poor Free Water Swampy Subject to Flooding

TOPOGRAPHY:

-General Flat Undulating Hilly

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