

# Lucas Grange Stage 1G Alfredton

## Earthworks Supervision Report for Madica

Report 21C 0585-1  
September 2021

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Site plan  
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## 1 INTRODUCTION

Madica commissioned Geotechnical Testing Services (GTS) to undertake Level 1 Supervision and testing (*AS3798-2007*) for the earthworks at Lucas Grange Stage 1G, Alfredton.

Level 1 testing was generally performed in line with *AS3798-2007 Guidelines on Earthworks for Commercial and Residential Development* and provides inspection of the construction of controlled fill and compaction testing in accordance with *AS1289 Methods of Testing Soils for Engineering Purposes*. The Level 1 testing was undertaken by geotechnicians with supervision provided by a geotechnical engineer from GTS.

## 2 SCOPE OF WORKS

### 2.1 Area of Work

GTS provided Level 1 inspection and testing of the engineered fill placed to raise the surface of Lots 82 to 85 in Stage 1G.

The total depth of engineered fill across the sites varied from none to 0.7 metres, with approximate locations shown on the attached site plan. It is noted that the client may subsequently place up to 0.2 metres of uncontrolled fill (topsoil) over the engineered fill.

It is noted that areas with less than 0.4 metres total fill depth were not included in the controlled fill.

### 2.2 Placement Specification

The placement of the fill and associated works generally followed the recommendations outlined in *AS3798-2007 Guidelines for Earthworks for Commercial and Residential Developments* and the construction specification.

In summary, the earthworks comply with the following:

- The layers for residential lots are to be compacted to at least 95% of the density ratio in accordance with *AS1289 5.1.1* (or *5.7.1*), based on Standard compaction.

In accordance with Table 8.1 of *AS3798-2007*, the sites would be considered small scale operations (between 500m<sup>2</sup> and 1500m<sup>2</sup>). Therefore, a minimum of 1 test per layer per 1000m<sup>2</sup>, 1 test per 200m<sup>3</sup> or 1 test per Lot per layer is required. The testing conducted meets the minimum requirement.

### 3 INSPECTION AND TESTING

Inspection of the excavated base was conducted by a geotechnical engineer and it was observed that the unsuitable material (vegetation, topsoil/silt) had been removed with the base consisting of a stiff silty clay material of good strength.

Level 1 supervision, inspection and testing was undertaken by a geotechnician from GTS who nominated the timing and location of the in-situ density tests. The approximate location of each test is recorded on the test reports and attached fill plan.

Laboratory compaction testing was undertaken on a one-to-one basis at our Ballarat laboratory. A summary of the results of the compaction control testing is presented in a table below with the full NATA endorsed test reports included in the Appendix.

### 4 SUMMARY OF TEST RESULTS

A summary of the test results is included in the following table with the full NATA accredited reports included in the Appendix.

Project No.	Sample No.	Test Date	Location	Reduced Level* (mm)	Moisture Variation % O.M.C.	Hilf Density Ratio %
1	D21-2381A	01/09/2021	Lot 82	FSL	0.5 dry	100.0
2	D21-2381B	01/09/2021	Lot 83	-400	0.0	99.5
3	D21-2381C	01/09/2021	Lot 83	-150	0.0	102.0
4	D21-2381D	01/09/2021	Lot 84	-400	1.0 wet	99.5
5	D21-2381E	01/09/2021	Lot 84	-150	0.0	101.0
6	D21-2381F	01/09/2021	Lot 85	-400	1.0 wet	99.0
7	D21-2382A	02/09/2021	Lot 85	-150	0.0	101.0

## 5 STATEMENT OF COMPLIANCE

GTS personnel have provided Level 1 inspection and testing services during the placement of material for the filling of Lots 82 to 85. The placement of fill and construction techniques adopted was observed throughout the project.

Based on observations made by GTS personnel and the results of field and laboratory tests, we consider that the fill has been placed and compacted and is considered to be engineered or controlled fill. It is noted that up to an additional 200mm of topsoil may subsequently be placed over the engineered fill. This topsoil layer is not considered to be controlled fill.

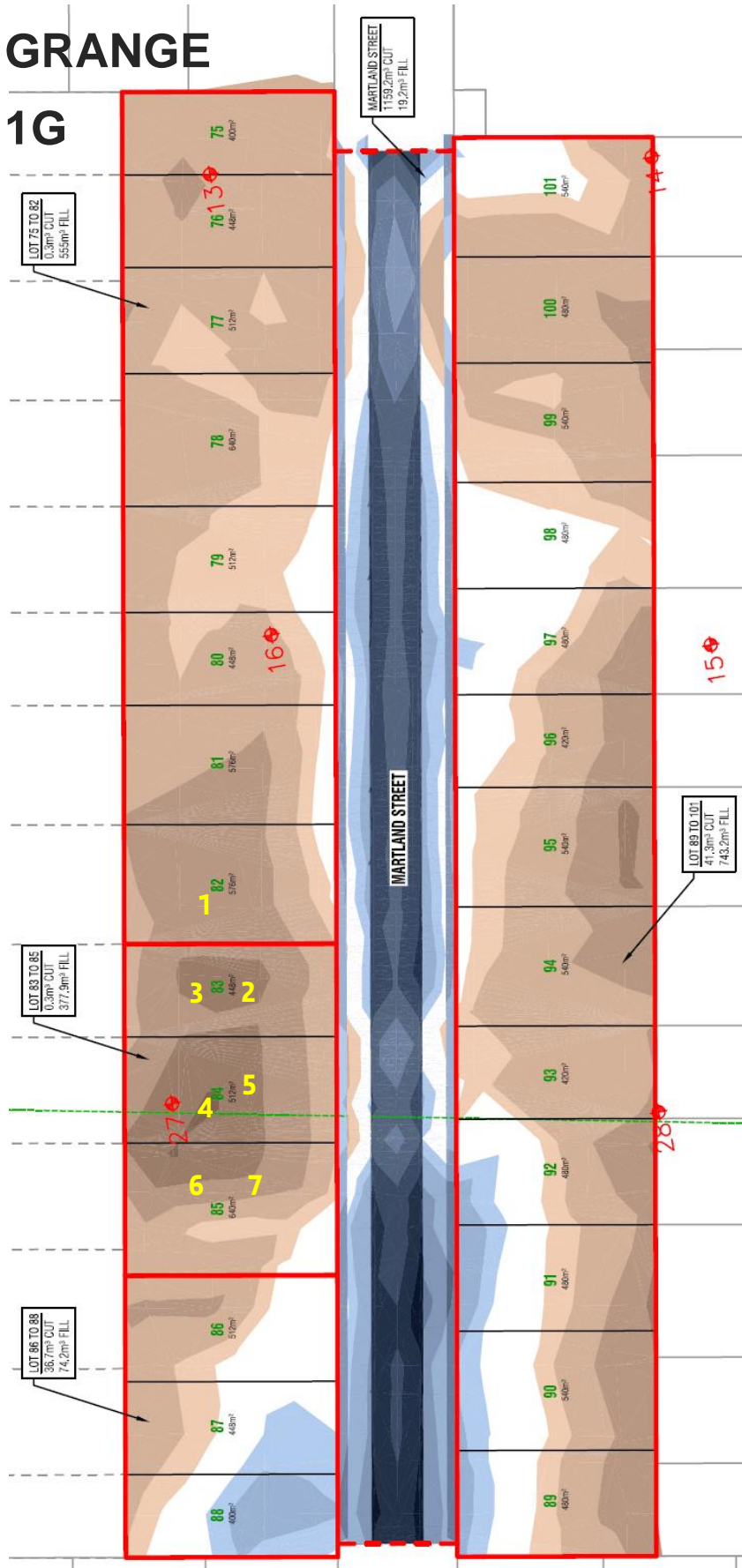
Subject to residential site classifications, the controlled fill material is deemed a suitable founding medium for future residential buildings.


















**Benj Beatty** BA/BSc (Hons), MPA, MAusIMM  
**Senior Engineering Geologist**

# APPENDIX

# LUCAS GRANGE STAGE 1G



FILL LEGEND	
	DEPTH OF FILL
	-1.220 TO -0.700
	-0.700 TO -0.600
	-0.600 TO -0.500
	-0.500 TO -0.400
	-0.400 TO -0.300
	-0.300 TO -0.200
	-0.200 TO -0.100
	-0.100 TO -0.050
	0.050 TO 0.100
	0.100 TO 0.200
	0.200 TO 0.300
	0.300 TO 0.400
	0.400 TO 0.500
	0.500 TO 0.600
	0.600 TO 1.200



# Material Test Report



**Report Number:** P21398-13  
**Issue Number:** 1  
**Date Issued:** 03/09/2021  
**Client:** Madica Pty Ltd  
 PO Box 173, Buninyong Victoria 3357  
**Contact:** Wayne Sheridan  
**Project Number:** P21398  
**Project Name:** Lucas Grange  
**Project Location:** Stage 1G - Level 1  
**Work Request:** 2381  
**Date Sampled:** 01/09/2021  
**Dates Tested:** 01/09/2021 - 01/09/2021  
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Material Source:** Test Location

Geotechnical Testing Services (Southern)  
 Ballarat Soil and Concrete Testing Laboratory  
 Unit 6, 33 Laidlaw Drive Delacombe VIC 3356  
 Phone: (03) 5335 6494  
 Email: bryanm@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



*Bryan Mott*

Approved Signatory: Bryan Mott  
 NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D21-2381A	D21-2381B	D21-2381C	D21-2381D	D21-2381E	D21-2381F
Date Tested	01/09/2021	01/09/2021	01/09/2021	01/09/2021	01/09/2021	01/09/2021
Time Tested	09:37	09:33	09:36	09:29	09:30	13:14
Test Request #/Location	House lot 82	House lot 83	House lot 83	House lot 84	House lot 84	House Lot 85
Easting	54h 745861	54h 745857	54h 745856	54h 745848	54h 745853	54h 745851
Northing	5840015	5839999	5839999	5839975	5839982	5839971
Layer / Reduced Level	FSL	-400	-150	-400	-150	-400
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay
Test Depth (mm)	275	275	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m <sup>3</sup>	1.95	2.02	2.01	1.94	1.99	1.97
Field Moisture Content %	22.6	22.3	26.2	27.9	28.5	22.9
Field Dry Density (FDD) t/m <sup>3</sup>	1.59	1.65	1.59	1.52	1.55	1.60
Peak Converted Wet Density t/m <sup>3</sup>	1.96	2.03	1.97	1.95	1.97	1.99
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**	**	**
Moisture Variation (Wv) %	0.5	0.0	0.0	-1.0	0.0	-1.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	<b>100.0</b>	<b>99.5</b>	<b>102.0</b>	<b>99.5</b>	<b>101.0</b>	<b>99.0</b>
Compaction Method	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>
Report Remarks	**	**	**	**	**	**

**Moisture Variation Note:**

Positive values = test is dry of OMC  
 Negative values = test is wet of OMC

# Material Test Report

**Report Number:** P21398-14  
**Issue Number:** 1  
**Date Issued:** 03/09/2021  
**Client:** Madica Pty Ltd  
 PO Box 173, Buninyong Victoria 3357  
**Contact:** Wayne Sheridan  
**Project Number:** P21398  
**Project Name:** Lucas Grange  
**Project Location:** Lucas Grange- Stage 1G level 1  
**Work Request:** 2382  
**Date Sampled:** 02/09/2021  
**Dates Tested:** 02/09/2021 - 02/09/2021  
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Material Source:** Test location



Geotechnical Testing Services (Southern)  
 Ballarat Soil and Concrete Testing Laboratory  
 Unit 6, 33 Laidlaw Drive Delacombe VIC 3356  
 Phone: (03) 5335 6494  
 Email: bryanm@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



*Bryan Mott*

Approved Signatory: Bryan Mott  
 NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D21-2382A		
Date Tested	02/09/2021		
Time Tested	11:09		
Test Request #/Location	House Lot 85		
Easting	54h 745849		
Northing	5839966		
Layer / Reduced Level	-150		
Thickness of Layer (mm)	300		
Soil Description	Brown silty clay		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Field Wet Density (FWD) t/m <sup>3</sup>	2.03		
Field Moisture Content %	19.4		
Field Dry Density (FDD) t/m <sup>3</sup>	1.70		
Peak Converted Wet Density t/m <sup>3</sup>	2.01		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Moisture Variation (Wv) %	0.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>101.0</b>		
Compaction Method	<b>Standard</b>		
Report Remarks	**		

**Moisture Variation Note:**

Positive values = test is dry of OMC  
 Negative values = test is wet of OMC