



REPORT

Level One Inspection and Testing Services

Meridian Central Estate Stage 29, Clyde
Lot 2911

Prepared for:

Grosvenor Lodge Pty Ltd

16 November 2021

Our Ref: 3807351.029.v1

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1 Introduction

As part of the construction of the Meridian Central Estate development in Clyde North, Chadwick Geotechnics Pty Ltd (Chadwick Geotechnics) has been engaged by Grosvenor Lodge Pty Ltd to provide Geotechnical Inspection and Testing Authority (GITA) services for the earthworks within Stage 29 of the Estate.

This report presents the earthworks supervision methods and density testing results for one residential lot only, Lot number 2911 within the Stage 29 site. The earthworks were completed between 3 August 2021 and 5 August 2021.

The specification required the earthworks to be completed under Level 1 Supervision, that is, full-time Inspection and Testing of the earthworks. Chadwick Geotechnics were onsite for the duration of the earthworks program.

2 Project details

2.1 Location

The Meridian Central Estate is in Clyde North, the Stage 29 site is located North of Hardys Road and East of Stage 25 and 28 within the Meridian Central site. The stage is being developed as a residential development.

A site plan of the site is included in Appendix A.

2.2 Fill specification

A summary of the specification is shown below:

- All filling in excess of 300mm depth shall be constructed to specifications satisfying the requirements of AS 3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments".
- All filling works shall be undertaken with supervision to the standard detailed as "Level 1 Inspection and Testing" in AS 3798-2007, such that the supervisor will issue a notice detailing that the works comply with the specifications and drawings.
- The fill soils to comply with the 'Suitable Material' in accordance with Section 4.4 of the AS3798-2007, and the following:
 - Maximum particle size of 150mm.
 - Particles over 37.5mm diameter not to exceed 20% of the material.
 - Organic soils, topsoil, silts, or soils containing organic matter, wood, plastics, metal or other deleterious materials are not acceptable.
- Subgrade to be proof rolled in presence of the Level 1 Inspector prior to the placement of engineered fill.
- Fill to be compacted in near horizontal layers.
- Compaction to achieve a ratio of at least 95% Standard MDD (maximum dry density).
- Frequency of testing to be in accordance with Table 8.1 of AS3798-2007.

2.3 Roles

The organisations and their roles are presented in Table 2.1 below.

Table 2.1 Project roles

Role	Organisation
Developer	Grosvenor Lodge Pty Ltd
Geotechnical Inspection and Testing Authority (GITA)	Chadwick Geotechnics Pty Ltd
Civil Designer / Superintendent	Beveridge Williams Pty Ltd
Earthworks Contractor	Brown Property Group Pty Ltd

2.4 Source of material

The material used on site was imported from locally sources.

2.5 General

The inspection and testing of earthworks have been carried out in accordance with AS3798-2007, 'Guidelines on earthworks for commercial and residential developments', with a frequency of field density tests as per a Type 1 project (large scale operation). Compaction control laboratory testing was undertaken within Chadwick Geotechnics NATA accredited laboratories in accordance with AS1289 'Methods of Testing Soils for Engineering Purposes'.

2.6 Subgrade inspection

Prior to fill being placed the subgrade was inspected. The inspection was performed in accordance with the Level 1 guidelines presented in AS 3798–2007 Section 5.5. The stripped surface was stripped to natural clay, and the area was found to be firm and free of vegetation and other deleterious material. All pre-existing uncontrolled fill was removed prior to the placement of engineered fill to achieve the design levels.

2.7 Earthwork supervision

Full time Level 1 inspection and testing of the Stage 29 filling operations commenced on 3 August 2021 and was completed on 5 August 2021. During this period Chadwick Geotechnics was on site all the time (except when there were no earthworks) and observed the earthworks, the placing of fill including the supply of material, conditioning of material (moisture conditioning and oversize removal), placement and compaction of the fill material.

All fill material was placed in lift sequences and Chadwick Geotechnics verified that the surface of the stripped subgrade and additional lifts were thoroughly scarified, and moisture conditioned prior to placement of additional layers to prevent delamination at the layer interface. See Photographs 2.1 and 2.2 below.



Photograph 2.1:
Compaction, August 2021



Photograph 2.2:
Material Delivery, August 2021

2.8 Earthwork equipment

The fill was placed and compacted using vibrating Pad foot rollers. Water trucks with water cannons attached were used to moisture condition the soil materials. The layer thicknesses were controlled using earthwork machinery with built-in GPS systems.

2.9 Geotechnical sampling and testing

Field density and moisture content testing was carried out using a calibrated portable density and moisture gauge in accordance with AS 1289.5.8.1. The HILF rapid compaction test was used for peak converted wet density determinations in accordance with AS 1289.5.7.1. Test locations were recorded using hand held GPS units. A site plan showing the field density test locations is provided in Appendix A. A summary of Hilf density testing is presented in Appendix B and the Hilf density test report is presented in Appendix C.

Two (2) tests were performed across the Stage 29 area during the filling process.

The results show the tests achieved the specification requirements for the project.

A summary of the Hilf density test reports is provided within Appendix B and the test report is also provided within Appendix C, the controlled fill certificate is provided within Appendix D.

3 Conclusion

On the basis of our inspections and after considering all test results relating to the project, it is our opinion, so far as it is able to be determined, that:

- The materials used by the earthworks contractor met the geotechnical property requirements of the specification.
- The fill material placed was tested at a suitable frequency in accordance with AS 3798-2007- Table 8.1 and the results indicate the compacted material achieved the minimum density requirement of the specification.
- Given the consistent construction practices followed by the earthworks contractor, and as witnessed by Chadwick Geotechnics, combined with the satisfactory verification of test results achieved, it is inferred that areas of the site between test locations were performed to the same standard as those areas that have been tested.

It is our opinion that the earthworks undertaken have been performed in accordance with the requirements of Section 8.2 of AS3798-2007 - Level 1 Inspection and Testing.

4 Applicability

This report has been prepared for the exclusive use of our client Grosvenor Lodge Pty Ltd , with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Recommendations and opinions in this report are based on data from discrete investigation locations. The nature and continuity of subsoil away from these locations are inferred but it must be appreciated that actual conditions could vary from the assumed model.

Should you require any further information regarding this report, please do not hesitate to contact the undersigned on (03) 8796 7900.

Chadwick Geotechnics Pty Ltd

Report prepared by:

Authorised for Chadwick Geotechnics Pty Ltd by:




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Robert Barden
Project Manager

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Tim Chadwick
Project Director


16-Nov-21

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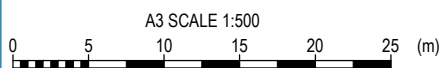
Appendix A: Site plan



LEGEND

 9822
HILF DENSITY TEST LOCATION

NOTES:
 1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 01/09/2021.
 2. BASE PLAN PROVIDED BY BEVERIDGE WILLIAMS. DRAWING REFERENCE: 1801767 STAGE 29 DWG NO. M01 REV P5. DATE RECEIVED: 28/09/2021.



PROJECT No. 3807351.029		
DESIGNED	RHB	Oct.21
DRAWN	KMJA	Oct.21
CHECKED		
APPROVED		DATE

CLIENT	GROSVENOR LODGE PTY LTD	
PROJECT	MERIDIAN ESTATE - STAGE 29	
TITLE	LEVEL ONE HILF DENSITY TESTING HILF DENSITY TEST LOCATION PLAN	
SCALE (A3)	1:500	FIG No. FIGURE 01
		REV 1

Appendix B: Hilf density test summary

Appendix C: Hilf density test report



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Report No: HDR:W21DS02634

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 29
Project No.: 3807351.029
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
 - Testing



Accreditation Number: 12719
 Site Number: 12712
 Approved Signatory: M. Robinson
 (Team Leader)
 Date of Issue: 6/08/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location: Clyde North
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S21DS-09821	S21DS-09822			
Field Sample ID	1	2			
Date Tested	5/08/2021	5/08/2021			
E:	2091.77	2091.59			
N:	421.822	394.217			
EL:	41.242	40.86			

Field and Laboratory Data

Depth of Test (mm)	175	175			
Depth of Layer (mm)	200	200			
AS Sieve Size (mm)	19.0	19.0			
Oversize Wet (%)	0	0			
Field Wet Density (t/m³)	2.09	2.05			
Peak Converted Wet Density (t/m³)	2.15	2.09			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.0	0.5 dry			
Hilf Density Ratio (%)	97.5	98.0			

Comments

Appendix D: Controlled Fill certificate



CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT : Lot No: 2911
Meridian Central Estate Stage 29
Chadwick Geotechnics REF: 3807351.029.v1

CLIENT : Grosvenor Lodge Pty Ltd
PO Box 4136
DANDENONG SOUTH VIC 3164
DATE : 16 November 2021

SUMMARY

Chadwick Geotechnics Pty Ltd conducted Level 1 inspection and testing, in accordance with Section 8.2 Level 1 inspection and Testing *AS3798-2007, Guidelines on earthworks for commercial and residential developments*, during the filling of the site.

So far as it is able to be determined, the fill was placed in accordance with the Specification that required a minimum density ratio of 95% of HILF Density (AS1289.5.7.1) to be achieved.

LIMITATIONS

This Certificate has been commissioned for the filling of the area mentioned lot. No responsibility or liability will be accepted for the use of this report for any purpose other than that for which Chadwick Geotechnics Pty Ltd was engaged, specifically for Level 1 Inspection and Testing of the structural fill (excluding top soil).

This report is based on the conditions present and factors affecting the soil at the time of inspection (3 August 2021 to the 5 August 2021). No responsibility or liability will be accepted and Chadwick Geotechnics Pty Ltd is indemnified to the full extent permitted by law in respect of the use of this Certificate where there has been a change in the nature of the project, or in the site conditions since the site testing.

CHADWICK GEOTECHNICS PTY LTD

A handwritten signature in black ink that reads 'Robert Barden'.

Robert Barden
Project Manager

A handwritten signature in blue ink that reads 'Timothy Chadwick'.

Timothy Chadwick
Project Director

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