



REPORT

Level One Inspection and Testing Services

Meridian Central Estate Stage 28, Clyde
Lot's 2801 to 2804 and 2820 to Lot 2843

Prepared for:

Grosvenor Lodge Pty Ltd

29 October 2021

Our Ref: 3807351.028.v1

25 Metcalf Street, Dandenong, South, Vic 3175, Australia
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Document Control

Title: Level One Inspection and Testing Services					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
29 October 2021	1	3807351.028.V1	RHB	RHB	TJC

Distribution:

Grosvenor Lodge Pty Ltd

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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 28 of the Estate.

This report presents the earthworks supervision methods and density testing results for the residential lot's 2801 to 2804 and 2820 to Lot 2843 within the Stage 28 site. The earthworks were completed between 8 May 2021 and 11 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 28 site is located North of Hardys Road and East of Stage 27 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 inspections were 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 28 filling operations commenced on 8 May 2021 and was completed on 11 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:
Material Delivery, May 2021



Photograph 2.2:
Material Compaction, June 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 reports are presented in Appendix C.

A total of 40 tests were performed across the Stage 28 area during the filling process.

The results show that 2 tests failed to meet the specification requirements for the project. The earthworks contractor was advised of the tests that failed and the fill relevant to those areas was reworked, reconditioned, re-compacted and subsequently retested. The final 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 all the test reports are provided within Appendix C, the controlled fill certificates are 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:




.....
Robert Barden
Project Manager

.....
Tim Chadwick
Project Director

29-Oct-21

\\ttgroup.local\corporate\dandenong\geo projects\3807351\28 stage 28\workingmaterial\3807351.028.r1 level one report.docx

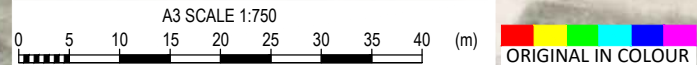
Appendix A: Site plan



LEGEND

6125
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 28 DWG NO. M01 REV P5. DATE RECEIVED: 28/09/2021.



PROJECT No. 3807351.028		
DESIGNED	RHB	Oct.21
DRAWN	KMJA	Oct.21
CHECKED		
APPROVED		DATE

CLIENT	GROSVENOR LODGE PTY LTD	
PROJECT	MERIDIAN ESTATE - STAGE 28	
TITLE	LEVEL ONE HILF DENSITY TESTING HILF DENSITY TEST LOCATION PLAN	
SCALE (A3)	1:750	
FIG No.	FIGURE 01	
REV	1	

Appendix B: Hilf density test summary



3807351.028 - Meridian Central Estate Stage 28 - HILF Summary

Chadwick Geotechnics
 25 Metcalf St Tel : (03) 8796 7900
 Dandenong ! Fax: (03) 8796 7944

Report No	Sample No	Date	Test Number	Location [E]	Location [N]	(m) RL	Layer	Density Ratio HILF test (±95%)	Moisture Variation	Pass / Fail	Remarks
HDR:W21DS01622	6124	8/05/2021	1	355667	5781193	37.86	1	94	2.0 wet	Fail	See Retest 6411
HDR:W21DS01622	6125	8/05/2021	2	355658	5781156	37.79	1	100	1.5 wet	Pass	
HDR:W21DS01711	6411	10/05/2021	1	355664	5781196	37.91	1	98	1.5 wet	Pass	Retest of 6124
HDR:W21DS01724	6440	11/05/2021	1	355672	5781228	38.22	2	104.5	0.5 dry	Pass	
HDR:W21DS01724	6441	11/05/2021	2	355660	5781195	38.02	2	100.5	0.5 dry	Pass	
HDR:W21DS01761	6549	13/05/2021	1	355657	5781191	38.16	3	100	0.5 dry	Pass	
HDR:W21DS01761	6550	13/05/2021	2	355657	5781173	38.16	3	97	1.5 dry	Pass	
HDR:W21DS01814	6752	19/05/2021	1	355694	5781117	39.636	1	98	0.5 dry	Pass	
HDR:W21DS01814	6753	19/05/2021	2	355715	5781115	40.124	1	99	omc	Pass	
HDR:W21DS01814	6754	19/05/2021	3	355723	5781145	39.385	1	96	omc	Pass	
HDR:W21DS01858	6905	21/05/2021	1	355658	5781166	38.22	3	99	omc	Pass	
HDR:W21DS01858	6906	21/05/2021	2	355666	5781186	38.31	3	99.5	omc	Pass	
HDR:W21DS02226	8107	23/06/2021	1	355699	5781172	38.708	1	101	omc	Pass	
HDR:W21DS02250	8168	24/06/2021	1	355718	5781160	39.23	2	100	0.5 wet	Pass	
HDR:W21DS02250	8169	24/06/2021	2	355701	5781125	39.91	3	96.5	0.5 wet	Pass	
HDR:W21DS02250	8170	24/06/2021	3	355713	5781121	40.06	2	101.5	0.5 wet	Pass	
HDR:W21DS02261	8206	28/06/2021	1	355723	5781173	39.32	3	101	0.5 wet	Pass	
HDR:W21DS02261	8207	28/06/2021	2	355718	5781141	39.79	3	104.5	omc	Pass	
HDR:W21DS02261	8208	28/06/2021	3	355735	5781247	38.75	1	102	0.5 wet	Pass	
HDR:W21DS02283	8306	30/06/2021	1	355729	5781209	38.93	2	98.5	omc	Pass	
HDR:W21DS02283	8307	30/06/2021	2	355722	5781171	39.511	4	95.5	0.5 dry	Pass	
HDR:W21DS02296	8349	1/07/2021	1	355764	5781196	39.196	1	98	omc	Pass	
HDR:W21DS02321	8451	2/07/2021	1	355776	5781224	29.239	1	101.5	0.5 dry	Pass	
HDR:W21DS02321	8452	2/07/2021	2	355777	5781249	39.376	1	101.5	omc	Pass	
HDR:W21DS02321	8453	2/07/2021	3	355774	5781276	39.514	1	98	omc	Pass	
HDR:W21DS02327	8471	5/07/2021	1	355729	5781225	39.090	3	100	2.0 wet	Pass	
HDR:W21DS02327	8472	5/07/2021	2	355733	5781261	38.965	3	101.5	2.0 wet	Pass	
HDR:W21DS02369	8705	7/07/2021	1	355724	5781199	39.47	4	99.5	4.5 wet	Fail	See Retest 8991
HDR:W21DS02389	8773	8/07/2021	1	355774	5781248	39.473	2	103	1.5 dry	Pass	
HDR:W21DS02389	8774	8/07/2021	2	355774	5781270	39.56	2	99.5	omc	Pass	
HDR:W21DS02412	8900	9/07/2021	1	355780	5781160	39.31		99.5	1 wet	Pass	
HDR:W21DS02412	8901	9/07/2021	2	355762	5781171	29.71		99.5	0.5 wet	Pass	
HDR:W21DS02412	8902	9/07/2021	3	355775	5781191	39.68		101	0.5 wet	Pass	
HDR:W21DS02413	8903	10/07/2021	1	355759	5781168	39.78		102.5	omc	Pass	
HDR:W21DS02413	8904	10/07/2021	2	355755	5781208	39.45		105	0.5 dry	Pass	
HDR:W21DS02433	8989	12/07/2021	1	355778	5781257	39.74		98	0.5 wet	Pass	
HDR:W21DS02433	8990	12/07/2021	2	355772	5781284	39.678		96	1.5 wet	Pass	
HDR:W21DS02433	8991	12/07/2021	3	355724	5781198	39.455		101.5	0.5 dry	Pass	Retest of 8705
HDR:W21DS02700	10040	11/08/2021	1	355774	5781190	39.82		98.5	0.5 dry	Pass	
HDR:W21DS02700	10041	11/08/2021	2	355766	5781169	39.88		99	0.5 dry	Pass	
											No further tests

Appendix C: Hilf density testing reports



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Report No: HDR:W21DS01622

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 21/05/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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: Rocky Silty Clay

Sample Data

Sample ID	S21DS-06124	S21DS-06125			
Field Sample ID	1	2			
Date Tested	8/05/2021	8/05/2021			
E:	1844.173	1834.476			
N:	354.241	317.305			
EL:	37.856	37.789			
Lot:	2803	2801			
Layer:	1	1			

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)	1.98	2.11			
Peak Converted Wet Density (t/m³)	2.11	2.11			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	2.0 wet	1.5 wet			
Hilf Density Ratio (%)	94.0	100.0			

Comments



Dandenong South
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
Report No: HDR:W21DS01711

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 21/05/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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: Rocky Silty Clay

Sample Data

Sample ID	S21DS-06411				
Field Sample ID	1				
Date Tested	10/05/2021				
E:	1840.887				
N:	357.338				
EL:	37.909				
Lot:	2803				
	Retest Sample 1 08/05				

Field and Laboratory Data

Depth of Test (mm)	175				
Depth of Layer (mm)	200				
AS Sieve Size (mm)	19.0				
Oversize Wet (%)	0				
Field Wet Density (t/m³)	2.05				
Peak Converted Wet Density (t/m³)	2.09				
Compactive Effort	Standard				
Moisture Variation (%)	1.5 wet				
Hilf Density Ratio (%)	98.0				

Comments



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Report No: HDR:W21DS01724

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 21/05/2021
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Sample Details

Location:
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: Rocky Silty Clay

Sample Data

Sample ID	S21DS-06440	S21DS-06441			
Field Sample ID	1	2			
Date Tested	11/05/2021	11/05/2021			
E:	1848.760	1836.6000			
N:	389.425	55.610			
EL:	38.220	38.017			
Lot:	2804	2802			
Layer:	2	2			

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)	2.31	2.11			
Peak Converted Wet Density (t/m³)	2.20	2.10			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.5 dry	0.5 dry			
Hilf Density Ratio (%)	104.5	100.5			

Comments



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Report No: HDR:W21DS01761

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
 - Testing

Accreditation Number: 12719
 Site Number: 12712
 Approved Signatory: J. Lamont
 (Dandenong Laboratory Manager)
 Date of Issue: 14/05/2021
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Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
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: Site Won
Material: Sandy CLAY

Sample Data

Sample ID	S21DS-06549	S21DS-06550			
Field Sample ID	1	2			
Date Tested	13/05/2021	13/05/2021			
Location	E 1834.150	E 1833.660			
	N 351.489	N 333.996			
	EL. 38.160	EL. 38.160			
	Lot 2803	Lot 2802			
	Layer 3	Layer 3			

Field and Laboratory Data

Depth of Test (mm)	175	175			
Depth of Layer (mm)	200	200			
Field Wet Density (t/m ³)	2.11	2.06			
Peak Converted Wet Density (t/m ³)	2.11	2.11			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.5 dry	1.5 dry			
Hilf Density Ratio (%)	100.0	97.0			

Comments



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Report No: HDR:W21DS01814



Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
Order No.:
TRN:

CG Request No.:
Lot No.:

Accredited for compliance with ISO/IEC 17025
 - Testing

Accreditation Number: 12719
 Site Number: 12712
 Approved Signatory: J. Lamont
 (Dandenong Laboratory Manager)
 Date of Issue: 22/05/2021
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Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
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: Gravelly CLAY

Sample Data

Sample ID	S21DS-06752	S21DS-06753	S21DS-06754			
Field Sample ID	1	2	3			
Date Tested	19/05/2021	19/05/2021	19/05/2021			
Location	Lot 2821	Lot 2822	Lot 2825			
	E 1870.835	E 1891.474	E 1899.258			
	N 278.398	N 276.007	N 305.696			
	EL. 39.636	EL. 40.124	EL. 39.385			
	Layer 1	Layer 1	Layer 1			

Field and Laboratory Data

Depth of Test (mm)	275	275	275			
Depth of Layer (mm)	300	300	300			
Field Wet Density (t/m ³)	2.10	2.11	2.04			
Peak Converted Wet Density (t/m ³)	2.14	2.13	2.12			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 dry	0.0	0.0			
Hilf Density Ratio (%)	98.0	99.0	96.0			

Comments



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Report No: HDR:W21DS01858


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
Order No.:
TRN:

CG Request No.:
Lot No.:

Accredited for compliance with ISO/IEC 17025
 - Testing



Accreditation Number: 12719
 Site Number: 12712
 Approved Signatory: M. Longfield
 (Senior Technician)
 Date of Issue: 16/06/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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: Site Won
Material: Silty CLAY

Sample Data

Sample ID	S21DS-06905	S21DS-06906			
Field Sample ID	1	2			
Date Tested	21/05/2021	21/05/2021			
E:	E 1834.500	E 1842.791			
N:	N 327.177	N 347.056			
EL:	EL. 38.220	EL. 38.310			
Lot:	Layer 3	Layer 3			
Layer:	Lot 2801	Lot 2803			

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)	2.10	2.15			
Peak Converted Wet Density (t/m³)	2.12	2.16			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.0	0.0			
Hilf Density Ratio (%)	99.0	99.5			

Comments



Dandenong South
ACN 143 009 330
 25 Metcalf Street
 DANDENONG SOUTH, VIC 3175

Ph: + 61 3 8796 7900
 Fax: +61 3 9706 9431


Report No: HDR:W21DS02226

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 24/06/2021
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Sample Details

Location:
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: Rocky Clay

Sample Data

Sample ID	S21DS-08107				
Field Sample ID	1				
Date Tested	23/06/2021				
E:	1875.460				
N:	333.325				
EL:	38.708				
Lot:	2816				
Layer:	1				

Field and Laboratory Data

Depth of Test (mm)	175				
Depth of Layer (mm)	200				
AS Sieve Size (mm)	19.0				
Oversize Wet (%)	0				
Field Wet Density (t/m³)	1.95				
Peak Converted Wet Density (t/m³)	1.93				
Compactive Effort	Standard				
Moisture Variation (%)	0.0				
Hilf Density Ratio (%)	101.0				

Comments



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 Fax: +61 3 9706 9431


Report No: HDR:W21DS02250

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 28/06/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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: Rocky Clay

Sample Data

Sample ID	S21DS-08168	S21DS-08169	S21DS-08170		
Field Sample ID	1	2	3		
Date Tested	24/06/2021	24/06/2021	24/06/2021		
E:	1894.485	1877.976	1889.742		
N:	321.253	286.065	282.452		
EL:	39.226	39.911	40.057		
Lot:	2826	2821	2822		
Layer:	2	3	2		

Field and Laboratory Data

Depth of Test (mm)	175	175	125		
Depth of Layer (mm)	200	200	150		
AS Sieve Size (mm)	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0		
Field Wet Density (t/m³)	2.03	1.95	2.07		
Peak Converted Wet Density (t/m³)	2.03	2.03	2.04		
Compactive Effort	Standard	Standard	Standard		
Moisture Variation (%)	0.5 wet	0.5 wet	0.5 wet		
Hilf Density Ratio (%)	100.0	96.5	101.5		

Comments



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Report No: HDR:W21DS02261


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
Order No.:
TRN:

CG Request No.:
Lot No.:

Accredited for compliance with ISO/IEC 17025
 - Testing



Accreditation Number: 12719
 Site Number: 12712
 Approved Signatory: M. Longfield
 (Senior Technician)
 Date of Issue: 29/06/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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: Gravelly Clay

Sample Data

Sample ID	S21DS-08206	S21DS-08207	S21DS-08208		
Field Sample ID	1	2	3		
Date Tested	28/06/2021	28/06/2021	28/06/2021		
E:	1899.761	1895.041	1911.588		
N:	333.491	301.781	407.802		
EL:	39.320	39.792	38.748		
Lot:	2827	2824	2833		
Layer:	3	3	1		

Field and Laboratory Data

Depth of Test (mm)	175	175	175		
Depth of Layer (mm)	200	200	200		
AS Sieve Size (mm)	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0		
Field Wet Density (t/m³)	1.99	1.97	2.03		
Peak Converted Wet Density (t/m³)	1.97	1.89	1.99		
Compactive Effort	Standard	Standard	Standard		
Moisture Variation (%)	0.5 wet	0.0	0.5 wet		
Hilf Density Ratio (%)	101.0	104.5	102.0		

Comments



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Report No: HDR:W21DS02283


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
Order No.:
TRN:

CG Request No.:
Lot No.:

Accredited for compliance with ISO/IEC 17025
 - Testing



Accreditation Number: 12719
 Site Number: 12712
 Approved Signatory: M. Longfield
 (Senior Technician)
 Date of Issue: 8/07/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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 / Gravel

Sample Data

Sample ID	S21DS-08306	S21DS-08307			
Field Sample ID	1	2			
Date Tested	30/06/2021	30/06/2021			
E:	1905.430	1898.498			
N:	370.096	331.970			
EL:	38.933	39.511			
Lot:	2830	2827			
Layer:	2	4			

Field and Laboratory Data

Depth of Test (mm)	175	125			
Depth of Layer (mm)	200	200			
AS Sieve Size (mm)	19.0	19.0			
Oversize Wet (%)	0	0			
Field Wet Density (t/m³)	2.00	1.96			
Peak Converted Wet Density (t/m³)	2.03	2.04			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.0	0.5 dry			
Hilf Density Ratio (%)	98.5	95.5			

Comments



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Report No: HDR:W21DS02296

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 8/07/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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: Silty Clay

Sample Data

Sample ID	S21DS-08349				
Field Sample ID	1				
Date Tested	1/07/2021				
E:	1941.059				
N:	356.873				
EL:	39.196				
Lot:	2838				
Layer:	1				

Field and Laboratory Data

Depth of Test (mm)	150				
Depth of Layer (mm)	200				
AS Sieve Size (mm)	19.0				
Oversize Wet (%)	0				
Field Wet Density (t/m³)	2.04				
Peak Converted Wet Density (t/m³)	2.08				
Compactive Effort	Standard				
Moisture Variation (%)	0.0				
Hilf Density Ratio (%)	98.0				

Comments



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Report No: HDR:W21DS02321


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
Order No.:
TRN:

CG Request No.:
Lot No.:

Accredited for compliance with ISO/IEC 17025
 - Testing



Accreditation Number: 12719
 Site Number: 12712
 Approved Signatory: M. Longfield
 (Senior Technician)
 Date of Issue: 8/07/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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 traces of Gravel

Sample Data

Sample ID	S21DS-08451	S21DS-08452	S21DS-08453			
Field Sample ID	1	2	3			
Date Tested	2/07/2021	2/07/2021	2/07/2021			
E:	1952.497	1953.403	1950.454			
N:	384.600	409.528	436.848			
EL:	29.2387	39.376	39.514			
Lot:	2837	2835	2843			
Layer:	1	1	1			

Field and Laboratory Data

Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	1.96	2.03	2.02			
Peak Converted Wet Density (t/m³)	1.93	2.01	2.06			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 dry	0.0	0.0			
Hilf Density Ratio (%)	101.5	101.5	98.0			

Comments



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Report No: HDR:W21DS02327


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
Order No.:
TRN:

CG Request No.:
Lot No.:

Accredited for compliance with ISO/IEC 17025
 - Testing



Accreditation Number: 12719
 Site Number: 12712

Approved Signatory: M. Longfield
 (Senior Technician)
 Date of Issue: 8/07/2021

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Sample Details

Location:
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: Silty Clay-Gravel

Sample Data

Sample ID	S21DS-08471	S21DS-08472			
Field Sample ID	1	2			
Date Tested	5/07/2021	5/07/2021			
E:	1905.256	1910.230			
N:	385.506	421.631			
EL:	39.090	38.965			
Lot:	2831	2834			
Layer:	3	3			

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)	2.03	2.07			
Peak Converted Wet Density (t/m³)	2.03	2.04			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	2.0 wet	2.0 wet			
Hilf Density Ratio (%)	100.0	101.5			

Comments



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Report No: HDR:W21DS02369

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 14/07/2021
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
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/Gravel/Silt

Sample Data

Sample ID	S21DS-08705				
Field Sample ID	1				
Date Tested	7/07/2021				
E:	1901.035				
N:	360.387				
EL:	39.474				
Lot:	2829				
Layer:	4				

Field and Laboratory Data

Depth of Test (mm)	175				
Depth of Layer (mm)	200				
AS Sieve Size (mm)	19.0				
Oversize Wet (%)	0				
Field Wet Density (t/m³)	1.94				
Peak Converted Wet Density (t/m³)	1.95				
Compactive Effort	Standard				
Moisture Variation (%)	4.5 wet				
Hilf Density Ratio (%)	99.5				

Comments



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Report No: HDR:W21DS02389

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 14/07/2021
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Sample Details

Location:
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: Sandy Clay, Gravel

Sample Data

Sample ID	S21DS-08773	S21DS-08774			
Field Sample ID	1	2			
Date Tested	8/07/2021	8/07/2021			
E:	1950.959	1950.385			
N:	408.971	430.888			
EL:	39.473	39.557			
Lot:	2836	2842			
Layer:	2	2			

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)	2.06	2.06			
Peak Converted Wet Density (t/m³)	2.00	2.07			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	1.5 dry	0.0			
Hilf Density Ratio (%)	103.0	99.5			

Comments



Dandenong South
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Report No: HDR:W21DS02412

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 14/07/2021
 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%
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-08900	S21DS-08901	S21DS-08902		
Field Sample ID	1	2	3		
Date Tested	9/07/2021	9/07/2021	9/07/2021		
Lot No:	2841	2840	2839		
E:	1956.578	1938.436	1952.021		
N:	321.417	332.186	351.932		
Elv:	39.307	29.709	39.677		

Field and Laboratory Data

Depth of Test (mm)	175	175	175		
Depth of Layer (mm)	200	200	200		
AS Sieve Size (mm)	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0		
Field Wet Density (t/m³)	2.02	2.08	2.07		
Peak Converted Wet Density (t/m³)	2.03	2.09	2.05		
Compactive Effort	Standard	Standard	Standard		
Moisture Variation (%)	1.0 wet	0.5 wet	0.5 wet		
Hilf Density Ratio (%)	99.5	99.5	101.0		

Comments



Dandenong South
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Report No: HDR:W21DS02413

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 14/07/2021
 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%
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-08903	S21DS-08904			
Field Sample ID	1	2			
Date Tested	10/07/2021	10/07/2021			
Lot No:	2841	283.8			
E:	1935.254	1931.367			
N:	328.581	368.822			
Elv:	39.784	39.445			

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/m ³)	2.03	1.99			
Peak Converted Wet Density (t/m ³)	1.98	1.90			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.0	0.5 dry			
Hilf Density Ratio (%)	102.5	105.0			

Comments



Dandenong South
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Report No: HDR:W21DS02433

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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. Longfield
 (Senior Technician)
 Date of Issue: 14/07/2021
 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%
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: silty CLAY

Sample Data

Sample ID	S21DS-08989	S21DS-08990	S21DS-08991		
Field Sample ID	1	2	3		
Date Tested	12/07/2021	12/07/2021	12/07/2021		
Lot No:	2835	2843	2829		
E:	1954.735	1949.205	1901.093		
N:	417.720	444.7.76	358.582		
Elv:	39.736	39.678	39.455		
			Retest		

Field and Laboratory Data

Depth of Test (mm)	175	175	175		
Depth of Layer (mm)	200	200	200		
AS Sieve Size (mm)	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0		
Field Wet Density (t/m³)	2.04	1.97	2.00		
Peak Converted Wet Density (t/m³)	2.08	2.06	1.97		
Compactive Effort	Standard	Standard	Standard		
Moisture Variation (%)	0.5 wet	1.5 wet	0.5 dry		
Hilf Density Ratio (%)	98.0	96.0	101.5		

Comments



Dandenong South
ACN 143 009 330
 25 Metcalf Street
 DANDENONG SOUTH, VIC 3175

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 Fax: +61 3 9706 9431



Report No: HDR:W21DS02700

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 28
Project No.: 3807351.028
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: 16/08/2021
 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%
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: Silty Clay

Sample Data

Sample ID	S21DS-10040	S21DS-10041			
Field Sample ID	1	2			
Date Tested	11/08/2021	11/08/2021			
E:	355774	355766			
N:	5781190	5781169			
RL:	39.82	39.88			
Lot:	2839	2841			

Field and Laboratory Data

AS Sieve Size (mm)	19.0	19.0			
Oversize Wet (%)	0	0			
Field Wet Density (t/m ³)	2.00	2.01			
Peak Converted Wet Density (t/m ³)	2.03	2.03			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.5 dry	0.5 dry			
Hilf Density Ratio (%)	98.5	99.0			

Comments

Appendix D: Controlled Fill certificate



CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT : Lot No: 2801 to 2804 and 2820 to Lot Number 2843
Meridian Central Estate Stage 28

Chadwick Geotechnics REF: 3807351.028.v1

CLIENT : Grosvenor Lodge Pty Ltd
PO Box 4136
DANDENONG SOUTH VIC 3164

DATE : 29 October 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 above. 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 (8 May 2021 to the 11 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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