



REPORT

Level One Inspection and Testing Services

Meridian Central Estate Stage 36, Clyde
Lot's 3601 to 3642

Prepared for:

Grosvenor Lodge Pty Ltd

10 August 2022

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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 (Grosvenor Lodge) to provide Geotechnical Inspection and Testing Authority (GITA) services for the earthworks within Stage 36 of the Estate (referred to Stage 36 herein).

This report presents the earthworks supervision methods and density testing results for the residential lot's 3601 to 3642 within the Stage 36 site. The earthworks were completed between 21 January 2022 and 26 February 2022.

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

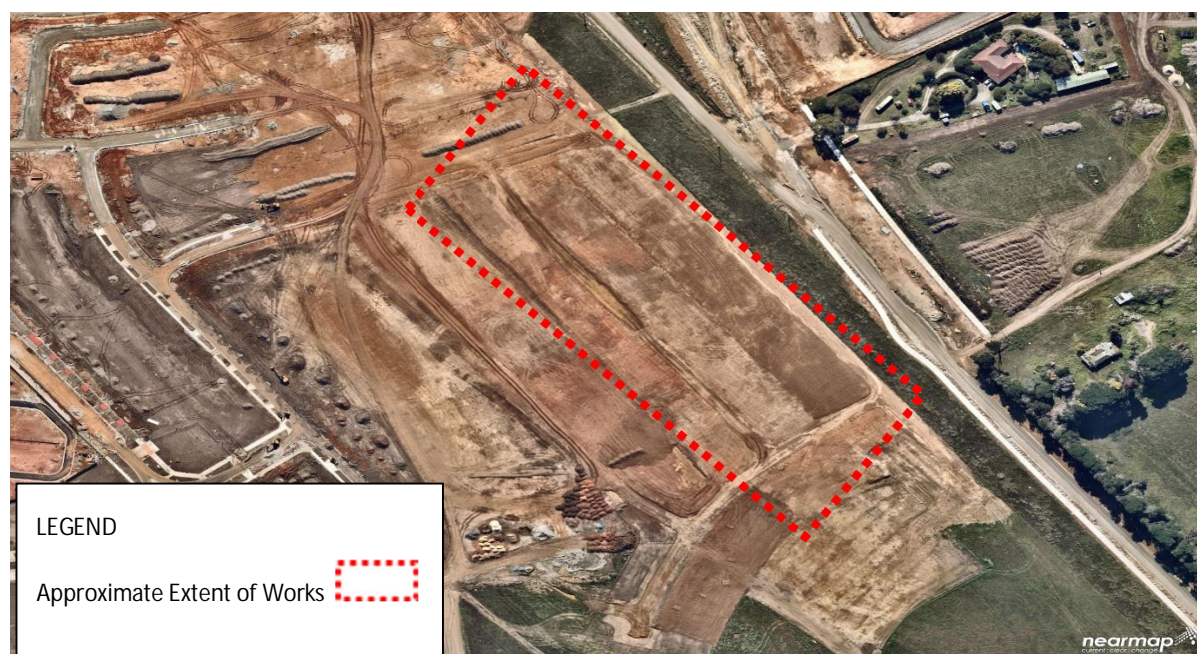
2 Project details

2.1 Location

The Meridian Central Estate is in Clyde North. Stage 36 is located South East of Stage 35 and North of Stage 37 within the Meridian Central Estate. The stage is being developed as a residential development.

The included works are shown on the Site Plan in Appendix A. The general site overview is shown on the aerial map extracted from Nearmap shown in Figure 1 below.

Figure 1: Stage 36 – extract from Nearmap.



2.2 Roles

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

Table 1 Project roles

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

2.3 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.

2.4 Dates on site

Geotechnical technical and engineering staff from Chadwick Geotechnics were onsite for the duration of the earthworks program on the days shown in Table 2.

Table 2: Dates on Site

Month	Dates on site
Jan 2022	21, 24, 25,
Feb 2022	2, 3, 4, 5, 7, 8, 9, 10, 12, 16, 17, 18 and 26

2.5 Included areas

This report is applicable to material placed by the contractor on the residential lots 3601 to 3642 within Stage 36 of Meridian Estate, as shown on the Site Plan in Appendix A, and with reference to Section 2.6 (Excluded Areas) of this report.

2.6 Excluded areas

This report does not include fill outside the general boundary of the filled areas as shown in Appendix A of this report. No fill was placed on the residential lots not mentioned in Section 2.5 of this report.

Backfill of trenches for the underground services, fill on footpaths, driveways and roads, or placement of topsoil, were not part of the scope for the works supervised by Chadwick Geotechnics.

3 Inspection and Testing

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 Table 8.1 (explained in Section 3.5 of this report). Compaction control laboratory testing was performed in a Chadwick Geotechnics NATA accredited laboratory in accordance with AS1289 'Methods of Testing Soils for Engineering Purposes'.

3.1 Earthworks

The earthworks for the project comprised of the following phases:

- Stripping of topsoil from the proposed fill area;
- Assessment, remediation and proof rolling of subgrade; and,
- Placement and compaction of engineered fill.

Below are two photographs of typical earthwork operations completed during earthworks.

Table 3 Photographs showing typical works at Stage 36

Photograph 1: Proof Roll	Photograph 2: Spreading material
	

3.2 Subgrade Assessment

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 topsoil surface was stripped to natural clay and proof rolled. Proof rolls were undertaken between the 21 January to 14 February 2022 with the use of a loaded dump truck or pad foot roller. 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.

3.3 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. The following machinery was on site during earthworks.

Table 4: Earthworks plant on site

Equipment type	Model
Dozer	D6
Excavator	20 T and 32T
Pad foot roller	Yes
Dump Trucks	Yes
Water cannon	Yes

3.4 Fill Material

Material used for the construction of the fill comprised of local silty clays won from the road boxing and trench excavations across the site.

Sample taken from the site stockpiles comprising local material used for fill was taken for geotechnical compliance testing. The material compliance test results are summarised in Table 3. The laboratory test certificate is attached in Appendix C. The material is consistent for Stage 31 to 45.

Table 1: Compliance test result summary

Date tested	Particle Size Distribution (PSD) passing						Liquid Limit	Plastic Limit	Plasticity Index
9th April 2022	150mm	37.5mm	13.2mm	4.75mm	1.18mm	0.75µm	18%	12%	6%
	100	99	92	89	86	30			



The fill placed within the lots is considered as 'Suitable Material' in accordance with Section 4.4 of the AS3798-2007. The material was deemed as being derived from natural soils.

The fill material was not tested for classification of 'Fill Material' as defined in EPA Publication IWRG621.

Any observed organic or deleterious matter including any oversize cobbles or boulders were removed from the tested areas during the fill placement.

Below are two photographs of the fill material used during construction.

Table 5: Materials used for fill

Photograph 3. Material ready for placement	Photograph 4: Orange sandy Clay
	

3.5 Engineered Fill Construction

All fill material was placed in lift sequences comprising horizontal layers not exceeding 300mm compacted thickness. Chadwick Geotechnics verified that the surface of the stripped area, and that of additional lifts, was thoroughly scarified and moisture conditioned prior to placement of additional layers to prevent delamination at the layer interface. Once the placed fill was approved, the layer was compacted accordingly.

Chadwick Geotechnics personnel were on site on a fulltime basis during the placement, moisture conditioning, compaction and testing of the fill on the dates noted in Table 1 of this report.

3.6 Density 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 handheld GPS units.

Testing was undertaken under the frequencies listed below, subject to the area and volume worked on the day of testing:

- 1 test per material type per layer per 2500m² or 1 test per 500m³ distributed reasonably evenly or 3 tests per lot – whichever requires the most tests in accordance with Type 1 Earthworks (large scale operations) as defined in Table 8.1 of the AS 3798-2007;
- 1 test per layer per 1,000m² or 1 test per 200m³ distributed reasonably evenly or 1 test per residential lot - whichever requires the most tests in accordance with Type 2 Earthworks (small scale operations) as defined in Table 8.1 of the AS 3798-2007;

- 1 test per layer per 500m² or 1 test per 100m³ distributed reasonably evenly or 3 tests per visit - whichever requires the most tests in accordance with Type 3 Earthworks (concentrated scale operations) as defined in Table 8.1 of the AS 3798-2007; and
- 1 test per 2 layers per 50m² distributed reasonably evenly throughout the fill depth –in accordance with Type 4 Earthworks (confined operations) as defined in Table 8.1 of the AS 3798-2007.

A total of 77 tests were performed across the Stage 36 area during the filling process.

The results show that 6 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 the area was reworked, reconditioned, re-compacted and subsequently retested. Once retested, the final results show that the tests achieved the specification requirements for the project.

A site plan showing the field density test locations is provided in Appendix A. A summary of the Hilf density test reports is provided within Appendix B, and the laboratory test reports are provided within Appendix C. The Controlled Fill Certificate is provided within Appendix E.

3.7 Fill thickness analyses

Analysis of fill thickness was conducted using our Level 1 GITA daily records. A summary of the analysis is provided in Table 6. Random lots were selected for the analysis, and it is assumed the fill between the analysed points is of a similar thickness.

Table 6: Fill thickness analyses

Lot No.	No. of Layers observed under Level 1 GITA	Estimated Fill Thickness (mm)	Average Layer Thickness <300mm	Met Project Requirements
3603-3607	4	800-1200	Yes	Yes*
3608-3614	3	600-900	Yes	Yes*
3614-3630	2-3	500-900	Yes	Yes*
3630-3636	3	600-900	Yes	Yes*

Notes:

- It is noted that we were not provided with a survey drawing showing the 'as built' levels of the engineered fill on Stage 36.
- Table 4 shows the estimated fill thickness based on the number of layers observed during the Level 1 GITA supervision process.
- The layer thicknesses were not surveyed by the field staff and our estimate is based on the visual assessment and the site communications with the plant operators. Based on our estimate, it is assumed the compacted layers did not exceed the specified 300mm thickness.
- *The fill thicknesses meet the project requirements based on our estimate summarised in Table 4. If a survey data shows fill exceeds the Estimated Fill Thickness shown in Table 4, then, further analyses and/or testing will be required.

4 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.

5 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 materials 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:



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Robert Barden
Project Manager

Authorised for Chadwick Geotechnics Pty Ltd by:



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Tim Chadwick
Project Director

Appendix A : Site plan



Appendix B : Hilf density test summary



Meridian Estate Stage 36 - 3807351.036

HILF Density Testing Summary

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 9706 9431
www.chadwickgeotechnics.com.au



Report No	Sample No	Test Number	Date	Lot	Easting	Northing	Layer/RL	Density Ratio (≥95%)	Moisture Variation From OMC (%)	Pass / Fail	Remarks
HDR:W22DS00127	446	1	24/01/2022	3624	356326.71	5781481.78	42.173	99.5	4.5 dry	Fail	See Retest 473
HDR:W22DS00127	447	2	24/01/2022	3623	356336.52	5781470.82	42.333	105	2.5 dry	Pass	
HDR:W22DS00127	448	3	24/01/2022	3622	356343.91	5781459.41	42.513	101.5	2.5 dry	Pass	
HDR:W22DS00127	449	4	24/01/2022	3621	356351.21	5781449.54	42.598	106	0 dry	Pass	
HDR:W22DS00135	470	1	25/01/2022	3620	356361.20	5781438.90	42.8	101	1.5 dry	Pass	
HDR:W22DS00135	471	2	25/01/2022	3619	356367.95	5781428.76	42.901	95.5	2.5 dry	Pass	
HDR:W22DS00135	472	3	25/01/2022	3618	356374.96	5781418.35	43.136	96.5	2.5 dry	Pass	
HDR:W22DS00135	473	4	25/01/2022	3624	356324.59	5781482.90	42.085	97.5	2.5 dry	Pass	Retest of 446
HDR:W22DS00191	661	1	2/02/2022	3617	356381.66	5781406.56	43.221	95	0 dry	Pass	
HDR:W22DS00191	662	2	2/02/2022	3616	356386.46	5781392.76	43.359	98.5	1 dry	Pass	
HDR:W22DS00191	663	3	2/02/2022	3616	356396.77	5781401.57	43.24	99	1.5 dry	Pass	
HDR:W22DS00191	664	4	2/02/2022	3625	356411.11	5781373.39	43.577	98.5	0.5 dry	Pass	
HDR:W22DS00191	665	5	2/02/2022	3614	356377.86	5781383.79	43.342	95	0 dry	Pass	
HDR:W22DS00191	666	6	2/02/2022	3613	356366.57	5781376.55	43.555	99.5	0 wet	Pass	
HDR:W22DS00191	667	7	2/02/2022	3612	356359.60	5781391.41	43.432	98	0.5 dry	Pass	
HDR:W22DS00191	668	8	2/02/2022	3611	356351.64	5781402.35	43.341	99	0.5 dry	Pass	



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HDR:W22DS00191	669	9	2/02/2022	3610	356343.49	5781412.55	43.226	97.5	2 dry	Pass	
HDR:W22DS00203	705	1	3/02/2022	3630	356338.73	5781353.67	44.033	95	4.5 dry	Fail	See Retest 752
HDR:W22DS00203	706	2	3/02/2022	3631	356328.79	5781365.14	43.933	99.5	0.5 dry	Pass	
HDR:W22DS00203	707	3	3/02/2022	3632	356321.13	5781376.42	43.748	101	0 dry	Pass	
HDR:W22DS00203	708	4	3/02/2022	3633	356315.48	5781388.53	43.666	98.5	0.5 dry	Pass	
HDR:W22DS00218	742	1	4/02/2022	3609	356336.41	5781421.43	42.993	101.5	0 dry	Pass	
HDR:W22DS00218	749	2	4/02/2022	3608	356329.72	5781432.53	42.892	104	0.5 dry	Pass	
HDR:W22DS00218	750	3	4/02/2022	3607	356321.81	5781442.86	42.606	97	0.5 dry	Pass	
HDR:W22DS00218	751	4	4/02/2022	3630	356343.84	5781359.00	44.106	99.5	0.5 dry	Pass	
HDR:W22DS00218	752	5	4/02/2022	3630	356338.53	5781353.35	44.042	101.5	2 dry	Pass	Retest of 705
HDR:W22DS00218	753	6	4/02/2022	3631	356324.02	5781361.00	44.268	103	0 dry	Pass	
HDR:W22DS00218	754	7	4/02/2022	3632	356327.37	5781379.91	43.97	100	0.5 dry	Pass	
HDR:W22DS00221	755	1	5/02/2022	3613	356362.73	5781375.63	43.702	103.5	1.5 dry	Pass	
HDR:W22DS00221	756	2	5/02/2022	3614	356376.05	5781389.64	43.415	100.5	1.5 dry	Pass	
HDR:W22DS00221	757	3	5/02/2022	3612	356366.67	5781397.45	43.568	102	0 wet	Pass	
HDR:W22DS00221	758	4	5/02/2022	3611	356346.44	5781398.58	43.71	100	0.5 dry	Pass	
HDR:W22DS00221	759	5	5/02/2022	3610	356350.36	5781417.51	43.294	100.5	0 dry	Pass	
HDR:W22DS00221	760	6	5/02/2022	3609	356330.22	5781417.89	43.372	105	0.5 dry	Pass	



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Report No	Sample No	Test Number	Date	Lot	Easting	Northing	Layer/RL	Density Ratio (≥95%)	Moisture Variation From OMC (%)	Pass / Fail	Remarks
HDR:W22DS00221	761	7	5/02/2022	3608	356335.30	5781438.20	42.97	97.5	2.5 dry	Pass	
HDR:W22DS00221	762	8	5/02/2022	3606	356314.50	5781452.66	42.89	100.5	1 dry	Pass	
HDR:W22DS00221	763	9	5/02/2022	3605	356306.50	5781463.01	42.424	92.5	0 wet	Fail	See Retest 799
HDR:W22DS00221	764	10	5/02/2022	3629	356367.21	5781326.40	44.273	96	0 dry	Pass	
HDR:W22DS00221	765	11	5/02/2022	3628	356377.09	5781335.52	44.159	97.5	1 dry	Pass	
HDR:W22DS00221	766	12	5/02/2022	3627	356388.09	5781343.71	44.015	100	0 wet	Pass	
HDR:W22DS00221	767	13	5/02/2022	3626	356400.88	5781353.05	43.898	99.5	0.5 dry	Pass	
HDR:W22DS00221	768	14	5/02/2022	3636	356292.58	5781417.06	43.651	95.5	0.5 dry	Pass	
HDR:W22DS00221	769	15	5/02/2022	3635	356299.89	5781406.42	43.737	99	0.5 dry	Pass	
HDR:W22DS00221	770	16	5/02/2022	3634	356307.44	5781396.34	43.675	97.5	2 dry	Pass	
HDR:W22DS00231	796	1	7/02/2022	3607	356316.45	5781437.17	43.093	102	2 dry	Pass	
HDR:W22DS00231	797	2	7/02/2022	3606	356319.64	5781456.12	42.692	99	0.5 dry	Pass	
HDR:W22DS00231	798	3	7/02/2022	3605	356299.82	5781456.39	42.979	97	0 dry	Pass	
HDR:W22DS00231	799	4	7/02/2022	3605	356305.49	5781463.88	42.48	102	1.5 dry	Pass	Retest of 763
HDR:W22DS00231	800	5	7/02/2022	3604	356297.98	5781465.25	42.808	99	0.5 dry	Pass	
HDR:W22DS00239	813	1	8/02/2022	3633	356307.82	5781382.93	44.222	101.5	0 dry	Pass	
HDR:W22DS00239	814	2	8/02/2022	3634	356309.50	5781399.70	43.845	100	0.5 wet	Pass	
HDR:W22DS00239	815	3	8/02/2022	3635	356292.50	5781402.90	44.277	96	1.5 dry	Pass	
HDR:W22DS00239	816	4	8/02/2022	3636	356293.61	5781416.91	43.942	100.5	2 dry	Pass	



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HILF Density Testing Summary

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HDR:W22DS00239	817	5	8/02/2022	3603	356291.61	5781482.14	42.471	102.5	0 dry	Pass	
HDR:W22DS00239	818	6	8/02/2022	3602	356283.46	5781493.88	42.461	96.5	2.5 dry	Pass	
HDR:W22DS00239	819	7	8/02/2022	3601	356276.05	5781503.52	42.353	98	2 dry	Pass	
HDR:W22DS00259	867	1	9/02/2022	3611	356351.78	5781399.24	43.949	101	2 dry	Pass	
HDR:W22DS00259	868	2	9/02/2022	3614	356374.62	5781383.99	43.739	105	1.5 dry	Pass	
HDR:W22DS00259	869	3	9/02/2022	3608	356331.42	5781433.22	43.301	112.5	2.5 dry	Pass	
HDR:W22DS00259	870	4	9/02/2022	3605	356302.16	5781462.06	42.983	103	0.5 dry	Pass	
HDR:W22DS00292	923	1	10/02/2022	3603	356287.10	5781487.66	42.729	104.5	3 dry	Pass	
HDR:W22DS00292	924	2	10/02/2022	3601	356280.06	5781507.10	42.617	96	2 dry	Pass	
HDR:W22DS00292	925	3	10/02/2022	3608	356324.31	5781430.30	43.774	99.5	2 dry	Pass	
HDR:W22DS00292	926	4	10/02/2022	3606	356309.16	5781451.97	43.456	97	0.5 dry	Pass	
HDR:W22DS00315	999	1	12/02/2022	3637	356280.07	5781427.46	43.74	104.5	2 dry	Pass	
HDR:W22DS00315	1000	2	12/02/2022	3639	356271.03	5781446.54	43.375	104	0.5 dry	Pass	
HDR:W22DS00315	1001	3	12/02/2022	3640	356260.32	5781452.24	43.695	93.5	2.5 dry	Fail	See Retest 1144
HDR:W22DS00358	1144	1	16/02/2022	3640	356260.32	5781454.66	43.625	97.5	2 dry	Pass	Retest of 1001
HDR:W22DS00358	1145	2	16/02/2022	3642	356242.15	5781476.16	43.42	98.5	2.5 dry	Pass	
HDR:W22DS00376	1207	1	17/02/2022	3637	356279.64	5781421.74	44.005	102	2 dry	Pass	
HDR:W22DS00376	1210	2	17/02/2022	3638	356278.12	5781437.61	43.74	102.5	2.5 dry	Pass	

[illegible]

Appendix C : Hilf density testing reports

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 25/01/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)

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	S22DS-00446	S22DS-00447	S22DS-00448	S22DS-00449		
Field Sample ID	1	2	3	4		
Date Tested	24/01/2022	24/01/2022	24/01/2022	24/01/2022		
Lot No:	3624	3623	3622	3621		
E:	2503.445	2513.261	2520.647	2527.948		
N:	642.757	631.799	620.393	610.518		
Elv:	42.173	42.333	42.513	42.598		

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275		
Depth of Layer (mm)	300	300	300	300		
Field Wet Density (t/m³)	1.90	2.14	2.04	2.13		
Peak Converted Wet Density (t/m³)	1.92	2.03	2.01	2.00		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	4.5 dry	2.5 dry	2.5 dry	0.0		
Hilf Density Ratio (%)	99.5	105.0	101.5	106.0		

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036
Order No.:
TRN:

CG Request No.:
Lot No.:

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)
Date of Issue: 31/01/2022



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: Site Won
Material: Silty CLAY

Sample Data

Sample ID	S22DS-00470	S22DS-00471	S22DS-00472	S22DS-00473		
Field Sample ID	5	6	7	8		
Date Tested	25/01/2022	25/01/2022	25/01/2022	25/01/2022		
Lot No:	3620	3619	3618	3624		
E:	2537.938	2544.689	2551.702	2501.331		
N:	599.883	589.740	579.330	643.882		
Elv:	42.800	42.901	43.136	42.085		
	Layer 1	Layer 1	Layer 1	Layer 1		

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275		
Depth of Layer (mm)	300	300	300	300		
Field Wet Density (t/m³)	2.00	1.86	1.88	1.90		
Peak Converted Wet Density (t/m³)	1.99	1.95	1.95	1.95		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	1.5 dry	2.5 dry	2.5 dry	2.5 dry		
Hilf Density Ratio (%)	101.0	95.5	96.5	97.5		

Comments



Dandenong South
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Report No: HDR:W22DS00191

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.:
TRN:

CG Request No.:
Lot No.:



Accredited for compliance with ISO/IEC 17025
– Testing

Accreditation Number: 12719
Approved Signatory: M. Robinson
(Team Leader)

Site Number: 12712
Date of Issue: 4/02/2022

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: Silty Clay

Sample Data

Sample ID	S22DS-00661	S22DS-00662	S22DS-00663	S22DS-00664	S22DS-00665	S22DS-00666
Field Sample ID	1	2	3	4	5	6
Date Tested	2/02/2022	2/02/2022	2/02/2022	2/02/2022	2/02/2022	2/02/2022
Lot No:	3617	3616	3616	3625	3614	3613
E:	2558.396	2563.201	2573.509	2587.851	2554.601	2543.307
N:	567.538	553.741	562.549	534.364	544.764	537.524
Elv:	43.221	43.359	43.240	43.577	43.342	43.555

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275	275	275
Depth of Layer (mm)	300	300	300	300	300	300
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)		0	0		0	0
Field Wet Density (t/m ³)	2.05	2.08	2.11	2.12	2.03	2.15
Peak Converted Wet Density (t/m ³)	2.16	2.11	2.12	2.16	2.13	2.16
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.0	1.0 dry	1.5 dry	0.5 dry	0.0	0.0
Hilf Density Ratio (%)	95.0	98.5	99.0	98.5	95.0	99.5

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 4/02/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)

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: Silty Clay

Sample Data

Sample ID	S22DS-00667	S22DS-00668	S22DS-00669			
Field Sample ID	7	8	9			
Date Tested	2/02/2022	2/02/2022	2/02/2022			
Lot No:	3612	3611	3610			
E:	2536.336	2528.382	2520.234			
N:	552.385	563.330	573.526			
Elv:	43.432	43.341	43.226			

Field and Laboratory Data

Depth of Test (mm)	275	275	275			
Depth of Layer (mm)	300	300	300			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.11	2.15	2.01			
Peak Converted Wet Density (t/m³)	2.16	2.18	2.06			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 dry	0.5 dry	2.0 dry			
Hilf Density Ratio (%)	98.0	99.0	97.5			


Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 8/02/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)

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: In-Situ
Material: CLAY

Sample Data

Sample ID	S22DS-00705	S22DS-00706	S22DS-00707	S22DS-00708		
Field Sample ID	1	2	3	4		
Client Sample ID	18	19	20	21		
Date Tested	3/02/2022	3/02/2022	3/02/2022	3/02/2022		
Lot No:	3630	3631	3632	3633		
E;	2515.472	2505.530	2497.871	2492.216		
N:	514.647	526.122	537.394	549.504		
Elv:	44.033	43.933	43.748	43.666		

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275		
Depth of Layer (mm)	300	300	300	300		
AS Sieve Size (mm)	19.0	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0	0		
Field Wet Density (t/m³)	1.78	2.09	2.10	2.08		
Peak Converted Wet Density (t/m³)	1.87	2.10	2.08	2.11		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	4.5 dry	0.5 dry	0.0	0.5 dry		
Hilf Density Ratio (%)	95.0	99.5	101.0	98.5		

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**



Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719 Approved Signatory: M. Robinson
(Team Leader)

Site Number: 12712 Date of Issue: 8/02/2022

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: Silty Clay

Sample Data

Sample ID	S22DS-00742	S22DS-00749	S22DS-00750	S22DS-00751	S22DS-00752	S22DS-00753
Field Sample ID	1	8	9	10	11	12
Date Tested	4/02/2022	4/02/2022	4/02/2022	4/02/2022	4/02/2022	4/02/2022
Lot No:	3609	3608	3607	3630	3630	3631
E:	2513.150	2506.461	2498.547	2520.580	2515.268	2500.759
N:	582.411	593.504	603.842	519.975	514.324	521.979
RL:	42.993	42.892	42.606	44.106	44.042	44.268
					Retest of S22DS-00705	

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275	275	275
Depth of Layer (mm)	300	300	300	300	300	300
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0	0
Field Wet Density (t/m ³)	2.21	2.17	2.09	2.10	2.07	2.17
Peak Converted Wet Density (t/m ³)	2.17	2.08	2.15	2.12	2.04	2.11
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.0	0.5 dry	0.5 dry	0.5 dry	2.0 dry	0.0
Hilf Density Ratio (%)	101.5	104.0	97.0	99.5	101.5	103.0

Comments



Dandenong South
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Report No: HDR:W22DS00218

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**



Accredited for compliance with ISO/IEC 17025
– Testing

Accreditation Number: 12719
Approved Signatory: M. Robinson
(Team Leader)

Site Number: 12712
Date of Issue: 8/02/2022

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: Silty Clay

Sample Data

Sample ID	S22DS-00754				
Field Sample ID	13				
Date Tested	4/02/2022				
Lot No:	3632				
E:	2504.108				
N:	540.888				
RL:	43.970				

Field and Laboratory Data

Depth of Test (mm)	275				
Depth of Layer (mm)	300				
AS Sieve Size (mm)	19.0				
Oversize Wet (%)	0				
Field Wet Density (t/m ³)	2.03				
Peak Converted Wet Density (t/m ³)	2.03				
Compactive Effort	Standard				
Moisture Variation (%)	0.5 dry				
Hilf Density Ratio (%)	100.0				

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 8/02/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)

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: Silty Clay

Sample Data

Sample ID	S22DS-00755	S22DS-00756	S22DS-00757	S22DS-00758	S22DS-00759	S22DS-00760
Field Sample ID	1	2	3	4	5	6
Date Tested	5/02/2022	5/02/2022	5/02/2022	5/02/2022	5/02/2022	5/02/2022
Lot No:	3613	3614	3612	3611	3610	3609
E:	2539.472	2552.790	2543.408	2523.183	2527.099	2506.961
N:	536.607	550.616	558.432	559.563	578.492	578.873
RL:	43.702	43.415	43.568	43.710	43.294	43.372

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275	275	275
Depth of Layer (mm)	300	300	300	300	300	300
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0	0
Field Wet Density (t/m³)	2.11	2.07	2.17	2.17	2.13	2.16
Peak Converted Wet Density (t/m³)	2.03	2.06	2.13	2.17	2.11	2.06
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	1.5 dry	1.5 dry	0.0	0.5 dry	0.0	0.5 dry
Hilf Density Ratio (%)	103.5	100.5	102.0	100.0	100.5	105.0

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**



Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719 Approved Signatory: M. Robinson
(Team Leader)

Site Number: 12712 Date of Issue: 8/02/2022

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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: Silty Clay

Sample Data

Sample ID	S22DS-00761	S22DS-00762	S22DS-00763	S22DS-00764	S22DS-00765	S22DS-00766
Field Sample ID	7	8	9	10	11	12
Date Tested	5/02/2022	5/02/2022	5/02/2022	5/02/2022	5/02/2022	5/02/2022
Lot No:	3608	3606	3605	3629	3628	3627
E:	2512.041	2491.236	2483.242	2543.953	2553.825	2564.828
N:	599.181	613.634	623.987	487.375	496.498	504.686
RL:	42.970	42.890	42.424	44.273	44.159	44.015

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275	275	275
Depth of Layer (mm)	300	300	300	300	300	300
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0	0
Field Wet Density (t/m³)	1.98	2.11	1.97	2.03	2.03	2.06
Peak Converted Wet Density (t/m³)	2.03	2.10	2.12	2.11	2.07	2.06
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	2.5 dry	1.0 dry	0.0	0.0	1.0 dry	0.0
Hilf Density Ratio (%)	97.5	100.5	92.5	96.0	97.5	100.0


Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 8/02/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)

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: Silty Clay

Sample Data

Sample ID	S22DS-00767	S22DS-00768	S22DS-00769	S22DS-00770		
Field Sample ID	13	14	15	16		
Date Tested	5/02/2022	5/02/2022	5/02/2022	5/02/2022		
Lot No:	3626	3636	3635	3634		
E:	2577.616	2469.318	2476.627	2484.177		
N:	514.024	578.039	567.395	557.314		
RL:	43.898	43.651	43.737	43.675		

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275		
Depth of Layer (mm)	300	300	300	300		
AS Sieve Size (mm)	19.0	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0	0		
Field Wet Density (t/m³)	2.09	2.05	2.09	2.02		
Peak Converted Wet Density (t/m³)	2.10	2.14	2.11	2.07		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	0.5 dry	0.5 dry	0.5 dry	2.0 dry		
Hilf Density Ratio (%)	99.5	95.5	99.0	97.5		

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**



Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 8/02/2022
Approved Signatory: M. Robinson
(Team Leader)
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: Silty Clay

Sample Data

Sample ID	S22DS-00796	S22DS-00797	S22DS-00798	S22DS-00799	S22DS-00800	
Field Sample ID	1	2	3	4	5	
Date Tested	7/02/2022	7/02/2022	7/02/2022	7/02/2022	7/02/2022	
Lot No:	3607	3606	3605	3605	3604	
E:	2493.192	2496.379	2476.560	2482.226	2474.719	
N:	598.150	617.097	617.366	624.857	626.227	
Elv:	43.093	42.692	42.979	42.480	42.808	
				Retest of S22DS-00763		

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275	275	
Depth of Layer (mm)	300	300	300	300	300	
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	
Oversize Wet (%)	0	0	0	0	0	
Field Wet Density (t/m³)	2.17	2.12	2.13	2.16	2.16	
Peak Converted Wet Density (t/m³)	2.12	2.15	2.19	2.11	2.18	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Variation (%)	2.0 dry	0.5 dry	0.0	1.5 dry	0.5 dry	
Hilf Density Ratio (%)	102.0	99.0	97.0	102.0	99.0	

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**



Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719 Approved Signatory: M. Robinson
(Team Leader)

Site Number: 12712 Date of Issue: 11/02/2022

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: Silty Clay

Sample Data

Sample ID	S22DS-00813	S22DS-00814	S22DS-00815	S22DS-00816	S22DS-00817	S22DS-00818
Field Sample ID	1	2	3	4	5	6
Date Tested	8/02/2022	8/02/2022	8/02/2022	8/02/2022	8/02/2022	8/02/2022
Lot No:	3633	3634	3635	3636	3603	3602
E:	2484.561	2486.241	2469.241	2470.345	2468.348	2460.195
N:	543.908	560.679	563.876	577.888	643.114	654.859
Elv:	44.222	43.845	44.277	43.942	42.471	42.461

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275	275	275
Depth of Layer (mm)	300	300	300	300	300	300
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0	0
Field Wet Density (t/m³)	2.16	2.17	2.02	2.09	2.07	2.07
Peak Converted Wet Density (t/m³)	2.13	2.17	2.10	2.08	2.02	2.14
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.0	0.5 wet	1.5 dry	2.0 dry	0.0	2.5 dry
Hilf Density Ratio (%)	101.5	100.0	96.0	100.5	102.5	96.5

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036
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. Robinson
(Team Leader)
Date of Issue: 11/02/2022
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: Silty Clay

Sample Data

Sample ID	S22DS-00819				
Field Sample ID	7				
Date Tested	8/02/2022				
Lot No:	3601				
E:	2452.792				
N:	664.501				
Elv:	42.353				

Field and Laboratory Data

Depth of Test (mm)	275				
Depth of Layer (mm)	300				
AS Sieve Size (mm)	19.0				
Oversize Wet (%)	0				
Field Wet Density (t/m³)	2.08				
Peak Converted Wet Density (t/m³)	2.13				
Compactive Effort	Standard				
Moisture Variation (%)	2.0 dry				
Hilf Density Ratio (%)	98.0				

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**



Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719 Approved Signatory: M. Robinson
(Team Leader)

Site Number: 12712 Date of Issue: 11/02/2022

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: Silty Clay

Sample Data

Sample ID	S22DS-00867	S22DS-00868	S22DS-00869	S22DS-00870		
Field Sample ID	1	2	3	4		
Date Tested	9/02/2022	9/02/2022	9/02/2022	9/02/2022		
Lot No:	3611	3614	3608	3605		
E:	2528.522	2551.358	2508.159	2478.903		
N:	560.219	544.973	594.201	623.037		
Elv:	43.949	43.739	43.301	42.983		

Field and Laboratory Data

Depth of Test (mm)	275	275	275	275		
Depth of Layer (mm)	300	300	300	300		
AS Sieve Size (mm)	19.0	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0	0		
Field Wet Density (t/m³)	2.09	2.14	2.19	2.15		
Peak Converted Wet Density (t/m³)	2.07	2.04	1.94	2.08		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	2.0 dry	1.5 dry	2.5 dry	0.5 dry		
Hilf Density Ratio (%)	101.0	105.0	112.5	103.0		

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 11/02/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)

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: Silty Clay

Sample Data

Sample ID	S22DS-00923	S22DS-00924	S22DS-00925	S22DS-00926		
Field Sample ID	1	2	3	4		
Date Tested	10/02/2022	10/02/2022	10/02/2022	10/02/2022		
Lot No:	3603	3601	3608	3606		
E:	2463.835	2456.804	2501.051	2485.899		
N:	648.637	668.080	591.280	612.947		
Elv:	42.729	42.617	43.774	43.456		

Field and Laboratory Data

Depth of Test (mm)	225	225	225	225		
Depth of Layer (mm)	250	250	250	250		
AS Sieve Size (mm)	19.0	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0	0		
Field Wet Density (t/m³)	1.99	1.98	2.03	2.02		
Peak Converted Wet Density (t/m³)	1.90	2.05	2.04	2.09		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	3.0 dry	2.0 dry	2.0 dry	0.5 dry		
Hilf Density Ratio (%)	104.5	96.0	99.5	97.0		

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 15/02/2022
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)

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	S22DS-00999	S22DS-01000	S22DS-01001			
Field Sample ID	1	2	3			
Date Tested	12/02/2022	12/02/2022	12/02/2022			
Lot No:	3637	3639	3640			
E:	2456.810	2447.765	2437.060			
N:	588.440	607.520	613.220			
Elv:	43.74	43.375	43.695			

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)	2.17	2.08	1.96			
Peak Converted Wet Density (t/m³)	2.08	2.00	2.10			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	2.0 dry	0.5 dry	2.5 dry			
Hilf Density Ratio (%)	104.5	104.0	93.5			

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036
Order No.:
TRN:

CG Request No.:
Lot No.:

Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Approved Signatory: M. Robinson
(Team Leader)
Date of Issue: 17/02/2022



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: Silty Clay

Sample Data

Sample ID	S22DS-01144	S22DS-01145				
Field Sample ID	1	2				
Date Tested	16/02/2022	16/02/2022				
Lot No:	3640	3642				
E:	2437.060	2418.890				
N:	615.640	637.135				
Elv:	43.625	43.420				
	Retest of S22DS-01001					

Field and Laboratory Data

Depth of Test (mm)	225	225				
Depth of Layer (mm)	250	250				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Wet Density (t/m³)	2.01	2.03				
Peak Converted Wet Density (t/m³)	2.06	2.06				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	2.0 dry	2.5 dry				
Hilf Density Ratio (%)	97.5	98.5				

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**



Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 21/02/2022
Approved Signatory: M. Robinson
(Team Leader)
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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: Gravelly Clay

Sample Data

Sample ID	S22DS-01207	S22DS-01210	S22DS-01211			
Field Sample ID	1	2	3			
Date Tested	17/02/2022	17/02/2022	17/02/2022			
Lot No:	3637	3638	3639			
E:	2456.380	2454.860	2444.770			
N:	582.720	598.590	606.240			
Elv:	44.005	43.740	43.900			

Field and Laboratory Data

Depth of Test (mm)	225	225	225			
Depth of Layer (mm)	250	250	250			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.07	2.04	2.04			
Peak Converted Wet Density (t/m³)	2.03	1.99	2.13			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	2.0 dry	2.5 dry	2.5 dry			
Hilf Density Ratio (%)	102.0	102.5	96.0			

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 36
Project No.: 3807351.036

Order No.: **CG Request No.:**
TRN: **Lot No.:**



Accredited for compliance with ISO/IEC 17025
– Testing



Accreditation Number: 12719
Site Number: 12712
Date of Issue: 21/02/2022
Approved Signatory: M. Robinson
(Team Leader)
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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: Sandy Clay with Gravel

Sample Data

Sample ID	S22DS-01237	S22DS-01238	S22DS-01239			
Field Sample ID	1	2	3			
Date Tested	18/02/2022	18/02/2022	18/02/2022			
Lot No:	3640	3641	3642			
E:	2440.000	2425.275	2425.810			
N:	618.855	624.150	642.570			
Elv:	43.790	43.870	43.580			

Field and Laboratory Data

Depth of Test (mm)	225	225	225			
Depth of Layer (mm)	250	250	250			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	1.96	2.02	1.86			
Peak Converted Wet Density (t/m³)	1.98	2.11	2.02			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	4.5 dry	2.5 dry	2.0 dry			
Hilf Density Ratio (%)	99.5	96.0	92.0			

Comments

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd Address: PO Box 3131 AUBURN VIC 3123 Project: Meridian Estate - Stage 36 Project No.: 3807351.036 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. Robinson (Team Leader) Date of Issue: 28/02/2022 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL
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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	S22DS-01473	S22DS-01474				
Field Sample ID	1	2				
Date Tested	26/02/2022	26/02/2022				
Lot No:	3740	3742				
E:	2435.960	2425.790				
N:	624.720	644.790				
Elv:	43.670	43.450				
	Retest of S22DS-01237	Retest of S22DS-01239				

Field and Laboratory Data

Depth of Test (mm)	225	225				
Depth of Layer (mm)	250	250				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Wet Density (t/m³)	2.11	2.03				
Peak Converted Wet Density (t/m³)	2.11	1.98				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	2.5 dry	2.5 dry				
Hilf Density Ratio (%)	100.0	102.5				

Comments

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 37
Project No.: 3807351.037
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: 31/05/2022
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Sample Details

Sample Location E 356306, N 5781358, Lot 3709, 1, Sample 17
Field Sample ID 1
Date Sampled 9/04/2022
Source Onsite
Material Red Sandy Clay
Specification AS Grading
Sampling Method AS1289.1.2.1 Clause 6.4 (b)
Sample ID S22DS-02815

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	6.6	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	2.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		Yes	
Liquid Limit (%)	AS 1289.3.1.2	18	
Plastic Limit (%)	AS 1289.3.2.1	12	
Plasticity Index (%)	AS 1289.3.3.1	6	
Date Tested		26/04/2022	

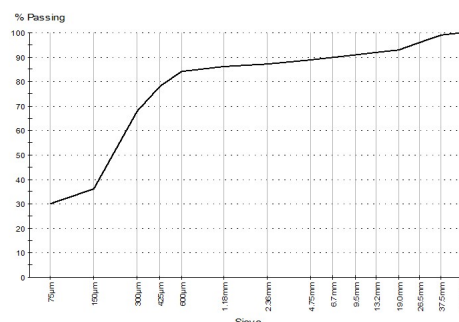
Particle Size Distribution

Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 21/04/2022

Note: Sample Washed

Sieve Size	% Passing	Limits
53.0mm	100	
37.5mm	99	
26.5mm	96	
19.0mm	93	
13.2mm	92	
9.5mm	91	
6.7mm	90	
4.75mm	89	
2.36mm	87	
1.18mm	86	
600µm	84	
425µm	78	
300µm	68	
150µm	36	
75µm	30	

Chart



Comments

N/A

Appendix D : Controlled Fill certificate



CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT : Lot No's: 3601 to 3642
Meridian Central Estate Stage 36

Chadwick Geotechnics REF: 3807351.036.v1

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

DATE: 10 August 2022

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 topsoil).

This report is based on the conditions present and factors affecting the soil at the time of inspection (21 January 2022 and was completed on 26 February 2022). 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

Robert Barden
Project Manager

Timothy Chadwick
Project Director

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