



REPORT

Level One Inspection and Testing Services

**Meridian Central Estate Stage 38, Clyde
Lot's 3801 to 3840**

Prepared for:

Grosvenor Lodge Pty Ltd

13 February 2023

Our Ref: 3807351.038.v1

Document control

Title: Level One Inspection and Testing Services					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
13 Feb 2023	1	3807351.038.V1	SP	RHB	TJC

Distribution:

Grosvenor Lodge Pty Ltd

1 electronic copy

Chadwick Geotechnics Pty Ltd (FILE)

1 electronic copy

Table of contents

Document control	ii
1 Introduction	2
2 Project details	2
2.1 Location	2
2.2 Roles	3
2.3 Fill specification	3
2.4 Dates on site	3
2.5 Included areas	4
2.6 Excluded areas	4
3 Inspection and Testing	4
3.1 Earthworks	4
3.2 Subgrade Assessment	5
3.3 Earthwork Equipment	5
3.4 Fill Material	5
3.5 Engineered Fill Construction	6
3.6 Density testing	6
4 Conclusion	7
5 Applicability	8
Appendix A :	Density Test Location Plan
Appendix B :	Table of field density results
Appendix C :	NATA endorsed laboratory reports
Appendix D :	Controlled Fill Certificate

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 38 of the Estate (referred to Stage 38 herein).

This report presents the earthworks supervision methods and density testing results for the residential lot's 3801 to 3840 within the Stage 38 site. The earthworks were completed between 1 July 2022 and 3 February 2023.

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. Stage 38 is located to the North of Stage 44 and North of Hardys Rd 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 38 – 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	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
July 2022	1,2,4,5,6,7, 15
August 2022	11,
February 2023	3

2.5 Included areas

This report is applicable to material placed by the contractor on the residential lots 3801 to 3840 within Stage 38 of the 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 on site:

Photograph 1: Proof Roll	Photograph 2: Spreading material
 <p>A yellow Volvo truck is shown driving over a large area of compacted, textured earth. The ground surface is covered in a grid-like pattern of deep, rectangular impressions, indicating a proof rolling process. The sky is overcast.</p>	 <p>A yellow bulldozer is shown spreading material on a large, flat area of earth. The ground is uneven and shows tracks from the bulldozer. A red handwritten number '2' is visible in the lower right corner of the image. A timestamp 'Scan 6/7/22 08:24:10' is visible in the top right corner of the image.</p>

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 rolling was undertaken between the 28 June 2022 and 15 July 2022 with the use of a loaded dump truck or pad foot roller. The areas were 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 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 5 below. The laboratory test certificate is attached in **Appendix C**.

Table 5: Compliance test result summary

Date tested	Particle Size Distribution (PSD) passing						Liquid Limit	Plastic Limit	Plasticity Index
1 st July 2022	150mm	37.5mm	13.2mm	4.75mm	1.18mm	0.75µm	42%	17%	25%



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 6: Materials used for fill

Photograph 3. Material ready for placement	Photograph 4: Brown Silty 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's 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 2 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 51 tests were performed across the Stage 38 site during the filling process.

All test 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 D.

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 in good faith with respect to the 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:



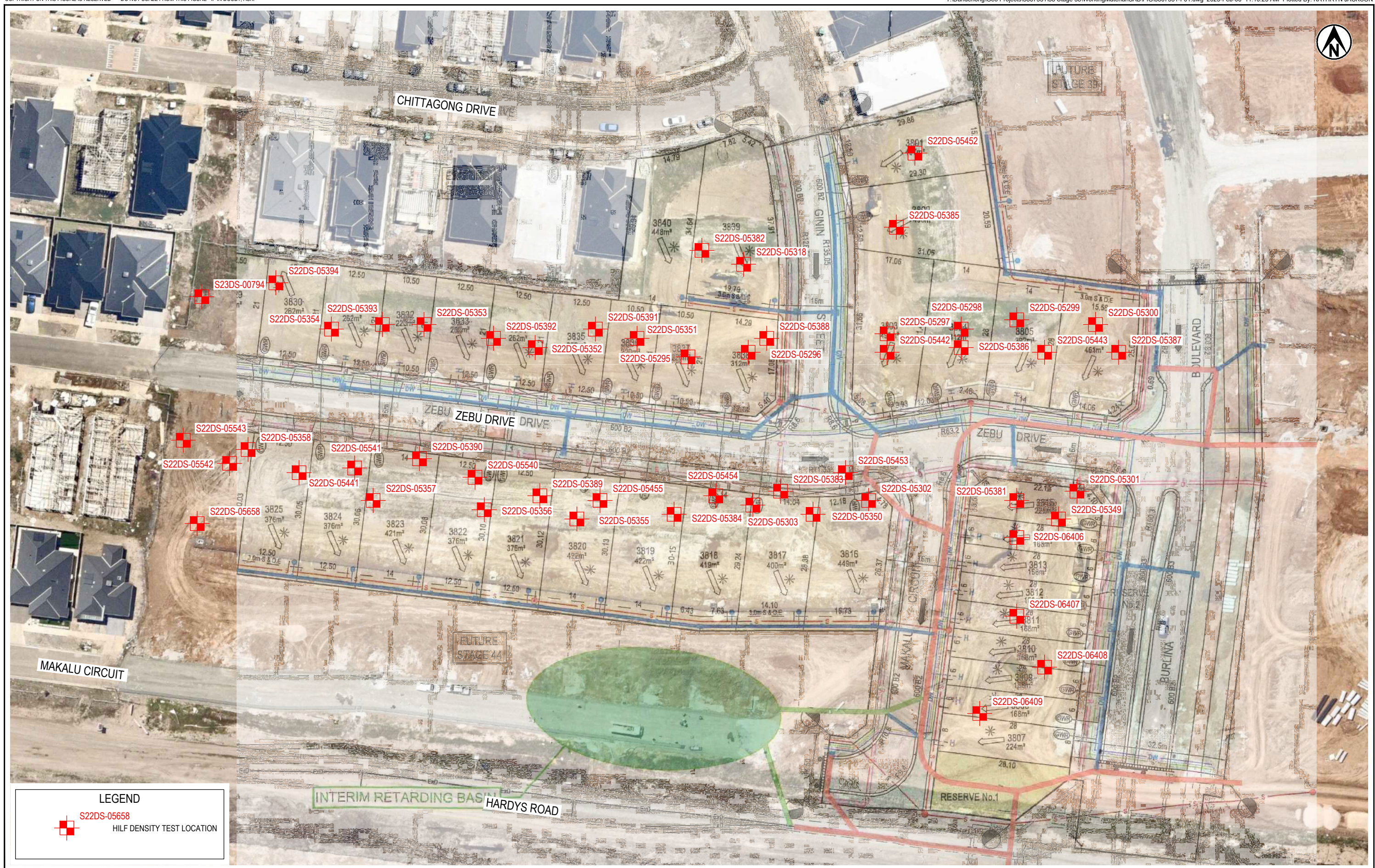
.....
Robert Barden
Project Manager

Authorised for Chadwick Geotechnics Pty Ltd by:



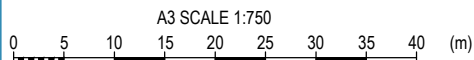
.....
Tim Chadwick
Project Director

Appendix A : Site plan



LEGEND
 S22DS-05658
 HILF DENSITY TEST LOCATION

NOTES:
 1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD. IMAGERY DATE: 03/12/2023.
 2. BASE PLAN PROVIDED BY GROSVENOR LODGE PTY LTD. DRAWING REFERENCE: 1801767-37-BASE 211027 DATE RECEIVED: 22/06/2022.



 ORIGINAL IN COLOUR

PROJECT No. 3807351		
DESIGNED	STPA	Jan.23
DRAWN	KMJA	Jan.23
CHECKED		
APPROVED DATE		

CLIENT	GROSVENOR LODGE PTY LTD
PROJECT	MERIDIAN ESTATE - STAGE 38
TITLE	LEVEL 1 HILF DENSITY TESTING HILF DENSITY TEST LOCATION PLAN
SCALE (A3)	1:750
FIG No.	3807351-F01
REV	1

Appendix B : Hilf density test summary



PROJECT: Meridian Estate, Stage 38

NO: 3807351.038

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 9706 9431



HILF Density Testing - Field Summary

www.chadwickgeotechnics.com.au

Report No	Sample No	Date	Test Number	Lot No	Easting	Northing	Layer/RL	Density Ratio (≥95 %)	Moisture Variation	Moisture for Calc Pass	Pass / Fail	Comments (Retest No) Compliance test taken ect
HDR:W22DS01411	S22DS-05295	1/07/2022	1	3837	356015	5781153	41.45	96.5	2.5 wet	2.5	PASS	
HDR:W22DS01411	S22DS-05296	1/07/2022	2	3838	356028	5781154	41.335	97.5	0 wet	0	PASS	
HDR:W22DS01411	S22DS-05297	1/07/2022	3	3804	356058	5781158	41.431	100.5	0.5 dry	0.5	PASS	
HDR:W22DS01411	S22DS-05298	1/07/2022	4	3804	356074	5781159	41.554	98	2 wet	2	PASS	
HDR:W22DS01411	S22DS-05299	1/07/2022	5	3805	356086	5781161	41.829	98.5	0 dry	0	PASS	
HDR:W22DS01411	S22DS-05300	1/07/2022	6	3806	356103	5781160	42.04	101	0 wet	0	PASS	
HDR:W22DS01411	S22DS-05301	1/07/2022	7	3815	356099	5781124	40.931	100.5	2 wet	2	PASS	
HDR:W22DS01411	S22DS-05302	1/07/2022	8	3816	356054	5781122	40.907	97.5	0 dry	0	PASS	
HDR:W22DS01411	S22DS-05303	1/07/2022	9	3818	356029	5781121	40.831	100.5	0.5 dry	0.5	PASS	
HDR:W22DS01414	S22DS-05318	2/07/2022	1	3838	356027	5781173		98.5	1.5 wet	1.5	PASS	
HDR:W22DS01421	S22DS-05349	4/07/2022	1	3814	356095	5781118	40.76	97.5	0.5 wet	0.5	PASS	
HDR:W22DS01421	S22DS-05350	4/07/2022	2	3817	356042	5781119	40.83	99	0.5 wet	0.5	PASS	
HDR:W22DS01421	S22DS-05351	4/07/2022	3	3836	356004	5781157	41.693	98	0.5 dry	0.5	PASS	
HDR:W22DS01421	S22DS-05352	4/07/2022	4	3834	355982	5781155	41.537	98	2.5 wet	2.5	PASS	
HDR:W22DS01421	S22DS-05353	4/07/2022	5	3832	355958	5781160	41.449	97.5	0 dry	0	PASS	
HDR:W22DS01421	S22DS-05354	4/07/2022	6	3830	355938	5781159	41.314	99	0.5 wet	0.5	PASS	
HDR:W22DS01421	S22DS-05355	4/07/2022	7	3820	355991	5781118	40.817	99.5	1.5 wet	1.5	PASS	
HDR:W22DS01421	S22DS-05356	4/07/2022	8	3822	355971	5781120	40.88	102	0.5 wet	0.5	PASS	
HDR:W22DS01421	S22DS-05357	4/07/2022	9	3824	355947	5781122	41.045	97	0 dry	0	PASS	
HDR:W22DS01421	S22DS-05358	4/07/2022	10	3826	355920	5781133	41.3	95.5	0.5 dry	0.5	PASS	
HDR:W22DS01427	S22DS-05381	5/07/2022	1	3814	356086	5781122	41	97.5	0.5 wet	0.5	PASS	



PROJECT: Meridian Estate, Stage 38

NO: 3807351.038

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 9706 9431



HILF Density Testing - Field Summary

www.chadwickgeotechnics.com.au

Report No	Sample No	Date	Test Number	Lot No	Easting	Northing	Layer/RL	Density Ratio (≥95 %)	Moisture Variation	Moisture for Calc Pass	Pass / Fail	Comments (Retest No) Compliance test taken ect
HDR:W22DS01427	S22DS-05382	5/07/2022	2	3840	356018	5781176	41.93	97	0 dry	0	PASS	
HDR:W22DS01427	S22DS-05383	5/07/2022	3	3817	356035	5781124	41.035	101	0.5 wet	0.5	PASS	
HDR:W22DS01427	S22DS-05384	5/07/2022	4	3819	356012	5781119	40.94	99	0.5 wet	0.5	PASS	
HDR:W22DS01427	S22DS-05385	5/07/2022	5	3802	356060	5781181	41.98	98	0 wet	0	PASS	
HDR:W22DS01427	S22DS-05386	5/07/2022	6	3804	356074	5781155	41.76	100.5	0 dry	0	PASS	
HDR:W22DS01427	S22DS-05387	5/07/2022	7	3806	356108	5781154	41.76	103	0.5 dry	0.5	PASS	
HDR:W22DS01427	S22DS-05388	5/07/2022	8	3838	356032	5781157	41.68	100	0.5 wet	0.5	PASS	
HDR:W22DS01427	S22DS-05389	5/07/2022	9	3821	355983	5781123	41.157	100.5	0.5 wet	0.5	PASS	
HDR:W22DS01427	S22DS-05390	5/07/2022	10	3823	355957	5781131	41.3	99	0 wet	0	PASS	
HDR:W22DS01427	S22DS-05391	5/07/2022	11	3835	355995	5781159	41.7	97.5	0.5 wet	0.5	PASS	
HDR:W22DS01427	S22DS-05392	5/07/2022	12	3833	355973	5781157	41.58	102.5	1.5 dry	1.5	PASS	
HDR:W22DS01427	S22DS-05393	5/07/2022	13	3831	355949	5781160	41.66	98	2 wet	2	PASS	
HDR:W22DS01427	S22DS-05394	5/07/2022	14	3829	355926	5781169	41.56	97.5	1 dry	1	PASS	
HDR:W22DS01437	S22DS-05441	6/07/2022	1	3825	355931	5781128	41.34	98	0.5 wet	0.5	PASS	
HDR:W22DS01437	S22DS-05442	6/07/2022	2	3803	356058	5781154	41.75	97	0 wet	0	PASS	
HDR:W22DS01437	S22DS-05443	6/07/2022	3	3805	356092	5781154	42.02	98.5	0.5 wet	0.5	PASS	
HDR:W22DS01440	S22DS-05452	6/07/2022	1	3801	356064	5781197	42.35	97.5	0 wet	0	PASS	
HDR:W22DS01440	S22DS-05453	6/07/2022	2	3816	356049	5781128	41.16	99	1 wet	1	PASS	
HDR:W22DS01440	S22DS-05454	6/07/2022	3	3818	356021	5781123	41.27	99.5	0.5 wet	0.5	PASS	
HDR:W22DS01440	S22DS-05455	6/07/2022	4	3820	355996	5781122	41.35	97.5	0 dry	0	PASS	
HDR:W22DS01454	S22DS-05540	7/07/2022	1	3822	355969	5781127	41.39	97	2 wet	2	PASS	
HDR:W22DS01454	S22DS-05541	7/07/2022	2	3824	355943	5781129	41.535	96	3 wet	3	PASS	

Appendix C : Hilf density testing reports



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:W22DS01411

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
 - Testing



Accreditation Number: 12719 Approved Signatory: M. Robinson
 Site Number: 12712 Date of Issue: 4/07/2022
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location: AM Testing
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 1289.2.1.1, 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-05295	S22DS-05296	S22DS-05297	S22DS-05298	S22DS-05299	S22DS-05300
Field Sample ID	1	2	3	4	5	6
Client Sample ID	1	2	3	4	5	6
Date Tested	1/07/2022	1/07/2022	1/07/2022	1/07/2022	1/07/2022	1/07/2022
Time Tested	07:59	08:09	08:21	08:32	08:38	08:47
E:	2191.490 (356015)	2203.638 (356028)	2234.588 (356058)	2249.549 (356074)	2262.837 (356086)	2279.969 (356103)
N:	311.872 (5781153)	311.254 (5781154)	314.886 (5781158)	316.310 (5781159)	318.556 (5781161)	322.945 (5781160)
RL:	41.450	41.335	41.431	41.554	41.829	42.040
Lot / Layer:	3837	3838	3804	3804	3805	3806
Other:	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1

Field and Laboratory Data

Depth of Test (mm)	175	175	175	175	175	175
Depth of Layer (mm)	200	200	200	200	200	200
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 Moisture Content (%)	21.3	19.1	17.3	18.4	23.1	23.9
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m ³)	1.97	1.99	2.07	2.05	1.98	2.03
Field Dry Density (t/m ³)	1.62	1.67	1.77	1.74	1.61	1.63
Peak Converted Wet Density (t/m ³)	2.04	2.03	2.06	2.09	2.01	2.01
Optimum Moisture Content (%)	19.0	19.0	18.0	16.5	23.0	24.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	113.5	101.0	97.5	111.0	99.5	100.5
Moisture Variation (%)	2.5 wet	0.0	0.5 dry	2.0 wet	0.0	0.0
Hilf Density Ratio (%)	96.5	97.5	100.5	98.0	98.5	101.0

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:W22DS01411

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
 - Testing



Accreditation Number: 12719 Approved Signatory: M. Robinson
 Site Number: 12712 Date of Issue: 4/07/2022
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location: AM Testing
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 1289.2.1.1, 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-05301	S22DS-05302	S22DS-05303		
Field Sample ID	7	8	9		
Client Sample ID	7	8	9		
Date Tested	1/07/2022	1/07/2022	1/07/2022		
Time Tested	12:04	12:13	12:18		
E:	2274.141 (356099)	2231.619 (356054)	2205.478 (356029)		
N:	282.964 (5781124)	282.220 (5781122)	283.802 (5781121)		
RL:	40.931	40.907	40.831		
Lot / Layer:	3815	3816	3818		
Other:	Layer 1	Layer 1	Layer 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 Moisture Content (%)	15.1	19.5	9.0		
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1		
Field Wet Density (t/m ³)	1.97	1.99	2.02		
Field Dry Density (t/m ³)	1.71	1.67	1.85		
Peak Converted Wet Density (t/m ³)	1.96	2.04	2.00		
Optimum Moisture Content (%)	13.0	19.5	9.0		
Compactive Effort	Standard	Standard	Standard		
Moisture Ratio (%)	115.5	99.5	97.5		
Moisture Variation (%)	2.0 wet	0.0	0.5 dry		
Hilf Density Ratio (%)	100.5	97.5	100.5		

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:W22DS01414

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 5/07/2022
 Approved Signatory: M. Robinson
 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 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: CLAY

Sample Data

Sample ID	S22DS-05318				
Field Sample ID	1				
Date Tested	2/07/2022				
Lot No:	3838				
E:	350627				
N:	5781173				
	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 Moisture Content (%)	23.2				
Field Moisture Content Method	AS 1289.2.1.1				
Field Wet Density (t/m ³)	1.99				
Field Dry Density (t/m ³)	1.62				
Peak Converted Wet Density (t/m ³)	2.02				
Optimum Moisture Content (%)	21.5				
Compactive Effort	Standard				
Moisture Ratio (%)	108.5				
Moisture Variation (%)	1.5 wet				
Hilf Density Ratio (%)	98.5				

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:W22DS01421


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 7/07/2022
 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%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: CLAY

Sample Data

Sample ID	S22DS-05349	S22DS-05350	S22DS-05351	S22DS-05352	S22DS-05353	S22DS-05354
Field Sample ID	1	2	3	4	5	6
Client Sample ID	11	12	13	14	15	16
Date Tested	4/07/2022	4/07/2022	4/07/2022	4/07/2022	4/07/2022	4/07/2022
Time Tested	08:50	08:59	11:14	11:26	11:34	11:41
Lot No:	3814	3817	3836	3834	3832	3830
E:	2271.830 (356095)	2218.356 (356042)	2179.303 (356004)	2158.390 (355982)	2135.301 (355958)	2114.879 (355938)
N:	275.950 (5781118)	277.669 (5781119)	315.711 (5781157)	313.539 (5781155)	317.864 (5781160)	319.290 (5781159)
Elv:	40.760	40.830	41.693	41.537	41.449	41.314

Field and Laboratory Data

Depth of Test (mm)	175	175	175	175	175	175
Depth of Layer (mm)	200	200	200	200	200	200
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 Moisture Content (%)	22.4	22.1	20.2	21.8	19.8	21.9
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m ³)	1.98	2.00	1.96	2.02	2.00	1.99
Field Dry Density (t/m ³)	1.61	1.64	1.63	1.66	1.67	1.63
Peak Converted Wet Density (t/m ³)	2.03	2.02	2.00	2.06	2.05	2.00
Optimum Moisture Content (%)	22.0	21.5	20.5	19.0	20.0	21.5
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	101.5	102.0	97.5	113.5	99.5	101.5
Moisture Variation (%)	0.5 wet	0.5 wet	0.5 dry	2.5 wet	0.0	0.5 wet
Hilf Density Ratio (%)	97.5	99.0	98.0	98.0	97.5	99.0

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:W22DS01421

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 7/07/2022
 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%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: CLAY

Sample Data

Sample ID	S22DS-05355	S22DS-05356	S22DS-05357	S22DS-05358
Field Sample ID	7	8	9	10
Client Sample ID	17	18	19	20
Date Tested	4/07/2022	4/07/2022	4/07/2022	4/07/2022
Time Tested	13:05	13:15	13:24	14:17
Lot No:	3820	3822	3824	3826
E:	2167.327 (355991)	2146.050 (355971)	2123.780 (355947)	2095.050 (355920)
N:	279.865 (5781118)	277.295 (5781120)	280.390 (5781122)	291.190 (5781133)
Elv:	40.817	40.880	41.045	41.300

Field and Laboratory Data

Depth of Test (mm)	175	175	175	175
Depth of Layer (mm)	200	200	200	200
AS Sieve Size (mm)	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0
Field Moisture Content (%)	25.3	22.7	19.9	12.4
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m ³)	1.97	2.05	2.00	2.04
Field Dry Density (t/m ³)	1.57	1.67	1.66	1.82
Peak Converted Wet Density (t/m ³)	1.98	2.01	2.05	2.14
Optimum Moisture Content (%)	23.5	22.5	20.0	13.0
Compactive Effort	Standard	Standard	Standard	Standard
Moisture Ratio (%)	107.5	102.0	99.5	95.5
Moisture Variation (%)	1.5 wet	0.5 wet	0.0	0.5 dry
Hilf Density Ratio (%)	99.5	102.0	97.0	95.5

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:W22DS01427

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 7/07/2022
 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 1289.2.1.1, 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-05381	S22DS-05382	S22DS-05383	S22DS-05384	S22DS-05385	S22DS-05386
Field Sample ID	1	2	3	4	5	6
Client Sample ID	21	22	23	24	25	26
Date Tested	5/07/2022	5/07/2022	5/07/2022	5/07/2022	5/07/2022	5/07/2022
Time Tested	09:05	09:15	10:30	10:45	11:33	11:42
E:	2263.580 (356086)	2193.620 (356018)	2210.410 (356035)	2188.500 (356012)	2237.290 (356060)	2250.180 (356074)
N:	279.430 (5781122)	335.010 (5781176)	284.700 (5781124)	279.415 (5781119)	339.840 (5781181)	313.280 (5781155)
EL:	41.000	41.930	41.035	40.940	41.980	41.760
Lot / Layer:	3814 / 2	3840 / 2	3817 / 2	3819 / 2	3802 / 1	3804 / 2

Field and Laboratory Data

Depth of Test (mm)	175	125	175	175	175	175
Depth of Layer (mm)	200	150	200	200	200	200
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 Moisture Content (%)	20.3	19.7	21.5	21.5	20.7	19.9
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m ³)	2.01	2.00	2.06	2.00	1.99	2.06
Field Dry Density (t/m ³)	1.67	1.67	1.70	1.64	1.64	1.71
Peak Converted Wet Density (t/m ³)	2.05	2.06	2.04	2.02	2.02	2.04
Optimum Moisture Content (%)	20.0	20.0	21.0	21.0	20.5	20.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	102.5	100.0	102.0	102.0	101.0	99.0
Moisture Variation (%)	0.5 wet	0.0	0.5 wet	0.5 wet	0.0	0.0
Hilf Density Ratio (%)	97.5	97.0	101.0	99.0	98.0	100.5

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:W22DS01427

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 7/07/2022
 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 1289.2.1.1, 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-05387	S22DS-05388	S22DS-05389	S22DS-05390	S22DS-05391	S22DS-05392
Field Sample ID	7	8	9	10	11	12
Client Sample ID	27	28	29	30	31	32
Date Tested	5/07/2022	5/07/2022	5/07/2022	5/07/2022	5/07/2022	5/07/2022
Time Tested	11:49	11:22	13:55	14:04	14:13	14:22
E:	2282.660 (356108)	2205.850 (356032)	2158.260 (355983)	2131.780 (355957)	2170.610 (355995)	2147.980 (355973)
N:	311.270 (5781154)	314.570 (5781157)	281.390 (781123)	287.479 (5781131)	314.685 (5781159)	315.230 (5781157)
EL:	41.760	41.680	41.157	41.300	41.700	41.580
Lot / Layer:	3806 / 2	3838 / 2	3821 / 2	3823 / 2	3835 / 2	3833 / 2

Field and Laboratory Data

Depth of Test (mm)	175	175	175	175	125	125
Depth of Layer (mm)	200	200	200	200	150	150
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 Moisture Content (%)	19.1	22.4	21.4	19.9	20.5	18.8
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m ³)	2.01	2.01	2.00	2.03	2.00	2.05
Field Dry Density (t/m ³)	1.69	1.64	1.65	1.70	1.66	1.72
Peak Converted Wet Density (t/m ³)	1.95	2.01	1.99	2.05	2.05	2.00
Optimum Moisture Content (%)	19.5	21.5	21.0	19.5	20.0	20.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	97.5	103.5	103.0	101.0	102.0	93.0
Moisture Variation (%)	0.5 dry	0.5 wet	0.5 wet	0.0	0.5 wet	1.5 dry
Hilf Density Ratio (%)	103.0	100.0	100.5	99.0	97.5	102.5

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:W22DS01427

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 7/07/2022
 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 1289.2.1.1, 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-05393	S22DS-05394			
Field Sample ID	13	14			
Client Sample ID	33	34			
Date Tested	5/07/2022	5/07/2022			
Time Tested	14:30	14:50			
E:	2124.720 (355949)	2102.720 (355926)			
N:	316.640 (5781160)	327.222 (5781169)			
EL:	41.660	41.560			
Lot / Layer:	3831 / 2	3829 / 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 Moisture Content (%)	21.7	14.4			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m ³)	2.00	2.04			
Field Dry Density (t/m ³)	1.64	1.78			
Peak Converted Wet Density (t/m ³)	2.04	2.09			
Optimum Moisture Content (%)	19.5	15.5			
Compactive Effort	Standard	Standard			
Moisture Ratio (%)	111.5	93.5			
Moisture Variation (%)	2.0 wet	1.0 dry			
Hilf Density Ratio (%)	98.0	97.5			

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:W22DS01437

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 7/07/2022
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location: AM Testing
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 1289.2.1.1, 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-05441	S22DS-05442	S22DS-05443		
Field Sample ID	1	2	3		
Client Sample ID	35	36	37		
Date Tested	6/07/2022	6/07/2022	6/07/2022		
Time Tested	08:15	09:18	09:30		
E:	2107.140 (355931)	2236.015 (356058)	2268.560 (356092)		
N:	286.230 (5781128)	312.900 (5781154)	312.140 (5781154)		
EL:	41.340	41.750	42.020		
Lot / Layer:	3825 / 2	3803 / 3	3805 / 3		

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 Moisture Content (%)	18.0	20.3	22.0		
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1		
Field Wet Density (t/m ³)	2.03	1.98	2.01		
Field Dry Density (t/m ³)	1.72	1.65	1.64		
Peak Converted Wet Density (t/m ³)	2.07	2.05	2.03		
Optimum Moisture Content (%)	17.5	20.0	21.5		
Compactive Effort	Standard	Standard	Standard		
Moisture Ratio (%)	102.0	100.5	102.0		
Moisture Variation (%)	0.5 wet	0.0	0.5 wet		
Hilf Density Ratio (%)	98.0	97.0	98.5		

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:W22DS01440


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 8/07/2022
 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 1289.2.1.1, 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-05452	S22DS-05453	S22DS-05454	S22DS-05455
Field Sample ID	1	2	3	4
Client Sample ID	38	39	40	41
Date Tested	6/07/2022	6/07/2022	6/07/2022	6/07/2022
Time Tested	11:35	14:25	14:36	14:44
E:	2238.790 (356064)	2225.520 (356049)	2196.436 (356021)	2170.620 (355996)
N:	354.080 (5781197)	286.080 (5781128)	282.920 (5781123)	282.120 (5781122)
EL:	42.350	41.160	41.270	41.350
Lot / Layer:	3801 / 2	3816 / 3	3818 / 3	3820 / 3

Field and Laboratory Data

Depth of Test (mm)	175	175	175	175
Depth of Layer (mm)	200	200	200	200
AS Sieve Size (mm)	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0
Field Moisture Content (%)	19.6	22.6	18.9	20.4
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m ³)	2.02	2.01	2.04	1.98
Field Dry Density (t/m ³)	1.69	1.64	1.71	1.65
Peak Converted Wet Density (t/m ³)	2.08	2.03	2.05	2.03
Optimum Moisture Content (%)	19.5	22.0	18.5	20.5
Compactive Effort	Standard	Standard	Standard	Standard
Moisture Ratio (%)	101.5	104.0	102.0	100.0
Moisture Variation (%)	0.0	1.0 wet	0.5 wet	0.0
Hilf Density Ratio (%)	97.5	99.0	99.5	97.5

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:W22DS01454


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 11/07/2022
 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 1289.2.1.1, 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-05540	S22DS-05541	S22DS-05542	S22DS-05543
Field Sample ID	1	2	3	4
Client Sample ID	42	43	44	45
Date Tested	7/07/2022	7/07/2022	7/07/2022	7/07/2022
Time Tested	10:40	10:50	11:00	11:05
E:	2145.750 (355969)	2120.160 (355943)	2094.460 (355916)	2084.050 (355906)
N:	285.840 (5781127)	285.790 (5781129)	289.100 (5781130)	292.290 (5781135)
EL:	41.390	41.535	41.630	41.630
Lot / Layer:	3822 / 2	3824 / 3	3826 / 3	3827 / 3

Field and Laboratory Data

Depth of Test (mm)	175	175	175	175
Depth of Layer (mm)	200	200	200	200
AS Sieve Size (mm)	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0
Field Moisture Content (%)	22.9	24.5	22.0	21.3
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m ³)	1.99	1.97	2.01	2.01
Field Dry Density (t/m ³)	1.62	1.58	1.65	1.66
Peak Converted Wet Density (t/m ³)	2.05	2.05	2.00	2.04
Optimum Moisture Content (%)	20.5	21.5	21.5	21.0
Compactive Effort	Standard	Standard	Standard	Standard
Moisture Ratio (%)	111.0	113.5	101.5	101.5
Moisture Variation (%)	2.0 wet	3.0 wet	0.5 wet	0.5 wet
Hilf Density Ratio (%)	97.0	96.0	100.5	98.5

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:W22DS01487

Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 22/07/2022
 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 1289.2.1.1, 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-05658				
Field Sample ID	1				
Client Sample ID	46				
Date Tested	15/07/2022				
Time Tested	08:30				
E:	2084.880 (355909)				
N:	277.520 (5781117)				
EL:	41.135				
Lot / Layer:	3827 / 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 Moisture Content (%)	18.4				
Field Moisture Content Method	AS 1289.2.1.1				
Field Wet Density (t/m ³)	2.14				
Field Dry Density (t/m ³)	1.81				
Peak Converted Wet Density (t/m ³)	2.10				
Optimum Moisture Content (%)	18.0				
Compactive Effort	Standard				
Moisture Ratio (%)	102.5				
Moisture Variation (%)	0.5 wet				
Hilf Density Ratio (%)	102.0				

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:W22DS01649


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 22/08/2022
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (OMC to 3% Wet)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Sandy Clay

Sample Data

Sample ID	S22DS-06406	S22DS-06407	S22DS-06408	S22DS-06409
Field Sample ID	1	2	3	4
Client Sample ID	42	3	44	45
Date Tested	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Time Tested	10:41	10:47	10:50	10:54
E:	2262.780 (356086)	2262.580 (356086)	2268.315 (356092)	2261.860 (356078)
N:	272.222 (5781114)	258.180 (356086)	246.360 (5781086)	230.900 (5781076)
EL:	40.800	40.450	40.190	39.000
Lot / Layer:	3813 / 1	3811 / 1	3809 / 1	3807 / 1

Field and Laboratory Data

Depth of Test (mm)	175	175	175	175
Depth of Layer (mm)	200	200	200	200
AS Sieve Size (mm)	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0
Field Moisture Content (%)	21.0	19.5	19.0	18.0
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m ³)	2.02	2.01	2.02	2.07
Field Dry Density (t/m ³)	1.67	1.68	1.70	1.76
Peak Converted Wet Density (t/m ³)	2.05	2.10	2.07	2.10
Optimum Moisture Content (%)	20.5	19.5	17.5	18.0
Compactive Effort	Standard	Standard	Standard	Standard
Moisture Ratio (%)	101.5	101.0	109.5	99.5
Moisture Variation (%)	0.5 wet	0.0	1.5 wet	0.0
Hilf Density Ratio (%)	98.5	95.5	97.5	98.5

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:W23DS00249


Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
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: 14/02/2023
 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 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Sandy Clay

Sample Data

Sample ID	S23DS-00794				
Field Sample ID	1				
Client Sample ID	46				
Date Tested	3/02/2023				
Time Tested	07:46				
E:	2085.760 (355910)				
N:	322.629 (5781166)				
EL:	41.500				
Lot / Layer:	3828 / 2				

Field and Laboratory Data

Depth of Test (mm)	175				
Depth of Layer (mm)	200				
AS Sieve Size (mm)	19.0				
Oversize Wet (%)	0				
Field Moisture Content (%)	16.6				
Field Moisture Content Method	AS 1289.2.1.1				
Field Wet Density (t/m ³)	2.03				
Field Dry Density (t/m ³)	1.74				
Peak Converted Wet Density (t/m ³)	2.04				
Optimum Moisture Content (%)	19.0				
Compactive Effort	Standard				
Moisture Ratio (%)	88.0				
Moisture Variation (%)	2.0 dry				
Hilf Density Ratio (%)	99.0				

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: MAT:S22DS-05304/1

Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
 AUBURN VIC 3123
Project: Meridian Estate - Stage 38
Project No.: 3807351.038
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025
 - Testing

Accreditation Number: 12719 Approved Signatory: J. Lamont
 (Dandenong Laboratory Manager)
 Site Number: 12712 Date of Issue: 12/07/2022
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details

Sample Location E 356058, N 5781158, R.L 41.431, Lot 3803 / Layer 1, Sample 3
Field Sample ID 1
Date Sampled 1/07/2022
Time Sampled 08:21
Source Onsite
Material Silty Clay
Specification AS Grading
Sampling Method Submitted by client
Sample ID S22DS-05304

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 6/07/2022

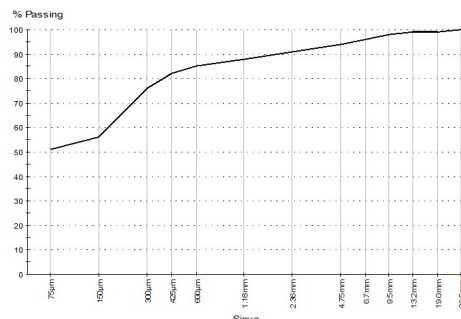
Note: Sample Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	99	
13.2mm	99	
9.5mm	98	
6.7mm	96	
4.75mm	94	
2.36mm	91	
1.18mm	88	
600µm	85	
425µm	82	
300µm	76	
150µm	56	
75µm	51	

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	17.9	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	12.5	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.2	42	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	25	
Date Tested		6/07/2022	

Chart



Comments

N/A

Appendix D : Controlled Fill certificate



CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT : Meridian Central Estate Stage 38 **Chadwick Geotechnics REF:** 3807351.038.v1
Lot No's: 3801 to 3840

CLIENT : Grosvenor Lodge Pty Ltd **DATE:** 13 February 2023
PO Box 4136
DANDENONG SOUTH VIC 3164

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 (1 July 2022 and was completed on 3 February 2023). 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

© Chadwick Geotechnics Pty Ltd.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise other than in accordance with the limitations and for the purpose provided for above.

www.chadwickgeotechnics.com.au

