CHADWICK GEOTECHNICS

REPORT

Level 1 Geotechnical Testing and Inspection Authority Services

Meridian Central Estate Stage 41
Clyde North
Lots 4101 to 4135

Prepared for:

Grosvenor Lodge Pty Ltd.

11 May 2023

Our Ref: 3807351.041.v1

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Table of contents

Document Control

Title:	Level One Inspection and testing Services.				
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by**
11 May 2023	1	3807351.041.V1 Level One Report Stage 41	STPA and RHB	RWMC	TJJC

1 Introduction

Chadwick Geotechnics Pty Ltd (Chadwick Geotechnics), was engaged by Grosvenor Lodge Pty Ltd (Grosvenor Lodge), to provide Level 1 Geotechnical Inspection and Testing Authority (GITA) services for the earthworks conducted within Stage 41 of the Meridian Central Estate in Clyde North, between 12 September 2022 and 23 January 2023.

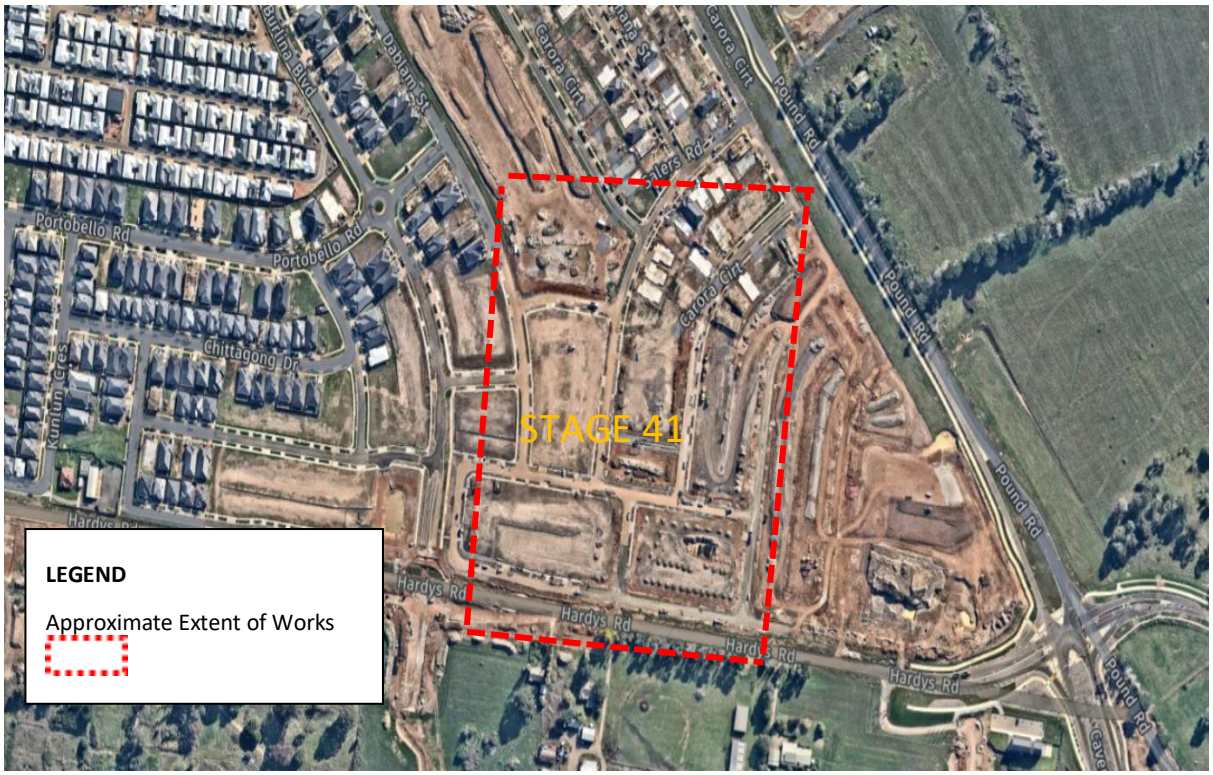
Level 1 GITA services as defined in AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Development," requires full time inspection and field and laboratory testing of earthworks in accordance with AS1289 "Methods of Testing Soils for Engineering Purposes."

2 Project details

The Stage 41 site is located North of Hardys Road, Clyde North. The site is to the East of Stage 40, and West of Stage 42.

The included works are shown on the Site Plan in **Appendices A**. Figure 2.1 below is an extract from Nearmap taken at the time of writing this report.

Figure 2: extract from Nearmap



2.2 Roles

The organisations and their roles are presented in Table 2.1 below

Table 2: Roles on the Project

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

Chadwick Geotechnics undertook the field density testing, and the compaction control laboratory testing was conducted in our NATA accredited laboratories.

2.3 Dates on Site

Geotechnical technicians and engineering staff from Chadwick Geotechnics were onsite for the duration of the earthworks program on the days shown in Table 2.2 below.

Table 2.2: Level 1 GITA – onsite presence

Month	Dates on site
September 2022	12, 13, 14, 28, 29, 30
October 2022	1, 3, 4, 5, 11, 12, 18, 20
November 2022	8, 10, 11, 18, 23, 24, 25, 26
December 2022	1, 20
January 2023	4, 23

2.4 Included Areas

This report is applicable to material placed by the contractor on the residential lots within Stage 41, as shown on the Site Plan in **Appendix A,** and with reference to Section 2.6 (Excluded Areas) of this report.

The following Lots were filled (or partially filled) during the Level 1 GITA supervision:

- Lot 4101 to 4135

2.5 Excluded Areas

This report does not include fill outside the general boundary of the filled areas as shown in **Appendix A** 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.

2.6 Specification

Project specifications were prepared by Beveridge Williams Pty Ltd for the project. The works were to be conducted in general accordance with the 'Guidelines on earthworks for commercial and residential developments' of AS 3798-2007.

The following items were adopted as part of the project earthworks specifications:

- All Filling, in excess, of 200mm depth within the residential lots shall be undertaken to specifications satisfying the requirements of AS 3798-2007 "Guidelines on Earthworks for Commercial and Residential Development".
- 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 prior to placement of an engineered fill.
- Fill to be compacted in near horizontal layers not exceeding 250mm loose thickness.
- Compaction to achieve a ratio of at least 95% Standard Maximum Dry Density (SMDD).
- Frequency of testing to be in accordance with Table 8.1 of AS3798-2007.
- Finished fill surface to be surveyed prior to placement of topsoil.

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 4.5 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 areas.
- Assessment, remediation, and proof rolling of subgrade.
- Geotechnical compliance testing of the soils used for fill, and,
- Placement and compaction of engineered fill.

3.2 Fill Material

Material used for the construction of the fill comprised of local gravelly and silty clays won from the road boxing and trench excavations on this and the surrounding sites.

Four samples were taken from the site comprising local material used for fill was taken for geotechnical compliance testing during the works. The material compliance test results are summarised in Table 3.1 The laboratory test certificates are attached in **Appendix C.**

Table 3.1: Compliance test result summary

Sample #	Particle Size Distribution (PSD)						Liquid Limit %	Plastic Limit %	Plasticity Index %
	37.5 mm	13.2 mm	4.75 mm	1.18 mm	425 µm	0.75 µm			
S22DS-07938	100	99	94	88	80	49	53	17	36
S22DS-08044	100	100	98	93	80	48	55	17	38
S22DS-08768	100	100	95	89	81	48	39	14	25
S22DS-10185	100	99	93	86	77	45	38	13	25

The laboratory test results indicated material is silty /sandy clay of medium to high plasticity.

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

The fill material was not tested for classification of 'Fill Material' as defined in EPA Publication IWRG621. Environmental testing is not within the Chadwick Geotechnics scope.

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

Below are photographs of typical materials used during construction.

Figure 3.1: Photographs of the material used on site

Photo 1: Material used (Sandy CLAY)	Photo 2: Material used (Silty CLAY)
	

3.3 Subgrade Assessment / Proof Roll

The Subgrade of the site was progressively assessed during the period Chadwick Geotechnics personnel were on site.

Subgrade assessments were conducted following the removal of the topsoil and natural soils that were present on site.

The subgrade inspections were performed in accordance with the Level 1 guidelines presented in AS 3798–2007 Section 5.5. No soft spots or deflections were encountered during the inspections and the area was found to be firm and free of vegetation and other deleterious material.

Below are photographs of the subgrade assessment phase at the project.

Figure 3.2: Subgrade assessment photographs

Photo 3: Proof Roll with Pad foot roller

Photo 4: Subgrade Proof Roll with dump truck

Photo 5: Dump truck

Photo 6: Volvo, Dump Truck

3.4 Engineered Fill Construction

All fill material was brought by dump trucks from the local stockpiles, spread with a bulldozer and compacted with a pad foot roller. A water cart was present onsite during the works for moisture conditioning of the materials.

All fill material was placed in lift sequences comprising horizontal layers. 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 2.2 of this report.

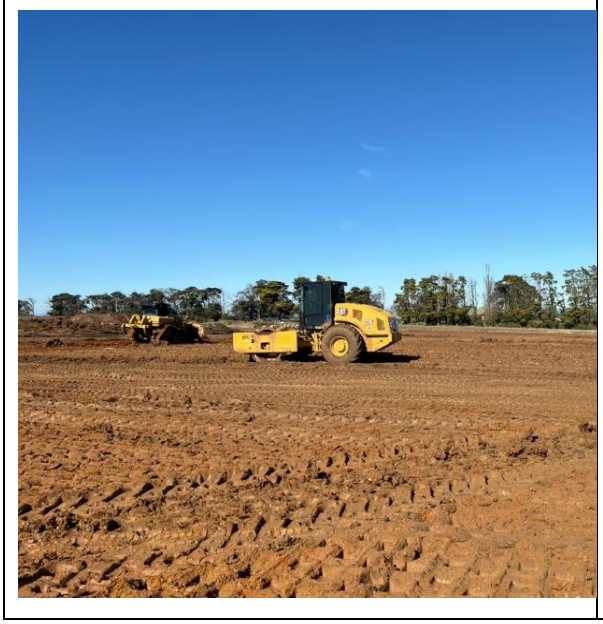
The following machinery was on site during earthworks.

Table 3.1: Earthworks plant On-site

Equipment type	Model
Dozer	**Caterpillar D6 Dozer**
Pad foot roller	**Caterpillar compactor B15K Pad-Foot Roller**
Water cart	**Off-Road Water Cart with spray bars**
Dump Trucks	**Volvo Dump Trucks and Road Trucks**
Excavator	**Caterpillar**

Below are photographs of typical machinery on site during construction.

Figure 3.3: General Earthwork machinery and fill construction photographs

Photo 7: Dump Truck used on site	Photo 8: D6 Dozer
	
Photo 9: CAT Pad Foot Roller	**Photo 10: Scraper**
	

3.5 Density testing

Field density and moisture content testing was undertaken progressively during construction on the compacted fill 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 a handheld GPS unit. A site plan showing the field density test locations is provided in **Appendix A**.

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;
- Fill to be compacted in near horizontal layers.
- Compaction to achieve a ratio of at least 95% Standard MDD (maximum dry density).

Seventy (70) tests were performed during the filling process across the works area. Three (3) of the tests did not achieve the required density and or moisture ratio initially. The failed area was reworked and retested accordingly. The retests returned passing density and moisture test results.

A summary table of HILF density tests is provided in **Appendix B** and the laboratory test reports are provided in **Appendix C**.

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 to be determined, that:

- The materials, used by the earth-works contractor met the geotechnical property requirements of the specification.
- The sourced fill was, considered to be natural, clean, and suitable for use at the site.
- 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 clay achieved the density requirement of the specification.
- Given the consistent construction practices followed by the earthworks contractor and as witnessed by the 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.
- Based on observations made by Chadwick Geotechnics Level 1 personal and the results of field and laboratory tests, we consider that the engineered fill within the site (noted in Section 2.5), as far as we have been able to reasonably determine, have been placed in general accordance with the intent of the specification.
- It is our opinion that the earthworks undertaken have been performed in accordance with the requirements of Section 8.2 – Level 1 Inspection and Testing - AS3798-2007 Guidelines on Earthworks for Commercial and Residential Developments.

After our last day on site the Contractor is responsible to maintain the engineered fill in satisfactory condition. Should the fill be not maintained or protected with a sacrificial layer of topsoil or other fill, the uppermost layers of the engineered fill may deteriorate from the weather causing shrink/swell cracking and may need to be remediated prior to further construction on the site. Chadwick Geotechnics have not provided supervision since this date and are not responsible for any deterioration that may have occurred.

5 Applicability

This report has been prepared for the exclusive use of our client in good faith and in accordance with the Chadwick Geotechnics quality system for the earthworks filling at the site.

This report is based on the nature of the project and the prevailing conditions between 12 September 2022 and 23 January 2023. No responsibility or liability will be accepted, and Chadwick Geotechnics is indemnified to the full extent permitted by law in respect of the use of this report where there has been a change in the nature of the project or the conditions on site that may alter or affect the conclusions of this report.

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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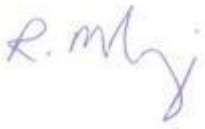
Timothy Chadwick

Project Director

Report reviewed by:



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Robert McKenzie

Senior Associate Geotechnical Engineer

PE0005222

Appendix A : Location Plan

T:\Dandenong\Geo Projects\3807351\41 Stage 41\WorkingMaterial\CAD\FIG\3807351.041-F01.dwg 2023-May-08 1:11:44 PM Plotted By: KATHRYN JACKSON

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NOTES:
1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 26/04/2023.

A3 SCALE 1:1250
0 25 50 75 (m)

ORIGINAL IN COLOUR

PROJECT No.	3807351.041	
DESIGNED	STPA	May.23
DRAWN	KMJA	May.23
CHECKED		
APPROVED		DATE

CLIENT GROSVENOR LODGE PTY LTD
PROJECT MERIDIAN ESTATE STAGE 41
TITLE LEVEL ONE HILF DENSITY TEST LOCATIONS
HILF DENSITY TEST LOCATION PLAN
UNDER REVISION 1
SCALE (A3) 1:1250 FIG No. 3807351.041-F01 REV 1

Appendix B : Hilf Density Test Summary

Meridian Central Estate Stage 41
HILF Density Field Summary 3807351.041

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Report No	Sample No	Date	Test Number	Lot No	Easting	Northing	Layer/RL	Density Ratio	Moisture Variation	Pass / Fail	Comments (Retest No) Compliance test taken ect
HDR:W22DS01808	S22DS-07086	12/09/2022	1	4135	356279	5781099	42.266	97.5	0.5 wet	Pass	
HDR:W22DS01832	S22DS-07261	13/09/2022	1	4134	356281	5781083	42.229	95	2.5 wet	Pass	
HDR:W22DS01843	S22DS-07309	14/09/2022	1	4101	356293	5781131	42.833	95.5	1.5 wet	Pass	
HDR:W22DS01843	S22DS-07310	14/09/2022	2	4103	356305	5781127	42.585	95.5	2 wet	Pass	
HDR:W22DS01925	S22DS-07672	28/09/2022	1	4135	356289	5781098	42.46	97	1.5 wet	Pass	
HDR:W22DS01936	S22DS-07711	29/09/2022	1	4111	356342	5781162	43.195	96.5	2.5 wet	Pass	
HDR:W22DS01936	S22DS-07712	29/09/2022	2	4131	356355	5781070	41.37	92.5	0 wet	Fail	See Retest No. 07910
HDR:W22DS01936	S22DS-07713	29/09/2022	3	4133	356324	5781080	42.07	99.5	0.5 wet	Pass	
HDR:W22DS01963	S22DS-07798	1/10/2022	1	4131	356354	5781102	41.75	98	0.5 dry	Pass	
HDR:W22DS01964	S22DS-07799	30/09/2022	1	4116	356351	5781233	44.989	98	0 dry	Pass	
HDR:W22DS01964	S22DS-07800	30/09/2022	2	4102	356302	5781136	-	98	0 dry	Pass	
HDR:W22DS01964	S22DS-07801	30/09/2022	3	4104	356313	5781133	43.186	97	0 dry	Pass	
HDR:W22DS01964	S22DS-07802	30/09/2022	4	4105	356321	5781132	42.669	99	0 wet	Pass	
HDR:W22DS01964	S22DS-07803	30/09/2022	5	4135	356291	5781104	42.8	98.5	0 wet	Pass	
HDR:W22DS01964	S22DS-07804	30/09/2022	6	4132	356324	5781096	42.32	98	0 wet	Pass	
HDR:W22DS01964	S22DS-07805	30/09/2022	7	4112	356345	5781175	43.79	98	0.5 dry	Pass	
HDR:W22DS01964	S22DS-07806	30/09/2022	8	4114	356353	5781203	44.664	97.5	0.5 dry	Pass	

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Meridian Central Estate Stage 41
HILF Density Field Summary 3807351.041

Report No	Sample No	Date	Test Number	Lot No	Easting	Northing	Layer/RL	Density Ratio	Moisture Variation	Pass / Fail	Comments (Retest No) Compliance test taken ect
HDR:W22DS01973	S22DS-07830	3/10/2022	1	4129	356385	5781091	41.319	101.5	1.5 dry	Pass	
HDR:W22DS01992	S22DS-07905	4/10/2022	1	4117	356353	5781251	45.465	99	2 dry	Pass	
HDR:W22DS01992	S22DS-07906	4/10/2022	2	4106	356325	5781129	42.762	105	3 dry	Pass	
HDR:W22DS01992	S22DS-07907	4/10/2022	3	4108	356337	5781128	42.683	103	2.5 dry	Pass	
HDR:W22DS01992	S22DS-07908	4/10/2022	4	4110	356348	5781127	42.441	99.5	2 dry	Pass	
HDR:W22DS01992	S22DS-07909	4/10/2022	5	4133	356326	5781078	42.37	99	0 dry	Pass	
HDR:W22DS01992	S22DS-07910	4/10/2022	6	4131	356355	5781070	-	98.5	0.5 dry	Pass	Retest of 07712
HDR:W22DS02002	S22DS-07935	5/10/2022	1	4115	356349	5781216	45.023	102	2.5 dry	Pass	
HDR:W22DS02002	S22DS-07936	5/10/2022	2	4113	356346	5781188	44.361	96	0.5 wet	Pass	
HDR:W22DS02002	S22DS-07937	5/10/2022	3	4130	356371	5781086	41.6	98	0.5 wet	Pass	
HDR:W22DS02038	S22DS-08075	11/10/2022	1	4133	356327	5781085	42.46	97.5	0 dry	Pass	
HDR:W22DS02038	S22DS-08076	11/10/2022	2	4228	356355	5781060	41.83	98.5	0 wet	Pass	
HDR:W22DS02038	S22DS-08077	11/10/2022	3	4130	356367	5781077	41.73	98	0.5 wet	Pass	
HDR:W22DS02051	S22DS-08158	12/10/2022	1	4230	356379	5781050	41.12	100	0.5 wet	Pass	
HDR:W22DS02051	S22DS-08159	12/10/2022	2	4129	356382	5781074	41.41	96.5	0.5 wet	Pass	
HDR:W22DS02072	S22DS-08242	18/10/2022	1	4125	356376	5781123	41.42	99.5	0 wet	Pass	
HDR:W22DS02072	S22DS-08243	18/10/2022	2	4123	356383	5781154	42.42	96.5	2 wet	Pass	

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HDR:W22DS02072	S22DS-08244	18/10/2022	3	4234	356400	5781086	40.74	99	0.5 wet	Pass	
HDR:W22DS02072	S22DS-08245	18/10/2022	4	4231	356401	5781046	39.73	102.5	2 dry	Pass	
HDR:W22DS02103	S22DS-08354	20/10/2022	1	4121	356376	5781177	4121	97	0 wet	Pass	
HDR:W22DS02103	S22DS-08355	20/10/2022	2	4119	356391	5781216	4119	98.5	0 wet	Pass	
HDR:W22DS02194	S22DS-08766	8/11/2022	1	4121	356398	5781053	45.89	96	1 wet	Pass	
HDR:W22DS02194	S22DS-08767	8/11/2022	2	4119	356398	5781212	44.23	97	0.5 wet	Pass	
HDR:W22DS02213	S22DS-08864	10/11/2022	1	4120	356384	5781196	44.17	101.5	0.5 dry	Pass	
HDR:W22DS02213	S22DS-08865	10/11/2022	2	4122	356382	5781170	43.28	99.5	0 dry	Pass	
HDR:W22DS02213	S22DS-08866	10/11/2022	3	4124	356376	5781139	42.08	97.5	0 wet	Pass	
HDR:W22DS02213	S22DS-08867	10/11/2022	4	4118	356391	5781228	44.72	100	0.5 dry	Pass	
HDR:W22DS02221	S22DS-08884	11/11/2022	1	4127	356396	5781112	41.26	101.5	1.5 dry	Pass	
HDR:W22DS02277	S22DS-09121	18/11/2022	1	4119	356389	5781213	44.54	97.5	0.5 dry	Pass	
HDR:W22DS02277	S22DS-09122	18/11/2022	2	4121	356380	5781183	43.92	105	0.5 dry	Pass	
HDR:W22DS02277	S22DS-09123	18/11/2022	3	4123	356380	5781151	42.72	103	0.5 dry	Pass	
HDS:W22DS02277	S22DS-09124	18/11/2022	4	4126	356385	5781122	41.76	102.5	1.5 dry	Pass	
HDS:W22DS02277	S22DS-09125	18/11/2022	5	4128	356410	5781118	41.38	99.5	0 wet	Pass	
HDR:W22DS02311	S22DS-09337	23/11/2022	1	4120	356392	5781197	44.24	101.5	0 dry	Pass	
HDR:W22DS02311	S22DS-09338	23/11/2022	2	4122	356388	5781165	43.31	103	0.5 dry	Pass	

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HDR:W22DS02311	S22DS-09339	23/11/2022	3	4124	356383	5781136	42.4	101	0 dry	Pass	
HDR:W22DS02311	S22DS-09340	23/11/2022	4	4125	356373	5781125	42.1	97	0 dry	Pass	
HDR:W22DS02320	S22DS-09356	24/11/2022	1	4127	356400	5781123	41.85	101.5	0.5 dry	Pass	
HDR:W22DS02320	S22DS-09357	24/11/2022	2	4119	356407	5781212	44.55	98.5	0.5 dry	Pass	
HDR:W22DS02320	S22DS-09358	24/11/2022	3	4121	356412	5781183	43.93	99	0 wet	Pass	
HDR:W22DS02333	S22DS-09406	25/11/2022	1	4123	356395	5781150	42.99	112	1 dry	Fail	See Retest S23DS-00501
HDR:W22DS02333	S22DS-09407	25/11/2022	2	4126	356387	5781127	42.38	97	0.5 wet	Pass	
HDR:W22DS02333	S22DS-09408	25/11/2022	3	4128	356410	5781117	41.79	101.5	0.5 dry	Pass	
HDR:W22DS02336	S22DS-09412	26/11/2022	1	4201	356418	5781112	41.42	97	0.5 dry	Pass	
HDR:W22DS02336	S22DS-09413	26/11/2022	2	4214	356477	5781139	41.17	94	0 dry	Fail	See Retest S22DS-09601
HDR:W22DS02336	S22DS-09414	26/11/2022	3	4216	356466	5781112	40.63	96.5	0 wet	Pass	
HDR:W22DS02381	S22DS-09601	1/12/2022	1	4215	356458	5781131	41.36	104.5	2.5 dry	Pass	Retest of S22DS-09413
HDR:W22DS02537	S22DS-10183	20/12/2022	1	4128	356407	5781111	41.87	97	0.5 wet	Pass	
HDR:W22DS02537	S22DS-10184	20/12/2022	2	4126	356384	5781114	42.1	105	2 dry	Pass	
HDR:W23DS00005	S23DS-00010	4/01/2023	1	4127	356398	5781125	42.21	104	2.3 dry	Pass	
HDR:W23DS00005	S23DS-00011	4/01/2023	2	4125	356368	5781124	42.42	104.5	2.5 dry	Pass	
HDR:W23DS00158	S23DS-00501	23/01/2023	1	4123	356823	5781150	42.99	103	2.5 dry	Pass	Retest of S22DS-09406
HDR:W23DS00158	S23DS-00502	23/01/2023	2	4125	356364	5781123	41.17	102	1.5 dry	Pass	

Appendix C : NATA Endorsed Laboratory Reports

CHADWICK GEOTECHNICS

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:W22DS01808
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 15/09/2022

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (1% Dry to 3% Wet 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 with traces of Gravelk

Sample Data

Sample ID	S22DS-07086					
Field Sample ID	1					
Client Sample ID	1					
Date Tested	12/09/2022					
Time Tested	08:30					
E:	2456.167 (356279)					
N:	259.844 (5781099)					
EL:	42.266					
Lot / Layer:	4135 / 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 (%)	22.1					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.99					
Field Dry Density (t/m³)	1.63					
Peak Converted Wet Density (t/m³)	2.04					
Optimum Moisture Content (%)	21.5					
Compactive Effort	Standard					
Moisture Ratio (%)	103.0					
Moisture Variation (%)	0.5 wet					
Hilf Density Ratio (%)	**97.5**					

Comments

CHADWICK GEOTECHNICS

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:W22DS01832
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 15/09/2022

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (1% Dry to 3% Wet 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-07261					
Field Sample ID	1					
Client Sample ID	2					
Date Tested	13/09/2022					
Time Tested	15:43					
E:	2457.487 (356280)					
N:	243.943 (5781085)					
EL:	42.229					
Lot / Layer:	4134 / 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 (%)	16.5					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.00					
Field Dry Density (t/m³)	1.71					
Peak Converted Wet Density (t/m³)	2.10					
Optimum Moisture Content (%)	14.0					
Compactive Effort	Standard					
Moisture Ratio (%)	117.5					
Moisture Variation (%)	2.5 wet					
Hilf Density Ratio (%)	**95.0**					

Comments

CHADWICK GEOTECHNICS

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:W22DS01843
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 19/09/2022

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: Clay

Sample Data

Sample ID	S22DS-07309	S22DS-07310				
Field Sample ID	1	2				
Client Sample ID	3	4				
Date Tested	14/09/2022	14/09/2022				
Time Tested	15:30	15:40				
E:	2470.119	2481.679				
N:	292.021	287.485				
RL:	42.833	42.585				
Lot / Layer:	4101 / 1	4103 / 1				

Field and Laboratory Data

Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	17.0	17.8				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.02	2.01				
Field Dry Density (t/m³)	1.72	1.71				
Peak Converted Wet Density (t/m³)	2.12	2.11				
Optimum Moisture Content (%)	15.5	15.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	111.0	113.5				
Moisture Variation (%)	1.5 wet	2.0 wet				
Hilf Density Ratio (%)	**95.5**	**95.5**				

Comments

CHADWICK GEOTECHNICS

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:W22DS01925
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

Sample Details

Location:
Client Request ID:
Specification Requirements:
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-07672					
Field Sample ID	1					
Client Sample ID	5					
Date Tested	28/09/2022					
E:	2465.56					
N:	258.61					
RL:	42.46					
Lot / Layer:	34135 / FSL					

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 (%)	19.2					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.01					
Field Dry Density (t/m³)	1.69					
Peak Converted Wet Density (t/m³)	2.07					
Optimum Moisture Content (%)	17.5					
Compactive Effort	Standard					
Moisture Ratio (%)	108.5					
Moisture Variation (%)	1.5 wet					
Hilf Density Ratio (%)	**97.0**					

Comments

CHADWICK GEOTECHNICS

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:W22DS01936
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

Sample Details

Location:
Client Request ID:
Specification Requirements:
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-07711	S22DS-07712	S22DS-07713			
Field Sample ID	1	2	3			
Client Sample ID	6	7	8			
Date Tested	29/09/2022	29/09/2022	29/09/2022			
E:	2518.709	2531.42	2500.35			
N:	322.611	230.59	241.26			
RL:	43.195	41.37	42.07			
Lot / Layer:	4111 / 1	4131 / 2	4133 / 2			

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 (%)	17.3	19.8	25.0			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.04	1.92	2.00			
Field Dry Density (t/m³)	1.74	1.61	1.60			
Peak Converted Wet Density (t/m³)	2.11	2.08	2.00			
Optimum Moisture Content (%)	15.0	19.5	24.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	117.0	100.5	103.0			
Moisture Variation (%)	2.5 wet	0.0	0.5 wet			
Hilf Density Ratio (%)	**96.5**	**92.5**	**99.5**			

Comments

CHADWICK GEOTECHNICS

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:W22DS01963
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

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-07798					
Field Sample ID	1					
Client Sample ID	9					
Date Tested	1/10/2022					
Time Tested	11:36					
E:	2531.17 (356357)					
N:	262.90 (5781096)					
EL:	41.75					
Lot / Layer:	4131 / 3					

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 (%)	18.9					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.00					
Field Dry Density (t/m³)	1.68					
Peak Converted Wet Density (t/m³)	2.04					
Optimum Moisture Content (%)	19.5					
Compactive Effort	Standard					
Moisture Ratio (%)	98.0					
Moisture Variation (%)	0.5 dry					
Hilf Density Ratio (%)	**98.0**					

Comments

CHADWICK GEOTECHNICS

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

Ph: + 61 3 8796 7900
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Report No: HDR:W22DS01964
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

Sample Details

Location:
Client Request ID:
Specification Requirements:
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: Imported
Material: Clay

Sample Data

Sample ID	S22DS-07799	S22DS-07800	S22DS-07801	S22DS-07802	S22DS-07803	S22DS-07804
Field Sample ID	1	2	3	4	5	6
Client Sample ID	10	11	12	13	14	15
Date Tested	30/09/2022	30/09/2022	30/09/2022	30/09/2022	30/09/2022	30/09/2022
E:	2527.412	2478.878	2489.484	2497.340	2467.36	2501.13
N:	394.178	296.882	294.423	292.843	264.65	257.19
RL:	44.989	-	43.186	42.669	42.80	42.32
Lot / Layer:	4116 / 1	4102 / 4	4104 / 4	4105 / 2	4135 / 3	4132 / 3
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 (%)	17.8	18.0	17.2	19.9	17.9	18.3
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m³)	2.05	2.06	2.03	2.06	2.05	2.03
Field Dry Density (t/m³)	1.74	1.74	1.73	1.71	1.74	1.72
Peak Converted Wet Density (t/m³)	2.10	2.10	2.09	2.08	2.09	2.07
Optimum Moisture Content (%)	18.0	18.0	17.5	20.0	17.5	18.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	100.0	100.0	100.0	100.5	101.5	100.5
Moisture Variation (%)	0.0	0.0	0.0	0.0	0.0	0.0
Hilf Density Ratio (%)	**98.0**	**98.0**	**97.0**	**99.0**	**98.5**	**98.0**

Comments

CHADWICK GEOTECHNICS

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:W22DS01964
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

Sample Details

Location:
Client Request ID:
Specification Requirements:
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: Imported
Material: Clay

Sample Data

Sample ID	S22DS-07805	S22DS-07806				
Field Sample ID	7	8				
Client Sample ID	16	17				
Date Tested	30/09/2022	30/09/2022				
E:	2521.55	2530.217				
N:	335.53	363.874				
RL:	43.79	44.664				
Lot / Layer:	4112 / 2	4114 / 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 (%)	1105	17.7				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.04	2.02				
Field Dry Density (t/m³)	0.17	1.72				
Peak Converted Wet Density (t/m³)	2.08	2.07				
Optimum Moisture Content (%)	1108.0	18.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	99.5	98.5				
Moisture Variation (%)	0.5 dry	0.5 dry				
Hilf Density Ratio (%)	**98.0**	**97.5**				

Comments

CHADWICK GEOTECHNICS

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:W22DS01973
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

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 with traces of Gravel

Sample Data

Sample ID	S22DS-07830					
Field Sample ID	1					
Client Sample ID	19					
Date Tested	3/10/2022					
Time Tested	11:15					
E:	2561.542					
N:	252.208					
EL:	41.319					
Lot / Layer:	4129 / 3					

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 (%)	15.2					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.08					
Field Dry Density (t/m³)	1.80					
Peak Converted Wet Density (t/m³)	2.05					
Optimum Moisture Content (%)	17.0					
Compactive Effort	Standard					
Moisture Ratio (%)	90.5					
Moisture Variation (%)	1.5 dry					
Hilf Density Ratio (%)	**101.5**					

Comments

CHADWICK GEOTECHNICS

Think Act Safe Be

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:W22DS01992
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

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	S22DS-07905	S22DS-07906	S22DS-07907	S22DS-07908	S22DS-07909	S22DS-07910
Field Sample ID	1	2	3	4	5	6
Client Sample ID	20	21	22	23	24	25
Date Tested	4/10/2022	4/10/2022	4/10/2022	4/10/2022	4/10/2022	4/10/2022
Time Tested	09:30	14:10	14:20	14:26	15:01	15:31
E:	2530.044 (356351)	2501.302 (356326)	2513.666 (356338)	2524.451 (356350)	2502.580 (356327)	-
N:	412.014 (5781251)	290.440 (5781131)	288.853 (5781130)	287.877 (5781132)	239.130 (5781082)	-
EL:	45.465	42.762	42.683	42.441	42.37	-
Lot / Layer:	4117 / 2	4106 / 2	4108 / 2	4110 / 4	4133 / 4	4131 / 2
						Retest of S22DS-07712
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 (%)	15.7	13.5	12.8	15.5	17.4	17.7
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/m³)	2.02	2.16	2.15	2.06	2.07	2.05
Field Dry Density (t/m³)	1.75	1.90	1.90	1.78	1.76	1.74
Peak Converted Wet Density (t/m³)	2.05	2.05	2.08	2.07	2.09	2.08
Optimum Moisture Content (%)	18.0	16.5	15.0	17.5	17.5	18.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	87.5	82.5	84.0	88.0	99.0	98.5
Moisture Variation (%)	2.0 dry	3.0 dry	2.5 dry	2.0 dry	0.0	0.5 dry
Hilf Density Ratio (%)	**99.0**	**105.0**	**103.0**	**99.5**	**99.0**	**98.5**

Comments

CHADWICK GEOTECHNICS

Think Act Safe Be

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:W22DS02002
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

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 with traces of Gravel

Sample Data

Sample ID	S22DS-07935	S22DS-07936	S22DS-07937			
Field Sample ID	1	2	3			
Client Sample ID	26	7	28			
Date Tested	5/10/2022	5/10/2022	5/10/2022			
Time Tested	12:48	12:59	14:05			
E:	2525.921 (356353)	2522.786 (5781192)	2547.800 (356372)			
N:	376.763 (5781218)	348.819 (5781192)	246.500 (5781089)			
EL:	45.023	44.361	41.60			
Lot / Layer:	4115 / 3	4113 / 3	4130 / 4			
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 (%)	13.8	19.8	17.8			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.11	1.98	2.04			
Field Dry Density (t/m³)	1.85	1.65	1.73			
Peak Converted Wet Density (t/m³)	2.06	2.06	2.09			
Optimum Moisture Content (%)	16.0	19.5	17.0			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	85.5	101.5	104.5			
Moisture Variation (%)	2.5 dry	0.5 wet	0.5 wet			
Hilf Density Ratio (%)	**102.0**	**96.0**	**98.0**			

Comments

CHADWICK GEOTECHNICS

Dandenong South
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Report No: HDR:W22DS02038
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (+- 2% 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-08075	S22DS-08076	S22DS-08077			
Field Sample ID	1	2	3			
Client Sample ID	28	29	30			
Date Tested	11/10/2022	11/10/2022	11/10/2022			
Time Tested	11:00	11:30	12:15			
E:	2503.30	2531.69	2543.5			
N:	245.70	221.21	237.70			
EL:	42.46	41.83	41.73			
Lot / Layer:	4133 / 5	4228 / 5	4130 / 5			
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 (%)	16.9	16.4	17.6			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.06	2.09	2.05			
Field Dry Density (t/m³)	1.76	1.79	1.74			
Peak Converted Wet Density (t/m³)	2.11	2.12	2.08			
Optimum Moisture Content (%)	17.0	16.5	17.0			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	99.0	100.5	102.5			
Moisture Variation (%)	0.0	0.0	0.5 wet			
Hilf Density Ratio (%)	**97.5**	**98.5**	**98.0**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02051
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 20/10/2022

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (+- 2% 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-08158	S22DS-08159				
Field Sample ID	1	2				
Date Tested	12/10/2022	12/10/2022				
Time Tested	11:00	11:15				
E:	2555.94	2559.14				
N:	210.79	234.81				
RL:	41.12	41.41				
Lot / Layer:	4230 / 6	4129 / 6				

Field and Laboratory Data

Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Wet Density (t/m³)	2.07	2.07				
Peak Converted Wet Density (t/m³)	2.07	2.15				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.5 wet	0.5 wet				
Hilf Density Ratio (%)	**100.0**	**96.5**				

Comments

CHADWICK GEOTECHNICS

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Fax: +61 3 9706 9431

Report No: HDR:W22DS02072
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 25/10/2022

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (+- 2% 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-08242	S22DS-08243	S22DS-08244	S22DS-08245		
Field Sample ID	1	2	3	4		
Client Sample ID	33	4	35	36		
Date Tested	18/10/2022	18/10/2022	18/10/2022	18/10/2022		
Time Tested	11:15	11:35	12:05	12:23		
E:	2552.32	2560.14	2576.74	2577.94		
N:	284.09	314.85	247.43	206.91		
RL:	41.42	42.42	40.74	39.73		
Lot / Layer:	4125 / 2	4123 / 2	4234 / 4	4231 / 4		
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 (%)	22.4	20.8	21.7	19.4		
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/m³)	2.00	1.98	1.99	2.01		
Field Dry Density (t/m³)	1.63	1.64	1.63	1.68		
Peak Converted Wet Density (t/m³)	2.01	2.05	2.01	1.95		
Optimum Moisture Content (%)	22.0	18.5	21.0	21.5		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Ratio (%)	100.5	111.0	103.5	90.0		
Moisture Variation (%)	0.0	2.0 wet	0.5 wet	2.0 dry		
Hilf Density Ratio (%)	**99.5**	**96.5**	**99.0**	**102.5**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02103
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 25/10/2022

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (+- 2% 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: Clay

Sample Data

Sample ID	S22DS-08354	S22DS-08355				
Field Sample ID	1	2				
Client Sample ID	37	38				
Date Tested	20/10/2022	20/10/2022				
Time Tested	14:30	14:40				
E:	341.940	2568.187				
N:	143.495	376.760				
Lot:	4121	4119				

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 (%)	15.3	16.6				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.08	2.09				
Field Dry Density (t/m³)	1.80	1.79				
Peak Converted Wet Density (t/m³)	2.14	2.11				
Optimum Moisture Content (%)	15.5	16.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	100.0	100.0				
Moisture Variation (%)	0.0	0.0				
Hilf Density Ratio (%)	**97.0**	**98.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02194
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 15/11/2022

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-08766	S22DS-08767				
Field Sample ID	1	2				
Client Sample ID	39	40				
Date Tested	8/11/2022	8/11/2022				
Time Tested	07:55	08:10				
E:	2574.49 (356397)	2574.49 (356397)				
N:	213.62 (5781185)	373.44 (5781214)				
EL:	45.89	44.23				
Lot / Layer:	4121 / 1	4119 / 1				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	15.1	17.0				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.07	2.06				
Field Dry Density (t/m³)	1.80	1.76				
Peak Converted Wet Density (t/m³)	2.16	2.12				
Optimum Moisture Content (%)	14.0	16.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	107.0	104.5				
Moisture Variation (%)	1.0 wet	0.5 wet				
Hilf Density Ratio (%)	**96.0**	**97.0**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02213
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 22/11/2022

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: Gravelly Clay

Sample Data

Sample ID	S22DS-08864	S22DS-08865	S22DS-08866	S22DS-08867		
Field Sample ID	1	2	3	4		
Client Sample ID	41	42	43	44		
Date Tested	10/11/2022	10/11/2022	10/11/2022	10/11/2022		
Time Tested	14:35	14:41	14:49	15:05		
E:	2560.35 (356384)	2558.42 (356386)	2552.35 (356378)	2567.66 (356394)		
N:	356.77 (5781199)	330.65 (5781170)	299.92 (5781141)	389.12 (5781232)		
EL:	44.17	43.28	42.08	44.72		
Lot :	4120	4122	4124	4118		
Layer:	2	2	2	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 (%)	15.1	18.1	16.4	18.6		
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/m³)	2.13	2.04	2.06	2.09		
Field Dry Density (t/m³)	1.85	1.73	1.77	1.76		
Peak Converted Wet Density (t/m³)	2.09	2.05	2.12	2.09		
Optimum Moisture Content (%)	15.5	18.5	16.5	19.0		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Ratio (%)	97.5	99.0	100.0	98.5		
Moisture Variation (%)	0.5 dry	0.0	0.0	0.5 dry		
Hilf Density Ratio (%)	**101.5**	**99.5**	**97.5**	**100.0**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02221
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 15/11/2022

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: Red Sandy Clay

Sample Data

Sample ID	S22DS-08884					
Field Sample ID	1					
Client Sample ID	45					
Date Tested	11/11/2022					
Time Tested	13:25					
E:	2572.93 (356401)					
N:	273.36 (5781114)					
EL:	41.26					
Lot / Layer:	4127 / 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/m³)	2.04					
Field Dry Density (t/m³)	1.72					
Peak Converted Wet Density (t/m³)	2.01					
Optimum Moisture Content (%)	20.0					
Compactive Effort	Standard					
Moisture Ratio (%)	91.0					
Moisture Variation (%)	1.5 dry					
Hilf Density Ratio (%)	**101.5**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02277
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 30/11/2022

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	S22DS-09121	S22DS-09122	S22DS-09123	S22DS-09124	S22DS-09125	
Field Sample ID	1	2	3	4	5	
Client Sample ID	46	47	48	49	50	
Date Tested	18/11/2022	18/11/2022	18/11/2022	18/11/2022	18/11/2022	
Time Tested	07:55	08:02	08:15	08:26	13:38	
E:	2566.20 (356385)	2556.67 (356378)	2556.73 (356379)	2561.60 (356381)	2586.79 (356408)	
N:	374.24 (5781187)	343.85 (5781153)	311.85 (5781153)	283.03 (5781124)	278.84 (5781118)	
EL:	44.54	43.92	42.72	41.76	41.38	
Lot / Layer:	4119 / 3	4121 / 3	4123 / 3	4126 / 2	4128 / 2	
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175	175	
Depth of Layer (mm)	200	200	200	200	200	
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	
Oversize Wet (%)	0	0	0	0	0	
Field Moisture Content (%)	14.4	18.4	25.1	19.1	21.1	
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	
Field Wet Density (t/m³)	2.05	2.08	2.00	2.05	2.01	
Field Dry Density (t/m³)	1.80	1.76	1.60	1.72	1.66	
Peak Converted Wet Density (t/m³)	2.11	1.98	1.94	2.00	2.03	
Optimum Moisture Content (%)	15.0	18.5	25.5	21.0	21.0	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Ratio (%)	95.0	98.0	98.0	91.5	100.0	
Moisture Variation (%)	0.5 dry	0.5 dry	0.5 dry	1.5 dry	0.0	
Hilf Density Ratio (%)	**97.5**	**105.0**	**103.0**	**102.5**	**99.5**	

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02311
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 30/11/2022

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: Clay with traces of Gravel

Sample Data

Sample ID	S22DS-09337	S22DS-09338	S22DS-09339	S22DS-09340		
Field Sample ID	1	2	3	4		
Client Sample ID	51	52	53	54		
Date Tested	23/11/2022	23/11/2022	23/11/2022	23/11/2022		
Time Tested	08:52	08:59	09:07	09:14		
E:	2568.63 (356389)	2564.29 (356388)	2559.25 (356381)	2550.12 (356373)		
N:	357.73 (5781202)	325.90 (5781170)	2297.40 (5781141)	286.27 (5781131)		
EL:	44.24	43.31	42.40	42.10		
Lot / Layer:	4120 / 4	4122 / 4	4124 / 4	4125 / 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	22.5	17.5	20.6		
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/m³)	2.10	2.05	2.08	1.98		
Field Dry Density (t/m³)	1.75	1.67	1.77	1.64		
Peak Converted Wet Density (t/m³)	2.06	1.99	2.05	2.04		
Optimum Moisture Content (%)	19.5	23.0	17.5	20.5		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Ratio (%)	99.5	98.5	98.5	99.5		
Moisture Variation (%)	0.0	0.5 dry	0.0	0.0		
Hilf Density Ratio (%)	**101.5**	**103.0**	**101.0**	**97.0**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02320
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 30/11/2022

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	S22DS-09356	S22DS-09357	S22DS-09358			
Field Sample ID	1	2	3			
Client Sample ID	55	56	57			
Date Tested	24/11/2022	24/11/2022	24/11/2022			
Time Tested	08:20	15:35	15:46			
E:	2576.24 (356399)	2583.66 (356406)	2588.56 (356404)			
N:	283.82 (5781127)	372.48 (5781215)	343.48 (5781186)			
EL:	41.85	44.55	43.93			
Lot / Layer:	4127 / 3	4119 / 5	4121 / 5			
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 (%)	19.1	20.4	17.5			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.08	2.01	2.07			
Field Dry Density (t/m³)	1.75	1.67	1.76			
Peak Converted Wet Density (t/m³)	2.05	2.03	2.10			
Optimum Moisture Content (%)	19.5	21.0	17.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	97.0	96.5	101.0			
Moisture Variation (%)	0.5 dry	0.5 dry	0.0			
Hilf Density Ratio (%)	**101.5**	**98.5**	**99.0**			

Comments

CHADWICK GEOTECHNICS

Dandenong South
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25 Metcalf Street
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Report No: HDR:W22DS02333
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 30/11/2022

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	S22DS-09406	S22DS-09407	S22DS-09408			
Field Sample ID	1	2	3			
Client Sample ID	58	59	60			
Date Tested	25/11/2022	25/11/2022	25/11/2022			
Time Tested	10:50	10:58	11:05			
E:	2571.76 (356394)	2563.69 (356386)	2587.22 (356408)			
N:	311.22 (5781151)	288.02 (5781131)	277.63 (5781119)			
EL:	42.99	42.38	41.79			
Lot / Layer:	4123 / 5	4126 / 4	4128 / 4			
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 (%)	18.6	20.5	21.4			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.03	2.02	2.03			
Field Dry Density (t/m³)	1.71	1.67	1.67			
Peak Converted Wet Density (t/m³)	1.82	2.07	2.00			
Optimum Moisture Content (%)	19.5	20.0	22.0			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	96.5	102.0	98.0			
Moisture Variation (%)	1.0 dry	0.5 wet	0.5 dry			
Hilf Density Ratio (%)	**112.0**	**97.0**	**101.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02336
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 30/11/2022

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	S22DS-09412	S22DS-09413	S22DS-09414			
Field Sample ID	1	2	3			
Client Sample ID	39	40	41			
Date Tested	26/11/2022	26/11/2022	26/11/2022			
Time Tested	09:00	11:15	11:25			
E:	2594.66 (356416)	2653.84 (356472)	2642.44 (356460)			
N:	273.36 (5781114)	300.33 (5781145)	272.78 (5781115)			
EL:	41.42	41.17	40.63			
Lot / Layer:	4201 / 5	4214 / 1	4216 / 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 (%)	16.8	18.0	17.7			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.02	1.98	1.99			
Field Dry Density (t/m³)	1.73	1.68	1.69			
Peak Converted Wet Density (t/m³)	2.08	2.11	2.07			
Optimum Moisture Content (%)	17.0	18.0	17.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	97.5	99.5	101.0			
Moisture Variation (%)	0.5 dry	0.0	0.0			
Hilf Density Ratio (%)	**97.0**	**94.0**	**96.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02381
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 42
Project No.: 3807351.042
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: 19/12/2022

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	S22DS-09601					
Field Sample ID	1					
Client Sample ID	46					
Date Tested	1/12/2022					
Time Tested	07:39					
E:	2634.41 (356458)					
N:	287.76 (5781131)					
EL:	41.36					
Lot / Layer:	4215 / 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 Wet Density (t/m³)	1.98					
Peak Converted Wet Density (t/m³)	1.89					
Compactive Effort	Standard					
Moisture Variation (%)	2.5 dry					
Hilf Density Ratio (%)	**104.5**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS02537
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 22/12/2022

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	S22DS-10183	S22DS-10184				
Field Sample ID	1	2				
Client Sample ID	64	65				
Date Tested	20/12/2022	20/12/2022				
Time Tested	12:41	12:56				
E:	2583.97 (356405)	2561.16 (356383)				
N:	271.93 (5781115)	275.45 (5781117)				
EL:	41.87	42.10				
Lot / Layer:	4128 / 6	4126 / 6				
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 (%)	14.2	17.9				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.08	2.10				
Field Dry Density (t/m³)	1.83	1.78				
Peak Converted Wet Density (t/m³)	2.14	1.99				
Optimum Moisture Content (%)	13.5	20.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	103.5	89.0				
Moisture Variation (%)	0.5 wet	2.0 dry				
Hilf Density Ratio (%)	**97.0**	**105.0**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS00005
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 9/01/2023

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-00010	S23DS-00011				
Field Sample ID	1	2				
Date Tested	4/01/2023	4/01/2023				
Time Tested	14:20	14:30				
E:	356398	356368				
N:	5781125	5781124				
EL:	42.21	42.42				
Lot:	4127	4125				
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 (%)	17.1	16.1				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.09	2.10				
Field Dry Density (t/m³)	1.79	1.81				
Peak Converted Wet Density (t/m³)	2.01	2.01				
Optimum Moisture Content (%)	19.5	18.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	87.5	86.0				
Moisture Variation (%)	2.5 dry	2.5 dry				
Hilf Density Ratio (%)	**104.0**	**104.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS00158
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 9/05/2023

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, traces of Gravel

Sample Data

Sample ID	S23DS-00501	S23DS-00502				
Field Sample ID	1	2				
Date Tested	23/01/2023	23/01/2023				
Time Tested	11:58	12:08				
Lot / Layer:	4123 / 5	4125 / 5				
	Retest of S22DS-09406					

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 (%)	12.0	14.4				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.15	2.11				
Field Dry Density (t/m³)	1.92	1.84				
Peak Converted Wet Density (t/m³)	2.09	2.06				
Optimum Moisture Content (%)	15.0	16.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	81.5	90.5				
Moisture Variation (%)	2.5 dry	1.5 dry				
Hilf Density Ratio (%)	**103.0**	**102.0**				

Comments

CHADWICK GEOTECHNICS

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Report No: MAT:S22DS-07938/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 18/10/2022

Sample Details

Sample Location	
Field Sample ID	1
Date Sampled	5/10/2022
Time Sampled	12:59
Source	Onsite
Material	Silty Clay with traces of Gravel
Specification	AS Grading
Sampling Method	AS1289.1.2.1 Clause 6.4 (b)
Sample ID	S22DS-07938

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	22.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.2	53	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	36	
Date Tested		10/10/2022	

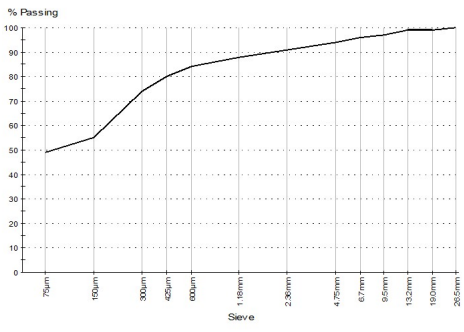
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 10/10/2022

Note: Sample Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	99	
13.2mm	99	
9.5mm	97	
6.7mm	96	
4.75mm	94	
2.36mm	91	
1.18mm	88	
600µm	84	
425µm	80	
300µm	74	
150µm	55	
75µm	49	

Chart



Comments

N/A

CHADWICK GEOTECHNICS

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Report No: MAT:S22DS-08044/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 25/10/2022

Sample Details

Sample Location	E: 356348, N: 5781112, Layer: 5
Field Sample ID	1
Date Sampled	10/10/2022
Time Sampled	15:46
Source	Onsite
Material	Silty Clay
Specification	AS Grading
Sampling Method	
Sample ID	S22DS-08044

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	21.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		Yes	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.2	55	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	38	
Date Tested		13/10/2022	

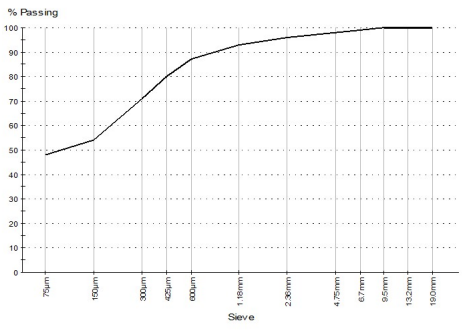
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 12/10/2022

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	100	
9.5mm	100	
6.7mm	99	
4.75mm	98	
2.36mm	96	
1.18mm	93	
600µm	87	
425µm	80	
300µm	71	
150µm	54	
75µm	48	

Chart



Comments

N/A

CHADWICK GEOTECHNICS

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Report No: MAT:S22DS-08768/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 17/11/2022

Sample Details

Sample Location	E: 2568.72 (356394), N: 213.62 (5781185), EL: 45.89, Lot: 4121, Layer: 1
Field Sample ID	1
Date Sampled	8/11/2022
Time Sampled	07:55
Source	Onsite
Material	Silty Clay
Specification	AS Grading
Sampling Method	AS1289.1.2.1 Clause 6.4 (b)
Sample ID	S22DS-08768

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	16.1	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	10.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		Yes	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.2	39	
Plastic Limit (%)	AS 1289.3.2.1	14	
Plasticity Index (%)	AS 1289.3.3.1	25	
Date Tested		11/11/2022	

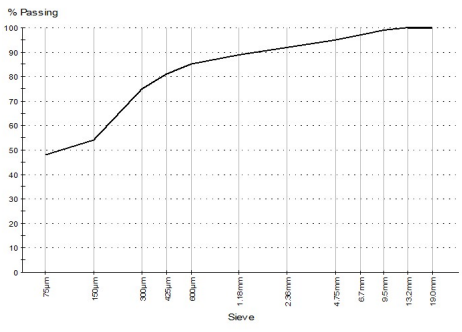
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 9/11/2022

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	100	
9.5mm	99	
6.7mm	97	
4.75mm	95	
2.36mm	92	
1.18mm	89	
600µm	85	
425µm	81	
300µm	75	
150µm	54	
75µm	48	

Chart



Comments

N/A

CHADWICK GEOTECHNICS

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Report No: MAT:S22DS-10185/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate, Stage 41
Project No.: 3807351.041
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: 11/01/2023

Sample Details

Sample Location	2583.97 (356405), 271.93 (5781115), 41.87, 4128 / 6
Field Sample ID	1
Date Sampled	20/12/2022
Time Sampled	12:41
Source	Onsite
Material	Sandy Clay
Specification	AS Grading
Sampling Method	AS1289.1.2.1 Clause 6.4 (b)
Sample ID	S22DS-10185

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	14.5	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	11.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.2	38	
Plastic Limit (%)	AS 1289.3.2.1	13	
Plasticity Index (%)	AS 1289.3.3.1	25	
Date Tested		3/01/2023	

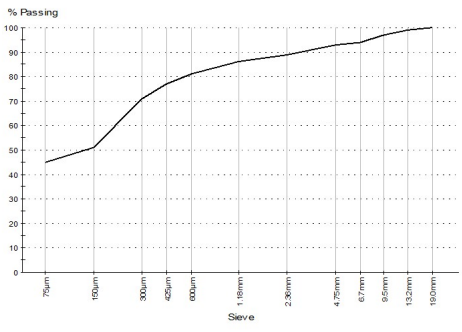
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 22/12/2022

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	99	
9.5mm	97	
6.7mm	94	
4.75mm	93	
2.36mm	89	
1.18mm	86	
600µm	81	
425µm	77	
300µm	71	
150µm	51	
75µm	45	

Chart



Comments

N/A

Appendix D : Controlled Fill Certificate

CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT : Meridian Central Estate Stage 41
Lots 4101 to 4135

Chadwick Geotechnics REF: 3807351.041v1

CLIENT : Grosvenor Lodge Pty Ltd
PO Box 4136
Dandenong South VIC 3164

DATE: 11 May 2023

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 can 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 (12 September 2022 and was completed on 23 January 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

Robert Barden
Project Manager

Timothy Chadwick
Project Director

CHADWICK
GEOTECHNICS