CHADWICK GEOTECHNICS

REPORT

Level One Inspection and Testing Services

Riverfield Estate Stage 6, Clyde
Lot's 601 to Lot 634

Prepared for:

Grosvenor Lodge Pty Ltd

17 June 2022

Our Ref: 1016363.006.v1

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Distribution:

Grosvenor Lodge Pty Ltd	1 electronic copy
Chadwick Geotechnics Pty Ltd (FILE)	1 electronic copy

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1 Introduction

As part of the construction of the Riverfield Estate development in Clyde, Chadwick Geotechnics Pty Ltd (Chadwick Geotechnics), has been engaged by Grosvenor Lodge Pty Ltd to provide Geotechnical Inspection and Testing Authority (GITA), services for the earthworks within Stage 6 of the Estate during construction.

The project included the preparation and general earthwork filling across the stage 6 site. This report presents the earthworks supervision methods and density testing results for the residential lot numbers 601 to Lot 634 within the Stage 6 site.

The earthworks were completed between 19 January 2021 and 25 February 2022.

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 Riverfield Estate is located in Clyde, Stage 6 site is located East of the Stage 5 site. The stage is being developed as a residential development.

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

2.2 Fill specification

A summary of the specification is shown below:

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

2.3 Roles

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

Table 2.1 Project roles

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

2.4 Source of material

The material used on site was imported from locally sources.

2.5 General

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

2.6 Subgrade inspection

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

2.7 Earthwork supervision

Full time Level 1 inspection and testing of the Stage 6 filling operations commenced on 19 January 2021 and was completed on 25 February 2022. During this period Chadwick Geotechnics was on site at all times (except when there were no earthworks) and observed the earthworks, the placing of fill including the supply of material, conditioning of material (moisture conditioning and oversize removal), placement and compaction of the fill material.

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

Below are two photographs of typical earthwork operations completed during earthworks, See Photographs 2.7.1 and 2.7.2 below.

Photograph 2.7.1:

Material Placement

Photograph 2.7.2:

Material Compaction

2.8 Earthwork equipment

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

2.9 Geotechnical sampling and testing

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

A total of 60 tests were performed across the Stage 6 and surrounding area during the filling process.

The results show that 5 tests failed to meet the specification requirements for the project. The earthworks contractor was advised of the tests that failed and the fill relevant to the areas were reworked, reconditioned, re-compacted and subsequently retested. The results showed that the re-tests achieved the specification requirements for the project.

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

3 Conclusion

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

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

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

4 Applicability

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

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

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

Chadwick Geotechnics Pty Ltd

Report prepared by:

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Robert Barden
Project Manager

Authorised for Chadwick Geotechnics Pty Ltd by:

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Tim Chadwick
Project Director

17-Jun-22
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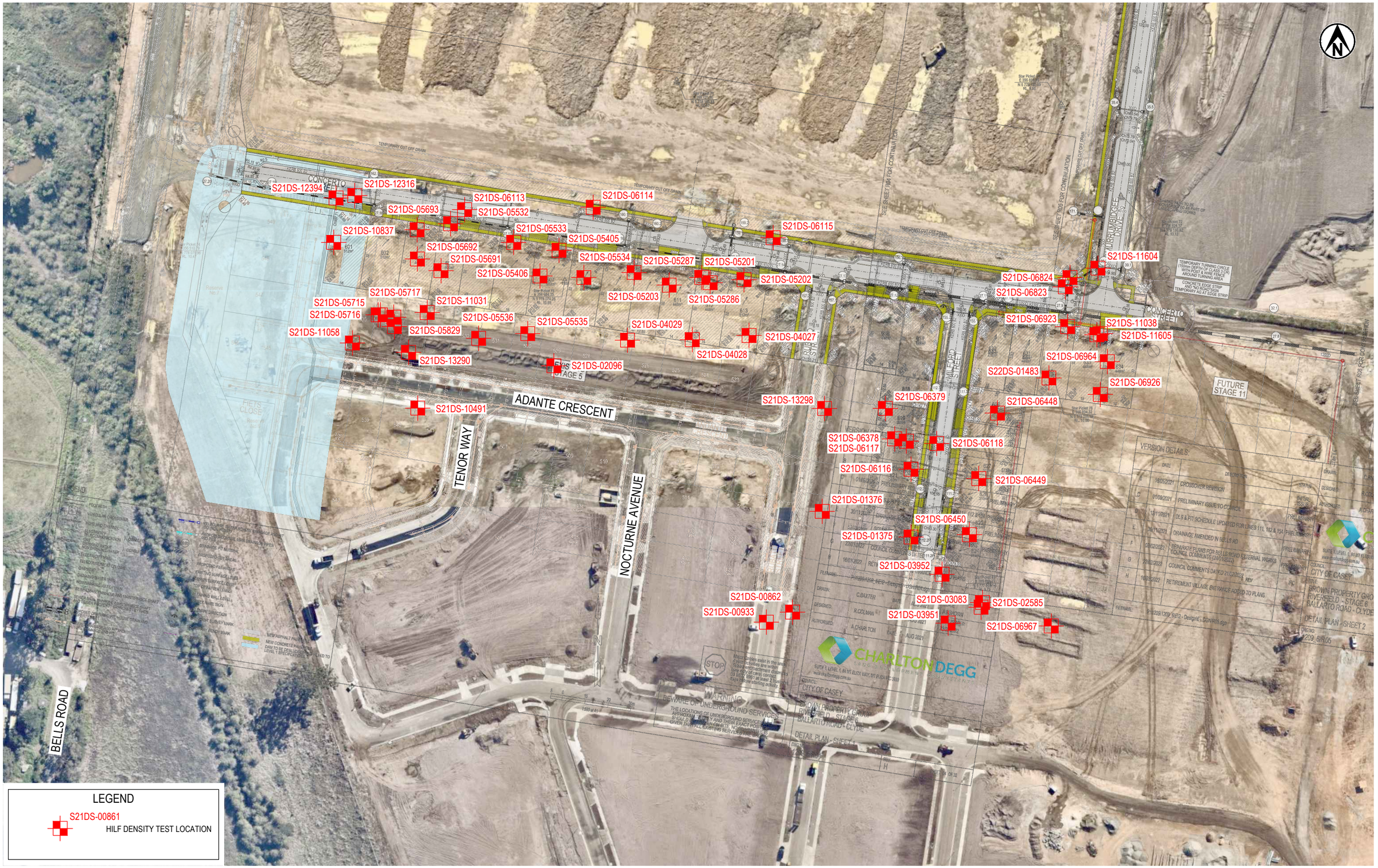
Appendix A: Site plan

T:\Dandenong\Geo Projects\1016363\6 Stage 6\Working Material\CAD\FIG\1016363-F01.dwg 2022-May-30 2:59:38 PM Plotted By: KATHRYN JACKSON



NOTES:
1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 25/04/2022.
2. BASE PLAN PROVIDED BY CHARLTON DEGG. DRAWING REFERENCE: 1209/FLP01. DATE RECEIVED: 29/09/2021.

A3 SCALE 1:1500
0 20 40 60 80 100 (m)

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CHADWICK GEOTECHNICS
www.chadwickgeotechnics.com.au

PROJECT No.	1016363	
DESIGNED	RHB	May.22
DRAWN	KMJA	May.22
CHECKED		
APPROVED		DATE

CLIENT **GREENRIDGE PROPERTIES PTY LTD**
PROJECT **RIVERFIELD ESTATE STAGE 6**
TITLE LEVEL ONE HILF DENSITY TESTING
HILF DENSITY TEST LOCATION PLAN
UNDER REVISION 1
SCALE (A3) 1:1500 FIG No. FIGURE 01 REV 1

Appendix B: Hilf density test summary

CHADWICK GEOTECHNICS

Hilf Summary Table

1016363.006 - Riverfield Estate Stage 6

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 8796 7944

Think Act Be Safe

Report No	Sample No	Date	Location [E]	Location [N]	Layer	Density Ratio HILF test (≥95%)	Moisture Variation From OMC	Pass / Fail	Remarks
HDR:W21DS00199	S21DS-00857	19/01/2021	356909	5777573	8.25	98	0.5 wet	Pass	
HDR:W21DS00199	S21DS-00858	19/01/2021	356949	5777574	8.42	99.5	OMC	Pass	
HDR:W21DS00199	S21DS-00859	19/01/2021	356778	5777854	9.41	97.5	0.5 dry	Pass	
HDR:W21DS00199	S21DS-00860	19/01/2021	356767	5777881	9.25	103	0.5 dry	Pass	
HDR:W21DS00199	S21DS-00861	19/01/2021	356785	5777897	9.14	98	0.5 wet	Pass	
HDR:W21DS00199	S21DS-00862	19/01/2021	356783	5777935	9.29	100.5	0.5 dry	Pass	
HDR:W21DS00219	S21DS-00924	20/01/2021	356718	5777868	8.34	100	0.5 wet	Pass	
HDR:W21DS00219	S21DS-00925	20/01/2021	356721	5777883	8.67	96	2.5 wet	Pass	
HDR:W21DS00219	S21DS-00926	20/01/2021	356736	5777852	8.97	96	OMC	Pass	
HDR:W21DS00219	S21DS-00927	20/01/2021	356744	5777923	8.92	98.5	OMC	Pass	
HDR:W21DS00219	S21DS-00928	20/01/2021	356722	5777885	8.94	97	2.5 dry	Pass	
HDR:W21DS00219	S21DS-00929	20/01/2021	356718	5777867	8.75	97.5	0.5 wet	Pass	
HDR:W21DS00219	S21DS-00930	20/01/2021	356798	5777788	9.69	95	2.0 wet	Pass	
HDR:W21DS00219	S21DS-00931	20/01/2021	356805	5777846	9.8	100.5	1.0 wet	Pass	
HDR:W21DS00219	S21DS-00932	20/01/2021	356771	5777846	9.24	98	4.0 wet	Fail	See Retest 01103
HDR:W21DS00219	S21DS-00933	20/01/2021	356772	5777931	9.31	97.5	2.5 wet	Pass	
HDR:W21DS00219	S21DS-00934	20/01/2021	356769	5777866	9.66	96	2.5 wet	Pass	
HDR:W21DS00219	S21DS-00935	20/01/2021	356761	5777804	9.95	100	2.0 wet	Pass	Retest of 00364
HDR:W21DS00219	S21DS-00936	20/01/2021	356694	5777875	8.61	97.5	2.0 dry	Pass	
HDR:W21DS00219	S21DS-00937	20/01/2021	356742	5777928	9.36	96.5	2.0 wet	Pass	
HDR:W21DS00219	S21DS-00938	20/01/2021	356721	5777906	9.28	98	2.0 wet	Pass	

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Hilf Summary Table

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Report No	Sample No	Date	Location [E]	Location [N]	Layer	Density Ratio HILF test (≥95%)	Moisture Variation From OMC	Pass / Fail	Remarks
HDR:W21DS00318	S21DS-01375	28/01/2021	356834	5777967	9.37	96	1.0 wet	Pass	
HDR:W21DS00318	S21DS-01376	28/01/2021	356796	5777978	9.59	96.5	0.5 wet	Pass	
HDR:W21DS00318	S21DS-01377	28/01/2021	356861	5777553	6.14	95.5	3.0 wet	Pass	
HDR:W21DS00318	S21DS-01378	28/01/2021	356934	5777542	7.56	96.5	2.0 wet	Pass	
HDR:W21DS00504	S21DS-02096	10/02/2021	356681	5778040	10.27	100	0.5 wet	Pass	
HDR:W21DS00644	S21DS-02585	18/02/2021	356865	5777939	9.45	92	6.0 wet	Fail	See Retest 03083
HDR:W21DS00644	S21DS-02586	18/02/2021	356867	5777919	9.46	92.5	3.5 wet	Fail	See Retest 03082
HDR:W21DS00644	S21DS-02587	18/02/2021	356853	5777895	9.24	98	0.5 wet	Pass	
HDR:W21DS00772	S21DS-03077	1/03/2021	357002	5777531	7.74	97.5	2.5 wet	Pass	Retest of 02202
HDR:W21DS00772	S21DS-03078	1/03/2021	357022	5777539	7.84	100	0.5 wet	Pass	Retest of 02203
HDR:W21DS00772	S21DS-03079	1/03/2021	357028	5777594	8.28	104.5	0.5 wet	Pass	Retest of 02024
HDR:W21DS00772	S21DS-03080	1/03/2021	357027	5777621	8.06	97	2.5 wet	Pass	Retest of 02769
HDR:W21DS00772	S21DS-03081	1/03/2021	356674	5777939	9.83	97.5	2.5 wet	Pass	Retest of 01831
HDR:W21DS00772	S21DS-03082	1/03/2021	356866	5777919	9.43	104	0.5 dry	Pass	Retest of 02586
HDR:W21DS00772	S21DS-03083	1/03/2021	356864	5777937	9.43	100.5	OMC	Pass	Retest of 02585
HDR:W21DS00772	S21DS-03084	1/03/2021	356873	5777573	8.86	99	OMC	Pass	Retest of 02894
HDR:W21DS01005	S21DS-03951	18/03/2021	356850	5777930	9.47	105.5	1.0 dry	Pass	
HDR:W21DS01005	S21DS-03952	18/03/2021	356847	5777951	9.55	96	OMC	Pass	
HDR:W21DS01005	S21DS-03953	18/03/2021	356630	5777966	9.68	89.5	2.5 dry	Fail	Earthworks contractor removed material, no retest

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Hilf Summary Table

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Report No	Sample No	Date	Location [E]	Location [N]	Layer	Density Ratio HILF test (≥95%)	Moisture Variation From OMC	Pass / Fail	Remarks
HDR:W21DS01005	S21DS-03954	18/03/2021	356624	5777928	9.89	96.5	1.5 dry	Pass	
HDR:W21DS01005	S21DS-03955	18/03/2021	356640	5777920	9.87	103	OMC	Pass	
HDR:W21DS01005	S21DS-03956	18/03/2021	356652	5777901	9.41	93.5	OMC	Fail	Earthworks contractor removed material, no retest
HDR:W21DS01022	S21DS-04027	19/03/2021	356765	5778053	10.19	93.5	0.5 wet	Fail	Earthworks contractor removed material, no retest
HDR:W21DS01022	S21DS-04028	19/03/2021	356740	5778051	10.411	94	0.5 wet	Fail	Earthworks contractor removed material, no retest
HDR:W21DS01022	S21DS-04029	19/03/2021	356713	5778051	10.37	93	2.0 wet	Fail	Earthworks contractor removed material, no retest
HDR:W21DS01343	S21DS-05201	19/04/2021	356748	5778076	10.28	98.5	0.8 wet	Pass	
HDR:W21DS01343	S21DS-05202	19/04/2021	356763	5778077	10.12	96.5	2.2 dry	Pass	
HDR:W21DS01343	S21DS-05203	19/04/2021	356731	5778075	10.49	100	2.5 wet	Pass	
HDR:W21DS01364	S21DS-05286	20/04/2021	356744	5778078	10.27	99.5	1.5 wet	Pass	
HDR:W21DS01364	S21DS-05287	20/04/2021	356716	5778080	10.3	97.5	1.5 wet	Pass	
HDR:W21DS01405	S21DS-05405	22/04/2021	356683	5778090	10.33	99.5	0.5 wet	Pass	
HDR:W21DS01405	S21DS-05406	22/04/2021	356675	5778079	10.41	98.5	0.5 wet	Pass	
HDR:W21DS01443	S21DS-05532	26/04/2021	356637	5778101	10.07	100	0.5 wet	Pass	
HDR:W21DS01443	S21DS-05533	26/04/2021	356664	5778093	10.47	101	OMC	Pass	
HDR:W21DS01443	S21DS-05534	26/04/2021	356694	5778078	10.35	99.5	OMC	Pass	
HDR:W21DS01443	S21DS-05535	26/04/2021	356670	5778054	10.28	101	OMC	Pass	
HDR:W21DS01443	S21DS-05536	26/04/2021	356649	5778052	10.22	100.5	0.5 dry	Pass	
HDR:W21DS01489	S21DS-05691	29/04/2021	356633	5778081	10.7	102.5	1.5 dry	Pass	
HDR:W21DS01489	S21DS-05692	29/04/2021	356623	5778086	10.66	96.5	1.0 wet	Pass	
HDR:W21DS01489	S21DS-05693	29/04/2021	356623	5778098	10.7	95.5	2.0 wet	Pass	

CHADWICK GEOTECHNICS

Hilf Summary Table

1016363.006 - Riverfield Estate Stage 6

Chadwick Geotechnics
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Report No	Sample No	Date	Location [E]	Location [N]	Layer	Density Ratio HILF test (≥95%)	Moisture Variation From OMC	Pass / Fail	Remarks
HDR:W21DS01496	S21DS-05715	30/04/2021	356607	5778062	8.62	102.5	0.5 wet	Pass	
HDR:W21DS01496	S21DS-05716	30/04/2021	356606	5778062	9.23	101.5	OMC	Pass	
HDR:W21DS01496	S21DS-05717	30/04/2021	356613	5778061	9.8	101.5	OMC	Pass	
HDR:W21DS01532	S21DS-05829	3/05/2021	356613	5778057		102.5	0.5 wet	Pass	
HDR:W21DS01618	S21DS-06113	7/05/2021	356643	5778107		98	OMC	Pass	
HDR:W21DS01618	S21DS-06114	7/05/2021	356698	5778108		97	0.5 wet	Pass	
HDR:W21DS01618	S21DS-06115	7/05/2021	356775	5778095		98.5	0.5 wet	Pass	
HDR:W21DS01619	S21DS-06116	8/05/2021	356834	5777996		97	2.0 wet	Pass	
HDR:W21DS01619	S21DS-06117	8/05/2021	356827	5778009		98.5	2.0 wet	Pass	
HDR:W21DS01619	S21DS-06118	8/05/2021	356845	5778007		98	1.5 wet	Pass	
HDR:W21DS01702	S21DS-06378	10/05/2021	356832	5778008		97	OMC	Pass	
HDR:W21DS01702	S21DS-06379	10/05/2021	356823	5778022		99	OMC	Pass	
HDR:W21DS01730	S21DS-06448	12/05/2021	356871	5778020		96.5	0.5 dry	Pass	
HDR:W21DS01730	S21DS-06449	12/05/2021	356863	5777992		98	2.0 wet	Pass	
HDR:W21DS01730	S21DS-06450	12/05/2021	356859	5777968		95.5	2.0 wet	Pass	
HDR:W21DS01835	S21DS-06823	20/05/2021	356902	5778078		97.5	0.5 wet	Pass	
HDR:W21DS01835	S21DS-06824	20/05/2021	356900	5778074		98	2.0 dry	Pass	
HDR:W21DS01864	S21DS-06923	24/05/2021	356901	5778057	9.86	98.5	0.5 wet	Pass	
HDR:W21DS01864	S21DS-06924	24/05/2021	356884	5777974	9.51	99	OMC	Pass	Retest of 06548
HDR:W21DS01864	S21DS-06925	24/05/2021	356889	5777948		99	0.5 wet	Pass	Retest of 6556
HDR:W21DS01864	S21DS-06926	24/05/2021	356915	5778028	9.91	96	0.5 wet	Pass	
HDR:W21DS01878	S21DS-06962	21/05/2021	356914	5777998	9.3	99	OMC	Pass	
HDR:W21DS01878	S21DS-06963	21/05/2021	356915	5778021	9.38	97	0.5 wet	Pass	
HDR:W21DS01878	S21DS-06964	21/05/2021	356918	5778042	9.44	101	OMC	Pass	
HDR:W21DS01879	S21DS-06965	22/05/2021	356900	5777975	9.55	99.5	0.5 wet	Pass	

CHADWICK GEOTECHNICS

Hilf Summary Table

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Think Act Be Safe

Report No	Sample No	Date	Location [E]	Location [N]	Layer	Density Ratio HILF test (≥95%)	Moisture Variation From OMC	Pass / Fail	Remarks
HDR:W21DS01879	S21DS-06966	22/05/2021	356896	5777952	9.58	99.5	OMC	Pass	
HDR:W21DS01879	S21DS-06967	22/05/2021	356894	5777929	9.4	101.5	OMC	Pass	
HDR:W21DS02799	S21DS-10490	20/08/2021	356688	5777561	7.25	102	2.5 wet	Pass	
HDR:W21DS02799	S21DS-10491	20/08/2021	356623	5778022	9.83	102	0.5 dry	Pass	
HDR:W21DS02799	S21DS-10492	20/08/2021	356611	5777945	9.83	101	2.0 wet	Pass	
HDR:W21DS02799	S21DS-10493	20/08/2021	356685	5777561	7.52	104.5	OMC	Pass	
HDR:W21DS02799	S21DS-10494	20/08/2021	356455	5778043	7.6	96	OMC	Pass	
HDR:W21DS02799	S21DS-10495	20/08/2021	356552	5778068	7.85	98.5	0.5 wet	Pass	
HDR:W21DS02799	S21DS-10496	20/08/2021	356685	5777561	7.77	98.5	OMC	Pass	
HDR:W21DS02799	S21DS-10497	20/08/2021	356607	5778010	9.76	102.5	OMC	Pass	
HDR:W21DS02799	S21DS-10498	20/08/2021	356703	5777556	7.65	100.5	0.5 dry	Pass	
HDR:W21DS02894	S21DS-10837	2/09/2021	356587	5778093	9.952	99	3.0 wet	Pass	
HDR:W21DS02894	S21DS-10838	2/09/2021	356551	5778073	9.869	97.5	0.5 wet	Pass	
HDR:W21DS02954	S21DS-11030	8/09/2021	356583	5778002	10.166	99.5	0.5 wet	Pass	
HDR:W21DS02954	S21DS-11031	8/09/2021	356627	5778063	10.772	98	0.5 wet	Pass	
HDR:W21DS02954	S21DS-11032	8/09/2021	356569	5778091	10.0837	98.5	OMC	Pass	
HDR:W21DS02954	S21DS-11033	8/09/2021	356555	5778055	10.591	97.5	0.5 wet	Pass	
HDR:W21DS02956	S21DS-11038	9/09/2021	356914	5778053	9.593	97	OMC	Pass	
HDR:W21DS02956	S21DS-11039	9/09/2021	356588	5778054	10.425	96.5	2.0 wet	Pass	
HDR:W21DS02956	S21DS-11040	9/09/2021	357009	5778040	8.764	99.5	0.5 wet	Pass	
HDR:W21DS02956	S21DS-11041	9/09/2021	356564	5778101	10.736	98	4.5 wet	Fail	See Retest 11130
HDR:W21DS02964	S21DS-11058	10/09/2021	356595	5778050	10.636	99.5	0.5 wet	Pass	

CHADWICK GEOTECHNICS

Hilf Summary Table

1016363.006 - Riverfield Estate Stage 6

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 8796 7944

Think Act Be Safe

Report No	Sample No	Date	Location [E]	Location [N]	Layer	Density Ratio HILF test (≥95%)	Moisture Variation From OMC	Pass / Fail	Remarks
HDR:W21DS03137	S21DS-11604	11/10/2021	356914	5778082	9.53	97.5	5.0 wet	Pass	
HDR:W21DS03137	S21DS-11605	11/10/2021	356915	5778054	9.71	100.5	1.0 wet	Pass	
HDR:W21DS03350	S21DS-12315	3/11/2021	356569	5778117	8.107	99.5	1.5 wet	Pass	
HDR:W21DS03350	S21DS-12316	3/11/2021	356596	5778113	10.223	98.5	3.0 wet	Pass	
HDR:W21DS03369	S21DS-12394	5/11/2021	356588	5778112	10.525	99	3.0 wet	Pass	
HDR:W21DS03608	S21DS-13290	7/12/2021	356619	5778046	10.479	99	2.0 wet	Pass	
HDR:W21DS03611	S21DS-13294	7/12/2021	356992	5777931	8.723	95	4.0 wet	Fail	See Retest 13628
HDR:W21DS03611	S21DS-13297	7/12/2021	357002	5778017	9.479	96	0.5 wet	Pass	
HDR:W21DS03611	S21DS-13298	7/12/2021	356797	5778022	9.589	98.5	0.5 wet	Pass	
HDR:W22DS00456	S22DS-01483	25/02/2022	356893	5778035	10.195	102.5	2.0 dry	Pass	
									No further Hilf testing for Stage 6

Appendix C: Hilf density testing reports

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:W21DS00199
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 25/01/2021

Sample Details

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

Sample Data

Sample ID	S21DS-00857	S21DS-00858	S21DS-00859	S21DS-00860	S21DS-00861	S21DS-00862
Field Sample ID	1	2	3	4	5	6
Date Tested	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
E:	356909.3	356949.3	3567678.3	356766.6	356785.3	356783.3
N:	5777573.4	5777574.3	5777854.1	5777881.4	5777897.1	5777934.9
RL:	8.25	8.42	9.41	9.25	9.14	9.29
Lot:	307	310	406	405	418	419
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 Wet Density (t/m³)	1.95	2.04	1.98	1.94	1.95	1.97
Peak Converted Wet Density (t/m³)	1.99	2.05	2.04	1.88	1.99	1.96
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.5 wet	0.0	0.5 dry	0.5 dry	0.5 wet	0.5 dry
Hilf Density Ratio (%)	**98.0**	**99.5**	**97.5**	**103.0**	**98.0**	**100.5**

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:W21DS00219
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 25/01/2021

Sample Details

Location:
Client Request ID:
Specification Requirements:
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S21DS-00924	S21DS-00925	S21DS-00926	S21DS-00927	S21DS-00928	S21DS-00929
Field Sample ID	1	2	3	4	5	6
Date Tested	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
E:	356718.1	356721.0	356736.1	356744.3	356721.9	356718.3
N:	5777868.4	5777883.2	5777852.4	5777922.9	5777885.4	5777867.2
EL:	8.34	8.67	8.97	8.92	8.94	8.75
Lot:	401	402	404	425	402	401
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 Wet Density (t/m³)	2.00	1.98	1.97	2.05	1.99	1.98
Peak Converted Wet Density (t/m³)	2.00	2.06	2.05	2.08	2.06	2.04
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.5 wet	2.5 wet	0.0	0.0	2.5 dry	0.5 wet
Hilf Density Ratio (%)	**100.0**	**96.0**	**96.0**	**98.5**	**97.0**	**97.5**

Comments

CHADWICK GEOTECHNICS

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

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

Report No: HDR:W21DS00219
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 25/01/2021

Sample Details

Location:
Client Request ID:
Specification Requirements:
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S21DS-00930	S21DS-00931	S21DS-00932	S21DS-00933	S21DS-00934	S21DS-00935
Field Sample ID	7	8	9	10	11	12
Date Tested	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
E:	356798.3	356804.6	356770.5	356772.1	356768.9	356760.8
N:	5777787.9	5777846.4	577786.1	5777930.6	57757865.5	5777804.3
EL:	9.69	9.80	9.24	9.31	9.66	9.95
Lot:	227	407	418	423	406	235
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 Wet Density (t/m³)	1.94	2.00	1.97	1.99	1.99	2.05
Peak Converted Wet Density (t/m³)	2.04	1.99	2.02	2.05	2.07	2.05
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	2.0 wet	1.0 wet	4.0 wet	2.5 wet	2.5 wet	2.0 wet
Hilf Density Ratio (%)	**95.0**	**100.5**	**98.0**	**97.5**	**96.0**	**100.0**

Comments

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DANDENONG SOUTH, VIC 3175

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

Report No: HDR:W21DS00219
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 25/01/2021

Sample Details

Location:
Client Request ID:
Specification Requirements:
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S21DS-00936	S21DS-00937	S21DS-00938			
Field Sample ID	13	14	15			
Date Tested	20/01/2021	20/01/2021	20/01/2021			
E:	356693.9	356742.3	356721.3			
N:	5777874.5	5777927.5	5777906.1			
EL:	8.61	9.36	9.28			
Lot:	402	425	426			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.06	2.00	2.04			
Peak Converted Wet Density (t/m³)	2.10	2.07	2.09			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	2.0 dry	2.0 wet	2.0 wet			
Hilf Density Ratio (%)	**97.5**	**96.5**	**98.0**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00318
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Robinson (Team Leader)
12712 Date of Issue: 29/01/2021

Sample Details

Location:	Riverfield Stage 6
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Site Won
Material:	Clay Fill

Sample Data

Sample ID	S21DS-01375	S21DS-01376	S21DS-01377	S21DS-01378		
Field Sample ID	1	2	3	4		
Date Tested	28/01/2021	28/01/2021	28/01/2021	28/01/2021		
E	356834	356796	356861	356934		
N	5777967	5777978	5777553	5777542		
RL	9.37	9.59	6.14	7.56		
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175		
Depth of Layer (mm)	200	200	200	200		
Field Wet Density (t/m³)	1.96	1.99	1.98	2.00		
Peak Converted Wet Density (t/m³)	2.04	2.06	2.07	2.07		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	1.0 wet	0.5 wet	3.0 wet	2.0 wet		
Hilf Density Ratio (%)	**96.0**	**96.5**	**95.5**	**96.5**		

Comments

CHADWICK GEOTECHNICS

Dandenong South
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DANDENONG SOUTH, VIC 3175

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Fax: +61 3 9706 9431

Report No: HDR:W21DS00504
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number 12719
12712

Approved Signatory: J. A. Smith
(Senior Technician)
Date of Issue: 3/03/2021

Sample Details

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

Sample Data

Sample ID	S21DS-02096					
Field Sample ID	1					
Date Tested	10/02/2021					
E:	356681.2					
N:	5778040.2					
Elv:	10.27					
Field and Laboratory Data						
Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Wet Density (t/m³)	1.94					
Peak Converted Wet Density (t/m³)	1.94					
Compactive Effort	Standard					
Moisture Variation (%)	0.5 wet					
Hilf Density Ratio (%)	**100.0**					

Comments

CHADWICK GEOTECHNICS

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25 Metcalf Street
DANDENONG SOUTH, VIC 3175

Ph: + 61 3 8796 7900
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Report No: HDR:W21DS00644
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate Clyde - Stage 4
Project No.: 1016363.004
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number 12719
12712

Approved Signatory: J. A. Smith
(Senior Technician)
Date of Issue: 3/03/2021

Sample Details

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

Sample Data

Sample ID	S21DS-02585	S21DS-02586	S21DS-02587			
Field Sample ID	1	2	3			
Date Tested	18/02/2021	18/02/2021	18/02/2021			
E:	356864.6	356866.9	356853.1			
N:	5777939	5777919.2	5777895.3			
EL:	9.45	9.46	9.24			
Lot:	473	412	411			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
Field Wet Density (t/m³)	1.99	1.96	2.02			
Peak Converted Wet Density (t/m³)	2.16	2.11	2.06			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	6.0 wet	3.5 wet	0.5 wet			
Hilf Density Ratio (%)	**92.0**	**92.5**	**98.0**			

Comments

CHADWICK GEOTECHNICS

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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:W21DS00772
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

Accreditation Number 12719
12712

Approved Signatory: J. A. Smith
(Senior Technician)
Date of Issue: 3/03/2021

Sample Details

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

Sample Data

Sample ID	S21DS-03077	S21DS-03078	S21DS-03079	S21DS-03080	S21DS-03081	S21DS-03082
Field Sample ID	1	2	3	4	5	6
Date Tested	1/03/2021	1/03/2021	1/03/2021	1/03/2021	1/03/2021	1/03/2021
E:	357002	357022	357028	357027	356674	3556866
N:	5777531	5777539	5777594	5777621	5777939	5777919
Elv:	7.74	7.84	8.28	8.06	9.83	9.43
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 Wet Density (t/m³)	1.96	1.96	2.07	1.96	1.97	2.06
Peak Converted Wet Density (t/m³)	2.01	1.96	1.98	2.01	2.02	1.99
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	2.5 wet	0.5 wet	0.5 wet	2.5 wet	2.5 wet	0.5 dry
Hilf Density Ratio (%)	**97.5**	**100.0**	**104.5**	**97.0**	**97.5**	**104.0**

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:W21DS00772
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number 12719
12712

Approved Signatory: J. A. Smith
(Senior Technician)
Date of Issue: 3/03/2021

Sample Details

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

Sample Data

Sample ID	S21DS-03083	S21DS-03084				
Field Sample ID	7	8				
Date Tested	1/03/2021	1/03/2021				
E:	356864	356873				
N:	5777937	5777573				
Elv:	9.43	8.86				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Wet Density (t/m³)	1.98	2.00				
Peak Converted Wet Density (t/m³)	1.98	2.01				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.0	0.0				
Hilf Density Ratio (%)	**100.5**	**99.0**				

Comments

CHADWICK GEOTECHNICS

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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:W21DS01005
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 4
Project No.: 1016363.4000
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: 25/03/2021

Sample Details

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

Sample Data

Sample ID	S21DS-03951	S21DS-03952	S21DS-03953	S21DS-03954	S21DS-03955	S21DS-03956
Field Sample ID	1	2	3	4	5	6
Date Tested	18/03/2021	18/03/2021	18/03/2021	18/03/2021	18/03/2021	18/03/2021
E:	356849.9	356847.3	356629.7	356624.1	356639.9	356652.2
N:	5777930.2	5777951.1	57776965.7	5777928.4	5777119.5	5777901.2
EL:	9.47	9.55	9.68	9.89	9.87	9.41
Lot:	413	624	505	502	436	436
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 Wet Density (t/m³)	1.94	1.71	1.74	1.82	1.94	1.86
Peak Converted Wet Density (t/m³)	1.84	1.78	1.95	1.89	1.88	1.99
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	1.0 dry	0.0	2.5 dry	1.5 dry	0.0	0.0
Hilf Density Ratio (%)	**105.5**	**96.0**	**89.5**	**96.5**	**103.0**	**93.5**

Comments

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Report No: HDR:W21DS01022
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
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: 25/03/2021

Sample Details

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

Sample Data

Sample ID	S21DS-04027	S21DS-04028	S21DS-04029			
Field Sample ID	1	2	3			
Date Tested	19/03/2021	19/03/2021	19/03/2021			
E:	356764.7	356740.4	356712.7			
N:	5778053.2	5778051.4	5778051.2			
EL:Lot:	10.19	10.411	10.37			
	613	612	525			

Field and Laboratory Data

Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	1.85	1.82	1.88			
Peak Converted Wet Density (t/m³)	1.97	1.93	2.02			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 wet	0.5 wet	2.0 wet			
Hilf Density Ratio (%)	**93.5**	**94.0**	**93.0**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01343
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 23/04/2021

Sample Details

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

Sample Data

Sample ID	S21DS-05201	S21DS-05202	S21DS-05203			
Field Sample ID	1	2	3			
Date Tested	19/04/2021	19/04/2021	19/04/2021			
Lot:	612	613	611			
E:	356748.04	356762.55	356730.52			
N:	5778075.76	5778077.06	5778074.73			
Elv:	10.28	10.12	10.49			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.00	1.84	1.97			
Peak Converted Wet Density (t/m³)	2.03	1.90	1.97			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	1.0 wet	2.0 dry	2.5 wet			
Hilf Density Ratio (%)	**98.5**	**96.5**	**100.0**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01364
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 23/04/2021

Sample Details

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

Sample Data

Sample ID	S21DS-05286	S21DS-05287				
Field Sample ID	1	2				
Date Tested	20/04/2021	20/04/2021				
E:	356744.46	3576715.53				
N:	5778078.01	5778080.08				
EL:	10.27	10.30				
Lot:	612	610				
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)	2.00	1.93				
Peak Converted Wet Density (t/m³)	2.01	1.98				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	1.5 wet	1.5 wet				
Hilf Density Ratio (%)	**99.5**	**97.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01405
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-05405	S21DS-05406				
Field Sample ID	1	2				
Date Tested	22/04/2021	22/04/2021				
E:	356683.40	356675.28				
N:	5778089.60	5778078.62				
EL:	10.33	10.41				
Lot:	608	607				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Wet Density (t/m³)	1.94	1.93				
Peak Converted Wet Density (t/m³)	1.95	1.96				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.5 wet	0.5 wet				
Hilf Density Ratio (%)	**99.5**	**98.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01443
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-05532	S21DS-05533	S21DS-05534	S21DS-05535	S21DS-05536	
Field Sample ID	1	2	3	4	5	
Date Tested	26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021	
E:	356637	356664	356694	356670	356649	
N:	5778101	5778093	5778078	5778054	5778052	
Elv:	10.07	10.47	10.35	10.28	10.22	
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 Wet Density (t/m³)	1.95	1.95	1.93	2.01	2.05	
Peak Converted Wet Density (t/m³)	1.94	1.94	1.95	1.98	2.03	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Variation (%)	0.5 wet	0.0	0.0	0.0	0.5 dry	
Hilf Density Ratio (%)	**100.0**	**101.0**	**99.5**	**101.0**	**100.5**	

Comments

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Report No: HDR:W21DS01489
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-05691	S21DS-05692	S21DS-05693			
Field Sample ID	1	2	3			
Date Tested	29/04/2021	29/04/2021	29/04/2021			
E:	356632.9	356622.8	356622.7			
N:	5778080.9	5778085.9	5778098.4			
EL:	10.7	10.66	10.70			
Lot:	604	604	603			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.05	1.98	1.98			
Peak Converted Wet Density (t/m³)	1.99	2.05	2.08			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	1.5 dry	1.0 wet	2.0 wet			
Hilf Density Ratio (%)	**102.5**	**96.5**	**95.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01496
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-05715	S21DS-05716	S21DS-05717			
Field Sample ID	1	2	3			
Date Tested	30/04/2021	30/04/2021	30/04/2021			
E:	356607	356606	356612.7			
N:	5778062	5778062	5778061			
EL:	8.62	9.23	9.80			
Field and Laboratory Data						
Depth of Test (mm)	300	300	300			
Depth of Layer (mm)	325	325	325			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.12	2.21	2.18			
Peak Converted Wet Density (t/m³)	2.06	2.18	2.15			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 wet	0.0	0.0			
Hilf Density Ratio (%)	**102.5**	**101.5**	**101.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01532
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-05829					
Field Sample ID	1					
Date Tested	3/05/2021					
E:	356613					
N:	5778057					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Wet Density (t/m³)	2.19					
Peak Converted Wet Density (t/m³)	2.14					
Compactive Effort	Standard					
Moisture Variation (%)	0.5 wet					
Hilf Density Ratio (%)	**102.5**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01618
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-06113	S21DS-06114	S21DS-06115			
Field Sample ID	1	2	3			
Date Tested	7/05/2021	7/05/2021	7/05/2021			
E:	356643	356698	3567715			
N:	5778107	5778108	5778095			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.07	2.01	2.03			
Peak Converted Wet Density (t/m³)	2.10	2.07	2.06			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.0	0.5 wet	0.5 wet			
Hilf Density Ratio (%)	**98.0**	**97.0**	**98.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01619
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-06116	S21DS-06117	S21DS-06118			
Field Sample ID	1	2	3			
Date Tested	8/05/2021	8/05/2021	8/05/2021			
E:	356834	356827	356845			
N:	5777996	5778009	5778007			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.01	2.03	2.01			
Peak Converted Wet Density (t/m³)	2.07	2.06	2.05			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	2.0 wet	2.0 wet	1.5 wet			
Hilf Density Ratio (%)	**97.0**	**98.5**	**98.0**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01702
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-06378	S21DS-06379				
Field Sample ID	1	2				
Date Tested	10/05/2021	10/05/2021				
E:	356832	356823				
N:	5778008	5778022				

Field and Laboratory Data

Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Wet Density (t/m³)	1.99	2.09				
Peak Converted Wet Density (t/m³)	2.05	2.11				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.0	0.0				
Hilf Density Ratio (%)	**97.0**	**99.0**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01730
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-06448	S21DS-06449	S21DS-06450			
Field Sample ID	1	2	3			
Date Tested	12/05/2021	12/05/2021	12/05/2021			
E:	356871	356863	356859			
N:	5778020	5777992	5777968			

Field and Laboratory Data

Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.04	2.08	2.03			
Peak Converted Wet Density (t/m³)	2.11	2.12	2.13			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 dry	2.0 wet	2.0 wet			
Hilf Density Ratio (%)	**96.5**	**98.0**	**95.5**			

Comments

CHADWICK GEOTECHNICS

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25 Metcalf Street
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Fax: +61 3 9706 9431

Report No: HDR:W21DS01835
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-06823	S21DS-06824				
Field Sample ID	1	2				
Date Tested	20/05/2021	20/05/2021				
E:	356902	356900				
N:	5778078	5778074				

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)	2.08	2.06				
Peak Converted Wet Density (t/m³)	2.13	2.10				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.5 wet	2.0 dry				
Hilf Density Ratio (%)	**97.5**	**98.0**				

Comments

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Report No: HDR:W21DS01864
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-06923	S21DS-06924	S21DS-06925	S21DS-06926		
Field Sample ID	1	2	3	4		
Date Tested	24/05/2021	24/05/2021	24/05/2021	24/05/2021		
E:	245801	356884	356889	356915		
N:	5778057	5777974	5777948	5778028		
EL:	9.86	9.51	Retest	9.91		
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 Wet Density (t/m³)	2.11	2.13	2.13	2.07		
Peak Converted Wet Density (t/m³)	2.14	2.16	2.15	2.16		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	0.5 wet	0.0	0.5 wet	0.5 wet		
Hilf Density Ratio (%)	**98.5**	**99.0**	**99.0**	**96.0**		

Comments

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Report No: HDR:W21DS01878
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 11
Project No.: 1016363.011
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-06962	S21DS-06963	S21DS-06964			
Field Sample ID	1	2	3			
Date Tested	21/05/2021	21/05/2021	21/05/2021			
E:	356914	356915	356918			
N:	5777998	5778021	5778042			
RL:	9.30	9.38	9.44			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.07	2.09	2.10			
Peak Converted Wet Density (t/m³)	2.09	2.15	2.08			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.0	0.5 wet	0.0			
Hilf Density Ratio (%)	**99.0**	**97.0**	**101.0**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01879
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 12
Project No.: 1016363.012
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: 16/06/2021

Sample Details

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

Sample Data

Sample ID	S21DS-06965	S21DS-06966	S21DS-06967			
Field Sample ID	1	2	3			
Date Tested	22/05/2021	22/05/2021	22/05/2021			
E:	356900	56896	356894			
N:	5777975	5777952	5777929			
RL:	9.55	9.58	9.40			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.15	2.14	2.06			
Peak Converted Wet Density (t/m³)	2.16	2.15	2.03			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 wet	0.0	0.0			
Hilf Density Ratio (%)	**99.5**	**99.5**	**101.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS02799
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 5
Project No.: 1016363.005
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 6/09/2021

Sample Details

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

Sample Data

Sample ID	S21DS-10490	S21DS-10491	S21DS-10492	S21DS-10493	S21DS-10494	S21DS-10495
Field Sample ID	1	2	3	4	5	6
Date Tested	20/08/2021	20/08/2021	20/08/2021	20/08/2021	20/08/2021	20/08/2021
E:	356688	356622.96	356610.62	356684.79	356454.96	356551.69
N:	5777561	5778022.14	577744.68	5777560.51	5778042.96	5778068.49
EL:	7.25	9.83	9.83	7.52	7.60	7.85
Lot:	Inter Section	539	502	-	544	545
	Stage 1	Stage 5	Stage 5	Stage 1	Dam 5	Dam 6
Field and Laboratory Data						
Depth of Test (mm)	300	175	175	300	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 Wet Density (t/m³)	2.02	2.04	2.04	2.14	1.98	2.00
Peak Converted Wet Density (t/m³)	1.98	2.01	2.02	2.06	2.06	2.02
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	2.5 wet	0.5 dry	2.0 wet	0.0	0.0	0.5 wet
Hilf Density Ratio (%)	**102.0**	**102.0**	**101.0**	**104.5**	**96.0**	**98.5**

Comments

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Report No: HDR:W21DS02799
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 5
Project No.: 1016363.005
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 6/09/2021

Sample Details

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

Sample Data

Sample ID	S21DS-10496	S21DS-10497	S21DS-10498			
Field Sample ID	7	8	9			
Date Tested	20/08/2021	20/08/2021	20/08/2021			
E:	356685.11	356606.85	356703.41			
N:	5777560.91	5778009.64	5777555.74			
EL:	7.77	9.76	7.65			
Lot:	-	538	300			
	Stage 1					

Field and Laboratory Data

Depth of Test (mm)	300	175	300			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.02	2.01	2.03			
Peak Converted Wet Density (t/m³)	2.05	1.96	2.02			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.0	0.0	0.5 dry			
Hilf Density Ratio (%)	**98.5**	**102.5**	**100.5**			

Comments

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Report No: HDR:W21DS02894
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 5
Project No.: 1016363.005
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 6/09/2021

Sample Details

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

Sample Data

Sample ID	S21DS-10837	S21DS-10838				
Field Sample ID	1	2				
Date Tested	2/09/2021	2/09/2021				
E:	356587	356551.133				
N:	5778093	5778072.747				
RL / Layer:	9.952 / -	9.869 / -				
Lot:	543	545				
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)	2.00	2.02				
Peak Converted Wet Density (t/m³)	2.02	2.07				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	3.0 wet	0.5 wet				
Hilf Density Ratio (%)	**99.0**	**97.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS02954
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 5
Project No.: 1016363.005
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 9/09/2021

Sample Details

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

Sample Data

Sample ID	S21DS-11030	S21DS-11031	S21DS-11032	S21DS-11033		
Field Sample ID	1	2	3	4		
Date Tested	8/09/2021	8/09/2021	8/09/2021	8/09/2021		
E:	356583	356627	356569	356555		
N:	5778002	5778063	5778091	5778055		
RL:	10.166	10.772	10.0837	10.591		
Lot:	548	533	548	545		
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 Wet Density (t/m³)	2.04	2.04	2.10	2.03		
Peak Converted Wet Density (t/m³)	2.06	2.08	2.13	2.08		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	0.5 wet	0.5 wet	0.0	0.5 wet		
Hilf Density Ratio (%)	**99.5**	**98.0**	**98.5**	**97.5**		

Comments

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Report No: HDR:W21DS02956
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 13/09/2021

Sample Details

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

Sample Data

Sample ID	S21DS-11038	S21DS-11039	S21DS-11040	S21DS-11041		
Field Sample ID	1	2	3	4		
Date Tested	9/09/2021	9/09/2021	9/09/2021	9/09/2021		
E:	356913.520	356588	357009	356564		
N:	5778053.497	5778054	5778040	5778101		
RL / Layer:	9.593 / -	10.425 / -	8.764 / -	10.736 / -		
Lot:	634	537	-	549		
Other:	-	-	-	-		
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 Wet Density (t/m³)	2.12	1.97	2.03	1.98		
Peak Converted Wet Density (t/m³)	2.18	2.04	2.04	2.02		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	0.0	2.0 wet	0.5 wet	4.5 wet		
Hilf Density Ratio (%)	**97.0**	**96.5**	**99.5**	**98.0**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS02964
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 5
Project No.: 1016363.005
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: 13/09/2021

Sample Details

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

Sample Data

Sample ID	S21DS-11058					
Field Sample ID	1					
Date Tested	10/09/2021					
E:	356595					
N:	5778050					
RL / Layer:	10.636 / -					
Lot:	536					
Other:	0					

Field and Laboratory Data

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

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS03137
Issue No: 1

HILF Density Ratio Report

Client: Greencor Developments Aust Pty Ltd
Address: Suite 401 Level 4
MELBOURNE VIC 3004
Project: Riverfield Estate - All Stages
Project No.: 1016363
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 13/10/2021

Sample Details

Location:	Clyde North
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 96%
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Onsite
Material:	Silty Clay

Sample Data

Sample ID	S21DS-11604	S21DS-11605				
Field Sample ID	1	2				
Date Tested	11/10/2021	11/10/2021				
E:	356914	356915				
N:	5778082	57780543				
RL:	9.530	9.710				
	Nature Strip					

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)	2.00	2.03				
Peak Converted Wet Density (t/m³)	2.05	2.02				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	5.0 wet	1.0 wet				
Hilf Density Ratio (%)	**97.5**	**100.5**				

Comments

CHADWICK GEOTECHNICS

Dandenong South
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25 Metcalf Street
DANDENONG SOUTH, VIC 3175

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Report No: HDR:W21DS03350
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 4/11/2021

Sample Details

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

Sample Data

Sample ID	S21DS-12315	S21DS-12316				
Field Sample ID	1	2				
Date Tested	3/11/2021	3/11/2021				
E:	356569	356596				
N:	5778117	5778113				
RL / Layer:	8.107	10.223				
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	2.03				
Peak Converted Wet Density (t/m³)	2.08	2.06				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	1.5 wet	3.0 wet				
Hilf Density Ratio (%)	**99.5**	**98.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS03369
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 8/11/2021

Sample Details

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

Sample Data

Sample ID	S21DS-12394					
Field Sample ID	1					
Date Tested	5/11/2021					
E:	356588					
N:	5778112					
RL / Layer:	10.525 / -					
Lot:	-					
Other:	-					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
Field Wet Density (t/m³)	2.02					
Peak Converted Wet Density (t/m³)	2.04					
Compactive Effort	Standard					
Moisture Variation (%)	2.5 wet					
Hilf Density Ratio (%)	**99.0**					

Comments

CHADWICK GEOTECHNICS

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

Report No: HDR:W21DS03608
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 5
Project No.: 1016363.005
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 9/12/2021

Sample Details

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

Sample Data

Sample ID	S21DS-13290					
Field Sample ID	1					
Date Tested	7/12/2021					
E:	356619					
N:	5778046					
RL	10.479					
Lot:	534					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Wet Density (t/m³)	2.10					
Peak Converted Wet Density (t/m³)	2.12					
Compactive Effort	Standard					
Moisture Variation (%)	2.0 wet					
Hilf Density Ratio (%)	**99.0**					

Comments

CHADWICK GEOTECHNICS

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Fax: +61 3 9706 9431

Report No: HDR:W21DS03611
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 12
Project No.: 1016363.012
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 9/12/2021

Sample Details

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

Sample Data

Sample ID	S21DS-13294	S21DS-13297	S21DS-13298			
Field Sample ID	1	4	5			
Date Tested	7/12/2021	7/12/2021	7/12/2021			
E:	356991.906	3507002	356797			
N:	5777931.323	5778017	5778022			
RL / Layer:	8.723 / -	9.479 / FSL-0.485	9.589 / FSL-0.400m			
Lot:	1217	-	-			

Field and Laboratory Data

Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.00	2.02	2.08			
Peak Converted Wet Density (t/m³)	2.10	2.10	2.11			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	4.0 wet	0.5 wet	0.5 wet			
Hilf Density Ratio (%)	**95.0**	**96.0**	**98.5**			

Comments

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Report No: HDR:W22DS00456
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Robinson (Team Leader)
Date of Issue: 28/02/2022

Sample Details

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

Sample Data

Sample ID	S22DS-01483					
Field Sample ID	1					
Date Tested	25/02/2022					
Lot No:	632					
E:	356893					
N:	5778035					
Elv:	10.195					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Wet Density (t/m³)	2.07					
Peak Converted Wet Density (t/m³)	2.02					
Compactive Effort	Standard					
Moisture Variation (%)	2.0 dry					
Hilf Density Ratio (%)	**102.5**					

Comments

Appendix D: Controlled Fill certificate

CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT	: Lot No's: 601 to 634 Riverfield Estate, Stage 6	Chadwick Geotechnics REF: 1016363.006.v1	
CLIENT	: Grosvenor Lodge Pty Ltd PO Box 4136 DANDENONG SOUTH VIC 3164	DATE	: 17 June 2022

SUMMARY

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

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

LIMITATIONS

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

This report is based on the conditions present and factors affecting the soil at the time of inspection (19 January 2021 to the 25 February 2022). No responsibility or liability will be accepted and Chadwick Geotechnics Pty Ltd is indemnified to the full extent permitted by law in respect of the use of this Certificate where there has been a change in the nature of the project, or in the site conditions since the site testing.

CHADWICK GEOTECHNICS PTY LTD

Robert Barden
Project Manager

Timothy Chadwick
Project Director

CHADWICK
GEOTECHNICS