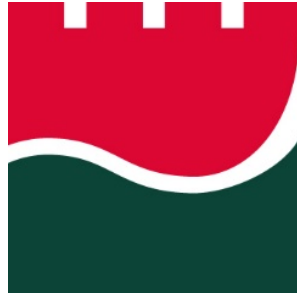


MORRISON GEOTECHNIC PTY LTD



SOLID THINKING // GROUNDED RESULTS

LEVEL ONE COMPLIANCE REPORT

Prepared for:

CCA Winslow Pty Ltd

DL20/164 – Earthworks filling Operations

*Residential Subdivision
238 Gardner Rd, Rochedale*

Morrison Geotechnic Pty Ltd
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a: Unit 1, 35 Limestone Street
Darra, Qld, 4076
Ph: (07) 3279 0900

6th July 2020

Brisbane Office
 Job No: DL20-164
 Ref No: 16556
 Author: R. Mitchell

6th July 2020

CCA Winslow
 1587 Ipswich Road
 Rocklea Qld 4106

ATTENTION: MR JACK WILLIAMS
 Email: jackw@ccawinslow.com.au

Dear Sir,

**RE: LEVEL ONE COMPLIANCE REPORT FOR
 EARTHWORKS FILLING OPERATIONS
 238 GARDNER ROAD – RESIDENTIAL SUBDIVISION
 GARDNER ROAD, ROCHEDALE**

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1.0 INTRODUCTION

1.1 General

This report presents results of Level One Earthworks Inspections and associated Compaction Compliance testing carried out on Earthworks Fill constructed to form residential building platforms at 238 Gardner Road Residential Subdivision – Rochedale.

The work was commissioned by Mr. J. Williams representing CCA Winslow (The Client) using Purchase Order 47313.

Earthworks were carried out by The Client .

Earthworks filling operations were carried out intermittently during May 2020.

Picture 1: Aerial View of the Site – Nearmap – 25 May 2020



1.2 Previous Earthworks

Uncontrolled fill was present on the site and was believed to be associated with previous structures. All uncontrolled fill was removed to spoil and to depths exposing competent natural ground.

As far as could be determined for the rest of the site, no previous filling was evident.

1.3 The Project

The Site consists of a residential subdivision and includes residential lots, new pavements and associated underground services.

The Site is bound by existing residences to the North farming land to the South and East and an existing residential property to the West. .

Peak Urban Bulk Earthworks Layout Plan 18-0219 Drawing 102 Revision A indicates the extent and fill to be constructed at The Site. This plan is considered to be a reasonable indication of the works carried out with the exception of the following: -

- No fill has been constructed on Lot 1. Any fill on Lot 1 is limited to topsoil respread only.

2.0 THE BRIEF

The Brief from the Client was limited to:

- Level One Inspection and Testing of the placement and compaction of fill materials in accordance with AS3798 2007 – “Guidelines on Earthworks for Commercial and Residential Developments”,
- Brisbane City Council
- Peak Urban Drawing and Notes on Drawings.

All other design requirements such as CBR and Quality of Materials, site classification, material, settlement assessments and existing filling were not included in the Brief and are therefore excluded from this Report.

3.0 METHODOLOGY

Earthworks Inspections and Testing was carried out on the stripped and exposed ground surfaces and during the placement and compaction of fill materials.

Field and laboratory testing included a walk over assessments of the existing ground conditions, observation of filling and compaction activities and compaction testing. All work was carried out in accordance with AS 3798 and AS1289.

3.1 Stripped Surface Assessment

The areas to be filled at The Site were observed to be stripped and cleared of all visible organic matter, deleterious, loose and unsuitable materials to depths exposing natural soils suitable for the support of the construction of new fill. Existing structures including pools were demolished and all construction debris removed from site.

The materials forming the fill foundation exposed after the stripping and clearing can be summarised as:

- Natural – Sandy Clay (Cl) at least very stiff, low to medium plasticity, fine to coarse grained sand, red brown and moist.

Following the stripped surface assessment of the fill areas, the fill foundation was approved for filling using the following process:

- Walk over assessments confirming that the competent ground was exposed.
- Proof roll testing using pad foot roller confirming no discernible movement of the exposed natural foundation.

On this basis, the compliant assessments in accordance with above indicate that the exposed natural ground forming the fill foundation is capable of supporting new fill materials.

Picture 2: View of the Filling Operations.



3.2 Filling Operations

Fill material was sourced from onsite cuts, road box excavations and trench excavations as well as imported from local borrow sources.

Fill materials can be broadly summarised as:

- Sandy Clay (CI), low to medium plasticity, fine to coarse grained sand, brown and moist.
- Clayey Sand (SC), fine to coarse sand, low to medium plasticity fines, with fine to coarse gravel, yellow brown and moist.

Placement and compaction of the fill materials was carried out using the following plant:

- Padfoot Roller
- Grader
- Dump Truck
- Excavator
- Water Cart

The fill materials were moisture conditioned at the source and during placement to moisture contents suitable for compaction. Deleterious materials such as organics, sticks, roots and over size particles were sorted and removed during placement or were rejected for use.

Placement of the fill materials was carried in layers appropriate for the above plant and compacted using the above plant carrying out multiple passes. Fill placed against slopes were keyed into the slope with each lift.

Our representative observed the filling process as described above and it was assessed to be consistent for the entire thickness of fill.

Compaction testing was carried out on the compacted fill materials in accordance with Table 5.1 and 8.1 of AS3798 2007 (Guidelines on Earthworks for Commercial and Residential Developments) and tested to AS1289 test methods (Testing of Soils for Engineering Purposes). Testing achieved the required specification of 95% of the Hilt Density.

Fill placed and compacted at measured density ratios less than 95% were tined, moisture conditioned and re-compacted until the required specification was achieved. Retesting was carried out using Random Stratified Location methods.

The Location of the field density tests are shown on the Site Plan contained in Appendix A. These test locations and levels were not obtained by survey and therefore should only be considered as approximate.

Picture 3: View of the Filling Operations



4.0 STATEMENT OF COMPLIANCE

Our representative observed all the relevant earthworks operations including the stripped surface, filling operations and carried out field density tests in accordance with the required standard. It is confirmed that Level 1 Inspection has been carried out on the bulk earthworks for this project.

It is confirmed that level 1 Inspection and Testing has been carried out on the earthworks fill to form the residential Lots at The Site. Based on the observations made by our Geotechnicians and the results of the field and laboratory tests, the placed and compacted fill at the above project has, as far as we have been able to assess, been constructed in general accordance with the intent of AS3798 and the Specifications.

The fill can be deemed as "Controlled" in accordance with AS2870 (Residential Slabs and Footings).

5.0 EXCLUSIONS

This statement does not include any topsoil, which may be placed for use as dressing, backfill to services.

Assessments of material quality such as soaked CBR and site classifications are excluded from this commission.

Our on-site attendance specifically excludes assessments of fill material quality and engineering properties that are outside the requirements of AS3798 - 2007, including soil or fill reactivity and soaked CBR values. We note that the fill materials used may result in unfavourable site classifications and low subgrade design strengths.

Footings and ground slabs for any structures constructed over natural soils or controlled fill should be designed to accommodate the characteristic ground surface movements and settlement potential. Assessments of these design parameters are beyond the scope of this Report.

This report is not to be relied upon for settlement analysis and soft soils engineering advice. This is beyond the scope of this report and outside our engagement.

6.0 LIMITATIONS

This Report has been prepared by Morrison Geotechnic Pty Ltd (**Morrison Geotechnic**) and may include contributions from Morrison Geotechnic's officers and employees, sub-contractors, sub-consultants or agents (**Contributors**).

This Report is for the sole benefit and use of CCA Winslow Pty Ltd (**Client**), its designers, clients and relevant statutory authorities for the sole purpose of providing geotechnical advice and recommendations in respect of the 238 Gardner Road, Rochedale – Residential Subdivision (**Project**). The Report is only intended to address those issues expressly described in the Brief/ Work Instructions in this Report.

This Report should not be used or relied upon for any other purpose without Morrison Geotechnic's prior written consent. Morrison Geotechnic and the Contributors do not accept any responsibility or liability in any way whatsoever for the use or reliance of this Report by anyone other than the **Client**, its designers, its clients and relevant statutory authorities or by anyone else for any purpose other than that for which it has been prepared.

Except with Morrison Geotechnic's prior written consent, this Report may not be:

- (a) released to any other party, whether in whole or in part (other than to the Client's officers, employees, advisers, designers, clients and relevant statutory authorities);
- (b) used or relied upon by any other party.

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The information (including technical information and information obtained through discussions) on which this report is based has been provided by the Client and third parties. Morrison Geotechnic and the Contributors:

- (a) have relied upon and presumed the accuracy of this information;
- (b) have not verified the accuracy or reliability of this information (other than as expressly stated in this Report);
- (c) have not made any independent investigations or enquiries in respect of those matters of which it has no actual knowledge at the time of giving this Report to the Client; and
- (d) make no warranty or guarantee, expressed or implied, as to the accuracy or reliability of this information.

Morrison Geotechnic and the Contributors do not accept responsibility or liability for any incorrect assumptions related to this Report. For the avoidance of doubt, this Report:

- (a) is not an environmental, contamination or hazardous materials assessment; may be invalid, incomplete or inaccurate (including errors in the scope of work, investigation methodology, observations, opinions and advice) where the information provided to Morrison Geotechnic was invalid, incomplete or inaccurate;
- (b) is limited to observations of those parts of the site described in Section 1.0.

No warranty or guarantee, whether express or implied, is made in respect of the geotechnical data, information, advice, opinions and recommendations present in this Report.

If further information becomes available, or additional assumptions need to be made, Morrison Geotechnic reserves its right to amend this Report.

If you have any queries regarding the above, please contact our Brisbane office.

Yours faithfully



MICHAEL MORRISON

For and on behalf of

MORRISON GEOTECHNIC PTY LIMITED

ATTACHMENTS:

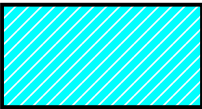
Appendix A – Site Plan Showing Test Locations

Appendix B – Laboratory Test Results Reports

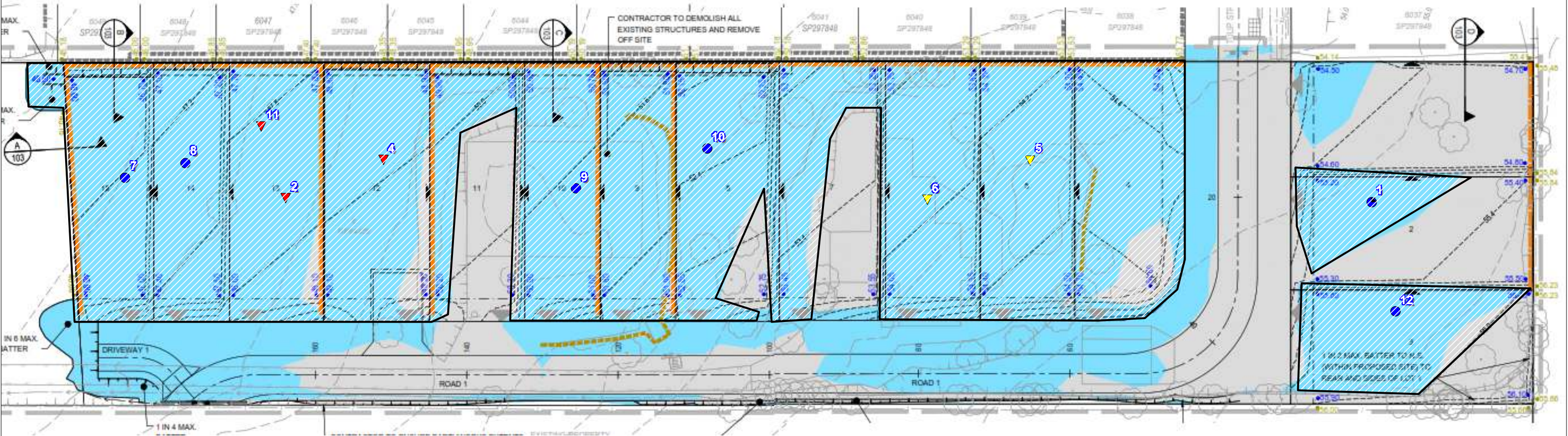
APPENDIX A

SITE PLAN
TEST LOCATIONS

LEGEND



Approximate Extents of Controlled Filling



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Engineers: M.Ballard
D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison & N.O'Haire

LEGEND

- ▼ RL 46.00 - 48.99
- ▼ RL 53.00 - 54.99

● Final Level

Map Description :	EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection			
Client :	CCA WINSLOW			
Project :	238 GARDNER ROAD, ROCHEDALE			
Project No :	DL20-164	Drawing No :	DL20-164-01	Scale : Not to Scale

APPENDIX B

Laboratory Test Results Reports

Material Test Report

Report Number: DL20/164-1
Issue Number: 1
Date Issued: 11/05/2020
Client: CCA WINSLOW
1587 IPSWICH ROAD, ROCKLEA QLD 4106
Project Number: DL20/164
Project Name: EARTHWORKS SUPERVISION
Project Location: 238 GARDNER ROAD, ROCHEDALE
Work Request: 8019
Date Sampled: 05/05/2020
Dates Tested: 05/05/2020 - 09/05/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Allotment Fill
Material Source: Onsite



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Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D20-8019A		
Test Number	1		
Date Tested	05/05/2020		
Time Tested	07:45		
Test Request #/Location	Lot 2		
Easting	3m off Northern Boundary		
Northing	8m off Western Boundary		
Layer / Reduced Level	Finish Level		
Soil Description	Sandy Clay. Brown		
Test Depth (mm)	150		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0.0		
Field Wet Density (FWD) t/m ³	1.90		
Field Moisture Content %	16.3		
Field Dry Density (FDD) t/m ³	1.63		
Peak Converted Wet Density t/m ³	1.98		
Adjusted Peak Converted Wet Density t/m ³	**		
Moisture Variation (Wv) %	1.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	96.0		
Compaction Method	Standard		

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report

Report Number: DL20/164-2
Issue Number: 1
Date Issued: 11/05/2020
Client: CCA WINSLOW
1587 IPSWICH ROAD, ROCKLEA QLD 4106
Project Number: DL20/164
Project Name: EARTHWORKS SUPERVISION
Project Location: 238 GARDNER ROAD, ROCHEDALE
Work Request: 8056
Date Sampled: 07/05/2020
Dates Tested: 07/05/2020 - 08/05/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Allotment Fill
Material Source: Onsite



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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson

Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D20-8056A	D20-8056C	
Test Number	2	4	
Date Tested	07/05/2020	07/05/2020	
Time Tested	07:30	08:00	
Test Request #/Location	Lot 13	Lot 12	
Easting	511928	511940	
Northing	6950875	6950871	
Elevation (m)	47.31	48.35	
Soil Description	Sandy Clay. Brown	Sandy Clay. Brown	
Test Depth (mm)	150	150	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0.0	0.0	
Field Wet Density (FWD) t/m ³	1.94	1.92	
Field Moisture Content %	8.9	12.1	
Field Dry Density (FDD) t/m ³	1.78	1.72	
Peak Converted Wet Density t/m ³	2.01	1.99	
Adjusted Peak Converted Wet Density t/m ³	**	**	
Moisture Variation (Wv) %	5.0	4.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	96.5	96.5	
Compaction Method	Standard	Standard	

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report

Report Number: DL20/164-3
Issue Number: 1
Date Issued: 15/05/2020
Client: CCA WINSLOW
1587 IPSWICH ROAD, ROCKLEA QLD 4106
Project Number: DL20/164
Project Name: EARTHWORKS SUPERVISION
Project Location: 238 GARDNER ROAD, ROCHEDALE
Work Request: 8074
Date Sampled: 08/05/2020 07:47
Dates Tested: 08/05/2020 - 15/05/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Allotment Fill
Material Source: Imported



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Phone: (07) 3279 0900

Email: greg@mgeo.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson

Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D20-8074A	D20-8074B	
Test Number	5	6	
Date Tested	08/05/2020	08/05/2020	
Time Tested	08:00	08:30	
Test Request #/Location	Lot 5	Lot 6	
Easting	512022	512011	
Northing	6950855	6950859	
Elevation (m)	54.2	53.9	
Soil Description	Silty Clay, Brown	Silty Clay, Brown	
Test Depth (mm)	150	150	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0.0	0.0	
Field Wet Density (FWD) t/m ³	2.28	2.24	
Field Moisture Content %	9.6	8.8	
Field Dry Density (FDD) t/m ³	2.08	2.06	
Peak Converted Wet Density t/m ³	2.19	2.19	
Adjusted Peak Converted Wet Density t/m ³	**	**	
Moisture Variation (Wv) %	2.0	2.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	104.0	102.5	
Compaction Method	Standard	Standard	

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report

Report Number: DL20/164-4
Issue Number: 1
Date Issued: 03/06/2020
Client: CCA WINSLOW
1587 IPSWICH ROAD, ROCKLEA QLD 4106
Project Number: DL20/164
Project Name: EARTHWORKS SUPERVISION
Project Location: 238 GARDNER ROAD, ROCHEDALE
Client Reference: 12338
Work Request: 8344
Date Sampled: 27/05/2020
Dates Tested: 27/05/2020 - 03/06/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Allotment Fill
Material Source: Onsite



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Email: nathaniel@mgeo.com.au



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Approved Signatory: Nathaniel O'Haire

Branch Manager

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D20-8344A	D20-8344B	
Test Number	7	8	
Date Tested	27/05/2020	27/05/2020	
Time Tested	08:20	08:35	
Test Request #/Location	Lot 15	Lot 14	
Latitude	6m from West Boundary	4.5m from West Boundary	
Longitude	13m from North Boundary	11m from North Boundary	
Layer / Reduced Level	Finish level	Finish level	
Soil Description	Gravelly Sandy Clay. Brown	Sandy Clay. Brown	
Test Depth (mm)	150	150	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0.0	0.0	
Field Wet Density (FWD) t/m ³	2.18	1.97	
Field Moisture Content %	9.1	10.0	
Field Dry Density (FDD) t/m ³	2.00	1.79	
Peak Converted Wet Density t/m ³	2.07	1.93	
Adjusted Peak Converted Wet Density t/m ³	**	**	
Moisture Variation (Wv) %	4.5	5.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	105.5	102.0	
Compaction Method	Standard	Standard	

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report

Report Number: DL20/164-5
Issue Number: 1
Date Issued: 06/07/2020
Client: CCA WINSLOW
1587 IPSWICH ROAD, ROCKLEA QLD 4106
Project Number: DL20/164
Project Name: EARTHWORKS SUPERVISION
Project Location: 238 GARDNER ROAD, ROCHEDALE
Client Reference: 12338
Work Request: 8872
Date Sampled: 02/07/2020
Dates Tested: 02/07/2020 - 06/07/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Allotment Fill
Material Source: On Site



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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell

Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D20-8872A	D20-8872B	D20-8872C	D20-8872D
Test Number	9	10	11	12
Date Tested	02/07/2020	02/07/2020	02/07/2020	02/07/2020
Time Tested	12:40	13:00	13:20	13:40
Test Request #/Location	Lot 10	Lot 8	Lot 13 (Retest of 8056B)	Lot 3
Latitude	7m Off North Boundary	10m Off North Boundary	E - 511925	3m Off North Boundary
Longitude	10m Off West Boundary	4m Off West Boundary	N - 6950875	11m Off West Boundary
Layer / Reduced Level	Final Level	Final Level	Final Level	Final Level
Soil Description	Sandy Clay. Brown Mottled Orange	Sandy Clay. Brown Mottled Orange	Sandy Clay. Brown Mottled Orange	Sandy Clay. Brown Mottled Orange
Test Depth (mm)	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.90	1.99	2.10	2.00
Field Moisture Content %	15.3	13.3	11.0	15.4
Field Dry Density (FDD) t/m ³	1.65	1.75	1.89	1.73
Peak Converted Wet Density t/m ³	2.00	2.07	2.08	1.95
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	2.5	2.0	2.5	3.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	95.0	96.0	101.0	103.0
Compaction Method	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC