

Level One Compliance Report

Bulk Earthworks Filling Operations Edens Crossing Stage 9B Redbank Plains

MAY 5, 2021

Prepared By

MORRISON GEOTECHNIC PTY LTD

Prepared for:

Shadforths Civil

Document Reference: 17663



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Brisbane Office
 Job No: DL21/033
 Ref No: 17663
 Author: R.Mitchell

5th May 2021

Shadforths Civil Pty Ltd
 99 Sandalwood Lane
 Forest Glen Qld 4556

ATTENTION: MR LINCOLN REDGEN
 Email: Lincoln.Redgen@shadcivil.com.au
 Cc: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LEVEL ONE COMPLIANCE REPORT FOR
 BULK EARTHWORKS FILLING OPERATIONS
 EDEN'S CROSSING ESTATE, STAGE 9B
 MT JUILLERAT DRIVE, REDBANK PLAINS**

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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 Lots and embankments below subgrade at Eden's Crossing Estate Stages 9B, Mount Juillerat Drive, Redbank Plains (The Site).

The work was commissioned by Mr. Lincoln Redgen representing Shadforth Civil Pty Ltd (The Client), using Purchase Order 2002-9E001.

Earthworks operations were constructed by The Client.

Earthworks filling operations were carried out intermittently between 10th February 2021 and 21st April 2021.

Picture 1: Aerial View of the Site (Image Source: Nearmap.com 25th April 2021)
Approximate Stage Boundary shaded red



1.2 Previous Earthworks

As far as could be reasonably determined onsite, no previous earthworks have taken place.

1.3 The Project

The purpose for filling at The Site is to construct a Residential Subdivision which includes new pavements, residential building platforms and associated underground services.

KN Group Pty Ltd, Earthworks Contour Plan, Drawing No. 20-110-104 Revision A, dated December 2020, indicates the extents and thickness of fill to be constructed at The Site.

The plan is considered a reasonable representation of the fill covered by this report with the following exception: -

- At locations where potential reactive soils were exposed at the design earthworks levels, excavation below the design earthworks levels to approximately 1.2m below were carried out and replaced with fill of low reactivity.

The actual thickness of fill on an individual Lot can be obtained from the Developer as a Lot Disclosure Plan.

The Site is located with-in the Eden's Crossing Development and is bounded by future residential stages to the South, West, and existing residential developments to the North and East.

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”,
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.1.
- Ipswich City Council Project Specifications
- Notes on KN Group Pty Ltd Earthworks Drawings.

Low reactive fill materials the was used as capping over potentially reactive soils was to generally conform to the following criteria: -

- Shrink Swell Index (Iss) – 1.5% Max.
- Particle Size Distribution:
 - Max Particle Size – 75mm
 - % passing 19mm – 80% Min.
 - % Passing 0.075mm - 10% Min.
- Plasticity:
 - Liquid Limit – 45% Max.
 - Plasticity Index – > 7% <20%
- Permeability - 5×10^{-7} m/s Max.

3.0 METHODOLOGY

Earthworks Inspection 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 field density testing using a nuclear soil moisture density gauge and Hilf compactions.

All work was carried out in accordance with AS 3798 (Guidelines on Earthworks for Commercial and Residential Developments) and AS1289 (Testing of Soils for Engineering Purposes).

Samples of the fill materials were collected and tested for conformance with the criteria presented in Section 2.

3.1 Stripped Surface Assessment

The fill areas at The Site were observed to be stripped and cleared of visible organic matter, deleterious, loose and unsuitable materials to depths exposing suitable natural ground.

Materials exposed after stripping and clearing the site which formed the natural foundation can be broadly summarised as:

- Natural - Silty Clay (CH) – At least very stiff, high plasticity, dark brown, traces of fine to medium grained sands, moist.
- Natural – Sandy Clay (CI) – at least very stiff, medium plasticity, pale brown mottled orange - red, fine to medium grained sand, traces of fine to medium gravel and moist.
- Natural – Basalt Rock (XW) – Extremely weathered, very low strength or better, red – brown – grey.

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

- Walk over assessments confirming that the competent ground was exposed.
- Proof roll testing using large sized truck carrying out multiple passes confirming no movement of the foundation.

3.2 Filling Operations

Fill materials were sourced from onsite cuts, road box excavations and trench excavations. Materials used as fill can be broadly summarized as: -

- Lower Fill Materials – Below 1.2m from the finished earthworks levels
 - Silty Clay, (CI), medium to high plasticity, dark brown, traces of fine to medium sand and moist.
 - Sandy Clay (CI), medium plasticity fines, red – brown, fine to coarse sand, traces of fine to medium gravel and moist.
- Capping Materials – Upper 1.2m of the fill profile imported from Select Sources Onsite.
 - Clayey Sand (SC), fine to coarse sand, yellow – orange – brown, medium plasticity fines, traces of fine to medium gravel, and moist.
 - Sandy Clay (CI), medium plasticity fines, yellow – brown – red, fine to coarse sand, and moist.

Picture 2: View of Stripping Operations



Picture 3: View of Filling Operations



Samples of the capping materials were collected and testing generally conformed with the criteria presented in Section 2 and are summarised below in Table 1. Test reports are attached.

Table 1 – Summary of Capping Materials Test Results.

Test Number	Particle Size % Passing			Plasticity Index %			Shrink Swell (%)
	75mm	19mm	0.075mm	LL	PI	LS	
D21-12078A	100	96	19	28	8	2.0	0.2
D21-12205A	100	97	20	28	8	4.0	0.1
D21-12205B	100	100	24	27	9	4.5	0.1
D21-12205C	100	100	26	26	8	3.5	1.3
D21-12480A	100	100	19	29	9	3.0	N/A (*)

(*) Shrink Swell testing was unable to be performed due to the low plasticity of the material. Unable to remould without the sample breaking down.

The tested materials generally conform to the specification with occasional outliers however are not considered to affect the performance of the fill. It is considered likely that the specification for permeability will be met based on the achieved test results.

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

- Dozer
- Excavators
- Pad foot Roller
- Water Truck
- Body Trucks
- Dump Trucks
- Grader
- Articulated Dump Trucks
- Compactor

The fill materials were moisture conditioned at the fill 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 out in layers appropriate for the above plant and compacted using the above plant carrying out multiple passes.

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

Field density tests and laboratory compactions were carried out on the 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 Hlf Density

Fill placed and compacted at measured density ratios less than 95% were tyned, 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 4: View of Filling Operations



Picture 5: View of Filling Operations



4.0 STATEMENT OF COMPLIANCE

Our representatives observed the relevant earthworks operations including the stripped surface, fill placement and compaction operations and carried out field density tests and laboratory compaction tests in accordance with the required standard (AS3798, AS1289) and Specification. Testing achieved the required specification of 95% Standard at the test locations.

It is confirmed that Level One Inspection and Testing has been carried out on the earthworks fill to form the residential Lots and embankments below subgrade. 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 to be “controlled” in accordance with AS2870.

5.0 EXCLUSIONS

This statement does not include any topsoil, which may be placed for use as dressing, trench backfill or any other subsequent earthworks after 19th April 2021.

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.

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.

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 Shadforth Civil Pty Ltd (**Client**), its designers, clients and relevant statutory authorities for the sole purpose of providing geotechnical advice and recommendations in respect of the Eden’s Crossing Estate, Stage 9B, Mount Juillerat Drive, Redbank Plains (**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 Shadforth Civil (**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



RHYS MITCHELL

For and on behalf of

MORRISON GEOTECHNIC PTY LIMITED

ATTACHMENTS:

Appendix A – Site Plan Showing Test Locations

Appendix B – Laboratory Test Reports



Appendix A

Site Plan & Test Locations

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Appendix B

Laboratory Test Reports

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GEOTECHNIC

Material Test Report



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Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: gthomas@mgeo.com.au

Report Number: DL21/033-1
Issue Number: 1
Date Issued: 19/02/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Work Request: 11930
Date Sampled: 11/02/2021
Dates Tested: 11/02/2021 - 13/02/2021
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: Stage 9B Lot Fill
Material Source: Onsite Cut



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Guy Thomas
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D21-11930A	D21-11930B	D21-11930C
Test Number	1	2	3
Date Tested	11/02/2021	11/02/2021	11/02/2021
Time Tested	10:05	01:10	10:15
Test Request #/Location	Allotment Fill Lot 620	Allotment Fill Lot 619	Allotment Fill Lot 618
Easting	6m Off North Boundary	8m Off North Boundary	3m Off North Boundary
Northing	6m Off East Boundary	4m Off East	7m Off East Boundary
Layer / Reduced Level	0.6m Below F/L	0.5m Below F/L	0.4m Below F/L
Soil Description	Silty SAND	Silty SAND	Silty SAND
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m ³	1.95	1.94	1.95
Field Moisture Content %	8.5	8.7	10.9
Field Dry Density (FDD) t/m ³	1.79	1.78	1.76
Peak Converted Wet Density t/m ³	2.03	1.97	2.04
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	2.5	2.5	2.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	96.0	98.5	95.5
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report



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 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
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 Phone: (07) 3279 0900
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Report Number: DL21/033-2
Issue Number: 1
Date Issued: 19/02/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Work Request: 11961
Date Sampled: 12/02/2021
Dates Tested: 12/02/2021 - 17/02/2021
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: Stage 9B Allotment Fill
Material Source: Onsite Cut



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-11961A	D21-11961B	D21-11961C	D21-11961D
Test Number	1	2	3	4
Date Tested	12/02/2021	12/02/2021	12/02/2021	12/02/2021
Time Tested	12:07	02:20	02:25	02:30
Test Request #/Location	Allotment Fill Lot 621	Allotment Fill Lot 619	Allotment Fill Lot 620	Allotment Fill Lot 621
Easting	5m Off East Boundary	3m Off East Boundary	6m Off North Boundary	9m Off West Boundary
Northing	6m Off South Boundary	7m Off South Boundary	5m Off East Boundary	5m Off North Boundary
Layer / Reduced Level	0.6m Below F/L	Finish Level	Finish Level	Finish Level
Soil Description	Sandy CLAY brown	Sandy CLAY brown	Sandy CLAY brown	Sandy CLAY brown
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
Field Wet Density (FWD) t/m ³	1.99	1.99	2.00	2.04
Field Moisture Content %	11.0	11.2	9.4	10.8
Field Dry Density (FDD) t/m ³	1.79	1.79	1.83	1.84
Peak Converted Wet Density t/m ³	2.07	2.09	2.06	2.13
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	0.5	1.5	2.0	1.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	96.0	95.0	97.0	96.0
Compaction Method	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



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Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: nathaniel@mgeo.com.au

Report Number: DL21/033-3
Issue Number: 1
Date Issued: 19/02/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Work Request: 11977
Date Sampled: 15/02/2021
Dates Tested: 15/02/2021 - 17/02/2021
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: Stage 9B Allotment Fill
Material Source: onsite



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-11977A	D21-11977B	D21-11977C	D21-11977D	D21-11977E	D21-11977F
Test Number	4	5	6	7	8	9
Date Tested	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021
Time Tested	08:15	10:30	01:00	01:05	01:10	01:15
Test Request #/Location	Allotment Fill Lot 618	Allotment Fill Lot 617	Allotment Fill Lot 616	Allotment Fill Lot 615	Allotment Fill Lot 614	Allotment Fill Lot 613
Easting	3m Off North Boundary	4m Off North Boundary	4m Off West Boundary	6m Off South Boundary	3m Off North Boundary	5m Off West Boundary
Northing	6m Off West Boundary	7m Off East Boundary	6m Off North Boundary	5m Off East Boundary	7m Off West Boundary	4m Off South Boundary
Layer / Reduced Level	Finish Level	0.5m Below F/L	0.4m Below F/L	0.5m Below F/L	0.6m Below F/L	0.4m Below F/L
Soil Description	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	5	0	0	0	0	0
Field Wet Density (FWD) t/m ³	2.00	2.00	2.03	1.98	1.99	2.06
Field Moisture Content %	10.2	9.2	16.7	17.3	15.5	15.6
Field Dry Density (FDD) t/m ³	1.81	1.83	1.74	1.68	1.72	1.78
Peak Converted Wet Density t/m ³	**	2.07	2.12	2.07	2.09	2.11
Adjusted Peak Converted Wet Density t/m ³	2.07	**	**	**	**	**
Moisture Variation (Wv) %	**	2.5	0.0	0.5	0.0	0.5
Adjusted Moisture Variation %	2.5	**	**	**	**	**
Hilf Density Ratio (%)	97.0	96.5	95.5	95.5	95.5	97.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report



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Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

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Phone: (07) 3279 0900

Email: nathaniel@mgeo.com.au

Report Number: DL21/033-4
Issue Number: 1
Date Issued: 22/02/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556

Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B

Work Request: 12028

Date Sampled: 17/02/2021

Dates Tested: 17/02/2021 - 19/02/2021

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: Stage 9B Allotment Fill

Material Source: Onsite Cut



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12028A	D21-12028B	D21-12028C	D21-12028D	D21-12028E	D21-12028F
Test Number	10	11	12	13	14	15
Date Tested	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021
Time Tested	10:00	10:05	10:10	10:15	10:20	10:25
Test Request #/Location	Allotment Fill Lot 603	Allotment Fill Lot 604	Allotment Fill Lot 605	Allotment Fill Lot 606	Allotment Fill Lot 607	Allotment Fill Lot 612
Easting	10m Off West Boundary	8m Off West Boundary	6m Off North Boundary	11m Off North Boundary	15m Off South Boundary	7m Off North Boundary
Northing	10m Off North Boundary	10m Off South Boundary	6m Off East Boundary	5m Off East Boundary	7m Off West Boundary	10m Off East Boundary
Layer / Reduced Level	0.6m Below F/L	0.5m Below F/L	0.4m Below F/L	0.6m Below F/L	0.4m Below F/L	0.5m Below F/L
Soil Description	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m ³	2.04	2.03	2.08	2.04	2.05	2.17
Field Moisture Content %	10.2	10.8	15.4	10.4	13.0	10.3
Field Dry Density (FDD) t/m ³	1.86	1.83	1.80	1.85	1.81	1.97
Peak Converted Wet Density t/m ³	2.04	2.03	2.09	2.08	2.04	2.10
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	3.0	2.0	1.0	2.5	1.5	1.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	100.0	99.5	99.5	98.0	100.5	103.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report



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Morrison Geotechnic Pty Ltd

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Brisbane Laboratory

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Report Number: DL21/033-5
Issue Number: 1
Date Issued: 24/02/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556

Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B

Work Request: 12048
Date Sampled: 22/02/2021

Dates Tested: 22/02/2021 - 23/02/2021
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: Stage 9B Allotment Fill
Material Source: Onsite Cut



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12048A	D21-12048B	D21-12048C	D21-12048D	D21-12048E
Test Number	16	17	18	19	20
Date Tested	22/02/2021	22/02/2021	22/02/2021	22/02/2021	22/02/2021
Time Tested	10:20	10:25	10:30	10:35	10:40
Test Request #/Location	Allotment Fill Lot 617	Allotment Fill Lot 616	Allotment Fill Lot 615	Allotment Fill Lot 614	Allotment Fill Lot 611
Easting	8m Off West Boundary	10m Off West Boundary	10m Off North Boundary	8m Off North Boundary	10m Off North Boundary
Northing	6m Off North Boundary	7m Off South Boundary	8m Off West Boundary	8m Off East Boundary	15m Off West Boundary
Layer / Reduced Level	Finish Level	Finish Level	Finish Level	Finish Level	0.5m Below F/L
Soil Description	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	8	0	5	0
Field Wet Density (FWD) t/m ³	2.03	2.06	2.05	2.01	2.02
Field Moisture Content %	9.5	9.0	8.7	11.1	10.0
Field Dry Density (FDD) t/m ³	1.86	1.88	1.89	1.81	1.84
Peak Converted Wet Density t/m ³	2.10	**	2.09	**	2.10
Adjusted Peak Converted Wet Density t/m ³	**	2.08	**	2.07	**
Moisture Variation (Wv) %	2.5	**	4.0	**	3.0
Adjusted Moisture Variation %	**	3.0	**	2.0	**
Hilf Density Ratio (%)	97.0	99.0	98.5	97.0	96.0
Compaction Method	Standard	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

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Report Number: DL21/033-6
Issue Number: 1
Date Issued: 25/02/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12076
Date Sampled: 23/02/2021
Dates Tested: 23/02/2021 - 24/02/2021
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: Stage 9B Allotment Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12076A	D21-12076B	D21-12076C	D21-12076D	D21-12076E	D21-12076F
Test Number	21	22	23	24	25	26
Date Tested	23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021
Time Tested	09:40	09:45	09:50	09:55	12:00	12:05
Test Request #/Location	Allotment Fill Lot 598	Allotment Fill Lot 599	Allotment Fill Lot 600	Allotment Fill Lot 601	Allotment Fill Lot 609	Allotment Fill Lot 610
Easting	8m Off West Boundary	7m Off West Boundary	10m Off North Boundary	8m Off North Boundary	11m Off East Boundary	12m Off East Boundary
Northing	6m Off North Boundary	5m Off South Boundary	7m Off East Boundary	5m Off West Boundary	9m Off North Boundary	10m Off North Boundary
Layer / Reduced Level	0.5M Below F/L	0.6M Below F/L	0.5M Below F/L	0.4M Below F/L	0.5m Below F/L	0.4m Below F/L
Soil Description	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m ³	2.09	2.07	2.03	2.04	2.01	2.08
Field Moisture Content %	11.3	9.8	9.2	9.4	11.7	13.3
Field Dry Density (FDD) t/m ³	1.88	1.88	1.86	1.86	1.80	1.83
Peak Converted Wet Density t/m ³	2.11	2.06	2.08	2.07	2.02	2.13
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	1.5	3.0	3.0	2.5	2.5	-0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	99.0	100.5	97.5	99.0	99.5	97.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report



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Report Number: DL21/033-7
Issue Number: 1
Date Issued: 01/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12108
Date Sampled: 25/02/2021
Dates Tested: 25/02/2021 - 26/02/2021
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: Stage 9B Allotment Fill Capping Layers
Material Source: Onsite Cut



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12108A	D21-12108B	D21-12108C	D21-12108D
Test Number	27	28	29	30
Date Tested	25/02/2021	25/02/2021	25/02/2021	25/02/2021
Time Tested	08:50	08:55	09:00	09:05
Test Request #/Location	Allotment Fill Lot 613	Allotment Fill Lot 611	Allotment Fill Lot 612	Allotment Fill Lot 612
Easting	6m Off West Boundary	5m Off North Boundary	6m Off North Boundary	8m Off West Boundary
Northing	7m Off South Boundary	7m Off East Boundary	8m Off West Boundary	5m Off South Boundary
Layer / Reduced Level	Finish Level	Finish Level	0.4 Below Finish Level	Finish Level
Soil Description	Sandstone	Sandstone	Sandstone	Sandstone
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
Field Wet Density (FWD) t/m ³	2.11	2.13	2.08	2.09
Field Moisture Content %	11.3	10.7	9.8	9.7
Field Dry Density (FDD) t/m ³	1.90	1.92	1.90	1.90
Peak Converted Wet Density t/m ³	2.10	2.08	2.07	2.06
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	1.5	2.0	2.5	1.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	100.5	102.0	100.5	101.0
Compaction Method	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



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Report Number: DL21/033-7
Issue Number: 1
Date Issued: 01/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12108
Date Sampled: 25/02/2021
Dates Tested: 25/02/2021 - 26/02/2021
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: Stage 9B Allotment Fill Capping Layers
Material Source: Onsite Cut



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12108E	D21-12108F	D21-12108G	D21-12108H
Test Number	31	32	33	34
Date Tested	25/02/2021	25/02/2021	25/02/2021	25/02/2021
Time Tested	09:10	09:15	09:30	09:35
Test Request #/Location	Allotment Fill Lot 610	Allotment Fill Lot 609	Allotment Fill Lot 608	Allotment Fill Lot 610
Easting	4m Off West Boundary	9m Off West Boundary	7m Off North Boundary	9m Off West Boundary
Northing	7m Off North Boundary	5m Off North Boundary	13m Off East Boundary	5m Off South Boundary
Layer / Reduced Level	0.6m Below Finish Level	Finish Level	Finish Level	Finish Level
Soil Description	Sandstone	Sandstone	Sandstone	Sandstone
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
Field Wet Density (FWD) t/m ³	2.04	2.08	2.07	2.03
Field Moisture Content %	8.8	9.4	10.0	11.2
Field Dry Density (FDD) t/m ³	1.87	1.91	1.88	1.83
Peak Converted Wet Density t/m ³	2.08	2.08	2.06	2.06
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	3.0	2.5	2.5	1.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	98.0	100.0	100.5	98.5
Compaction Method	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

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Brisbane Laboratory

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Report Number: DL21/033-8
Issue Number: 1
Date Issued: 01/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12125
Date Sampled: 26/02/2021
Dates Tested: 26/02/2021 - 26/02/2021
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: Stage 9B Allotment Fill
Material Source: onsite Cut Sandstone



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Guy Thomas
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D21-12125A	D21-12125B	D21-12125C	D21-12125D
Test Number	1	2	3	4
Date Tested	26/02/2021	26/02/2021	26/02/2021	26/02/2021
Time Tested	08:10	08:15	08:20	08:25
Test Request #/Location	Allotment Fill Lot 603	Allotment Fill Lot 604	Allotment Fill Lot 605	Allotment Fill Lot 606
Easting	10m Off East Boundary	8m Off North Boundary	11m Off West Boundary	12m Off East Boundary
Northing	7m Off North Boundary	7m Off East Boundary	4m Off North Boundary	6m Off North Boundary
Layer / Reduced Level	Finish Level	Finish Level	Finish Level	Finish Level
Soil Description	Sandstone	Sandstone	Sandstone	Sandstone
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
Field Wet Density (FWD) t/m ³	2.06	2.11	2.02	2.01
Field Moisture Content %	12.3	12.8	10.8	10.2
Field Dry Density (FDD) t/m ³	1.84	1.87	1.82	1.82
Peak Converted Wet Density t/m ³	2.09	2.11	1.99	2.02
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	0.5	1.0	3.0	1.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	98.5	100.0	101.5	99.5
Compaction Method	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
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Report Number: DL21/033-11
Issue Number: 1
Date Issued: 16/04/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12470
Date Sampled: 14/04/2021
Dates Tested: 14/04/2021 - 15/04/2021
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
Location: Allotment Fill - Capping
Material: Allotment Fill - Capping
Material Source: Stage 16 Cut - Crushed Sandstone



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12470A	D21-12470B	D21-12470C
Test Number	36	37	38
Date Tested	14/04/2021	14/04/2021	14/04/2021
Time Tested	07:50	10:35	14:25
Test Request #/Location	Lot 602	Lot 601	Lot 602
Easting	484223	484206	484225
Northing	6940341	6940341	6940329
Elevation (m)	63.0	62.8	**
Layer / Reduced Level	**	**	F/L
Soil Description	Crushed Sandstone	Crushed Sandstone	Crushed Sandstone
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m ³	2.03	2.04	2.09
Field Moisture Content %	7.6	9.7	10.4
Field Dry Density (FDD) t/m ³	1.88	1.86	1.89
Peak Converted Wet Density t/m ³	2.07	2.11	2.12
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	4.0	2.0	2.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	98.0	97.0	98.5
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
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Report Number: DL21/033-12
Issue Number: 1
Date Issued: 20/04/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12473
Date Sampled: 15/04/2021
Dates Tested: 15/04/2021 - 20/04/2021
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
Location: Lot 582
Material: Allotment Fill - Capping
Material Source: Stage 16 Cut - Sandstone



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12473A		
Test Number	39		
Date Tested	15/04/2021		
Time Tested	07:24		
Test Request #/Location	Lot 582		
Easting	484292		
Northing	6940331		
Layer / Reduced Level	Finish Level		
Soil Description	Crushed Sandstone		
Test Depth (mm)	150		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Field Wet Density (FWD) t/m ³	2.03		
Field Moisture Content %	9.9		
Field Dry Density (FDD) t/m ³	1.85		
Peak Converted Wet Density t/m ³	2.02		
Adjusted Peak Converted Wet Density t/m ³	**		
Moisture Variation (Wv) %	2.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	101.0		
Compaction Method	Standard		
Report Remarks	**		

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

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Report Number: DL21/033-13
Issue Number: 1
Date Issued: 20/04/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12447
Date Sampled: 13/04/2021
Dates Tested: 13/04/2021 - 14/04/2021
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
Location: Road 9 Embankment
Material: Road 9 - Embankment Fill
Material Source: Onsite - Silty Clay



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12447A		
Test Number	35		
Date Tested	13/04/2021		
Time Tested	07:09		
Test Request #/Location	Road 9		
Easting	484122		
Northing	6940369		
Layer / Reduced Level	0.9m below F/L		
Soil Description	Silty Clay		
Test Depth (mm)	150		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Field Wet Density (FWD) t/m ³	1.77		
Field Moisture Content %	22.3		
Field Dry Density (FDD) t/m ³	1.45		
Peak Converted Wet Density t/m ³	1.83		
Adjusted Peak Converted Wet Density t/m ³	**		
Moisture Variation (Wv) %	2.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	97.0		
Compaction Method	Standard		
Report Remarks	**		

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report



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Report Number: DL21/033-14
Issue Number: 1
Date Issued: 23/04/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12518
Date Sampled: 19/04/2021
Dates Tested: 19/04/2021 - 21/04/2021
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
Location: Lot 592, 593 & 594
Material: Allotment Fill - Capping
Material Source: Stage 16 Cut - Sandstone



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Guy Thomas
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

	D21-12518A	D21-12518B	D21-12518C
Sample Number			
Test Number	40	41	42
Date Tested	19/04/2021	19/04/2021	19/04/2021
Time Tested	12:50	12:56	13:04
Test Request #/Location	Lot 592	Lot 593	Lot 594
Easting	484143	483145	484135
Northing	6940380	6940357	6940352
Elevation (m)	58.55	59.0	**
Layer / Reduced Level	**	**	Finish Level
Soil Description	Crushed Sandstone	Crushed Sandstone	Crushed Sandstone
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m ³	2.09	2.07	2.02
Field Moisture Content %	11.7	12.8	11.6
Field Dry Density (FDD) t/m ³	1.87	1.84	1.81
Peak Converted Wet Density t/m ³	2.13	2.16	2.12
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	0.5	0.0	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	98.0	95.5	95.5
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
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Report Number: DL21/033-16
Issue Number: 1
Date Issued: 29/04/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12542
Date Sampled: 21/04/2021
Dates Tested: 21/04/2021 - 29/04/2021
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
Location: Road 9 Embankment Capping
Material: Road 9 - Embankment Fill
Material Source: Stage 16/18 Cut - Sandstone



Accredited for compliance with ISO/IEC 17025 - Testing

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	D21-12542A		
Test Number	43		
Date Tested	21/04/2021		
Time Tested	07:55		
Test Request #/Location	Road 9		
Easting	484120		
Northing	6940340		
Layer / Reduced Level	Finish Level		
Soil Description	Crushed Sandstone		
Test Depth (mm)	150		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Field Wet Density (FWD) t/m ³	2.04		
Field Moisture Content %	10.6		
Field Dry Density (FDD) t/m ³	1.84		
Peak Converted Wet Density t/m ³	2.09		
Adjusted Peak Converted Wet Density t/m ³	**		
Moisture Variation (Wv) %	-0.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	97.5		
Compaction Method	Standard		
Report Remarks	**		

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report

Report Number: DL21/033-9A
Issue Number: 1
Date Issued: 08/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12078
Sample Number: D21-12078A
Date Sampled: 23/02/2021
Dates Tested: 23/02/2021 - 25/02/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 100% STD
Site Selection: Selected by GTA
Sample Location: Lot 600 E: 8m Off West Boundary , N: 6m Off North Boundary, Depth: 0.5m Below F/L
Material: Clayey SAND, Brown. (Ripped Sandstone)
Material Source: Onsite Cut

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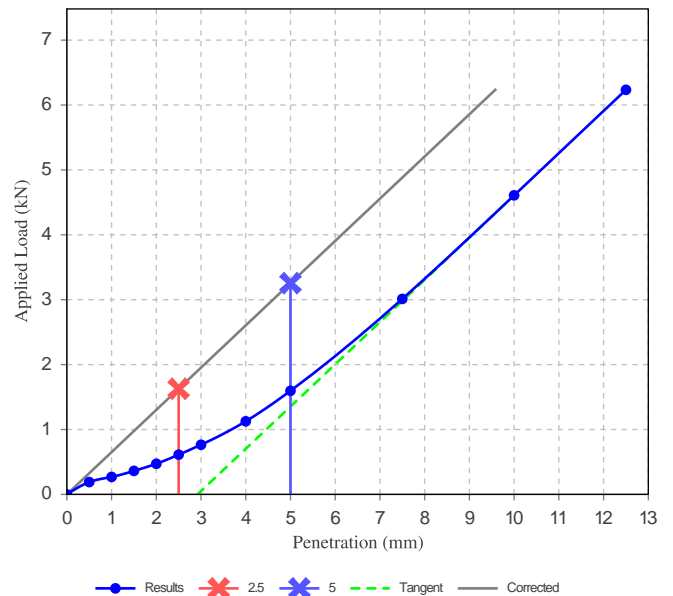



 Approved Signatory: Nathaniel O'Haire
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	16		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	VISUAL		
Maximum Dry Density (t/m ³)	1.90		
Optimum Moisture Content (%)	13.5		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	98.0		
Dry Density after Soaking (t/m ³)	1.91		
Field Moisture Content (%)	12.9		
Moisture Content at Placement (%)	13.4		
Moisture Content Top 30mm (%)	13.9		
Moisture Content Rest of Sample (%)	13.3		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	2.1		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.8		

California Bearing Ratio



Material Test Report



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Report Number: DL21/033-9B
Issue Number: 1
Date Issued: 08/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12078
Sample Number: D21-12078A
Date Sampled: 23/02/2021
Dates Tested: 23/02/2021 - 06/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 100% STD
Site Selection: Selected by GTA
Sample Location: Lot 600 E: 8m Off West Boundary , N: 6m Off North Boundary, Depth: 0.5m Below F/L
Material: Clayey SAND, Brown. (Ripped Sandstone)
Material Source: Onsite Cut



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K Pitama

Approved Signatory: Kiri Pitama

Laboratory Technician

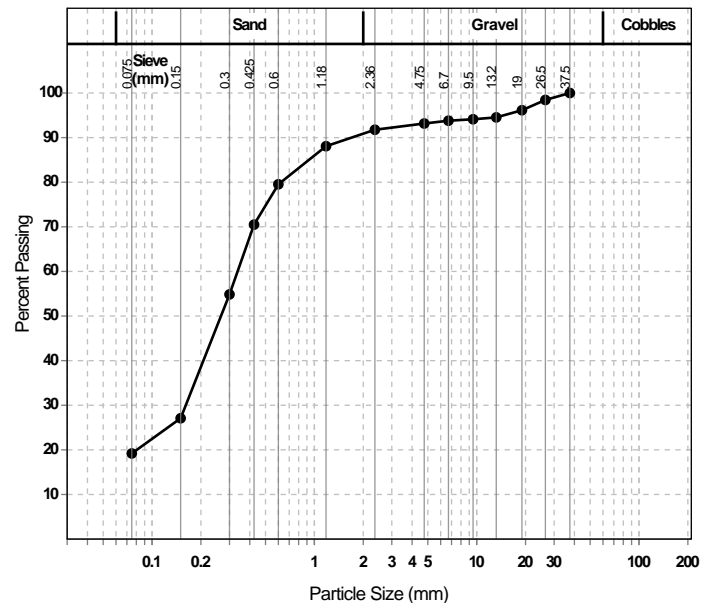
NATA Accredited Laboratory Number: 1169

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
37.5 mm	100		0	
26.5 mm	98		2	
19 mm	96		2	
13.2 mm	95		2	
9.5 mm	94		0	
6.7 mm	94		0	
4.75 mm	93		1	
2.36 mm	92		1	
1.18 mm	88		4	
0.6 mm	80		9	
0.425 mm	70		9	
0.3 mm	55		16	
0.15 mm	27		28	
0.075 mm	19		8	

Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	28		
Plastic Limit (%)	20		
Plasticity Index (%)	8		
Weighted Plasticity Index (%)	564		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.9.1		
Linear Shrinkage (%)	2.0		
Cracking Crumbling Curling	Cracking		

Particle Size Distribution



Material Test Report



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Report Number: DL21/033-9C
Issue Number: 1
Date Issued: 08/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12078
Sample Number: D21-12078A
Date Sampled: 23/02/2021
Dates Tested: 23/02/2021 - 24/02/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 100% STD
Site Selection: Selected by GTA
Sample Location: Lot 600 E: 8m Off West Boundary , N: 6m Off North Boundary, Depth: 0.5m Below F/L
Material: Clayey SAND, Brown. (Ripped Sandstone)
Material Source: Onsite Cut

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Kiri Pitama

Laboratory Technician

NATA Accredited Laboratory Number: 1169

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	0.2
Visual Description	Sandy Clay
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	0.4
Estimated % by volume of significant inert inclusions	0
Cracking	Slightly Cracked
Crumbling	Yes
Moisture Content (%)	12.6

Swell Test	
Initial Pocket Penetrometer (kPa)	N/A
Final Pocket Penetrometer (kPa)	430
Initial Moisture Content (%)	12.0
Final Moisture Content (%)	17.0
Swell (%)	0.0
* NATA Accreditation does not cover the performance of pocket penetrometer readings.	

Material Test Report



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Report Number: DL21/033-10A
Issue Number: 1
Date Issued: 15/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205A
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 09/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 620 E: 3m from North Boundary, N: 6m from East Boundary, Depth: Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)

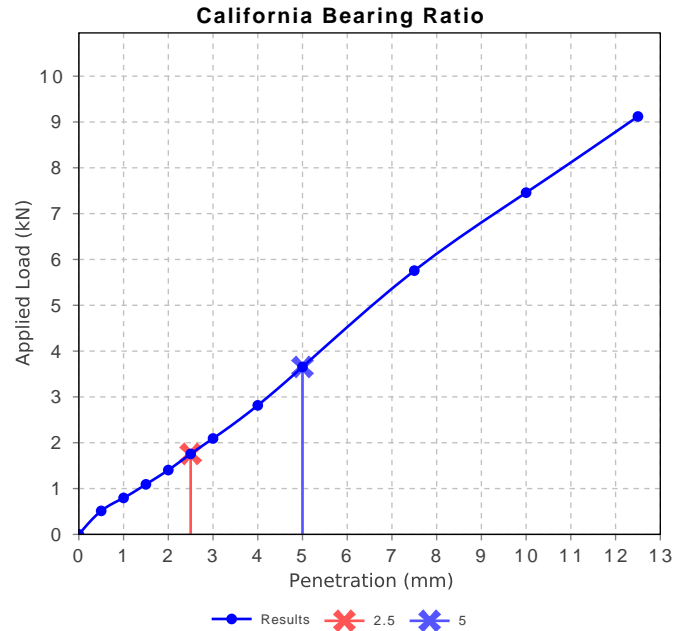
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Approved Signatory: Nathaniel O'Haire
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	18		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	VISUAL		
Maximum Dry Density (t/m ³)	1.89		
Optimum Moisture Content (%)	11.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	103.5		
Dry Density after Soaking (t/m ³)	1.91		
Field Moisture Content (%)	8.1		
Moisture Content at Placement (%)	11.5		
Moisture Content Top 30mm (%)	11.9		
Moisture Content Rest of Sample (%)	13.7		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	2		
Swell (%)	-1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report



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Report Number: DL21/033-10B
Issue Number: 1
Date Issued: 15/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205B
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 09/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 611 E: 2m from North Boundary, N: 4m from West Boundary, Depth: 0.5m Below Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)

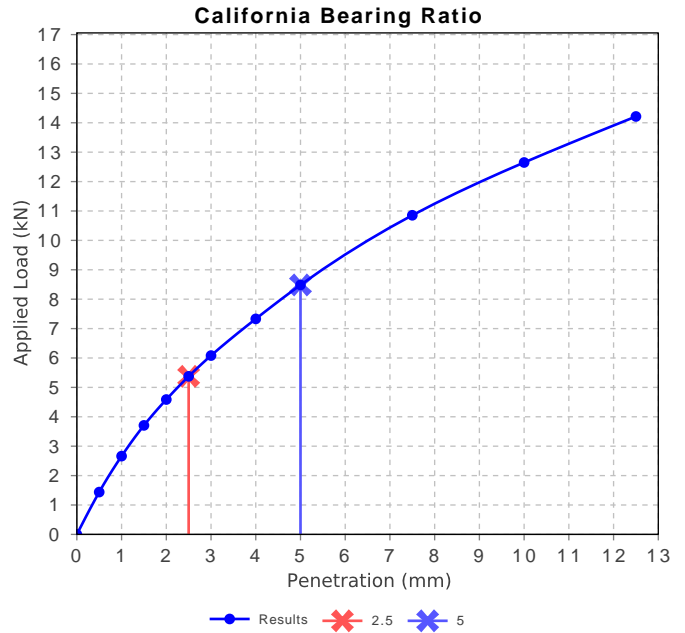
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Approved Signatory: Nathaniel O'Haire
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	45		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	VISUAL		
Maximum Dry Density (t/m ³)	1.88		
Optimum Moisture Content (%)	10.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	103.0		
Dry Density after Soaking (t/m ³)	1.87		
Field Moisture Content (%)	7.1		
Moisture Content at Placement (%)	10.1		
Moisture Content Top 30mm (%)	12.0		
Moisture Content Rest of Sample (%)	12.9		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	2.1		
Swell (%)	0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report



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Report Number: DL21/033-10C
Issue Number: 1
Date Issued: 15/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205C
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 09/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 606 E: 6m from North Boundary, N: 5m from West Boundary, Depth: 0.6m Below Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)

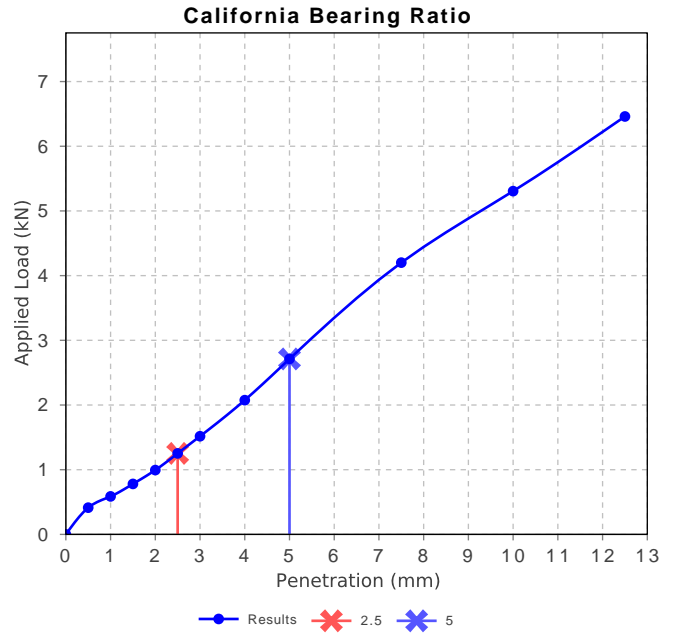
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Approved Signatory: Nathaniel O'Haire
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	14		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	VISUAL		
Maximum Dry Density (t/m ³)	1.85		
Optimum Moisture Content (%)	14.0		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	98.0		
Dry Density after Soaking (t/m ³)	1.83		
Field Moisture Content (%)	10.6		
Moisture Content at Placement (%)	13.6		
Moisture Content Top 30mm (%)	14.3		
Moisture Content Rest of Sample (%)	14.2		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	2.1		
Swell (%)	1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report



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Morrison Geotechnic Pty Ltd

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Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: kpitama@mgeo.com.au

Report Number: DL21/033-10D
Issue Number: 1
Date Issued: 17/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205A
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 16/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 620 E: 3m from North Boundary, N: 6m from East Boundary, Depth: Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)



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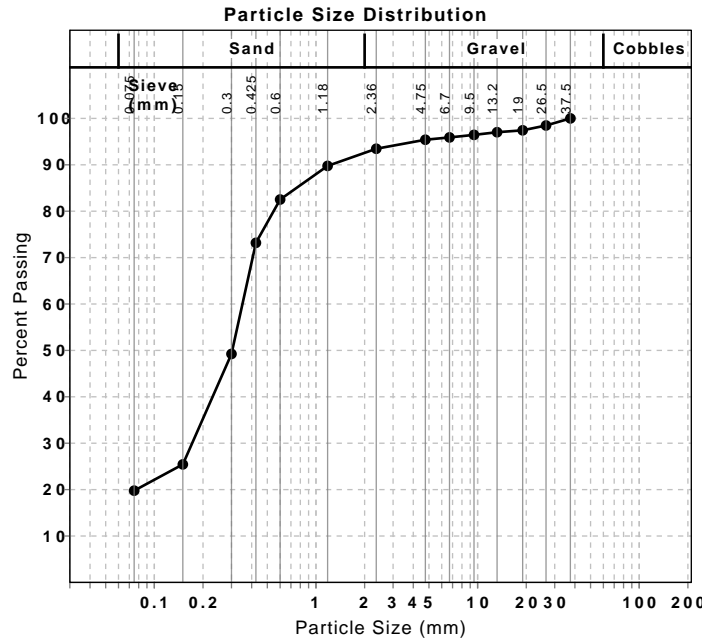
K Pitama

Approved Signatory: Kiri Pitama

Laboratory Technician

NATA Accredited Laboratory Number: 1169

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
37.5 mm	100		0	
26.5 mm	98		2	
19 mm	97		1	
13.2 mm	97		0	
9.5 mm	96		1	
6.7 mm	96		1	
4.75 mm	95		0	
2.36 mm	93		2	
1.18 mm	90		4	
0.6 mm	83		7	
0.425 mm	73		9	
0.3 mm	49		24	
0.15 mm	25		24	
0.075 mm	20		6	



Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	28		
Plastic Limit (%)	20		
Plasticity Index (%)	8		
Weighted Plasticity Index (%)	585		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	4.0		
Cracking Crumbling Curling	Cracking & Curling		

Material Test Report

Report Number: DL21/033-10E
Issue Number: 1
Date Issued: 17/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205A
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 11/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 620 E: 3m from North Boundary, N: 6m from East Boundary, Depth: Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)

**MORRISON
GEOTECHNIC**
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Brisbane Laboratory
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Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	0.1
Visual Description	Sandy Clay
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	0.2
Estimated % by volume of significant inert inclusions	0
Cracking	Moderately Cracked
Crumbling	Yes
Moisture Content (%)	10.8

Swell Test	
Initial Pocket Penetrometer (kPa)	N/A
Final Pocket Penetrometer (kPa)	280
Initial Moisture Content (%)	11.4
Final Moisture Content (%)	15.9
Swell (%)	0.0
* NATA Accreditation does not cover the performance of pocket penetrometer readings.	

Material Test Report



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Morrison Geotechnic Pty Ltd

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Report Number: DL21/033-10F
Issue Number: 1
Date Issued: 17/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205B
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 16/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 611 E: 2m from North Boundary, N: 4m from West Boundary, Depth: 0.5m Below Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)

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K Pitama

Approved Signatory: Kiri Pitama

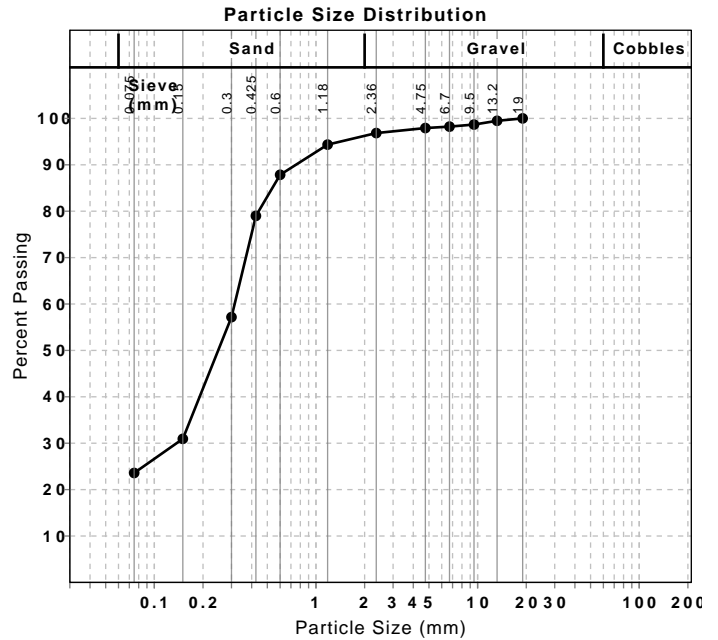
Laboratory Technician

NATA Accredited Laboratory Number: 1169

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
19 mm	100		0	
13.2 mm	99		1	
9.5 mm	99		1	
6.7 mm	98		0	
4.75 mm	98		0	
2.36 mm	97		1	
1.18 mm	94		2	
0.6 mm	88		6	
0.425 mm	79		9	
0.3 mm	57		22	
0.15 mm	31		26	
0.075 mm	24		7	

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	27		
Plastic Limit (%)	18		
Plasticity Index (%)	9		
Weighted Plasticity Index (%)	711		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	4.5		
Cracking Crumbling Curling	Cracking & Curling		



Material Test Report

Report Number: DL21/033-10G
Issue Number: 1
Date Issued: 17/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205B
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 11/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 611 E: 2m from North Boundary, N: 4m from West Boundary, Depth: 0.5m Below Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)

**MORRISON
GEOTECHNIC**
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Brisbane Laboratory
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Email: kpitama@mgeo.com.au



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Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)

Iss (%)	0.1
Visual Description	Sandy Clay
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test

Shrinkage Strain - Oven Dried (%)	0.2
Estimated % by volume of significant inert inclusions	0
Cracking	Moderately Cracked
Crumbling	Yes
Moisture Content (%)	10.0

Swell Test

Initial Pocket Penetrometer (kPa)	N/A
Final Pocket Penetrometer (kPa)	540
Initial Moisture Content (%)	10.2
Final Moisture Content (%)	15.8
Swell (%)	0.0
* NATA Accreditation does not cover the performance of pocket penetrometer readings.	

Material Test Report



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Report Number: DL21/033-10H
Issue Number: 1
Date Issued: 17/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205C
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 16/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 606 E: 6m from North Boundary, N: 5m from West Boundary, Depth: 0.6m Below Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)

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K Pitama

Approved Signatory: Kiri Pitama

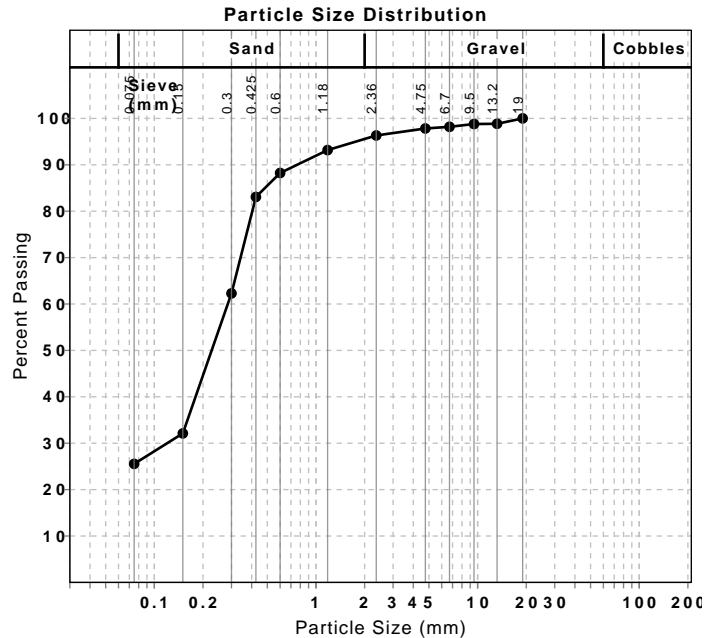
Laboratory Technician

NATA Accredited Laboratory Number: 1169

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
19 mm	100		0	
13.2 mm	99		1	
9.5 mm	99		0	
6.7 mm	98		1	
4.75 mm	98		0	
2.36 mm	96		2	
1.18 mm	93		3	
0.6 mm	88		5	
0.425 mm	83		5	
0.3 mm	62		21	
0.15 mm	32		30	
0.075 mm	26		7	

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	26		
Plastic Limit (%)	18		
Plasticity Index (%)	8		
Weighted Plasticity Index (%)	665		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	3.5		
Cracking Crumbling Curling	Cracking & Curling		



Material Test Report

Report Number: DL21/033-10I
Issue Number: 1
Date Issued: 17/03/2021
Client: SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12205
Sample Number: D21-12205C
Date Sampled: 04/03/2021
Dates Tested: 04/03/2021 - 11/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: Lot 606 E: 6m from North Boundary, N: 5m from West Boundary, Depth: 0.6m Below Finish Level
Material: Sandy Clay / Clayey Sand
Material Source: Onsite (Ripped Sandstone)

**MORRISON
GEOTECHNIC**
Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Brisbane Laboratory
Unit 1, 35 Limestone Darra QLD 4076
Phone: (07) 3279 0900
Email: kpitama@mgeo.com.au



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Laboratory Technician
NATA Accredited Laboratory Number: 1169

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	1.3
Visual Description	Sandy Clay
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	2.4
Estimated % by volume of significant inert inclusions	0
Cracking	Slightly Cracked
Crumbling	Yes
Moisture Content (%)	14.6

Swell Test	
Initial Pocket Penetrometer (kPa)	N/A
Final Pocket Penetrometer (kPa)	>600
Initial Moisture Content (%)	14.6
Final Moisture Content (%)	16.0
Swell (%)	0.0
* NATA Accreditation does not cover the performance of pocket penetrometer readings.	

Material Test Report



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Report Number: DL21/033-15A
Issue Number: 1
Date Issued: 27/04/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12480
Sample Number: D21-12480A
Date Sampled: 15/04/2021
Dates Tested: 15/04/2021 - 20/04/2021
Sampling Method: AS 1289.1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Site Selection: Selected by GTA
Sample Location: Lot 601 E: 484204, N: 6940344, Depth: Finish Level
Material: Allotment Fill - Capping
Material Source: Stage 16 Cut - Sandstone

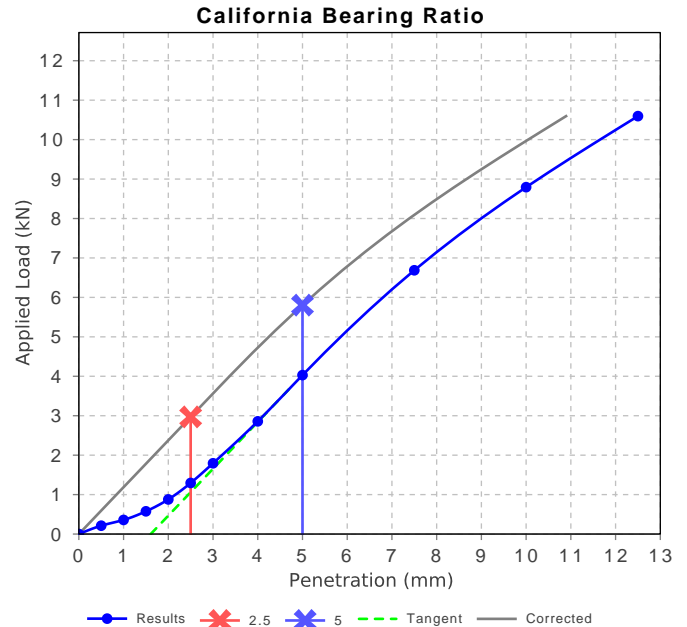
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Approved Signatory: Nathaniel O'Haire
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	30		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	VISUAL		
Maximum Dry Density (t/m ³)	1.88		
Optimum Moisture Content (%)	12.5		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	96.5		
Dry Density after Soaking (t/m ³)	1.89		
Field Moisture Content (%)	12.3		
Moisture Content at Placement (%)	11.9		
Moisture Content Top 30mm (%)	12.6		
Moisture Content Rest of Sample (%)	13.3		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	2		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		



Material Test Report



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Brisbane | Gold Coast | Maroochydore

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Brisbane Laboratory

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Report Number: DL21/033-15B
Issue Number: 1
Date Issued: 29/04/2021
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Project Number: DL21/033
Project Name: LEVEL 1 SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 9B
Client Reference: 2002-9E001
Work Request: 12480
Sample Number: D21-12480A
Date Sampled: 15/04/2021
Dates Tested: 15/04/2021 - 28/04/2021
Sampling Method: AS 1289.1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Site Selection: Selected by GTA
Sample Location: Lot 601 E: 484204, N: 6940344, Depth: Finish Level
Material: Allotment Fill - Capping
Material Source: Stage 16 Cut - Sandstone



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Approved Signatory: Kiri Pitama

Laboratory Technician

NATA Accredited Laboratory Number: 1169

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
19 mm	100		0	
13.2 mm	98		2	
9.5 mm	97		1	
6.7 mm	97		0	
4.75 mm	97		0	
2.36 mm	94		3	
1.18 mm	87		6	
0.6 mm	76		11	
0.425 mm	66		10	
0.3 mm	49		17	
0.15 mm	25		24	
0.075 mm	19		6	

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	29		
Plastic Limit (%)	20		
Plasticity Index (%)	9		
Weighted Plasticity Index (%)	598		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	3.0		
Cracking Crumbling Curling	Cracking		

