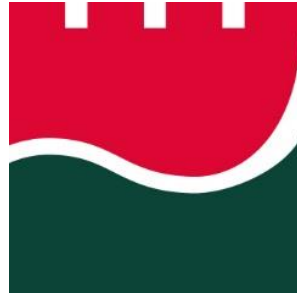


# MORRISON GEOTECHNIC PTY LTD



*SOLID THINKING // GROUNDED RESULTS*

## LEVEL ONE COMPLIANCE REPORT

*Prepared for:*

**Shadforths Civil Pty Ltd**

*DL20/006 – Bulk Earthworks Filling Operations*

*Woodlinks Village – Stage 16  
Collingwood Park*

*Morrison Geotechnic Pty Ltd  
ABN: 51 009 878 899  
[www.morrisongeo.com.au](http://www.morrisongeo.com.au)  
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*21<sup>st</sup> April 2020*

*Brisbane Office*  
 Job No: DL20/006  
 Ref No: 16059  
 Author: R. Mitchell

21<sup>st</sup> April 2020

Shadforths Civil Pty Ltd  
 99 Sandalwood Lane  
 Forest Glen, QLD, 4556

**ATTENTION: MS ADELEINE LOVELL**  
 Email: [Adeleine.Lovell@shadcivil.com.au](mailto:Adeleine.Lovell@shadcivil.com.au)

Dear Sir,

**RE: LEVEL ONE COMPLIANCE REPORT FOR  
 BULK EARTHWORKS FILLING OPERATIONS  
 WOODLINKS VILLAGE – STAGE 16  
 COLLINGWOOD PARK**

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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 and embankments below subgrade at the Woodlinks Village Stage 16 Development (The Site).

The work was commissioned by Ms. A. Lovell representing Shadforths Civil Ltd Pty (The Client), using Purchase Order 2082-16002. Earthworks were carried out by The Client. Earthworks filling operations were carried out intermittently between January 2020 and April 2020.

**Picture 1: Aerial View of the Site** (Image Source: Nearmap.com- dated 5<sup>th</sup> April 2020)



### 1.2 Previous Earthworks

As far as could be assessed onsite no previous earthworks had been conducted at The Site.

### 1.3 The Project

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

Peak Urban Pty Ltd Bulk Earthworks Layout Plan, Project Number 19-0023, Drawing Number 102, indicates the extents and thickness of fill to be constructed at The Site with the following exceptions:

- No fill was constructed on Lots 450, 451, 452, 453, 454, 455 and 456. Any fill on these lots is limited to topsoil dressing only.

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

The Site is bounded by undeveloped land to the North, East and west existing and developments to the South.

## **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”,
- Ipswich City Council Project Specifications.
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.1.
- Notes on Peak Urban Earthworks 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.

### **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 competent natural ground.

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

- Sandy Clay (CI) – at least stiff, medium plasticity, fine to coarse sand, dark brown, grey, orange and moist.

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 and loaded truck confirming no discernible movement of the fill foundation.

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



Picture 2: View of Stripping Operations



### 3.2 Filling Operations

Fill material was sourced from onsite cuts areas, onsite stockpiles and trench excavations.

Fill materials can be broadly summarised as:

- Gravelly Sandy Clay (Cl) – medium plasticity, fine to coarse grained sand and traces of fine to coarse gravels, brown, grey brown and moist.

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

- 825 Compactor
- Excavators
- Articulated Dump Trucks
- Water Truck
- Grader
- Padfoot Roller
- Dozer

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. Occasional cobble sized particles may remain in the fill however are not considered to affect the fill as a mass.

Placement of the fill materials was carried 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 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) for Type 1 Earthworks and tested to AS1289 test methods (Testing of Soils for Engineering Purposes). Testing achieved the required specification of 95% of the Hilf 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 3: View of Filling Operations**





#### 4.0 STATEMENT OF COMPLIANCE

Our representative observed all the relevant earthworks operations including the stripped surfaces, filling operations and carried out field density tests in accordance with the required standards (AS 3798 and AS 1289) and specifications.

It is confirmed that Level 1 Inspection has been carried out on the bulk earthworks fill used to form the residential lots and embankments below subgrade for this project. Based on observations made by our Geotechnicians and the results of the field and laboratory tests, the placed and compacted fill at the project has, as far as we have been able to assess, has been constructed in general accordance with the intent of AS3798 and the specifications.

The fill can be deemed to be “controlled” as defined in AS2870 (Residential Slabs and Footings).

#### 5.0 EXCLUSIONS

This statement does not include any topsoil, which may be placed for use as dressing or any other subsequent earthworks after April 2020.

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 Shadforths 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 Woodlinks Stage 16 Development, (**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.

Morrison Geotechnic and the Contributors, do not accept any liability or responsibility whatsoever for, or in respect of, any use or reliance upon this Report by any other party. Morrison Geotechnic is not obliged to enter into discussions with any third party in respect of this Report.

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 Results Reports



# APPENDIX A

SITE PLAN

TEST LOCATIONS

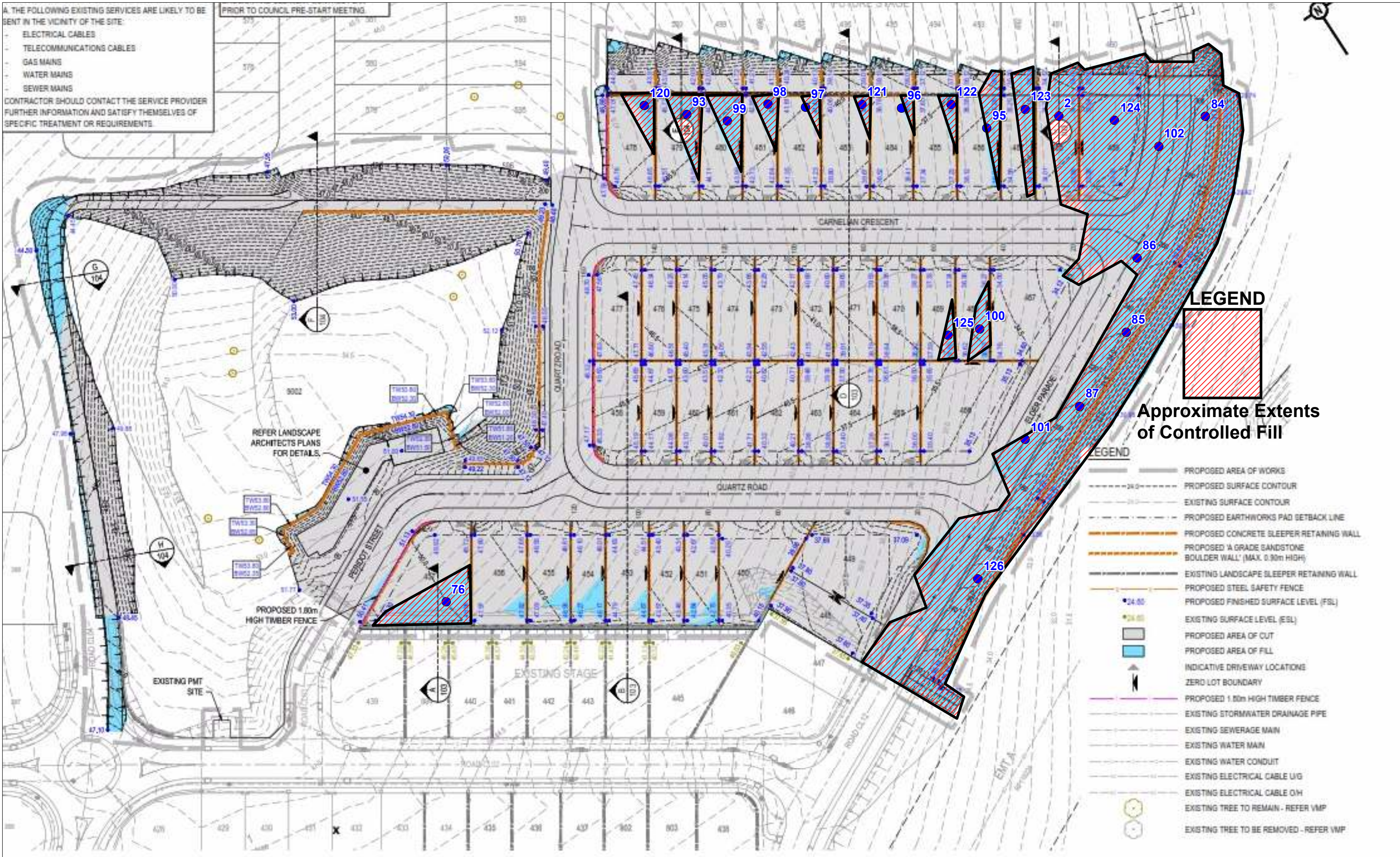


A. THE FOLLOWING EXISTING SERVICES ARE LIKELY TO BE FOUND IN THE VICINITY OF THE SITE:

- ELECTRICAL CABLES
- TELECOMMUNICATIONS CABLES
- GAS MAINS
- WATER MAINS
- SEWER MAINS

CONTRACTOR SHOULD CONTACT THE SERVICE PROVIDER FOR FURTHER INFORMATION AND SATISFY THEMSELVES OF ANY SPECIFIC TREATMENT OR REQUIREMENTS.

PRIOR TO COUNCIL PRE-START MEETING



**LEGEND**

**Approximate Extents of Controlled Fill**

- LEGEND**
- PROPOSED AREA OF WORKS
  - PROPOSED SURFACE CONTOUR
  - EXISTING SURFACE CONTOUR
  - PROPOSED EARTHWORKS PAD SETBACK LINE
  - PROPOSED CONCRETE SLEEPER RETAINING WALL
  - PROPOSED 'A GRADE SANDSTONE BOULDER WALL' (MAX. 0.90m HIGH)
  - EXISTING LANDSCAPE SLEEPER RETAINING WALL
  - PROPOSED STEEL SAFETY FENCE
  - PROPOSED FINISHED SURFACE LEVEL (FSL)
  - EXISTING SURFACE LEVEL (ESL)
  - PROPOSED AREA OF CUT
  - PROPOSED AREA OF FILL
  - INDICATIVE DRIVEWAY LOCATIONS
  - ZERO LOT BOUNDARY
  - PROPOSED 1.00m HIGH TIMBER FENCE
  - EXISTING STORMWATER DRAINAGE PIPE
  - EXISTING SEWERAGE MAIN
  - EXISTING WATER MAIN
  - EXISTING WATER CONDUIT
  - EXISTING ELECTRICAL CABLE U/G
  - EXISTING ELECTRICAL CABLE O/H
  - EXISTING TREE TO REMAIN - REFER VMP
  - EXISTING TREE TO BE REMOVED - REFER VMP



**MORRISON GEOTECHNIC PTY LTD**  
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Unit 1/ 35 Limestone St, Darra 4076 Ph: 3279 0900  
 Email: brisbanelab@morrisongeo.com.au

Engineers: M. Ballard  
 D. Dragun  
 Geologists: R. Howchin  
 Laboratory: M. Morrison

- LEGEND**
- 0.0 - 0.99 Below Final Level
  - 1.0 - 1.99 Below Final Level
  - 2.0 - 2.99 Below Final Level
  - 3.0 - 3.99 Below Final Level
  - 4.0 - 4.99 Below Final Level
  - Final Level

Map Description :	<b>EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection</b>		
Client :	GOLDING CONTRACTORS		
Project :	<b>WOODLINKS - STAGE 16</b>		
Project No :	DL20/006	Drawing No :	DL20/006 - 01
		Scale :	Not to Scale



# APPENDIX B

Laboratory Test Results Reports



# Material Test Report



**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: greg@mgeo.com.au

**Report Number:** DL20/006-12  
**Issue Number:** 1  
**Date Issued:** 11/02/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 6731  
**Date Sampled:** 01/02/2020  
**Dates Tested:** 01/02/2020 - 03/02/2020  
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95% STD  
**Site Selection:** Selected by GTA  
**Material:** Stage16 Embankment Fill  
**Material Source:** Onsite



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	D20-6731A		
Test Number	79		
Date Tested	01/02/2020		
Time Tested	10:00		
Test Request #/Location	STG 16 Embankment Fill		
Easting	6461.325		
Northing	3888.457		
Elevation (m)	RL: 32.31		
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 <sup>3</sup>	2.15		
Field Moisture Content %	12.3		
Field Dry Density (FDD) t/m <sup>3</sup>	1.91		
Peak Converted Wet Density t/m <sup>3</sup>	2.10		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Moisture Variation (Wv) %	1.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>102.0</b>		
Compaction Method	<b>Standard</b>		

**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

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: greg@mgeo.com.au

**Report Number:** DL20/006-20  
**Issue Number:** 1  
**Date Issued:** 04/03/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16 & 22-23  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 6999  
**Date Sampled:** 29/02/2020  
**Dates Tested:** 29/02/2020 - 03/03/2020  
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95% STD  
**Site Selection:** Selected by GTA  
**Material:** Stage 16 Embankment Fill  
**Material Source:** Onsite



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	D20-6999A	D20-6999B	
Test Number	101	102	
Date Tested	29/02/2020	29/02/2020	
Time Tested	10:00	10:07	
Test Request #/Location	STG 16 Embankment Fill	STG 16 Embankment Fill	
Easting	6444.49	6509.82	
Northing	3879.12	3916.25	
Layer / Reduced Level	Finish Level	Finish Level	
Soil Description	Gravelly Sandy Clay. Brown	Gravelly 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 <sup>3</sup>	2.09	2.11	
Field Moisture Content %	**	9.2	
Field Dry Density (FDD) t/m <sup>3</sup>	**	1.93	
Peak Converted Wet Density t/m <sup>3</sup>	2.08	2.09	
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	
Moisture Variation (Wv) %	2.5	2.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	100.5	101.0	
Compaction Method	Standard	Standard	

**Moisture Variation Note:**

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

# Material Test Report



**Brisbane** | Gold Coast | Maroochydore  
 Morrison Geotechnic Pty Ltd  
 Brisbane Laboratory  
 Unit 1, 35 Limestone Darra QLD 4076  
 ABN: 51 009 878 899  
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**Report Number:** DL20/006-13  
**Issue Number:** 1  
**Date Issued:** 12/02/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 6744  
**Date Sampled:** 03/02/2020  
**Dates Tested:** 03/02/2020 - 04/02/2020  
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95% STD  
**Site Selection:** Selected by GTA  
**Material:** Embankment Fill  
**Material Source:** On Site



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	D20-6744A	D20-6744B	D20-6744C	D20-6744D
Test Number	80	81	82	83
Date Tested	03/02/2020	03/02/2020	03/02/2020	03/02/2020
Time Tested	10:01	10:07	02:09	02:14
Test Request #/Location	Stage 16	Stage 16	Stage 16	Stage 16
Easting	6421.434	6442.088	6410.942	6498.269
Northing	3867.322	3881.013	3866.129	3930.039
Elevation (m)	34.225	33.950	35.164	32.820
Layer / Reduced Level	Embankment Fill	Embankment Fill	Embankment Fill	Embankment Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown
Test Depth (mm)	150	150	150	150
Sieve used to determine oversize (mm)	37.5	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m <sup>3</sup>	2.20	2.15	2.05	2.12
Field Moisture Content %	13.0	12.7	11.4	9.0
Field Dry Density (FDD) t/m <sup>3</sup>	1.94	1.91	1.84	1.95
Peak Converted Wet Density t/m <sup>3</sup>	2.14	2.10	1.94	2.09
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**
Moisture Variation (Wv) %	0.0	0.5	3.5	4.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	<b>102.5</b>	<b>102.0</b>	<b>106.0</b>	<b>101.5</b>
Compaction Method	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>

**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

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

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**Report Number:** DL20/006-19  
**Issue Number:** 1  
**Date Issued:** 25/02/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16 & 22-23  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 6884  
**Date Sampled:** 21/02/2020  
**Dates Tested:** 21/02/2020 - 25/02/2020  
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95% STD  
**Site Selection:** Selected by GTA  
**Material:** Stage 16 - Allotment Fill  
**Material Source:** Onsite



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	D20-6884A	D20-6884B	D20-6884C	D20-6884D	D20-6884E	D20-6884F
Test Number	95	96	97	98	99	100
Date Tested	21/02/2020	21/02/2020	21/02/2020	21/02/2020	21/02/2020	21/02/2020
Time Tested	10:29	10:19	10:11	10:04	09:57	10:59
Test Request #/Location	Stage 16 - Lot 486	Stage 16 - Lot 484	Stage 16 - Lot 482	Stage 16 - Lot 481	Stage 16 - Lot 480	Stage 16 - Lot 468
Easting	6409.875	6416.079	6428.622	6452.299	6471.250	6440.991
Northing	4001.012	3992.049	3990.234	3977.545	3960.588	3918.530
Layer / Reduced Level	Finish Level	Finish Level	Finish Level	Finish Level	Finish Level	Finish Level
Soil Description	Clayey Sand. Brown	Clayey Sand. Brown	Clayey Sand. Brown	Clayey Sand. Brown	Clayey Sand. Brown	Clayey Sand. Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	37.5	37.5	37.5	37.5	37.5	37.5
Percentage of Wet Oversize (%)	0.0	0.0	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m <sup>3</sup>	2.09	2.03	2.05	1.95	2.05	2.15
Field Moisture Content %	13.6	15.9	12.9	14.8	10.6	11.7
Field Dry Density (FDD) t/m <sup>3</sup>	1.84	1.75	1.82	1.70	1.85	1.92
Peak Converted Wet Density t/m <sup>3</sup>	2.01	1.98	2.03	1.96	2.07	2.08
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**	**	**
Moisture Variation (Wv) %	2.5	2.5	2.5	2.5	2.5	2.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	<b>104.0</b>	<b>102.5</b>	<b>101.0</b>	<b>99.5</b>	<b>99.0</b>	<b>103.0</b>
Compaction Method	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>

**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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Phone: (07) 3279 0900

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**Report Number:** DL20/006-14  
**Issue Number:** 1  
**Date Issued:** 13/02/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 6779  
**Date Sampled:** 05/02/2020  
**Dates Tested:** 05/02/2020 - 07/02/2020  
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95% STD  
**Site Selection:** Selected by GTA  
**Material:** Stage 16 Batter Extension  
**Material Source:** Onsite



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	D20-6779A	D20-6779B	D20-6779C	D20-6779D
Test Number	84	85	86	87
Date Tested	05/02/2020	05/02/2020	05/02/2020	05/02/2020
Time Tested	10:02	10:08	02:09	02:15
Test Request #/Location	Batter Extension	Batter Extension	Batter Extension	Batter Extension
Easting	6518.935	6446.751	6471.060	6439.892
Northing	3921.358	3877.025	3887.939	3872.213
Elevation (m)	31.508	33.712	33.154	33.990
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	0.0	0.0
Field Wet Density (FWD) t/m <sup>3</sup>	2.03	2.14	2.11	2.14
Field Moisture Content %	6.9	12.1	11.4	11.9
Field Dry Density (FDD) t/m <sup>3</sup>	1.90	1.91	1.89	1.91
Peak Converted Wet Density t/m <sup>3</sup>	2.05	2.08	2.11	2.09
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**
Moisture Variation (Wv) %	3.0	0.5	0.5	1.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	<b>99.0</b>	<b>103.0</b>	<b>100.0</b>	<b>102.5</b>
Compaction Method	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>

**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

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: jwieland@mgeo.com.au

**Report Number:** DL20/006-17  
**Issue Number:** 1  
**Date Issued:** 21/02/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 6850  
**Date Sampled:** 19/02/2020  
**Dates Tested:** 19/02/2020 - 20/02/2020  
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95% STD  
**Site Selection:** Selected by GTA  
**Material:** Stage 16 Allotment Fill  
**Material Source:** Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: John Wieland

Senior Soil Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D20-6850A		
Test Number	93		
Date Tested	19/02/2020		
Time Tested	11:52		
Test Request #/Location	STG 16 Allotment Fill Lot 479		
Easting	6391.069		
Northing	4000.254		
Layer / Reduced Level	Finish Level		
Soil Description	Gravelly 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 <sup>3</sup>	2.11		
Field Moisture Content %	11.6		
Field Dry Density (FDD) t/m <sup>3</sup>	1.89		
Peak Converted Wet Density t/m <sup>3</sup>	2.08		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Moisture Variation (Wv) %	1.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>101.5</b>		
Compaction Method	<b>Standard</b>		

## 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:** DL20/006-18  
**Issue Number:** 1  
**Date Issued:** 24/02/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16 & 22-23  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 6865  
**Date Sampled:** 20/02/2020  
**Dates Tested:** 20/02/2020 - 24/02/2020  
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95% STD  
**Site Selection:** Selected by GTA  
**Material:** Stage 16 Allotment Fill  
**Material Source:** Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: John Wieland  
 Senior Soil Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D20-6865A		
Test Number	94		
Date Tested	20/02/2020		
Time Tested	01:42		
Test Request #/Location	STG 16 Allotment Fill Lot 488		
Easting	6482.631		
Northing	3942.454		
Layer / Reduced Level	Finish Level		
Soil Description	Gravelly 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 <sup>3</sup>	2.15		
Field Moisture Content %	15.7		
Field Dry Density (FDD) t/m <sup>3</sup>	1.86		
Peak Converted Wet Density t/m <sup>3</sup>	2.10		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Moisture Variation (Wv) %	-0.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>102.0</b>		
Compaction Method	<b>Standard</b>		

**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  
 Brisbane Laboratory  
 Unit 1, 35 Limestone Darra QLD 4076  
 Phone: (07) 3279 0900  
 Email: darralab@morrisongeo.com.au

**Report Number:** DL20/006-24  
**Issue Number:** 1  
**Date Issued:** 19/04/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Contact:** -  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16 & 22-23  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 7679  
**Date Sampled:** 09/04/2020  
**Dates Tested:** 09/04/2020 - 18/04/2020  
**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:** Stage 16 - Allotment Fill  
**Material Source:** Onsite Cut



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	D20-7679A		
Test Number	76		
Date Tested	09/04/2020		
Time Tested	07:09		
Test Request #/Location	Lot 457		
Easting	486261		
Northing	6943929		
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 (%)	16.7		
Field Wet Density (FWD) t/m <sup>3</sup>	2.10		
Field Moisture Content %	9.7		
Field Dry Density (FDD) t/m <sup>3</sup>	1.91		
Peak Converted Wet Density t/m <sup>3</sup>	**		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	2.16		
Moisture Variation (Wv) %	**		
Adjusted Moisture Variation %	1.5		
Hilf Density Ratio (%)	<b>97.5</b>		
Compaction Method	<b>Standard</b>		

### 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

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

**Report Number:** DL20/006-25  
**Issue Number:** 1  
**Date Issued:** 21/04/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16 & 22-23  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 7749  
**Date Sampled:** 15/04/2020  
**Dates Tested:** 15/04/2020 - 18/04/2020  
**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:** Stage 16 Allotment Fill  
**Material Source:** Onsite Cut



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	D20-7749A	D20-7749B	D20-7749C	D20-7749D	D20-7749E	D20-7749F
Test Number	120	121	122	123	124	125
Date Tested	15/04/2020	15/04/2020	15/04/2020	15/04/2020	15/04/2020	15/04/2020
Time Tested	02:03	02:10	02:14	02:19	02:24	02:29
Test Request #/Location	Allotment Fill Lot 478	Allotment Fill Lot 483	Allotment Fill Lot 485	Allotment Fill Lot 487	Allotment Fill Lot 489	Allotment Fill Lot 469
Easting	1m Off North Boundary	2m Off North Boundary	2.5m Off North Boundary	6m Off North Boundary	5m Off North Boundary	1m Off South Boundary
Northing	1.5m Off East Boundary	1.5m Off East Boundary	2m Off East Boundary	2.5m Off East Boundary	6m Off East Boundary	1m Off East Boundary
Layer / Reduced Level	Finish Level	Finish Level	Finish Level	Finish Level	Finish Level	Finish Level
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Sandy Clay. Brown	Sandy Clay. Brown
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 <sup>3</sup>	2.18	2.11	2.23	2.19	2.06	2.08
Field Moisture Content %	7.3	6.2	9.1	6.2	7.5	6.7
Field Dry Density (FDD) t/m <sup>3</sup>	2.03	1.98	2.04	2.06	1.92	1.95
Peak Converted Wet Density t/m <sup>3</sup>	2.10	2.01	2.17	2.07	1.98	2.01
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**	**	**
Moisture Variation (Wv) %	4.5	6.0	4.5	5.0	4.5	4.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	<b>103.5</b>	<b>105.0</b>	<b>103.0</b>	<b>105.5</b>	<b>104.0</b>	<b>103.5</b>
Compaction Method	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>

**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  
 Unit 1, 35 Limestone Darra QLD 4076  
 Phone: (07) 3279 0900  
 Email: darralab@morrisongeo.com.au

**Report Number:** DL20/006-26  
**Issue Number:** 1  
**Date Issued:** 21/04/2020  
**Client:** SHADFORTH'S CIVIL PTY LTD  
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556  
**Project Number:** DL20/006  
**Project Name:** EARTHWORKS SUPERVISION - WOODLINKS STAGE 16 & 22-23  
**Project Location:** PALASZCZUK AVENUE, COLLINGWOOD PARK  
**Work Request:** 7750  
**Date Sampled:** 15/04/2020  
**Dates Tested:** 15/04/2020 - 18/04/2020  
**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:** Stage 16 Batter Extension  
**Material Source:** Onsite Cut



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	D20-7750A		
Test Number	126		
Date Tested	15/04/2020		
Time Tested	02:36		
Test Request #/Location	Batter Extension		
Easting	6943852		
Northing	0486404		
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 <sup>3</sup>	2.12		
Field Moisture Content %	8.8		
Field Dry Density (FDD) t/m <sup>3</sup>	1.95		
Peak Converted Wet Density t/m <sup>3</sup>	1.99		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Moisture Variation (Wv) %	5.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>106.5</b>		
Compaction Method	<b>Standard</b>		

### Moisture Variation Note:

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