

# WORKS INSPECTION & TESTING Bulk Earthworks

PROPOSED  
RESIDENTIAL  
DEVELOPMENT

**Woodlinks Estate  
Stage 10 - Bulk  
Earthworks**

JOB NO: P2194 comp01



Prepared for Shadforths Civil  
23<sup>rd</sup> September 2022

## Document Information

Prepared for Shadforths Civil  
Project Name Proposed Residential Development – Woodlinks Stage 10

Job Number P2194  
Date 23<sup>rd</sup> September 2022

## Document Control

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## INTRODUCTION

Construction Sciences was commissioned by **Shadforths Civil** to carry out the geotechnical inspection and testing required for the proposed development at Collingwood Park, which was carried out between 30<sup>th</sup> May 2022 and 29<sup>th</sup> July 2022.

## SCOPE OF WORKS

The Earthworks on this development was monitored in accordance with the scope of our commission as follows:

**Level 1:** Bulk earthworks stripping and filling was inspected and tested on a Level 1 basis, in accordance with AS 3798-2007.

Scope of Level 1 responsibility: ***"The primary objective of Level 1 Inspection and Testing is for the geotechnical inspection and testing authority (GITA) to be able to express an opinion on the compliance of the work. The GITA is responsible for ensuring that the inspection and testing is sufficient for this purpose.***

***The GITA needs to have competent personnel on site at all times while earthwork operations are undertaken. Such operations include the following:***

- (a) ***Completion of removal of topsoil.***
- (b) ***Placing of imported or cut material.***
- (c) ***Compaction and adding/removal of moisture.***
- (d) ***Trenching and backfilling, where applicable.***
- (e) ***Test rolling.***
- (f) ***Testing.***

***The superintendent should agree on a suitable inspection and testing plan prior to the commencement of the works".***

*reference AS3798 – Section 8.2*

## SPECIFICATION REQUIREMENTS

Earthworks on this development was inspected and tested in accordance with the specification of the design engineer, **Peak Urban Pty Ltd** and to the specifications of the local authority, **Ipswich City Council**.

The following table is a summary of the basic compaction and quality requirements for the project.

Testing procedures used to confirm that these requirements were met were all in accordance with Australian Standard test methods

<b>SPECIFICATIONS</b>	
<b>Item</b>	<b>Minimum Compaction Requirement</b>
<i>Bulk Earthworks Fill</i>	<i>95% Wet Density Ratio - Standard</i>



## SITE WORKS - BULK EARTHWORKS

**General:** Full time site inspection was maintained in accordance with Level 1 requirements whilst earthworks were carried out on this development. Fill areas included residential allotments, roads and embankments.

The areas to be filled were stripped and proof rolled in accordance with the specification requirements. Areas displaying instability were generally excavated until competent conditions were encountered. Benching was provided on slopes where filling was to be placed.

The natural ground in the areas of filling generally comprised gravelly to sandy CLAYS and clayey to gravelly SANDS.

The material used in the bulk earthworks filling was sourced from imported fill & site won material.

**Compaction Control Testing:** Compaction control testing via the nuclear densometer method was carried out at regular intervals throughout the placement of fill, in accordance with the minimum test frequency recommendations included in AS3798 "Guidelines on Earthworks for Commercial and Residential Developments".

All test results are included in Appendix A. A summary of the test results is included as Table 1. A total of 51 field density tests were carried out throughout the earthworks. The average wet density ratio was recorded to be 98.3%. The maximum wet density ratio was 102.0% and minimum was 95.0%.

## CONCLUSION

We confirm that:

- (a) Our representative was in full time site attendance whilst bulk earthworks filling was in progress between 30<sup>th</sup> May 2022 and 29<sup>th</sup> July 2022 at Woodlinks Stage 10.
- (b) Pre – fill ground preparation was carried out in accordance with the specifications and site instruction given.
- (c) The structural filling placed to design levels during the term of our engagement on a "Level 1" basis can be termed "controlled filling".
- (d) The results of the compaction control testing indicate that the fill placed during the term of our site attendance, was compacted to at least the minimum specified wet density ratio.
- (e) All test results pertaining to the development are included within appendix A of this report.



**WAYNE GORMAN**  
**LABORATORY MANAGER**  
**Construction Sciences**



1. IT IS ASSUMED THAT STAGE 10 WILL INTERFACE WITH THE BULK EARTHWORKS SURFACE INCLUDED IN THE STAGE 9 OPERATIONAL WORKS PACKAGE U.N.O.
2. REFER 18-0176-400 SERIES FOR OVERALL EARTHWORKS AND FURTHER DETAILS OF EARTHWORKS INTERFACING WITH FUTURE STAGES

	PROPOSED AREA OF WORKS
	PROPOSED SURFACE CONTOUR
	EXISTING SURFACE CONTOUR
	PROPOSED EARTHWORKS PAD SETBACK LINE
	PROPOSED SLEEPER RETAINING WALL
	EXISTING SLEEPER RETAINING WALL
	FUTURE SLEEPER RETAINING WALL
	PROPOSED PAD LEVEL (PL) (INCLUDES TOPSOIL PLACEMENT)
	EXISTING SURFACE LEVEL (ESL)
	FUTURE SURFACE LEVEL
	PROPOSED AREA OF CUT
	PROPOSED AREA OF FILL
	INDICATIVE DRIVEWAY LOCATIONS
	ZERO LOT BOUNDARY
	EXISTING STORMWATER DRAINAGE PIPE
	EXISTING ROOFWATER DRAINAGE PIPE
	EXISTING SEWERAGE MAIN
	EXISTING WATER MAIN
	EXISTING WATER CONDUIT
	EXISTING ELECTRICAL CABLE U/G
	EXISTING ELECTRICAL CABLE O/H
	EXISTING GAS MAIN
	EXISTING DRAIN
	PROPOSED TEMPORARY CUT-OFF DRAIN



EXTREME CARE SHOULD BE TAKEN WHEN EXCAVATING IN THIS AREA. THE FOLLOWING EXISTING SERVICES ARE LIKELY TO BE PRESENT IN THE VICINITY OF THE SITE:

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

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

NOTE:  
REFER TO 18-0176-400 FOR BORROW PLAN

REV	DATE	DESIGN	DRAWN	REVISION DETAILS		DRAWN	STATUS	<div><div><div></div></div><div>PEAKURBAN</div><div>Achieve more.</div></div> <div>ENQUIRIES@PEAKURBAN.COM.AU</div>	SCALE	CLIENT	PROJECT NAME  WOODLINKS VILLAGE - STAGE 10  COLLINGWOOD DRIVE, COLLINGWOOD PARK	DRAWING TITLE			
1	03.12.21	CL	MPG	ORIGINAL ISSUE		CL	NOT FOR CONSTRUCTION		1:500 10 5 0 10 20 A1	CANBERRA ESTATES CONSORTIUM NO. 36 PTY LIMITED		ASSOCIATED CONSULTANT SAUNDERS HAVILL GROUP PH: 1300 123 744	PROJECT No.	DRAWING No.	REVISION
2	07.03.22	CL	SC	EARTHWORKS LAYOUT UPDATED					DESIGN				APPROVED SCOTT THOMAS RPEQ 04618  S. Thomas FOR AND ON BEHALF OF PEAKURBAN PTY LTD	1:1000	18-0176



# Bulk Fill

Client: Shadforths Civil Contractors

Project: 1979/P/2194 - Woodlinks Stage 10

Sample Number	Sample Date	Location 1	Location 2	Location 3	Location 4	Wet Density Ratio	Moisture Ratio
1979/S/185139	2/06/2022	Lot No 242	8m S, 3m W	O/S NE CNR	RL 36.85	98.5	90.5
1979/S/185140	2/06/2022	Lot No 244	5m S, 6m W	O/S NE CNR	RL 37.98	100.0	90.0
1979/S/185141	2/06/2022	Lot No 247	3m S, 8m W	O/S NE CNR	RL 38.69	96.5	90.5
1979/S/185142	2/06/2022	Lot No 246	2m S, 6m W	O/S NE CNR	RL 38.69	96.5	100.0
1979/S/185143	2/06/2022	Lot No 245	3m S, 10m W	O/S NE CNR	RL 38.40	97.5	90.5
1979/S/185144	2/06/2022	Lot No 227	3m S, 5m W	O/S NE CNR	RL 39.28	96.5	92.0
1979/S/185145	2/06/2022	Lot No 226	6m S, 2m W	O/S NE CNR	RL 39.50	97.0	86.0
1979/S/185146	2/06/2022	Lot No 225	3m S, 3m W	O/S NE CNR	RL 39.83	98.5	86.5
1979/S/186192	17/06/2022	Lot 230	33 S, 8m E	o/s from NW corner	RL 23.80	97.5	90.5
1979/S/186193	17/06/2022	Lot 232	10m S, 6m E	o/s from NW corner	RL 23.60	97.5	92.5
1979/S/186194	17/06/2022	Lot 241	9m S, 3m E	o/s from NW corner	RL 35.80	98.0	90.0
1979/S/186195	17/06/2022	Lot 5001	16m S, 6m E	o/s from NW corner	RL 35.28	97.0	100.0
1979/S/186196	17/06/2022	Lot 243	7m S, 3m E	o/s from NW corner	RL 37.40	99.0	100.0
1979/S/186197	17/06/2022	Lot 225	8m S, 4m E	o/s from NW corner	RL 40.25	98.5	92.5
1979/S/189130	12/07/2022	Lot 233	N/E Corner	4m S, 5m W	38.25	101.0	89.0
1979/S/189131	12/07/2022	Lot 234	N/E Corner	6m S, 3m W	38.25	98.0	89.5
1979/S/189132	12/07/2022	Lot 236	N/E Corner	5m S, 2m W	37.65	97.0	87.5
1979/S/189133	12/07/2022	Lot 238	N/E Corner	3m S, 3m W	37.65	100.0	90.0
1979/S/212265	20/07/2022	Lot 268	S/W Corner	2m N, 5m E	F/L	97.0	90.0
1979/S/212266	20/07/2022	Lot 267	S/W Corner	3m N, 3m E	F/L	95.0	100.0
1979/S/212267	20/07/2022	Lot 266	S/W Corner	5m N, 7m E	F/L	98.0	89.0
1979/S/212268	20/07/2022	Lot 265	S/E Corner	4m N, 2m W	F/L	96.0	89.0
1979/S/212269	20/07/2022	Lot 264	S/E Corner	1m N, 4m W	F/L	96.5	88.5
1979/S/212270	20/07/2022	Lot 263	S/E Corner	6m N, 7m W	F/L	98.0	100.0
1979/S/212271	20/07/2022	Lot 219	S/W Corner	2m N, 4m E	F/L	96.0	89.0
1979/S/212272	20/07/2022	Lot 220	S/W Corner	3m N, 5m E	F/L	98.0	88.5
1979/S/212273	20/07/2022	Lot 221	S/W Corner	4m N, 3m E	F/L	102.0	89.0
1979/S/212274	20/07/2022	Lot 222	N/W Corner	5m S, 4m E	F/L	96.5	87.0
1979/S/212275	26/07/2022	Lot 232	S/E Corner	4m N, 7m W	F/L	101.5	87.5
1979/S/212276	26/07/2022	Lot 231	S/E Corner	3m N, 4m W	F/L	96.0	88.0
1979/S/212277	26/07/2022	Lot 230	S/E Corner	4m N, 5m W	F/L	100.5	89.0
1979/S/212278	26/07/2022	Lot 229	S/E Corner	3m N, 6m W	F/L	99.0	90.5
1979/S/212279	26/07/2022	Lot 228	S/E Corner	3m N, 9m W	F/L	98.0	88.0
1979/S/212280	26/07/2022	Lot 224	S/E Corner	5m N, 3m W	F/L	97.5	88.5
1979/S/212281	26/07/2022	Lot 223	S/E Corner	2m N, 5m W	F/L	97.0	89.0
1979/S/212282	26/07/2022	Lot 257	N/E Corner	7m S, 2m W	F/L	100.5	89.0
1979/S/212283	26/07/2022	Lot 256	N/E Corner	8m S, 5m W	F/L	99.5	85.5
1979/S/212284	28/07/2022	Lot 255	N/W Corner	4m S, 5m E	F/L	99.0	88.5
1979/S/212285	28/07/2022	Lot 254	N/E Corner	2m S, 4m W	F/L	99.0	90.0
1979/S/212286	28/07/2022	Lot 253	S/E Corner	2m N, 4m W	F/L	96.5	100.0
1979/S/212287	28/07/2022	Lot 252	S/E Corner	3m N, 6m W	F/L	101.0	100.0
1979/S/212288	28/07/2022	Lot 251	N/E Corner	7m S, 5m W	F/L	101.5	88.5
1979/S/212289	28/07/2022	Lot 250	N/W Corner	5m S, 3m E	F/L	98.0	88.5
1979/S/212290	28/07/2022	Lot 249	N/W Corner	10m S, 3m E	F/L	102.0	88.5
1979/S/212291	28/07/2022	Lot 248	N/E Corner	8m S, 5m W	F/L	98.0	90.0
1979/S/212292	28/07/2022	Lot 235	N/E Corner	7m S, 4m W	F/L	101.0	89.5
1979/S/212293	28/07/2022	Lot 237	N/E Corner	10m S, 3m W	F/L	96.5	100.0
1979/S/212294	28/07/2022	Lot 239	S/E Corner	6m N, 6m W	F/L	99.5	86.0

1979/S/212295	28/07/2022	Lot 240	S/E Corner	5m N, 7m W	F/L	98.0	100.0
1979/S/212296	28/07/2022	Lot 262	N/E Corner	4m S, 6m W	F/L	100.0	90.0
1979/S/212297	28/07/2022	Lot 263	N/E Corner	2m S, 4m W	F/L	99.5	89.5

APPENDIX

# A

BULK EARTHWORKS





# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/66149-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	
Location:	Collingwood Park	Internal Test Request:	1979/T/36263
Component:	Bulk Fill	Client Reference/s:	WR5901
Area Description:	Woodlinks Stage 10	Report Date / Page:	13/06/2022 Page 1 of 2

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/185139	1979/S/185140	1979/S/185141	1979/S/185142
ID / Client ID	-	-	-	-
Lot Number	-	-	-	-
Date / Time Tested	2/06/2022 10:20	2/06/2022 10:30	2/06/2022 10:40	2/06/2022 10:50
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot No 242	Lot No 244	Lot No 247	Lot No 246
	8m S, 3m W	5m S, 6m W	3m S, 8m W	2m S, 6m W
	O/S NE CNR	O/S NE CNR	O/S NE CNR	O/S NE CNR
Level	RL 36.85	RL 37.98	RL 38.69	RL 38.69
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/185139	1979/S/185140	1979/S/185141	1979/S/185142
Sample Description	CLAY - Dark Brown	CLAY - Dark Brown	Clay - Brown	CLAY - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	13.7	14.7	14.1	14.1
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>0.0</b>
Optimum Moisture Content (%)	15.0	16.5	15.5	14.0
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(at OMC)
<b>Moisture Ratio (%)</b>	<b>90.5</b>	<b>90.0</b>	<b>90.5</b>	<b>100.0</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m <sup>3</sup> )	2.17	2.13	2.12	2.14
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.21	2.13	2.19	2.21
Density Ratio Required (%)	95	95	95	95
<b>Hilf Density Ratio (%)</b>	<b>98.5</b>	<b>100.0</b>	<b>96.5</b>	<b>96.5</b>

Remarks
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Accredited for compliance with ISO/IEC 17025 – Testing		
	Accreditation Number: 1986 Corporate Site Number: 1979	
		Approved Signatory: Tejinder Singh Thandi Form ID: W5ASMRRep Rev 2



# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/66149-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	
Location:	Collingwood Park	Internal Test Request:	1979/T/36263
Component:	Bulk Fill	Client Reference/s:	WR5901
Area Description:	Woodlinks Stage 10	Report Date / Page:	13/06/2022 Page 2 of 2

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/185143	1979/S/185144	1979/S/185145	1979/S/185146
ID / Client ID	-	-	-	-
Lot Number	-	-	-	-
Date / Time Tested	2/06/2022 11:00	2/06/2022 11:10	2/06/2022 11:20	2/06/2022 11:30
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot No 245 3m S, 10m W O/S NE CNR	Lot No 227 3m S, 5m W O/S NE CNR	Lot No 226 6m S, 2m W O/S NE CNR	Lot No 225 3m S, 3m W O/S NE CNR
Level	RL 38.40	RL 39.28	RL 39.50	RL 39.83
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/185143	1979/S/185144	1979/S/185145	1979/S/185146
Sample Description	CLAY - Dark Brown	CLAY - Dark Brown	Sandy CLAY - Brown	CLAY - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	13.4	13.6	9.1	10.7
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.0</b>	<b>1.5</b>	<b>1.5</b>
Optimum Moisture Content (%)	15.0	15.0	10.5	12.5
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)
<b>Moisture Ratio (%)</b>	<b>90.5</b>	<b>92.0</b>	<b>86.0</b>	<b>86.5</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.17	2.17	2.07	2.06
Adj/Peak Conv Wet Density (t/m³)	2.22	2.25	2.14	2.09
Density Ratio Required (%)	95	95	95	95
<b>Half Density Ratio (%)</b>	<b>97.5</b>	<b>96.5</b>	<b>97.0</b>	<b>98.5</b>

Remarks
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Accredited for compliance with ISO/IEC 17025 – Testing		
	Accreditation Number: 1986 Corporate Site Number: 1979	
		Approved Signatory: Tejinder Singh Thandi Form ID: W5ASMRRep Rev 2



# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/66539-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	
Location:	Collingwood Park	Internal Test Request:	1979/T/36503
Component:	Bulk Fill	Client Reference/s:	WR5938
Area Description:	Woodlinks stage 10	Report Date / Page:	6/07/2022 Page 1 of 2

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/186192	1979/S/186193	1979/S/186194	1979/S/186195
ID / Client ID	-	-	-	-
Lot Number	-	-	-	-
Date / Time Tested	17/06/2022 11:15	17/06/2022 11:20	17/06/2022 11:25	17/06/2022 11:30
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 230 33 S, 8m E o/s from NW corner	Lot 232 10m S, 6m E o/s from NW corner	Lot 241 9m S, 3m E o/s from NW corner	Lot 5001 16m S, 6m E o/s from NW corner
Level	RL 23.80	RL 23.60	RL 35.80	RL 35.28
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/186192	1979/S/186193	1979/S/186194	1979/S/186195
Sample Description	CLAY - Brown	CLAY - Brown	CLAY - Brown	CLAY - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	13.6	18.6	12.0	17.8
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>0.0</b>
Optimum Moisture Content (%)	15.0	20.0	13.5	18.0
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(at OMC)
<b>Moisture Ratio (%)</b>	<b>90.5</b>	<b>92.5</b>	<b>90.0</b>	<b>100.0</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.03	2.08	2.18	2.07
Adj/Peak Conv Wet Density (t/m³)	2.08	2.13	2.22	2.14
Density Ratio Required (%)	95	95	95	95
<b>Hiif Density Ratio (%)</b>	<b>97.5</b>	<b>97.5</b>	<b>98.0</b>	<b>97.0</b>

Remarks
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Accredited for compliance with ISO/IEC 17025 – Testing		
	Accreditation Number: 1986 Corporate Site Number: 1979	
		Approved Signatory: Dean Stimpson Form ID: W5ASMRRep Rev 2



# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/66539-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	
Location:	Collingwood Park	Internal Test Request:	1979/T/36503
Component:	Bulk Fill	Client Reference/s:	WR5938
Area Description:	Woodlinks stage 10	Report Date / Page:	6/07/2022 Page 2 of 2

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/186196	1979/S/186197		
ID / Client ID	-	-		
Lot Number	-	-		
Date / Time Tested	17/06/2022 11:35	17/06/2022 11:40		
Material Source	On-Site	On-Site		
Material Type	Bulk Fill	Bulk Fill		
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b		
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300		
Standard or Modified	Standard	Standard		
Location	Lot 243	Lot 225		
	7m S, 3m E	8m S, 4m E		
	o/s from NW corner	o/s from NW corner		
Level	RL 37.40	RL 40.25		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize (%)	0	0		
Compaction Sample Number	1979/S/186196	1979/S/186197		
Sample Description	CLAY - Brown	Sandy CLAY - Brown		
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	12.6	17.3		
<b>Adjusted / Moist. Variation (%)</b>	<b>0.0</b>	<b>1.5</b>		
Optimum Moisture Content (%)	12.5	18.5		
Moisture Variation from OMC	(at OMC)	(Drier than OMC)		
<b>Moisture Ratio (%)</b>	<b>100.0</b>	<b>92.5</b>		
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.14	2.12		
Adj/Peak Conv Wet Density (t/m³)	2.16	2.15		
Density Ratio Required (%)	95	95		
<b>Hilf Density Ratio (%)</b>	<b>99.0</b>	<b>98.5</b>		

Remarks

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# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/66873-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	-
Location:	Collingwood Park	Internal Test Request:	1979/T/36993
Component:	Bulk Earthworks	Client Reference/s:	WR000805
Area Description:	Stage 10	Report Date / Page:	20/07/2022 Page 1 of 1

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/189130	1979/S/189131	1979/S/189132	1979/S/189133
ID / Client ID	-	-	-	-
Lot Number	-	-	-	-
Date / Time Tested	12/07/2022 13:10	12/07/2022 13:15	12/07/2022 13:20	12/07/2022 13:25
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 233	Lot 234	Lot 236	Lot 238
	N/E Corner	N/E Corner	N/E Corner	N/E Corner
	4m S, 5m W	6m S, 3m W	5m S, 2m W	3m S, 3m W
Level	38.25	38.25	37.65	37.65
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/189130	1979/S/189131	1979/S/189132	1979/S/189133
Sample Description	CLAY - Brown	CLAY - Brown	CLAY - Brown	CLAY - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	11.5	13.1	12.6	13.8
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.5</b>	<b>2.0</b>	<b>1.5</b>
Optimum Moisture Content (%)	13.0	14.5	14.5	15.5
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)
<b>Moisture Ratio (%)</b>	<b>89.0</b>	<b>89.5</b>	<b>87.5</b>	<b>90.0</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.15	2.13	2.11	2.14
Adj/Peak Conv Wet Density (t/m³)	2.13	2.18	2.18	2.13
Density Ratio Required (%)	95	95	95	95
<b>Hill Density Ratio (%)</b>	<b>101.0</b>	<b>98.0</b>	<b>97.0</b>	<b>100.0</b>

Remarks

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 Corporate Site Number: 1979



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 Form ID: W5ASMRRep Rev 2



# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73908-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	20/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 Page 1 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212265	1979/S/212266	1979/S/212267	1979/S/212268
ID / Client ID	-	-	-	-
Lot Number	20/07	20/07	20/07	20/07
Date / Time Tested	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 268	Lot 267	Lot 266	Lot 265
	S/W Corner	S/W Corner	S/W Corner	S/E Corner
	2m N, 5m E	3m N, 3m E	5m N, 7m E	4m N, 2m W
Level	F/L	F/L	F/L	F/L
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/212265	1979/S/212266	1979/S/212267	1979/S/212268
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	12.9	12.1	12.3	13.2
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>0.0</b>	<b>1.5</b>	<b>1.5</b>
Optimum Moisture Content (%)	14.5	12.0	14.0	15.0
Moisture Variation from OMC	(Drier than OMC)	(at OMC)	(Drier than OMC)	(Drier than OMC)
<b>Moisture Ratio (%)</b>	<b>90.0</b>	<b>100.0</b>	<b>89.0</b>	<b>89.0</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m <sup>3</sup> )	2.08	2.04	2.06	2.05
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.15	2.14	2.10	2.14
Density Ratio Required (%)	95	95	95	95
<b>Hilf Density Ratio (%)</b>	<b>97.0</b>	<b>95.0</b>	<b>98.0</b>	<b>96.0</b>

Remarks
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# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73908-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	20/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 Page 2 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212269	1979/S/212270	1979/S/212271	1979/S/212272
ID / Client ID	-	-	-	-
Lot Number	20/07	20/07	20/07	20/07
Date / Time Tested	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 264	Lot 263	Lot 219	Lot 220
	S/E Corner	S/E Corner	S/W Corner	S/W Corner
	1m N, 4m W	6m N, 7m W	2m N, 4m E	3m N, 5m E
Level	F/L	F/L	F/L	F/L
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/212269	1979/S/212270	1979/S/212271	1979/S/212272
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	13.3	13.5	12.9	13.3
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>0.0</b>	<b>1.5</b>	<b>1.5</b>
Optimum Moisture Content (%)	15.0	13.5	14.5	15.0
Moisture Variation from OMC	(Drier than OMC)	(at OMC)	(Drier than OMC)	(Drier than OMC)
<b>Moisture Ratio (%)</b>	<b>88.5</b>	<b>100.0</b>	<b>89.0</b>	<b>88.5</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.01	2.04	2.00	2.04
Adj/Peak Conv Wet Density (t/m³)	2.08	2.09	2.08	2.08
Density Ratio Required (%)	95	95	95	95
<b>Hiif Density Ratio (%)</b>	<b>96.5</b>	<b>98.0</b>	<b>96.0</b>	<b>98.0</b>

Remarks
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# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73908-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	20/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 <span style="float: right;">Page 3 of 3</span>

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212273	1979/S/212274		
ID / Client ID	-	-		
Lot Number	20/07	20/07		
Date / Time Tested	20/07/2022	20/07/2022		
Material Source	On-Site	On-Site		
Material Type	Bulk Fill	Bulk Fill		
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b		
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300		
Standard or Modified	Standard	Standard		
Location	Lot 221	Lot 222		
	S/W Corner	N/W Corner		
	4m N, 3m E	5m S, 4m E		
Level	F/L	F/L		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize (%)	0	0		
Compaction Sample Number	1979/S/212273	1979/S/212274		
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown		
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	13.0	10.8		
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.5</b>		
Optimum Moisture Content (%)	14.5	12.5		
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)		
<b>Moisture Ratio (%)</b>	<b>89.0</b>	<b>87.0</b>		
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.09	2.12		
Adj/Peak Conv Wet Density (t/m³)	2.05	2.20		
Density Ratio Required (%)	95	95		
<b>Hilf Density Ratio (%)</b>	<b>102.0</b>	<b>96.5</b>		

Remarks
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	Accreditation Number: 1986 Corporate Site Number: 1979	
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# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73916-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	26/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 Page 1 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212275	1979/S/212276	1979/S/212277	1979/S/212278
ID / Client ID	-	-	-	-
Lot Number	26/07	26/07	26/07	26/07
Date / Time Tested	26/07/2022	26/07/2022	26/07/2022	26/07/2022
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 232	Lot 231	Lot 230	Lot 229
	S/E Corner	S/E Corner	S/E Corner	S/E Corner
	4m N, 7m W	3m N, 4m W	4m N, 5m W	3m N, 6m W
Level	F/L	F/L	F/L	F/L
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/212275	1979/S/212276	1979/S/212277	1979/S/212278
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	11.9	11.8	12.3	12.1
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>
Optimum Moisture Content (%)	13.5	13.5	14.0	13.5
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)
<b>Moisture Ratio (%)</b>	<b>87.5</b>	<b>88.0</b>	<b>89.0</b>	<b>90.5</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.13	2.10	2.11	2.08
Adj/Peak Conv Wet Density (t/m³)	2.10	2.18	2.10	2.10
Density Ratio Required (%)	95	95	95	95
<b>Hill Density Ratio (%)</b>	<b>101.5</b>	<b>96.0</b>	<b>100.5</b>	<b>99.0</b>

Remarks
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	Corporate Site Number:	1979
Approved Signatory: Dean Stimpson		Form ID: W5ASMRRep Rev 2

# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73916-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	26/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 Page 2 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212279	1979/S/212280	1979/S/212281	1979/S/212282
ID / Client ID	-	-	-	-
Lot Number	26/07	26/07	26/07	26/07
Date / Time Tested	26/07/2022	26/07/2022	26/07/2022	26/07/2022
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 228	Lot 224	Lot 223	Lot 257
	S/E Corner	S/E Corner	S/E Corner	N/E Corner
	3m N, 9m W	5m N, 3m W	2m N, 5m W	7m S, 2m W
Level	F/L	F/L	F/L	F/L
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/212279	1979/S/212280	1979/S/212281	1979/S/212282
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	12.5	12.3	12.8	13.5
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>
Optimum Moisture Content (%)	14.0	14.0	14.5	15.0
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)
<b>Moisture Ratio (%)</b>	<b>88.0</b>	<b>88.5</b>	<b>89.0</b>	<b>89.0</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.04	2.03	2.02	2.03
Adj/Peak Conv Wet Density (t/m³)	2.09	2.08	2.09	2.02
Density Ratio Required (%)	95	95	95	95
<b>Hilf Density Ratio (%)</b>	<b>98.0</b>	<b>97.5</b>	<b>97.0</b>	<b>100.5</b>

Remarks

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 Corporate Site Number: 1979



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# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73916-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	26/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 <span style="float: right;">Page 3 of 3</span>

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212283			
ID / Client ID	-			
Lot Number	26/07			
Date / Time Tested	26/07/2022			
Material Source	On-Site			
Material Type	Bulk Fill			
Sampling Method	AS1289.1.2.1 Cl 6.4b			
Depths: Test / Nom / Actual (mm)	275 / 300 / 300			
Standard or Modified	Standard			
Location	Lot 256			
	N/E Corner			
	8m S, 5m W			
Level	F/L			
Test Fraction (mm)	< 19.0 mm			
Sample Oversize (%)	0			
Compaction Sample Number	1979/S/212283			
Sample Description	Sandy Clay - Brown			
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	10.7			
<b>Adjusted / Moist. Variation (%)</b>	<b>2.0</b>			
Optimum Moisture Content (%)	12.5			
Moisture Variation from OMC	(Drier than OMC)			
<b>Moisture Ratio (%)</b>	<b>85.5</b>			
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.11			
Adj/Peak Conv Wet Density (t/m³)	2.12			
Density Ratio Required (%)	95			
<b>Hilf Density Ratio (%)</b>	<b>99.5</b>			

Remarks
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	Accreditation Number: 1986 Corporate Site Number: 1979	
		Approved Signatory: Dean Stimpson Form ID: W5ASMRRRep Rev 2



# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73917-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	28/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 Page 1 of 4

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212284	1979/S/212285	1979/S/212286	1979/S/212287
ID / Client ID	-	-	-	-
Lot Number	28/07	28/07	28/07	28/07
Date / Time Tested	28/07/2022	28/07/2022	28/07/2022	28/07/2022
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 255 N/W Corner 4m S, 5m E	Lot 254 N/E Corner 2m S, 4m W	Lot 253 S/E Corner 2m N, 4m W	Lot 252 S/E Corner 3m N, 6m W
Level	F/L	F/L	F/L	F/L
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/212284	1979/S/212285	1979/S/212286	1979/S/212287
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	12.3	10.7	10.4	9.7
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>
Optimum Moisture Content (%)	14.0	12.0	10.5	9.5
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(at OMC)	(at OMC)
<b>Moisture Ratio (%)</b>	<b>88.5</b>	<b>90.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.07	2.12	2.11	2.13
Adj/Peak Conv Wet Density (t/m³)	2.09	2.14	2.18	2.10
Density Ratio Required (%)	95	95	95	95
<b>Hilf Density Ratio (%)</b>	<b>99.0</b>	<b>99.0</b>	<b>96.5</b>	<b>101.0</b>

Remarks

Accredited for compliance with ISO/IEC 17025 – Testing


 Accreditation Number: 1986  
Corporate Site Number: 1979



 Approved Signatory: Dean Stimpson  
Form ID: W5ASMRRep Rev 2



# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73917-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	28/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 Page 2 of 4

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212288	1979/S/212289	1979/S/212290	1979/S/212291
ID / Client ID	-	-	-	-
Lot Number	28/07	28/07	28/07	28/07
Date / Time Tested	28/07/2022	28/07/2022	28/07/2022	28/07/2022
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 251 N/E Corner 7m S, 5m W	Lot 250 N/W Corner 5m S, 3m E	Lot 249 N/W Corner 10m S, 3m E	Lot 248 N/E Corner 8m S, 5m W
Level	F/L	F/L	F/L	F/L
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/212288	1979/S/212289	1979/S/212290	1979/S/212291
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	10.2	11.7	12.6	12.9
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>
Optimum Moisture Content (%)	11.5	13.0	14.0	14.5
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)
<b>Moisture Ratio (%)</b>	<b>88.5</b>	<b>88.5</b>	<b>88.5</b>	<b>90.0</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.20	2.13	2.22	2.07
Adj/Peak Conv Wet Density (t/m³)	2.17	2.17	2.18	2.10
Density Ratio Required (%)	95	95	95	95
<b>Hill Density Ratio (%)</b>	<b>101.5</b>	<b>98.0</b>	<b>102.0</b>	<b>98.0</b>

Remarks
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Accredited for compliance with ISO/IEC 17025 – Testing		
	Accreditation Number:	1986
	Corporate Site Number:	1979
Approved Signatory: Dean Stimpson		Form ID: W5ASMRRep Rev 2

# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73917-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	28/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 <span style="float: right;">Page 3 of 4</span>

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212292	1979/S/212293	1979/S/212294	1979/S/212295
ID / Client ID	-	-	-	-
Lot Number	28/07	28/07	28/07	28/07
Date / Time Tested	28/07/2022	28/07/2022	28/07/2022	28/07/2022
Material Source	On-Site	On-Site	On-Site	On-Site
Material Type	Bulk Fill	Bulk Fill	Bulk Fill	Bulk Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300	275 / 300 / 300
Standard or Modified	Standard	Standard	Standard	Standard
Location	Lot 235 N/E Corner 7m S, 4m W	Lot 237 N/E Corner 10m S, 3m W	Lot 239 S/E Corner 6m N, 6m W	Lot 240 S/E Corner 5m N, 7m W
Level	F/L	F/L	F/L	F/L
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	1979/S/212292	1979/S/212293	1979/S/212294	1979/S/212295
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown	Sandy Clay - Brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	13.0	12.2	12.3	12.2
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>0.0</b>	<b>2.0</b>	<b>0.0</b>
Optimum Moisture Content (%)	14.5	12.0	14.5	12.0
Moisture Variation from OMC	(Drier than OMC)	(at OMC)	(Drier than OMC)	(at OMC)
<b>Moisture Ratio (%)</b>	<b>89.5</b>	<b>100.0</b>	<b>86.0</b>	<b>100.0</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m³)	2.11	2.01	2.05	2.05
Adj/Peak Conv Wet Density (t/m³)	2.09	2.08	2.06	2.10
Density Ratio Required (%)	95	95	95	95
<b>Hill Density Ratio (%)</b>	<b>101.0</b>	<b>96.5</b>	<b>99.5</b>	<b>98.0</b>

Remarks

Accredited for compliance with ISO/IEC 17025 – Testing


 Accreditation Number: 1986  
 Corporate Site Number: 1979



 Approved Signatory: Dean Stimpson  
 Form ID: W5ASMRRep Rev 2



# WET DENSITY RATIO REPORT

Client:	Shadforth Civil Pty Ltd	Report Number:	1979/R/73917-1
Client Address:	99 Sandalwood Lane, Forest Glen	Project Number:	1979/P/2194
Project:	Woodlinks Stage 10	Lot Number:	28/07
Location:	Collingwood Park	Internal Test Request:	1979/T/41656
Component:	Bulk Earthworks	Client Reference/s:	Bulk Earthworks
Area Description:	Stage 10	Report Date / Page:	23/09/2022 Page 4 of 4

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	1979/S/212296	1979/S/212297		
ID / Client ID	-	-		
Lot Number	28/07	28/07		
Date / Time Tested	28/07/2022	28/07/2022		
Material Source	On-Site	On-Site		
Material Type	Bulk Fill	Bulk Fill		
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b		
Depths: Test / Nom / Actual (mm)	275 / 300 / 300	275 / 300 / 300		
Standard or Modified	Standard	Standard		
Location	Lot 262	Lot 263		
	N/E Corner	N/E Corner		
	4m S, 6m W	2m S, 4m W		
Level	F/L	F/L		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize (%)	0	0		
Compaction Sample Number	1979/S/212296	1979/S/212297		
Sample Description	Sandy Clay - Brown	Sandy Clay - Brown		
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	12.0	13.1		
<b>Adjusted / Moist. Variation (%)</b>	<b>1.5</b>	<b>1.5</b>		
Optimum Moisture Content (%)	13.5	14.5		
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)		
<b>Moisture Ratio (%)</b>	<b>90.0</b>	<b>89.5</b>		
<b>Density Test Results:</b>				
Field Wet Density (t/m <sup>3</sup> )	2.05	2.01		
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.05	2.02		
Density Ratio Required (%)	95	95		
<b>Hilf Density Ratio (%)</b>	<b>100.0</b>	<b>99.5</b>		

Remarks
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Accredited for compliance with ISO/IEC 17025 – Testing		
	Accreditation Number: 1986 Corporate Site Number: 1979	
		Approved Signatory: Dean Stimpson Form ID: W5ASMRRep Rev 2

APPENDIX

# B

LOT CERTIFICATES



Project Ref: 1979/P2194

23/09/2022

Shadforth's Civil  
99 Sandalwood Lane  
Forest Glen Qld 4556

Construction Sciences Pty Ltd  
ABN 74 128 806 735

57 Mudgee Street  
Kingston QLD 4114  
Australia

Phone: 61 7 3320 8500  
[www.constructionsciences.net](http://www.constructionsciences.net)

Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 219, WOODLINKS STAGE 10, COLLINGWOOD PARK**

This is to confirm that placement and compaction of the allotment fill for the above project and Lot was supervised by Construction Sciences Pty Ltd under Level 1 arrangements as described in AS3798-2007 "Guidelines on earthworks for commercial and residential developments".

This indicates that the fill was compacted to at least the minimum density ratio in accordance with the specification requirements and it is considered that the fill may be deemed to be "controlled fill" in accordance with AS2870-2011 "Residential Slabs & Footings".

It may be that non-structural topsoil was placed on the block after completion of the structural fill. This would need to be removed as part of the site preparation for building and driveway construction.

I trust this meets your requirements. Please do not hesitate to contact me if you have any queries.

Yours faithfully



Wayne Gorman  
Lab Manager  
For Brisbane South  
Construction Sciences

Project Ref: 1979/P2194

23/09/2022

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Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 220, WOODLINKS STAGE 10, COLLINGWOOD PARK**

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Dear Sir/Madam,

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LOT 223, WOODLINKS STAGE 10, COLLINGWOOD PARK**

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Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
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Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 225, WOODLINKS STAGE 10, COLLINGWOOD PARK**

This is to confirm that placement and compaction of the allotment fill for the above project and Lot was supervised by Construction Sciences Pty Ltd under Level 1 arrangements as described in AS3798-2007 "Guidelines on earthworks for commercial and residential developments".

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Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 226, WOODLINKS STAGE 10, COLLINGWOOD PARK**

This is to confirm that placement and compaction of the allotment fill for the above project and Lot was supervised by Construction Sciences Pty Ltd under Level 1 arrangements as described in AS3798-2007 "Guidelines on earthworks for commercial and residential developments".

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For Brisbane South  
Construction Sciences

Project Ref: 1979/P2194

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99 Sandalwood Lane  
Forest Glen Qld 4556

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Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 227, WOODLINKS STAGE 10, COLLINGWOOD PARK**

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Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 228, WOODLINKS STAGE 10, COLLINGWOOD PARK**

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Project Ref: 1979/P2194

23/09/2022

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Kingston QLD 4114  
Australia

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Dear Sir/Madam,

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LOT 230, WOODLINKS STAGE 10, COLLINGWOOD PARK**

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Lab Manager  
For Brisbane South  
Construction Sciences

Project Ref: 1979/P2194

23/09/2022

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Forest Glen Qld 4556

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Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 231, WOODLINKS STAGE 10, COLLINGWOOD PARK**

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Yours faithfully



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Lab Manager  
For Brisbane South  
Construction Sciences

Project Ref: 1979/P2194

23/09/2022

Shadforth's Civil  
99 Sandalwood Lane  
Forest Glen Qld 4556

Construction Sciences Pty Ltd  
ABN 74 128 806 735

57 Mudgee Street  
Kingston QLD 4114  
Australia

Phone: 61 7 3320 8500  
[www.constructionsciences.net](http://www.constructionsciences.net)

Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 232, WOODLINKS STAGE 10, COLLINGWOOD PARK**

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57 Mudgee Street  
Kingston QLD 4114  
Australia

Phone: 61 7 3320 8500  
[www.constructionsciences.net](http://www.constructionsciences.net)

Dear Sir/Madam,

**INSPECTION OF PLACEMENT AND COMPACTION OF ALLOTMENT FILL  
LOT 254, WOODLINKS STAGE 10, COLLINGWOOD PARK**

This is to confirm that placement and compaction of the allotment fill for the above project and Lot was supervised by Construction Sciences Pty Ltd under Level 1 arrangements as described in AS3798-2007 "Guidelines on earthworks for commercial and residential developments".

This indicates that the fill was compacted to at least the minimum density ratio in accordance with the specification requirements and it is considered that the fill may be deemed to be "controlled fill" in accordance with AS2870-2011 "Residential Slabs & Footings".

It may be that non-structural topsoil was placed on the block after completion of the structural fill. This would need to be removed as part of the site preparation for building and driveway construction.

I trust this meets your requirements. Please do not hesitate to contact me if you have any queries.

Yours faithfully



Wayne Gorman  
Lab Manager  
For Brisbane South  
Construction Sciences

Project Ref: 1979/P2194

23/09/2022

Shadforth's Civil  
99 Sandalwood Lane  
Forest Glen Qld 4556

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Dear Sir/Madam,

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Dear Sir/Madam,

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## Contact

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