

OLIVINE ESTATE STAGE 16

Prepared for Winslow Constructors Pty Ltd

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Introduction

Construction Sciences is the largest private provider of construction materials testing services across Australia. We have a total staff of over 600 staff in 50 permanent offices/laboratories.

We have provided QA testing services to some of the largest road and mining infrastructure projects in these states, as well as overseas.

Over the last 3 to 4 years, Construction Sciences has established more site laboratories for road, rail, mining, and other large infrastructure projects than any other company.

We benefit our clients with the following clear differentiators;

- **Staff Mobilisation:** Construction Sciences' geographic expansion and mobility allow for teams to be available when required, and currently we have the lion's share of major projects in Australia.
- **Quality Management:** Construction Sciences' purpose-built software, COMPLY provides our clients with confidence, by knowing project data is securely stored. COMPLY has a built-in secure audit trail and a fully tracked Quality system. We are also ISO9001 compliant and certified.
- **Client Relationships:** We listen to your needs and respond with innovative solutions that are tailored for your business. We believe in building relationships with our staff and local community.
- **Safety:** At Construction Sciences we embrace a 'safety' culture and it is a key consideration with every project. Currently we are over 2 years LTI (lost time injury) free.

Construction Sciences Pty Ltd was commissioned by Winslow Constructors Pty Ltd to provide Level 1 inspection and testing services for the placement of fill at the proposed residential development:-

PROJECT: Olivine Estate Stage 16

ADDRESS: 995 Donnybrook Rd, Donnybrook 3064

The earthworks were carried out from 24/07/2025 to 15/08/2025.

The material used as structural fill was in-situ clay material and was being placed and compacted as of 24th of July 2025. The fill volume has been determined from site supervision records and supported information provided by the civil contractor Winslow Constructors Pty.



Specification Requirements

Filling was carried out in accordance with AS3798-2007 'Guidelines on earthworks for commercial and residential developments' and with the project specification prepared for the project.

The specification requirements were that all compacted fills must be placed and compacted in layers to a density ratio of not less than 95% of the maximum dry and wet density as determined by AS1289.5.1.1 & AS1289.5.7.1 (standard compaction).

Site Works

Existing Surface Assessments

Prior to commencement of filling, Construction Sciences confirmed that all unsuitable and weaker material such as top-soil, silt, uncontrolled or loose soil, organic effected material and other wet areas had been appropriately stripped in accordance with AS 3798-2007.

Where no movement or vertical deflection was detected, the stripped surface was assessed to be suitable for the placement of fill.

Fill Placement -Structural Fill

The structural fill works begun on the 24th of July 2025 and fill was placed as the backfill layer initially. All fill material on site was inspected and deemed to be acceptable.

The fill material typically comprised of:

- Onsite Clay: Dark Brown/black, High plasticity, Moderate Aggregates.

Placement of fill was carried out using the following plant:

- CAT Dozer
- Moxie Truck
- 12 – Ton Pad foot Roller



Fill Works

Level 1 Supervision was carried out in the period between 24th of July to 15th of August 2025 which included earthworks for Olivine Estate Stage 16 . Subgrade material consisted of highly plastic clay was sourced from the onsite cut areas and reconditioned onsite by a sieve bucket.

Topsoil was removed and stockpiled on site at the location approved by Winslow Constructors. Following the removal of topsoil and uncontrolled fill, the design subgrade was assessed and prepared for fill works. The area to be filled was stripped in accordance with the specification requirements provided by the client. Uncontrolled fill, natural soil and weathered rock generated from excavations on site was reconditioned and assessed by Construction Sciences before use. All the oversize rocks generated from the natural subgrade was sieved and stockpiled away from the work zone.

The fill material of in-situ clay was spread in near horizontal layers and compacted in successive layers to a maximum compacted thickness of 200mm.



Figure 1. In-Situ Clay Structural Fill

The fill material of in-situ clay was spread in near horizontal layers and compacted in successive layers to a maximum compacted thickness of 200mm, using a dozer to establish the layers and then the 12-ton Roller to compact the fill areas of the

All compaction activities will be monitored, and testing will be carried to verify compliance with project specifications and quality requirements.



The approximate location of the site is shown outlined in figure 2 below:

Figure 1. Fill areas highlighted in red – Olivine Estate – Stage 16



Figure 2. Level 1 supervision fill areas highlighted

Compaction Control Testing

Compaction control tests were carried out at regular intervals throughout the placement of fill in accordance with the minimum test frequency recommendations included in AS3798-2007 'Guidelines on earthworks for commercial and residential developments'. All test results are included in the Appendix B.

Table 1. Summary of field density & moisture results

Date	Sample No.	Report No	Density Ratio %	Moisture Ratio %	Layer number
24/07/2025	S/25-64607	R/25-22665-1	100.5	108.5	1
04/08/2025	S/25-68838	R/25-23971-1	106.0	91.5	1
04/08/2025	S/25-68839	R/25-23971-1	99.0	88.5	1
04/08/2025	S/25-68840	R/25-23971-1	106.0	91.5	1



Compaction Testing Outcome

- **No of tests** = 4
- **Mean Density Ratio** = 102.9%
- **Mean Moisture Ratio** = 95.0%
- **Density Standard Deviation** = 3.7%
- **Moisture Standard Deviation** = 9.1%

A summary of the test results is included as Table 1 &. A total of 4 field density tests were carried out throughout the period of fill placement. The average density ratio of **102.9%** with a standard deviation of **3.7%** and average moisture ratio of **95.0%** with a standard deviation of **9.1%**.

Conclusion

It is considered that the placement of fill at 995 Donnybrook Rd, Donnybrook 3064 was carried out in a controlled manner and the fill was compacted to a wet and dry density ratio not less than the specified requirement. It is concluded that the fill may be deemed to be '*controlled fill*' in accordance with AS2870 – 2011 '*Residential Slabs & Footings*'. This report includes compaction and moisture control results for Olivine Estate Stage 16 .

Site investigations at Olivine Estate Stage 16 conducted in compliance with AS 3798, identified issues impacting the quality of earthwork fills. Oversized aggregates were observed within stockpiles sourced from Onsite Insitu locations. Measures, including proactive separation of oversized boulders by operators, have been notified to address these concerns.

Limit of Liability

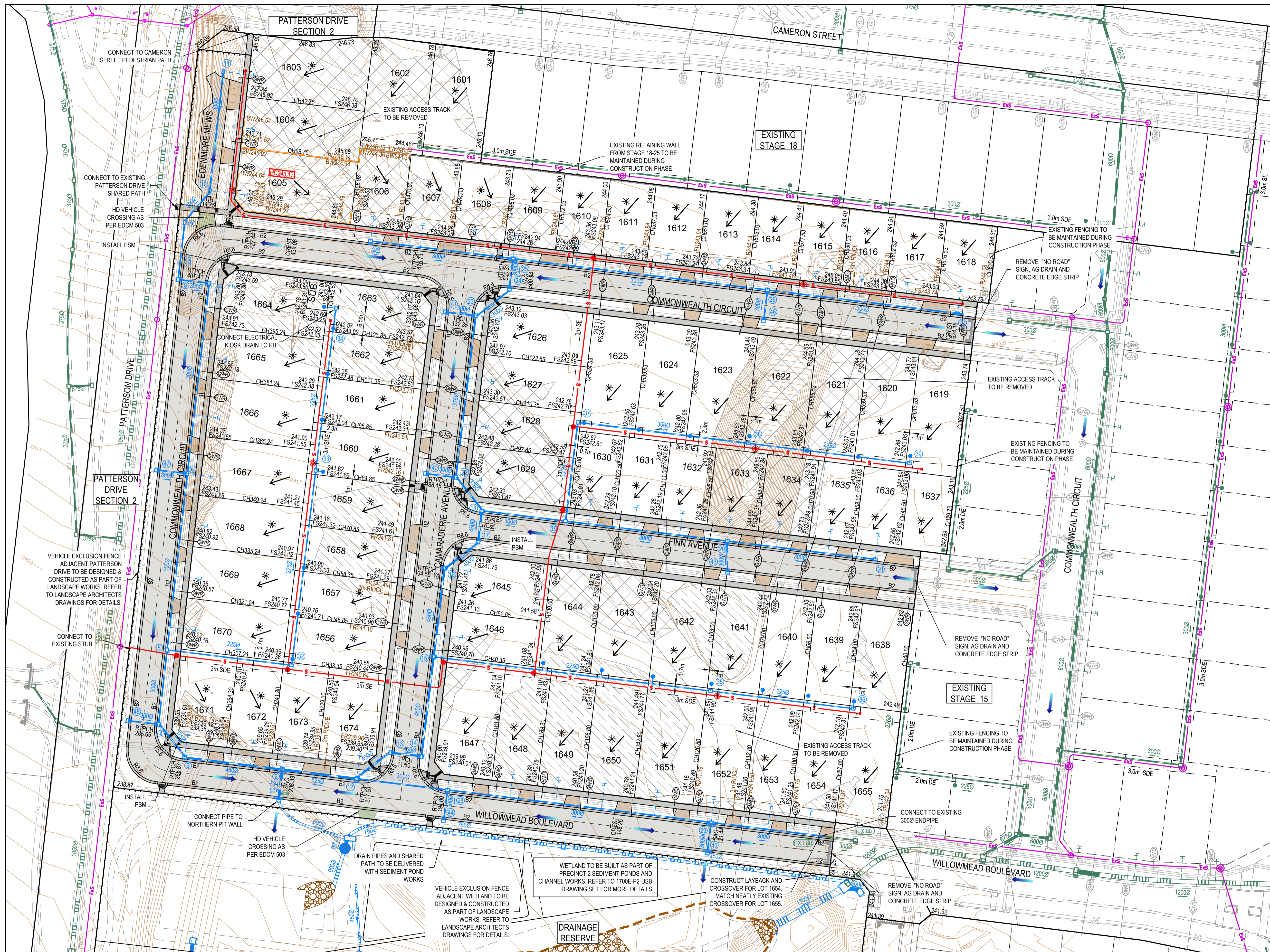
This report has been produced for, and is the property of our client Winslow Constructors PTY.

Construction Sciences accepts no liability to any third party and will not enter any communication with a third party regarding this report.



Appendix A

Layout Plan



LEGEND - LAYOUT PLAN
 ALL PROPOSED, FUTURE & EXISTING SERVICE LOCATIONS ARE SHOWN INDICATIVELY

- STORMWATER DRAIN, PIT & PROPERTY INLET
- MAIN DRAIN
- SWALE DRAIN
- SEWER & MAINTENANCE STRUCTURES
- HOUSE DRAIN
- ELECTRICITY (U.GROUND)
- ELECTRICITY (O.HEAD)
- GAS
- TELSTRA
- OPTIC FIBRE
- WATER
- RECYCLE WATER
- AG. DRAIN
- SERVICE CONDUITS
- TACTILE PAVERS
- EXISTING STORMWATER DRAIN
- EXISTING MAIN DRAIN
- EXISTING SWALE DRAIN
- EXISTING SEWER & MAINTENANCE STRUCTURES
- EXISTING HOUSE DRAIN
- EXISTING ELECTRICITY (UNDER GROUND)
- EXISTING ELECTRICITY OVERHEAD
- EXISTING GAS
- EXISTING TELSTRA
- EXISTING OPTIC FIBRE
- EXISTING WATER
- EXISTING RECYCLED WATER
- EXISTING AG. DRAIN
- EXISTING SERVICE CONDUITS
- EXISTING TACTILE PAVERS
- FUTURE STORMWATER DRAIN
- FUTURE MAIN DRAIN
- FUTURE SWALE DRAIN
- FUTURE SEWER & MAINTENANCE STRUCTURES
- FUTURE HOUSE DRAIN
- FUTURE ELECTRICITY (UNDER GROUND)
- FUTURE ELECTRICITY OVERHEAD
- FUTURE GAS
- FUTURE TELSTRA
- FUTURE OPTIC FIBRE
- FUTURE WATER
- FUTURE RECYCLED WATER
- FUTURE AG. DRAIN
- FUTURE SERVICE CONDUITS
- FUTURE TACTILE PAVERS
- ZERO LOT LINES
- EXISTING SURFACE LEVEL
- FS140.35 FINISHED BUILDING LINE LEVEL
- FR157.40 FINISHED RIDGE LINE LEVEL
- CH270.00 CHAINAGE
- TW159.60 TOP OF RETAINING WALL LEVEL
- BW159.00 BOTTOM OF RETAINING WALL LEVEL
- EXISTING RETAINING WALL
- RETAINING WALL
- FUTURE RETAINING WALL
- STRUCTURAL FILL > 200mm DEEP
- CUT > 200mm DEEP
- DIRECTION OF FALL
- OVERLAND FLOW
- GRADED IN DIRECTION OF FALL TO LEVEL INDICATED
- EDGE STRIP, SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- PROPOSED DRIVEWAY & FOOTPATH
- PROPOSED INDUSTRIAL DRIVEWAY
- PROPOSED SHARED FOOTPATH
- PROPOSED ROAD PAVING
- EXISTING ROAD PAVING

WARNING
BEWARE OF UNDERGROUND SERVICES
 The locations of underground services are approximate only and their exact position should be proven on site. No guarantee is given that all existing services are shown. Locate all underground services before commencement of works. **DIAL 1100 BEFORE YOU DIG**
www.1100.com.au

REV	DATE	AMENDMENT / REVISION DESCRIPTION	DRAFTER	DESIGNER	CHECKER	APPROVER
0	25.05.25	ISSUED FOR CONSTRUCTION	L.CHAPPEL	C.PIERRE	T.MOTET	A.BURROWS

Quality Management ISO 9001
 Global-Mark.com.au

OH&S Management AS/NZS 4804
 Global-Mark.com.au

Environmental Management ISO 14001
 Global-Mark.com.au

PLAN OF SUB. NO.
 PSS21784A

PERMIT REF. NO.
 717158

ISSUED FOR CONSTRUCTION

Scale 1:500
 SCALE AS SHOWN AT 1

North Arrow

SMEC
 Member of the Surlana Jurong Group
 ABN 47 065 475 149
 Collins Square, Tower 4, Level 20, 727 Collins St
 Melbourne, VIC, 3008, Australia
 03 9514 1500

mirvac

Olivine Estate - Stage 16
 Whittlesea City Council
 Road and Drainage
 Layout Plan

MELWAYS REF: 367 G11
 PROJECT / DRAWING No: 1700E-016-111
 SHEET No: 02 of 31
 REVISION: 0

Appendix B

Field Density Test Results

LOT REPORT - WET DENSITY RATIO



Client: Winslow Infrastructure Pty Ltd Client Address: 2 Central Blvd, Port Melbourne Project: Olivine Estate Stage 16 Location: Various Component: Level 1 Supervision 24/7/25 Area Description: Refer To Map	Report Number: 14874/R/25-22665-1 Project Number: 14874/P/3155 Lot Number: n/a Internal Test Request: 14874/T/25-9129 Client Reference/s: Level 1 Supervision 24/7/25 Report Date / Page: 29/07/2025 Page 1 of 1
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Test Procedures:	AS1289.5.7.1, RC301.01, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	14874/S/25-64607			
ID / Client ID	Level 1 Supervision 24/7/25			
Lot Number	n/a			
Date / Time Tested	24/07/2025 12:00			
Material Source	Onsite			
Material Type	Clay Fill			
Sampling Method	AS1289.1.2.1 Cl 6.4b			
Depths: Test / Nom / Actual (mm)	175 / 200 / 200			
Standard or Modified	Standard			
Layer Number	1			
Location Number	1			
Test Fraction (mm)	< 19.0 mm			
Sample Oversize (%)	9			
Compaction Sample Number	14874/S/25-64607			
Sample Description	Clay Fill			
Moisture Test Results:				
Field Moisture Content (%)	28.5			
Adjusted / Moist. Variation (%)	-2.0			
Optimum Moisture Content (%)	26.5			
Moisture Variation from OMC	(Wetter than OMC)			
Moisture Ratio (%)	108.5			
Density Test Results:				
Field Wet Density (t/m ³)	1.94			
Field Dry Density (t/m ³)	1.51			
Adj/Peak Conv Wet Density (t/m ³)	1.93			
Density Ratio Required (%)	95			
Hilf Density Ratio (%)	100.5			

(Moisture Ratio = (100 x Field Moisture Content) / Optimum Moisture Content. Moisture Ratio calculation not covered by NATA endorsement)

Remarks

 <p style="text-align: center;">Accredited for compliance with ISO/IEC 17025 – Testing</p> <p>Accreditation Number: 1986 Corporate Site Number: 14874</p>	 <p>Approved Signatory: Nawin Dahal Form ID: W5ASMRRepSum Rev 4</p>
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Site Location Sketch

Test site locations only
NOT TO SCALE

Client: Winslow Constructors
Job No. P/3155
Test Request No. T/25-9129
Date Tested: 24/07/2025



LOT REPORT - WET DENSITY RATIO



Client: Winslow Infrastructure Pty Ltd	Report Number: 14874/R/25-23971-2
Client Address: 2 Central Blvd, Port Melbourne	Project Number: 14874/P/3155
Project: Olivine Estate Stage 16	Lot Number: n/a
Location: Various	Internal Test Request: 14874/T/25-9621
Component: Stage 16	Client Reference/s: Level 1 Supervision 4/8/25
Area Description: RTM	Report Date / Page: 8/08/2025 Page 1 of 2

Test Procedures:	AS1289.5.7.1, RC301.01, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	14874/S/25-68838	14874/S/25-68839	14874/S/25-68840	
ID / Client ID	Level 1 Supervision 4/8/25	Level 1 Supervision 4/8/25	Level 1 Supervision 4/8/25	
Lot Number	n/a	n/a	n/a	
Date / Time Tested	4/08/2025 16:41	4/08/2025 16:41	4/08/2025 16:41	
Material Source	Site Won	Site Won	Site Won	
Material Type	FILL	FILL	FILL	
Sampling Method	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)	175 / 200 / 200	175 / 200 / -	175 / 200 / -	
Standard or Modified	Standard	Standard	Standard	
Layer Number	1	1	1	
Location Number	1	2	3	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize (%)	6	5	0	
Compaction Sample Number	14874/S/25-68838	14874/S/25-68839	14874/S/25-68840	
Sample Description	FILL	FILL	FILL	
Moisture Test Results:				
Field Moisture Content (%)	19.3	18.1	21.9	
Adjusted / Moist. Variation (%)	1.5	2.5	2.0	
Optimum Moisture Content (%)	21.0	20.5	24.0	
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	
Moisture Ratio (%)	91.5	88.5	91.5	
Density Test Results:				
Field Wet Density (t/m ³)	2.06	1.92	2.06	
Field Dry Density (t/m ³)	1.73	1.62	1.69	
Adj/Peak Conv Wet Density (t/m ³)	1.95	1.93	1.95	
Density Ratio Required (%)	95	95	95	
Hilf Density Ratio (%)	106.0	99.0	106.0	

(Moisture Ratio = (100 x Field Moisture Content) / Optimum Moisture Content. Moisture Ratio calculation not covered by NATA endorsement)

Remarks	Re-issued Report Replaces Report No 14874/R/25-23971-1 (reason: Location and layer number added).
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 <p>Accredited for compliance with ISO/IEC 17025 – Testing</p> <p>Accreditation Number: 1986 Corporate Site Number: 14874</p>	 <p>Approved Signatory: Nawin Dahal Form ID: W5ASMRRepSum Rev 4</p>
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LOT REPORT - WET DENSITY RATIO

Client: Winslow Infrastructure Pty Ltd	Report Number: 14874/R/25-23971-2
Client Address: 2 Central Blvd, Port Melbourne	Project Number: 14874/P/3155
Project: Olivine Estate Stage 16	Lot Number: n/a
Location: Various	Internal Test Request: 14874/T/25-9621
Component: Stage 16	Client Reference/s: Level 1 Supervision 4/8/25
Area Description: RTM	Report Date / Page: 8/08/2025 Page 2 of 2

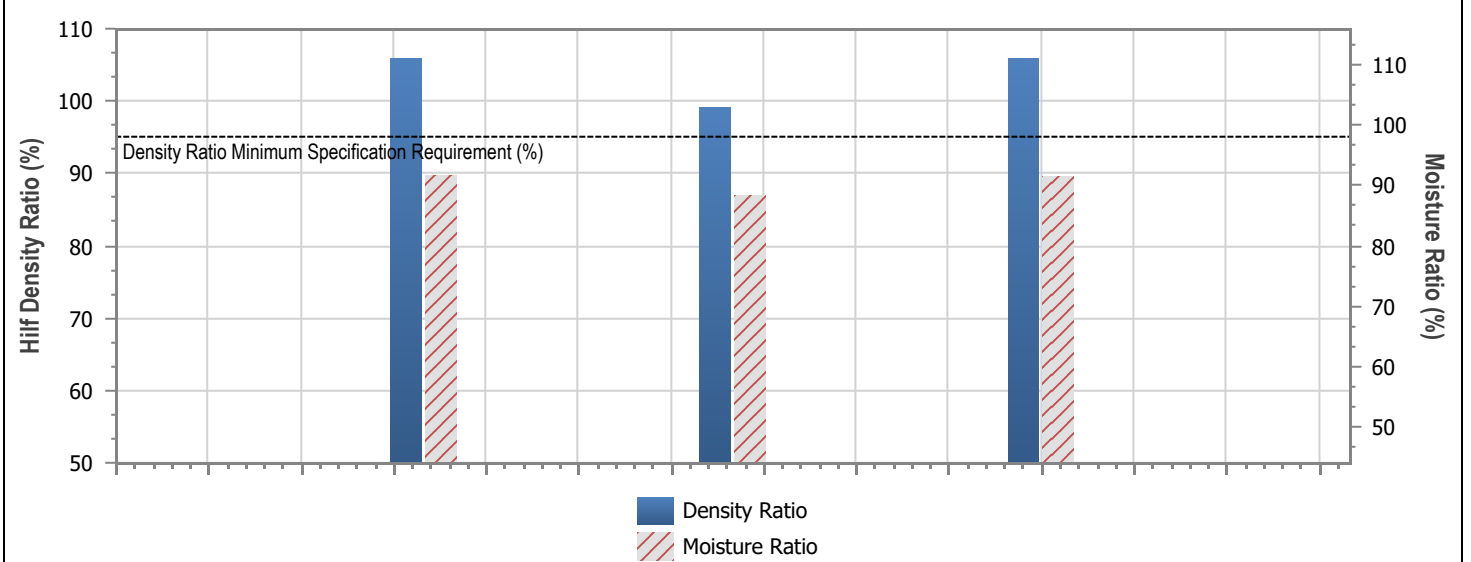
Test Procedures:	AS1289.5.7.1, RC301.01, AS1289.5.8.1, AS1289.2.1.1
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Statistical Analysis Test Method:	Vic Roads RC316.00
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Nuclear Gauge Calibration Details

Calibration Number	-	Material Source	-
Calibration Last Updated	-	Material Type	-
Nominated Calibration Layer Depth (mm)	-		



LOT TEST RESULT SUMMARY



Tests in Lot = 3	Lot Minimum	Lot Maximum	Lot Mean	Standard Deviation
Moisture Ratio (%)	88.4	91.7	90.5	1.850
Half Density Ratio (%)	99.2	105.9	103.6	3.871

Lot Number:	n/a
Mean Moisture Ratio (%):	90.5
Mean Density Ratio (%):	103.6

Remarks	Re-Issued Report Replaces Report No 14874/R/25-23971-1 (reason: Location and layer number added).
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	Accredited for compliance with ISO/IEC 17025 – Testing	
	Accreditation Number: 1986 Corporate Site Number: 14874	Approved Signatory: Nawin Dahal Form ID: W5ASMRRepSum Rev 4

Appendix C

Site Visit Records and Photos



Figure 3. Level 1 Supervision Site Photos



Figure 4. Level 1 Supervision Site Photos



Figure 5. Level 1 Supervision Site Photos



Figure 6. Level 1 Supervision Site Photos



Figure 7. Level 1 Supervision Site Photos



Figure 8. Level 1 Supervision Site Photos

Located across Australia and New Zealand

QLD

Airlie
Beenleigh
Brisbane (Acacia Ridge)
Brisbane (Beenleigh)
Brisbane (Brendale)
Brisbane (Petrie)
Cairns
Emerald
Gladstone
Gold Coast
Mackay
Moranbah
Rockhampton
Petrie
Sunshine Coast
Toowoomba
Townsville

NSW

Ballina
Coffs Harbour
Grafton
Lynwood
Newcastle
Sydney (Glendenning)
Sydney (Seven Hills)
Sydney (St Peters)
Taree
Wollongong

VIC

Ararat
Bendigo
Echuca
Melbourne (Chadstone)
Melbourne (Keysborough)
Melbourne (Pakenham)
Melbourne (Oaklands Junction)
Melbourne (Sunshine West)
Traralgon

WA

Bunbury
Kalgoorlie
Newman
Perth
Port Hedland

SA

Adelaide
Port Augusta

NT

Darwin

ACT

Canberra

NZ

Wellington