Construction Sciences

Level 1 Supervision & Inspection Report

RATHDOWNE ESTATE STAGE 20

Prepared for Winslow Constructors Pty Ltd

30/09/2025

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01	13/08/2025	Draft	Luke Mission	Bob Harris	Alex Dao
02	30/09/2025	Submission	Luke Mission	Bob Harris	Alex Dao

Contents

Appendices

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 48 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: Lot number 2003 - 2006

PROJECT: Rathdowne Estate Stage 20

ADDRESS: Blackbuck Rd, Wollert VIC 3750

The earthworks were carried out from 25/07/2025 to 4/08/2025.

The material used as structural fill was bought in externally and a total of approximately under 300m^3 of structural fill has been implemented and was being placed and compacted as at 3rd of August 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 fill must be placed and compacted in layers to a density ratio of not less than 95% of the maximum dry density as determined by AS1289.5.1.1 (standard compaction).

Existing Surface Assessments

Prior to commencement of filling, Construction Sciences confirmed that all unsuitable and weaker material such as topsoil, silt, uncontrolled or loose soil, organic effected material and other wet areas had been appropriately stripped in accordance with AS 3798-2007. The exposed surface after removal of unsuitable material was compacted by 12 Ton pad foot roller and checked for soft areas by proof rolling using a heavy ridged water cart, fully loaded to see if any ground movement occurred beneath the wheels as it was driven along the pad at walking space.

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 25th of August 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, High plasticity

Placement of fill was carried out using the following plant:

- Excavator
- CAT Pad foot Roller
- Water Truck

The fill material was spread in near-horizontal layers and compacted in successive layers to a maximum compacted thickness of 300mm, using a 12 Ton pad-foot Roller & compactor.

Fill Works

Level 1 Supervision was carried out in the period between 25th of July 2025 to 04th of August 2025 which included earthworks for Rathdowne Stage 20 (Lots 2003-2006). Subgrade material consisted of highly plastic clay was sourced from the onsite cut areas and reconditioned onsite.

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 field inspections were carried out regularly with observations made and recorded accordingly.

Site Works

Supervision for this project was carried out in the period between 25th of July 2025 to 4th of August 2025. Fill material consisted of high plastic gravelly clay mainly sourced from onsite spoil, conditioned onsite and compacted in place for the allotment number 2003 & 2006.

Following the removal of uncontrolled fill, the design subgrade was assessed and prepared for fill works. The area to be filled was stripped and compacted by using a pad foot roller in accordance with the specification requirements provided by the client.

The approximate location of the site is shown outlined in figure 1 below:

Figure 1. Fill areas highlighted in red – Rathdowne Estate – Stage 20

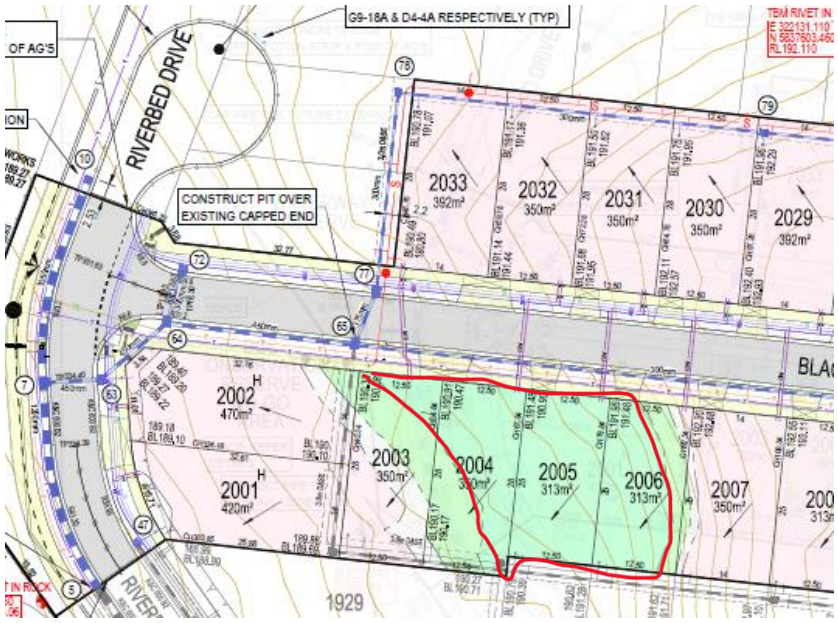

Figure 1. Level 1 supervision fill areas highlighted

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.*

A summary of the test results is included in Table 1 below. A total of 4 field density tests were carried out throughout the period of fill placement. The average density ratio of 96.75% with a standard deviation of 0.75% and average moisture ratio of 102.625% with a standard deviation of 6.75%

All test results are included in the Appendix B.

Table 1. Summary of field density & moisture results - Level 1 Supervision & Inspection Report

Date	Sample No.	Report No	Density Ratio %	Moisture Ratio %	Layer number
04/08/2025	S/25-68834	R/25-23986-1	97.0	111.0	1
04/08/2025	S/25-68835	R/25-23986-1	96.0	98.5	1
04/08/2025	S/25-68836	R/25-23986-1	97.5	105.0	1
04/08/2025	S/25-68837	R/25-23986-1	96.5	96.0	1

- **Mean Density Ratio** = 96.75%
- **Mean Moisture Ratio** = 102.625%
- **Density Standard Deviation** = 0.75%
- **Moisture Standard Deviation** = 6.75%

Site Investigations

Site investigations for The Patch Wollert were conducted in accordance with AS 3798, which stipulates that specific unsuitable materials must not be incorporated into structural fills. The images below illustrate stockpiles containing materials observed on site.

Oversize aggregates:

Figure 2. Oversize Aggregates on stockpile

During site visits conducted between July 25, 2025, and August 04, 2025, oversized aggregates or boulders were observed in stockpiles within the Lots of 2003 to 2006. These aggregates were sourced from Onsite – Clay Insitu Locations.

In accordance with AS 3798, the presence of boulders in sufficient proportions is not permitted in fills, as they may adversely impact compaction, moisture content for testing, and the overall quality of earthworks fills.

On July 25, 2025, discussions with the Foreman, focused on the extraction of oversized boulders from the fill. The operator confirmed that he separates the boulders from the stockpiles and relocates them to areas where oversized aggregates will not be included in the designated fill locations.

Conclusion

It is considered that the placement of fill at Blackbuck Rd, Wollert VIC 3750 was carried out in a controlled manner and the fill was compacted to a 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 The Patch Wollert.

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 into any communication with a third party regarding this report.

Appendix A

Layout Plan

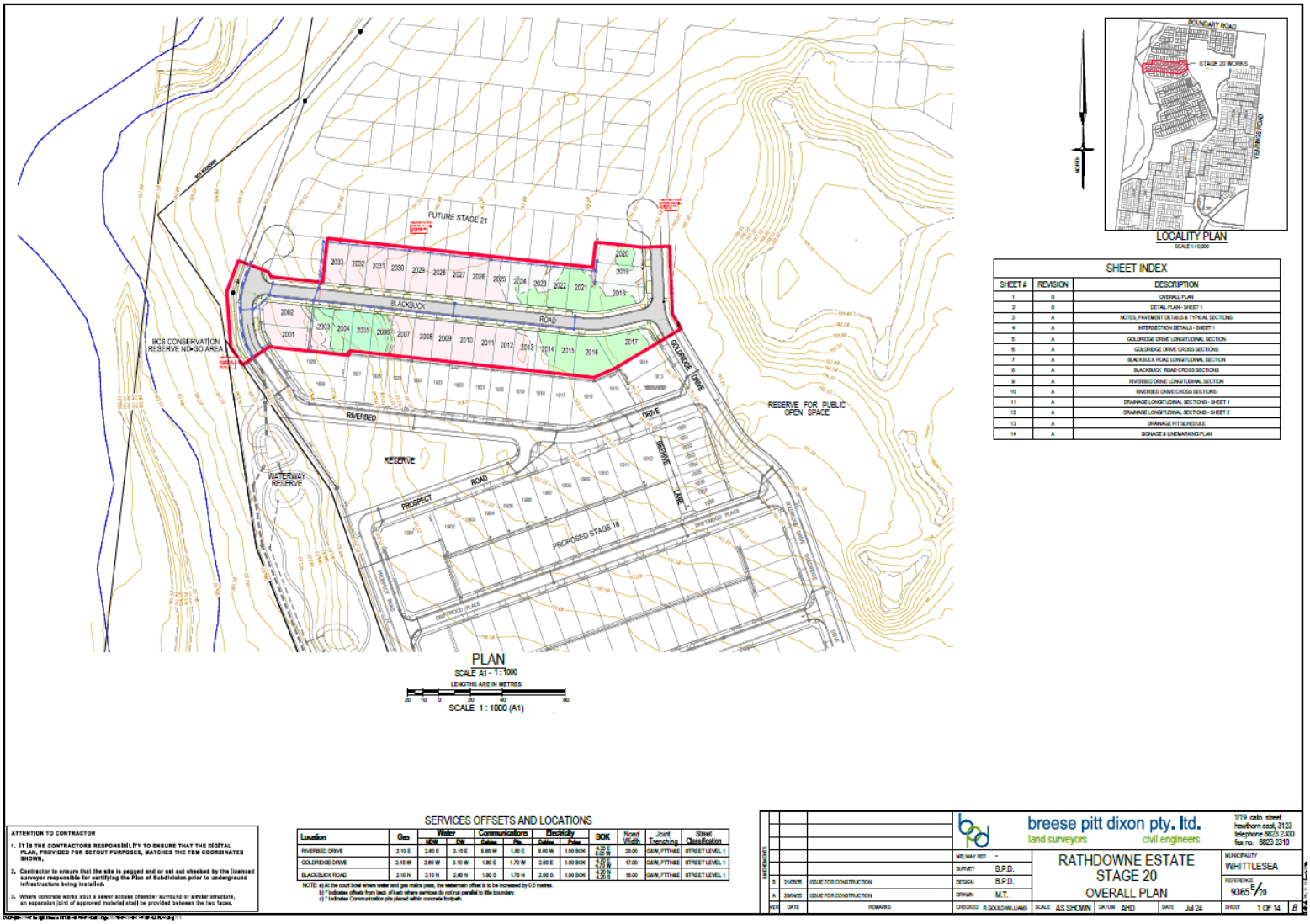

Figure 3. Site Location

Appendix B

Field Density Test Results

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LOT REPORT – DRY DENSITY RATIO / MOISTURE RATIO

Client:	Winslow Infrastructure Pty Ltd	Report Number:	14874/R/25-23986-1
Client Address:	2 Central Blvd, Port Melbourne	Project Number:	14874/P/3155
Project:	Rathdowne Stage 20	Lot Number:	2003
Location:	Various	Internal Test Request:	14874/T/25-9617
Component:	Lots 2003 - 2006	Client Reference/s:	Compaction Testing 4/8/25
Area Description:	RTM	Report Date / Page:	8/08/2025 Page 1 of 2

Test Procedures:	AS1289.5.4.1, RC301.01, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1

Sample Number	14874/S/25-68834	14874/S/25-68835	14874/S/25-68836	14874/S/25-68837
ID / Client ID	Compaction Testing 4/8/25	Compaction Testing 4/8/25	Compaction Testing 4/8/25	Compaction Testing 4/8/25
Lot Number	2003	2004	2005	2006
Date / Time Tested	4/08/2025 09:10	4/08/2025 09:10	4/08/2025 09:10	4/08/2025 09:10
Material Source	Onsite	Onsite	Onsite	Onsite
Material Type	Insitu	Insitu	Insitu	Insitu
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 / -	275 / 300 / -	275 / 300 / -
Standard or Modified	Standard	Standard	Standard	Standard
Stabilised Material Curing Time	-	-	-	-
Layer Number	Layer 1	Layer 1	Layer 1	Layer 1
Location Number	1	2	3	4
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize Wet / Dry (%)	10 / 12	14 / 15	10 / 12	9 / 10
MDR Sample Number	14874/S/25-68834	14874/S/25-68835	14874/S/25-68836	14874/S/25-68837
MDR Sample Date / Update	4/08/2025	4/08/2025	4/08/2025	4/08/2025
Assigned MDR (Yes / No)	No	No	No	No
Moisture Test Results:				
Field Moisture Content (%)	18.0	15.8	19.9	18.7
Optimum Moisture Content (%)	16.0	16.0	19.0	19.5
Variation from OMC (%)	2.0% Wetter than OMC	0.5% Drier than OMC	1.0% Wetter than OMC	1.0% Drier than OMC
Moisture Ratio (%)	**111.0**	**98.5**	**105.0**	**96.0**
Density Test Results:				
Field Wet Density (t/m³)	1.98	1.92	1.99	1.90
Field Dry Density (t/m³)	1.68	1.66	1.66	1.60
Maximum Dry Density (t/m³)	1.73	1.73	1.71	1.66
Dry Density Ratio Required (%)	95	95	95	-
Dry Density Ratio (%)	**97.0**	**96.0**	**97.5**	**96.5**

Remarks

NATA

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 1986
Corporate Site Number: 14874

Approved Signatory: Nawin Dahal
Form ID: W27ASRepSum Rev 3

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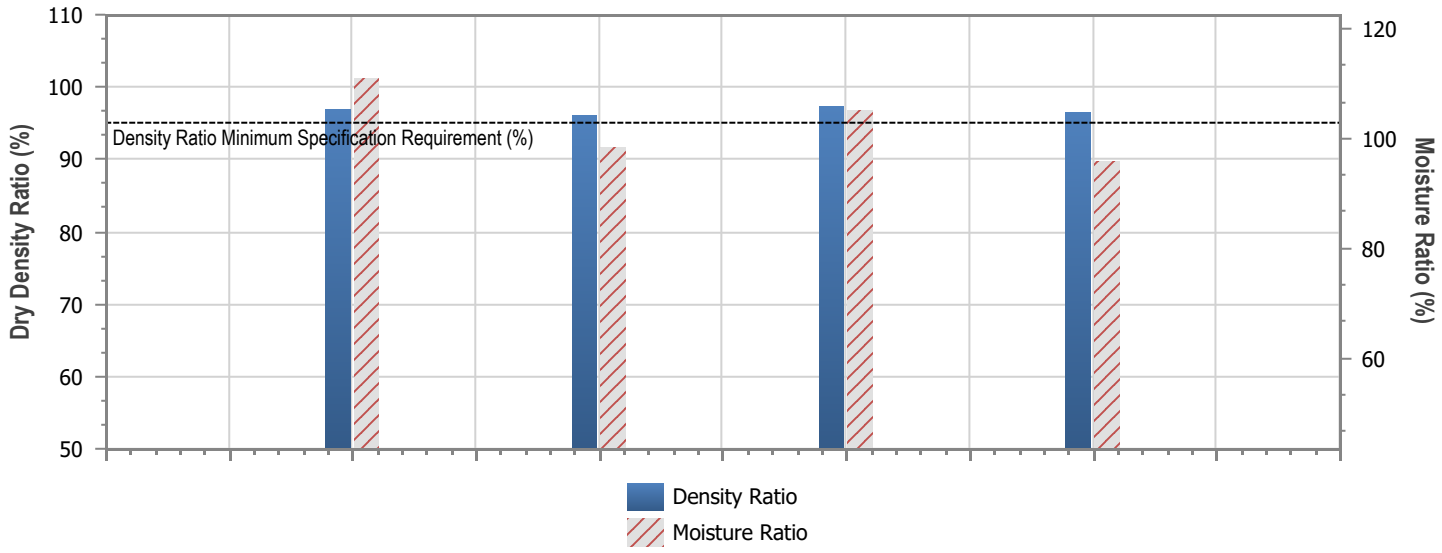
Client Address:	2 Central Blvd, Port Melbourne	Project Number:	14874/P/3155
Project:	Rathdowne Stage 20	Lot Number:	2003
Location:	Various	Internal Test Request:	14874/T/25-9617
Component:	Lots 2003 - 2006	Client Reference/s:	Compaction Testing 4/8/25
Area Description:	RTM	Report Date / Page:	8/08/2025 Page 2 of 2

Test Procedures:	AS1289.5.4.1, RC301.01, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
Statistical Analysis Test Method:	Vic Roads RC316.00

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 = 4	Lot Minimum	Lot Maximum	Lot Mean	Standard Deviation
Moisture Ratio (%)	95.8	111.0	102.6	6.881
Dry Density Ratio (%)	96.0	97.3	96.7	0.559

Lot Number: 2003

Mean Moisture Ratio (%): 102.6

Mean Density Ratio (%): 96.7

Remarks

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Approved Signatory: Nawin Dahal
Form ID: W27ASRepSum Rev 3

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Not to Scale
Dimensions in Approx. Metres

Site Location Sketch

Test site locations only
NOT TO SCALE

Client: Winslow Constructors
Job No. P/3155
Test Request No. T/ 25-9617
Date Tested: 04/08/2025

Appendix C

Photos

Figure 4. Site Photo – Rathdowne Estate Stage 20

Figure 5. Site Photo – Rathdowne Estate Stage 20

Figure 6. Site Photo – Rathdowne Estate Stage 20

Figure 7. Site Photo – Rathdowne Estate Stage 20

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

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