



**CIVIL GEOTECHNICAL SERVICES**  
**ABN 26 474 013 724**  
**PO Box 678 Croydon Vic 3136**  
**Telephone: 9723 0744 Facsimile: 9723 0799**

29<sup>th</sup> January 2018

Our Reference: 18064:NB126

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING  
ARMSTRONG ESTATE – STAGE 24 (MOUNT DUNEED)**

Please find attached our Report No's 18064/R001 and 18064/R002 which relate to the field density testing that was conducted within the filled allotments at the above subdivision. The level 1 inspections and associated field density testing were performed in August 2017.

The inspections and testing of the earthworks was undertaken in general accordance with the Level 1 requirements of AS 3798 - Guidelines on Earthworks for Commercial and Residential Developments.

The site inspection and testing was performed by experienced geotechnicians from this office. Any areas that were deemed unsatisfactory were reworked and retested under their supervision. The testing was performed to the relevant Australian Standards and the accompanying test reports carry NATA endorsement. The attached compaction results, which were located randomly throughout the fill profile, are considered to be representative of the bulk fill materials that were placed across the reported allotments by Winslow Constructors during the aforementioned period. The approximate locations of the field density tests can be seen on the attached plan (Figure 1).

We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

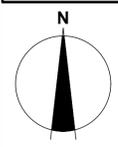
Civil Geotechnical Services

A handwritten signature in blue ink, appearing to be 'Nick Brock', written in a cursive style.

Nick Brock

- NOTES:**
- ALL VEHICLE AND PRAM CROSSING LAYBACKS, TO BE MINIMUM OF 1.0m FROM PITS.
  - ALL PRAM CROSSINGS TO BE A MINIMUM 2.0m FROM VEHICLE CROSSINGS.
  - ALL PRAM CROSSINGS TO BE DDA COMPLIANT.
  - VEHICLE EXCLUSION MEASURES BETWEEN ROAD RESERVE AND RESERVE TO FORM PART OF LANDSCAPE WORKS.
  - SIDE ENTRY PITS SHOWN OFFSET BY 1m FROM TANGENT POINTS, TO ACCOMMODATE CHANNEL DEPTH TRANSITION. FOR DETAILS REFER TO IDM STANDARD DRAWING SD430
  - ALL COORDINATES SHOWN ARE TO AHD
  - THE USE OF DIRECTIONAL AND HAZARD TACTILE PAVERS MUST ACCORD WITH SECTION 2.2.3.1 OF AS/NS 1428.4:2002
  - CONTRACTOR TO CONFIRM, WITH CALIBRE CONSULTING REPRESENTATIVE, PRIOR TO THE REMOVAL OF ANY TREES
  - PIT DIMENSIONS SHOWN ON PLANS, REFER TO THE CENTRE OF PIT BASE
  - SEWER MAINTENANCE HOLE CONVERTER SLAB OR CONE, TO BE ROTATED TO ENSURE COVER POSITION IS CENTRALLY LOCATED WITHIN FOOTPATH
  - CHAINAGES FOR SETOUT OF PROPERTY INLET POINTS, SERVICING FUTURE LOTS, ARE MEASURED FROM THE DOWNSTREAM PIT
  - CONTRACTOR TO LOCATE ALL EXISTING ASSETS PRIOR TO COMMENCEMENT OF WORKS. ANY DAMAGE TO EXISTING ASSETS TO BE RECTIFIED AT CONTRACTORS EXPENSE.

**WARNING**  
**BEWARE OF UNDERGROUND & OVERHEAD SERVICES**  
 The locations of underground & overhead services are approximate only & 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



# Approximate field density test location

# FIGURE 1



- LEGEND**
- E Electricity (Underground)
  - G Gas
  - T Telstra
  - W Water
  - SW Stormwater Drain, Pit and Property Inlet
  - SD Swale Drain
  - MS Sewer, Maintenance Structures and Property Connection
  - HD House Drain
  - GW Gas & Water Conduits
  - TP Tactile Paver - Directional
  - TH Tactile Paver - Hazard
  - Ex E Existing Electricity (Underground)
  - Ex O/H E Existing Electricity (Overhead)
  - Ex G Existing Gas
  - Ex T Existing Telstra
  - Ex W Existing Water
  - Ex SW Existing Stormwater Drain
  - Ex S Existing Sewer
  - Ex HD Existing House Drain
  - Ex T Existing Tree to Remain
  - Ex X Existing Tree to be Removed
  - Ex SD Existing Swale Drain
  - ES14.134 Existing Surface Level
  - FS14.035 Finished Building Line Level
  - FR15.40 Finished Ridge Line Level
  - TI15.30 Top of Retaining Wall
  - BW15.30 Bottom of Retaining Wall
  - Retaining Wall
  - Intersection Threshold Treatment
  - Structural Fill > 200mm Deep
  - Ex. Structural Fill > 200mm Deep
  - Proposed Driveway
  - Allotment to be graded evenly in direction of fall to levels indicated
  - Direction of Fall
  - Overland Flow
  - Permanent Survey Mark
  - Temporary Bench Mark
  - Concrete Edge Strip with Subsoil Drain underneath "No Road" sign and Barrier
  - Building Envelope
  - Limit of Works

REV	DATE	COMMENTS
6	28/11/17	LOT 2409 & 2448 DRIVEWAYS RELOCATED
5	27/09/17	LOT 2424 DRIVEWAY RELOCATED
4	04/09/17	SOS UPDATED, GLEE LANE CUTOUTS REMOVED
3	15/08/17	GLEE LANE AMENDED
2	08/07/17	LOT 2442 CROSSOVER RELOCATED
1	24/07/17	ELEC EASEMENT REMOVED
0	14/07/17	ISSUED FOR CONSTRUCTION
D	10/07/17	LOT 2445 TO 2448 ARRANGEMENT, UPDATED
E	21/06/17	SERVICES OFFSET SCHEDULE UPDATED
C	20/06/17	ROAD NAME CHANGED
B	31/05/17	LOTS 2426-2433 AMENDED
A	-/-/17	ISSUED FOR APPROVAL



**ARMSTRONG**  
 MT DUNEED

## STAGE 24



©2014 www.calibreconsulting.com.au  
 CALIBRE CONSULTING (MELB) PTY LTD  
 Level 2, 55 Southbank Boulevard  
 Southbank VIC 3006 T 03 9203 9000

## LAYOUT PLAN

1:500 10 5 0 10 20 A1  
 1:1000

SCALE @ A1	DRAWN	DESIGNED
1:500	R.KOZUL	R.KOZUL

PROJECT ENGINEER	PROJECT MANAGER	DATE FIRST ISSUE
J.CONSIGLIO	T.PALIOS	MARCH 2017

## CONSTRUCTION

SIGNED	DATE

DRAWING NUMBER: **M100611.24-C02** REVISION: **6**

ROAD NAME	ROAD CLASSIFICATION	RESERVE WIDTH (m)	ROAD WIDTH (m)			KERB TYPE		VERGE WIDTH (m)	
			LIP to LIP	INV to INV	BACK to BACK	NTH/WEST	STH/EAST	NTH/WEST	STH/EAST
OWARRA BOULEVARD	ACCESS	20.00	6.70	7.30	7.60	B2	B2	6.20	6.20
GLEE LANE	LANE	8.00	8.00	-	-	-	-	-	-
ELEVEN WAY (LOT 2401)	ACCESS	13.50	4.90	5.50	5.80	B2	B2	1.50	6.20
ELEVEN WAY (LOT 2410-2419)	ACCESS	16.00	6.70	7.30	7.60	B2	B2	4.20	4.20
CONQUEST STREET	ACCESS	16.00	6.70	7.30	7.60	B2	B2	4.20	4.20
PRINCETON STREET	ACCESS	16.00	6.70	7.30	7.60	B2	B2	4.20	4.20

ROAD NAME	SERVICES OFFSET SCHEDULE									
	GAS		RECYCLED WATER		WATER		ELECTRICITY			
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)		
OWARRA BOULEVARD	WEST	2.10	WEST	2.60	WEST	3.10	EAST	1.775	EAST	2.60
GLEE LANE	SOUTH	2.10	SOUTH	2.60	SOUTH	3.10	NORTH	0.50	NORTH	1.20
ELEVEN WAY (LOT 2401)	EAST	2.10	EAST	2.60	EAST	3.10	EAST	4.10	EAST	4.70
ELEVEN WAY (LOT 2410-2419)	WEST	2.10	WEST	2.60	WEST	3.10	EAST	1.775	EAST	2.60
CONQUEST STREET	NORTH	2.10	NORTH	2.60	NORTH	3.10	SOUTH	1.775	SOUTH	2.60
PRINCETON STREET	NORTH	2.10	NORTH	2.60	NORTH	3.10	SOUTH	1.775	SOUTH	2.60
PLENTY WALK	SOUTH	0.50	SOUTH	1.00	SOUTH	1.50	-	-	-	-



# COMPACTION ASSESSMENT

Job No 18064  
 Report No 18064/R001  
 Date Issued 06/10/2017

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by AG  
 Date tested 14/08/17  
 Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)  
 Project ARMSTRONG - STAGE 24  
 Location MOUNT DUNNED

Feature **EARTHWORKS** Layer thickness 200 mm Time: 15:11

### Test procedure AS 1289.2.1.1 & 5.8.1

Test No	1	2	3	4	5	6
Location	REFER TO FIGURE 1					
Approximate depth below FSL						
Measurement depth mm	175	175	175	175	175	175
Field wet density t/m <sup>3</sup>	1.87	1.87	1.98	1.92	1.94	2.01
Field moisture content %	27.0	26.2	21.9	28.3	25.1	17.8

### Test procedure AS 1289.5.7.1

Test No	1	2	3	4	5	6
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material wet	0	0	0	0	0	0
Peak Converted Wet Density t/m <sup>3</sup>	1.91	1.91	1.97	1.91	1.95	2.00
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	27.0	25.5	22.0	28.0	25.5	18.5

Moisture Variation From Optimum Moisture Content	0.0%	0.5% wet	0.0%	0.0%	0.5% dry	1.0% dry
--	------	----------	------	------	----------	----------

Density Ratio ( R <sub>HD</sub> ) %	97.5	97.5	100.5	100.5	100.0	100.5
-------------------------------------	------	------	-------	-------	-------	-------

### Material description

No 1 - 6 Clay Fill



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. Accredited for compliance to ISO/IEC 17025. Accreditation No 9909

Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

Job No 18064  
 Report No 18064/R002  
 Date Issued 14/09/2017

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	ARMSTRONG - STAGE 24	Date tested	14/08/17
Location	MOUNT DUNNED	Checked by	JHF

<b>Feature</b>	EARTHWORKS	Layer thickness	200 mm	Time: 15:15
----------------	------------	-----------------	--------	-------------

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	7	8	-	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1				
Approximate depth below FSL						
Measurement depth <i>mm</i>	175	175	-	-	-	-
Field wet density <i>t/m<sup>3</sup></i>	2.02	1.99	-	-	-	-
Field moisture content <i>%</i>	14.9	14.1	-	-	-	-

Test procedure AS 1289.5.7.1

Test No	7	8	-	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	-	-	-	-
Percent of oversize material <i>wet</i>	0	0	-	-	-	-
Peak Converted Wet Density <i>t/m<sup>3</sup></i>	2.01	2.03	-	-	-	-
Adjusted Peak Converted Wet Density <i>t/m<sup>3</sup></i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	16.5	16.5	-	-	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	-	-	-	-
--	-------------	-------------	---	---	---	---

<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>100.5</b>	<b>98.5</b>	-	-	-
---	----------	--------------	-------------	---	---	---

Material description

No 7 - 8 Clay Fill
--------------------



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. Accredited for compliance to ISO/IEC 17025. Accreditation No 9909

Approved Signatory : Justin Fry