



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

16th December 2015

Our Reference: 15593:DK105

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
ARMSTRONG (STAGE 17) – MOUNT DUNEED**

Please find attached our Report Nos 15593/R001 to 15593/R007 that 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 commenced in early October 2014 and was completed in mid November 2014.

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 inspections and testing was performed by an experienced geotechnician 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 filled 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).

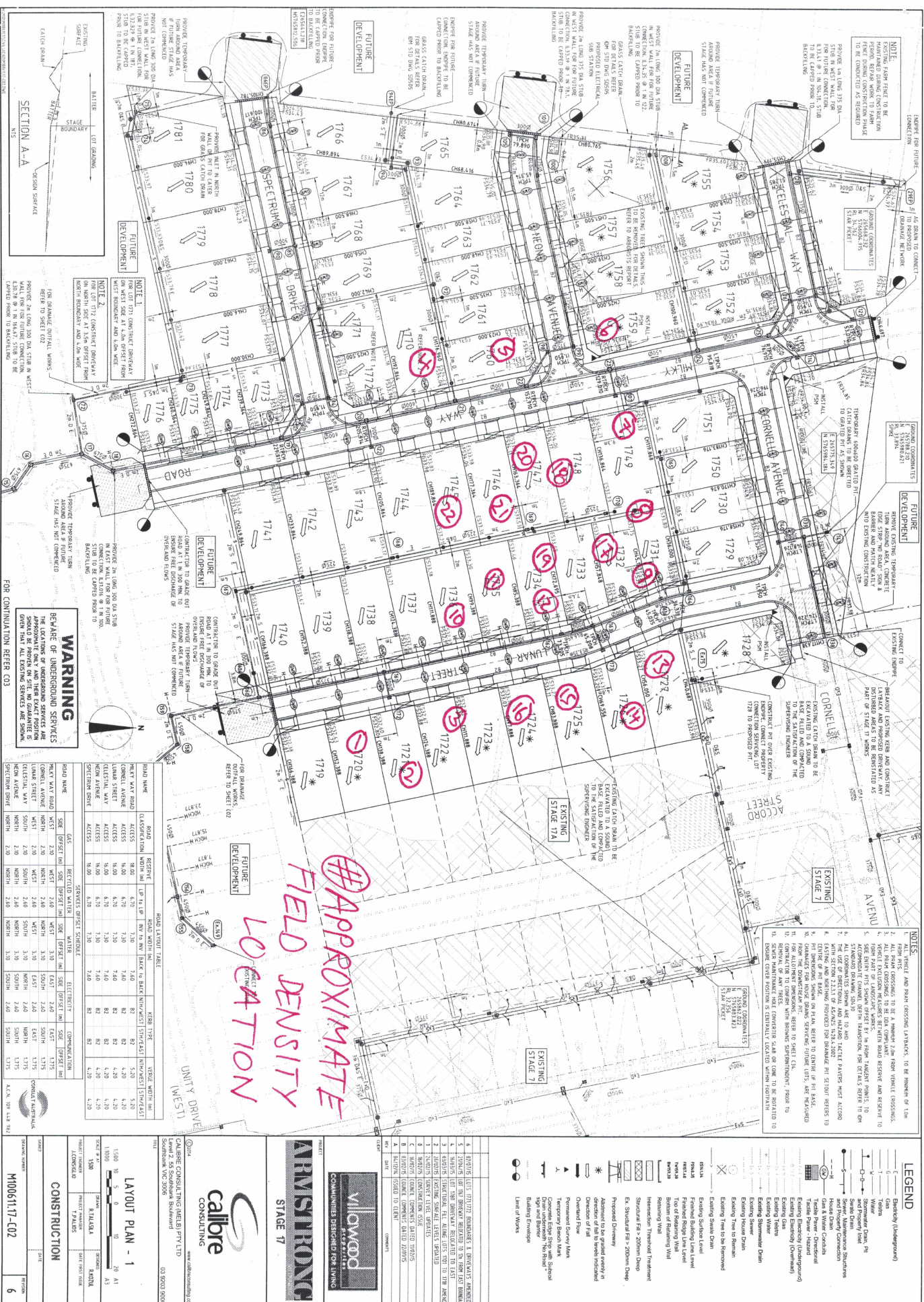
We are of the view that the bulk fill materials that have been placed across the filled allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Dino Kondzic

FIGURE 1





COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 15593
Report No 15593/R001
Date Issued 12/11/14
Tested by DK
Date tested 05/09/14
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project ARMSTRONG, MT DUNEED - STAGE 17
Location MOUNT DUNEED

Feature EARTHWORKS Layer thickness 200 mm Time: 12:07

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	1	2	3	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m ³	1.94	2.05	2.00	-	-	-
Field moisture content %	14.4	14.1	14.5	-	-	-

Test procedure AS 1289.5.7.1

Test No	1	2	3	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	2	3	-	-	-
Peak Converted Wet Density t/m ³	1.97	2.02	2.03	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	2.02	2.03	-	-	-
Optimum Moisture Content %	17.0	16.5	17.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	98.5	101.5	98.0	-	-	-
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Material description

No 1 - 3 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

Justin Fry

Approved Signatory : Justin Fry

AVRLOT HILF V1.10 MAR 13



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 15593
Report No 15593/R002
Date Issued 30/09/14
Tested by DK
Date tested 11/09/14
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project ARMSTRONG, MT DUNEED - STAGE 17
Location MOUNT DUNEED

Feature EARTHWORKS Layer thickness 200 mm Time: 09:45

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	4	5	6	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m ³	2.06	2.03	1.97	-	-	-
Field moisture content %	19.4	20.7	14.5	-	-	-

Test procedure AS 1289.5.7.1

Test No	4	5	6	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	1	0	-	-	-
Peak Converted Wet Density t/m ³	2.04	2.04	1.97	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	2.05	-	-	-	-
Optimum Moisture Content %	19.0	20.5	17.0	-	-	-

Moisture Variation From Optimum Moisture Content	0.0%	0.0%	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	101.0	99.0	100.0	-	-	-
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Material description

No 4 - 6 Clay Fill



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COMPACTION ASSESSMENT

Job No 15593
Report No 15593/R003
Date Issued 24/11/14

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by DK
Date tested 15/09/14
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project ARMSTRONG, MT DUNEED - STAGE 17
Location MOUNT DUNEED

Feature EARTHWORKS Layer thickness 200 mm Time: 10:04

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	7	8	9	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m ³	1.96	2.03	1.96	-	-	-
Field moisture content %	14.4	15.5	16.5	-	-	-

Test procedure AS 1289.5.7.1

Test No	7	8	9	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	2	0	0	-	-	-
Peak Converted Wet Density t/m ³	1.99	1.96	1.99	-	-	-
Adjusted Peak Converted Wet Density t/m ³	1.99	-	-	-	-	-
Optimum Moisture Content %	16.5	18.5	19.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	98.5	103.5	98.5	-	-	-
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Material description

No 7 - 9 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 15593
Report No 15593/R004
Date Issued 11/12/14
Tested by DK
Date tested 16/09/14
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project ARMSTRONG, MT DUNEED - STAGE 17
Location MOUNT DUNEED

Feature EARTHWORKS Layer thickness 200 mm Time: 11:15

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	10	11	12	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m ³	2.02	2.01	2.02	-	-	-
Field moisture content %	15.9	14.8	14.7	-	-	-

Test procedure AS 1289.5.7.1

Test No	10	11	12	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	1	0	0	-	-	-
Peak Converted Wet Density t/m ³	2.02	1.99	1.98	-	-	-
Adjusted Peak Converted Wet Density t/m ³	2.02	1.99	1.98	-	-	-
Optimum Moisture Content %	18.5	17.5	17.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	100.0	101.0	102.5	-	-	-
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Material description

No 10 - 12 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 15593
Report No 15593/R005
Date Issued 27/11/14
Tested by DK
Date tested 05/11/14
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project ARMSTRONG, MT DUNEED - STAGE 17
Location MOUNT DUNEED

Feature EARTHWORKS Layer thickness 200 mm Time: 11:30

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	13	14	15	16	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1		
Approximate depth below FSL						
Measurement depth mm	175	175	175	175	-	-
Field wet density t/m ³	1.97	1.99	1.93	1.95	-	-
Field moisture content %	17.8	18.7	16.0	15.6	-	-

Test procedure AS 1289.5.7.1

Test No	13	14	15	16	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	19.0	-	-
Percent of oversize material wet	0	0	0	2	-	-
Peak Converted Wet Density t/m ³	2.00	2.03	1.97	1.98	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	1.99	-	-
Optimum Moisture Content %	18.0	18.0	18.0	18.0	-	-

Moisture Variation From Optimum Moisture Content	0.0%	0.5% wet	2.0% dry	2.5% dry	-	-
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Density Ratio (R_{HD})	%	99.0	98.0	98.0	98.0	-	-
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Material description

No 13 - 16 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 15593
Report No 15593/R006
Date Issued 27/11/14
Tested by DK
Date tested 06/11/14
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project ARMSTRONG, MT DUNEED - STAGE 17
Location MOUNT DUNEED

Feature **EARTHWORKS** Layer thickness 200 mm Time: 09:42

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	17	18	19	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m ³	1.98	1.99	2.03	-	-	-
Field moisture content %	19.5	16.7	17.2	-	-	-

Test procedure AS 1289.5.7.1

Test No	17	18	19	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	1	0	-	-	-
Peak Converted Wet Density t/m ³	2.02	2.00	2.04	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	2.02	-	-	-	-
Optimum Moisture Content %	20.0	19.0	18.0	-	-	-

Moisture Variation From Optimum Moisture Content	0.5% dry	2.0% dry	1.0% dry	-	-	-
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Density Ratio (R_{HD})	%	98.0	99.0	99.5	-	-	-
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Material description

No 17 - 19 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 15593
Report No 15593/R007
Date Issued 27/11/14
Tested by SC
Date tested 10/11/14
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project ARMSTRONG, MT DUNEED - STAGE 17
Location MOUNT DUNEED

Feature EARTHWORKS Layer thickness 200 mm Time: 10:00

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	20	21	22	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m ³	2.01	2.10	2.01	-	-	-
Field moisture content %	12.6	13.4	11.8	-	-	-

Test procedure AS 1289.5.7.1

Test No	20	21	22	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	0	0	-	-	-
Peak Converted Wet Density t/m ³	2.00	2.08	2.02	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	2.09	2.03	-	-	-
Optimum Moisture Content %	14.5	16.0	14.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	100.5	100.5	99.5	-	-	-
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Material description

No 20 - 22 Clay Fill



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