



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

26th June 2020

Our Reference: 19741:NB758

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
MARIGOLD – STAGE 3 (TARNEIT)**

Please find attached our Report No's 19741/R001 to 19741/R006 which relate to the field density testing that was conducted within the filled allotments of the above subdivision. The level 1 inspections and associated field density testing commenced in November 2019 and was completed in June 2020.

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 read 'Nick Brock', is written over a faint circular stamp.

Nick Brock



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 19741
Report No 19741/R001
Date Issued 14/11/2019

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	MARIGOLD - STAGE 3	Date tested	11/11/19
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	08:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No		1	2	3	4	5	6
Location		REFER TO FIGURE 1	REFER TO FIGURE 1	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	175	175
Field wet density	t/m ³	1.89	1.88	1.92	1.95	1.90	1.86
Field moisture content	%	26.4	25.2	25.7	23.4	26.0	25.8

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 ³	1.95	1.95	1.96	1.95	1.94	1.96
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-	-
Optimum Moisture Content	%	29.5	28.5	29.0	26.5	29.0	29.0

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.5% dry	2.5% dry	2.5% dry	2.5% dry
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Density Ratio (R _{HD})	%	97.0	96.5	98.0	99.5	98.5	95.5
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Material description

No 1 - 6 Clay Fill

AVRLOT HILF V1.10 MAR 13



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation No 9909

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 19741
 Report No 19741/R002
 Date Issued 24/01/2020

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	MARIGOLD - STAGE 3	Date tested	12/11/19
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 09:31
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	7	8	9	10	11	12
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth <i>mm</i>	175	175	175	175	175	175
Field wet density <i>t/m³</i>	2.01	1.96	1.92	1.90	1.88	1.90
Field moisture content <i>%</i>	27.0	25.8	27.7	27.2	21.5	19.5

Test procedure AS 1289.5.7.1

Test No	7	8	9	10	11	12
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material <i>wet</i>	0	0	0	0	0	0
Peak Converted Wet Density <i>t/m³</i>	2.01	2.01	1.98	1.98	1.98	1.98
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	28.5	27.5	25.0	25.0	23.0	21.0

Moisture Variation From Optimum Moisture Content	1.5% dry	1.5% dry	2.5% wet	2.0% wet	1.5% dry	1.5% dry
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Density Ratio (R_{HD})	%	100.0	98.0	97.5	96.0	95.0	96.0
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Material description

No 7 - 12 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Accreditation No 9909

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 19741
 Report No 19741/R003
 Date Issued 22/06/2020

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AM
Project	MARIGOLD - STAGE 3	Date tested	15/06/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 09:46
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	13	14	15	16	17	18
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	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	175
Field wet density	t/m ³	1.76	1.77	1.80	1.73	1.81
Field moisture content	%	31.1	31.6	28.7	28.8	23.3

Test procedure AS 1289.5.7.1

Test No	13	14	15	16	17	18
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0
Peak Converted Wet Density	t/m ³	1.80	1.81	1.85	1.81	1.86
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	28.5	29.0	26.5	26.5	23.5

Moisture Variation From Optimum Moisture Content	2.5% wet	2.5% wet	2.0% wet	2.5% wet	0.0%	2.0% wet
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Density Ratio (R _{HD})	%	97.5	97.5	97.0	95.5	97.5	96.0
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Material description

No 13 - 18 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Accreditation No 9909

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 19741
 Report No 19741/R004
 Date Issued 26/06/2020

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AM
Project	MARIGOLD - STAGE 3	Date tested	16/06/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 10:49
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	19	20	21	22	23	24	
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	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	175	
Field wet density	t/m ³	1.85	1.87	1.89	1.90	1.80	1.88
Field moisture content	%	25.8	25.6	22.8	25.6	27.3	24.0

Test procedure AS 1289.5.7.1

Test No	19	20	21	22	23	24	
Compactive effort	Standard						
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	
Percent of oversize material	wet	3	6	6	8	9	6
Peak Converted Wet Density	t/m ³	1.91	1.94	1.96	1.91	1.85	1.93
Adjusted Peak Converted Wet Density	t/m ³	1.92	1.96	1.98	1.94	1.89	1.95
Optimum Moisture Content	%	28.0	25.5	25.0	28.5	29.0	23.5

Moisture Variation From Optimum Moisture Content	2.0% dry	0.0%	2.0% dry	2.5% dry	1.5% dry	0.5% wet
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Density Ratio (R _{HD})	%	96.5	95.5	95.5	98.0	95.5	96.5
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Material description

No 19 - 24 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Accreditation No 9909

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 19741
 Report No 19741/R005
 Date Issued 24/06/2020

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AM
Project	MARIGOLD - STAGE 3	Date tested	17/06/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 11:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	25	26	27	28	29	30
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	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	175
Field wet density	t/m ³	1.89	1.88	1.91	1.79	1.82
Field moisture content	%	28.5	27.1	26.2	22.7	21.7

Test procedure AS 1289.5.7.1

Test No	25	26	27	28	29	30
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	5	2	0
Peak Converted Wet Density	t/m ³	1.95	1.91	1.95	1.80	1.92
Adjusted Peak Converted Wet Density	t/m ³	-	-	1.97	1.84	-
Optimum Moisture Content	%	26.5	25.0	24.0	24.5	23.5

Moisture Variation From Optimum Moisture Content	2.0% wet	2.0% wet	2.0% wet	2.0% dry	2.0% dry	2.5% dry
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Density Ratio (R _{HD})	%	97.0	98.5	97.0	97.0	95.0	96.0
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Material description

No 25 - 30 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 19741
 Report No 19741/R006
 Date Issued 26/06/2020

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AM
Project	MARIGOLD - STAGE 3	Date tested	18/06/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:25
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	31	32	33	34	35	36
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	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	175
Field wet density	t/m ³	1.86	1.87	1.87	1.87	1.88
Field moisture content	%	25.9	27.0	25.5	28.3	25.8

Test procedure AS 1289.5.7.1

Test No	31	32	33	34	35	36
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	12	0	10
Peak Converted Wet Density	t/m ³	1.92	1.94	1.91	1.93	1.92
Adjusted Peak Converted Wet Density	t/m ³	-	-	1.96	-	1.96
Optimum Moisture Content	%	25.5	26.5	26.5	27.5	25.5

Moisture Variation From Optimum Moisture Content	0.5% wet	0.5% wet	1.0% dry	0.5% wet	0.0%	0.5% wet
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Density Ratio (R _{HD})	%	97.0	96.5	96.0	97.0	96.0	95.0
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Material description

No 31 - 36 Clay Fill

AVRLOT HILF V1.10 MAR 13



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