

# CIVIL GEOTECHNICAL SERVICES ABN 26 474 013 724

PO Box 678 Croydon Vic 3136 Telephone: 9723 0744 Facsimile: 9723 0799

23<sup>rd</sup> April 2022

Our Reference: 22233:NB1224

Winslow Constructors Pty Ltd 50 Barry Road CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING MARIGOLD – STAGE 10 (TARNEIT)

Please find attached our Report No's 22233/R001 to 22233/R009 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 commenced in March 2022 and was completed in April 2022.

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).

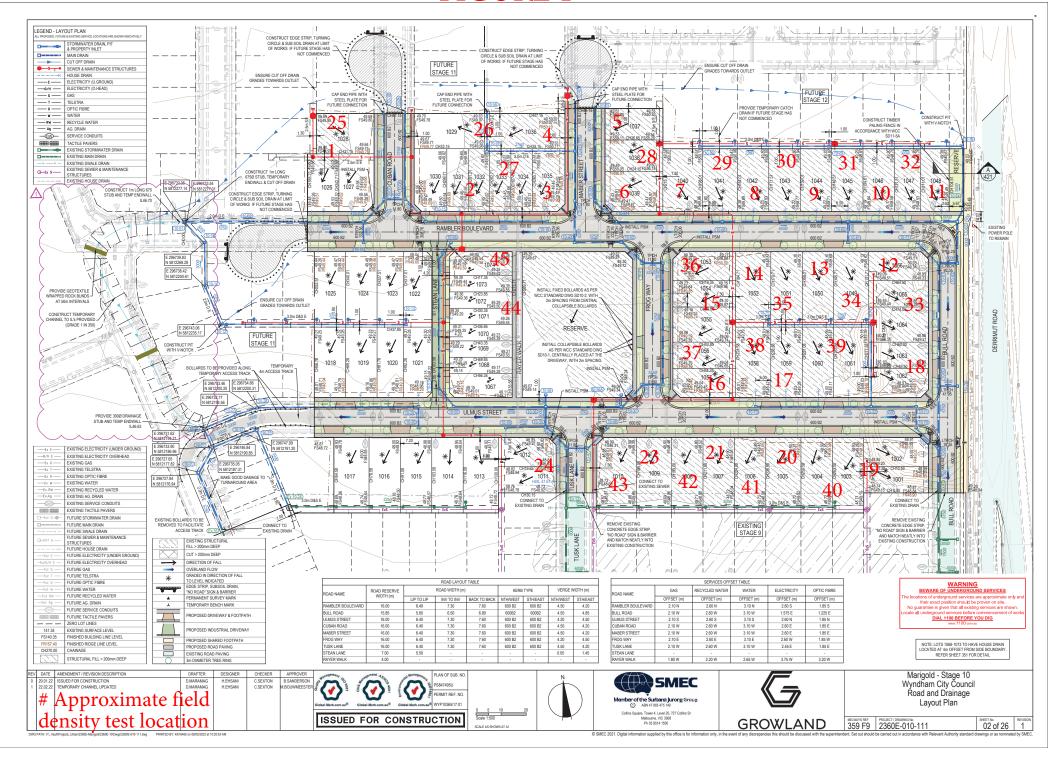
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

# FIGURE 1





Location

**TARNEIT** 

#### **COMPACTION ASSESSMENT**

Job No 22233 CIVIL GEOTECHNICAL SERVICES Report No 22233/R001 Date Issued 22/04/2022 6 - 8 Rose Avenue, Croydon 3136 WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) Client Tested by BS MARIGOLD - STAGE 10 Date tested 23/03/22 Project

Feature EARTHWORKS Layer thickness 200 mm Time: 15:24

Test No		1	2	3	-	-	-
Location							
		REFER	REFER	REFER			
		TO	TO	TO			
		FIGURE 1	FIGURE 1	FIGURE 1			
Approximate depth below FSL							
Measurement depth	mm	175	175	175	-	-	-
Field wet density	t/m³	1.83	1.83	1.85	-	-	-

%

25.1

#### Test procedure AS 1289.5.7.1

Field moisture content

Test No		1	2	3	-	-	-
Compactive effort				Stan	ndard		
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/m³	1.89	1.87	1.88	-	-	-
Adjusted Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	28.0	27.5	32.5	-	-	-

25.1

29.7

Moisture Variation From	2.5%	2.5%	2.5%	-	-	-
Optimum Moisture Content	dry	dry	dry			

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R <sub>HD</sub> )	%	96.5	97.5	99.0	-	-	-

#### Material description

No 1 - 3 Clay Fill

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13

Approved Signatory : Justin Fry

Checked by

**JHF** 



Location

**TARNEIT** 

#### **COMPACTION ASSESSMENT**

Job No 22233 CIVIL GEOTECHNICAL SERVICES Report No 22233/R002 Date Issued 22/04/2022 6 - 8 Rose Avenue, Croydon 3136 WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) Client Tested by BS MARIGOLD - STAGE 10 Date tested 24/03/22 Project

Feature EARTHWORKS Layer thickness 200 mm Time: 15:26

Test No		4	5	6	-	-	-
Location							
		REFER	REFER	REFER			
		TO	TO	TO			
		FIGURE 1	FIGURE 1	FIGURE 1			
Annuaring to double below FOI							_
Approximate depth below FSL							
Measurement depth	mm	175	175	175	-	-	-
Field wet density	t/m³	1.86	1.86	1.87	1	-	-
Field moisture content	%	24.2	24.4	26.9	-	-	_

#### Test procedure AS 1289.5.7.1

Test No		4	5	6	-	-	-
Compactive effort				Stan	ndard		
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/m³	1.89	1.90	1.90	-	-	-
Adjusted Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	26.5	27.0	29.5	-	-	-

Moisture Variation From	2.5%	2.5%	2.5%	-	-	-
Optimum Moisture Content	dry	dry	dry			

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

<u>-</u>	,	•		•	,	
Density Ratio (R <sub>HD</sub> )	% 98.5	98.0 98.5	-	-	-	

#### Material description

No 4 - 6 Clay Fill

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13

Approved Signatory : Justin Fry

Checked by

JHF



 CIVIL GEOTECHNICAL SERVICES
 Job No
 22233

 6 - 8 Rose Avenue, Croydon 3136
 Report No
 22233/R003

 Date Issued
 12/04/2022

ClientWINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)Tested byJBProjectMARIGOLD - STAGE 10Date tested25/03/22LocationTARNEITChecked byJHF

Feature EARTHWORKS Layer thickness 200 mm Time: 08:00

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		7	8	9	10	11	12
Location							
		REFER	REFER	REFER	REFER	REFER	REFER
		TO	TO	TO	TO	TO	TO
		FIGURE 1					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	2.00	1.96	1.94	1.94	1.93	1.98
Field moisture content	%	19.6	20.9	20.1	20.2	21.4	21.9

Test procedure AS 1289.5.7.1

Test No		7	8	9	10	11	12
Compactive effort				Stan	ndard		
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/m³	2.04	2.01	1.97	1.98	1.96	2.01
Adjusted Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	19.5	22.5	21.0	21.5	23.5	23.0

Moisture Variation From	0.0%	1.5%	1.0%	1.5%	2.0%	1.0%
Optimum Moisture Content		dry	dry	dry	dry	dry

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R <sub>HD</sub> )	%	98.0	98.0	98.5	98.0	98.5	98.5

Material description

No 7 - 12 Clay Fill

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13

Approved Signatory : Justin Fry



 CIVIL GEOTECHNICAL SERVICES
 Job No
 22233

 6 - 8 Rose Avenue, Croydon 3136
 Report No
 22233/R004

 Date Issued
 12/04/2022

ClientWINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)Tested byJBProjectMARIGOLD - STAGE 10Date tested28/03/22LocationTARNEITChecked byJHF

Feature EARTHWORKS Layer thickness 200 mm Time: 13:00

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		13	14	15	16	17	18
Location							
		REFER	REFER	REFER	REFER	REFER	REFER
		TO	TO	TO	TO	TO	TO
		FIGURE 1					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	1.84	1.87	1.84	1.79	1.86	1.86
Field moisture content	%	22.2	15.6	17.7	18.8	19.1	18.8

Test procedure AS 1289.5.7.1

Test No		13	14	15	16	17	18
Compactive effort				Stan	ndard		
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/m³	1.87	1.92	1.91	1.83	1.91	1.90
Adjusted Peak Converted Wet Density	t/m³	1	-	-	-	-	-
Optimum Moisture Content	%	23.5	17.5	20.0	21.5	20.5	21.5

Moisture Variation From	1.0%	2.0%	2.0%	2.5%	1.5%	2.5%
Optimum Moisture Content	dry	dry	dry	dry	dry	dry

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R <sub>HD</sub> )	%	98.5	97.5	96.5	98.5	97.0	98.0

Material description

No 13 - 18 Clay Fill

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13

Approved Signatory : Justin Fry



 CIVIL GEOTECHNICAL SERVICES
 Job No
 22233

 6 - 8 Rose Avenue, Croydon 3136
 Report No
 22233/R005

 Date Issued
 19/04/2022

ClientWINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)Tested byJBProjectMARIGOLD - STAGE 10Date tested29/03/22LocationTARNEITChecked byJHF

Feature EARTHWORKS Layer thickness 200 mm Time: 07:30

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		19	20	21	22	23	24
Location							
		REFER	REFER	REFER	REFER	REFER	REFER
		TO	TO	TO	TO	TO	TO
		FIGURE 1					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	1.95	1.92	1.92	1.97	1.92	1.93
Field moisture content	%	16.7	17.6	17.9	17.1	17.7	17.9

Test procedure AS 1289.5.7.1

: 000 p: 000 dd: 0 7 to 1=00:0:: 1							
Test No		19	20	21	22	23	24
Compactive effort				Star	ndard		
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/m³	1.98	1.96	1.95	1.99	1.96	1.99
Adjusted Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	18.0	20.0	19.5	19.5	20.0	20.0

Moisture Variation From	1.5%	2.5%	1.5%	2.5%	2.5%	2.0%
Optimum Moisture Content	dry	dry	dry	dry	dry	dry

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

		,	•			•	,
Density Ratio (R <sub>HD</sub> )	%	98.5	98.0	98.5	99.0	98.0	97.5

### Material description

No 19 - 24 Clay Fill

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13





 CIVIL GEOTECHNICAL SERVICES
 Job No
 22233

 6 - 8 Rose Avenue, Croydon 3136
 Report No
 22233/R006

 Date Issued
 08/04/2022

ClientWINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)Tested byJBProjectMARIGOLD - STAGE 10Date tested29/03/22LocationTARNEITChecked byJHF

Feature EARTHWORKS Layer thickness 200 mm Time: 13:00

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		25	26	27	28	29	30
Location		REFER TO FIGURE 1					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	1.85	1.82	1.84	2.05	2.05	1.93
Field moisture content	%	16.7	13.7	17.4	17.9	16.1	16.9

Test procedure AS 1289.5.7.1

Test No		25	26	27	28	29	30
Compactive effort				Star	ndard		
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/m³	1.88	1.88	1.88	2.06	2.08	1.99
Adjusted Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	19.0	16.0	19.5	20.5	18.5	19.0

Moisture Variation From	2.5%	2.5%	2.0%	2.0%	2.5%	2.0%
Optimum Moisture Content	dry	dry	dry	dry	dry	dry

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R <sub>HD</sub> )	%	98.0	97.0	98.0	99.0	98.5	97.0

### Material description

No 25 - 30 Clay Fill

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13

Approved Signatory: Justin Fry



Job No 22233 **CIVIL GEOTECHNICAL SERVICES** 22233/R007 Report No Date Issued 12/04/2022 6 - 8 Rose Avenue, Croydon 3136

WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) JB Client Tested by MARIGOLD - STAGE 10 Date tested 30/03/22 Project Location **TARNEIT** Checked by JHF

Feature **EARTHWORKS** Layer thickness 200 mm Time: 13:00

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		31	32	33	34	35	36
Location							
		REFER	REFER	REFER	REFER	REFER	REFER
		TO	TO	TO	TO	TO	TO
		FIGURE 1					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	1.90	1.89	1.95	1.93	1.92	1.93
Field moisture content	%	16.9	17.1	22.3	22.5	21.2	19.7

Test procedure AS 1289.5.7.1

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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	19.0	
Percent of oversize material	wet	0	0	0	0	0	0	
Peak Converted Wet Density	t/m³	1.93	1.93	1.99	1.94	1.95	1.95	
Adjusted Peak Converted Wet Density	t/m³	-	-	-	-	-	-	
Optimum Moisture Content	%	19.5	19.5	25.0	25.0	23.0	22.5	

Moisture Variation From	2.5%	2.5%	2.5%	2.5%	2.0%	2.5%
Optimum Moisture Content	dry	dry	dry	dry	dry	dry

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

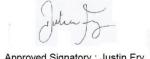
Density Ratio (R <sub>HD</sub> )	%	98.5	97.5	98.5	99.5	99.0	99.5

### Material description

No 31 - 36 Clay Fill

NATA Accredited Laboratory No 9909 Accredited for compliance with ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13



Approved Signatory: Justin Fry



Job No 22233 **CIVIL GEOTECHNICAL SERVICES** 22233/R008 Report No Date Issued 07/04/2022 6 - 8 Rose Avenue, Croydon 3136 WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) Client Tested by JD MARIGOLD - STAGE 10 Date tested 31/03/22 Project Location **TARNEIT** Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 17:38

Test procedure AS	1289.2.1.1 & 5.8.1
Tost No	

Test No		37	38	39	-	-	-
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/m³	1.92	1.90	2.00	-	-	-
Field moisture content	%	14.1	16.0	14.3	-	-	-

## Test procedure AS 1289.5.7.1

Test No		37	38	39	-	-	-	
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/m³	1.97	1.93	2.03	-	-	-	
Adjusted Peak Converted Wet Density	t/m³	-	-	-	-	-	-	
Optimum Moisture Content	%	16.5	18.0	16.5	-	-	-	

Moisture Variation From	2.5%	2.0%	2.5%	-	-	-
Optimum Moisture Content	dry	dry	dry			

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R HD)	%	97.5	98.5	98.0	=	=	-
Density Ratio (R <sub>HD</sub> )	70	37.0	30.0	30.0			

## Material description

No 37 - 39 Clay Fill

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13





Location

## **COMPACTION ASSESSMENT**

Job No 22233 **CIVIL GEOTECHNICAL SERVICES** 22233/R009 Report No Date Issued 07/04/2022 6 - 8 Rose Avenue, Croydon 3136 WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) BS Client Tested by MARIGOLD - STAGE 10 Date tested 01/04/22 Project

Feature EARTHWORKS Layer thickness 200 mm Time: 13:05

Test procedure AS 1289.2.1.1 & 5.8.1

**TARNEIT** 

Test No		40	41	42	43	44	45
Location							
		REFER	REFER	REFER	REFER	REFER	REFER
		TO	TO	TO	TO	TO	TO
		FIGURE 1					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	1.93	1.91	1.92	1.91	1.93	1.95
Field moisture content	%	19.9	22.7	23.8	26.9	29.6	26.6

Test procedure AS 1289.5.7.1

Test No		40	41	42	43	44	45	
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/m³	1.96	1.95	1.96	1.98	1.93	1.99	
Adjusted Peak Converted Wet Density	t/m³	ı	-	-	-	-	-	
Optimum Moisture Content	%	22.5	25.5	26.0	29.0	32.0	26.5	

Moisture Variation From	2.5%	2.5%	2.0%	2.0%	2.0%	0.0%
Optimum Moisture Content	dry	dry	dry	dry	dry	

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

			07.5				
Density Ratio (R <sub>HD</sub> )	%	98.5	97.5	98.0	96.5	99.5	98.5

### Material description

No 40 - 45 Clay Fill

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

AVRLOT HILF V1.10 MAR 13

Approved Signatory: Justin Fry

Checked by

JHF