



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

30<sup>th</sup> May 2022

Our Reference: 21848:NB1249

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING  
OFFICER CENTRAL – STAGE 3 (OFFICER)**

Please find attached our Report No's 21848/R001 to 21848/R010 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 January 2022 and was completed in February 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

A handwritten signature in blue ink, appearing to read 'Nick Brock', is written over a faint circular stamp.

Nick Brock

# FIGURE 1

- FILL GREATER THAN 200mm
- CUT GREATER THAN 200mm



# Approximate field density test location



**WARNING**  
BEWARE OF UNDERGROUND/OVERHEAD SERVICES  
THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. SPECIAL CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTION PROCEDURES UNDER OVERHEAD ELECTRICITY TRANSMISSION LINES.

File name: 208881CR202.dwg, User: mmm, C3702, Created by: Michael Wright, Date: 08/09/21, 11:11:21 AM, Sheet: 4 of 18, Sheet 4

Rev	Amendments	Approved	Date
B	AMENDED LOT LAYOUT	B.W	11/11/21
A	PRELIMINARY ISSUE	S.M	08/09/21



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Designed <b>M. WRIGHT</b>	Checked <b>B. IBBS</b>
Authorised <b>S. MURPHY</b>	Date <b>08/09/21</b>

**OFFICER CENTRAL STAGE 3 ROAD AND DRAINAGE ROAD LAYOUT PLANS - EARTHWORKS PLAN**  
CARDINA SHIRE  
YOURLAND PTY LTD

**PRELIMINARY 308881CR202**



## COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R001  
 Date Issued 03/03/2022

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	CGS
Project	OFFICER CENTRAL - STAGE 3	Date tested	03/02/22
Location	OFFICER	Checked by	JHF

<b>Feature</b>	<b>EARTHWORKS</b>	Layer thickness	200 mm	Time: 15:06
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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 <span style="float: right;">mm</span>	175	175	175	175	175	175
Field wet density <span style="float: right;">t/m<sup>3</sup></span>	1.90	1.96	1.94	1.90	1.99	1.92
Field moisture content <span style="float: right;">%</span>	26.0	22.3	22.7	20.5	19.5	18.4

Test procedure AS 1289.5.7.1

Test No	1	2	3	4	5	6
Compactive effort	Standard					
Oversize rock retained on sieve <span style="float: right;">mm</span>	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material <span style="float: right;">wet</span>	0	0	0	0	0	0
Peak Converted Wet Density <span style="float: right;">t/m<sup>3</sup></span>	1.93	1.99	1.97	1.93	2.02	1.95
Adjusted Peak Converted Wet Density <span style="float: right;">t/m<sup>3</sup></span>	-	-	-	-	-	-
Optimum Moisture Content <span style="float: right;">%</span>	28.5	25.0	25.0	23.0	21.5	20.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.5% dry	2.5% dry	2.0% dry	2.0% dry
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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 ( $R_{HD}$ ) <span style="float: right;">%</span>	<b>98.5</b>	<b>99.0</b>	<b>99.0</b>	<b>98.5</b>	<b>98.5</b>	<b>98.5</b>
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Material description

No 1 - 6 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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

Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21848  
Report No 21848/R002  
Date Issued 01/03/2022

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	CGS
Project	OFFICER CENTRAL - STAGE 3	Date tested	03/02/22
Location		Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 15:13
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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	mm	175	175	-	-	-
Field wet density	t/m <sup>3</sup>	1.95	1.98	-	-	-
Field moisture content	%	19.0	18.6	-	-	-

Test procedure AS 1289.5.7.1

Test No	7	8	-	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	-	-	-
Percent of oversize material	wet	0	0	-	-	-
Peak Converted Wet Density	t/m <sup>3</sup>	1.97	1.99	-	-	-
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	21.5	21.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	-	-	-	-
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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 ( $R_{HD}$ )	%	99.0	99.5	-	-	-
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Material description

No 7 - 8 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R003  
 Date Issued 22/04/2022

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER CENTRAL - STAGE 3	Date tested	04/02/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	9	10	11	12	13	14	
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 <sup>3</sup>	2.03	2.03	2.03	2.04	2.02	2.03
Field moisture content	%	17.4	19.3	18.6	19.9	18.1	17.7

Test procedure AS 1289.5.7.1

Test No	9	10	11	12	13	14	
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 <sup>3</sup>	2.07	2.06	2.08	2.06	2.09	2.05
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content	%	17.5	20.0	19.5	19.5	18.5	18.5

Moisture Variation From Optimum Moisture Content	0.0%	0.5% dry	0.5% dry	0.0%	0.5% dry	0.5% dry
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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	99.0	97.5	99.0	97.0	99.0
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Material description

No 9 - 14 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R004  
 Date Issued 22/04/2022

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER CENTRAL - STAGE 3	Date tested	07/02/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 10:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	15	16	17	18	19	20
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 <sup>3</sup>	2.02	2.02	2.02	2.01	2.01
Field moisture content	%	18.0	17.7	17.3	16.4	16.4

Test procedure AS 1289.5.7.1

Test No	15	16	17	18	19	20
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 <sup>3</sup>	2.05	2.05	2.07	2.08	2.05
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	18.5	17.5	17.0	16.5	17.0

Moisture Variation From Optimum Moisture Content	0.5% dry	0.0%	0.5% wet	0.0%	0.5% dry	1.0% dry
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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	98.5	97.5	96.5	98.0	98.5
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Material description

No 15 - 20 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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# COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R005  
 Date Issued 27/05/2022

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER CENTRAL - STAGE 3	Date tested	08/02/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	08:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	21	22	23	24	25	26
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 <sup>3</sup>	1.95	1.95	1.95	1.97	1.96
Field moisture content	%	14.4	16.3	17.9	17.1	18.0

Test procedure AS 1289.5.7.1

Test No	21	22	23	24	25	26
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 <sup>3</sup>	1.99	1.97	1.98	2.04	1.99
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	17.0	18.5	19.5	16.5	20.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	1.5% dry	0.5% wet	2.5% dry	2.5% dry
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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	99.0	99.0	96.5	99.0	98.5
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Material description

No 21 - 26 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R006  
 Date Issued 27/05/2022

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER CENTRAL - STAGE 3	Date tested	09/02/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	10:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	27	28	29	30	31	32
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 <sup>3</sup>	1.97	1.96	1.95	1.94	1.94
Field moisture content	%	15.6	15.0	15.5	13.7	18.0

Test procedure AS 1289.5.7.1

Test No	27	28	29	30	31	32
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 <sup>3</sup>	2.00	2.01	1.99	1.98	1.97
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	16.0	17.5	17.0	15.5	20.5

Moisture Variation From Optimum Moisture Content	0.5% dry	2.5% dry	1.5% dry	2.0% dry	2.5% dry	0.0%
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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	98.0	98.0	98.5	99.0
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Material description

No 27 - 32 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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 Accredited for compliance with  
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry





# COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R007  
 Date Issued 30/05/2022

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER CENTRAL - STAGE 3	Date tested	10/02/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	33	34	35	36	37	38
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 <sup>3</sup>	1.95	1.95	1.96	1.94	1.97
Field moisture content	%	17.5	12.8	13.3	13.0	18.7

Test procedure AS 1289.5.7.1

Test No	33	34	35	36	37	38
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 <sup>3</sup>	1.99	1.99	1.98	1.99	2.01
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	17.5	15.0	16.0	15.5	21.0

Moisture Variation From Optimum Moisture Content	0.0%	2.0% dry	2.5% dry	2.5% dry	2.0% dry	0.0%
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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	98.5	99.0	97.5	98.0	99.0
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Material description

No 33 - 38 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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

Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R008  
 Date Issued 27/05/2022

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER CENTRAL - STAGE 3	Date tested	11/02/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	39	40	41	42	43	44
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 <sup>3</sup>	1.97	1.95	1.97	1.96	1.95
Field moisture content	%	16.2	15.8	17.9	15.2	15.5

Test procedure AS 1289.5.7.1

Test No	39	40	41	42	43	44
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 <sup>3</sup>	1.98	1.97	2.01	2.02	1.97
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	16.5	15.5	18.0	15.5	17.0

Moisture Variation From Optimum Moisture Content	0.0%	0.0%	0.0%	0.0%	0.0%	2.5% dry
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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> )	%	99.5	99.0	98.0	97.0	98.5	100.0
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Material description

No 39 - 44 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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

Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R009  
 Date Issued 27/05/2022

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER CENTRAL - STAGE 3	Date tested	14/02/22
Location	OFFICER	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	45	46	47	48	49	50
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 <sup>3</sup>	1.94	1.95	1.94	1.96	1.95
Field moisture content	%	13.5	16.6	15.6	13.9	14.3

Test procedure AS 1289.5.7.1

Test No	45	46	47	48	49	50
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 <sup>3</sup>	1.99	1.99	1.97	2.00	1.99
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	16.0	18.5	18.0	16.5	16.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	2.0% dry	2.5% dry	2.5% dry	2.0% dry
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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	98.0	98.5
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Material description

No 45 - 50 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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

Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 21848  
 Report No 21848/R010  
 Date Issued 30/05/2022

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER CENTRAL - STAGE 3	Date tested	15/02/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	51	52	53	54	-	-
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 <sup>3</sup>	1.96	1.94	1.95	1.95	-
Field moisture content	%	14.1	15.4	15.0	16.1	-

Test procedure AS 1289.5.7.1

Test No	51	52	53	54	-	-
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	0	-
Peak Converted Wet Density	t/m <sup>3</sup>	1.98	1.98	1.99	1.97	-
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	14.5	18.0	16.5	16.0	-

Moisture Variation From Optimum Moisture Content	0.0%	2.5% dry	1.5% dry	0.0%	-	-
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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> )	%	99.0	98.0	98.5	99.0	-
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Material description

No 51 - 54 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry