



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

22nd March 2018

Our Reference: 18025:NB164

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
NEWHAVEN – STAGE 5 (TARNEIT)**

Please find attached our Report No's 18025/R001 and 18025/R007 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 2018 and were completed in February 2018.

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).

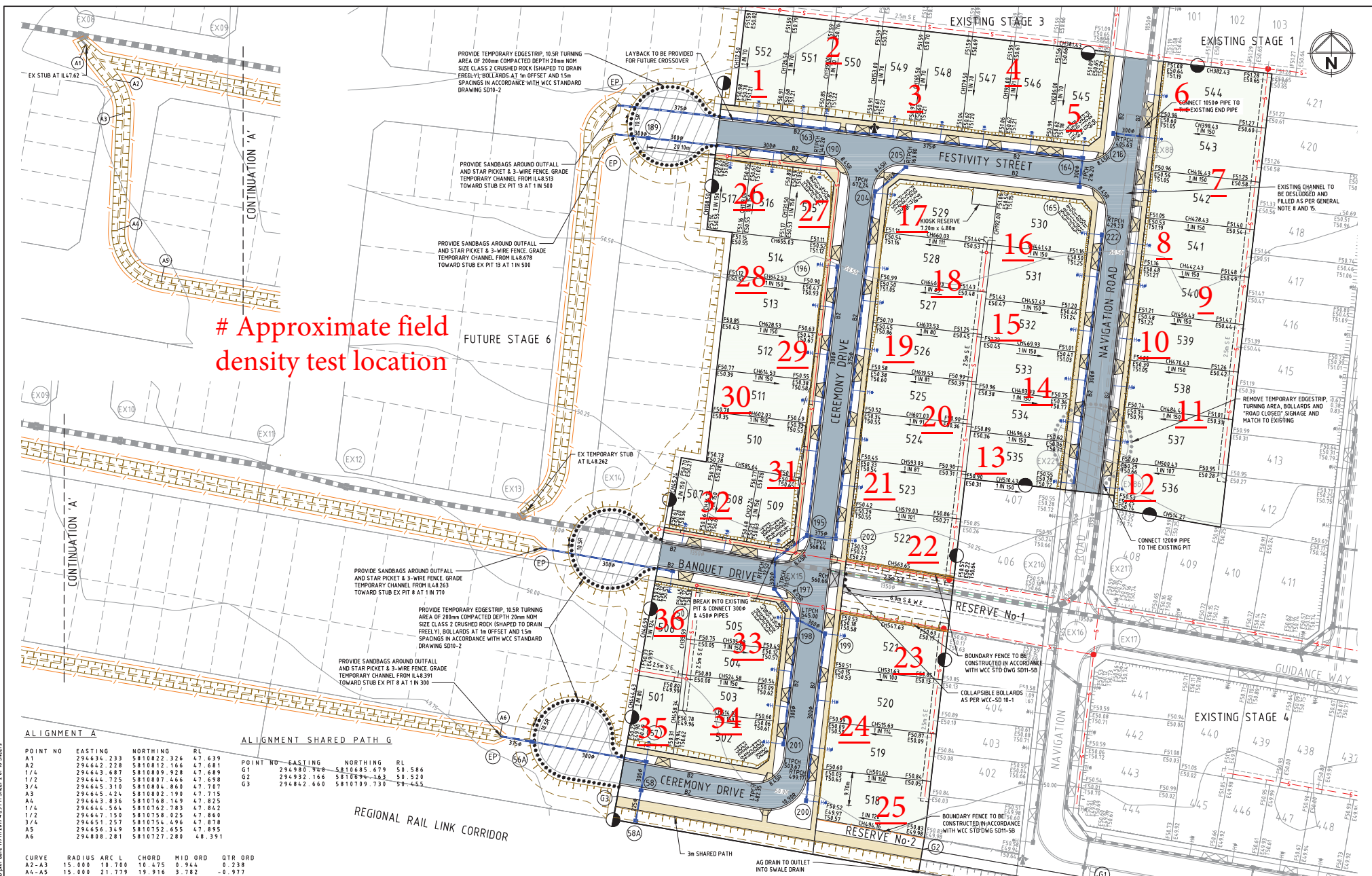
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

FIGURE 1



Approximate field density test location

ALIGNMENT A

POINT NO	EASTING	NORTHING	RL
A1	294634.233	5810822.326	47.639
A2	294642.278	5810812.166	47.681
1/4	294643.687	5810809.928	47.689
1/2	294644.725	5810807.466	47.698
3/4	294645.319	5810804.860	47.707
A3	294645.424	5810802.190	47.715
A4	294645.836	5810798.149	47.825
1/4	294644.544	5810792.793	47.842
1/2	294647.150	5810758.025	47.860
3/4	294651.257	5810754.496	47.878
A5	294656.349	5810732.455	47.895
A6	294808.281	5810727.280	48.391

ALIGNMENT SHARED PATH G

POINT NO	EASTING	NORTHING	RL
G1	294980.958	5810685.679	50.586
G2	294932.166	5810794.463	50.528
G3	294842.660	5810709.730	50.455

CURVE	RADIUS	ARC L	CHORD	MID ORD	QTR ORD
A2-A3	15.000	10.700	16.475	0.944	0.238
A4-A5	15.000	21.779	19.916	3.782	-0.977

Rev	Amendments	Approved	Date
0	ISSUED FOR CONSTRUCTION	J.S.	17-11-17
1	NOTE REFERENCING RETAINING WALL REMOVED	J.S.	18-09-17
C	STUB IL CHANGES AS A RESULT OF DETAILED DESIGN	J.S.	05-09-17
B	ISSUED FOR APPROVAL	J.S.	18-08-17
A	ISSUED FOR TENDER	J.S.	31-07-17



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PEET
 Designed Checked
 Authorized Date

NEWHAVEN STAGE 5 ROAD & DRAINAGE DETAIL PLAN
 WYNDAM CITY COUNCIL
 PEET 1895 PTY LTD
 Dwg No 303220CR200 Rev 0
CONSTRUCTION



COMPACTION ASSESSMENT

Job No 18025
 Report No 18025/R001
 Date Issued 16/03/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	B G G
Project	NEW HAVEN - STAGE 5	Date tested	18/01/18
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 10:03
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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 <i>mm</i>	175	175	175	175	175	175
Field wet density <i>t/m³</i>	1.79	1.77	1.79	1.77	1.75	1.76
Field moisture content %	22.1	18.2	22.6	20.4	21.2	19.7

Test procedure AS 1289.5.7.1

Test No	1	2	3	4	5	6
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	7	0	0	0	6
Peak Converted Wet Density <i>t/m³</i>	1.85	1.80	1.84	1.83	1.80	1.82
Adjusted Peak Converted Wet Density <i>t/m³</i>	1.88	1.83	-	1.86	1.81	1.85
Optimum Moisture Content %	24.5	20.0	25.0	23.5	23.5	22.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	2.0% dry	2.5% dry	2.5% dry	2.5% dry
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Density Ratio (R_{HD})	95.5	97.0	97.5	95.5	96.5	95.0
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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 18025
 Report No 18025/R002
 Date Issued 22/03/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by B G G
 Date tested 18/01/18
 Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
 Project NEW HAVEN - STAGE 5
 Location TARNEIT

Feature EARTHWORKS *Layer thickness* 200 mm *Time:* 10:05

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 ³	1.79	1.78	-	-	-	-
Field moisture content	%	20.3	20.1	-	-	-	-

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	5	3	-	-	-	-
Peak Converted Wet Density	t/m ³	1.84	1.76	-	-	-	-
Adjusted Peak Converted Wet Density	t/m ³	1.86	1.78	-	-	-	-
Optimum Moisture Content	%	22.5	22.5	-	-	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	-	-	-	-
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Density Ratio (R_{HD})	%	96.0	100.0	-	-	-	-
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Material description

No 7 - 8 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18025
 Report No 18025/R003
 Date Issued 07/02/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by B G G
 Date tested 19/01/18
 Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
 Project NEW HAVEN - STAGE 5
 Location TARNEIT

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 09:58
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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	175
Field wet density t/m ³	1.75	1.84	1.84	1.86	1.83	1.84
Field moisture content %	20.0	20.2	19.8	19.0	20.6	20.1

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	19.0
Percent of oversize material wet	8	9	7	11	6	6
Peak Converted Wet Density t/m ³	1.80	1.78	1.83	1.85	1.80	1.83
Adjusted Peak Converted Wet Density t/m ³	1.83	1.83	1.86	1.89	1.82	1.85
Optimum Moisture Content %	23.5	23.5	23.0	22.0	23.0	22.5

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 Ratio (R_{HD})	%	95.5	101.0	99.0	98.0	100.0	99.0
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Material description

No 9 - 14 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18025
 Report No 18025/R004
 Date Issued 02/02/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	NEW HAVEN - STAGE 5	Date tested	23/01/18
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 08:04
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	15	16	17	18	-	-
Location	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	-	-
Field wet density <i>t/m³</i>	1.84	1.83	1.71	1.80	-	-
Field moisture content <i>%</i>	18.3	22.5	17.6	21.6	-	-

Test procedure AS 1289.5.7.1

Test No	15	16	17	18	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	19.0	-	-
Percent of oversize material <i>wet</i>	0	0	0	0	-	-
Peak Converted Wet Density <i>t/m³</i>	1.83	1.83	1.74	1.82	-	-
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	21.0	25.0	20.0	24.0	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	2.5% dry	2.0% dry	-	-
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Density Ratio (R_{HD})	%	100.5	100.0	98.5	99.0	-	-
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Material description

No 15 - 18 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18025
 Report No 18025/R005
 Date Issued 19/03/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	NEW HAVEN - STAGE 5	Date tested	25/01/18
Location	TARNEIT	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	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 <i>mm</i>	175	175	175	175	175	175
Field wet density <i>t/m³</i>	1.75	1.75	1.89	1.81	1.82	1.86
Field moisture content %	18.3	21.0	22.3	21.1	20.9	21.2

Test procedure AS 1289.5.7.1

Test No	19	20	21	22	23	24
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	4	3	5
Peak Converted Wet Density <i>t/m³</i>	1.77	1.78	1.90	1.84	1.83	1.85
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	1.80	1.95	1.86	1.84	1.87
Optimum Moisture Content %	20.0	23.0	25.0	23.5	23.5	23.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	2.5% dry	2.5% dry	2.5% dry	2.0% dry
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Density Ratio (R_{HD})	%	99.0	97.5	97.0	97.5	99.0	99.5
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Material description

No 19 - 24 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18025
 Report No 18025/R006
 Date Issued 20/03/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	NEW HAVEN - STAGE 5	Date tested	01/02/18
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	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	1.84	1.83	1.82	1.83	1.83
Field moisture content	%	25.2	29.0	30.9	25.7	27.6

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	0	0	4
Peak Converted Wet Density	t/m ³	1.92	1.91	1.91	1.88	1.93
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	1.90
Optimum Moisture Content	%	25.0	27.0	29.5	27.0	28.0

Moisture Variation From Optimum Moisture Content	0.0%	2.0% wet	1.5% wet	1.0% dry	1.0% dry	0.0%
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Density Ratio (R _{HD})	%	96.0	95.5	95.5	97.5	95.0	96.5
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Material description

No 25 - 30 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18025
 Report No 18025/R007
 Date Issued 22/03/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	NEW HAVEN - STAGE 5	Date tested	07/02/18
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:34
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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	175
Field wet density	t/m ³	1.90	1.83	1.77	1.79	1.82	1.85
Field moisture content	%	16.5	19.5	22.8	22.6	23.5	22.0

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	19.0
Percent of oversize material	wet	0	0	0	0	0	0
Peak Converted Wet Density	t/m ³	1.91	1.83	1.79	1.82	1.84	1.86
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-	-
Optimum Moisture Content	%	18.5	22.0	24.5	25.0	25.5	25.0

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.0% dry	2.0% dry	2.0% dry	2.5% dry
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Density Ratio (R _{HD})	%	100.0	100.0	99.0	98.5	98.5	99.5
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Material description

No 31 - 36 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