



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

19<sup>th</sup> December 2016

Our Reference: 16256:GB093

Peets Funds Management Pty Ltd  
Level 3, 492 St Kilda Road  
MELBOURNE VIC 3004

Dear Sirs,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING  
HAVEN ESTATE – STAGE 4, TARNIET**

Please find attached our Report Nos 16256/R001 to 16256/R007 that relate to the field density testing that was conducted across the filled allotments at the above subdivision. The level 1 inspections and associated field density testing commenced in late April 2016 and was completed in early June 2016.

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 black ink, appearing to read 'Griffin Brown', written over a white background.

Griffin Brown









# COMPACTION ASSESSMENT

Job No 16256  
 Report No 16256/R001  
 Date Issued 06/06/16

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by GB  
 Date tested 21/05/16  
 Checked by JHF

Client PEETS FUNDS MANAGEMENT  
 Project HAVEN ESTATE - STAGE 4  
 Location TARNIET

<b>Feature</b>	<b>EARTHWORKS</b>	<b>Layer thickness</b>	200 mm	<b>Time:</b> 08:59
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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 <sup>3</sup>	1.90	1.94	1.92	1.92	1.95	1.95
Field moisture content %	24.0	21.4	22.7	24.9	20.3	20.8

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	1	5	1
Peak Converted Wet Density t/m <sup>3</sup>	1.88	1.96	1.99	1.94	1.99	1.93
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	1.96	2.00	1.95
Optimum Moisture Content %	25.5	21.5	22.5	22.5	20.0	22.0

Moisture Variation From Optimum Moisture Content	1.5% dry	0.0%	0.0%	2.5% wet	0.0%	1.0% dry
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>101.0</b>	<b>99.5</b>	<b>96.5</b>	<b>98.0</b>	<b>97.5</b>	<b>100.0</b>
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Material description

No 1 - 6 Clay Fill
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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 16256  
 Report No 16256/R002  
 Date Issued 21/06/16

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by GB  
 Date tested 23/05/16  
 Checked by JHF

Client PEETS FUNDS MANAGEMENT  
 Project HAVEN ESTATE - STAGE 4  
 Location TARNEIT

<b>Feature</b>	<b>EARTHWORKS</b>	<b>Layer thickness</b>	200 mm	<b>Time:</b> 11:07
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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 mm	175	175	175	175	175	175
Field wet density t/m <sup>3</sup>	1.84	1.82	1.87	1.88	1.85	1.85
Field moisture content %	27.6	22.1	25.3	23.2	29.4	24.4

Test procedure AS 1289.5.7.1

Test No	7	8	9	10	11	12
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	6	1	2	0	0
Peak Converted Wet Density t/m <sup>3</sup>	1.79	1.88	1.83	1.89	1.83	1.81
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	1.91	1.85	1.91	-	-
Optimum Moisture Content %	30.5	24.5	27.0	26.0	30.0	26.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	2.0% dry	2.5% dry	0.5% dry	2.0% dry
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>103.0</b>	<b>95.5</b>	<b>101.0</b>	<b>98.0</b>	<b>101.5</b>	<b>102.5</b>
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Material description

No 7 - 12 Clay Fill
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# COMPACTION ASSESSMENT

Job No 16256  
 Report No 16256/R003  
 Date Issued 06/06/16

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	PEETS FUNDS MANAGEMENT	Tested by	GB
Project	HAVEN ESTATE - STAGE 4	Date tested	25/05/16
Location	TARNIET	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 10:39
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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 <sup>3</sup>	1.86	1.91	1.92	1.90	1.92
Field moisture content	%	19.6	25.7	19.5	17.0	15.1

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 <sup>3</sup>	1.84	1.99	2.00	1.86	1.89
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	22.0	26.0	21.0	21.5	22.0

Moisture Variation From Optimum Moisture Content	2.5% dry	0.0%	0.0%	0.0%	0.0%	0.0%
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Density Ratio ( R <sub>HD</sub> )	%	101.0	95.5	96.5	102.0	102.0	102.0
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Material description

No 13 - 18 Clay Fill
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# COMPACTION ASSESSMENT

Job No 16256  
 Report No 16256/R004  
 Date Issued 01/07/16

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by NB  
 Date tested 02/06/16  
 Checked by JHF

Client PEETS FUNDS MANAGEMENT  
 Project HAVEN ESTATE - STAGE 4  
 Location TARNEIT

<b>Feature</b>	<b>EARTHWORKS</b>	<b>Layer thickness</b>	200 mm	<b>Time:</b> 11:29
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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	175
Field wet density t/m <sup>3</sup>	1.75	1.83	1.88	1.88	1.85	1.89
Field moisture content %	26.4	25.2	22.8	20.1	22.8	22.3

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	19.0
Percent of oversize material wet	4	5	6	8	0	2
Peak Converted Wet Density t/m <sup>3</sup>	1.83	1.85	1.93	1.95	1.93	1.91
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	1.85	1.87	1.95	1.98	-	1.96
Optimum Moisture Content %	29.0	26.5	25.0	22.5	25.0	25.0

Moisture Variation From Optimum Moisture Content	2.5% dry	1.5% dry	2.5% dry	2.0% dry	2.0% dry	2.5% dry
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>95.0</b>	<b>97.5</b>	<b>96.0</b>	<b>95.5</b>	<b>96.0</b>	<b>97.0</b>
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Material description

No 19 - 24 Clay Fill
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# COMPACTION ASSESSMENT

Job No 16256  
 Report No 16256/R005  
 Date Issued 21/06/16

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	PEETS FUNDS MANAGEMENT	Tested by	NB
Project	HAVEN ESTATE - STAGE 4	Date tested	02/06/16
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 11:34
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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 <sup>3</sup>	1.96	1.92	1.80	1.87	1.87
Field moisture content	%	16.7	18.6	23.3	23.0	22.2

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	3	0	0	0	0
Peak Converted Wet Density	t/m <sup>3</sup>	2.02	2.02	1.88	1.90	1.88
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	2.04	-	-	-	-
Optimum Moisture Content	%	18.5	21.0	25.5	25.5	25.0

Moisture Variation From Optimum Moisture Content	1.5% dry	2.5% dry	2.5% dry	2.5% dry	2.5% dry	1.0% dry
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Density Ratio ( R <sub>HD</sub> )	%	96.0	95.5	96.0	98.5	99.5	95.0
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Material description

No 25 - 30 Clay Fill
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# COMPACTION ASSESSMENT

Job No 16256  
 Report No 16256/R006  
 Date Issued 10/06/16

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	PEETS FUNDS MANAGEMENT	Tested by	NB
Project	HAVEN ESTATE - STAGE 4	Date tested	06/06/16
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:32
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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 <sup>3</sup>	1.93	1.85	1.86	1.77	1.80
Field moisture content	%	23.7	22.9	34.3	31.0	28.5

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	4	0	0	0	3
Peak Converted Wet Density	t/m <sup>3</sup>	2.01	1.95	1.88	1.83	1.88
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	2.03	-	-	-	1.88
Optimum Moisture Content	%	22.0	24.0	33.5	31.5	30.5

Moisture Variation From Optimum Moisture Content	1.5% wet	1.0% dry	0.5% wet	0.5% dry	0.0%	0.5% wet
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Density Ratio ( R <sub>HD</sub> )	%	95.0	95.0	99.0	96.5	95.5	97.5
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Material description

No 31 - 36 Clay Fill
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Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 16256  
 Report No 16256/R007  
 Date Issued 10/06/16

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	PEETS FUNDS MANAGEMENT	Tested by	NB
Project	HAVEN ESTATE - STAGE 4	Date tested	06/06/16
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:33
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	37	38	39	40	41	42
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>	1.88	1.88	1.87	1.87	1.84
Field moisture content	%	30.2	27.0	27.2	30.0	23.4

Test procedure AS 1289.5.7.1

Test No	37	38	39	40	41	42
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>	1.91	1.94	1.90	1.91	1.91
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	28.0	24.5	26.5	27.5	25.5

Moisture Variation From Optimum Moisture Content	2.0% wet	2.5% wet	0.5% wet	2.5% wet	1.0% dry	0.5% wet
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Density Ratio ( R <sub>HD</sub> )	%	98.5	97.0	98.5	98.0	96.0	98.5
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Material description

No 37 - 42 Clay Fill
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Approved Signatory : Justin Fry