



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

30th March 2020

Our Reference: 18727:NB711

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

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

Please find attached our Report No's 18727/R001 to 18727/R010 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 2018 and was completed in January 2019.

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).

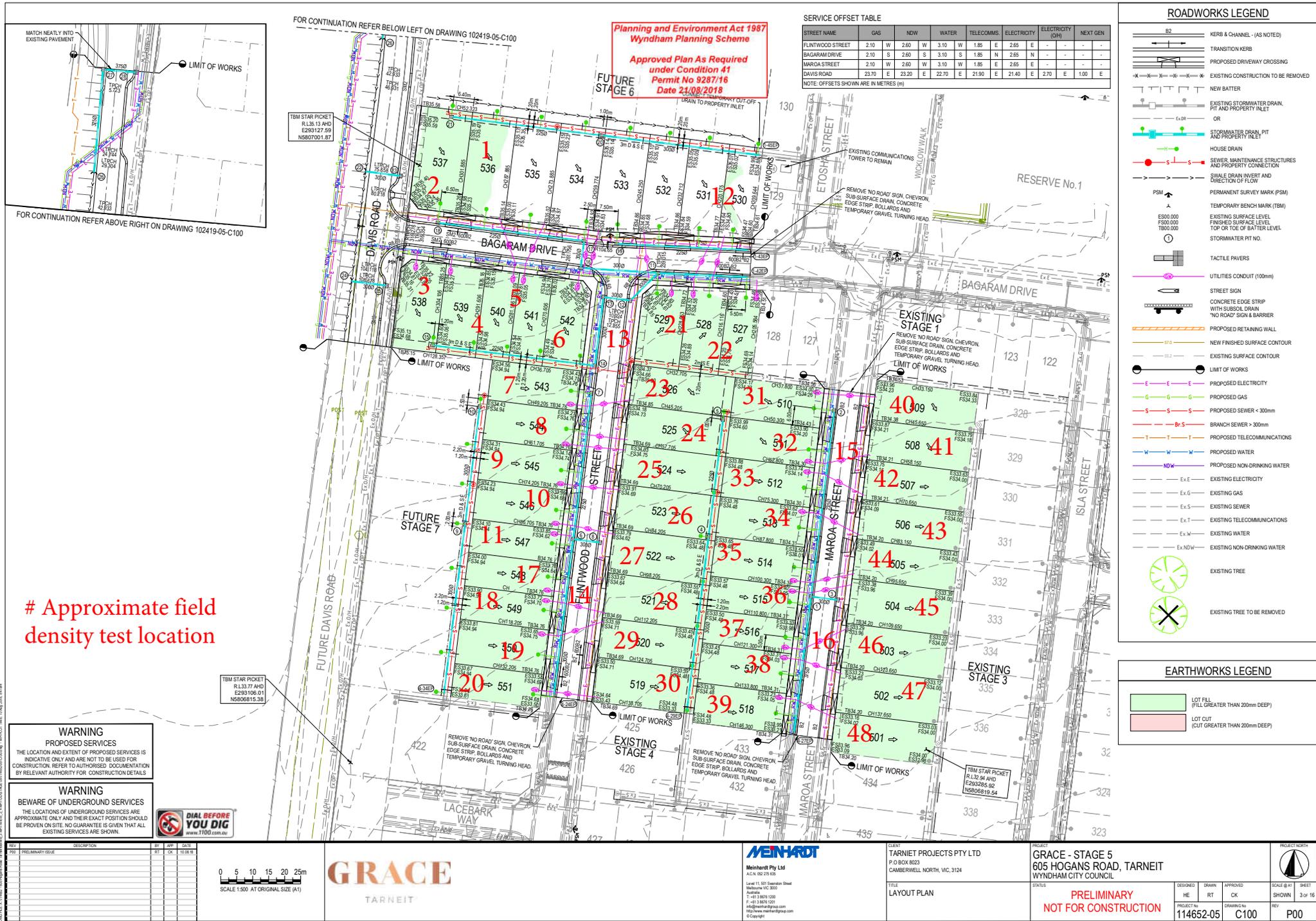
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

FIGURE 1



Approximate field density test location

TBM STAR PICKET
 RL33.77 AH6
 E293127.59
 NS807001.87

TBM STAR PICKET
 RL33.77 AH6
 E293108.01
 NS806815.38

TBM STAR PICKET
 RL32.94 AH4
 E293285.92
 NS806819.54



REV	DESCRIPTION	BY	APP	DATE
001	PRELIMINARY ISSUE	HE	RT	10.08.18



COMPACTION ASSESSMENT

Job No 18727
 Report No 18727/R001
 Date Issued 26/03/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	09/11/18
Location	TARNEIT	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	1	2	3	4	5	6
Location	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>	1.88	1.77	1.77	1.79	1.77	1.79
Field moisture content <i>%</i>	23.9	22.5	24.0	23.8	26.6	27.1

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	0	0	0	0	0
Peak Converted Wet Density <i>t/m³</i>	1.88	1.85	1.83	1.83	1.86	1.86
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	26.0	25.0	26.0	26.0	29.0	29.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.0% dry	2.0% dry	2.5% dry	2.5% dry
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Density Ratio (R_{HD})	%	100.0	95.5	96.5	98.0	95.5	96.0
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Material description

No 1 - 6 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18727
 Report No 18727/R002
 Date Issued 28/05/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BS
Project	GRACE - STAGE 5	Date tested	10/11/18
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:26
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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					
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m ³	1.85	1.81	1.92	1.89	1.80
Field moisture content	%	26.9	26.5	27.4	30.8	21.1

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
Percent of oversize material	wet	0	0	0	0	0
Peak Converted Wet Density	t/m ³	1.82	1.78	1.90	1.86	1.89
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	29.0	29.0	29.5	33.0	23.0

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})	%	101.5	101.5	101.5	101.5	95.5	101.5
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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 18727
 Report No 18727/R003
 Date Issued 23/05/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	13/11/18
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	13	14	15	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth <i>mm</i>	175	175	175	-	-	-
Field wet density <i>t/m³</i>	1.78	1.79	1.87	-	-	-
Field moisture content <i>%</i>	28.2	29.7	29.1	-	-	-

Test procedure AS 1289.5.7.1

Test No	13	14	15	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	-	-	-
Percent of oversize material <i>wet</i>	0	0	0	-	-	-
Peak Converted Wet Density <i>t/m³</i>	1.81	1.82	1.91	-	-	-
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	30.5	32.0	31.5	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	98.0	98.0	98.0	-	-	-
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Material description

No 13 - 15 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Accreditation No 9909

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18727
 Report No 18727/R004
 Date Issued 19/12/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	GRACE - STAGE 5	Date tested	13/11/18
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:07
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	16	17	18	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth <i>mm</i>	175	175	175	-	-	-
Field wet density <i>t/m³</i>	1.89	1.84	1.80	-	-	-
Field moisture content <i>%</i>	25.4	24.6	23.7	-	-	-

Test procedure AS 1289.5.7.1

Test No	16	17	18	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	-	-	-
Percent of oversize material <i>wet</i>	0	0	0	-	-	-
Peak Converted Wet Density <i>t/m³</i>	1.90	1.90	1.85	-	-	-
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	27.5	27.0	26.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	99.5	96.5	97.0	-	-	-
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Material description

No 16 - 18 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18727
 Report No 18727/R005
 Date Issued 21/05/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	15/11/18
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	19	20	21	22	23	24
Location	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>	1.85	1.79	1.86	1.80	1.75	1.84
Field moisture content <i>%</i>	29.9	28.4	24.0	24.6	25.0	23.0

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	0	0	0
Peak Converted Wet Density <i>t/m³</i>	1.86	1.80	1.90	1.86	1.80	1.90
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	32.5	31.0	26.5	26.5	27.0	25.0

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.5% dry	2.0% dry	2.0% dry	2.0% dry
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Density Ratio (R_{HD})	%	99.5	99.0	97.5	96.5	97.5	97.0
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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 18727
 Report No 18727/R006
 Date Issued 29/03/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	15/11/18
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:04
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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					
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m ³	1.82	1.89	1.86	1.83	1.82
Field moisture content	%	24.6	21.6	23.1	23.6	24.1

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	0
Peak Converted Wet Density	t/m ³	1.84	1.89	1.90	1.87	1.84
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	26.5	24.0	25.0	26.0	26.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.0% dry	2.5% dry	2.0% dry	2.5% dry
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Density Ratio (R _{HD})	%	98.5	100.0	98.0	98.0	99.0	97.0
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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 18727
 Report No 18727/R007
 Date Issued 28/05/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	16/11/18
Location	TARNEIT	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	31	32	33	34	35	36
Location	REFER TO FIGURE 1					
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m ³	1.91	1.92	2.00	1.97	1.89
Field moisture content	%	28.2	26.4	31.6	29.9	27.3

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	0	0	0
Peak Converted Wet Density	t/m ³	1.94	1.96	2.03	2.01	1.92
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	30.5	29.0	33.5	32.5	31.0

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.0% dry	2.5% dry	2.0% dry	2.5% dry
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Density Ratio (R _{HD})	%	98.5	98.5	98.5	98.5	98.0	98.0
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Material description

No 31 - 36 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Accreditation No 9909

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18727
 Report No 18727/R008
 Date Issued 09/01/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	17/11/18
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	37	38	39	40	41	42
Location	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>	1.89	1.91	1.85	1.82	1.91	1.89
Field moisture content <i>%</i>	19.9	20.4	21.0	19.2	21.1	20.9

Test procedure AS 1289.5.7.1

Test No	37	38	39	40	41	42
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>	1.95	1.96	1.90	1.95	1.95	1.95
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	22.5	23.0	23.5	21.5	23.5	23.5

Moisture Variation From Optimum Moisture Content	2.5% dry					
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Density Ratio (R_{HD})	%	96.5	97.5	97.0	93.5	97.5	96.5
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Material description

No 37 - 42 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18727
 Report No 18727/R009
 Date Issued 09/01/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	19/11/18
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	43	44	45	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth <i>mm</i>	175	175	175	-	-	-
Field wet density <i>t/m³</i>	1.88	1.88	1.90	-	-	-
Field moisture content <i>%</i>	18.6	18.0	17.9	-	-	-

Test procedure AS 1289.5.7.1

Test No	43	44	45	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	-	-	-
Percent of oversize material <i>wet</i>	0	0	0	-	-	-
Peak Converted Wet Density <i>t/m³</i>	1.91	1.90	1.90	-	-	-
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	21.0	20.0	20.0	-	-	-

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

No 43 - 45 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 18727
 Report No 18727/R010
 Date Issued 12/02/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	15/01/19
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 07:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	46	47	48	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth <i>mm</i>	175	175	175	-	-	-
Field wet density <i>t/m³</i>	1.70	1.64	1.68	-	-	-
Field moisture content <i>%</i>	13.1	12.3	11.3	-	-	-

Test procedure AS 1289.5.7.1

Test No	46	47	48	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	-	-	-
Percent of oversize material <i>wet</i>	0	0	0	-	-	-
Peak Converted Wet Density <i>t/m³</i>	1.73	1.70	1.73	-	-	-
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	14.5	14.0	13.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	98.5	96.5	97.5	-	-	-
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Material description

No 46 - 48 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 19457
 Report No 19457/R001
 Date Issued 15/07/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon, Vic 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	09/07/19
Location	TARNEIT	Checked by	JHF

Feature	CAPPING	Layer thickness	150 mm	Time:	08:00:25
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AS 12892.1.1 & 5.8.1

Test No	1	2	3	4	5	6
Location	Bagaram Drive		Flintwood Street		Maroa Street	
Chainage	240	290	50	100	60	110
Offset	1.4	2	1.8	2.2	1.5	1.8
	south of kerb	north of kerb	east of kerb	west of kerb	east of kerb	west of kerb
Approximate depth from F.S.L.	m					
Measurement depth	mm		125		125	
Field wet density	t/m ³		2.22		2.18	
Field dry density	t/m ³		2.17		2.16	
Field moisture content	%		1.96		1.89	
			13.0		13.0	
			13.0		12.5	

Laboratory Compaction AS 1289.5.1.1 & 5.4.2 Assigned Values (See Report No 40SMWVCE)

Date of assignment	15/07/2019
Material source and location	40mm Capping - MVQ, Wyndham Vale
Compactive effort	STANDARD
Maximum Dry Density	t/m ³ 1.95
Optimum Moisture Content	% 14.5

Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	37.5	37.5	37.5	37.5	37.5	37.5
Percent of oversize material	wet	-	-	-	-	-	-
Percent of oversize material	dry	-	-	-	-	-	-
Adjusted Maximum Dry Density	t/m ³	-	-	-	-	-	-
Adjusted Optimum Moisture Content	%	-	-	-	-	-	-

Moisture Variation From Optimum Moisture Content	1.0% dry	0.0% wet	0.0% wet	0.0% wet	0.0% dry	0.0% dry
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Moisture Ratio (R_m)	%	94.5	101.0	101.0	101.5	100.0	99.0
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Density Ratio (R_D)	%	100.0	98.0	97.0	96.5	96.5	97.5
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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon, Vic 3136

Job No 19457
 Report No 19457/R002
 Date Issued 15/07/2019

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	09/07/19
Location	TARNEIT	Checked by	JHF

Feature	DRAINAGE	Layer thickness	200 mm	Time:	08:38:18
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AS 12892.1.1 & 5.8.1

Test No	7	8	9	10	11	
Location						
Pit	22 - 23	24 - 25	17 - 16	6 - 8	1 - 3	
Approximate depth from F.S.L.	m					
Measurement depth	mm					
Field wet density	2.46	2.41	2.46	2.44	2.47	
Field dry density	2.31	2.30	2.32	2.31	2.34	
Field moisture content	6.5	5.0	6.0	6.0	5.5	

Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 203MWWHY)

Date of assignment	04/07/2019
Material source and location	20mm Class 3 - MVQ, Wyndham Vale
Compactive effort	MODIFIED
Maximum Dry Density	t/m ³ 2.34
Optimum Moisture Content	% 7.5

Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	
Percent of oversize material	wet	-	-	-	-	-	
Percent of oversize material	dry	-	-	-	-	-	
Adjusted Maximum Dry Density	t/m ³	-	-	-	-	-	
Adjusted Optimum Moisture Content	%	-	-	-	-	-	

Moisture Variation From Optimum Moisture Content	1.0% dry	2.5% dry	1.5% dry	1.5% dry	2.0% dry	
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Moisture Ratio (R_m)	%	87.0	67.0	78.5	79.0	75.5	
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Density Ratio (R_D)	%	98.5	98.0	99.0	98.5	100.0	
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COMPACTION ASSESSMENT

Job No 19457
 Report No 19457/R003
 Date Issued 05/08/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon, Vic 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	05/08/19
Location	TARNEIT	Checked by	JHF

Feature	CAPPING	Layer thickness	150 mm	Time:	10:00:02
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AS 12892.1.1 & 5.8.1

Test No		12	13	14			
Location		Davis Road					
	Chainage	20	65	110			
	Offset	1.8	2.5	2			
		east	west	east			
		of kerb	of kerb	of kerb			
Approximate depth from F.S.L.	m						
Measurement depth	mm	125	125	125			
Field wet density	t/m ³	2.18	2.21	2.17			
Field dry density	t/m ³	1.95	1.97	1.94			
Field moisture content	%	11.5	12.0	11.5			

Laboratory Compaction AS 1289.5.1.1 & 5.4.2 Assigned Values (See Report No 40SMWVCE)

Date of assignment		15/07/2019					
Material source and location		40mm Capping - MVQ, Wyndham Vale					
Compactive effort		STANDARD					
Maximum Dry Density	t/m ³	1.95					
Optimum Moisture Content	%	14.5					

Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	37.5	37.5	37.5			
Percent of oversize material	wet	-	-	-			
Percent of oversize material	dry	-	-	-			
Adjusted Maximum Dry Density	t/m ³	-	-	-			
Adjusted Optimum Moisture Content	%	-	-	-			

Moisture Variation From Optimum Moisture Content		2.5% dry	2.5% dry	2.5% dry			
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Moisture Ratio (R_m)	%	82.5	84.0	81.0			
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Density Ratio (R_D)	%	100.0	101.0	99.5			
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COMPACTION ASSESSMENT

Job No 19457
 Report No 19457/R004
 Date Issued 06/08/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon, Vic 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	GRACE - STAGE 5	Date tested	06/08/19
Location	TARNEIT	Checked by	JHF

Feature	CLASS 3	Layer thickness	100 mm	Time:	08:00:18
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AS 12892.1.1 & 5.8.1

Test No		15	16	17	18		
Location		Bagaram Drive		Flintwood Street			
Chainage		240	290	50	100		
Offset		1.4	2.1	1.8	1.5		
		south of kerb	north of kerb	east of kerb	west of kerb		
Approximate depth from F.S.L.	m						
Measurement depth	mm	75	75	75	75		
Field wet density	t/m ³	2.41	2.43	2.39	2.42		
Field dry density	t/m ³	2.30	2.31	2.29	2.29		
Field moisture content	%	4.5	5.5	4.5	5.5		

Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 203MWWHY)

Date of assignment		04/07/2019					
Material source and location		20mm Class 3 - MVQ, Wyndham Vale					
Compactive effort		MODIFIED					
Maximum Dry Density	t/m ³	2.34					
Optimum Moisture Content	%	7.5					

Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0		
Percent of oversize material	wet	-	-	-	-		
Percent of oversize material	dry	-	-	-	-		
Adjusted Maximum Dry Density	t/m ³	-	-	-	-		
Adjusted Optimum Moisture Content	%	-	-	-	-		

Moisture Variation From Optimum Moisture Content		2.5% dry	2.0% dry	3.0% dry	2.0% dry		
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Moisture Ratio (R _m)	%	63.5	74.0	59.5	74.5		
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Density Ratio (R _D)	%	98.0	98.5	98.0	98.0		
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COMPACTION ASSESSMENT

Job No 19140
 Report No 19140/R001
 Date Issued 04/03/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	YARRA VALLEY EXCAVATIONS (SEWERS)	Tested by	JB
Project	GRACE - STAGES 4 & 5	Date tested	22/02/19
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	1	2	3	4	5	6
Location	Lot 544		Lot 534		Lot 524	
Approximate depth below FSL (m)	fsl	0.4	fsl	0.4	fsl	0.4
Measurement depth mm	175	175	175	175	175	175
Field wet density t/m ³	1.71	1.83	1.73	1.75	1.77	1.78
Field moisture content %	27.3	22.9	23.7	29.1	30.2	30.0

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	1.80	1.90	1.80	1.82	1.81	1.85
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	30.0	25.0	25.5	31.5	32.0	32.5

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

No 1 - 6 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon, Vic 3136

Job No 19140
Report No 19140/R002
Date Issued 25/02/2019

Client	YARRA VALLEY EXCAVATIONS (SEWERS)	Tested by	JB
Project	GRACE - STAGES 4 & 5	Date tested	22/02/19
Location	TARNEIT	Checked by	JHF

Feature	TRENCH FILL	Layer thickness	200 mm	Time:	09:30:32
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AS 12892.1.1 & 5.8.1

Test No	7					
Location	Flintwood Street					
Lot	526 / 543					
Approximate depth from F.S.L.	m					
Measurement depth	mm	175				
Field wet density	t/m ³	2.37				
Field dry density	t/m ³	2.25				
Field moisture content	%	5.0				

Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 202MWWHE)

Date of assignment	22/02/2019
Material source and location	20mm Class 2 - MVQ, Wyndham Vale
Compactive effort	MODIFIED
Maximum Dry Density	t/m ³ 2.30
Optimum Moisture Content	% 7.5

Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0				
Percent of oversize material	wet	-				
Percent of oversize material	dry	-				
Adjusted Maximum Dry Density	t/m ³	-				
Adjusted Optimum Moisture Content	%	-				

Moisture Variation From Optimum Moisture Content	2.5% dry					
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Moisture Ratio (R_m)	%	68.5				
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Density Ratio (R_D)	%	98.0				
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COMPACTION ASSESSMENT

Job No 19140
 Report No 19140/R003
 Date Issued 04/03/2019

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	YARRA VALLEY EXCAVATIONS (SEWERS)	Tested by	JB
Project	GRACE - STAGES 4 & 5	Date tested	22/02/19
Location	TARNEIT	Checked by	JHF

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

Test No	8	9	10	11	-	-
Location	Lot 418	Lot 413	Lot 451	Lot 425		
Approximate depth below FSL (m)	0.2	0.2	0.2	0.2		
Measurement depth mm	175	175	175	175	-	-
Field wet density t/m ³	1.79	1.75	1.75	1.69	-	-
Field moisture content %	27.4	23.0	29.6	26.5	-	-

Test procedure AS 1289.5.7.1

Test No	8	9	10	11	-	-
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 ³	1.85	1.80	1.83	1.76	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	30.0	25.5	31.5	29.0	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	1.5% dry	2.5% dry	-	-
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Density Ratio (R _{HD})	%	97.0	97.5	96.0	96.0	-	-
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Material description

No 8 - 11 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon, Vic 3136

Job No 19140
Report No 19140/R004
Date Issued 25/02/2019

Client	YARRA VALLEY EXCAVATIONS (SEWERS)	Tested by	JB
Project	GRACE - STAGES 4 & 5	Date tested	22/02/19
Location	TARNEIT	Checked by	JHF

Feature	TRENCH FILL	Layer thickness	200 mm	Time:	10:30:50
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AS 12892.1.1 & 5.8.1

Test No		12	13	14	15		
Location							
	Lot	425	444	408	436		
Approximate depth from F.S.L.	m						
Measurement depth	mm	175	175	175	175		
Field wet density	t/m ³	2.35	2.30	2.40	2.34		
Field dry density	t/m ³	2.24	2.24	2.28	2.25		
Field moisture content	%	5.0	2.5	5.5	4.0		

Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 203MWVHU)

Date of assignment		25/01/2019
Material source and location		20mm Class 3 - MVQ, Wyndham Vale
Compactive effort		MODIFIED
Maximum Dry Density	t/m ³	2.29
Optimum Moisture Content	%	7.5

Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0		
Percent of oversize material	wet	-	-	-	-		
Percent of oversize material	dry	-	-	-	-		
Adjusted Maximum Dry Density	t/m ³	-	-	-	-		
Adjusted Optimum Moisture Content	%	-	-	-	-		

Moisture Variation From Optimum Moisture Content		3.0% dry	5.5% dry	2.0% dry	4.0% dry		
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Moisture Ratio (R _m)	%	62.0	30.5	72.0	48.0		
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Density Ratio (R _D)	%	98.0	98.0	99.5	98.5		
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