



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

29<sup>th</sup> March 2019

Our Reference: 18378:NB464

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING**  
**OLIVINE – STAGE 1A (DONNYBROOK)**

Please find attached our Report No's 18738/R001 to 18378/R006 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 July 2018 and was completed in September 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

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

Nick Brock

FIGURE 1 (1 of 3)

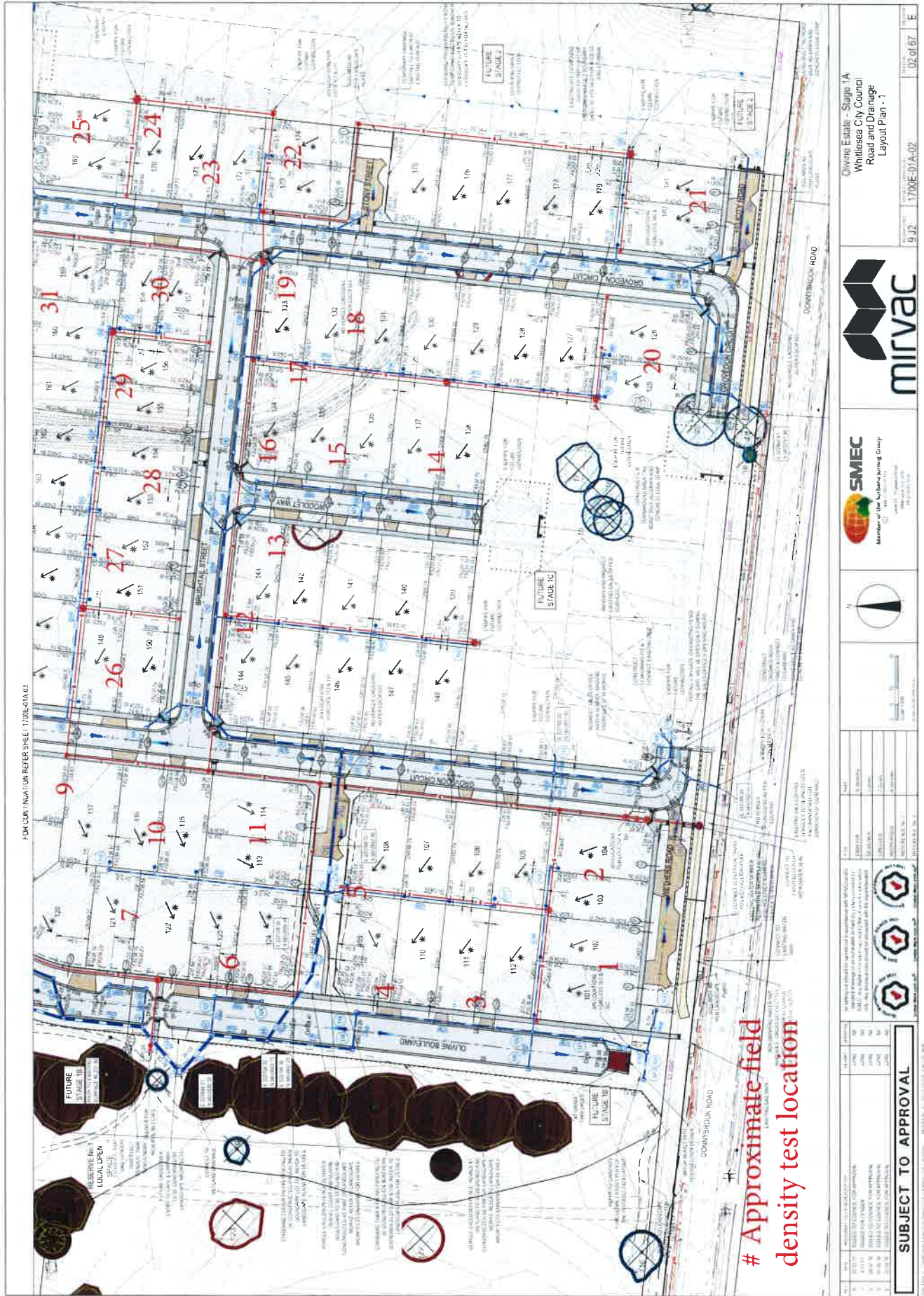




FIGURE 1 (2 of 3)

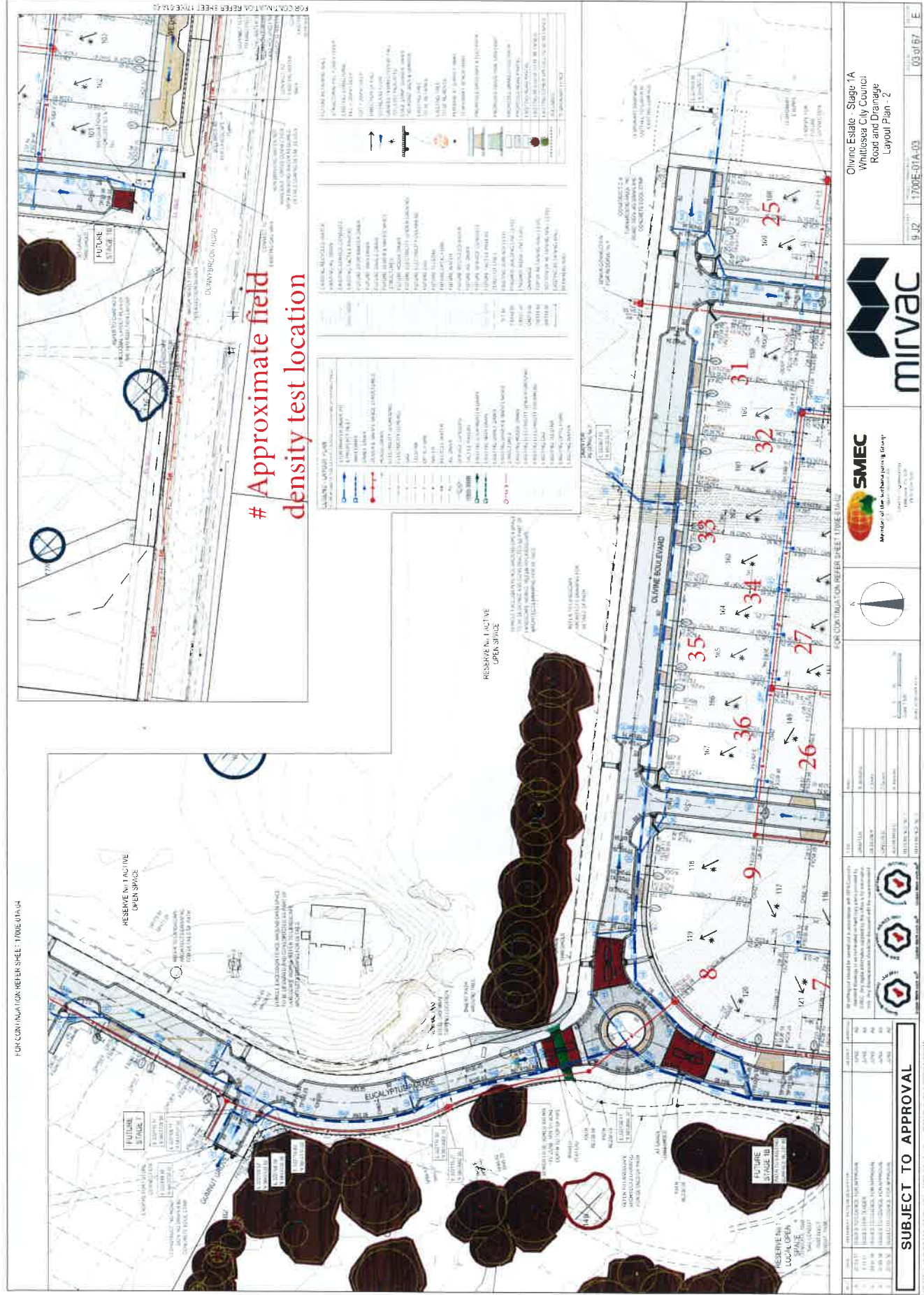
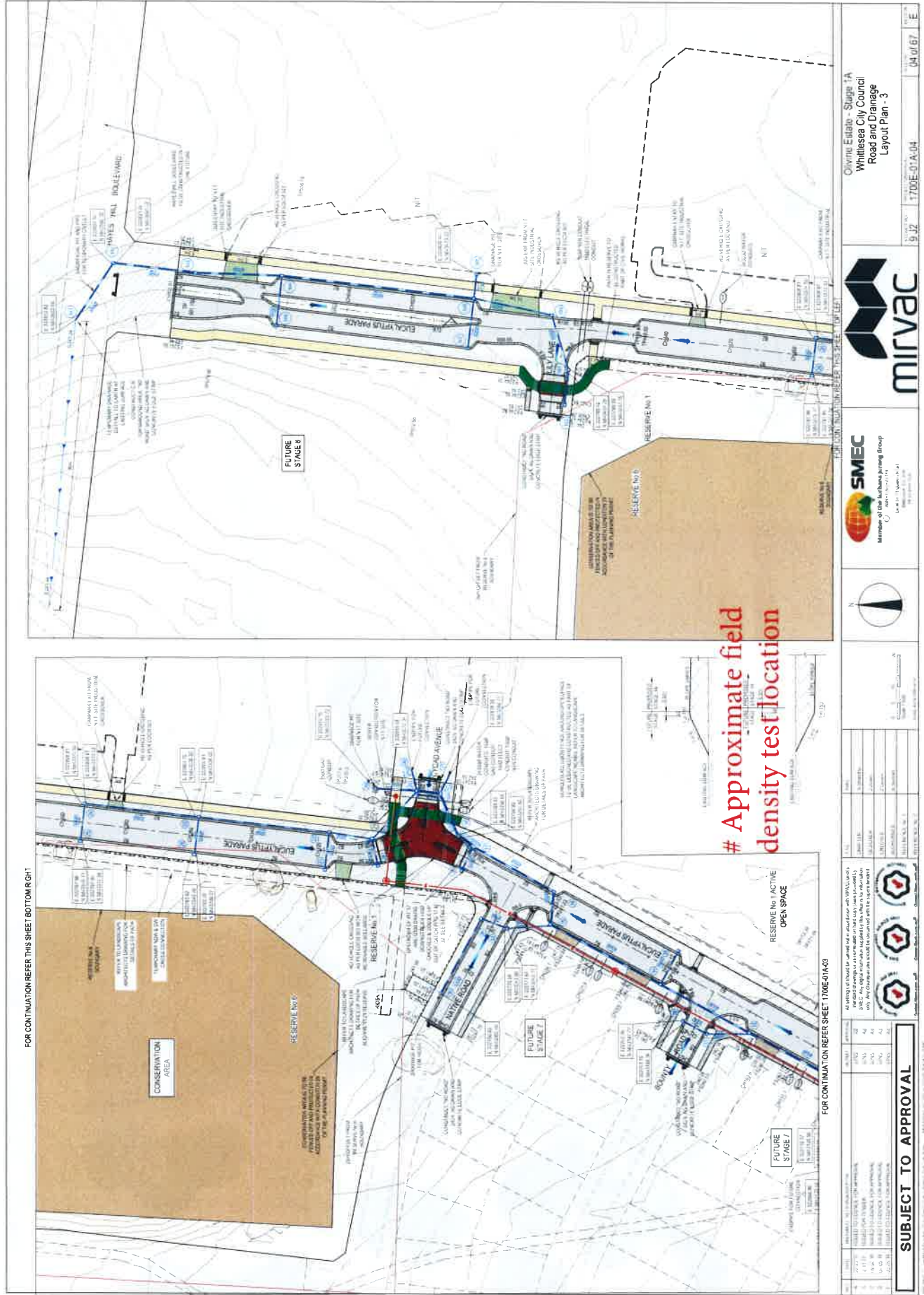




FIGURE 1 (3 of 3)





## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 18378  
Report No 18378/R001  
Date Issued 16/10/2018

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	OLIVINE ESTATE - STAGE 1A	Date tested	05/07/18
Location	DONNYBROOK	Checked by	JHF

Feature **EARTHWORKS** Layer thickness 200 mm Time: 09:26

#### 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>	1.95	2.07	2.11	2.12	2.11	2.13
Field moisture content %	21.8	21.4	20.0	19.3	22.0	20.2

#### 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 <sup>3</sup>	1.99	2.08	2.11	2.12	2.14	2.16
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	20.0	19.5	17.5	17.5	19.5	18.0

Moisture Variation From Optimum Moisture Content	2.0% wet	2.0% wet	2.5% wet	2.0% wet	2.5% wet	2.0% wet
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Density Ratio ( $R_{HD}$ )	%	98.0	99.5	100.0	100.0	99.0	98.5
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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

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## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 18378  
Report No 18378/R002  
Date Issued 23/10/2018

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)  
Project OLIVINE ESTATE - STAGE 1A  
Location DONNYBROOK

Tested by AC  
Date tested 05/07/18  
Checked by JHF

Feature **EARTHWORKS** Layer thickness 200 mm Time: 09:27

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>	1.98	1.99	2.06	2.09	2.05	1.98
Field moisture content %	22.9	22.1	22.9	22.2	22.1	23.5

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	0	0	0	0	0
Peak Converted Wet Density t/m <sup>3</sup>	2.00	2.02	2.10	2.13	2.07	2.04
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	22.0	21.0	22.0	21.5	21.5	22.5

Moisture Variation From Optimum Moisture Content	0.5% wet	1.0% wet	1.0% wet	1.0% wet	0.5% wet	1.0% wet
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Density Ratio ( $R_{HD}$ )	%	99.0	99.0	98.5	98.0	99.0	97.0
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Material description

No 7 - 12 Clay Fill



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and/or measurements included in  
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## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 18378  
Report No 18378/R003  
Date Issued 28/03/2019  
Tested by AC  
Date tested 12/07/18  
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)  
Project OLIVINE ESTATE - STAGE 1A  
Location DONNYBROOK

Feature **EARTHWORKS**

Layer thickness

200 mm

Time: 08:52

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	175
Field wet density t/m <sup>3</sup>	1.96	1.99	2.02	1.99	2.02	1.97
Field moisture content %	19.1	18.7	19.1	19.1	18.6	19.6

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	19.0
Percent of oversize material wet	0	0	0	0	0	0
Peak Converted Wet Density t/m <sup>3</sup>	2.00	2.00	2.10	2.00	2.05	2.00
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	21.0	21.0	21.5	21.5	20.5	22.0

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.5% dry	2.5% dry	2.0% dry	2.5% dry
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Density Ratio ( $R_{HD}$ )	%	98.0	99.5	96.0	99.5	98.5	98.0
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Material description

No 13 - 18 Clay Fill



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*Justin Fry*

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## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 18378  
Report No 18378/R004  
Date Issued 29/03/2019

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	OLIVINE ESTATE - STAGE 1A	Date tested	12/07/18
Location	DONNYBROOK	Checked by	JHF

**Feature**      **EARTHWORKS**      **Layer thickness**      200 mm      **Time:** 08:55

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>	1.67	1.68	1.68	1.67	1.67	1.68
Field moisture content %	17.7	17.2	20.4	19.3	18.7	20.8

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	0	0	0	0	0	0
Peak Converted Wet Density t/m <sup>3</sup>	1.69	1.68	1.68	1.70	1.68	1.68
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	19.5	19.5	22.5	21.5	20.5	23.0

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.0% dry	2.0% dry	2.0% dry	2.0% dry
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<b>Density Ratio ( <math>R_{HD}</math> )</b>	<b>%</b>	<b>99.0</b>	<b>99.5</b>	<b>100.5</b>	<b>98.0</b>	<b>99.5</b>	<b>100.0</b>
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Material description

No 19 - 24 Clay Fill



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## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 18378  
Report No 18378/R005  
Date Issued 28/03/2019  
Tested by AC  
Date tested 31/07/18  
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)  
Project OLIVINE ESTATE - STAGE 1A  
Location DONNYBROOK

Feature **EARTHWORKS**

Layer thickness

200 mm

Time: 11:24

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	175
Field wet density t/m <sup>3</sup>	1.99	2.00	1.84	1.85	1.99	2.01
Field moisture content %	26.4	21.8	21.4	23.2	17.0	25.3

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	19.0
Percent of oversize material wet	0	0	0	0	0	0
Peak Converted Wet Density t/m <sup>3</sup>	2.00	2.10	1.90	1.90	2.06	2.05
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	29.0	24.0	23.5	25.0	18.5	27.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	2.0% dry	2.0% dry	1.5% dry	2.0% dry
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Density Ratio ( $R_{HD}$ )	%	99.5	95.0	97.0	97.5	96.5	97.5
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Material description

No 25 - 30 Clay Fill



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*Justin Fry*

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## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 18378  
Report No 18378/R006  
Date Issued 28/03/2019  
Tested by AC  
Date tested 31/07/18  
Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)  
Project OLIVINE ESTATE - STAGE 1A  
Location DONNYBROOK

Feature **EARTHWORKS**

Layer thickness 200 mm

Time: 11:25

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 <sup>3</sup>	1.93	2.04	2.09	2.06	1.97	1.99
Field moisture content %	21.9	19.8	20.7	26.3	23.9	21.5

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	19.0
Percent of oversize material wet	0	0	0	0	0	0
Peak Converted Wet Density t/m <sup>3</sup>	2.00	2.05	2.15	2.16	2.05	2.05
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	24.5	22.0	23.0	28.5	26.0	24.0

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	2.0% dry	2.0% dry	2.0% dry	2.5% dry
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Density Ratio ( $R_{HD}$ )	%	96.5	99.0	97.0	96.0	96.0	97.0
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Material description

No 31 - 36 Clay Fill



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