



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

27<sup>th</sup> June 2022

Our Reference: 21403:NB984 (Rev.1)

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING**  
**CREEKSTONE – STAGE 23 (TARNEIT)**

Please find attached our Report No's 21403/R001 to 21403/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 commenced in June 2021 and was completed in June 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).

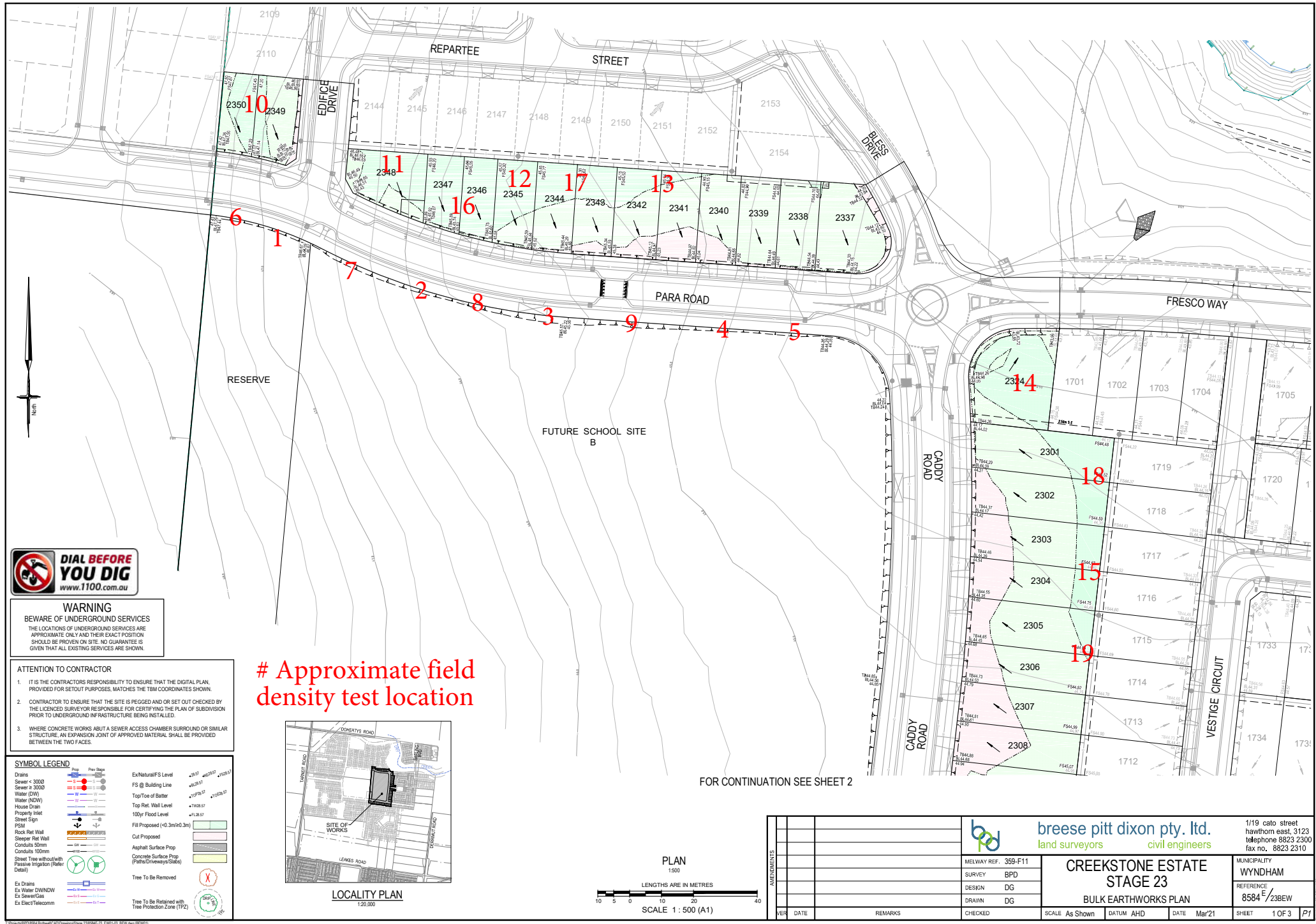
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

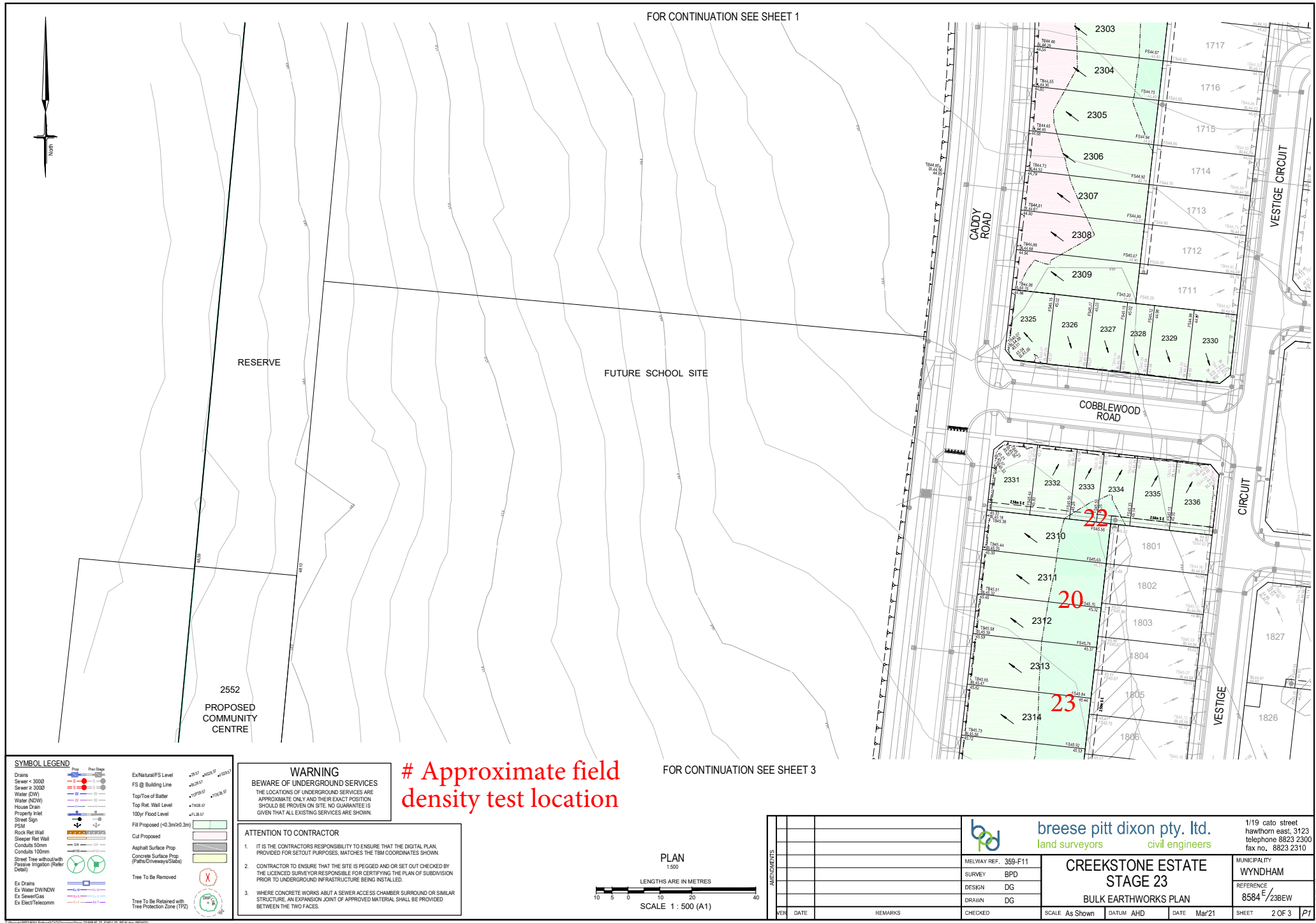
FIGURE 1 (1 of 3)



bpd breese pitt dixon Pty. Ltd. land surveyors civil engineers		1/19 calo street hawthorn east, 3123 telephone 8823 2300 fax no. 8823 2310
MELWAY REF. 359-F11 SURVEY BPD DESIGN DG DRAWN DG		MUNICIPALITY WYNDHAM
CREEKSTONE ESTATE STAGE 23 BULK EARTHWORKS PLAN		REFERENCE 8584 E/23BEW
CHECKED		SCALE As Shown
DATE		DATUM AHD
REMARKS		DATE Mar'21
		SHEET 1 OF 3

FIGURE 1 (2 of 3)

FOR CONTINUATION SEE SHEET 1





# FIGURE 1 (3 of 3)

FOR CONTINUATION SEE SHEET 2



**WARNING**  
BEWARE OF UNDERGROUND SERVICES  
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

**# Approximate field density test location**

## ATTENTION TO CONTRACTOR

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE DIGITAL PLAN, PROVIDED FOR SETOUT PURPOSES, MATCHES THE TBM COORDINATES SHOWN.
- CONTRACTOR TO ENSURE THAT THE SITE IS PEGGED AND OR SET OUT CHECKED BY THE LICENCED SURVEYOR RESPONSIBLE FOR CERTIFYING THE PLAN OF SUBDIVISION PRIOR TO UNDERGROUND INFRASTRUCTURE BEING INSTALLED.
- WHERE CONCRETE WORKS ABOUT A SEWER ACCESS CHAMBER SURROUND OR SIMILAR STRUCTURE, AN EXPANSION JOINT OF APPROVED MATERIAL SHALL BE PROVIDED BETWEEN THE TWO FACES.

SYMBOL LEGEND	
Drains	Prop
Sewer < 3000	Prop
Sewer ≥ 3000	Prop
Water (DW)	Prop
Water (NW)	Prop
House Drain	Prop
Property Inlet	Prop
Street Sign	Prop
PSM	Prop
Rock Ret Wall	Prop
Sleeper Ret Wall	Prop
Conduits 50mm	Prop
Conduits 100mm	Prop
Street Tree without/with Passive Irrigation (Refer Detail)	Prop
Ex Drains	Prop
Ex Water DW/DWV	Prop
Ex Sewer/Gas	Prop
Ex Elec/Telecomms	Prop
Ex Natural FS Level	Prop
FS @ Building Line	Prop
Top/Toe of Slope	Prop
Top Ret. Wall Level	Prop
100yr Flood Level	Prop
Fill Proposed (<0.3m to 3m)	Prop
Cut Proposed	Prop
Asphalt Surface Prop	Prop
Concrete Surface Prop (Paths/Driveways/Stairs)	Prop
Tree To Be Removed	Prop
Tree To Be Retained with Tree Protection Zone (TPZ)	Prop

PLAN

1:500

LENGTHS ARE IN METRES

SCALE 1 : 500 (A1)

brees pitt dixon pty. ltd. land surveyors civil engineers		1/19 cato street hawthorn east, 3123 telephone 8823 2300 fax no. 8823 2310
MELWAY REF. 359-F11	CREEKSTONE ESTATE STAGE 23 BULK EARTHWORKS PLAN	
SURVEY BPD	MUNICIPALITY WYNDHAM	
DESIGN DG	REFERENCE 8584 E/23BEW	
DRAWN DG	SHEET 3 OF 3	
CHECKED	SCALE As Shown	DATUM AHD
DATE	DATE Mar'21	
REMARKS		





## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21403  
Report No 21403/R001  
Date Issued 01/07/2021

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)  
Project CREEKSTONE - STAGE 23  
Location TARNEIT

Tested by BS  
Date tested 03/06/21  
Checked by JHF

**Feature** SWALE BACKFILL

Layer thickness

200 mm

Time: 14:57

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	1	2	3	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m <sup>3</sup>	1.90	1.88	1.91	-	-	-
Field moisture content %	24.4	27.2	21.9	-	-	-

Test procedure AS 1289.5.7.1

Test No	1	2	3	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	0	0	-	-	-
Peak Converted Wet Density t/m <sup>3</sup>	1.98	1.92	1.94	-	-	-
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	27.0	29.5	24.5	-	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	2.5% dry	-	-	-
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<b>Density Ratio ( <math>R_{HD}</math> )</b>	<b>%</b>	<b>96.0</b>	<b>98.0</b>	<b>98.5</b>	<b>-</b>	<b>-</b>	<b>-</b>
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Material description

No 1 - 3 Clay Fill

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 21403  
Report No 21403/R002  
Date Issued 01/06/2021

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BS
Project	CREEKSTONE - STAGE 23	Date tested	04/06/21
Location	TARNEIT	Checked by	JHF

Feature	SWALE BACKFILL	Layer thickness	200 mm	Time: 15:02
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	4	5	6	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m <sup>3</sup>	1.91	1.86	1.82	-	-	-
Field moisture content %	26.2	21.8	22.7	-	-	-

Test procedure AS 1289.5.7.1

Test No	4	5	6	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	0	0	-	-	-
Peak Converted Wet Density t/m <sup>3</sup>	1.95	1.91	1.91	-	-	-
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	26.0	21.5	22.5	-	-	-

Moisture Variation From Optimum Moisture Content	0.0%	0.0%	0.0%	-	-	-
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Density Ratio ( $R_{HD}$ )	%	97.5	97.5	95.5	-	-	-
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Material description

No 4 - 6 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21403  
Report No 21403/R003  
Date Issued 15/06/2021

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	CREEKSTONE - STAGE 23	Date tested	05/06/21
Location	TARNEIT	Checked by	JHF

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

Test No	7	8	9	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m <sup>3</sup>	1.74	1.86	1.77	-	-	-
Field moisture content %	24.6	28.8	26.9	-	-	-

Test procedure AS 1289.5.7.1

Test No	7	8	9	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	0	0	-	-	-
Peak Converted Wet Density t/m <sup>3</sup>	1.75	1.85	1.78	-	-	-
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	27.0	31.5	29.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.0% dry	-	-	-
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Density Ratio ( $R_{HD}$ )	%	99.5	100.5	99.5	-	-	-
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Material description

No 7 - 9 Clay Fill

AVRLOT HILF V1.10 MAR 13



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ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry





## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21403  
Report No 21403/R004  
Date Issued 11/09/2021

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	CREEKSTONE - STAGE 23	Date tested	01/09/21
Location	TARNEIT	Checked by	JHF

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

Test No	10	11	12	13	14	15
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>	2.03	1.97	2.11	2.05	2.04	2.15
Field moisture content %	22.7	21.8	20.7	23.5	22.7	21.7

Test procedure AS 1289.5.7.1

Test No	10	11	12	13	14	15
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>	2.06	1.99	2.13	2.10	2.08	2.17
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	25.0	24.0	20.0	24.0	23.0	23.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	1.0% wet	0.0%	0.5% dry	2.0% dry
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Density Ratio ( $R_{HD}$ )	%	98.5	98.5	99.0	97.5	98.0	99.5
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Material description

No 10 - 15 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21403  
Report No 21403/R005  
Date Issued 13/01/2022

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	CREEKSTONE - STAGE 23	Date tested	02/12/21
Location	TARNEIT	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	16	17	18	19	20	21
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>	1.85	1.85	1.84	1.88	1.94	1.88
Field moisture content %	21.0	25.3	21.4	24.2	25.1	28.7

Test procedure AS 1289.5.7.1

Test No	16	17	18	19	20	21
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>	1.90	1.89	1.91	1.94	2.01	1.93
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	23.0	27.0	23.5	26.0	23.5	29.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	2.0% dry	1.5% dry	1.5% wet	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 ( $R_{HD}$ )	%	97.5	97.5	96.5	97.0	97.0	97.5
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Material description

No 16 - 21 Clay Fill

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 21403  
Report No 21403/R006  
Date Issued 27/06/2022

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	CREEKSTONE - STAGE 23	Date tested	21/06/22
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	22	23	24	25	26	27
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>	1.97	1.95	1.92	1.94	1.89	1.95
Field moisture content %	28.4	27.1	30.5	27.5	28.5	28.3

Test procedure AS 1289.5.7.1

Test No	22	23	24	25	26	27
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	2.01	1.92	2.01	1.96	1.96
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	27.5	26.5	28.0	27.5	28.0	28.0

Moisture Variation From Optimum Moisture Content	1.0% wet	0.5% wet	2.0% wet	0.0%	0.0%	0.5% wet
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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 ( $R_{HD}$ )	%	98.5	97.0	100.0	96.5	96.5	99.5
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Material description

No 22 - 27 Clay Fill

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 21403  
Report No 21403/R007  
Date Issued 27/06/2022

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	CREEKSTONE - STAGE 23	Date tested	22/06/22
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:15
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	28	29	30	31	32	33
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	1.93	1.97	1.94	1.90	1.93
Field moisture content %	26.3	25.3	28.4	27.5	28.6	29.5

Test procedure AS 1289.5.7.1

Test No	28	29	30	31	32	33
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	1.99	2.00	1.96	1.95	2.01
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	27.0	25.0	28.0	27.5	28.5	29.5

Moisture Variation From Optimum Moisture Content	0.5% dry	0.5% wet	0.5% wet	0.0%	0.0%	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 ( $R_{HD}$ )	%	97.0	96.5	98.5	99.0	97.0	96.5
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Material description

No 28 - 33 Clay Fill

AVRLOT HILF V1.10 MAR 13



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

Approved Signatory : Justin Fry