

Level 1 Supervision & Inspection Report

Merrifield Estate - Stage 20

Ref: 14874/P/621

Prepared for
BMD Urban Pty Ltd

23 August 2017



**Construction
Sciences**

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Document Information

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1	23/08/2017	Mathew Grech	M.G	Daniel Boyd	D.B

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Table of Contents

1	INTRODUCTION	4
2	EARTHWORK SPECIFICATIONS	4
3	SITE INSPECTION & TESTING	5
3.1	Existing Surface Assessments	5
3.2	Fill Placement	5
3.3	Compaction Control Testing	5
4	GENERAL STATEMENT OF COMPLIANCE	6
5	LIMIT OF LIABILITY	6

Tables

Table 3-1	Summary of Field Density Test Results	5
Table 3-2	Summary of Density Testing – Stage 20	6

Appendices

Appendix A.....	4 Pages
Site Location Plan	

- Stage 20 Site Plan

Appendix B.....	11 Pages
Testing Results	

- Half Density Ratio (%)

1 INTRODUCTION

Construction Sciences was commissioned by BMD Urban Pty Ltd to provide Level 1 supervision & testing services for the proposed Merrifield Estate Development – Stage 20 project located at Mickleham, Victoria.

This report represents the results of inspection activities, compaction and moisture control, and laboratory testing carried out for the placement of fill material for the proposed Merrifield Estate Development – Stage 20 as shown in the attached site location plans in Appendix A.

All works were carried out in accordance with:

- AS 1289 “*Methods of Testing Soils for Engineering Purposes*”.
- AS3798-2007 “*Guidelines on earthworks for commercial & residential developments*”

Material used in the earthworks for level 1 areas was mainly sourced from the existing on site materials.

A total of approximately 9020 m³ of fill between 0-300mm and a total of approximately 2786m³ of fill above 300mm has been placed on Stage 20 of the Merrifield Estate Development over the duration of Level 1 supervision. The fill volume has been determined from site records and supported information provided by the client.

2 EARTHWORK SPECIFICATIONS

The earthworks are to be carried out in general accordance with AS3798-2007 ‘*Guidelines on earthworks for commercial & residential developments*’.

The specification requirements were that fill materials are to be placed and compacted to a density ratio of not less than 95% standard compaction as determined by AS 1289 “*Methods of Testing Soils for Engineering Purposes*”.

3 SITE INSPECTION & TESTING

3.1 Existing Surface Assessments

Prior to commencement of filling, Construction Sciences confirmed that all unsuitable and weaker material such as top soil, silt, uncontrolled or loose soil, organic effected material and other wet areas had been appropriately stripped in accordance with AS 3798-2007. The exposed surface after removal of unsuitable material was compacted and checked for soft areas by proof rolling.

Where no movement or vertical deflection was detected, the stripped surface was assessed to be suitable for the placement of fill.

The site was found to be a relatively flat plane after the stripping took place, with no significant fill zones or slope stability issues.

3.2 Fill Placement

All fill material on site was thoroughly inspected by Construction Sciences site representative to ensure it meets the “**suitable material**” requirements outlined in AS3798-2007. The fill was in-situ material sourced on-site and checked to ensure it was a “**suitable material**”.

The fill material typically comprised of:

- Insitu, Silty Clay, medium plasticity, Brown.

Placement of fill was carried out using the following plants:

- 1* Excavator
- 1* Sheep-foot compactor.
- 1* Grader
- 1* Water Cart

The fill material was spread in near-horizontal layers, and compacted in successive layers, using a sheep-foot compactor.

3.3 Compaction Control Testing

Compaction control tests were carried out at regular intervals throughout the placement of fill in accordance with the minimum test frequency recommendations included in AS3798-2007 ‘*Guidelines on Earthworks for commercial and residential developments*’.

The in-situ density tests were conducted using a nuclear density/moisture meter in accordance with AS 1289 5.8.1 “Determination of field density and field moisture content of a soil a nuclear surface moisture-density gauge”.

Disturbed samples taken from each density test site were tested at Construction Sciences’ NATA accredited soil laboratory, using the Hilf rapid compaction method, in accordance with AS 1289.5.7.1.

A total twelve (12) field density tests were carried out throughout the earthworks as below Table 3-1. These 12 tests equates to 1 test to approximately every 233m³ of fill.

Table 3-1 Summary of Field Density Test Results

Stage	Successful Test Numbers	Mean Density (%)	Standard Deviation (%)
20	12	97.5	0.707

All density test results carried out in the engineered fill material are included in Appendix B. A summary of test results is presented in below in Table 3-2.

Table 3-2 Summary of Density Testing – Stage 20

No	Sample Number	Report Number	Date	Density Ratio (%)
1	14874/S/96246	14874/R/41745-1	15/08/2017	96.5
2	14874/S/96247	14874/R/41745-1	15/08/2017	96.5
3	14874/S/96248	14874/R/41745-1	15/08/2017	97.0
4	14874/S/96249	14874/R/41745-1	15/08/2017	97.5
5	14874/S/96250	14874/R/41745-1	15/08/2017	97.5
6	14874/S/96251	14874/R/41745-1	15/08/2017	97.5
7	14874/S/96256	14874/R/41746-1	15/08/2017	97.0
8	14874/S/96257	14874/R/41746-1	15/08/2017	97.5
9	14874/S/96258	14874/R/41746-1	15/08/2017	97.5
10	14874/S/96259	14874/R/41746-1	15/08/2017	98.5
11	14874/S/96260	14874/R/41746-1	15/08/2017	98.5
12	14874/S/96261	14874/R/41746-1	15/08/2017	98.5
Results	Mean Density (%)	Standard Deviation (%)	Lowest Result	Highest Result
12	97.5	0.707	96.5	98.5

4 GENERAL STATEMENT OF COMPLIANCE

It is considered that the placement of fill material at the Merrifield Estate Development – Stage 20 was carried out in accordance with AS3798-2007 “Guidelines on earthworks for commercial and residential developments”. It is concluded that the fill was compacted to a density ratio not less than the specified requirement.

5 LIMIT OF LIABILITY

This report has been produced for, and is the property of our client BMD Urban Pty Ltd.

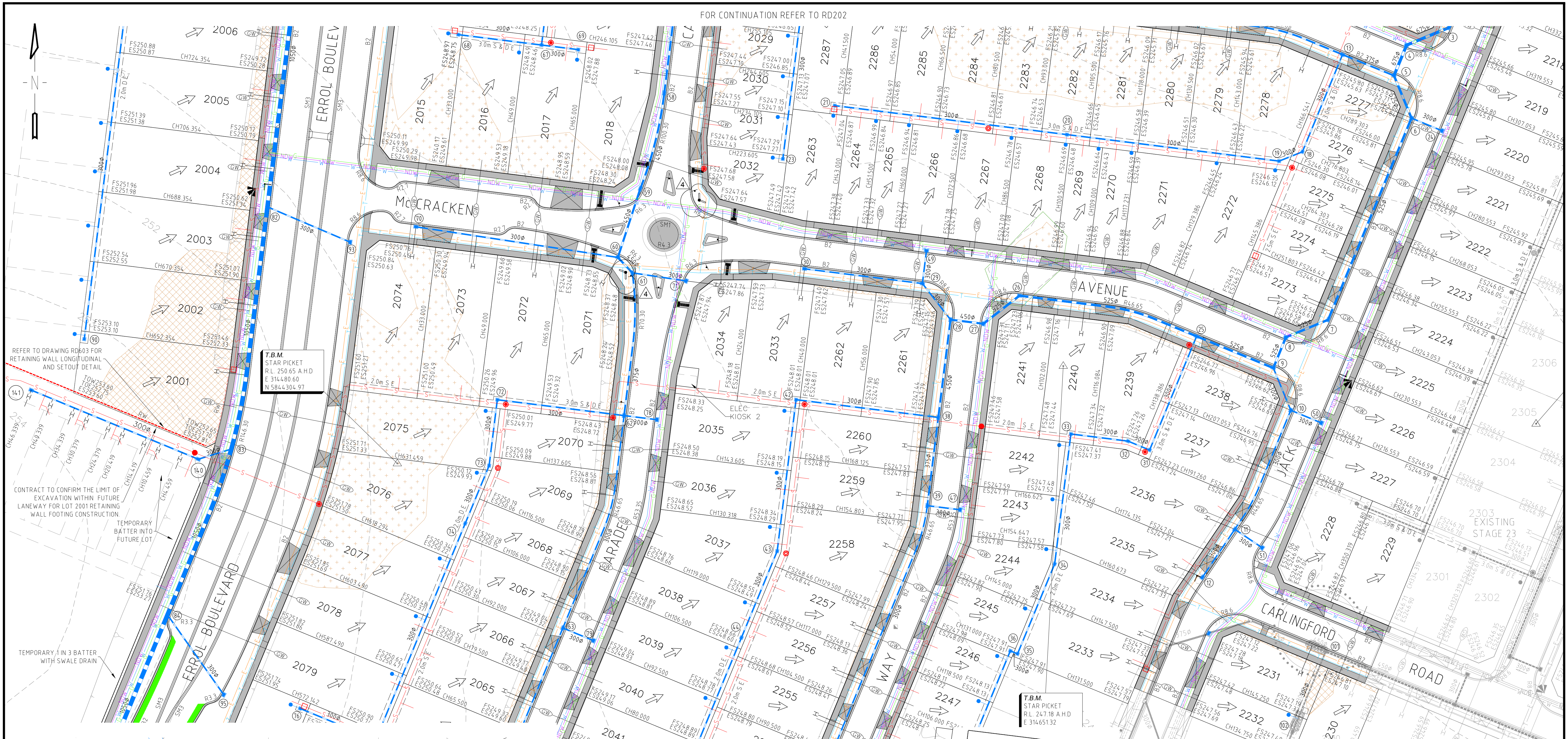
Construction Sciences accepts no liability to any third party, and will not enter into any communication with a third party regarding this report.

Appendix A

4 Pages

Site Location Plan

- **Stage 20**



SERVICE OFFSET TABLE									
STREET NAME	SIDE	GAS		RECYCLED WATER		DRINKING WATER		ELECTRICITY	
		OFFSET (m)	DEPTH (mm)	OFFSET (m)	DEPTH (mm)	OFFSET (m)	DEPTH (mm)	OFFSET (m)	DEPTH (mm)
ERROL BOULEVARD	WEST	3.45	185	WEST	1.85	WEST	2.50	EAST	2.80
BALMAIN ROAD	NORTH	2.25	270	NORTH	2.70	NORTH	3.20	SOUTH	3.60
CAMBERWELL PDE (LOT 2063 - 2070)	EAST	2.25	270	EAST	2.70	EAST	3.20	WEST	2.60
CAMBERWELL PDE (LOT 2071 to McCracken Ave)	EAST	2.25	270	EAST	2.70	EAST	3.20	WEST	2.60
CAMBERWELL PDE (LOT 2032 to 2024)	WEST	2.25	270	WEST	2.70	WEST	3.20	EAST	2.60
BANGALORE WAY	EAST	2.25	270	EAST	2.70	EAST	3.20	WEST	2.60
McCracken Avenue	NORTH	2.25	270	NORTH	2.70	NORTH	3.20	SOUTH	2.60
BRINGA DRIVE	NORTH	2.25	270	NORTH	2.70	NORTH	3.20	SOUTH	2.60
JACKA STREET	EAST	2.25	270	EAST	2.70	EAST	3.20	WEST	2.60
KONNER WAY	SOUTH	2.25	270	SOUTH	2.70	SOUTH	3.20	NORTH	1.30
CARLINGFORD ROAD	NORTH	1.90	235	NORTH	2.35	NORTH	2.85	SOUTH	2.70

LEGEND - DETAIL

- LOT GRADE
- EXISTING SURFACE LEVEL
- FINISHED SURFACE LEVEL
- TOP OF BATTER LEVEL
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- REMOVE EX TREE
- TABLE DRAIN
- PROPERTY INLET
- HOUSE DRAIN
- SWD PIT NUMBERS
- CUT >150mm DEPTH
- FILL >300mm DEPTH

DRIVEWAY NOTES
DRIVEWAY WIDTH SHALL ACCORDING TO THE FOLLOWING

- WHERE LOTS
FRONTAGE<10m = 3.0m DRIVEWAY
FRONTAGE>10m = 3.5m DRIVEWAY
- FRONTAGE>10m AND ABUTS A NARROW LOT (<10m) = OPTION WITH COMBINED DRIVEWAY OF 6.5m (3.5 + 3.0).

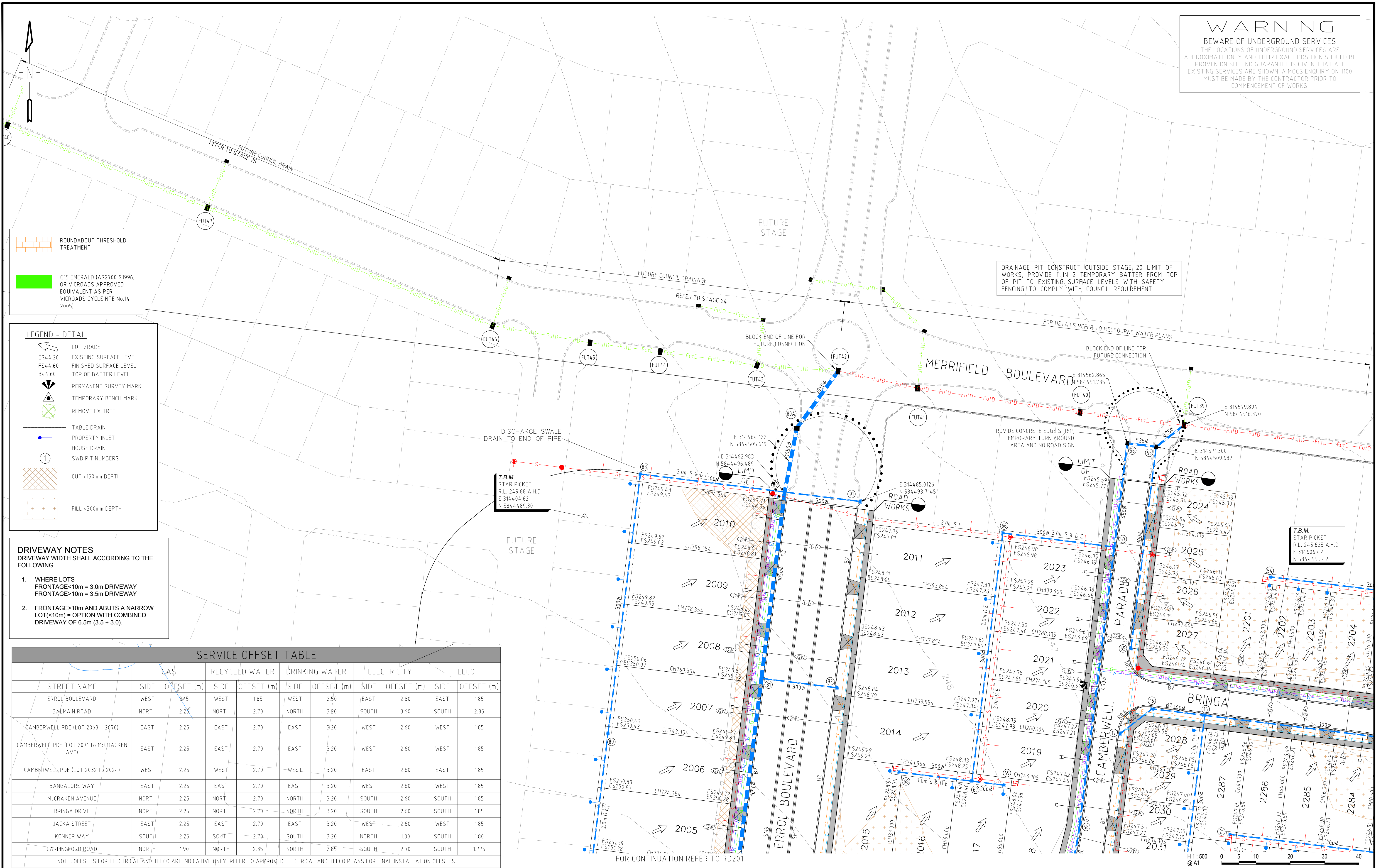
WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. A MOC'S ENQUIRY ON 1100 MUST BE MADE BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS.

ELEC KIOSK 2 LEVELS

SCALE 1:100

0 ISSUED FOR CONSTRUCTION	G.R.	21/11/16	DRAWN: LAPAP	LEGEND PROPOSED ELECTRICITY PROPOSED TELSTRA PROPOSED GAS PROPOSED WATER PROPOSED SEWER PROPOSED DRAINAGE PROPOSED MWC MAIN DRAIN EX. ELECTRICITY EX. TELSTRA EX. GAS EX. WATER EX. SEWER EX. DRAINAGE PROPOSED FUTURE DRAINAGE EX. ELECTRICITY (OVERHEAD) EX. TELSTRA (OVERHEAD) EX. TELSTRA (OPTIC FIBRE) GAS & WATER CONDUIT GAS CONDUIT WATER CONDUIT	CLIENT: merrifield MAB gpc	Verve Projects Pty Ltd Level 11 173 Burke Road Glen Iris VIC 3146 T 03 8573 1500 verveprojects.com	COUNCIL: HUME CITY COUNCIL PROJECT: MERRIFIELD LIVING - SECTION B STAGE 20 MICKLEHAM ISSUE: CONSTRUCTION	TITLE: DETAIL LAYOUT AND SERVICES PLAN	MELWAY REF: 366 D3/D4 PROJECT No: P115-20 DWG No: RD201 REVISION: 4
4 AMENDED ROUNDABOUT STREET SIGNS	G.R.	15/05/17	DESIGNED: T.HOI		COUNCIL: HUME CITY COUNCIL PROJECT: MERRIFIELD LIVING - SECTION B STAGE 20 MICKLEHAM ISSUE: CONSTRUCTION				
3 AMENDED DRAINAGE	G.R.	09/03/17	T.HOI						
2 AMENDED SERVICE LOCATION AND OFFSETS	G.R.	02/03/17	APPROVED: B.GLEESON						
1 ES & FS ADDED	G.R.	06/02/17	APPROVED: B.GLEESON						
REV	DESCRIPTION	APPROVED	DATE						

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ROUNDABOUT THRESHOLD TREATMENT

G15 EMERALD (AS2700 S1996) OR VICROADS APPROVED EQUIVALENT AS PER VICROADS CYCLE NTE No.14 (2005)

LEGEND - DETAIL

LOT GRADE
EXISTING SURFACE LEVEL
FINISHED SURFACE LEVEL
TOP OF BATTER LEVEL

PERMANENT SURVEY MARK
TEMPORARY BENCH MARK
REMOVE EX TREE

TABLE DRAIN
PROPERTY INLET
HOUSE DRAIN
SWD PIT NUMBERS

CUT >150mm DEPTH
FILL >300mm DEPTH

DRIVEWAY NOTES
DRIVEWAY WIDTH SHALL ACCORDING TO THE FOLLOWING

1. WHERE LOTS FRONTAGE < 10m = 3.0m DRIVEWAY
FRONTAGE > 10m = 3.5m DRIVEWAY

2. FRONTAGE > 10m AND ABUTS A NARROW LOT (< 10m) = OPTION WITH COMBINED DRIVEWAY OF 6.5m (3.5 + 3.0).

SERVICE OFFSET TABLE											
	GAS		RECYCLED WATER		DRINKING WATER		ELECTRICITY		TELCO		
STREET NAME	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	
ERROL BOULEVARD	WEST	3.45	WEST	1.85	WEST	2.50	EAST	2.80	EAST	1.85	
BALMAIN ROAD	NORTH	2.25	NORTH	2.70	NORTH	3.20	SOUTH	3.60	SOUTH	2.85	
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McCracken AVENUE	NORTH	2.25	NORTH	2.70	NORTH	3.20	SOUTH	2.60	SOUTH	1.85	
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KONNER WAY	SOUTH	2.25	SOUTH	2.70	SOUTH	3.20	NORTH	1.30	SOUTH	1.80	
CARLINGFORD ROAD	NORTH	1.90	NORTH	2.35	NORTH	2.85	SOUTH	2.70	SOUTH	1.775	
NOTE: OFFSETS FOR ELECTRICAL AND TELCO ARE INDICATIVE ONLY. REFER TO APPROVED ELECTRICAL AND TELCO PLANS FOR FINAL INSTALLATION OFFSETS											

0	ISSUED FOR CONSTRUCTION	G.R.	21/11/16	DRAWN:	LAPAP
E	COUNCIL COMMENTS	G.R.	02/11/16	DESIGNED:	T.HOI
D	AMENDED SERVICE LOCATION AND OFFSETS	G.R.	21/10/16	APPROVED:	B.GLEESON
C	ROUNDABOUT DETAIL	G.R.	10/10/16		
2	AMENDED SERVICE LOCATION AND OFFSETS	B.G.	02/03/17		
1	DRAINAGE UPDATED	G.R.	06/02/16		
REV	DESCRIPTION	APPROVED	DATE		

LEGEND			
—	PROPOSED ELECTRICITY	—	EX. ELECTRICITY
—	PROPOSED TELSTRA	—	EX. TELSTRA
—	PROPOSED GAS	—	EX. GAS
—	PROPOSED WATER	—	EX. WATER
—	PROPOSED SEWER	—	EX. SEWER
—	PROPOSED DRAINAGE	—	EX. DRAINAGE
—	PROPOSED MWC MAIN DRAIN	—	EX. MWC MAIN DRAIN
—	PROPOSED FUTURE DRAINAGE	—	EX. FUTURE DRAINAGE

CLIENT:

merrifield

MAB **GPC**

verve

Verve Projects Pty Ltd
Level 11 173 Burke Road
Glen Iris VIC 3146
T 03 8573 1500
verveprojects.com

COUNCIL: HUME CITY COUNCIL

PROJECT: MERRIFIELD LIVING - SECTION B
STAGE 20
MICKLEHAM

ISSUE: CONSTRUCTION

MELWAY REF: 366 D3/D4

PROJECT No: P115-20

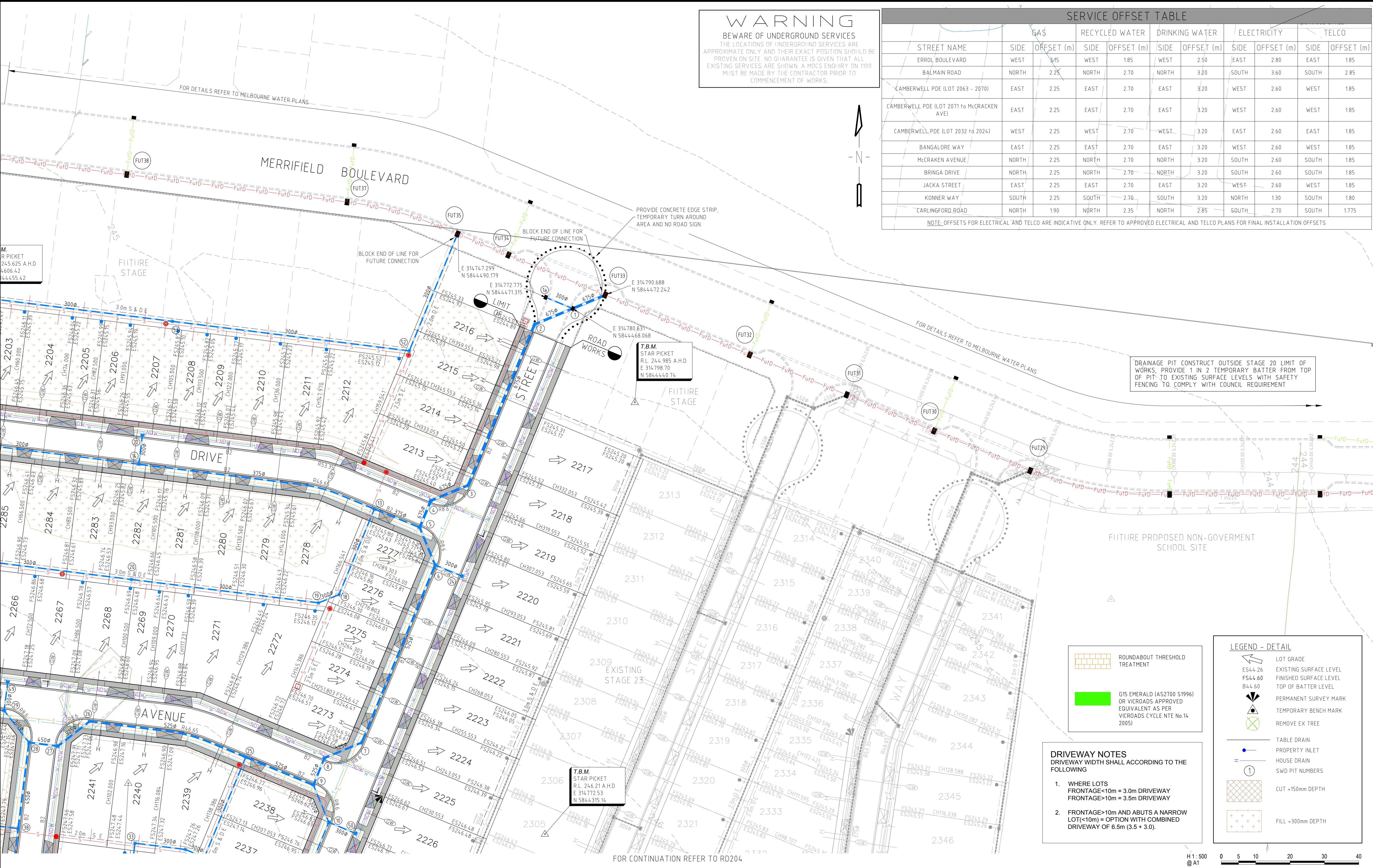
DWG No: RD202

REVISION: 2

DETAIL LAYOUT AND SERVICES PLAN

WARNING
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PROPOSED ELECTRICITY	PROPOSED TELSTRA	PROPOSED GAS	PROPOSED WATER	PROPOSED SEWER	PROPOSED DRAINAGE	PROPOSED MWC MAIN DRAIN
EX. ELECTRICITY	EX. TELSTRA	EX. GAS	EX. WATER	EX. SEWER	EX. DRAINAGE	PROPOSED FUTURE DRAINAGE
EX. ELECTRICITY (OVERHEAD)	EX. TELSTRA (OVERHEAD)	EX. TELSTRA (OPTIC FIBRE)	GAS & WATER CONDUIT	GAS CONDUIT	WATER CONDUIT	

CLIENT:

merrifield

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verveprojects.com

COUNCIL:

HUME CITY COUNCIL

PROJECT:

MERRIFIELD LIVING - SECTION B
STAGE 20
MICKLEHAM

ISSUE:

CONSTRUCTION

TITLE:

DETAIL LAYOUT
AND
SERVICES PLAN

MELWAY REF:
366 D3/D4

PROJECT No:
P115-20

DWG No:
RD203

REVISION:
2

Appendix B

11 Pages

Testing Results

- Hilf Density Ratio (%)

Site Location Sketch

MELBOURNE

Test site locations only

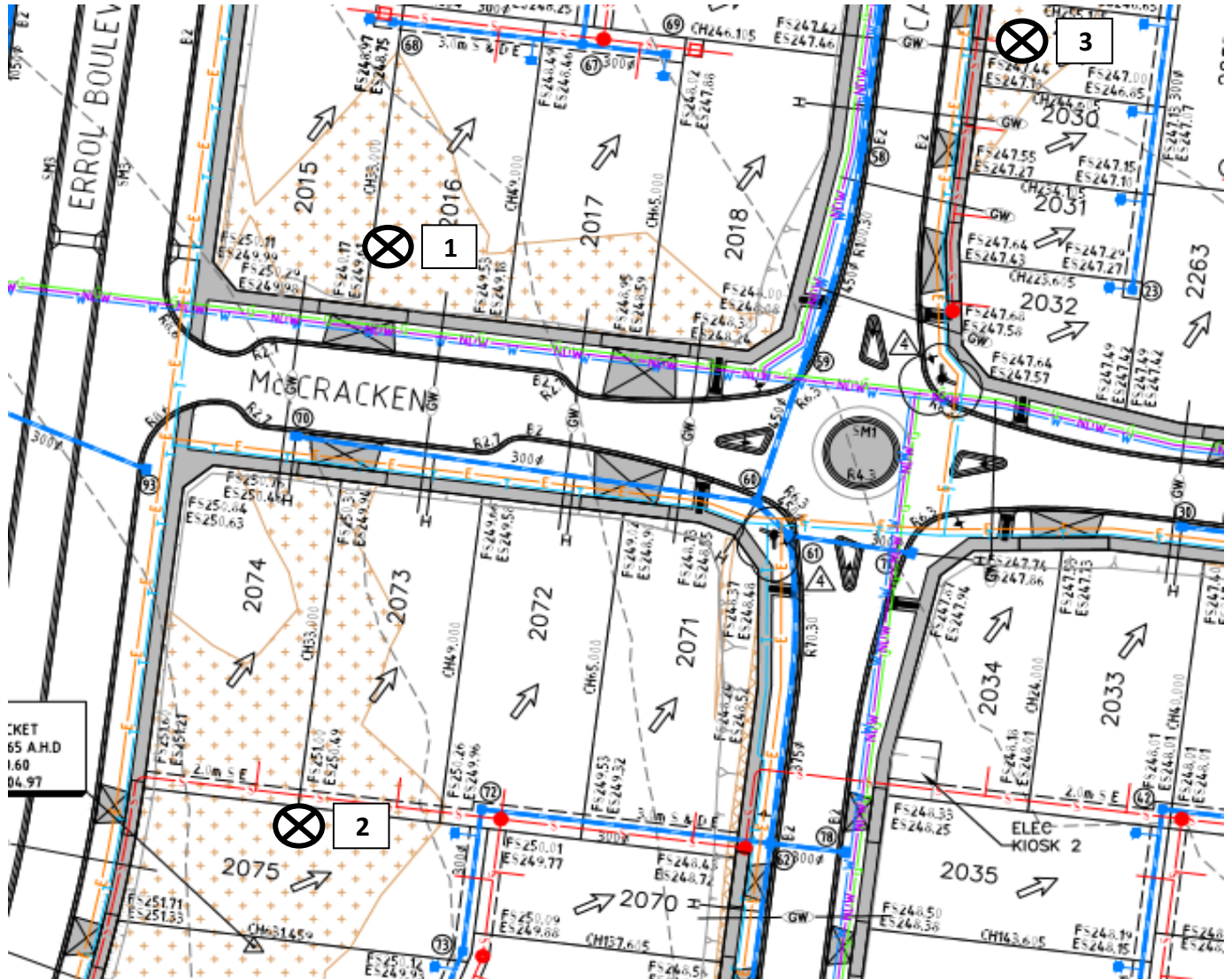
NOT TO SCALE

Client: BMD

Job No. 14874/P/621

Test Request No. T-25240

Date Tested: 15/08/2017

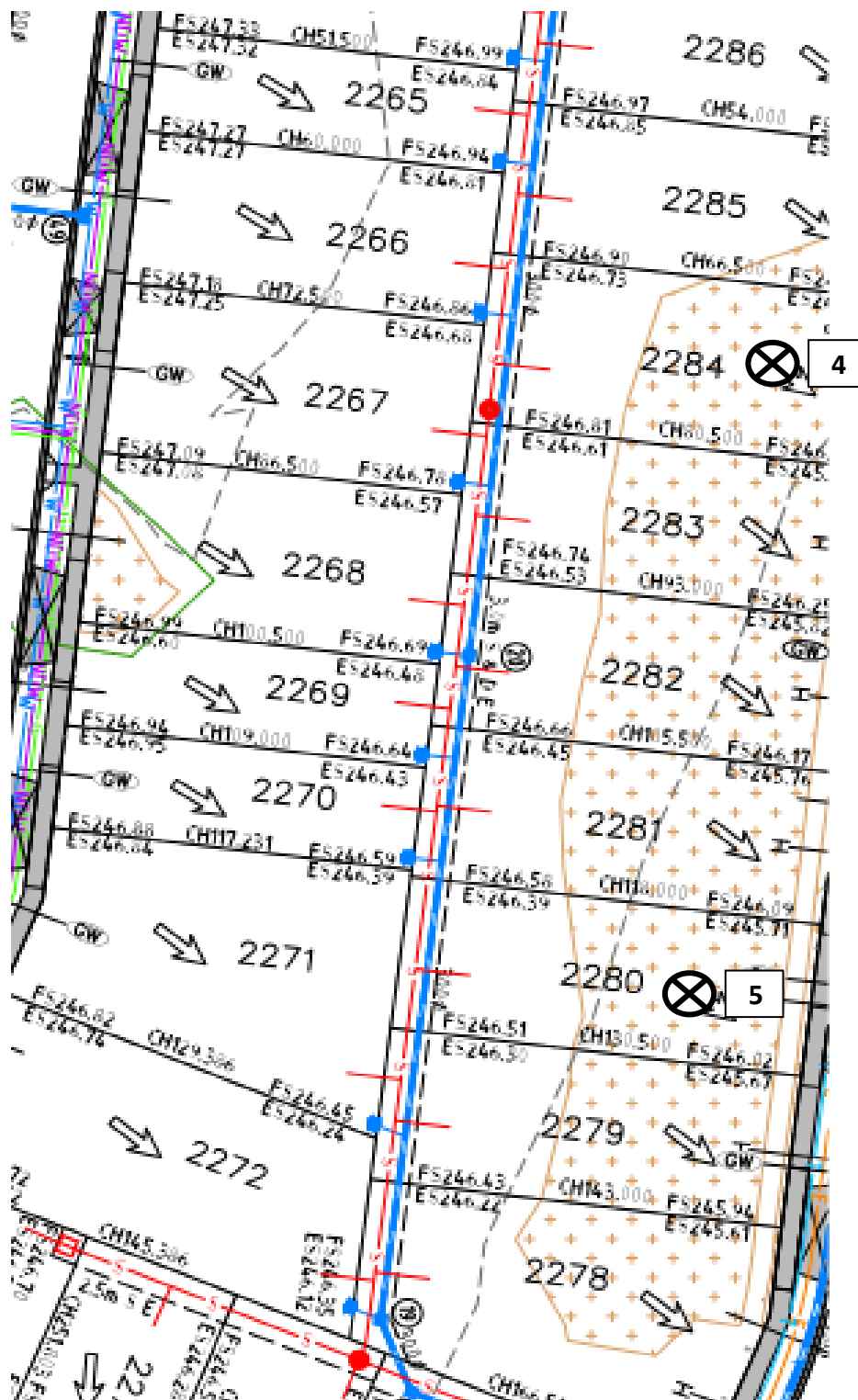


MELBOURNE

Client: BMD
Job No. 14874/P/621

Test Request No. T-25240

Date Tested: 15/08/2017



Site Location Sketch

MELBOURNE

Test site locations only

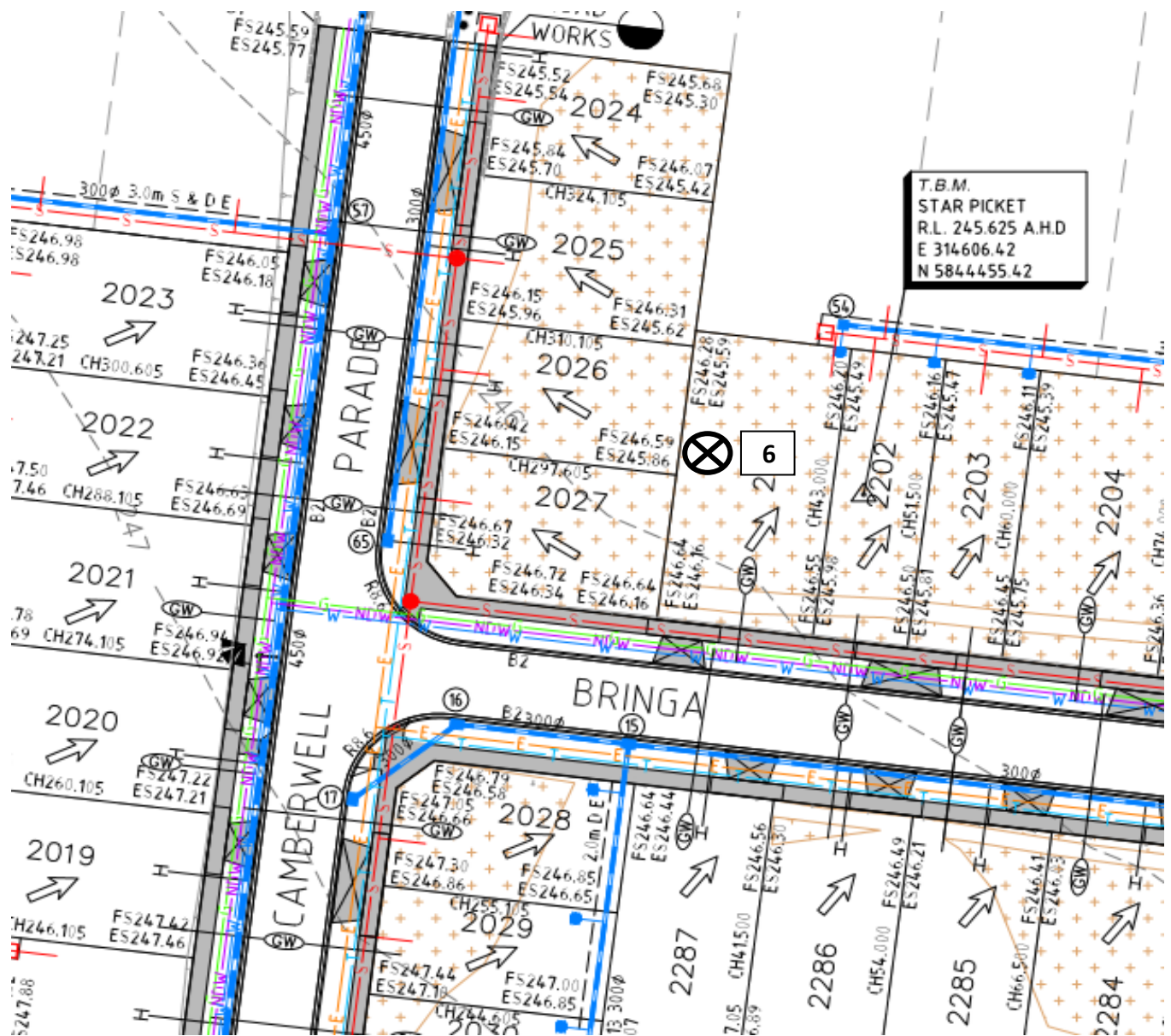
NOT TO SCALE

Client: BMD

Job No. 14874/P/621

Test Request No. T-25240

Date Tested: 15/08/2017



LOT REPORT - WET DENSITY RATIO

Client:	BMD Urban Pty Ltd	Report Number:	14874/R/41745-1
Client Address:	PO BOX 1128, CAMBERWELL	Project Number:	14874/P/621
Project:	Stage 20	Lot Number:	
Location:	Merrifield	Internal Test Request:	14874/T/25240
Component:		Client Reference/s:	Level 1 Stg 20
Area Description:		Report Date / Page:	18/08/2017 Page 1 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	14874/S/96246	14874/S/96247	14874/S/96248	14874/S/96249
ID / Client ID	-	-	-	-
Lot Number	-	-	-	-
Date / Time Tested	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Material Source	Onsite	Onsite	Onsite	Onsite
Material Type	Clay	Clay	Clay	Clay
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / -	175 / 200 / -	175 / 200 / -
Standard or Modified	Standard	Standard	Standard	Standard
Layer Number	1	1	1	1
Location Number	1	2	3	4
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	4	0	0	0
Density of Oversize (t/m ³)	2.532	-	-	-
Compaction Sample Number	14874/S/96246	14874/S/96247	14874/S/96248	14874/S/96249
Sample Description	clay	Clay	Clay	Clay
Moisture Test Results:				
Field Moisture Content (%)	9.8	10.5	9.4	10.4
Adjusted / Moisture Variation (%)	2.5	2.5	2.5	2.0
Optimum Moisture Content (%)	12.5	13.0	12.0	12.5
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)
Moisture Ratio (%)	79.5	81.5	79.0	84.5
Density Test Results:				
Field Wet Density (t/m ³)	1.84	1.85	1.85	1.85
Adj/Peak Conv Wet Density (t/m ³)	1.91	1.92	1.91	1.89
Density Ratio Required (%)	95	95	95	95
Hilf Density Ratio (%)	96.5	96.5	97.0	97.5

Remarks



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986
Corporate Site Number: 14874



Approved Signatory: Daniel Boyd
Form ID: W5ASRepSum Rev 3

LOT REPORT - WET DENSITY RATIO

Client:	BMD Urban Pty Ltd	Report Number:	14874/R/41745-1
Client Address:	PO BOX 1128, CAMBERWELL	Project Number:	14874/P/621
Project:	Stage 20	Lot Number:	
Location:	Merrifield	Internal Test Request:	14874/T/25240
Component:		Client Reference/s:	Level 1 Stg 20
Area Description:		Report Date / Page:	18/08/2017 Page 2 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	14874/S/96250	14874/S/96251		
ID / Client ID	-	-		
Lot Number	-	-		
Date / Time Tested	15/08/2017	15/08/2017		
Material Source	Onsite	Onsite		
Material Type	Clay	Clay		
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b		
Depths: Test / Nom / Actual (mm)	175 / 200 / -	175 / 200 / -		
Standard or Modified	Standard	Standard		
Layer Number	1	1		
Location Number	5	6		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize (%)	0	0		
Density of Oversize (t/m ³)	-	-		
Compaction Sample Number	14874/S/96250	14874/S/96251		
Sample Description	Clay	Clay		
Moisture Test Results:				
Field Moisture Content (%)	9.8	11.0		
Adjusted / Moisture Variation (%)	2.5	2.0		
Optimum Moisture Content (%)	12.0	12.5		
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)		
Moisture Ratio (%)	81.5	86.5		
Density Test Results:				
Field Wet Density (t/m ³)	1.84	1.85		
Adj/Peak Conv Wet Density (t/m ³)	1.89	1.89		
Density Ratio Required (%)	95	95		
Hilf Density Ratio (%)	97.5	97.5		

Remarks

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	Accreditation Number:	1986	
	Corporate Site Number:	14874	
	Approved Signatory: Daniel Boyd		
	Form ID: W5ASRepSum Rev 3		

LOT REPORT - WET DENSITY RATIO

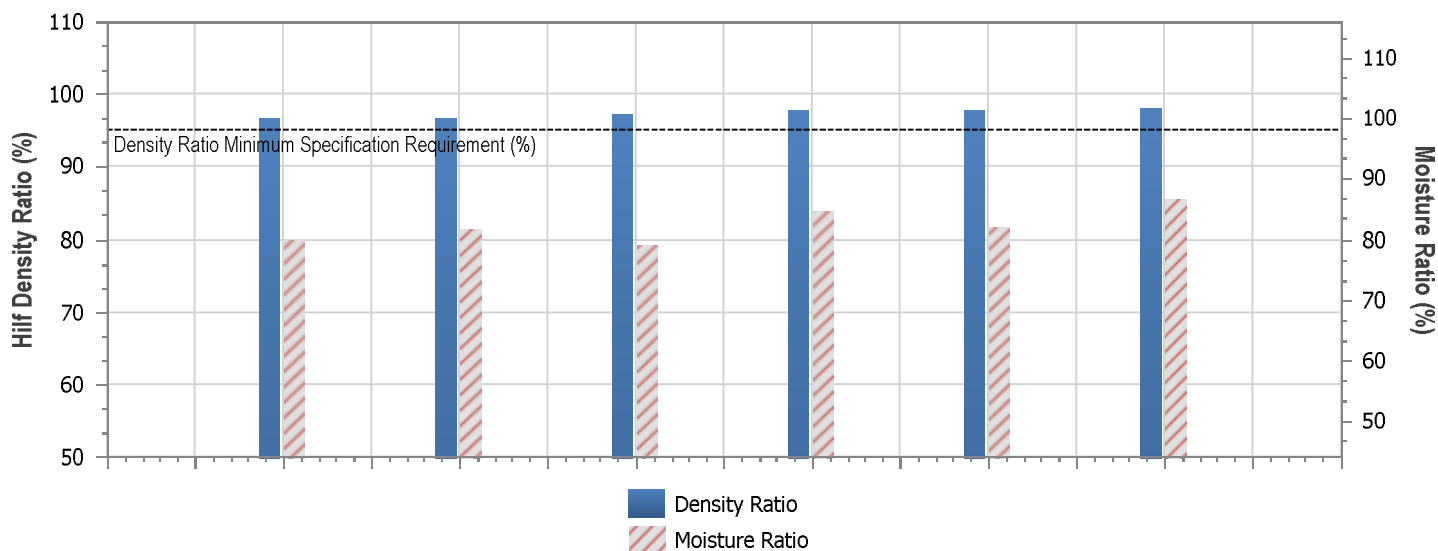
Client:	BMD Urban Pty Ltd	Report Number:	14874/R/41745-1
Client Address:	PO BOX 1128, CAMBERWELL	Project Number:	14874/P/621
Project:	Stage 20	Lot Number:	
Location:	Merrifield	Internal Test Request:	14874/T/25240
Component:		Client Reference/s:	Level 1 Stg 20
Area Description:		Report Date / Page:	18/08/2017 Page 3 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
Statistical Analysis Test Method:	Lot Average (Lot average calculations are not covered by NATA endorsement)

Nuclear Gauge Bias Details

Bias Number	-	Material Source	-
Bias Last Updated	-	Material Type	-
Nominated Bias Layer Depth (mm)	-		-

LOT TEST RESULT SUMMARY



Tests in Lot = 6	Lot Minimum	Lot Maximum	Lot Mean	Standard Deviation
Moisture Ratio (%)	79.0	86.6	82.2	2.915
Half Density Ratio (%)	96.4	97.7	97.1	0.613

Lot Number: -
 Mean Density Ratio (%): 97.1
 Mean Moisture Ratio (%): 82.2

Remarks



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 Corporate Site Number: 14874



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Site Location Sketch

MELBOURNE

Test site locations only

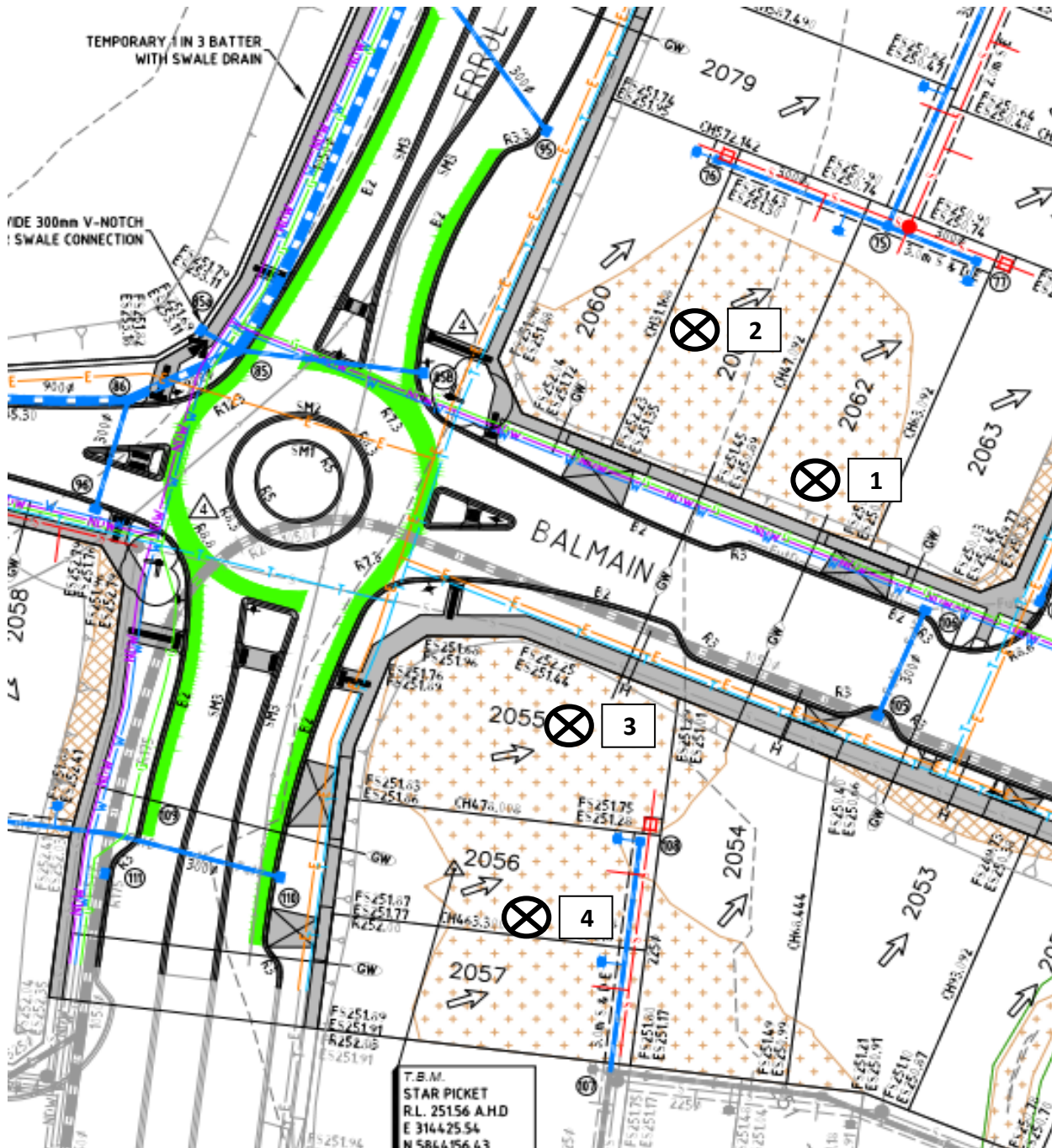
NOT TO SCALE

Client: BMD

Job No. 14874/P/621

Test Request No. T-25245

Date Tested: 15/08/2017



Site Location Sketch

MELBOURNE

Test site locations only

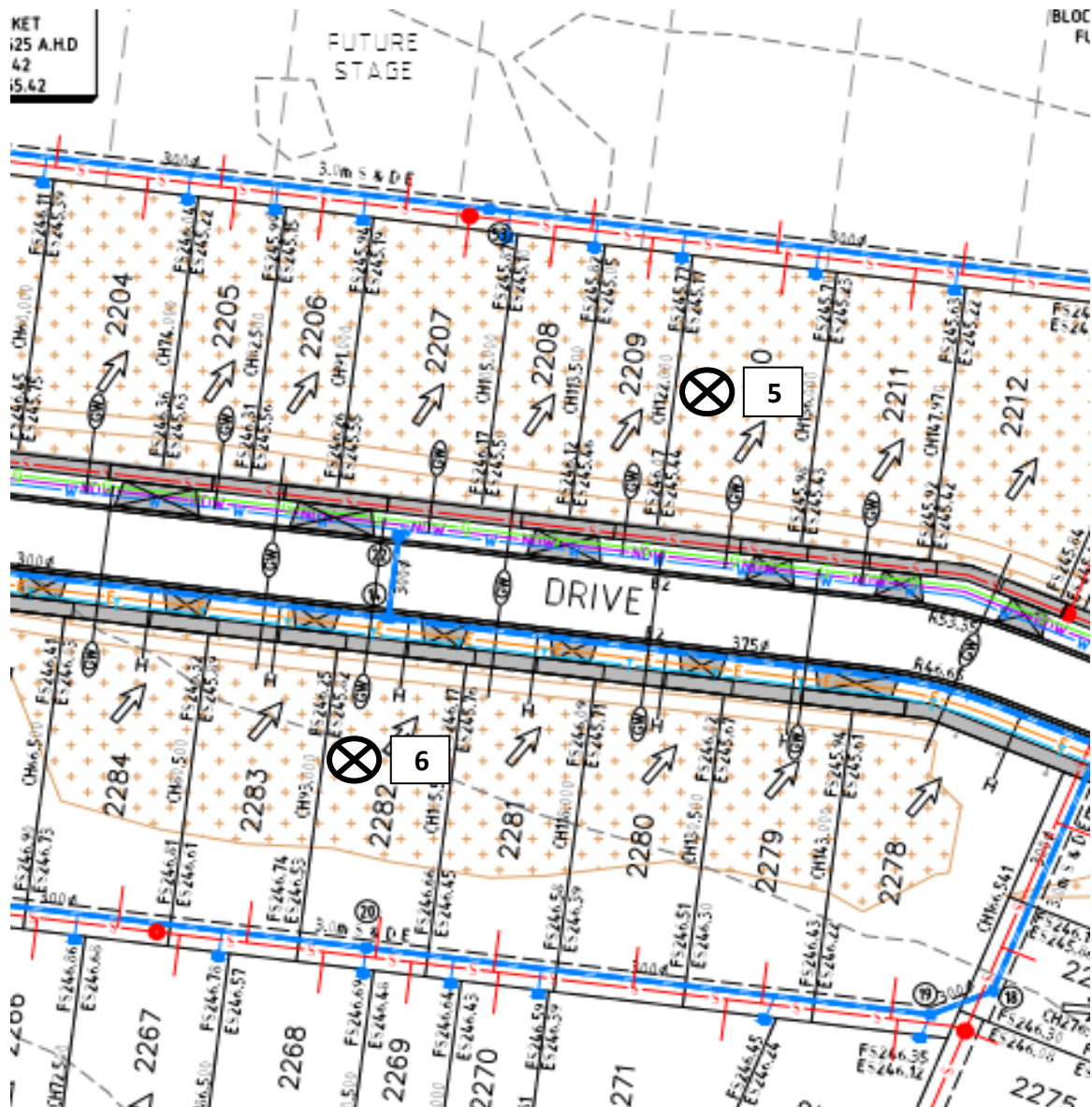
NOT TO SCALE

Client: BMD

Job No. 14874/P/621

Test Request No. T-25245

Date Tested: 15/08/2017



LOT REPORT - WET DENSITY RATIO

Client:	BMD Urban Pty Ltd	Report Number:	14874/R/41746-1
Client Address:	PO BOX 1128, CAMBERWELL	Project Number:	14874/P/621
Project:	Stage 20	Lot Number:	
Location:	Merrifield	Internal Test Request:	14874/T/25245
Component:		Client Reference/s:	Level 1 Fill Stg 20
Area Description:		Report Date / Page:	18/08/2017 Page 1 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	14874/S/96256	14874/S/96257	14874/S/96258	14874/S/96259
ID / Client ID	Refer to Map	Refer to Map	Refer to Map	Refer to Map
Lot Number	-	-	-	-
Date / Time Tested	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Material Source	Onsite	Onsite	Onsite	Onsite
Material Type	Clay	Clay	Clay	Clay
Sampling Method	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200
Standard or Modified	Standard	Standard	Standard	Standard
Layer Number	Layer 1	Layer 2	Layer 1	Layer 2
Location Number	1	2	3	4
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Density of Oversize (t/m ³)	-	-	-	-
Compaction Sample Number	14874/S/96256	14874/S/96257	14874/S/96258	14874/S/96259
Sample Description	Clay	Clay	Clay	Clay
Moisture Test Results:				
Field Moisture Content (%)	10.5	10.3	10.1	10.0
Adjusted / Moisture Variation (%)	2.5	2.0	2.0	2.5
Optimum Moisture Content (%)	13.0	12.0	12.0	12.5
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)	(Drier than OMC)
Moisture Ratio (%)	82.0	84.5	83.5	81.5
Density Test Results:				
Field Wet Density (t/m ³)	1.83	1.84	1.84	1.85
Adj/Peak Conv Wet Density (t/m ³)	1.89	1.88	1.88	1.88
Density Ratio Required (%)	95	95	95	95
Hilf Density Ratio (%)	97.0	97.5	97.5	98.5

Remarks

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	Corporate Site Number:	14874	
	Approved Signatory: Daniel Boyd		Form ID: W5ASRepSum Rev 3

LOT REPORT - WET DENSITY RATIO

Client:	BMD Urban Pty Ltd	Report Number:	14874/R/41746-1
Client Address:	PO BOX 1128, CAMBERWELL	Project Number:	14874/P/621
Project:	Stage 20	Lot Number:	
Location:	Merrifield	Internal Test Request:	14874/T/25245
Component:		Client Reference/s:	Level 1 Fill Stg 20
Area Description:		Report Date / Page:	18/08/2017 Page 2 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	14874/S/96260	14874/S/96261		
ID / Client ID	Refer to Map	Refer to Map		
Lot Number	-	-		
Date / Time Tested	15/08/2017	15/08/2017		
Material Source	Onsite	Onsite		
Material Type	Clay	Clay		
Sampling Method	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b		
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200		
Standard or Modified	Standard	Standard		
Layer Number	Layer 1	Layer 2		
Location Number	5	6		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize (%)	0	0		
Density of Oversize (t/m ³)	-	-		
Compaction Sample Number	14874/S/96260	14874/S/96261		
Sample Description	Clay	Clay		
Moisture Test Results:				
Field Moisture Content (%)	11.4	9.8		
Adjusted / Moisture Variation (%)	2.5	2.5		
Optimum Moisture Content (%)	13.5	12.0		
Moisture Variation from OMC	(Drier than OMC)	(Drier than OMC)		
Moisture Ratio (%)	83.0	80.5		
Density Test Results:				
Field Wet Density (t/m ³)	1.84	1.85		
Adj/Peak Conv Wet Density (t/m ³)	1.87	1.87		
Density Ratio Required (%)	95	95		
Hiif Density Ratio (%)	98.5	98.5		

Remarks



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LOT REPORT - WET DENSITY RATIO

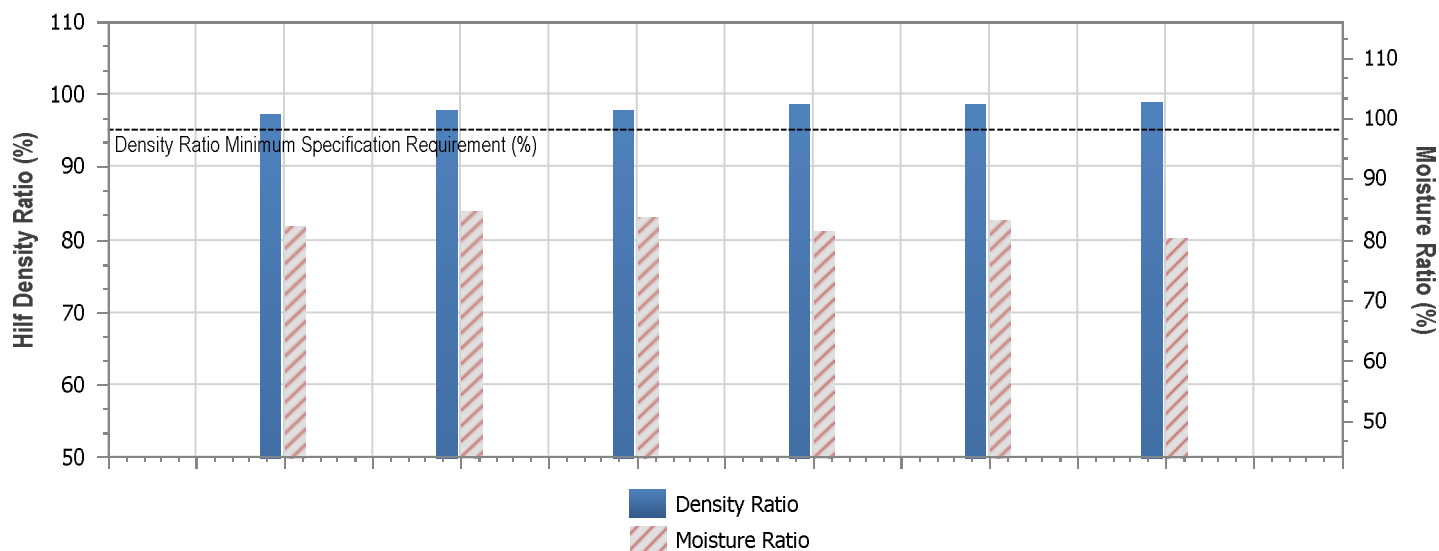
Client:	BMD Urban Pty Ltd	Report Number:	14874/R/41746-1
Client Address:	PO BOX 1128, CAMBERWELL	Project Number:	14874/P/621
Project:	Stage 20	Lot Number:	
Location:	Merrifield	Internal Test Request:	14874/T/25245
Component:		Client Reference/s:	Level 1 Fill Stg 20
Area Description:		Report Date / Page:	18/08/2017 Page 3 of 3

Test Procedures:	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
Statistical Analysis Test Method:	Lot Average (Lot average calculations are not covered by NATA endorsement)

Nuclear Gauge Bias Details

Bias Number	-	Material Source	-
Bias Last Updated	-	Material Type	-
Nominated Bias Layer Depth (mm)	-		-

LOT TEST RESULT SUMMARY



Tests in Lot = 6	Lot Minimum	Lot Maximum	Lot Mean	Standard Deviation
Moisture Ratio (%)	80.3	84.4	82.4	1.525
Half Density Ratio (%)	97.1	98.7	98.0	0.623

Lot Number: -
 Mean Density Ratio (%): 98.0
 Mean Moisture Ratio (%): 82.4

Remarks



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