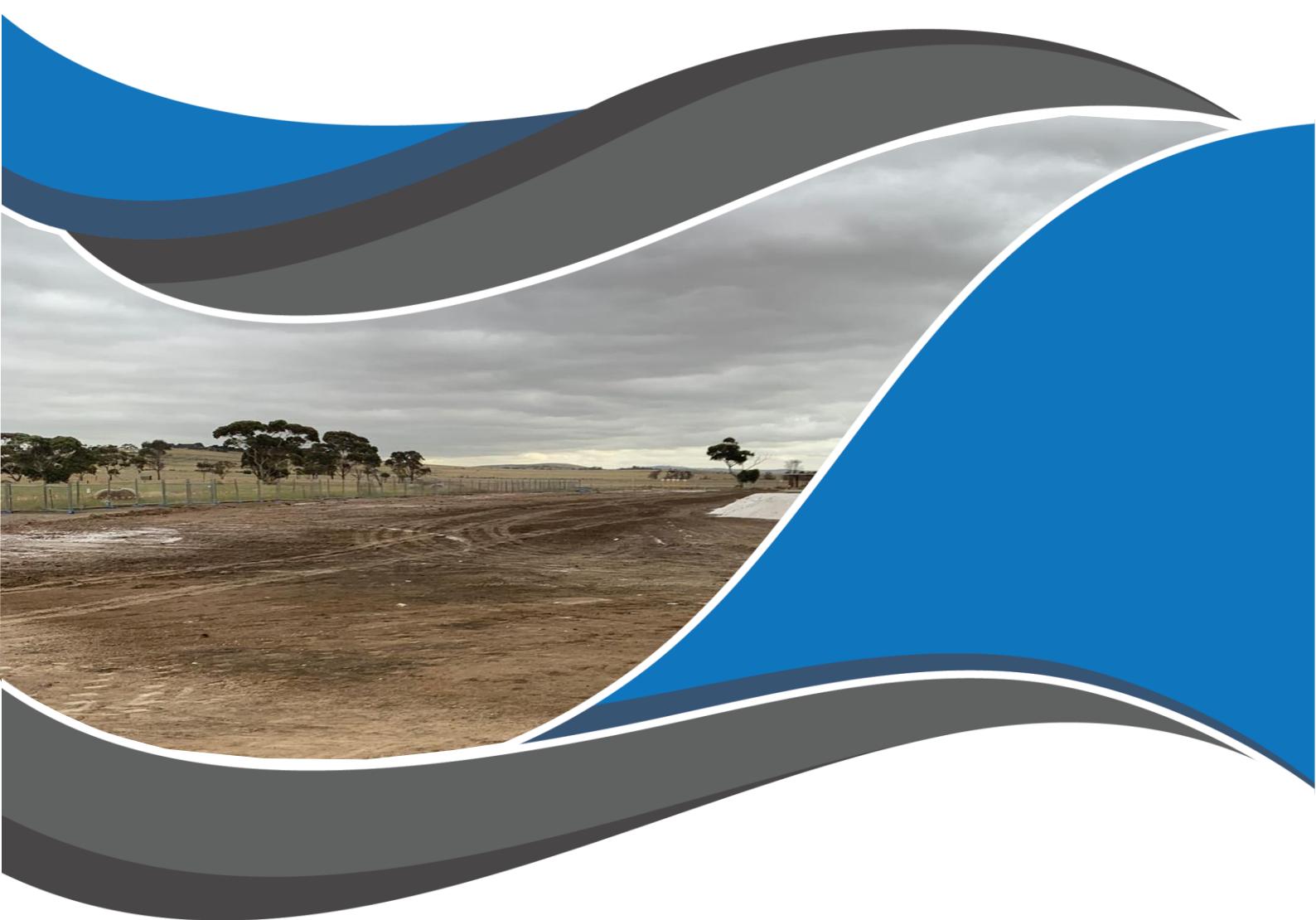


Merrifield Living - Section D - Stage 46, Mickleham

Level 1 Inspection & Testing Report

Reference: 1120 0435-1



Prepared for:

BMD Urban

November 2023

Document Control Record

Prepared by:

A&Y Associates Pty Ltd

ABN 92 614 244 665

5/16 Network Drive
Truganina, VIC 3029

T: (03) 8754 8325

E: info@ayassociates.com.au

W: www.ayassociates.com.au

Document control

Report title		Level 1 Inspection & Testing			
Project reference number		1120 0435-1			
Client		BMD Urban			
Contact name		Alyssa Willder			
Contact number		0400 207 600			
Contact e-mail		Alyssa.Willder@bmd.com.au			
Revision	Date	Descriptions/Status	Author	Reviewer	Approver
0	24/11/2023	First Issue	Y Balkis	A Tan	A Tan

Approver



Alvin Tan

(BE Civil and Infrastructure), MIEAust

Senior Geotechnical Engineer

E: alvin@ayassociates.com.au | M: 0449 288 338



ENGINEERS
AUSTRALIA
Professional Engineer
MEMBER

Disclaimer

The findings and conclusions contained in this report are made based on site conditions that existed at the time this work was conducted. The conclusions present in this report are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report.

Findings and conclusions are made assuming that the soil, groundwater, geological and chemical conditions detailed within this report are accurate and remain applicable to the site at the time of writing. No other warranties are made or intended.

A&Y Associates (A&Y) Pty Ltd has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality.

A&Y does not make any representation or warranty that the conclusions in this report will be applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

This report has been prepared exclusively for use by our client. This report cannot be reproduced without the written authorisation of A&Y and then can only be reproduced in its entirety.

Applicability

This report has been prepared for the benefit for our client with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

No responsibility for this report will be taken by A&Y if it is altered in any way, or not reproduced in full.

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1 Introduction

This report presents the results of the Level 1 Inspection and Testing for the construction of the fill platforms located in Merrifield Living - Section D - Stage 46, Mickleham.

2 Project Summary

It is understood that BMD Urban require the fill platforms within Stage 46 to be constructed under Level 1 Inspection and Testing undertaken by a Geotechnical Inspection and Testing Authority (GITA).

Level 1 Inspection and Testing, as defined in AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Development," provides for full time inspection of the construction of controlled fill and field and laboratory testing in accordance with AS1289 "Methods of Testing Soils for Engineering Purposes".

The Level 1 inspection was undertaken by a Geotechnician from A&Y Associates over a period of **27 working days** from the **12th September 2023 to 13th November 2023**.

This report is applicable for fill placed by BMD Urban for the area located in Merrifield Living - Section D - Stage 46, Mickleham, as shown in Appendix A – Site Plan.

3 Project Specifications

The supervision and inspections were performed based on AS3798 and the specifications provided in the drawing (ref: "Merrifield Living – Section D – Stage 46"; Project No. 17040-46, Drawing No. EW101 - REV0 by Verve Projects Pty Ltd; Dated 17/08/2023) for the construction works in Merrifield Estate – Stage 46, Mickleham. A short summary of the requirements outline in AS3798 is provided below:

- Material to be used for fill construction shall satisfy the requirements of AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments". Material used shall be free of:
 - Organic soils, such as topsoils, severely root affected subsoil and peat;
 - Contaminated soils;
 - Materials which undergo volume change or loss of strength when disturbed and exposed to moisture;
 - Silts, or materials that have deleterious engineering properties of silt;
 - Fill that contains wood, metal, plastic, boulders, or other deleterious material, in sufficient proportions to affect the required performance of fill;
 - The maximum particle size of any rocks or other lump, within the layer, has not exceeded two-thirds (2/3) of the compacted layer thickness.
- Compaction to achieve a dry density ratio of at least 95% Standard, as the project was classified as **Residential**.

4 Subgrade Assessment

The subgrade was assessed by A&Y Associates following the topsoil removal and before any fill was placed. The subgrade assessment was undertaken on the **12th of September 2023** as mentioned in report **1120 0435-1 (SSI1)**.

The exposed subgrade material comprised natural silty clay. No wet or soft patches were found during the inspection. No evidence of deleterious material was found during the inspection.

5 Earthworks

The earthworks for this project included stripping of topsoil, removing of tree roots, proof rolling the subgrade and placement and compaction of fill to construct engineered platforms.

Based on design plans and site inspection, it appears that the fill thickness placed is approximately 200mm – 2200mm. The fill layers or thickness nominated in this report are provided as a guide on the amounts of fill placed and do not necessarily reflect an accurate survey of the fill levels.

6 Fill Material

The fill material used for the platform consisted of imported material. The imported material was predominantly comprising of Silty Clay with gravel.

7 Testing

Field density testing was undertaken on the compacted fill at a frequency of a minimum of 3 tests per lot (AS3798 Table 8.1).

Tests were performed using a Nuclear Density Gauge for field density determination as per AS 1289.5.8.1. Testing was completed at a minimum rate of 3 field density tests per day's production based on the minimum requirements of AS 3798-2007 and taken from each layer of fill placed.

A total of 81 field density tests were performed during the earthworks. All of the test results met the specified compaction requirement of 95% Standard Compaction.

The locations of the 81 field density tests are shown in Appendix B – Test Locations. A summary of the test results obtained from the field density testing is presented in Appendix C – Test Results Summary. The laboratory test reports of the field density tests are presented in Appendix D – NATA Test Results.

8 Finished Surface Levels

It should be noted that even though the final fill layer meets the specification requirements, over time, the material may be subject to adverse weather conditions resulting in either surface softening or drying and cracking. The top 150mm – 200mm of the fill will deteriorate with time and should be considered by the foundation engineer.

9 Exclusion

A&Y Associates was not involved in monitoring and testing the following works and as such are not included in the Level 1 report.

- Any trenches excavated and backfilled on site for the installation of underground services such as sewers, electrical conduits, water mains etc.
- Footpaths in front of the lots that may be excavated and filled after the Level 1 supervision conducted by A&Y Associates.
- Uncontrolled fill and topsoil that may have been placed as part of the landscaping of the site following the completion of the engineered fill construction.

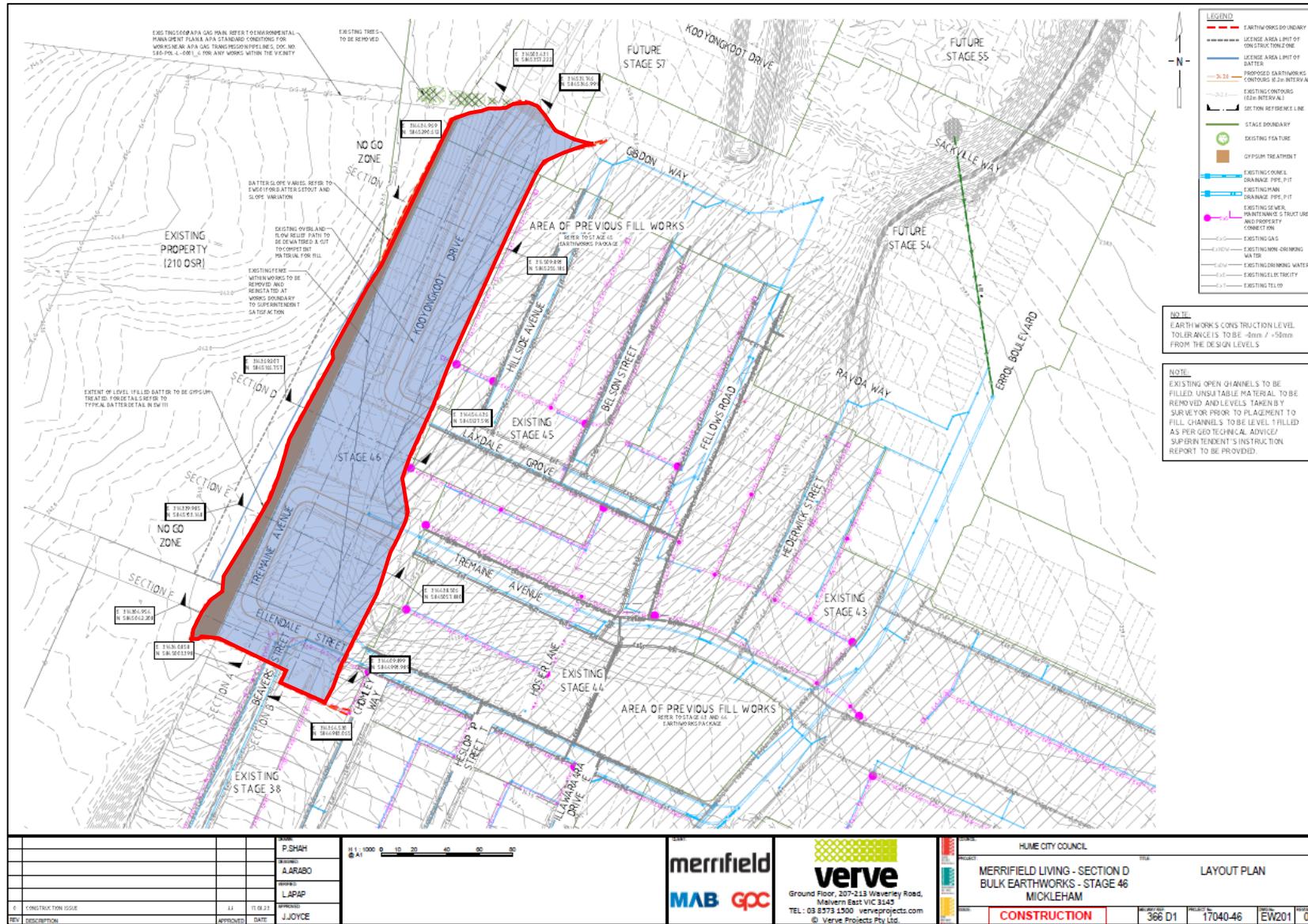
10 Conclusion

On the completion of the earthworks and after analysing the materials used, it has been concluded that the filling procedure conducted by BMD Urban appears to be consistent with the requirements of AS 3798 in regards to the placement of fill materials on a project under Level 1 Supervision and in accordance with the project specification as provided to A&Y Associates.

Appendix A - Site Plan



Area Inspected and Tested



PROJECT:
Merrifield Living – Section D - Stage 46

CLIENT:
BMD Urban

LOCATION:
Mickleham

PROJECT No:
1120 0435-1

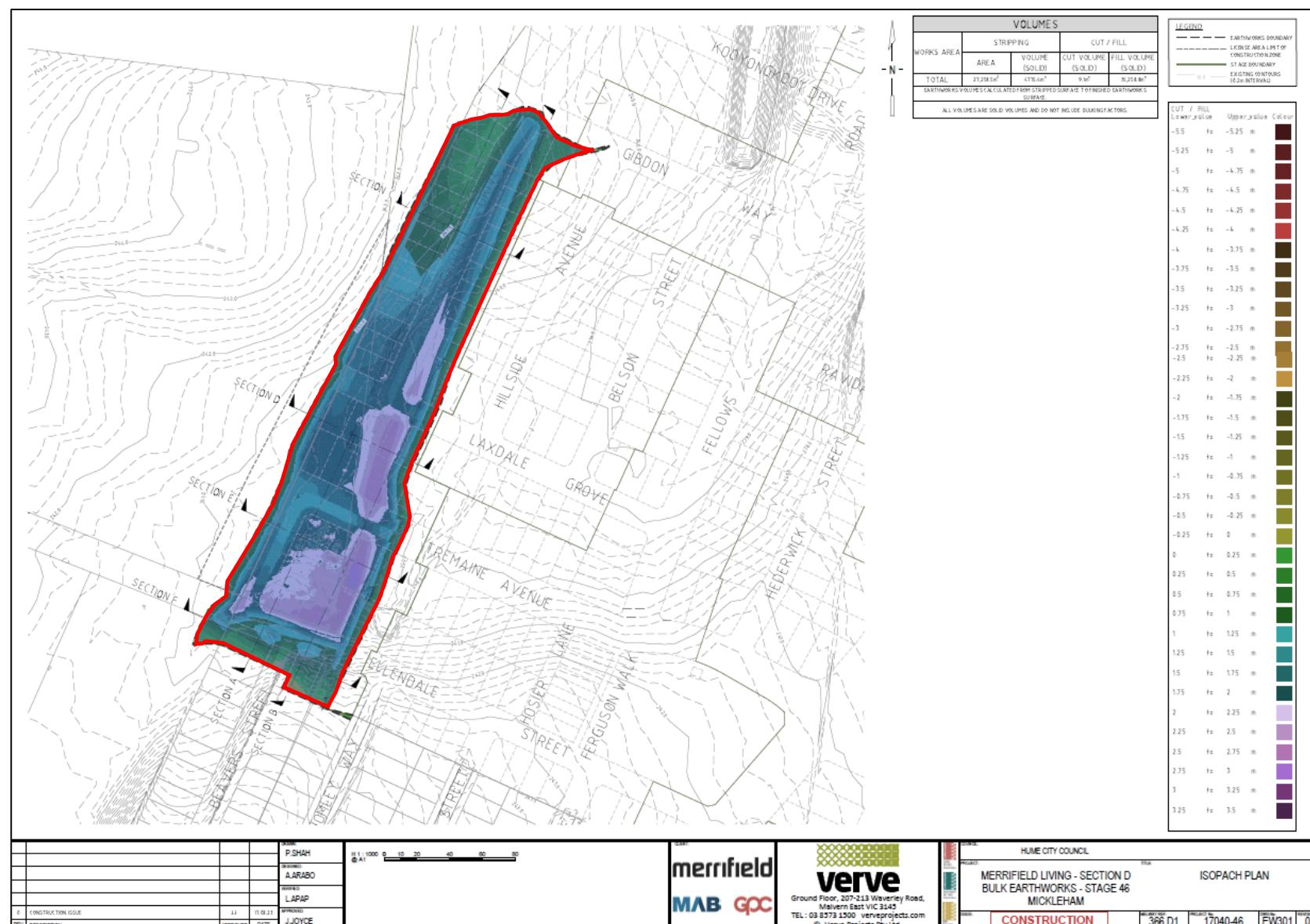
SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS



Area Inspected and Tested



P. SHAH M. ARABO M. LAPAP CONSTRUCTION ISSUE P. SHAH M. ARABO M. LAPAP	P. SHAH M. ARABO M. LAPAP CONSTRUCTION ISSUE P. SHAH M. ARABO M. LAPAP	1:1,1000 0 10 20 30 40 50 60
SECTION A SECTION B SECTION C SECTION D SECTION E SECTION F	SECTION A SECTION B SECTION C SECTION D SECTION E SECTION F	SECTION A SECTION B SECTION C SECTION D SECTION E SECTION F

merrifield
MAB **GPC**

verve
Ground Floor, 207-213 Waverley Road,
Malvern East VIC 3145
TEL: 03 8573 1500 verveprojects.com.au

HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D
ISOPACH PLAN
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION 366 D1 17040-46 FW301 0

PROJECT:
Merrifield Living – Section D - Stage 46

LOCATION:
Mickleham

CLIENT:
BMD Urban

PROJECT No:
1120 0435-1

SITE PLAN SKETCH—NOT TO SCALE

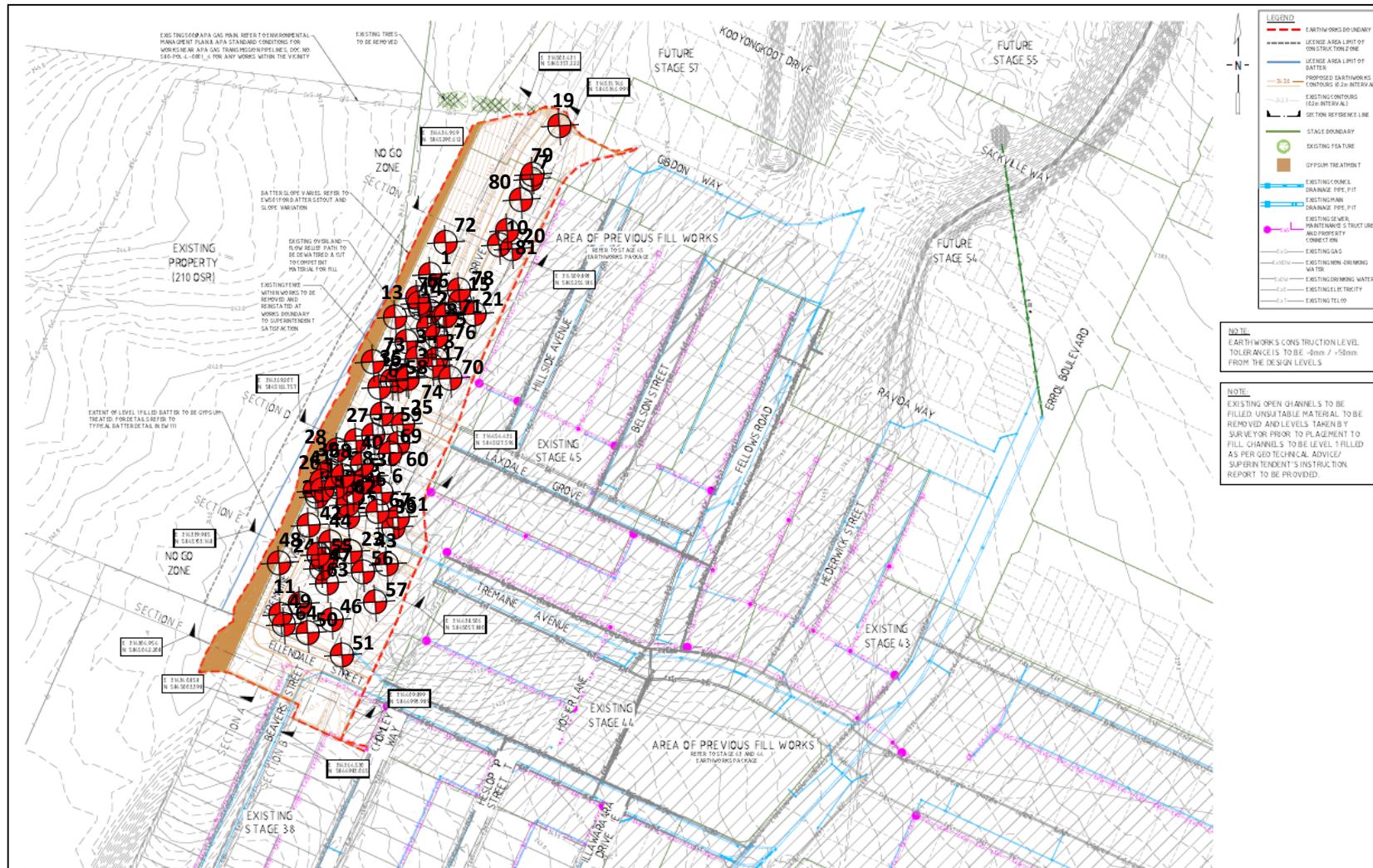


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Appendix B – Test Locations



Indicative Test Location



		P SHAH	1:1000	0 10 20 40 60 80	merrifield	verve	HUME CITY COUNCIL
		SARABO				Ground Floor, 207-213 Waverley Road, Matvern East VIC 3145 TEL: 03 8573 1300 verveprojects.com © Verve Projects Pty Ltd.	LAYOUT PLAN
		MARSH					
		LAPAP					
CONSTRUCTION ISSUE	REV DESCRIPTION	AJ	17/03/23	APPROVED DATE	JJOYCE	CONSTRUCTION	366 D1 17040-46 EW201 0

PROJECT:
Merrifield Living – Section D - Stage 46

CLIENT:

BMD Urban

LOCATION:
Mickleham

PROJECT No:
1120 0435-1

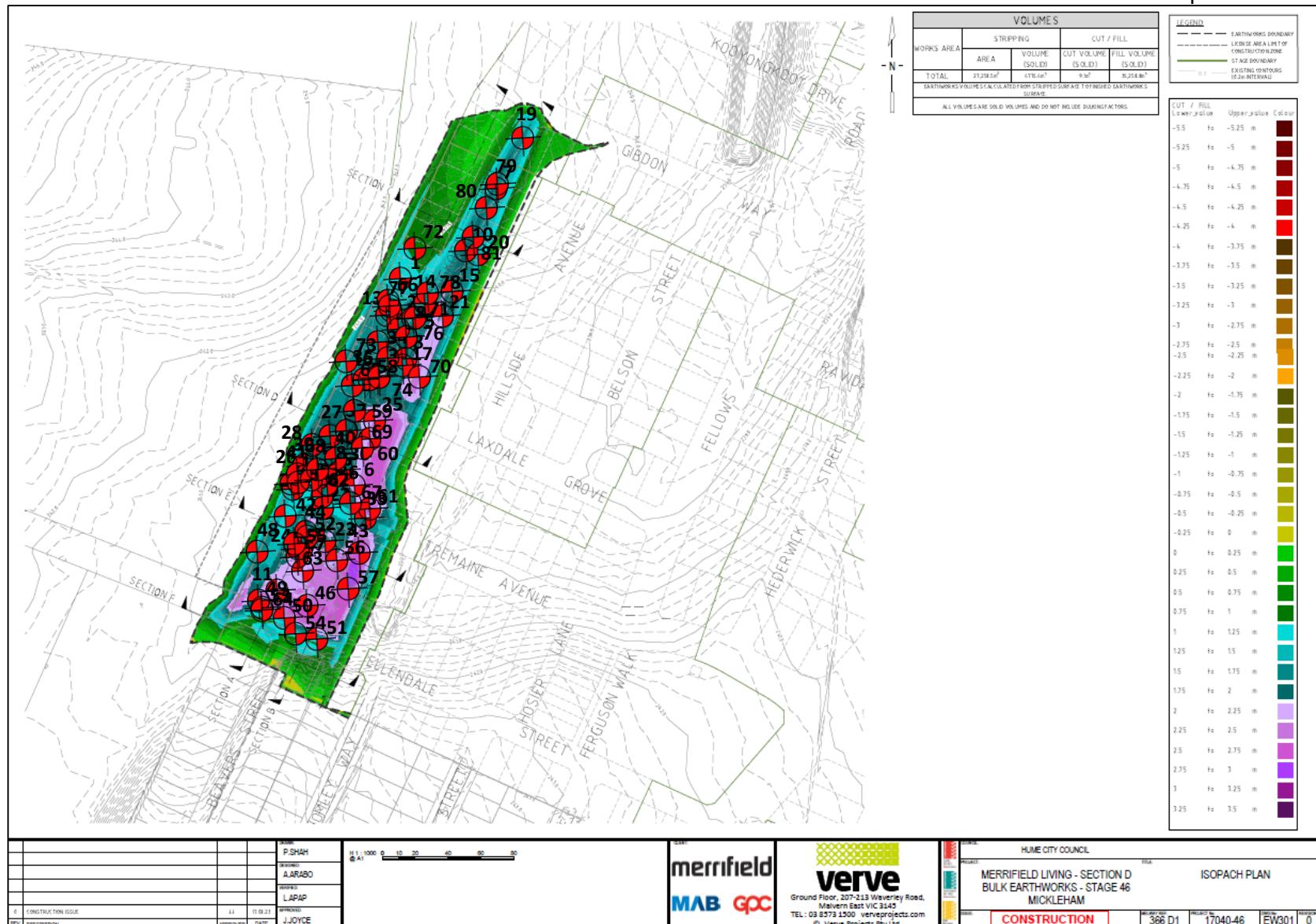
SITE PLAN SKETCH—NOT TO SCALE



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Indicative Test Location



PROJECT:

Merrifield Living – Section D - Stage 46

CLIENT:

BMD Urban

LOCATION:

Mickleham

PROJECT No:

1120 0435-1

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
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Appendix C – Test Results Summary

Project No		1120 0435-1			Client	BMD Urban				
Project Name		Merrifield Living - Section D - Stage 46 (Level 1)			Specification	Density Ratio ≥ 95% of Peak Wet Density				
Location		Mickleham								
Test No	Retest of Test	Date	Location	Layer	Oversize	Density Ratio	Moisture Ratio	Moisture Variation	Pass / Fail	Retest
#	#		Lot #	#	%	%	%	%		Pass / Fail
1	-	12/09/2023	-	1	0.0	96.5	107.5	1.0	Pass	-
2	-	12/09/2023	-	1	0.0	95.5	101.5	0.0	Pass	-
3	-	12/09/2023	-	1	0.0	96.5	96.0	-0.5	Pass	-
4	-	13/09/2023	-	1	4.0	99.0	90.5	-1.5	Pass	-
5	-	13/09/2023	-	1	0.0	96.5	97.5	-0.5	Pass	-
6	-	13/09/2023	-	1	0.0	96.0	107.0	1.5	Pass	-
7	-	14/09/2023	-	2	0.0	97.0	96.0	-0.5	Pass	-
8	-	14/09/2023	-	2	0.0	96.5	94.5	-1.0	Pass	-
9	-	14/09/2023	-	1	0.0	96.0	97.0	-0.5	Pass	-
10	-	15/09/2023	-	2	0.0	96.0	98.5	0.0	Pass	-
11	-	15/09/2023	-	1	0.0	96.5	97.0	-0.5	Pass	-
12	-	15/09/2023	-	1	0.0	96.5	97.5	-0.5	Pass	-
13	-	16/09/2023	-	2	0.0	95.5	98.0	-0.5	Pass	-
14	-	16/09/2023	-	2	0.0	96.0	98.5	-0.5	Pass	-
15	-	16/09/2023	-	3	0.0	96.0	96.5	-0.5	Pass	-
16	-	18/09/2023	-	4	0.0	96.5	99.5	-0.5	Pass	-
17	-	18/09/2023	-	4	0.0	97.0	96.5	-1.0	Pass	-
18	-	18/09/2023	-	5	0.0	97.5	100.0	0.0	Pass	-
19	-	19/09/2023	-	6	0.0	96.0	99.0	0.0	Pass	-
20	-	19/09/2023	-	7	0.0	96.5	97.5	-0.5	Pass	-
21	-	19/09/2023	-	7	0.0	95.5	96.5	-0.5	Pass	-
22	-	20/09/2023	-	1	0.0	96.0	96.5	-0.5	Pass	-
23	-	20/09/2023	-	1	0.0	96.0	98.0	-0.5	Pass	-
24	-	20/09/2023	-	1	0.0	95.5	96.0	-0.5	Pass	-

** Negative (-) value indicates that the field moisture content is drier than the optimum moisture content (OMC)

** Positive (+) value indicates that the field moisture content is wetter than the optimum moisture content (OMC)

55	-	23/10/2023	-	6	9.6	97.0	89.0	-2.0	Pass	-
56	-	23/10/2023	-	6	8.1	98.5	89.0	-2.0	Pass	-
57	-	23/10/2023	-	6	7.9	99.0	89.0	-2.0	Pass	-
58	-	24/10/2023	-	4	6.7	98.0	87.5	-2.0	Pass	-
59	-	24/10/2023	-	4	9.0	97.0	88.0	-2.0	Pass	-
60	-	24/10/2023	-	4	8.0	96.0	89.5	-2.0	Pass	-
61	-	25/10/2023	-	5	6.0	96.0	87.0	-2.0	Pass	-
62	-	25/10/2023	-	5	12.2	98.5	87.5	-2.0	Pass	-
63	-	25/10/2023	-	6	8.0	97.0	88.5	-2.0	Pass	-
64	-	27/10/2023	-	FSL	0.0	97.0	101.5	0.0	Pass	-
65	-	27/10/2023	-	6	0.0	97.5	101.5	0.0	Pass	-
66	-	27/10/2023	-	6	0.0	97.5	100.5	0.5	Pass	-
67	-	30/10/2023	-	FSL	0.0	98.5	101.5	0.5	Pass	-
68	-	30/10/2023	-	FSL	0.0	97.5	100.0	0.0	Pass	-
69	-	30/10/2023	-	FSL	0.0	97.5	102.5	0.0	Pass	-
70	-	31/10/2023	-	5	0.0	98.0	101.5	0.0	Pass	-
71	-	31/10/2023	-	4	0.0	97.5	102.0	0.0	Pass	-
72	-	31/10/2023	-	1	0.0	97.5	101.0	0.0	Pass	-
73	-	1/11/2023	-	5	0.0	98.5	111.5	2.0	Pass	-
74	-	1/11/2023	-	4	0.0	99.0	108.5	1.5	Pass	-
75	-	1/11/2023	-	4	0.0	98.0	111.0	2.0	Pass	-
76	-	2/11/2023	-	4	0.0	98.5	109.5	1.5	Pass	-
77	-	2/11/2023	-	5	0.0	99.0	109.0	2.0	Pass	-
78	-	2/11/2023	-	4	0.0	98.0	108.5	2.0	Pass	-
79	-	13/11/2023	-	3	8.0	96.0	78.5	-2.5	Pass	-
80	-	13/11/2023	-	4	7.0	95.0	79.5	-2.0	Pass	-
81	-	13/11/2023	-	4	6.9	97.5	84.0	-2.0	Pass	-

** Negative (-) value indicates that the field moisture content is drier than the optimum moisture content (OMC)

** Positive (+) value indicates that the field moisture content is wetter than the optimum moisture content (OMC)

Appendix D – NATA Test Results

Field Density Test Results

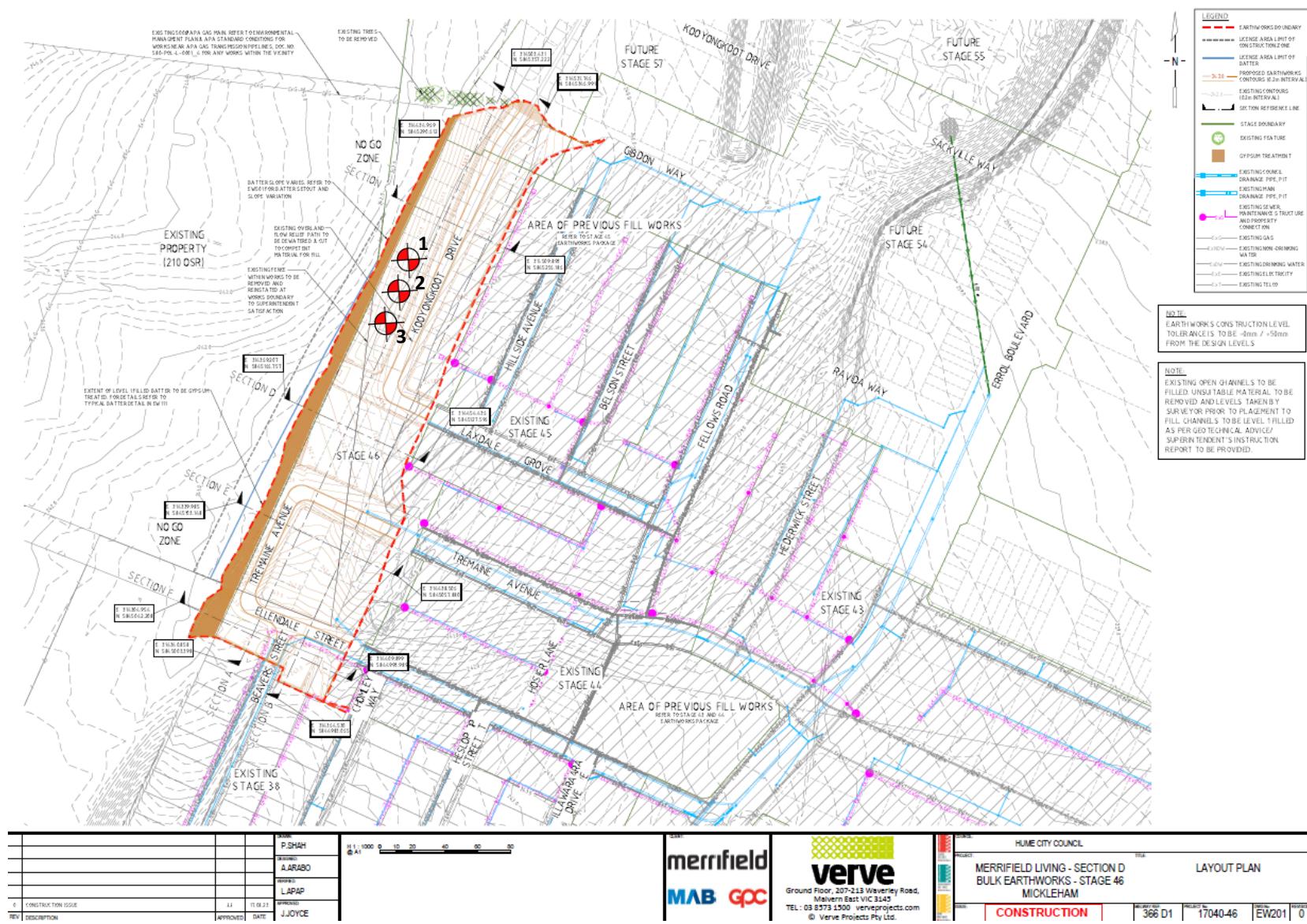
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	1
Location:	Mickleham				
Sample No	1	2	3		
Date Tested	12/09/2023	12/09/2023	12/09/2023		
Time Tested	AM	AM	AM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	1	1	1		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	2.02	1.99		
Field Moisture Content	%	16.6	16.7		
Material:	Imported Clay Fill	Imported Clay Fill	Imported Clay Fill		
Oversize Material	WET, %	0.0	0.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.09	2.08		
Optimum Moisture Content	%	15.5	16.5		
Moisture Ratio	%	107.5	101.5		
Moisture Variation from OMC	%	1.0	0.0	-0.5	
Density Ratio	%	Wetter	OMC	Drier	
		96.5	95.5	96.5	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI01)				
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)
 <p>NATA WORLD RECOGNISED ACCREDITATION</p> <p>NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p> <p>Approved Signatory:  David Burns Date: 18/09/2023</p>					



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
12/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI01)

SITE PLAN SKETCH—NOT TO SCALE



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GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

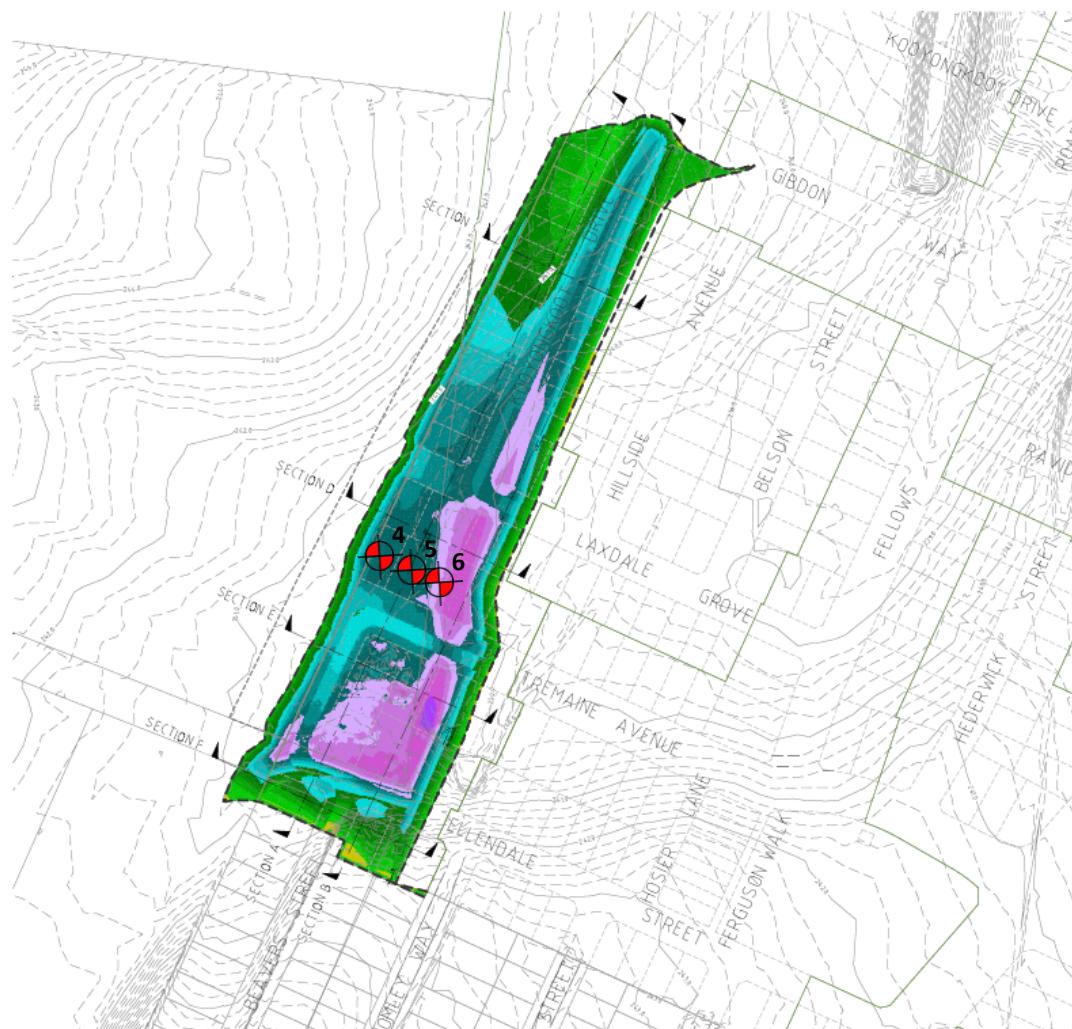
AS1289.5.7.1

A & Y Associates Pty Ltd
5/16 Network Drive
Truganina VIC 3029
PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	2
Location:	Mickleham				
Sample No	4	5	6		
Date Tested	13/09/2023	13/09/2023	13/09/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		1	1	1	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	1.92	1.86	1.93	
Field Moisture Content	%	18.6	20.0	25.2	
Material:		Imported Clay Fill	Imported Clay Fill	Imported Clay Fill	
Oversize Material	WET, %	4.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	1.93	1.93	2.00	
Optimum Moisture Content	%	20.5	20.5	23.5	
Moisture Ratio	%	90.5	97.5	107	
Moisture Variation from OMC	%	-1.5	-0.5	1.5	
		Drier	Drier	Wetter	
Density Ratio	%	99.0	96.5	96.0	
Specification:	95% STD	Test Selection:			N/A
Notes:	Ref: 1120 0435-1 (SI02)				
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	Sampling Method:			AS 1289 1.2.1 6.4(b)
 <p>NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p>			<p>Approved Signatory:</p>  <p>David Burns Date: 18/09/2023</p>		



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL)	FILL VOLUME (SOIL)
TOTAL	31298.0m ²	1176.0m ³	0m ³	1176.0m ³

EARTHWORKS VOLUMES CALCULATED FROM STRIPPED SURFACE TO DESIGNED EARTHWORKS SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- EARTHWORKS BOUNDARY
- LAYER AREA BOUNDARY
- CONSTRUCTION ZONE
- STAGE BOUNDARY
- EXISTING CONTOURS (10M INTERVAL)



P.SHAH	H1:1000 S 10 20 30 40 50 60
AARAO	
LAPAP	
IMPRES	
CONSTRUCTION ISSUE	11/09/23
REF ID: merrifield	DATE: JJ.JJOICE



HUME CITY COUNCIL
ISOPACH PLAN
MERRIFIELD LIVING - SECTION D
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION
368 D1 17040-46 EW301 0

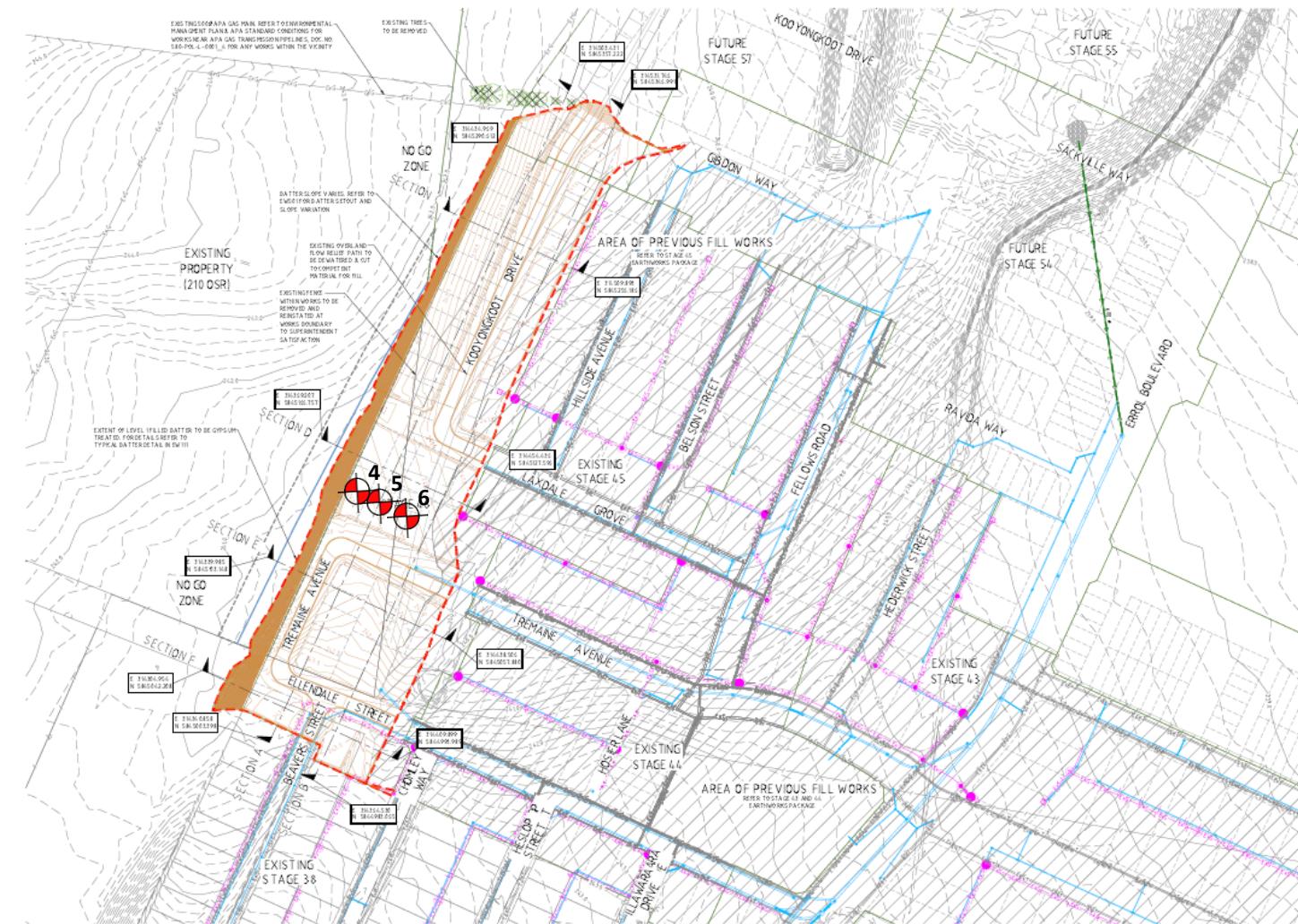
PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 13/09/2023	SITE PLAN SKETCH—NOT TO SCALE
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (S102)		



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GEOTECHNICAL ENGINEERING CONSULTANTS



Test Location



		PSAH	1:1,000
REV	CONSTRUCTION ISSUE	APPROVED DATE	APPROVED DATE
A	CONSTRUCTION ISSUE	11/09/23	JJOYCE
B	DESCRIPTION	APPROVED DATE	APPROVED DATE

merrifield
MAB GPC

verve
Ground Floor, 207-213 Waverley Road,
Malvern East VIC 3145
TEL: 03 8573 1300 verveprojects.com
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HUME CITY COUNCIL
RECEIVED
MERRIFIELD LIVING - SECTION D
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION | 366 D1 | 17040-46 | EW201 | 0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
13/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI02)

SITE PLAN SKETCH—NOT TO SCALE

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GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

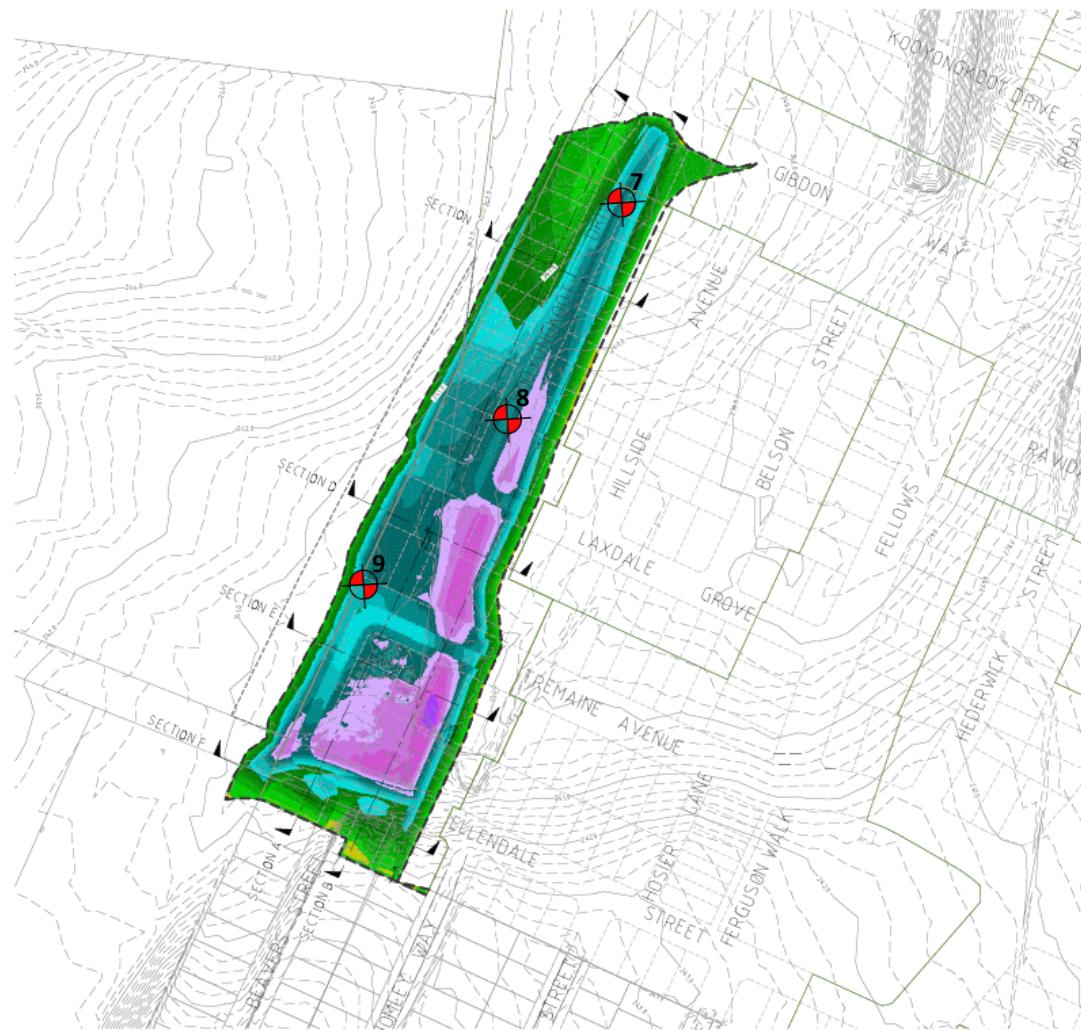
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	3
Location:	Mickleham				
Sample No	7	8	9		
Date Tested	14/09/2023	14/09/2023	14/09/2023		
Time Tested	AM	AM	AM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	2	2	1		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.99	1.97	1.90	
Field Moisture Content	%	17.8	17.5	19.9	
Material:	Imported Clay Fill	Imported Clay Fill	Imported Clay Fill		
Oversize Material	WET, %	0.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.05	2.04	1.98	
Optimum Moisture Content	%	18.5	18.5	20.5	
Moisture Ratio	%	96	94.5	97	
Moisture Variation from OMC	%	-0.5	-1.0	-0.5	
Density Ratio	%	Drier	Drier	Drier	
		97.0	96.5	96.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI03)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Date:	18/09/2023
 NATA <small>WORLD RECOGNISED ACCREDITATION</small>					
<small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>					
<small>Approved Signatory:</small>  David Burns 18/09/2023					



Test Location



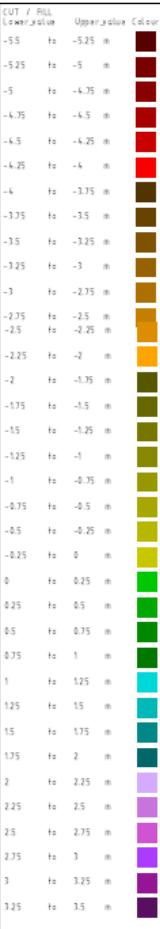
WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL DT)	FILL VOLUME (SOIL DT)
TOTAL	37298.6m ²	1176.6m ³	0m ³	0m ³

EARTHWORKS VOLUE IS CALCULATED FROM STAGED SURFACE TO DESIGNED SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- EARTHWORKS BOUNDARY
- - - LAYER AREA BOUNDARY
- CONSTRUCTION ZONE
- STAGE BOUNDARY
- EXISTING CONTURS
(2M INTERVAL)



P.SHAH	AARAO	LAPAP
RAMR	MAB GPC	VERVE
REVIEWED	DATE: 11.09.23	Ground Floor, 207-213 Verrieray Road, Merton East VIC 3145 TEL: 03 8573 1300 verveprojects.com ID: Verve Projects Pty Ltd
CONSTRUCTION ISSUE	REVIEWED DATE: 11.09.23	CONSTRUCTION
REV 1	J.JOYCE	368 D1



HUME CITY COUNCIL

MERRIFIELD LIVING - SECTION D
BULK EARTHWORKS - STAGE 46
MICKLEHAM

ISOPACH PLAN

CONSTRUCTION 368 D1 17040-46 EW301 0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
14/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (S103)

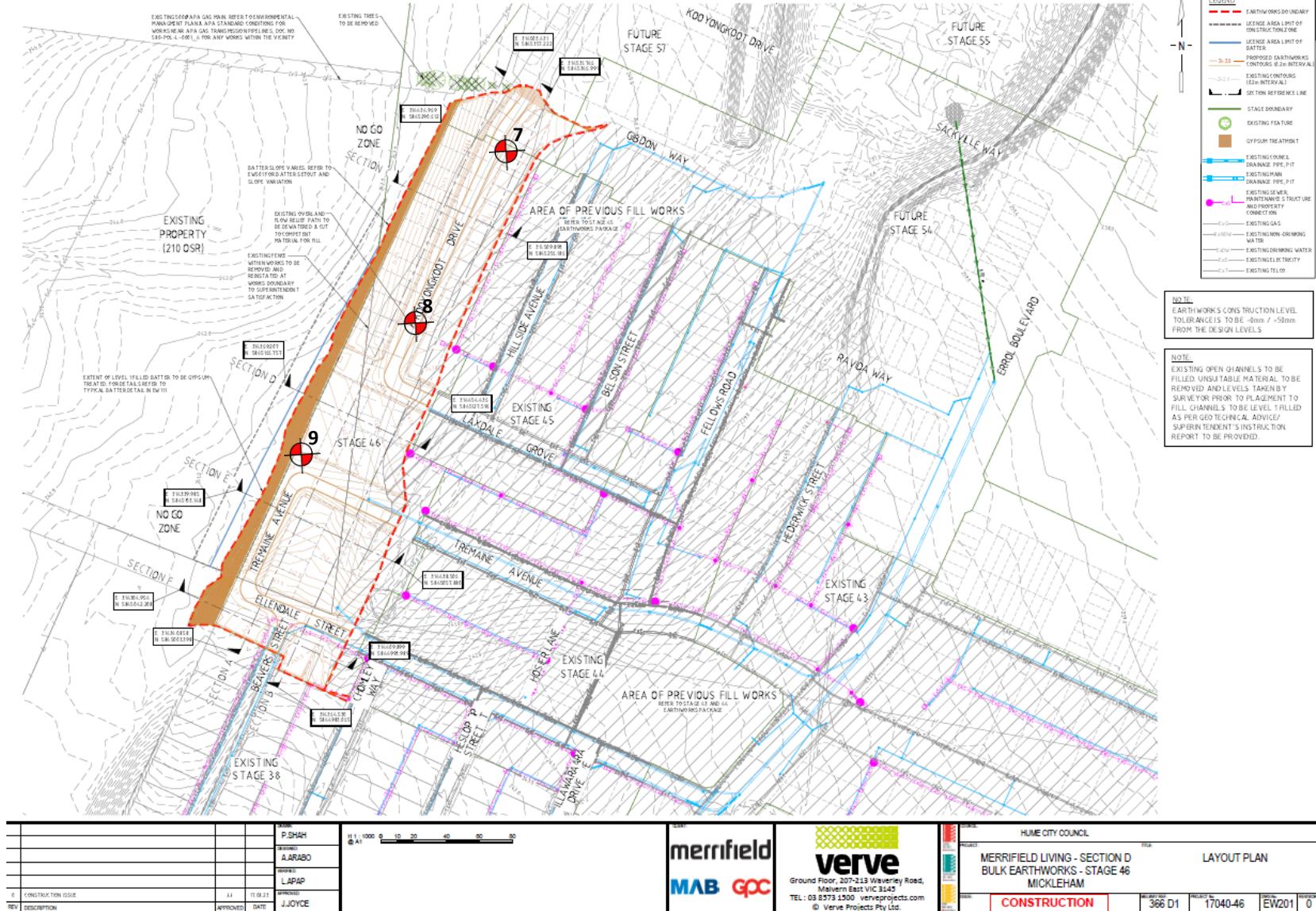
SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
14/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI03)

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

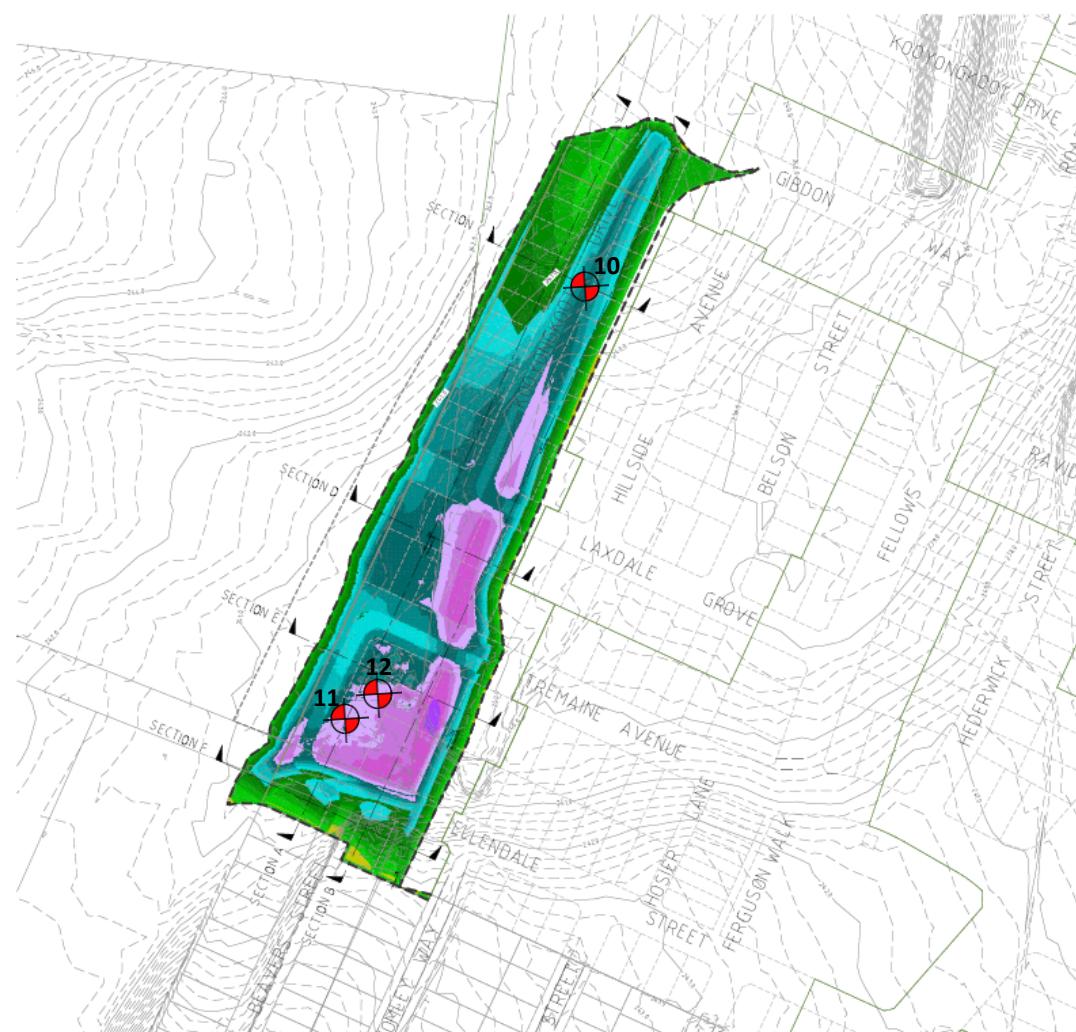
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	4
Location:	Mickleham				
Sample No	10	11	12		
Date Tested	15/09/2023	15/09/2023	15/09/2023		
Time Tested	AM	AM	AM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	2	1	1		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.94	1.98		
Field Moisture Content	%	23.1	22.3		
Material:	Imported Clay Fill	Imported Clay Fill	Imported Clay Fill		
Oversize Material	WET, %	0.0	0.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.03	2.05		
Optimum Moisture Content	%	23.5	23		
Moisture Ratio	%	98.5	97	97.5	
Moisture Variation from OMC	%	0.0	-0.5	-0.5	
Density Ratio	%	OMC	Drier	Drier	
		96.0	96.5	96.5	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI04)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Date:	18/09/2023
 NATA WORLD RECOGNISED ACCREDITATION			NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing Approved Signatory:  David Burns 18/09/2023		



Test Location



CONSTRUCTION ISSUE	P.SHAH
REVISER	AARAO
REVIEWER	LAPAP
IMPERFECT	MAB GPC
DATE	11.08.23

H 1:1000 S 10 20 30 40 50 60



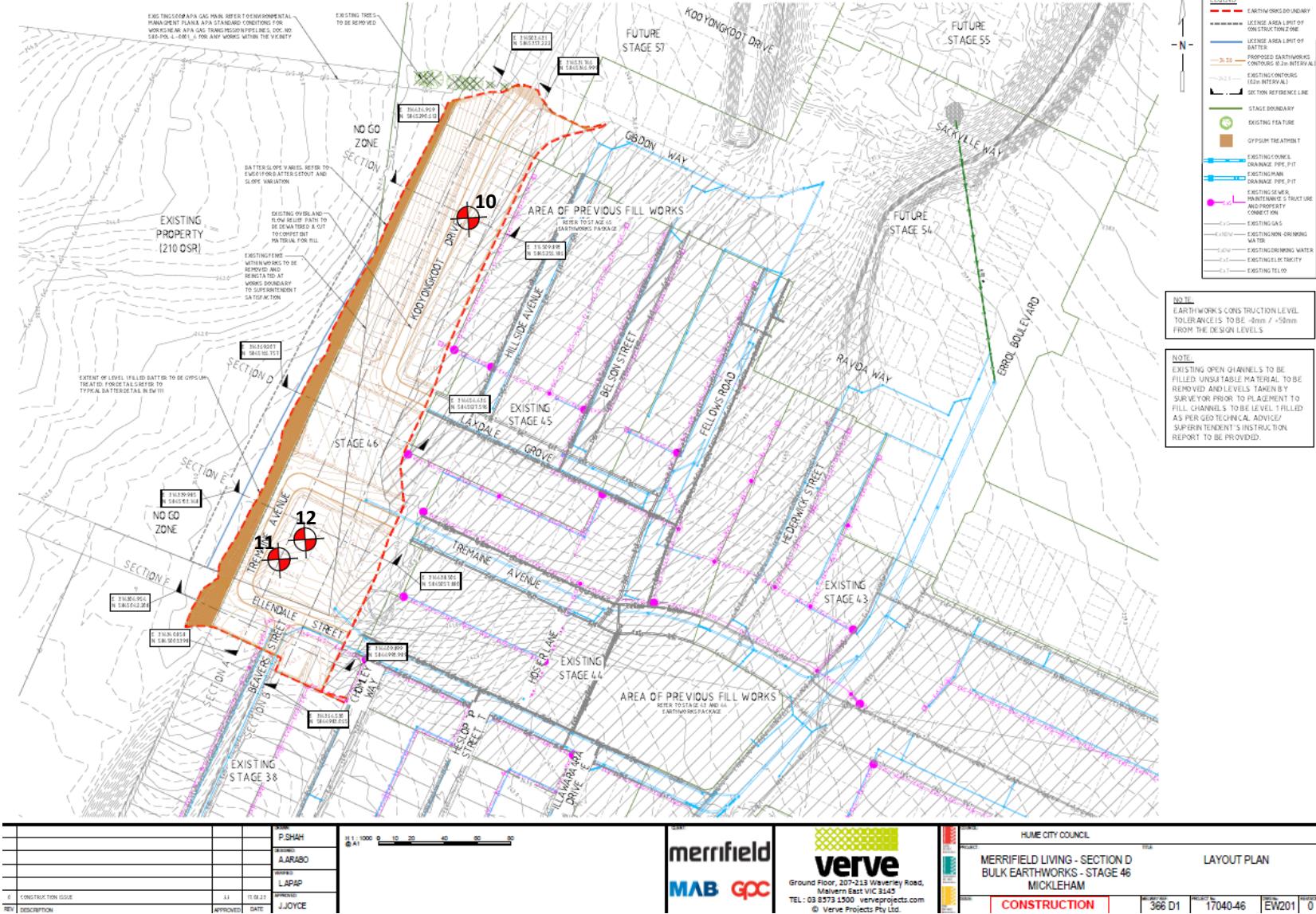
HUME CITY COUNCIL
MERRIFIELD LIVING - SECTION D
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION

ISOPACH PLAN
REF ID: 386 D1 PROJECT ID: 17040-46 ESRN: 0

PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 15/09/2023	 A&Y ASSOCIATES <small>GEOTECHNICAL ENGINEERING CONSULTANTS</small>
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (S104)	SITE PLAN SKETCH—NOT TO SCALE	



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
15/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI04)

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

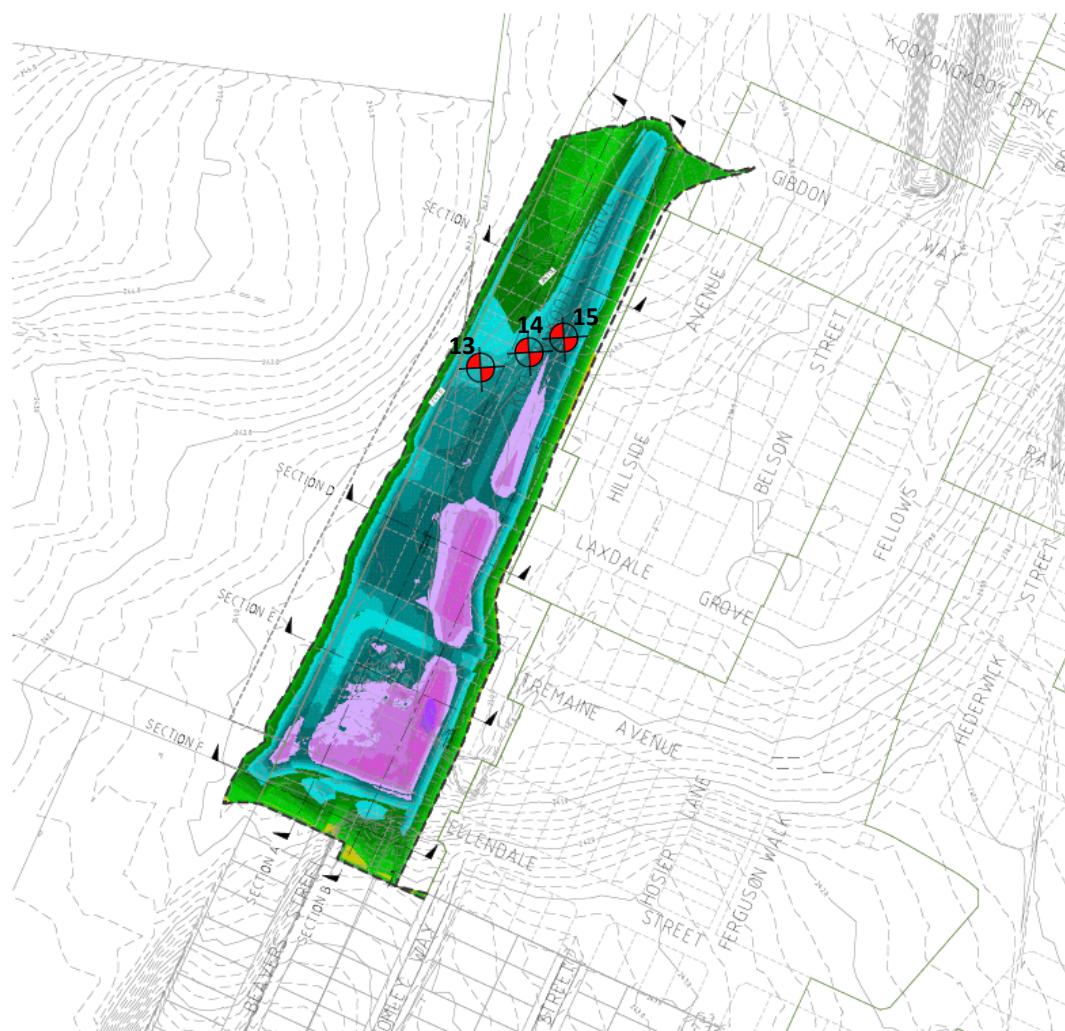
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	5
Location:	Mickleham				
Sample No	13	14	15		
Date Tested	16/09/2023	16/09/2023	16/09/2023		
Time Tested	AM	AM	AM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	2	2	3		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.92	1.96	1.95	
Field Moisture Content	%	22.0	23.2	21.7	
Material:	Imported Clay Fill	Imported Clay Fill	Imported Clay Fill		
Oversize Material	WET, %	0.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.01	2.04	2.03	
Optimum Moisture Content	%	22.5	23.5	22.5	
Moisture Ratio	%	98	98.5	96.5	
Moisture Variation from OMC	%	-0.5	-0.5	-0.5	
Density Ratio	%	Drier	Drier	Drier	
		95.5	96.0	96.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI05)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Date:	25/09/2023
 <small>NATIONAL ACCREDITATION TRUST AUSTRALIA</small> WORLD RECOGNISED ACCREDITATION			NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing Approved Signatory:  David Burns 25/09/2023		



Test Location

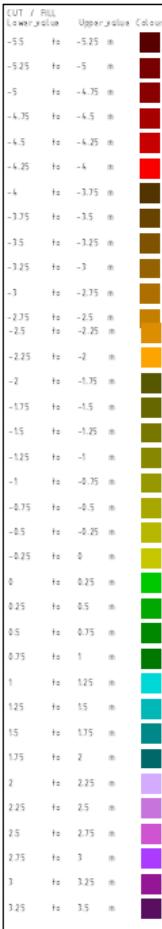


WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL)	FILL VOLUME (SOIL)
TOTAL	31298.0m ²	174,764 m ³	9,974 m ³	162,784 m ³

EARTHWORKS VOLUMES CALCULATED FROM SURFACE TO DESIGNED SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND
— EARTHWORKS BOUNDARY
— SURVEY POINT / LINE
— CONSTRUCTION ZONE
— STAGE BOUNDARY
— EXISTING CONTOURS
— ESD INTERVAL



P.SHAH	1000	10	20	30	40	50	60
SABRI	AARABO						
LAPAP							
SHAFEE							
CONSTRUCTION ISSUE	11	11.09.23					
REF ID	REVISION NUMBER	DATE	J.JOYCE				



HUME CITY COUNCIL
MERRIFIELD LIVING - SECTION D
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION

ISOPACH PLAN

366 D1

17040-46

EW301

0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
16/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI05)

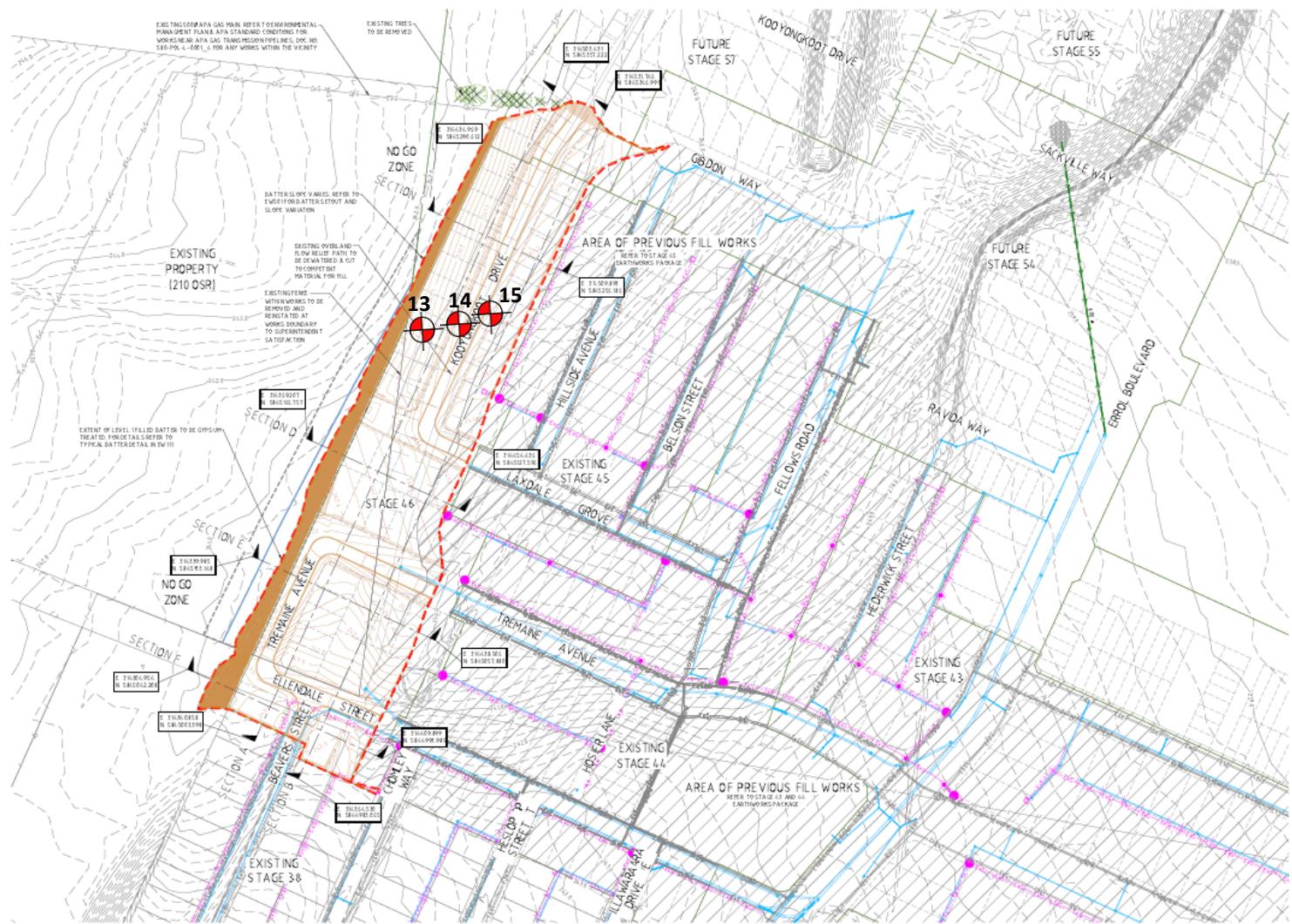
SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS



Test Location



NOTE:
EARTH WORKS CONSTRUCTION LEVEL TOLERANCE IS TO BE +/-4mm / +/-5mm FROM THE DESIGN LEVELS

NOTE:
EXISTING OPEN CHANNELS TO BE FILLED. UNSUITABLE MATERIAL TO BE REMOVED AND REPLACED. SURFACE TO BE LEVELLED PRIOR TO PLACEMENT TO FILL CHANNELS TO BE LEVEL FILLED AS PER GED TECHNICAL ADVISE SUPERINTENDENT'S INSTRUCTION. REPORT TO BE PROVIDED.

		P.SHAH APPROVED: 13.09.23 REV DESCRIPTION	AARBO APPROVED: 13.09.23 REV DESCRIPTION	LAPAP APPROVED: 13.09.23 REV DESCRIPTION	H1:1000 @ A1	CONSTRUCTION ISSUE 11.09.23 APPROVED DATE J.JOYCE	merrifield MAB GPC	verve Ground Floor, 207-213 Waverley Road, Malvern East VIC 3145 TEL: 03 8573 1500 verveprojects.com © Verve Projects Pty Ltd.	HUME CITY COUNCIL PROJECT: MERRIFIELD LIVING - SECTION D BULK EARTHWORKS - STAGE 46 MICKLEHAM CONSTRUCTION 366 D1 LAYOUT PLAN 17040.46 EV201 0
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PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
16/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI05)

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

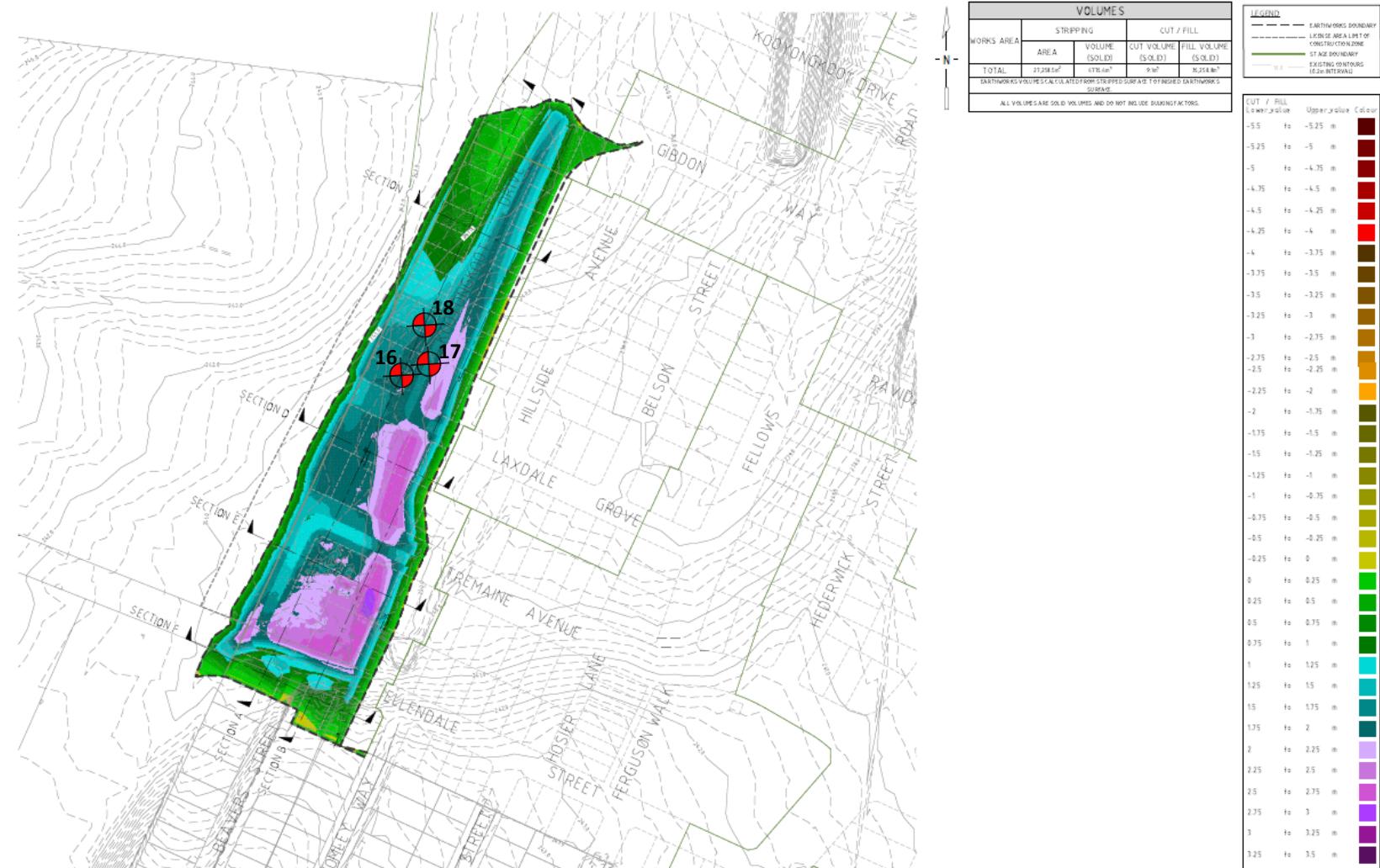
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	6
Location:	Mickleham				
Sample No	16	17	18		
Date Tested	18/09/2023	18/09/2023	18/09/2023		
Time Tested	AM	AM	AM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	4	4	5		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.94	1.97		
Field Moisture Content	%	23.4	22.2		
Material:	Imported Clay Fill	Imported Clay Fill	Imported Clay Fill		
Oversize Material	WET, %	0.0	0.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.02	2.03		
Optimum Moisture Content	%	23.5	23		
Moisture Ratio	%	99.5	96.5	100	
Moisture Variation from OMC	%	-0.5	-1.0	0.0	
Density Ratio	%	Drier	Drier	OMC	
		96.5	97.0	97.5	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI06)				
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)
 NATA ACCREDITED <small>WORLD RECOGNISED ACCREDITATION</small>	<small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>			Approved Signatory:	 David Burns 25/09/2023



Test Location



		P.SHAH
	REV 1	GAI
	CONSTRUCTION ISSUE	11 11.09.23
REF ID:	ISSUE NUMBER	DATE:
	J.JOYCE	

merrfield
MAB GPC

verve
Ground Floor, 207-213 Waverley Road,
Melton East VIC 3345
TEL: 03 8573 1300 verveprojects.com
ID: Verve Projects Pty Ltd

HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D
ISOPACH PLAN
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION
REF ID: 366 D1 PROJECT ID: 17040-46 EW301 0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
18/09/2023

LOCATION:
Mickleham

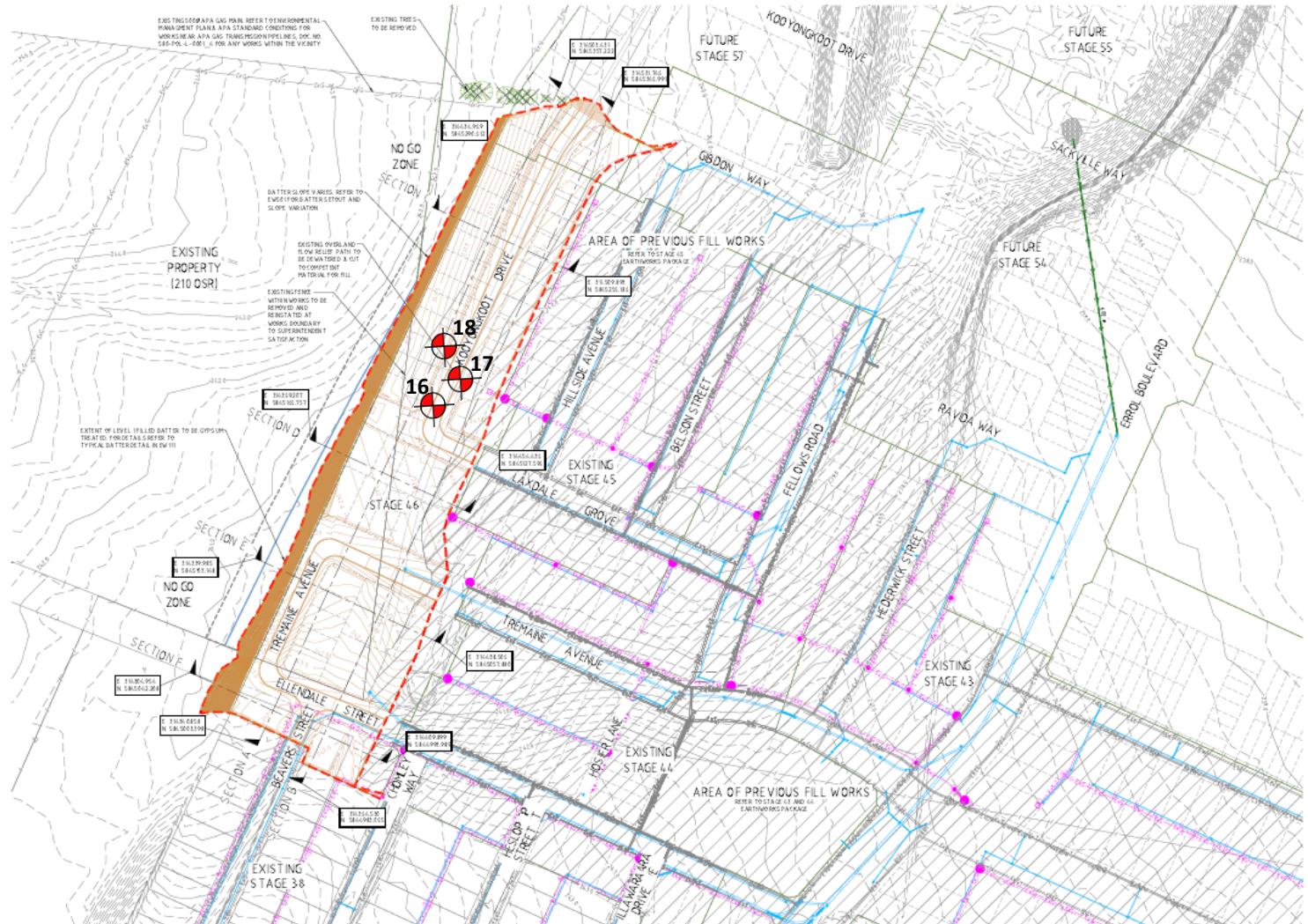
PROJECT No:
1120 0435-1 (SI06)

SITE PLAN SKETCH—NOT TO SCALE

A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS



Test Location



CONSTRUCTION ISSUE	P.SHAH	AARBO	LAPAP	J.JOYCE
REV DESCRIPTION	1.1	11.09.23	APPROVED	1.1



LAYOUT PLAN	
CONSTRUCTION	366 D1 17040.46 EV201 0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
18/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI06)

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

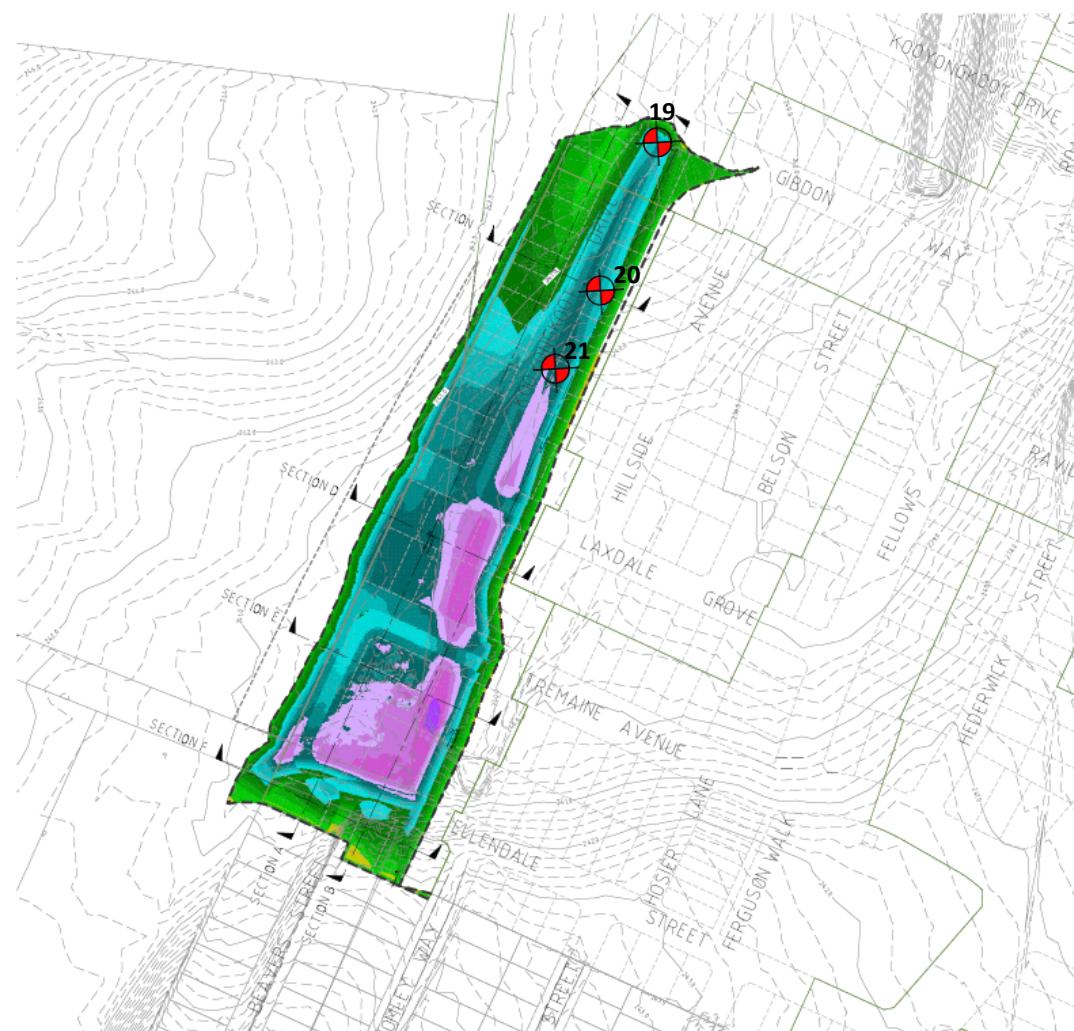
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	7
Location:	Mickleham				
Sample No	19	20	21		
Date Tested	19/09/2023	19/09/2023	19/09/2023		
Time Tested	AM	AM	AM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	6	7	7		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.95	1.96		
Field Moisture Content	%	23.3	21.0		
Material:	Imported Clay Fill	Imported Clay Fill	Imported Clay Fill		
Oversize Material	WET, %	0.0	0.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.03	2.04		
Optimum Moisture Content	%	23.5	21.5		
Moisture Ratio	%	99	97.5		
Moisture Variation from OMC	%	0.0	-0.5		
Density Ratio	%	OMC	Drier		
		96.0	96.5		
96.5	95.5				
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI07)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Date:	25/09/2023
 <div style="display: flex; justify-content: space-between; align-items: center;"> NATA Accredited Laboratory No. 20172 Approved Signatory:  </div> <div style="display: flex; justify-content: space-between; align-items: center;"> Accreditation for compliance with ISO/IEC 17025 - Testing David Burns </div>					



Test Location



LEGEND			
—	EARTHWORKS BOUNDARY	—	LAYER AREA BOUNDARY
- - -	LAYER AREA BOUNDARY	- - -	CONSTRUCTION ZONE
—	STAGE BOUNDARY	—	EXISTING CONTOURS
—	SECTION	—	(E.G. INTERVAL)



P.SHAH	H:1000 S: 10 20 40 60 80
AARABO	
LAPAP	
REVIEWED	
CONSTRUCTION ISSUE	11/09/23
REF ID: merrifield	DATE: J.JOYCE

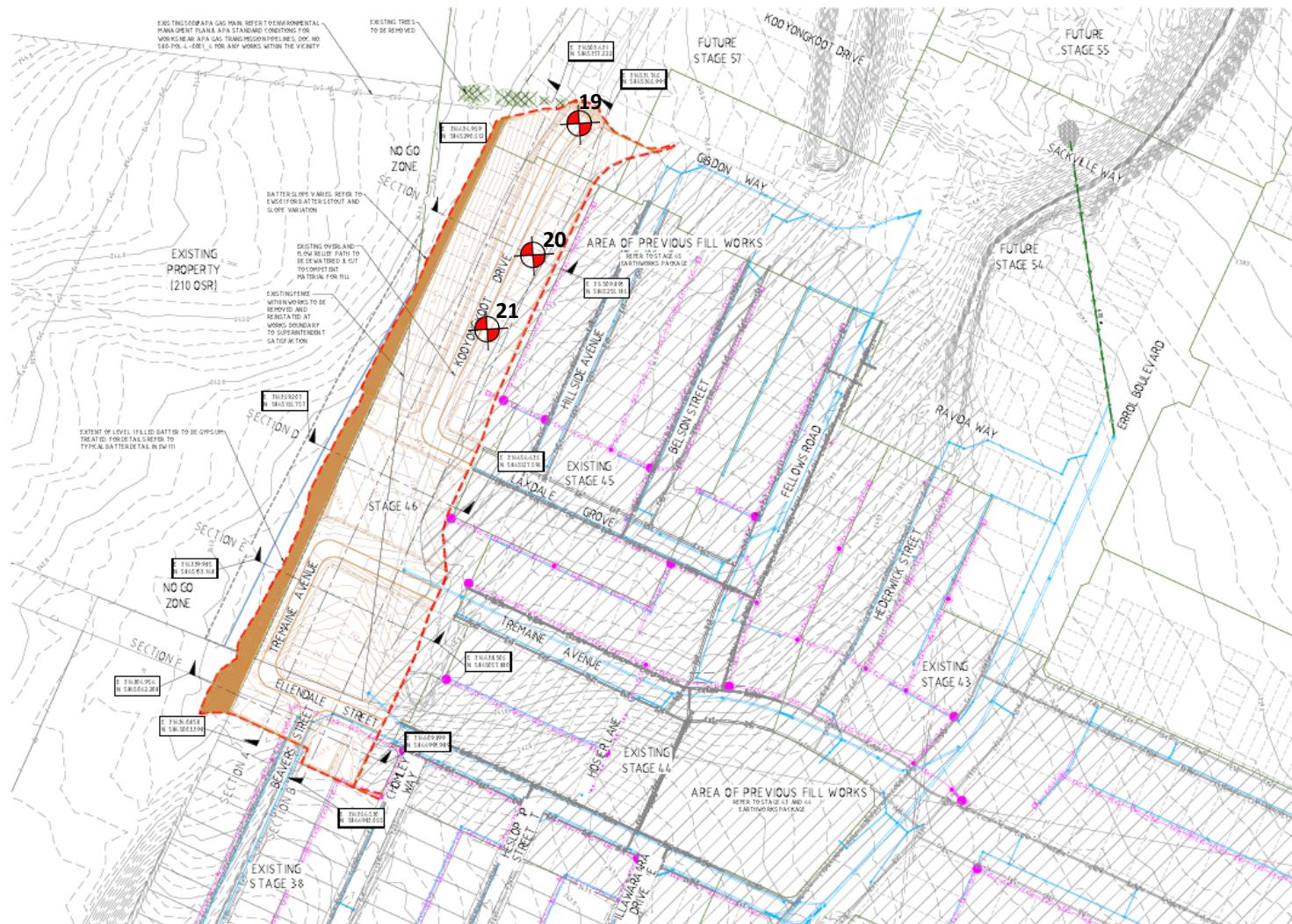


HUME CITY COUNCIL			
ISOPACH PLAN			
MERRIFIELD LIVING - SECTION D BULK EARTHWORKS - STAGE 46 MICKLEHAM			
CONSTRUCTION			
368 D1	17040-46	EW301	0

PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 19/09/2023	A&Y ASSOCIATES GEOTECHNICAL ENGINEERING CONSULTANTS
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (SI07)	SITE PLAN SKETCH—NOT TO SCALE	



Test Location



CONSTRUCTION ISSUE	1.1	P. SHAH APPROVED DATE: 11.09.23	AARBO APPROVED DATE: 11.09.23	LAPAP APPROVED DATE: 11.09.23	J. JOYCE APPROVED DATE: 11.09.23
REV DESCRIPTION					

merrifield
MAB GPC

verve
Ground Floor, 207-213 Waverley Road,
Malvern East VIC 3145
TEL: 03 8573 1500 verveprojects.com
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HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D
LAYOUT PLAN
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION | 366 D1 | 17040.46 | EV201 | 0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
19/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI07)

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

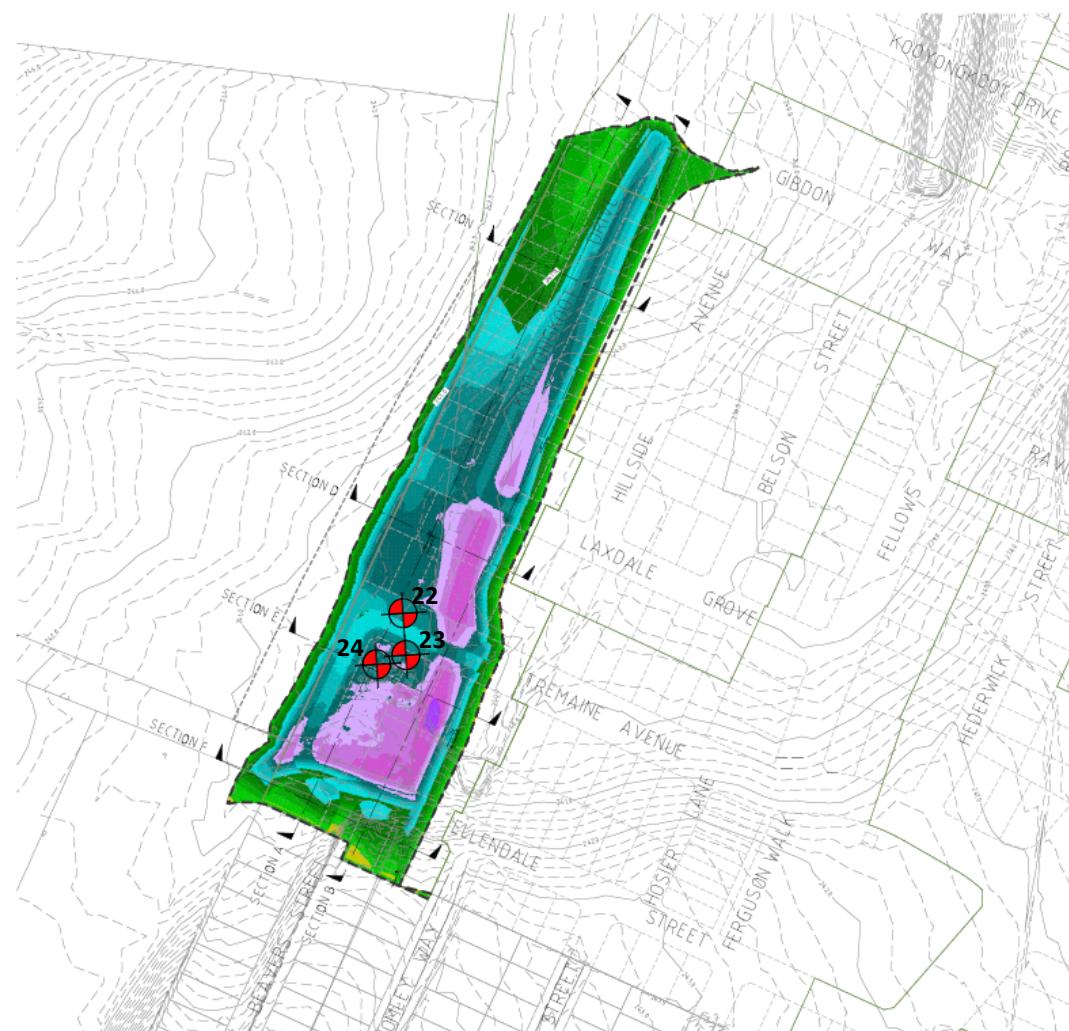
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	8
Location:	Mickleham				
Sample No	22	23	24		
Date Tested	20/09/2023	20/09/2023	20/09/2023		
Time Tested	AM	AM	AM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	1	1	1		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.94	1.95		
Field Moisture Content	%	22.2	23.0		
Material:	Imported Clay Fill	Imported Clay Fill	Imported Clay Fill		
Oversize Material	WET, %	0.0	0.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.02	2.03		
Optimum Moisture Content	%	23	23.5		
Moisture Ratio	%	96.5	98		
Moisture Variation from OMC	%	-0.5	-0.5		
Density Ratio	%	Drier	Drier		
		96.0	96.0		
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI08)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Date:	25/09/2023
 <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="flex-grow: 1;"> <p>NATA WORLD RECOGNISED ACCREDITATION</p> <p>NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p> </div> <div> <p>Approved Signatory:</p>  </div> <div> <p>David Burns 25/09/2023</p> </div> </div>					



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL)	FILL VOLUME (SOIL)
TOTAL	31298.0m ²	1776.0m ³	0m ³	16214.0m ³

EARTHWORKS VOLUMES CALCULATED FROM STAGED SURFACE TO DESIGNED EARTHWORKS SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.



P.SHAH	H:1000 S: 10 20 40 60 80
AARAB	
LAPAP	
REVIEWED	
CONSTRUCTION ISSUE	11/08/23
REF ID: merrifield	DATE: 11/08/23



HUME CITY COUNCIL		ISOPACH PLAN
PROJECT	STAGE	
MERRIFIELD LIVING - SECTION D		
BULK EARTHWORKS - STAGE 46		
MICKLEHAM		
CONSTRUCTION	368 D1	17040-46
	EW301	0

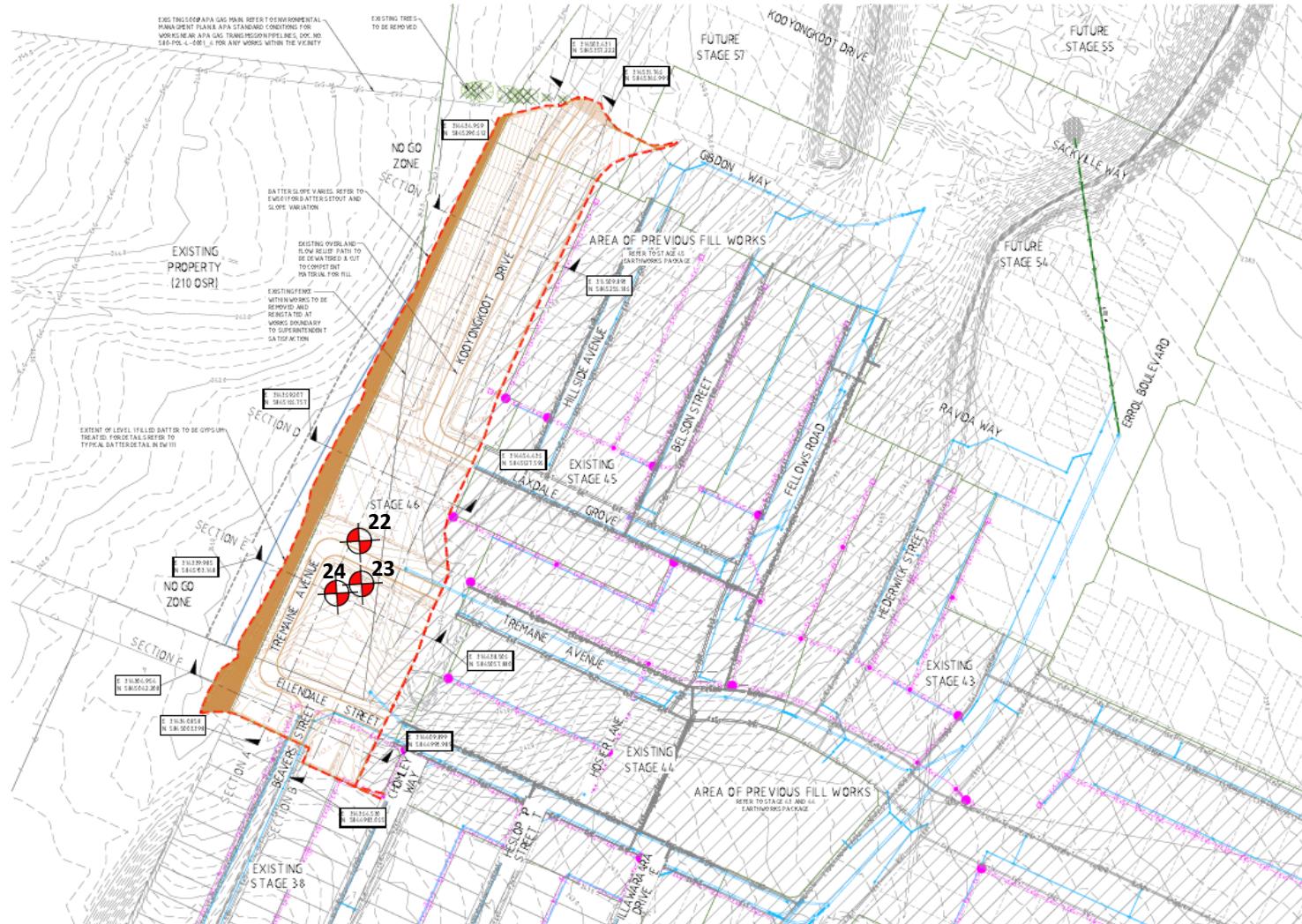
PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 20/09/2023	SITE PLAN SKETCH—NOT TO SCALE
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (SI08)		



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS



Test Location



CONSTRUCTION ISSUE	12	P. SHAH APPROVED	AARBO APPROVED	LAPAP APPROVED	J. JOYCE APPROVED	H1:1000 @ A1
REV DESCRIPTION						

merrifield
MAB GPC

verve
Ground Floor, 207-213 Waverley Road,
Malvern East VIC 3145
TEL: 03 8573 1500 verveprojects.com
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HUME CITY COUNCIL
MERRIFIELD LIVING - SECTION D
LAYOUT PLAN
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION | 366 D1 | 17040.46 | EV201 | 0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
20/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI08)

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

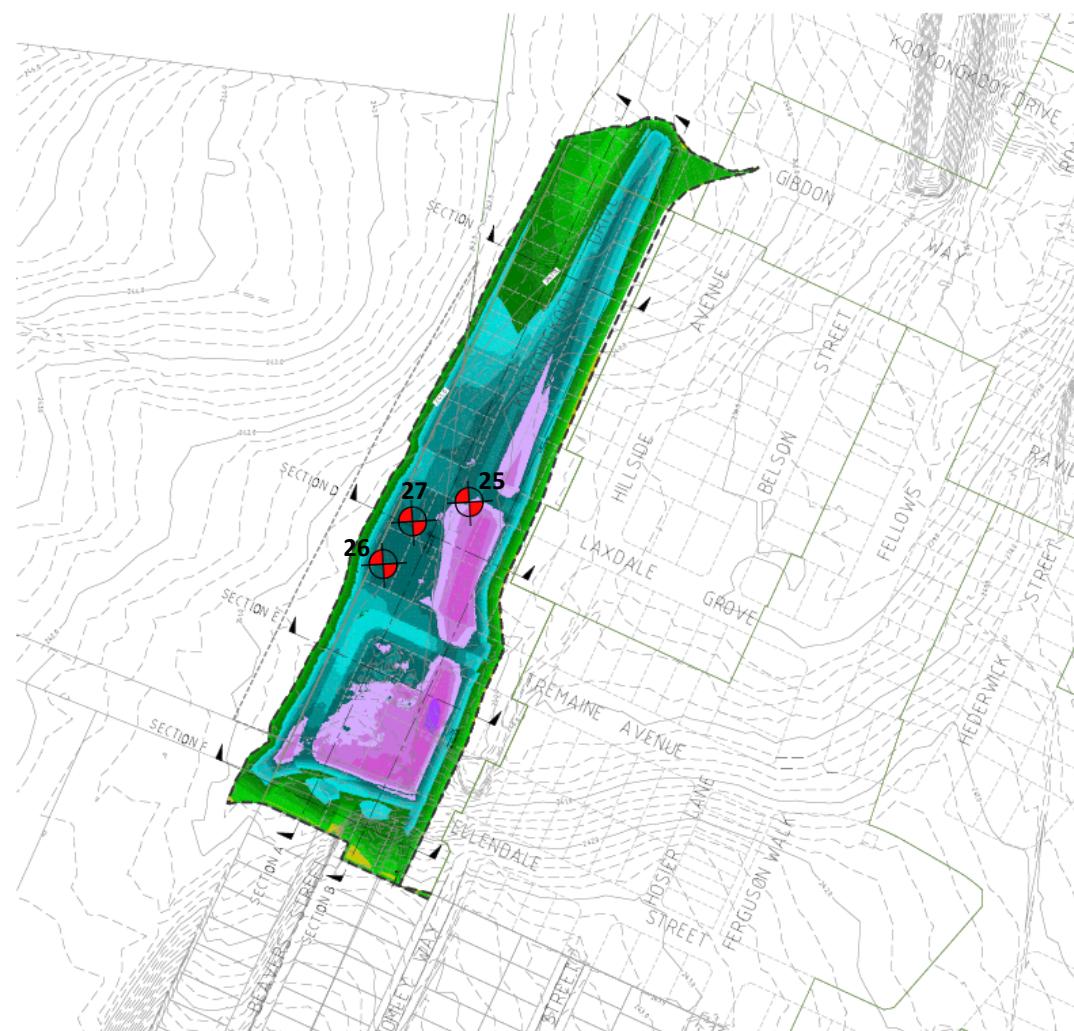
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	9
Location:	Mickleham				
Sample No	25	26	27		
Date Tested	22/09/2023	22/09/2023	22/09/2023		
Time Tested	AM	AM	AM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	2	2	2		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.95	2.01		
Field Moisture Content	%	22.1	22.2		
Material:	Imported Clay Fill	Imported Clay Fill	Imported Clay Fill		
Oversize Material	WET, %	0.0	0.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.04	2.05		
Optimum Moisture Content	%	22.5	22.5		
Moisture Ratio	%	98	98.5	97	
Moisture Variation from OMC	%	-0.5	-0.5	-0.5	
Density Ratio	%	Drier	Drier	Drier	
		96.0	97.5	96.5	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI09)				
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)
 <small>NATA ACCREDITED LABORATORY NO. 20172</small> <small>ACCREDITATION FOR COMPLIANCE WITH ISO/IEC 17025 - TESTING</small>					
<small>Approved Signatory:</small>  David Burns <small>Date:</small> 25/09/2023					



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL DT)	FILL VOLUME (SOIL DT)
TOTAL	31298.6m ²	1,776,600m ³	0m ³	1,776,600m ³

EARTHWORKS VOLUMES CALCULATED FROM SURVEYED SURFACE TO DESIGNED EARTHWORKS SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- EARTHWORKS BOUNDARY
- LAYER AREA BOUNDARY
- CONSTRUCTION ZONE
- STAGE BOUNDARY
- EXISTING CONTOURS (10M INTERVAL)



P.SHAH	H:1000 S: 10 20 40 60 80
AARABO	
LAPAP	
IMPRES	
J.JOYCE	



HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D BULK EARTHWORKS - STAGE 46 MICKLEHAM
ISOPACH PLAN
CONSTRUCTION | 368 D1 | 17040-46 | EW301 | 0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
22/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI09)

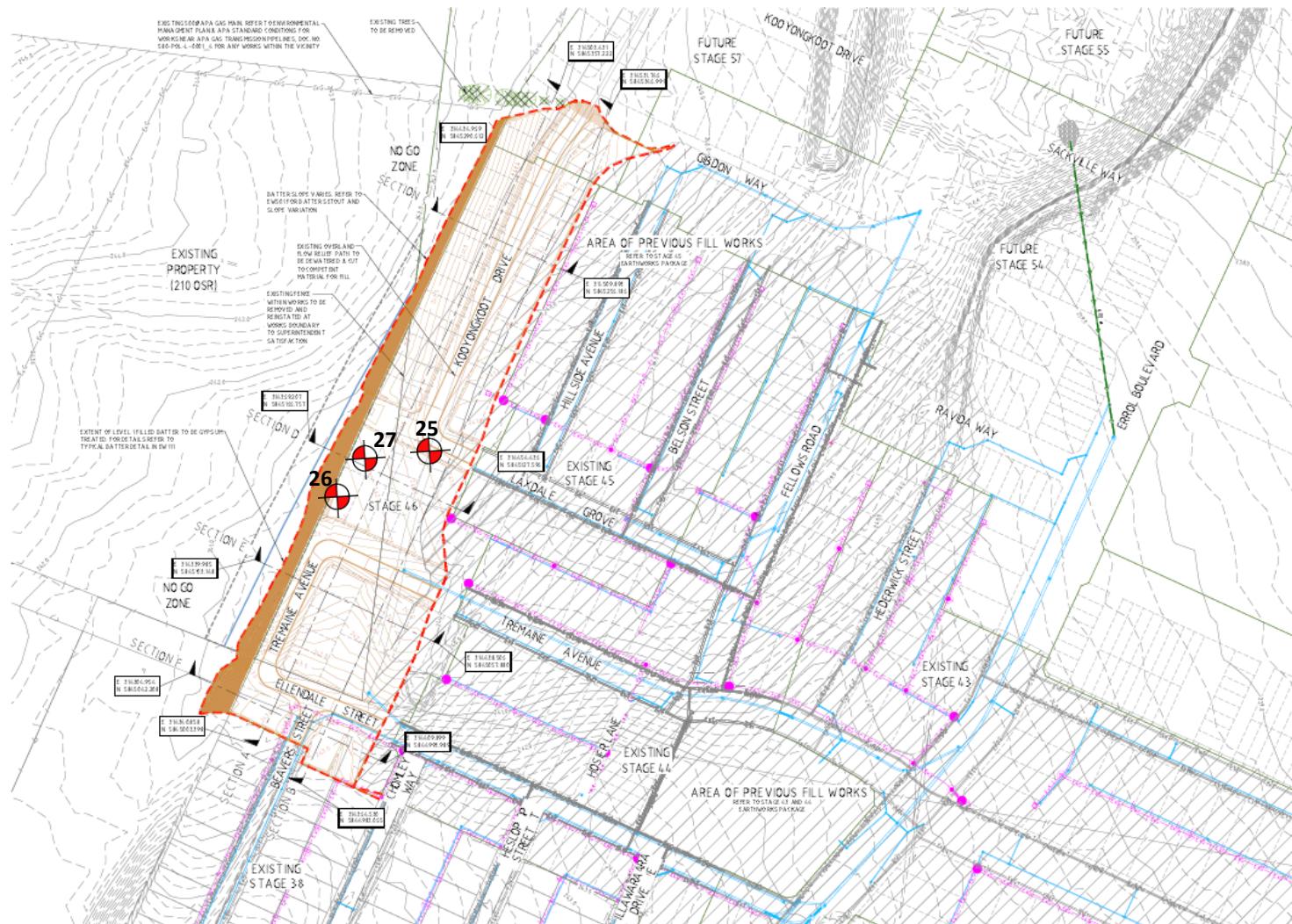
SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS



Test Location



P. SHAH APPROVED AARBO LAPAP CONSTRUCTION ISSUE REV DESCRIPTION	A1 11.09.23 APPROVED J. JOYCE	H1:1000 @ A1 0 10 20 30 40 50	merrifield MAB GPC	verve Ground Floor, 207-213 Waverley Road, Malvern East VIC 3145 TEL: 03 8573 1500 verveprojects.com © Verve Projects Pty Ltd.	HUME CITY COUNCIL PROJECT: MERRIFIELD LIVING - SECTION D BULK EARTHWORKS - STAGE 46 MICKLEHAM CONSTRUCTION 366 D1 17040.46 EV201 0
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PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
22/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI09)

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

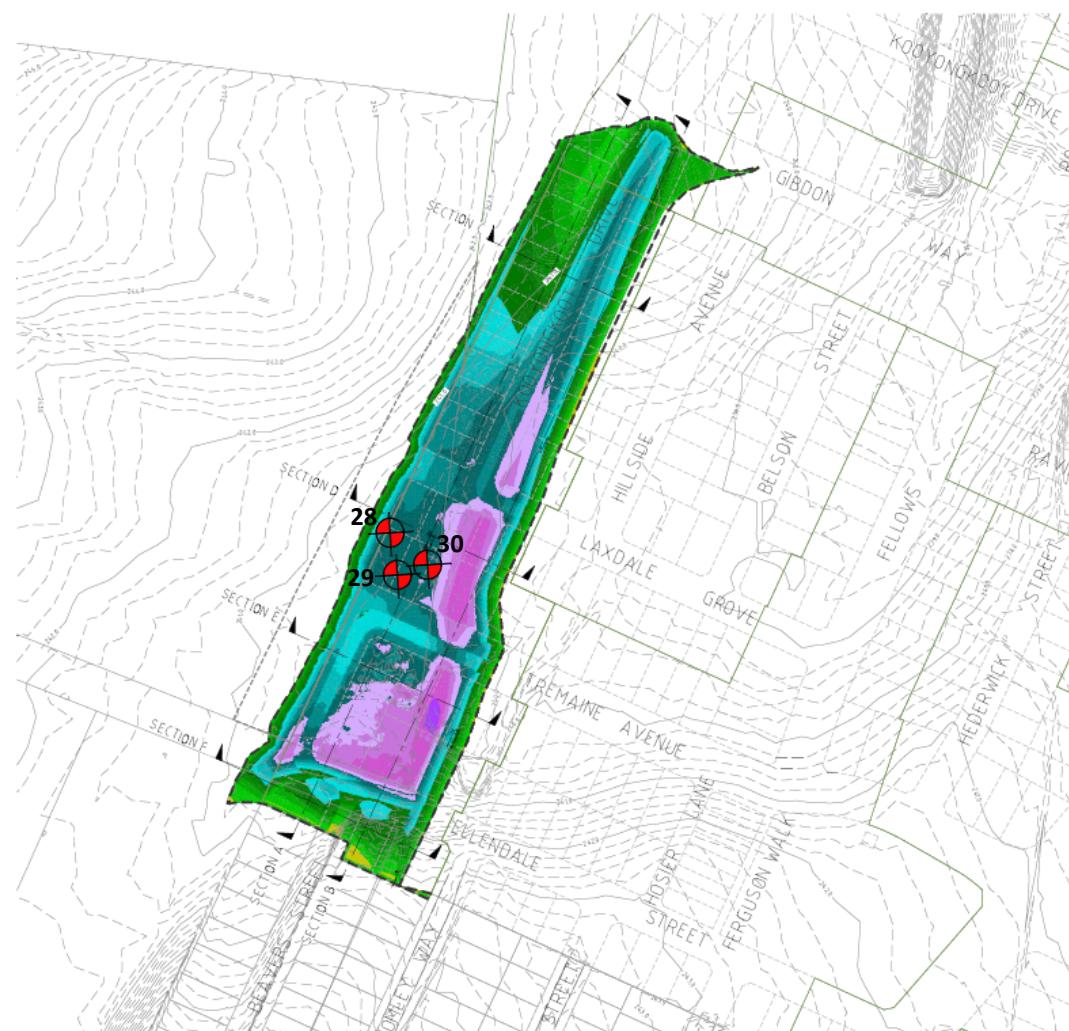
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	10
Location:	Mickleham				
Sample No	28	29	30		
Date Tested	27/09/2023	27/09/2023	27/09/2023		
Time Tested	AM	AM	AM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		4	4	4	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	2.01	1.97	1.95	
Field Moisture Content	%	22.1	21.2	21.7	
Material:		Imported Clay Fill	Imported Clay Fill	Imported Clay Fill	
Oversize Material	WET, %	0.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.03	2.04	2.01	
Optimum Moisture Content	%	22.5	22	22	
Moisture Ratio	%	98	96.5	98.5	
Moisture Variation from OMC	%	-0.5	-1.0	-0.5	
Density Ratio	%	Drier	Drier	Drier	
		99.0	96.5	97.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI10)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>					
 David Burns Date: 06/10/2023					



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL DT)	FILL VOLUME (SOIL DT)
TOTAL	31298.0m ²	1776.0m ³	0m ³	16214.0m ³

EARTHWORKS VOLUMES CALCULATED FROM STAGED SURFACE TO DESIGNED EARTHWORKS SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- EARTHWORKS BOUNDARY
- LAYER AREA BOUNDARY
- CONSTRUCTION ZONE
- STAGE BOUNDARY
- EXISTING CONTOURS (2M INTERVAL)



P.SHAH	H:1000 S: 10 20 40 60 80
AARAO	
LAPAP	
IMPERI	
REVIEWED	
CONSTRUCTION ISSUE	11 11.09.23
REF ID: merrifield	REVISION DATE
J.JOYCE	



HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D BULK EARTHWORKS - STAGE 46 MICKLEHAM
ISOPACH PLAN
CONSTRUCTION
REF ID: 366 D1 PROJECT ID: 17040-46 EW301 REVISION 0

PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
27/09/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI10)

SITE PLAN SKETCH—NOT TO SCALE



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

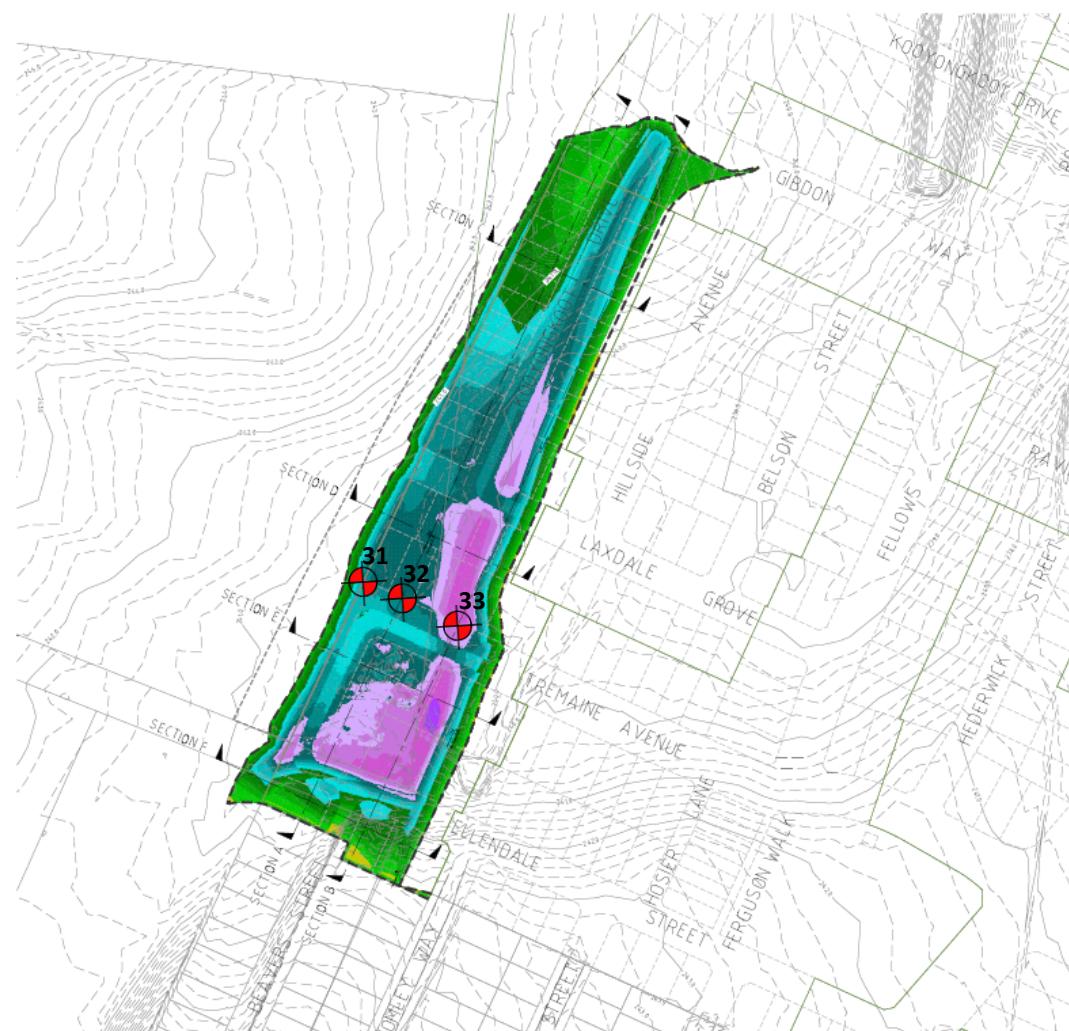
AS1289.5.7.1

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 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	11
Location:	Mickleham				
Sample No	31	32	33		
Date Tested	28/09/2023	28/09/2023	28/09/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		4	4	11	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	2.03	2.03	1.93	
Field Moisture Content	%	20.9	20.8	21.7	
Material:		Imported Silty Clay	Imported Silty Clay	Imported Silty Clay	
Oversize Material	WET, %	0.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.07	2.06	2.01	
Optimum Moisture Content	%	21.5	21.5	22.5	
Moisture Ratio	%	97	96.5	96.5	
Moisture Variation from OMC	%	-0.5	-0.5	-0.5	
Density Ratio	%	Drier	Drier	Drier	
		98.5	98.5	96.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI11)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>					
 David Burns Date: 06/10/2023					



Test Location



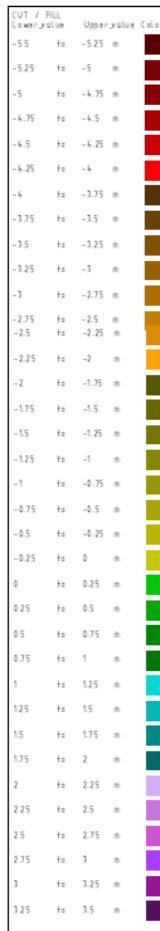
WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL)	FILL VOLUME (SOIL)
TOTAL	31298.6m ²	1,776,600m ³	0m ³	1,776,600m ³

EARTHWORKS VOLUMES CALCULATED FROM STAGED SURFACE TO DESIGNED EARTHWORKS SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- EARTHWORKS BOUNDARY
- LAYER AREA BOUNDARY
- CONSTRUCTION ZONE
- STAGE BOUNDARY
- EXISTING CONTOURS (10M INTERVAL)



P.SHAH	H:1000 S: 10 20 40 60 80
AARABO	
LAPAP	
REHMAN	
CONSTRUCTION ISSUE	11 11.09.23
REF ID: merrifield	DATE: JJ.JJOYCE



HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D BULK EARTHWORKS - STAGE 46 MICKLEHAM
ISOPACH PLAN
CONSTRUCTION | 368 D1 | 17040-46 | EW301 | 0

PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 28/09/2023	A&Y ASSOCIATES GEOTECHNICAL ENGINEERING CONSULTANTS
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (SI11)	SITE PLAN SKETCH—NOT TO SCALE	

Field Density Test Results

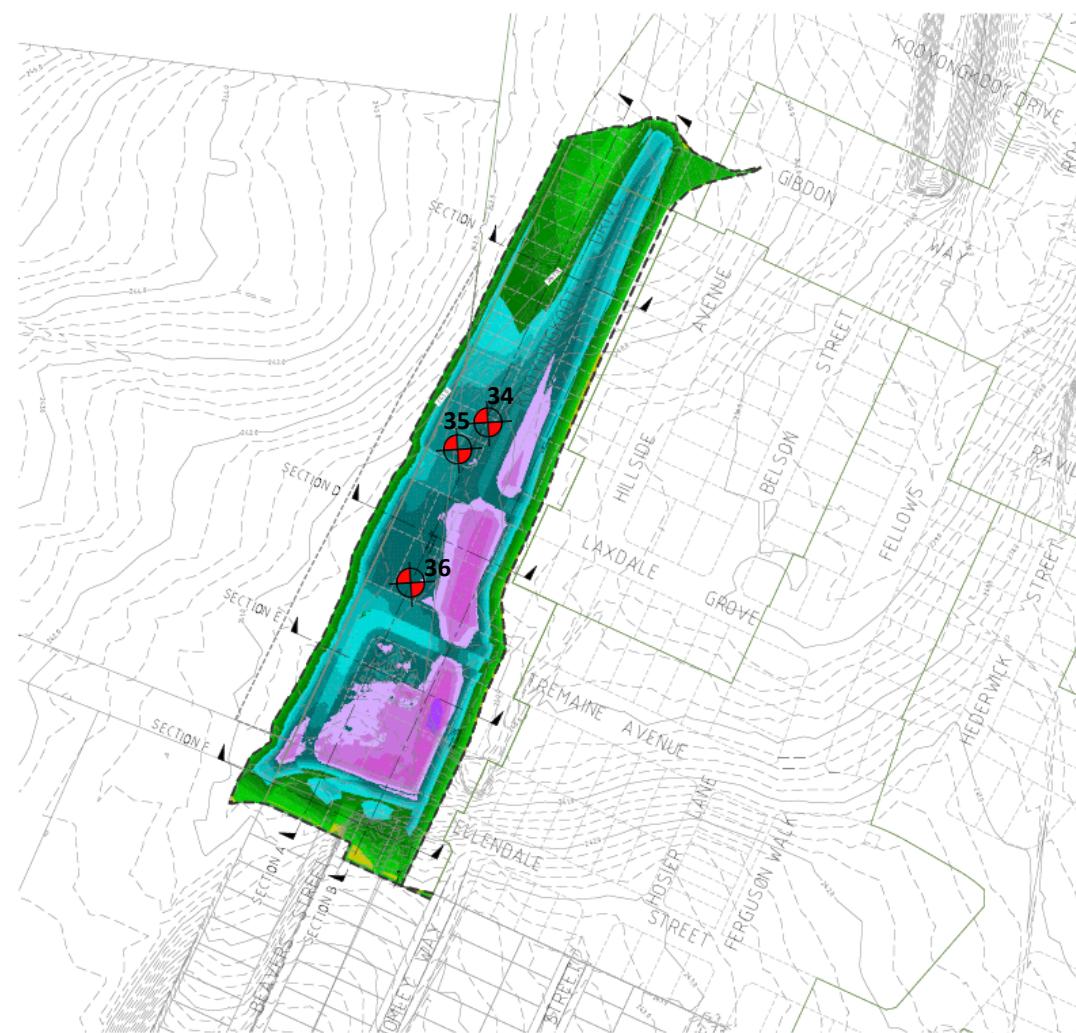
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	12
Location:	Mickleham				
Sample No	34	35	36		
Date Tested	9/10/2023	9/10/2023	9/10/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		5	5	5	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	1.90	1.92	1.91	
Field Moisture Content	%	16.6	17.1	15.4	
Material:		Imported Clay	Imported Clay	Imported Clay	
Oversize Material	WET, %	14.0	10.0	11.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	1.96	1.98	1.97	
Optimum Moisture Content	%	18.5	19	17	
Moisture Ratio	%	89.5	90	90.5	
Moisture Variation from OMC	%	-1.5	-2.0	-1.5	
Density Ratio	%	Drier	Drier	Drier	
		95.0	99.0	95.5	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI12)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <small>WORLD RECOGNISED ACCREDITATION</small>	<small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>			 David Burns Date: 23/10/2023	



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL DT)	FILL VOLUME (SOIL DT)
TOTAL	37298.6m ²	1776.6m ³	0m ³	16214.6m ³

EARTHWORKS VOLUMES CALCULATED FROM STRIPPED SURFACE TO DESIGNED EARTHWORKS SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- - - EARTHWORKS BOUNDARY
- - - LAYER AREA BOUNDARY
- - - CONSTRUCTION ZONE
- - - STAGE BOUNDARY
- EXISTING CONTURS (10M INTERVAL)



P.SHAH	H: 1000 S: 10 20 40 60 80
AARABO	
LAPAP	
IMPRES	
CONSTRUCTION ISSUE	11 11.08.23
REF ID: merrifield	DATE: JJ.JJOYCE



HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D
ISOPACH PLAN
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION
REF ID: 366 D1 PROJECT ID: 17040-46 ESRN: EW301 0

PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 09/10/2023	SITE PLAN SKETCH—NOT TO SCALE
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (SI12)		



A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results

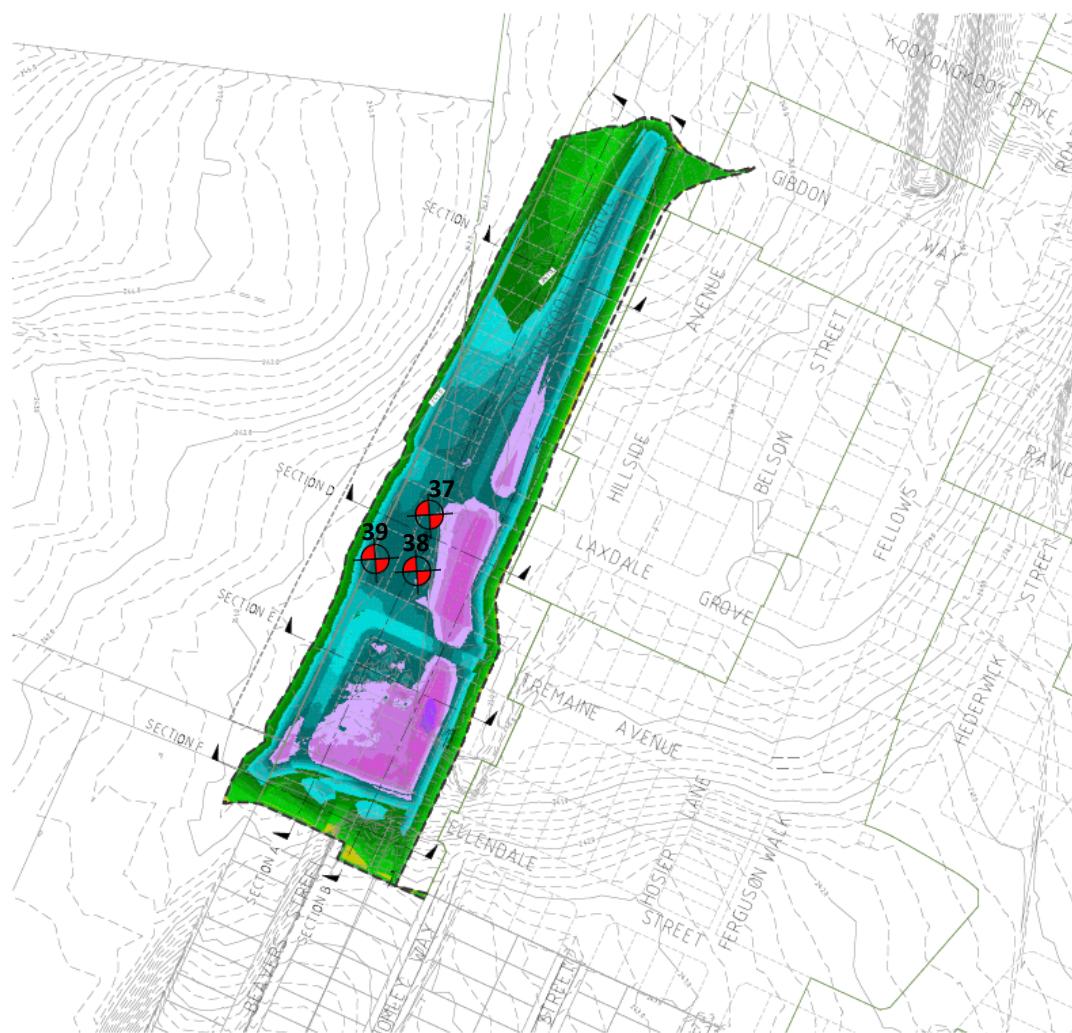
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	13
Location:	Mickleham				
Sample No	37	38	39		
Date Tested	10/10/2023	10/10/2023	10/10/2023		
Time Tested	PM	PM	PM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	6	6	6		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.91	1.93		
Field Moisture Content	%	16.6	17.7		
Material:	Imported Clay	Imported Clay	Imported Clay		
Oversize Material	WET, %	12.0	8.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	1.97	1.99		
Optimum Moisture Content	%	19	20		
Moisture Ratio	%	87.5	88.5		
Moisture Variation from OMC	%	-2.0	-2.0		
Density Ratio	%	Drier	Drier		
		95.0	96.0		
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI13)				
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)
 NATA <small>WORLD RECOGNISED ACCREDITATION</small>		<small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>		Approved Signatory:	 David Burns 23/10/2023



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL DT)	FILL VOLUME (SOIL DT)
TOTAL	31298.6m ²	1776.0m ³	0m ³	16214.6m ³

EARTHWORKS VOLUMES CALCULATED FROM STRIPPED SURFACE TO DESIGNED EARTHWORKS SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- EARTHWORKS BOUNDARY
- LAYER AREA BOUNDARY
- CONSTRUCTION ZONE
- STAGE BOUNDARY
- EXISTING CONTOURS (10M INTERVAL)



P.SHAH	H1-1000 S 10 20 30 40 50 60
AARABO	
LAPAP	
REPRODUCED	
CONSTRUCTION ISSUE	11/10/23
REF ID: merrifield	DATE: 11/10/23



HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D
ISOPACH PLAN
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION
REF ID: 368 D1 PROJECT ID: 17040-46 ESRN: EW301 0

PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 10/10/2023	 A&Y ASSOCIATES <small>GEOTECHNICAL ENGINEERING CONSULTANTS</small>
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (SI13)	SITE PLAN SKETCH—NOT TO SCALE	

Field Density Test Results

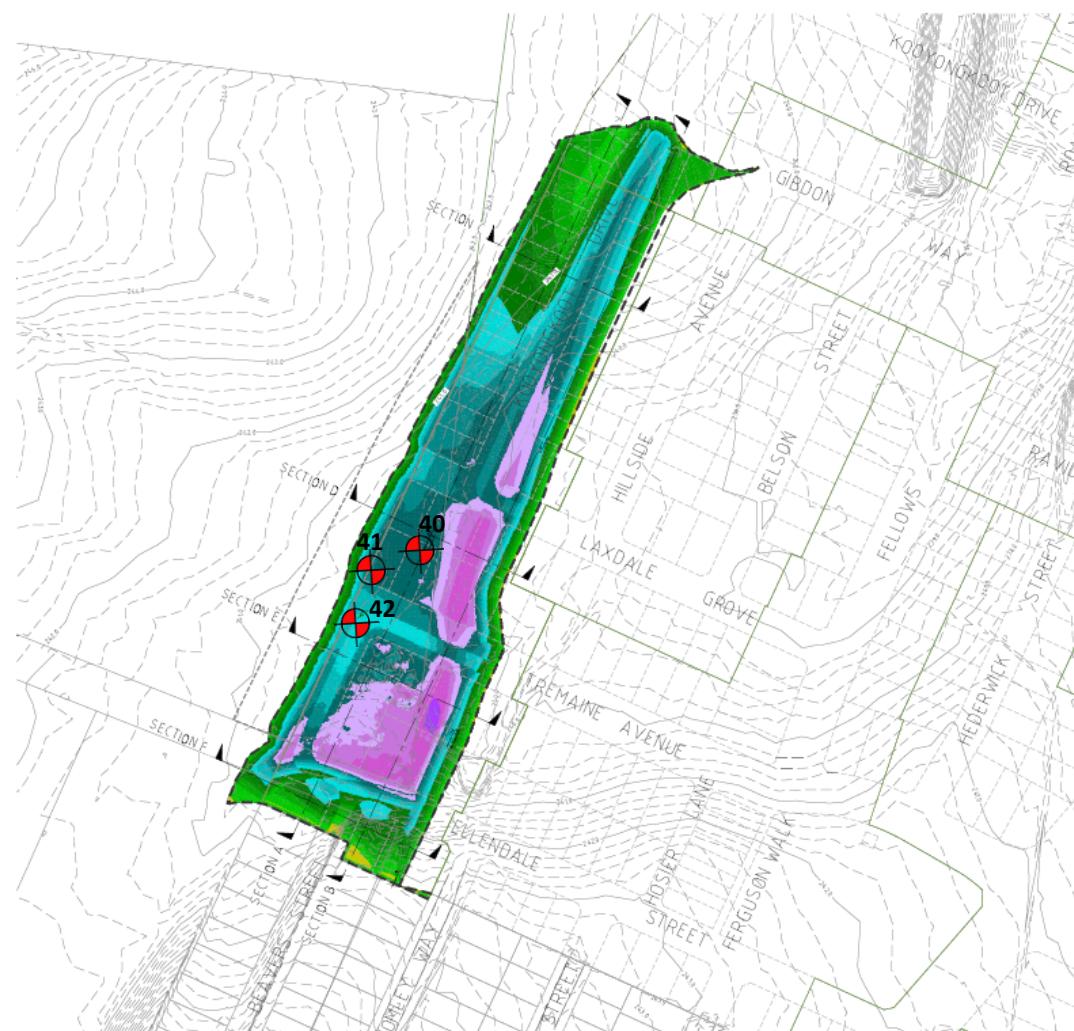
AS1289.5.7.1

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 5/16 Network Drive
 Truganina VIC 3029
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info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080			
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	14			
Location:	Mickleham							
Sample No	40	41	42					
Date Tested	11/10/2023	11/10/2023	11/10/2023					
Time Tested	PM	PM	PM					
Test Location	Refer to Plan	Refer to Plan	Refer to Plan					
Level/Layer	3	3	3					
Layer Thickness	mm	200	200					
Test Depth	mm	175	175					
Field Wet Density	t/m ³	1.90	1.92					
Field Moisture Content	%	14.1	15.1	15.6				
Material:	Imported Clay	Imported Clay	Imported Clay					
Oversize Material	WET, %	8.0	7.0	8.0				
Sieve Size	mm	19	19	19				
Peak Converted Wet Density	t/m ³	1.93	1.98	1.99				
Optimum Moisture Content	%	14	15	18				
Moisture Ratio	%	101	101	86.5				
Moisture Variation from OMC	%	0.0	0.0	-2.0				
		OMC	OMC	Drier				
Density Ratio	%	97.0	96.0	95.5				
Specification:	95% STD			Test Selection:	N/A			
Notes:	Ref: 1120 0435-1 (SI14)							
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)			
 NATA <small>WORLD RECOGNISED ACCREDITATION</small>								
<small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>								
<small>Approved Signatory:</small>  David Burns Date: 20/10/2023								



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL DT)	FILL VOLUME (SOIL DT)
TOTAL	37298.6m ²	1,776,600m ³	0m ³	1,776,600m ³

EARTHWORKS VOLUMES CALCULATED FROM STAGED SURFACE TO DESIGNED EARTHWORKS SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- EARTHWORKS BOUNDARY
- LAYER AREA BOUNDARY
- CONSTRUCTION ZONE
- STAGE BOUNDARY
- EXISTING CONTOURS (10M INTERVAL)



P.SHAH	H:1000 S: 10 20 40 60 80
AARABO	
LAPAP	
IMPRES	
J.JOYCE	



HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D BULK EARTHWORKS - STAGE 46 MICKLEHAM
ISOPACH PLAN
CONSTRUCTION | 366 D1 | 17040-46 | EW301 | 0

PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 11/10/2023	A&Y ASSOCIATES GEOTECHNICAL ENGINEERING CONSULTANTS
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (SI14)	SITE PLAN SKETCH—NOT TO SCALE	

Field Density Test Results

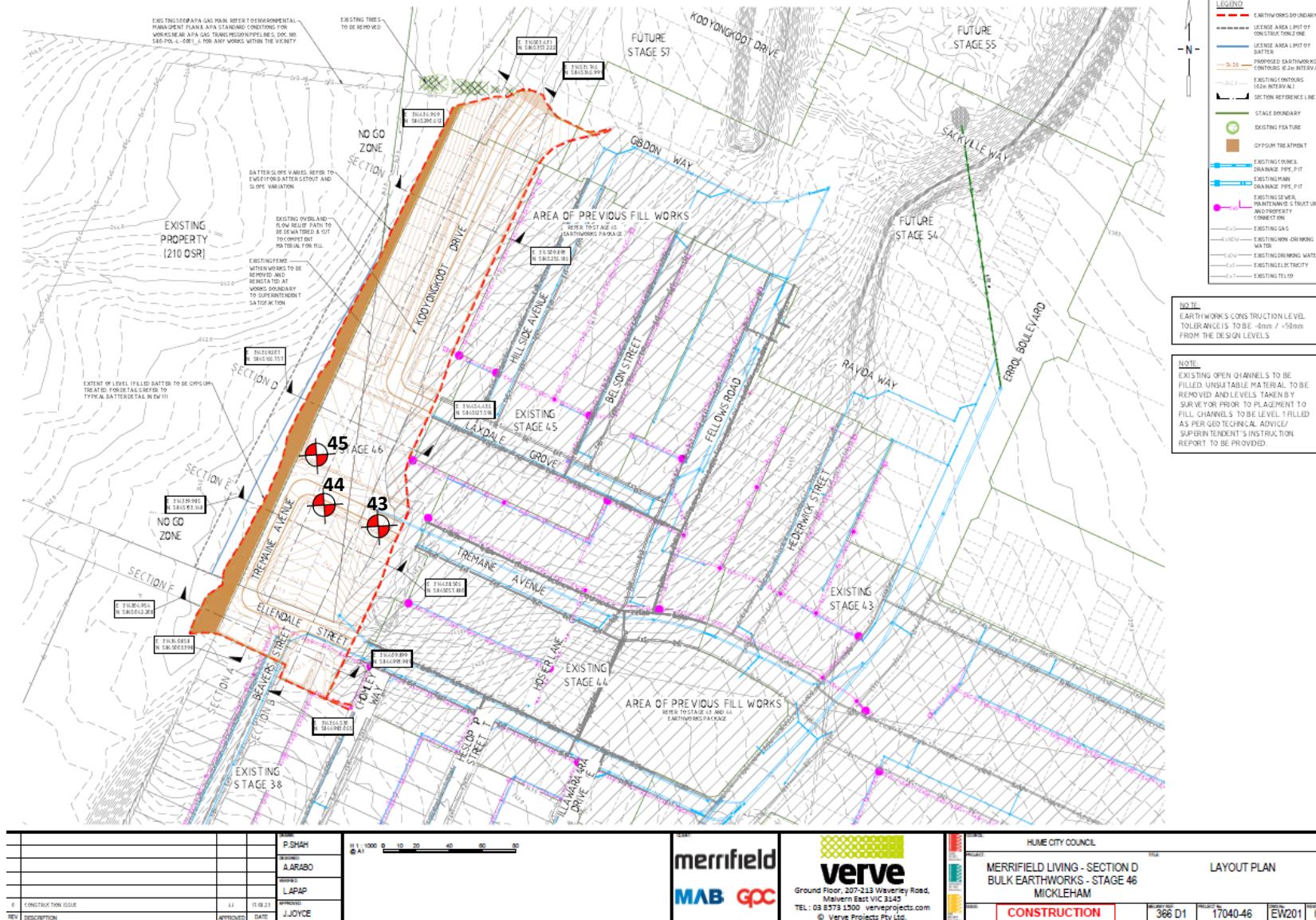
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	15
Location:	Mickleham				
Sample No	43	44	45		
Date Tested	18/10/2023	18/10/2023	18/10/2023		
Time Tested	PM	PM	PM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	4	4	4		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	2.00	1.98		
Field Moisture Content	%	17.6	16.1		
Material:	Imported Clay	Imported Clay	Imported Clay		
Oversize Material	WET, %	8.0	9.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.04	2.05		
Optimum Moisture Content	%	19.5	18.5		
Moisture Ratio	%	90	87		
Moisture Variation from OMC	%	-2.0	-2.0		
Density Ratio	%	Drier	Drier		
		97.0	95.5		
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI15)				
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)
 NATA WORLD RECOGNISED ACCREDITATION		NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing		Approved Signatory:  David Burns Date: 30/10/2023	



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
18/10/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI15)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

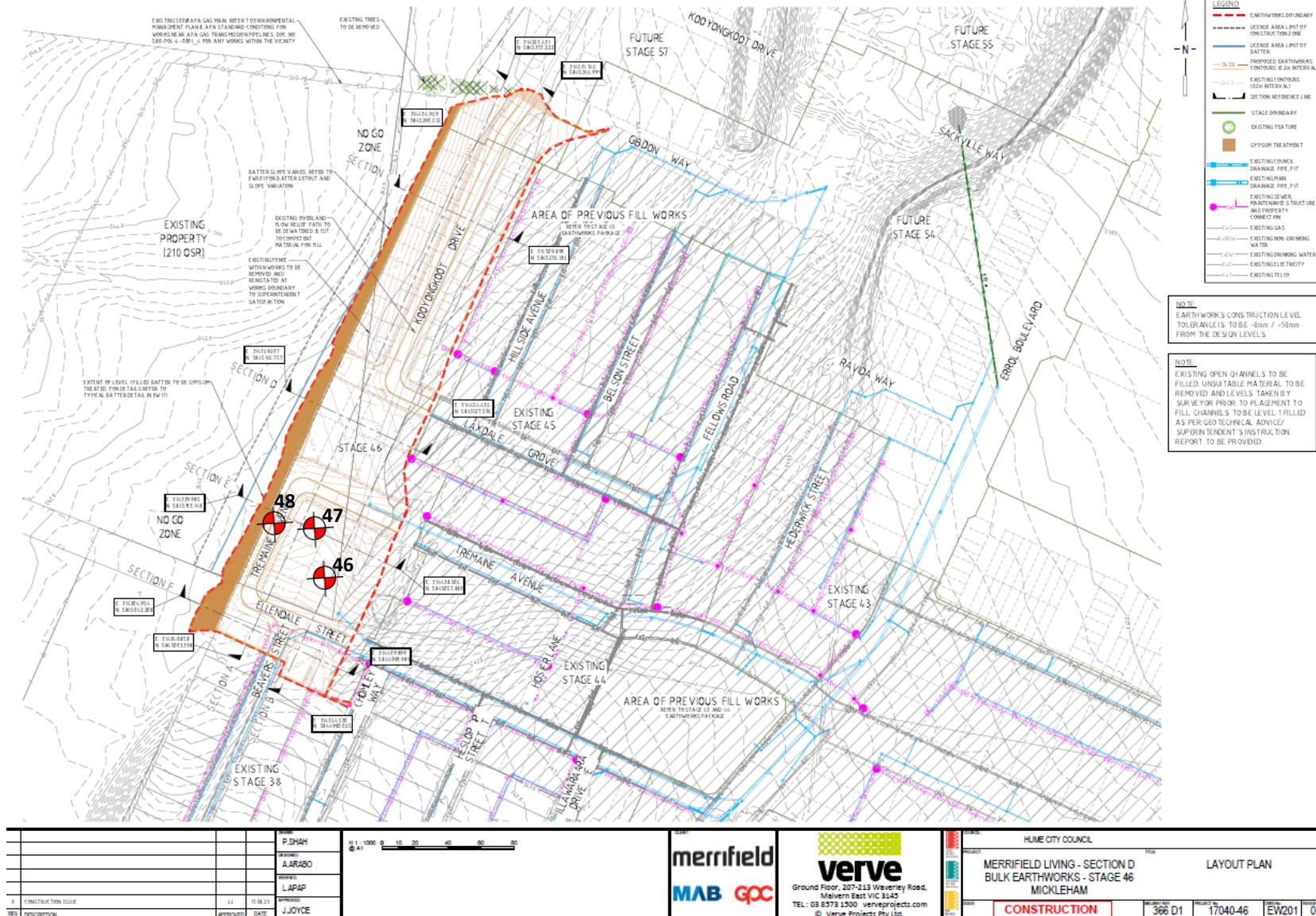
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	16
Location:	Mickleham				
Sample No	46	47	48		
Date Tested	19/10/2023	19/10/2023	19/10/2023		
Time Tested	PM	PM	PM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	4	4	4		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	2.04	2.06		
Field Moisture Content	%	13.2	15.5	15.3	
Material:	Imported Clay	Imported Clay	Imported Clay		
Oversize Material	WET, %	10.0	9.1	10.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.08	2.10	2.11	
Optimum Moisture Content	%	15.5	18	17.5	
Moisture Ratio	%	85	86	87.5	
Moisture Variation from OMC	%	-2.0	-2.5	-2.0	
Density Ratio	%	Drier	Drier	Drier	
		97.0	97.0	97.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI16)				
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)
 <p style="text-align: center;"> NATA <small>WORLD RECOGNISED ACCREDITATION</small> </p> <p style="text-align: center;"> NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing </p> <p style="text-align: right;"> Approved Signatory:  David Burns Date: 30/10/2023 </p>					



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
19/10/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI16)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

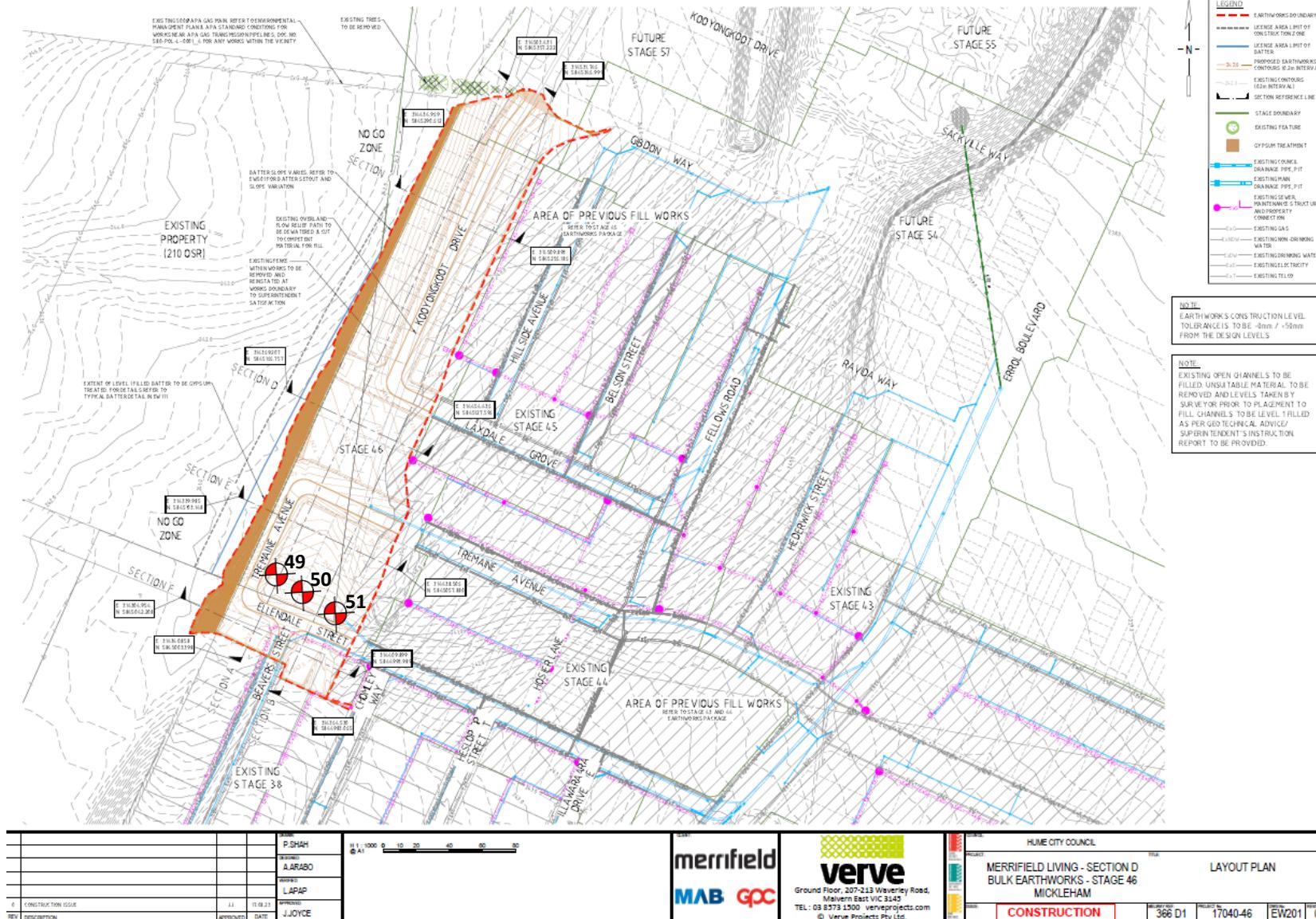
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	17
Location:	Mickleham				
Sample No	49	50	51		
Date Tested	20/10/2023	20/10/2023	20/10/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		5	5	5	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	2.07	2.06	2.05	
Field Moisture Content	%	14.3	15.6	14.5	
Material:		Imported Clay	Imported Clay	Imported Clay	
Oversize Material	WET, %	5.0	6.0	5.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.12	2.10	2.09	
Optimum Moisture Content	%	17	18	16.5	
Moisture Ratio	%	84	86.5	88	
Moisture Variation from OMC	%	-2.5	-2.5	-1.5	
Density Ratio	%	Drier	Drier	Drier	
		97.5	96.5	97.5	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI17)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <p style="text-align: center;">NATA WORLD RECOGNISED ACCREDITATION</p> <p style="text-align: center;">NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p> <div style="text-align: right;">  David Burns Date: 30/10/2023 </div>					



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
20/10/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI17)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

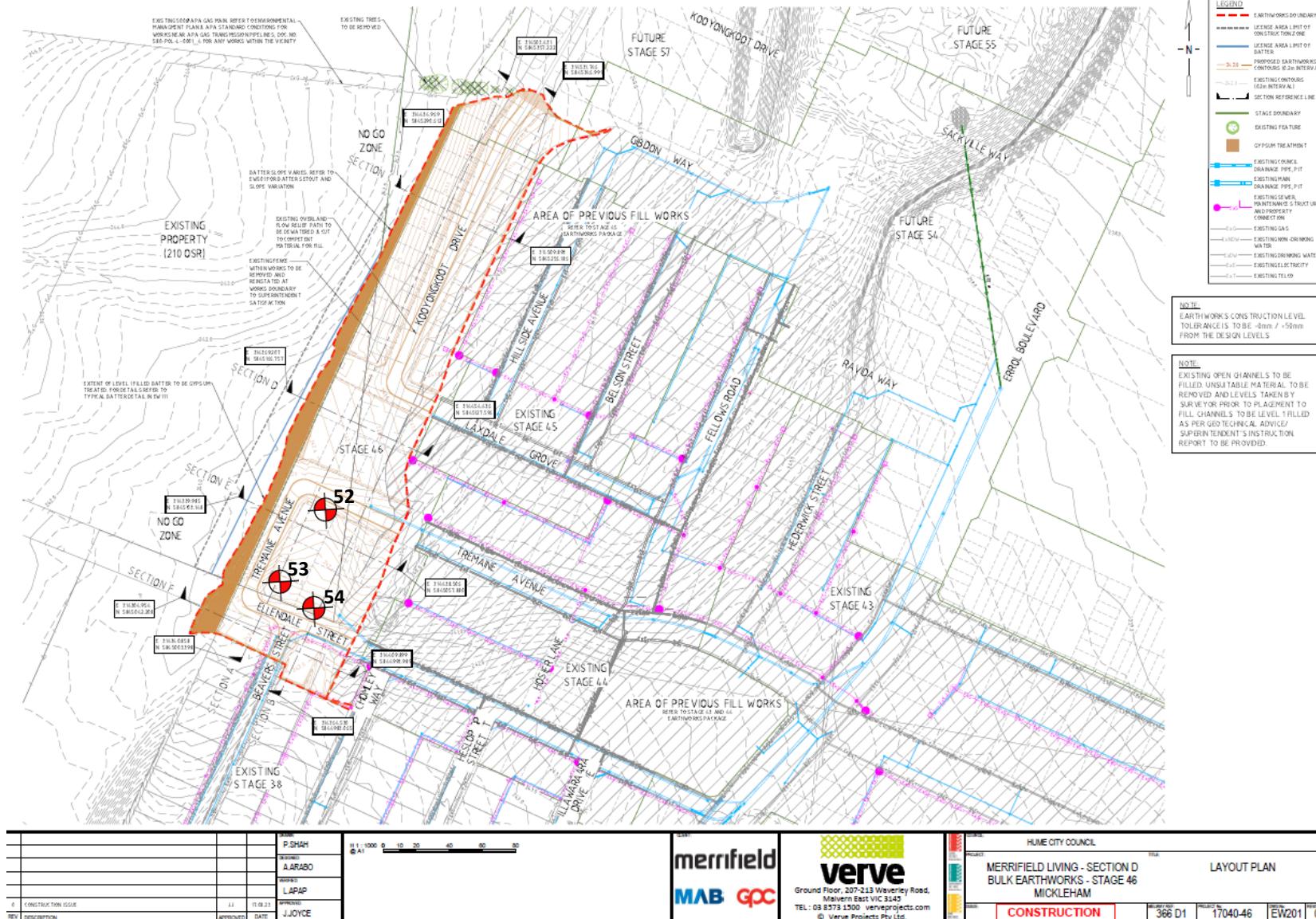
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	18
Location:	Mickleham				
Sample No	52	53	54		
Date Tested	21/10/2023	21/10/2023	21/10/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		5	5	5	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	2.08	2.10	2.07	
Field Moisture Content	%	15.5	16.2	15.7	
Material:		Imported Clay	Imported Clay	Imported Clay	
Oversize Material	WET, %	7.0	5.0	7.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.13	2.14	2.12	
Optimum Moisture Content	%	17.5	18.5	17.5	
Moisture Ratio	%	88.5	88	89.5	
Moisture Variation from OMC	%	-2.0	-2.0	-1.5	
Density Ratio	%	Drier	Drier	Drier	
		97.5	97.5	97.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI18)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <p style="text-align: center;">NATA WORLD RECOGNISED ACCREDITATION</p> <p style="text-align: center;">NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p> <div style="text-align: right;">  David Burns Date: 30/10/2023 </div>					



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
21/10/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI18)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

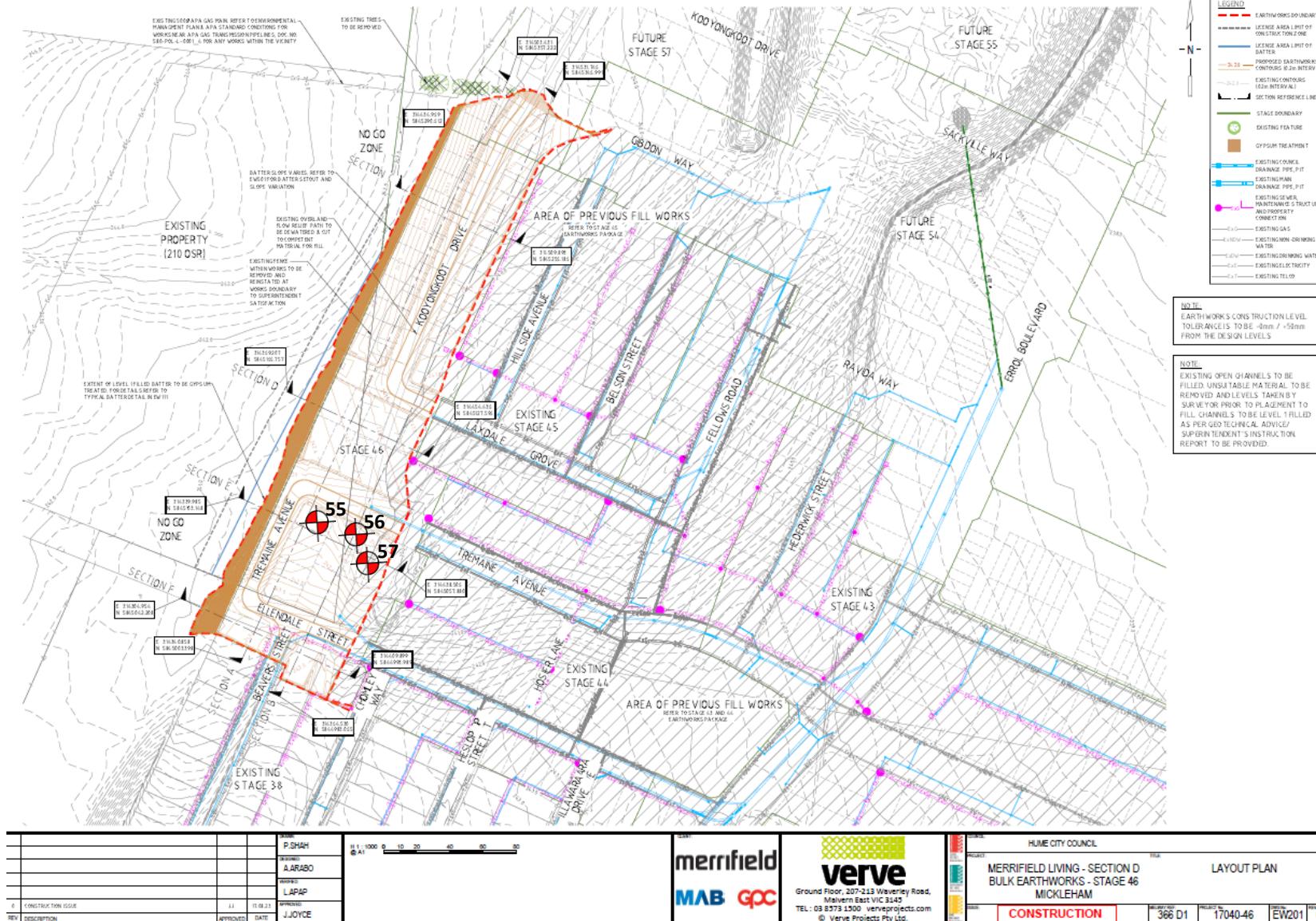
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A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	19
Location:	Mickleham				
Sample No	55	56	57		
Date Tested	23/10/2023	23/10/2023	23/10/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		6	6	6	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	2.01	2.02	2.04	
Field Moisture Content	%	18.2	18.2	18.7	
Material:		Imported Clay	Imported Clay	Imported Clay	
Oversize Material	WET, %	9.6	8.1	7.9	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.05	2.07	2.08	
Optimum Moisture Content	%	20.5	20.5	21	
Moisture Ratio	%	89	89	89	
Moisture Variation from OMC	%	-2.0	-2.0	-2.0	
Density Ratio	%	Drier	Drier	Drier	
		97.0	98.5	99.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI19)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <p style="text-align: center;"> NATA <small>WORLD RECOGNISED ACCREDITATION</small> </p> <p style="text-align: center;"> NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing </p> <div style="text-align: right;">  David Burns Date: 30/10/2023 </div>					



Test Location



PROJECT:

Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:

BMD Urban

DATE:

23/10/2023

LOCATION:

Mickleham

PROJECT No:

1120 0435-1 (SI19)

SITE PLAN SKETCH—NOT TO SCALE

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Field Density Test Results

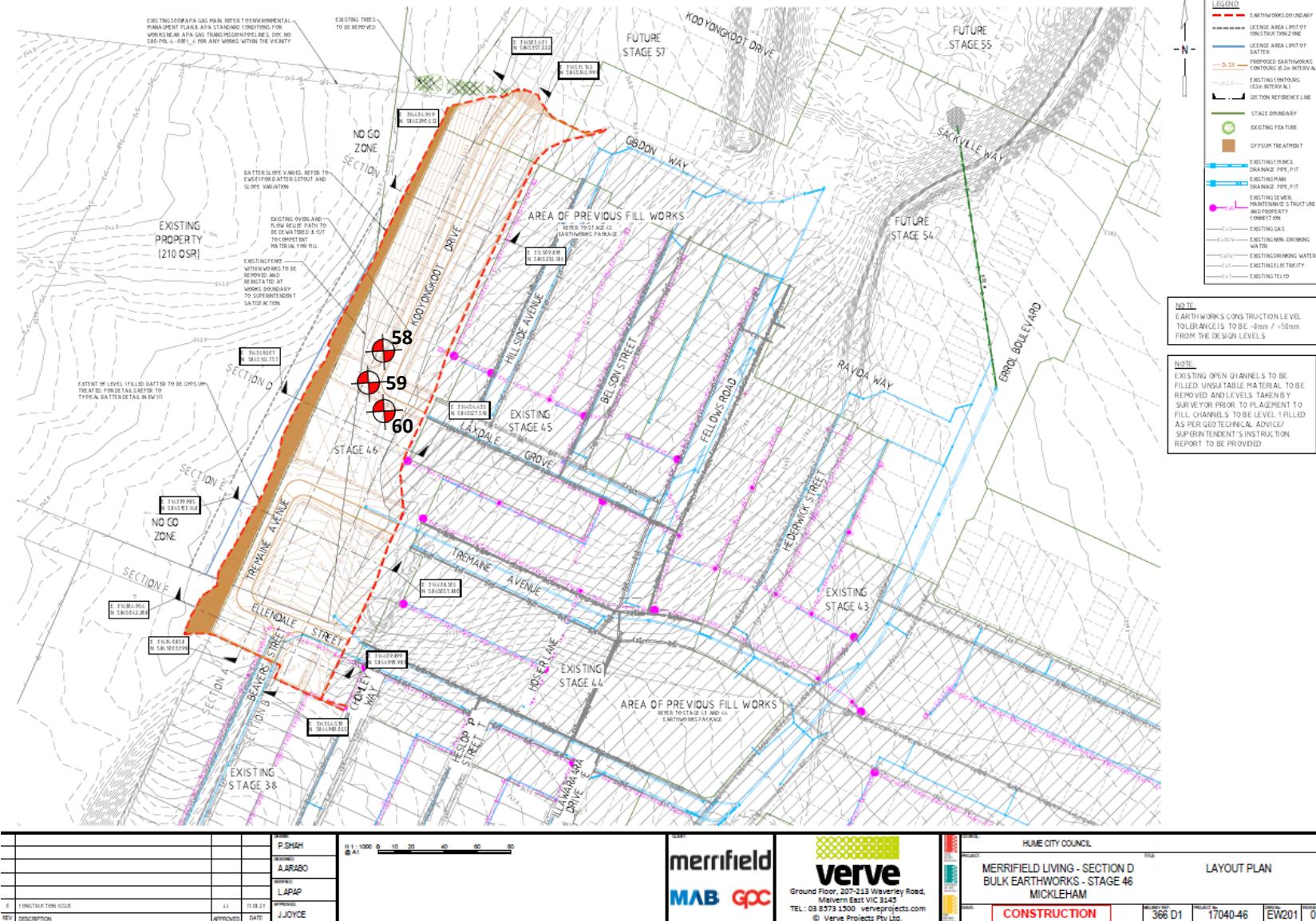
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A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	20
Location:	Mickleham				
Sample No	58	59	60		
Date Tested	24/10/2023	24/10/2023	24/10/2023		
Time Tested	PM	PM	PM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	4	4	4		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.99	2.01		
Field Moisture Content	%	15.3	14.5		
Material:	Imported Clay	Imported Clay	Imported Clay		
Oversize Material	WET, %	6.7	9.0		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.01	2.05		
Optimum Moisture Content	%	17.5	16.5		
Moisture Ratio	%	87.5	88		
Moisture Variation from OMC	%	-2.0	-2.0		
Density Ratio	%	Drier	Drier		
		98.0	97.0		
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI20)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Date:	30/10/2023
 NATA <small>WORLD RECOGNISED ACCREDITATION</small>			<small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>		
			<small>Approved Signatory:</small>  David Burns 30/10/2023		



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
24/10/2023

LOCATION:
Mickleham

PROJECT No.:
1120 0435-1 (SI20)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

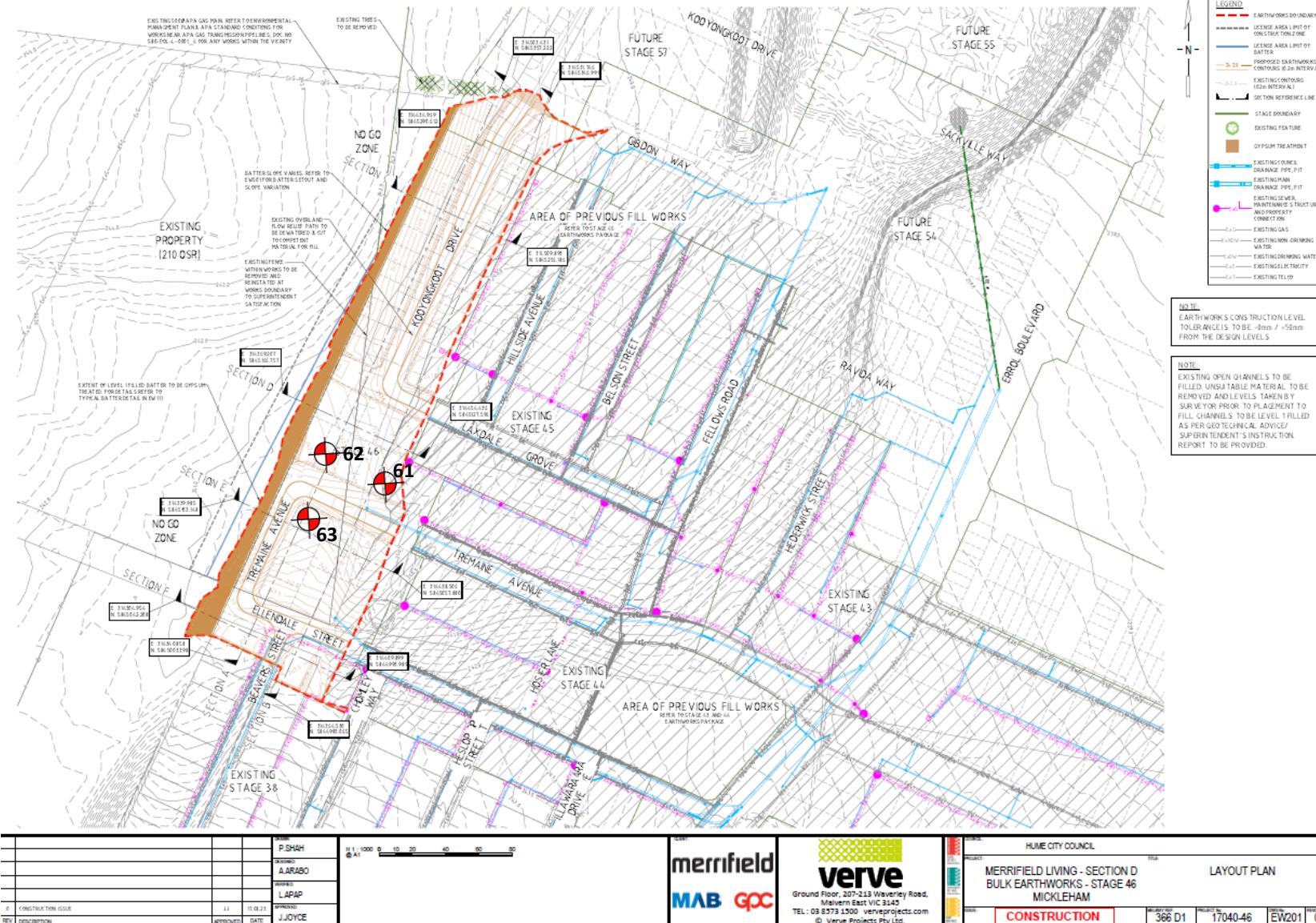
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A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	21
Location:	Mickleham				
Sample No	61	62	63		
Date Tested	25/10/2023	25/10/2023	25/10/2023		
Time Tested	PM	PM	PM		
Test Location	Refer to Plan	Refer to Plan	Refer to Plan		
Level/Layer	5	5	6		
Layer Thickness	mm	200	200		
Test Depth	mm	175	175		
Field Wet Density	t/m ³	1.94	2.06		
Field Moisture Content	%	15.2	16.2		
Material:	Imported Clay	Imported Clay	Imported Clay		
Oversize Material	WET, %	6.0	12.2		
Sieve Size	mm	19	19		
Peak Converted Wet Density	t/m ³	2.00	2.00		
Optimum Moisture Content	%	17.5	18.5		
Moisture Ratio	%	87	87.5		
Moisture Variation from OMC	%	-2.0	-2.0		
Density Ratio	%	Drier	Drier		
		96.0	98.5		
		97.0			
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI21)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Date:	30/10/2023
 NATA WORLD RECOGNISED ACCREDITATION			NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing Approved Signatory:  David Burns 30/10/2023		



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
25/10/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI21)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

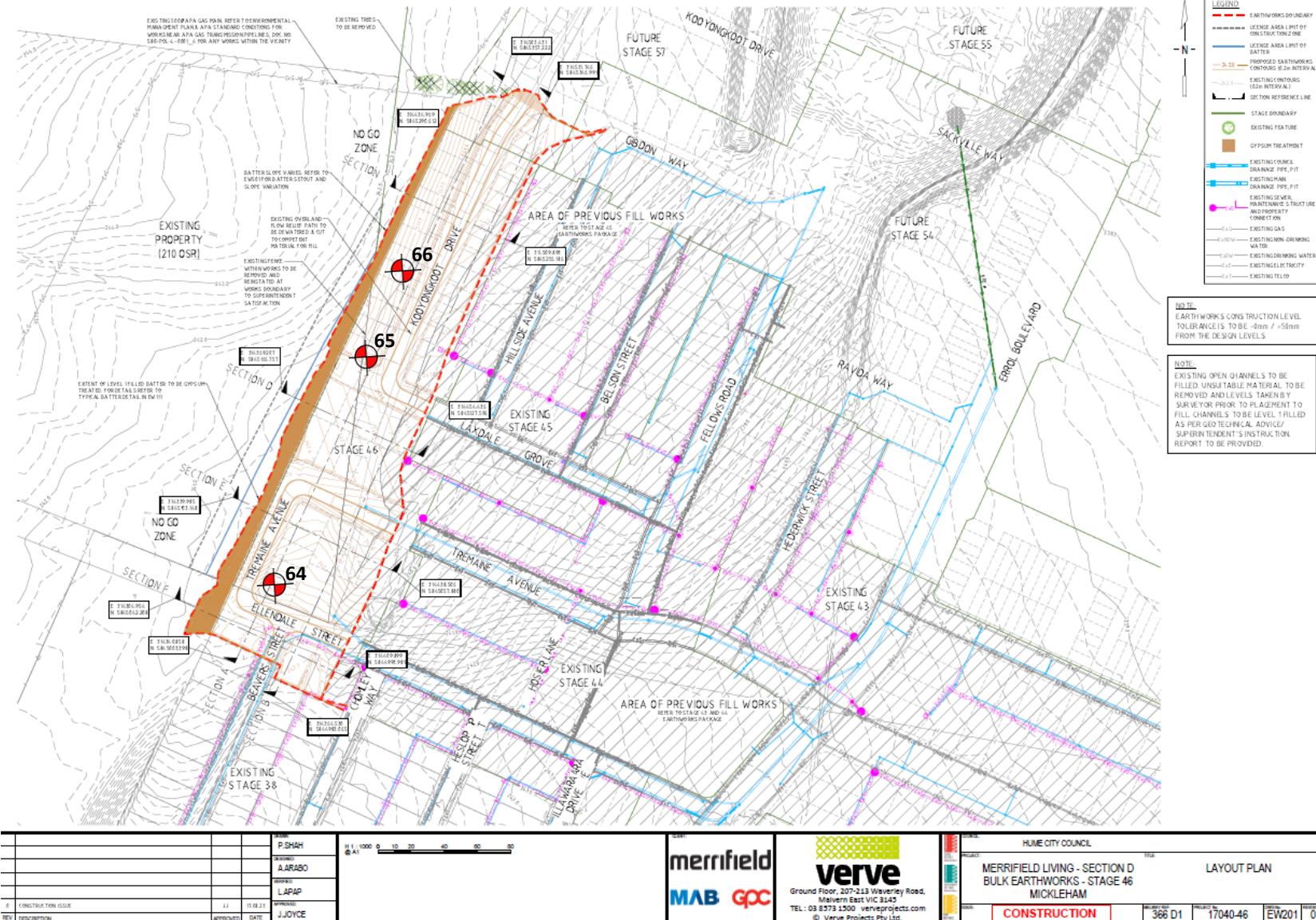
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A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	22
Location:	Mickleham				
Sample No	64	65	66		
Date Tested	27/10/2023	27/10/2023	27/10/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		FSL	6	6	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	2.01	1.98	1.96	
Field Moisture Content	%	17.8	15.7	16.6	
Material:		Imported Clay	Imported Clay	Imported Clay	
Oversize Material	WET, %	0.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.08	2.03	2.01	
Optimum Moisture Content	%	17.5	15.5	16.5	
Moisture Ratio	%	101.5	101.5	100.5	
Moisture Variation from OMC	%	0.0	0.0	0.5	
		OMC	OMC	Wetter	
Density Ratio	%	97.0	97.5	97.5	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI22)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="flex-grow: 1;"> <p>NATA WORLD RECOGNISED ACCREDITATION</p> </div> <div> <p>NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p> </div> <div>  <p>David Burns 01/11/2023</p> </div> </div>					



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
27/10/2023

LOCATION:
Mickleham

PROJECT No.:
1120 0435-1 (SI22)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

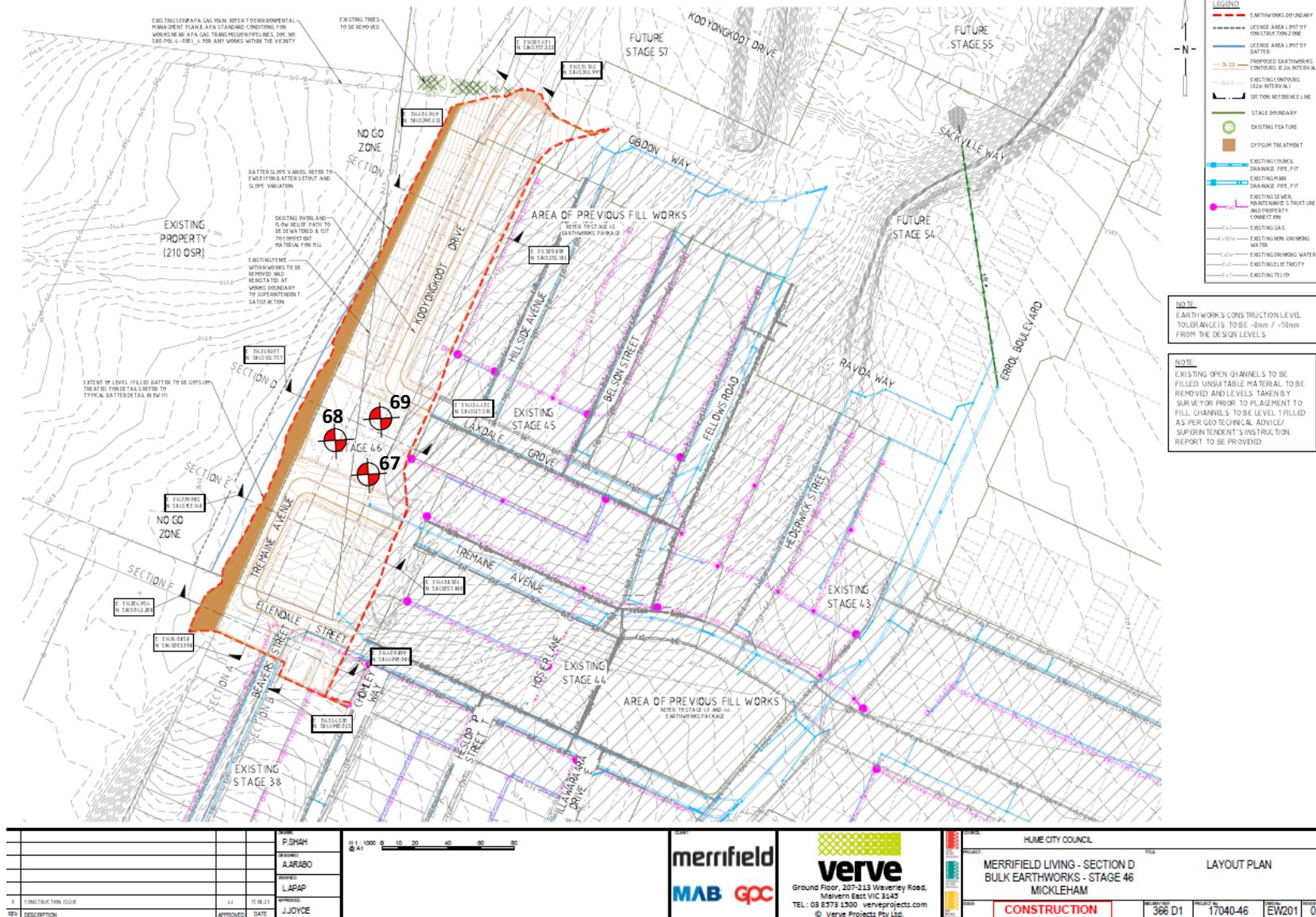
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 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080			
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	23			
Location:	Mickleham							
Sample No	67	68	69					
Date Tested	30/10/2023	30/10/2023	30/10/2023					
Time Tested	PM	PM	PM					
Test Location		Refer to Plan	Refer to Plan	Refer to Plan				
Level/Layer		FSL	FSL	FSL				
Layer Thickness	mm	200	200	200				
Test Depth	mm	175	175	175				
Field Wet Density	t/m ³	2.03	2.01	2.05				
Field Moisture Content	%	14.2	13.5	14.9				
Material:		Imported Clay	Imported Clay	Imported Clay				
Oversize Material	WET, %	0.0	0.0	0.0				
Sieve Size	mm	19	19	19				
Peak Converted Wet Density	t/m ³	2.06	2.06	2.10				
Optimum Moisture Content	%	14	13.5	14.5				
Moisture Ratio	%	101.5	100	102.5				
Moisture Variation from OMC	%	0.5	0.0	0.0				
Density Ratio	%	Wetter	OMC	OMC				
		98.5	97.5	97.5				
Specification:	95% STD			Test Selection:	N/A			
Notes:	Ref: 1120 0435-1 (SI23)							
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)			
 NATA <small>WORLD RECOGNISED ACCREDITATION</small>								
<small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>								
<small>Approved Signatory:</small>  David Burns Date: 01/11/2023								



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
30/10/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI23)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

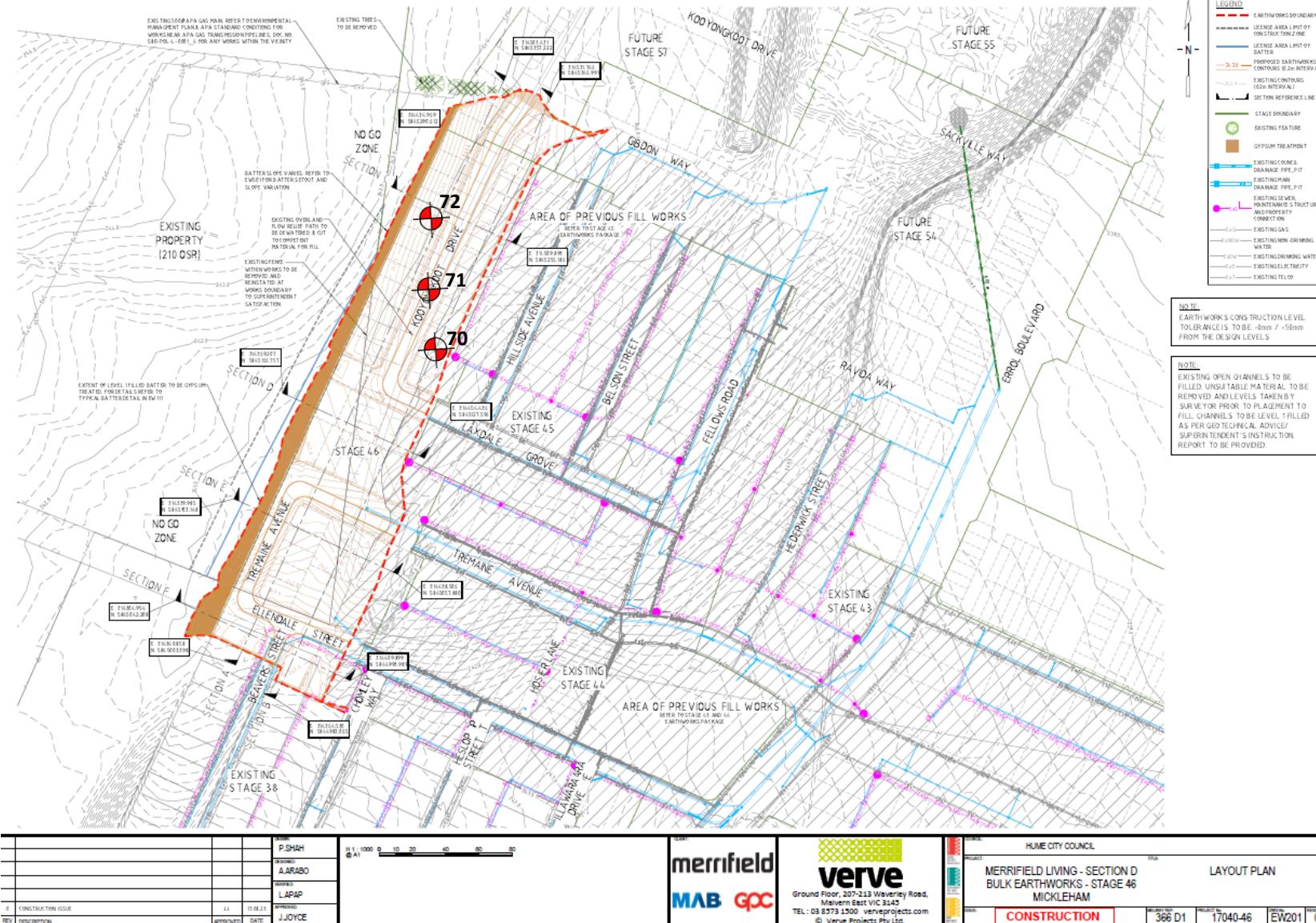
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A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	24
Location:	Mickleham				
Sample No	70	71	72		
Date Tested	31/10/2023	31/10/2023	31/10/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		5	4	1	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	2.04	2.01	2.00	
Field Moisture Content	%	15.7	16.3	17.2	
Material:		Imported Clay	Imported Clay	Imported Clay	
Oversize Material	WET, %	0.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.08	2.06	2.04	
Optimum Moisture Content	%	15.5	16	17	
Moisture Ratio	%	101.5	102	101	
Moisture Variation from OMC	%	0.0	0.0	0.0	
Density Ratio	%	OMC	OMC	OMC	
		98.0	97.5	97.5	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI24)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <p style="text-align: center;">NATA WORLD RECOGNISED ACCREDITATION</p> <p style="text-align: center;">NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p> <div style="text-align: right;">  David Burns Date: 01/11/2023 </div>					



Test Location



PROJECT:
Merrifield Living – Section D - Stage 46 (Level 1)

CLIENT:
BMD Urban

DATE:
31/10/2023

LOCATION:
Mickleham

PROJECT No:
1120 0435-1 (SI24)

SITE PLAN SKETCH—NOT TO SCALE



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Field Density Test Results

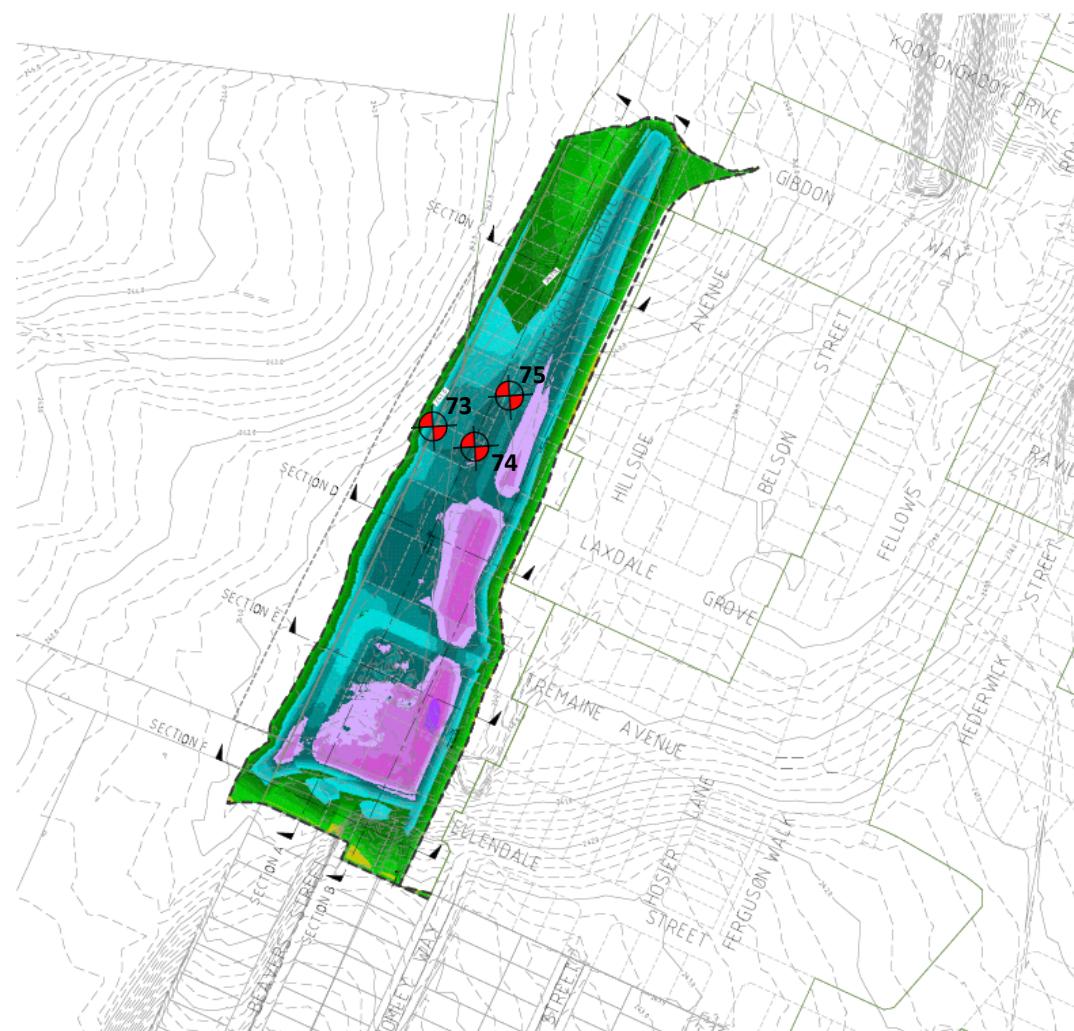
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	25
Location:	Mickleham				
Sample No	73	74	75		
Date Tested	01/11/2023	01/11/2023	01/11/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		5	4	4	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	1.98	2.01	2.00	
Field Moisture Content	%	20.1	21.2	21.7	
Material:		Imported Clay	Imported Clay	Imported Clay	
Oversize Material	WET, %	0.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.01	2.03	2.03	
Optimum Moisture Content	%	18	19.5	19.5	
Moisture Ratio	%	111.5	108.5	111	
Moisture Variation from OMC	%	2.0	1.5	2.0	
Density Ratio	%	Wetter	Wetter	Wetter	
		98.5	99.0	98.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI25)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <p style="text-align: center;">NATA WORLD RECOGNISED ACCREDITATION</p> <p style="text-align: center;">NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p> <div style="text-align: right;">  David Burns Date: 08/11/2023 </div>					



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL DT)	FILL VOLUME (SOIL DT)
TOTAL	31298.6m ²	1,776,600m ³	0m ³	1,776,600m ³

EARTHWORKS VOLUMES CALCULATED FROM SURFACE TO DESIGNED SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.

LEGEND

- EARTHWORKS BOUNDARY
- LAYER AREA BOUNDARY
- CONSTRUCTION ZONE
- STAGE BOUNDARY
- EXISTING CONTOURS (10M INTERVAL)



P.SHAH	H:1000 S: 10 20 40 60 80
AARABO	
LAPAP	
IMPRES	
CONSTRUCTION ISSUE	11/11/2023
REF ID: merrifield	DATE: 11/11/2023



HUME CITY COUNCIL
PROJECT: MERRIFIELD LIVING - SECTION D
ISOPACH PLAN
BULK EARTHWORKS - STAGE 46
MICKLEHAM
CONSTRUCTION
REF ID: 368 D1 PROJECT ID: 17040-46 ESRN: 0

PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 01/11/2023	A&Y ASSOCIATES GEOTECHNICAL ENGINEERING CONSULTANTS
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (SI25)	SITE PLAN SKETCH—NOT TO SCALE	

Field Density Test Results

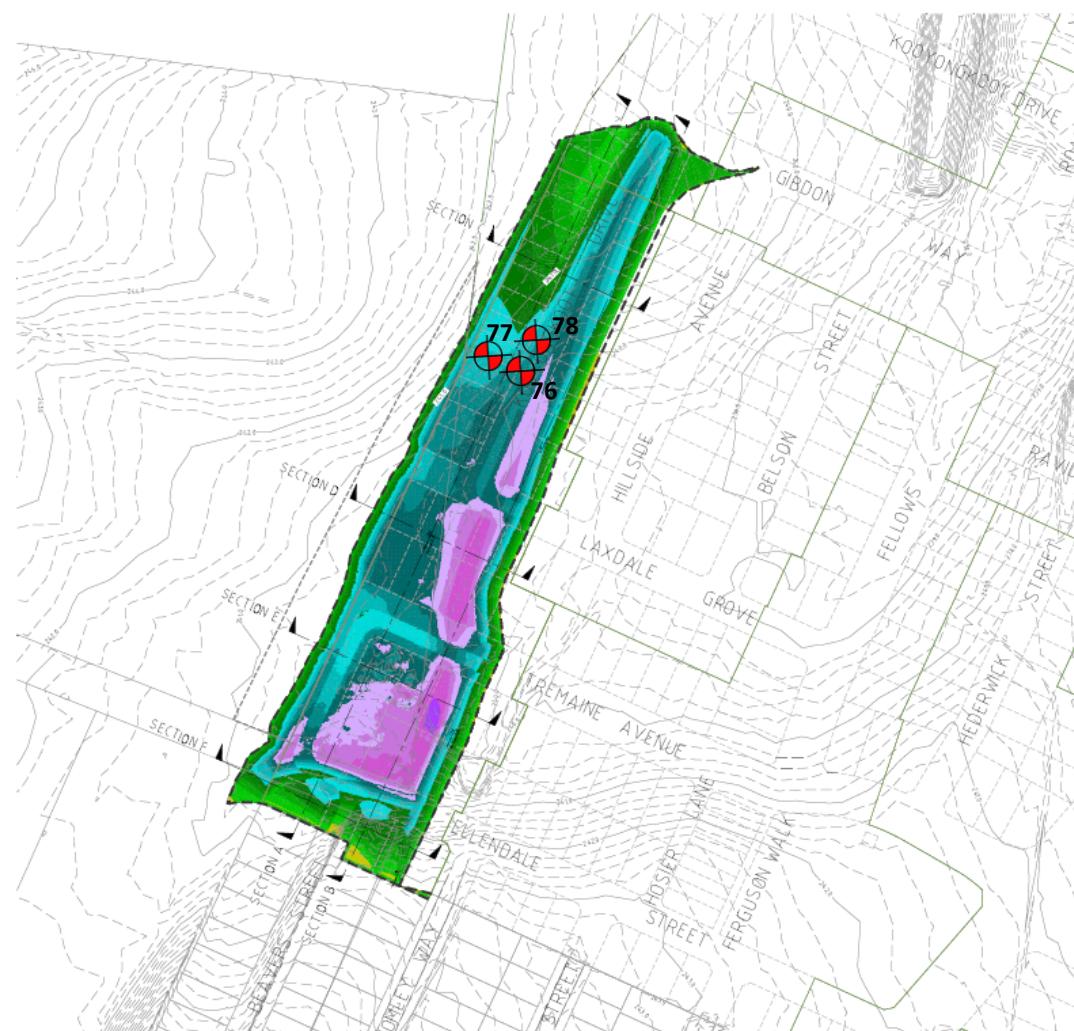
AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	26
Location:	Mickleham				
Sample No	76	77	78		
Date Tested	02/11/2023	02/11/2023	02/11/2023		
Time Tested	PM	PM	PM		
Test Location		Refer to Plan	Refer to Plan	Refer to Plan	
Level/Layer		4	5	4	
Layer Thickness	mm	200	200	200	
Test Depth	mm	175	175	175	
Field Wet Density	t/m ³	2.01	1.98	1.96	
Field Moisture Content	%	19.2	21.2	23.9	
Material:		Imported Clay	Imported Clay	Imported Clay	
Oversize Material	WET, %	0.0	0.0	0.0	
Sieve Size	mm	19	19	19	
Peak Converted Wet Density	t/m ³	2.04	2.00	2.00	
Optimum Moisture Content	%	17.5	19.5	22	
Moisture Ratio	%	109.5	109	108.5	
Moisture Variation from OMC	%	1.5	2.0	2.0	
Density Ratio	%	Wetter	Wetter	Wetter	
		98.5	99.0	98.0	
Specification:	95% STD			Test Selection:	N/A
Notes:	Ref: 1120 0435-1 (SI26)			Sampling Method:	AS 1289 1.2.1 6.4(b)
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Approved Signatory:	
 <p style="text-align: center;">NATA WORLD RECOGNISED ACCREDITATION</p> <p style="text-align: center;">NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing</p> <div style="text-align: right;">  David Burns Date: 08/11/2023 </div>					



Test Location



WORKS AREA	STRIPPING		CUT / FILL	
	AREA	VOLUME (SOIL)	CUT VOLUME (SOIL DT)	FILL VOLUME (SOIL DT)
TOTAL	31298.6m ²	1776.0m ³	0m ³	16214.6m ³

EARTHWORKS VOLUMES CALCULATED FROM SURVEYED SURFACE TO DESIGNED SURFACE.

ALL VOLUMES ARE SOIL VOLUMES AND DO NOT INCLUDE BOUNDARY FACTORS.



P.SHAH	H1:1000 S 10 20 30 40 50 60
AARABO	
LAPAP	
IMPRES	
J.JOYCE	



HUME CITY COUNCIL		ISOPACH PLAN
PROJECT	REF ID	
MERRIFIELD LIVING - SECTION D BULK EARTHWORKS - STAGE 46		
MICKLEHAM		
CONSTRUCTION	368 D1	17040-46
	EW301	0

PROJECT: Merrifield Living – Section D - Stage 46 (Level 1)	CLIENT: BMD Urban	DATE: 02/11/2023	A&Y ASSOCIATES GEOTECHNICAL ENGINEERING CONSULTANTS
LOCATION: Mickleham	PROJECT No: 1120 0435-1 (SI26)	SITE PLAN SKETCH—NOT TO SCALE	

Field Density Test Results

AS1289.5.7.1

A & Y Associates Pty Ltd
 5/16 Network Drive
 Truganina VIC 3029
 PH: 0400 413 531
info@ayassociates.com.au

Client:	BMD Urban			Job No:	BMD3080			
Project:	Merrifield Living - Section D - Stage 46 (Level 1)			Report:	27			
Location:	Mickleham							
Sample No	79	80	81					
Date Tested	13/11/2023	13/11/2023	13/11/2023					
Time Tested	PM	PM	PM					
Test Location	Refer to Plan	Refer to Plan	Refer to Plan					
Level/Layer	3	4	4					
Layer Thickness	mm	200	200					
Test Depth	mm	175	175					
Field Wet Density	t/m ³	1.98	1.95					
Field Moisture Content	%	9.0	9.1					
Material:	Imported Clay	Imported Clay	Imported Clay					
Oversize Material	WET, %	8.0	7.0					
Sieve Size	mm	19	19					
Peak Converted Wet Density	t/m ³	2.04	2.04					
Optimum Moisture Content	%	11.5	11.5					
Moisture Ratio	%	78.5	79.5					
Moisture Variation from OMC	%	-2.5	-2.0					
Density Ratio	%	Drier	Drier					
		96.0	95.0					
Specification:	95% STD			Test Selection:	N/A			
Notes:	Ref: 1120 0435-1 (SI27)							
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1.2.1 6.4(b)			
 NATA <small>WORLD RECOGNISED ACCREDITATION</small>								
<small>NATA Accredited Laboratory No. 20172</small> <small>Accreditation for compliance with ISO/IEC 17025 - Testing</small>								
<small>Approved Signatory:</small>  David Burns <small>Date:</small> 17/11/2023								