

# **Merrifield Estate - Stage 69, Mickleham**

## **Level 1 Inspection & Testing Report**

Reference: 1120 0216-1



### **Prepared for:**

BMD Urban

May 2021



**A&Y ASSOCIATES**  
GEOTECHNICAL ENGINEERING CONSULTANTS

# Document Control Record

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## Document control

<b>Report title</b>		Level 1 Inspection & Testing			
<b>Project reference number</b>		1120 0216-1			
<b>Client</b>		BMD Urban			
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<b>Revision</b>	<b>Date</b>	<b>Descriptions/Status</b>	<b>Author</b>	<b>Reviewer</b>	<b>Approver</b>
1	12/05/2021	Amendment	A Martin	A Tan	A Tan
0	27/04/2021	Final	A Martin	A Tan	A Tan

## Approver



Alvin Tan

(BE Civil and Infrastructure), MIEAust

Senior Geotechnical Engineer

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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.

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## **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 Estate - Stage 69, Mickleham

## **2 Project Summary**

It is understood that BMD Urban require the fill platforms within Merrifield Estate - Stage 69, Mickleham 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 on 23<sup>rd</sup> February 2021.

This report is applicable for fill placed by BMD Urban for the following lots located in Merrifield Estate - Stage 69, Mickleham, as shown in Appendix A – Site Plan.

- Lot 6907 to Lot 6914 and
- Lot 6922 to Lot 6921

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### 3 Project Specifications

No specification has been provided for the construction works in Merrifield Estate - Stage 69, Mickleham. The supervision and inspections were performed based on AS3798. A short summary of the requirements outline in AS3798 is provided below:

- All filling in excess of 300mm depth within the building envelope of allotments shall be undertaken to specifications satisfying the requirements of AS3798.
- 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**.

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## **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 22<sup>nd</sup> of February 2021 as mentioned in report *1120 0216-1-Rev1 (SSI1)*

The exposed subgrade material comprised 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 average fill thickness placed is approximately 200mm on the following lots,

- Lot 6907 to Lot 6914 and
- Lot 6922 to Lot 6921

## **6 Fill Material**

The fill material used for the platform consisted of site derived material. The site derived material was predominantly comprising of Clay.

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## 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 3 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 3 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 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.

## 9 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.

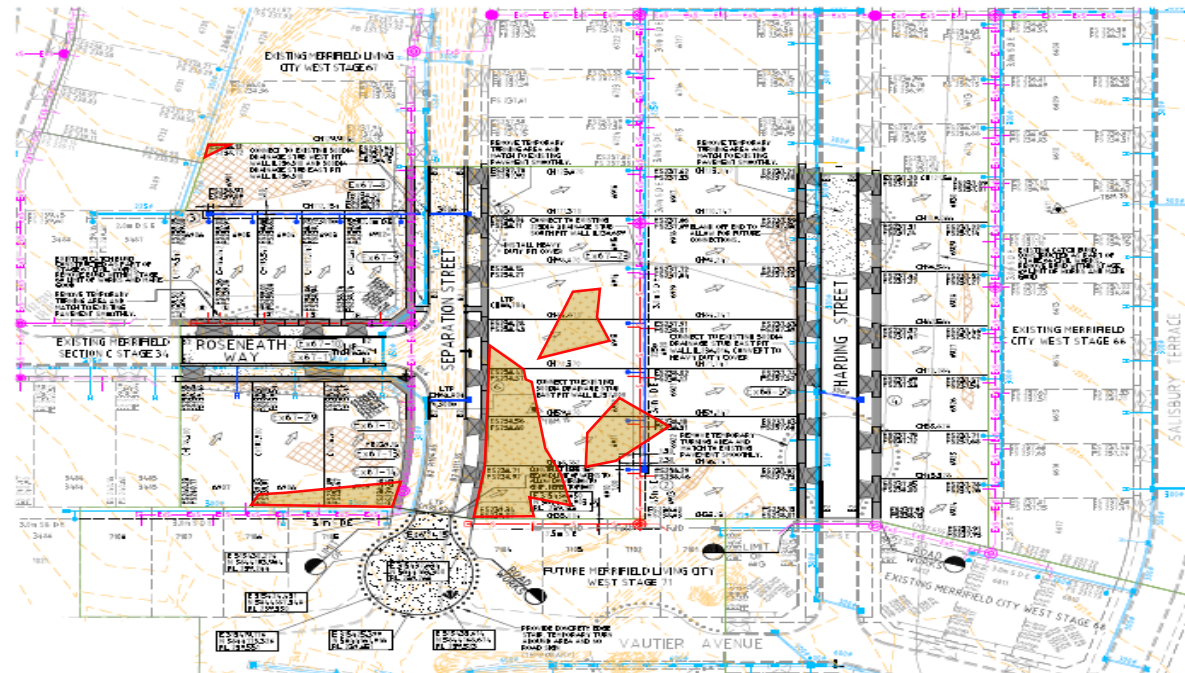


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## **Appendix A - Site Plan**



Area Supervised &amp; Tested

[illegible]

T.B.M. NO.	EASTING (M)	NORTHERN (M)	A.M.D. LEVEL (M)	DESCRIPTION	T.B.M. DATE OF SURVEY
5	35564.06	59447.94	184.365	STAFF POINT	Aug-79
38	35564.06	59445.94	184.05	STAFF POINT	Aug-79
39	35564.06	59447.94	184.085	BRASS PEG POINT	Aug-79
38	35564.06	59445.94	184.085	STAFF POINT	Aug-79

**DRIVEWAY NOTES**  
DRIVEWAY WIDTH (W) SHALL ACCORDING TO  
THE FOLLOWING:

1. **WHERE LOTS**  
**FRONTAGE**  $\leq 10m$   $\Rightarrow$  **3.0m DRIVEWAY**  
**FRONTAGE**  $\geq 10m$   $\Rightarrow$  **3.5m DRIVEWAY**
2. **FRONTAGE**  $\geq 10m$  **AND ABUTS A NARROW**  
**LOT** ( $\leq 10m$ )  $\Rightarrow$  **OPTION WITH COMBINED**  
**DRIVEWAY OF 6.5m (3.5m + 3.0m)**

**STORMWATER NOTE:**  
CONTRACTOR TO REFER DRAWING RD701 FOR P  
SCHEDULE AND ALL NOTES REFERRING TO EXISTING  
CONDITIONS & LEVEL CHANGES

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 DEYD ENQUIRY ON 1100 MUST BE MADE BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS.

## WARNING

**WARNING**  
ANY DESIGN SURFACE LEVELS SHOWN ARE  
PRELIMINARY ONLY AND SUBJECT TO FINAL DETAIL  
DESIGN. DO NOT USE FOR CONSTRUCTION

						S. IONASCU
						DESIGNED:
						LAPAP
						APPROVED:
						G. ROMANCIU
REV.	DESCRIPTION	DATE	BY	APP.	CHECKED	DATE
0	CONSTRUCTION ISSUE	16/01/21	GI			
1	CHANGE REQUEST	07/07/19	GI			
2	PREFABRICATED	04/08/20	GF			

H 1:500  
② A1



0 5 10 20 30 40



**verve**  
Level 1, 173 Burke Road, Glen Iris VIC 3146  
Tel : 03 8573 1500  
[verveprojects.com](http://verveprojects.com)

COUNCIL		HUME CITY COUNCIL	
PROJECT	TITLE		
MERRIFIELD LIVING - CITY WEST STAGE 69 MICKLEHAM		DETAIL PLAN	
DATE	APPROVAL DATE	PROJECT NO.	SCALE
CONSTRUCTION	366 F3	17030-69	RD200
			0

**PROJECT:**  
**Merrifield Estate – Stage 69**

<b>CLIENT:</b>	<b>BMD Urban</b>
<b>PROJECT No:</b>	<b>1120 0216-Rev1</b>

**SITE PLAN SKETCH—NOT TO SCALE**

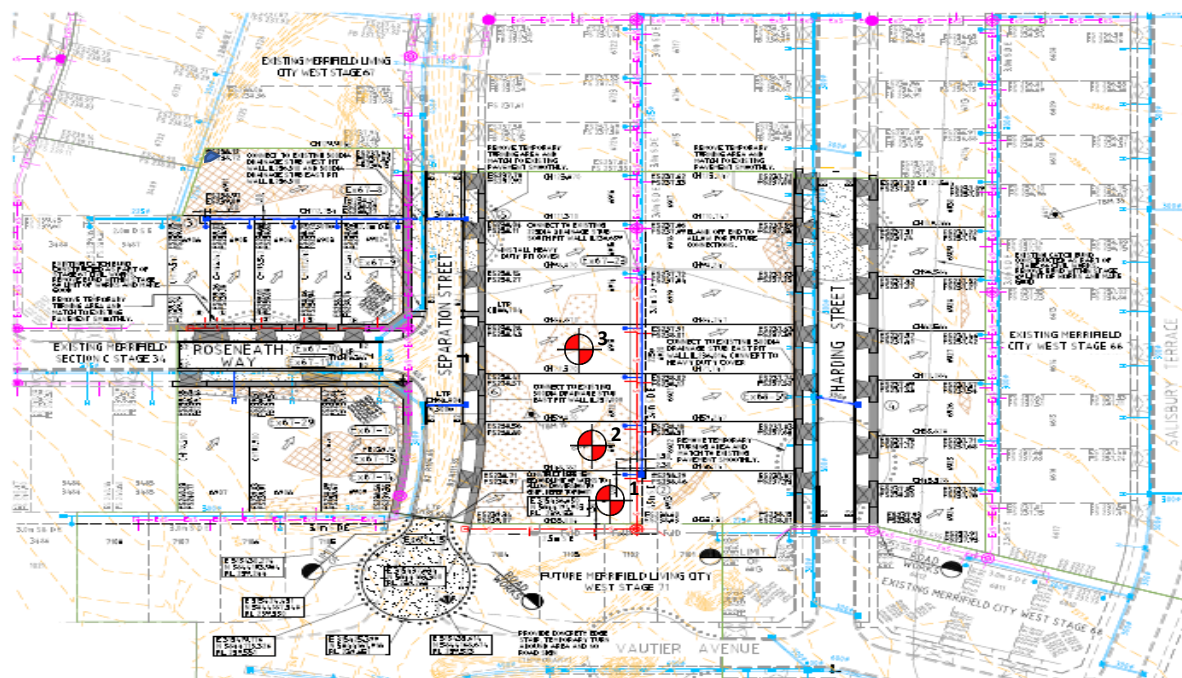


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## **Appendix B – Test Locations**



### Indicative Test Location

[illegible]

PRIOR TO COMMENCEMENT OF WORKS THE CONTRACTOR IS TO ENSURE THE TBMS USED CLOSE AGAINST AT LEAST TWO OTHER TBMS. THE CONTRACTOR IS TO NOTIFY THE SUPERINTENDENT OF ANY TBMS THAT HAVE BEEN DISTURBED.

T.B.P. NO.	EASTING (M)	NORTHING (M)	A.M.D. LEVEL (M)	DESCRIPTION	TBM DATE SURVEY
5	34564.36	54415.64	184.36	STAFF PILE	Aug-79
10	34564.36	54415.64	184.36	STAFF PILE	Aug-79
34	34565.66	54417.34	184.35	BRACKEN PILE	Aug-79
38	34565.66	54417.34	184.35	BRACKEN PILE	Aug-79

**DRIVEWAY NOTES**  
DRIVEWAY WIDTH (W) SHALL ACCORDING TO  
THE FOLLOWING:

1. **WHERE LOTS**  
**FRONTAGE  $\leq 10\text{m}$   $\Rightarrow$  3.0m DRIVEWAY**  
**FRONTAGE  $> 10\text{m}$   $\Rightarrow$  3.5m DRIVEWAY**
2. **FRONTAGE  $> 10\text{m}$  AND ABUTS A NARR**  
**LOT ( $\leq 10\text{m}$ )  $\Rightarrow$  OPTION WITH COMBINED**  
**DRIVEWAY (2.5, 3.0m, 3.5m  $\Rightarrow$  3.0m)**

STORMWATER NOTE:

CONTRACTOR TO REFER DRAWING RD701 FOR PIT  
SCHEDULE AND ALL NOTES REFERRING TO EXISTING PI  
CONDITIONS & LEVEL CHANGES

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 DRY DREDGING OR TIDG MUST BE MADE BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS.

## WARNING

ANY DESIGN SURFACE LEVELS SHOWN ARE  
PRELIMINARY ONLY AND SUBJECT TO FINAL DETAIL  
DESIGN. DO NOT USE FOR CONSTRUCTION.

			DRAWN: <b>S. JONASCU</b>	
			DESIGNED: <b>LAPAP</b>	
0 CONSTRUCTION ISSUE 1 CHANGE (REVISED) 2 PRELIMINARY ISSUE			APPROVED: <b>G. ROMANCOZ</b>	
REV: PRESCRIPTION APPROVAL: DATE:				

Level 1, 173 Burke Road, Glen Iris VIC 3146  
Tel: 03 8579 1500  
verveprojects.com

CLIENT: <b>HUME CITY COUNCIL</b>		TITLE:	
PROJECT: <b>MERRIFIELD LIVING - CITY WEST</b>		DETAIL PLAN	
<b>STAGE 69</b>		<b>MICKLEHAM</b>	
SHEET: <b>CONSTRUCTION</b>	AREA: <b>366 F3</b>	DATE: <b>17/03-69</b>	SCALE: <b>RD200</b>

<b>PROJECT:</b>
<b>Merrifield Estate – Stage 69</b>

CLIENT:	BMD Urban
---------	-----------

LOCATION:	PROJECT No:	SITE PLAN SKETCH—NOT TO SCALE
Mickleham	1120 0216-1 Rev1	

**SITE PLAN SKETCH—NOT TO SCALE**



**A&Y ASSOCIATES**  
GEOTECHNICAL ENGINEERING CONSULTANTS

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## **Appendix C – Test Results Summary**

Project No		1120 0216-1 Rev1			Client	BMD Urban				
Project Name		Merrifield Estate -Stage 69			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	-	23/02/2021	-	FSL	0.0	98.5	98.5	-0.5	Pass	-
2	-	23/02/2021	-	FSL	0.0	97.5	98.0	-0.5	Pass	-
3	-	23/02/2021	-	FSL	0.0	97.5	95.5	-1.0	Pass	-

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## **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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD1491		
<b>Project:</b>	Merrifield Estate - Stage 69 (Level 1)			<b>Report:</b>	1		
<b>Location:</b>	Mickleham						

Sample No	1	2	3			
Date Tested	23/02/2021	23/02/2021	23/02/2021			
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	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.02	t/m <sup>3</sup> 1.99	t/m <sup>3</sup> 2.04			
Field Moisture Content	% 19.2	% 21.1	% 20.1			
Material:	Site Derived Clay	Site Derived Clay	Site Derived Clay			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.04	t/m <sup>3</sup> 2.03	t/m <sup>3</sup> 2.09			
Optimum Moisture Content	% 19.5	% 21.5	% 21			



  

<b>Moisture Ratio</b>	% 98.5	% 98	% 95.5			
<b>Moisture Variation from OMC</b>	% -0.5 Drier	% -0.5 Drier	% -1.0 Drier			
<b>Density Ratio</b>	% 98.5	% 97.5	% 97.5			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref: 1120 0216-1 (SI01)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

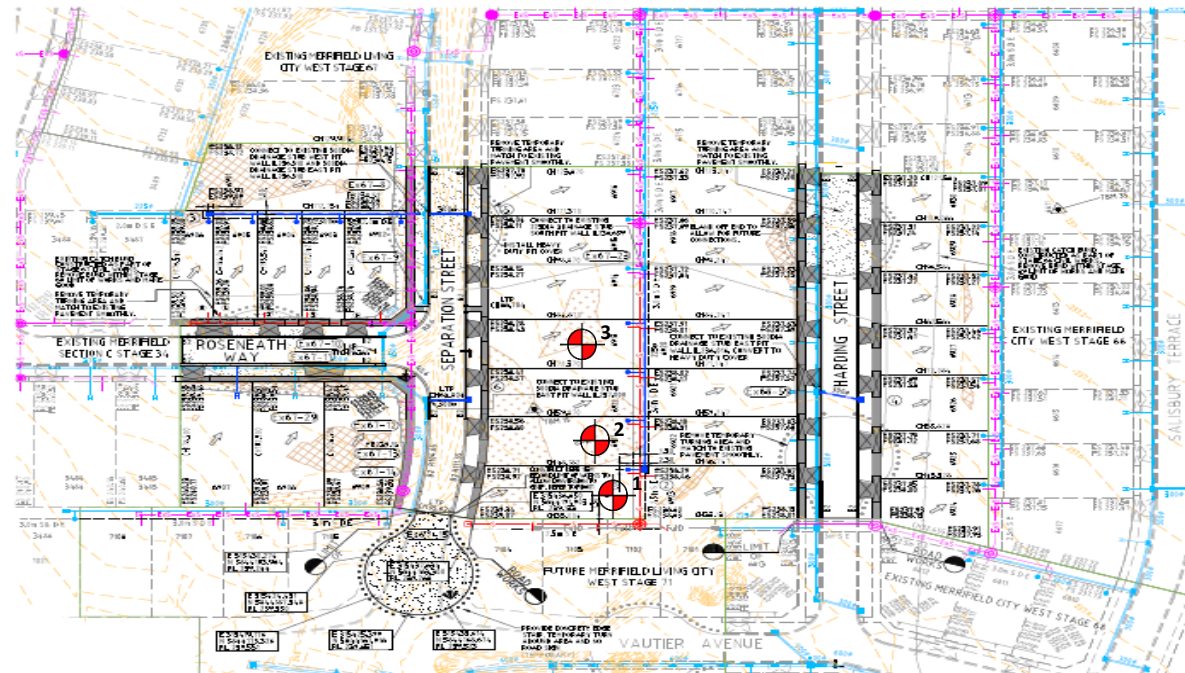
  

 <p><b>NATA</b> WORLD RECOGNISED ACCREDITATION</p>	<p>NATA Accredited Laboratory No. 20172</p> <p>Accreditation for compliance with ISO/IEC 17025 - Testing</p> <p>The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards</p>	<p>Approved Signatory:</p>  <p>David Burns</p> <p>Date: 25/02/2021</p>
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Test Location



T.B.N. NO.	EASTING (M)	NORTHING (M)	GRID LEVEL (M)	DESCRIPTION	TEST DATE OF SURVEY
3	355624	5441547	18426	STAFF POINT	Jul-19
38	355624	5441547	18426	STAFF POINT	Jul-19
39	355624	5441547	18426	STAFF POINT	Jul-19
39	355624	5441547	18426	STAFF POINT	Jul-19

#### DRIVEWAY NOTES

DRIVEWAY WIDTHS SHALL ACCORDING TO THE FOLLOWING:

- WHERE LOTS FRONTAGE = 10m + 3.0m DRIVEWAY FRONTAGE = 10m + 3.0m DRIVEWAY
- FRONTAGE = 10m AND ABUTS A NARROW LOT = 10m + 3.0m DRIVEWAY FRONTAGE OF 6.5m (3.0m + 3.0m)

#### STORMWATER NOTE:

CONTRACTOR TO REFER DRAWING RD701 FOR PIT SCHEDULE AND ALL NOTES RELATING TO EXISTING PIT CONDITIONS & LEVEL CHANGES

#### WARNING

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#### WARNING

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PROJECT: Merrifield Estate - Stage 69 (Level 1)		CLIENT: BMD Urban		DATE: 23/02/2021	
LOCATION: Mickleham		PROJECT No: 1120 0216-1 (SI01)		SITE PLAN SKETCH—NOT TO SCALE	
DRAWN: SIONASCU		CHECKED: LAPAP		DATE: 14/07/20	
DESIGNED: G1		APPROVED: G.ROMANICZ		DATE: 14/07/20	
REVISIONS:		DESCRIPTION:		DATE:	
1. CONSTRUCTION		2. OFFICE COMMENTS		3. PRELIMINARY STATE	

merrifield  
MAB gpc

Level 1, 173 Burke Road, Glen Iris VIC 3146  
Tel: 03 8573 1500  
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HUME CITY COUNCIL  
MERRIFIELD LIVING - CITY WEST  
STAGE 69  
MICKLEHAM  
CONSTRUCTION  
366 F3  
17030-69  
RD200  
0