

LEVEL ONE

Reference
No.: 9024-116

SURVEILLANCE

AND INSPECTION REPORT

*Carried Out
By*



PREPARED FOR: -

SYMON BROS. CONSTRUCTIONS PTY LTD



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Appendix A Construction Drawings

Appendix B Daily Field Compaction Summary Results



Client Name: Symon Bros. Constructions Pty Ltd

Project Name: Mambourin Estate Stage 19

Date: 7th of June 2023

Author: Mr. Sam Loza

Reference No.: 9024-116

Revision: 0

Project Manager: Mr. George Dimopoulos

1. Introduction & Scope

At the request of Symon Bros. Constructions Pty Ltd, Geotechnical Laboratories has carried out inspection and testing of the above-mentioned site from the 21st of September 2022 to the 29th of September 2022 where a residential development is being constructed. Inspection and testing of stripping, material quality and compaction control tests were carried out to comply with the requirements of AS 3798 Appendix B, Level 1.

The following documentation was submitted to Geotechnical Laboratories by Symon Bros. Constructions Pty Ltd and was used to determine compliance of earthworks in conjunction with the requirements of AS 3798 – 2007.

(1). Bulk Earthworks Plan Drawing No. 309504CG01 Rev. 0

General site works involved the placement of fill, using on-site derived clay, to bring the fill region to the required finished levels as indicated on the faceplan drawings.

2. Site Preparation

Initial site inspections were undertaken on the 7th of September 2022 confirming that selected areas to be filled were completely stripped of topsoil prior to filling. The brown silty topsoils had been stockpiled around the site for later removal off-site.

Proof roll inspections were performed throughout the project duration to ensure no significant soft areas were present prior to filling.

3. Fill Material

It is understood that the fill material used was sourced from on-site excavations, mainly drainage trenches and road boxing. The material had been screened to remove any boulders.



The fill material is best described as a basaltic CLAY, brown, red brown, slightly moist to moist, slightly silty, medium to high plasticity with basalt gravels and cobbles.

The fill material is consistent with the naturally occurring soils for this region.

Source material was deemed a **Suitable Material** in accordance with guidelines set out in AS 3798 - 2007 Section 4.4.

4. Fill Construction Procedure

The following plant (but not always limited to) were engaged in the fill placement process:

- Highway trucks
- Dump trucks
- A watercart
- A sheepsfoot compactor (815)

The sheepsfoot compactor placed material in horizontal loose layers of approximately 250-300mm. The sheepsfoot compactor also performed compaction of the clay fill operating in a criss-cross pattern.

The moisture condition of the fill was closely monitored, and moisture conditioning procedures were applied to bring the material closer to its Standard Optimum Moisture Content (AS 1289 5.7.1).

5. Compaction Control Testing

Compaction control testing was performed on-site using a Nuclear Densometer in accordance with AS 1289 5.8.1. Laboratory reference densities were determined from material sampled at each test site location using the Hilf Rapid Compaction Method in accordance with AS 1289 5.7.1.

A total of twenty-eight compaction tests were performed on the fill construction. Results are presented in Appendix B of this report.

6. Testing Frequency

Testing frequencies were in accordance with **AS 3798 - 2007 Table 8.1 for Large Scale Operations.**

Acceptance of fill layers for compaction was based on the requirements of **AS 3798 - 2007 Table 5.1 Item 1. Residential.**

As a result, the compliance criteria adopted by Geotechnical Laboratories was a hilf density ratio not less than 95 percent of the maximum hilf density value as determined by the Standard Hilf Rapid Compaction Method in accordance with AS 1289 5.7.1.



Test results indicate that the above-mentioned requirements have been successfully achieved.

No moisture criteria was specified.

7. Statement of Compliance

So far as can be determined, Symon Bros. Constructions Pty Ltd has satisfactorily complied with the compaction and construction processes required for the structural filling of this site. As such, structural filling placed on this site by Symon Bros. Constructions Pty Ltd from the 21st of September 2022 to the 29th of September 2022 can be categorised as CONTROLLED FILL in accordance with AS 2870-2011.

8. Limitations and Liability of this Report

This report has been produced for and remains the property of Symon Bros. Constructions Pty Ltd.

The release of this report to a third party will only occur if Geotechnical Laboratories Pty Ltd has received, in writing, the authority to do so by our client.

Geotechnical Laboratories Pty Ltd will not engage in any third-party communication regarding this report.

Where information has been supplied by the client or third party, the assumption is made that this is correct. Geotechnical Laboratories Pty Ltd will not be held responsible for any inaccuracies supplied.

Test results and controlled fill compliance relates only to fill placed by Symon Bros. Constructions Pty Ltd and for earthworks completed at the time of inspection and testing. Any previous or subsequent earthworks will require a separate evaluation.

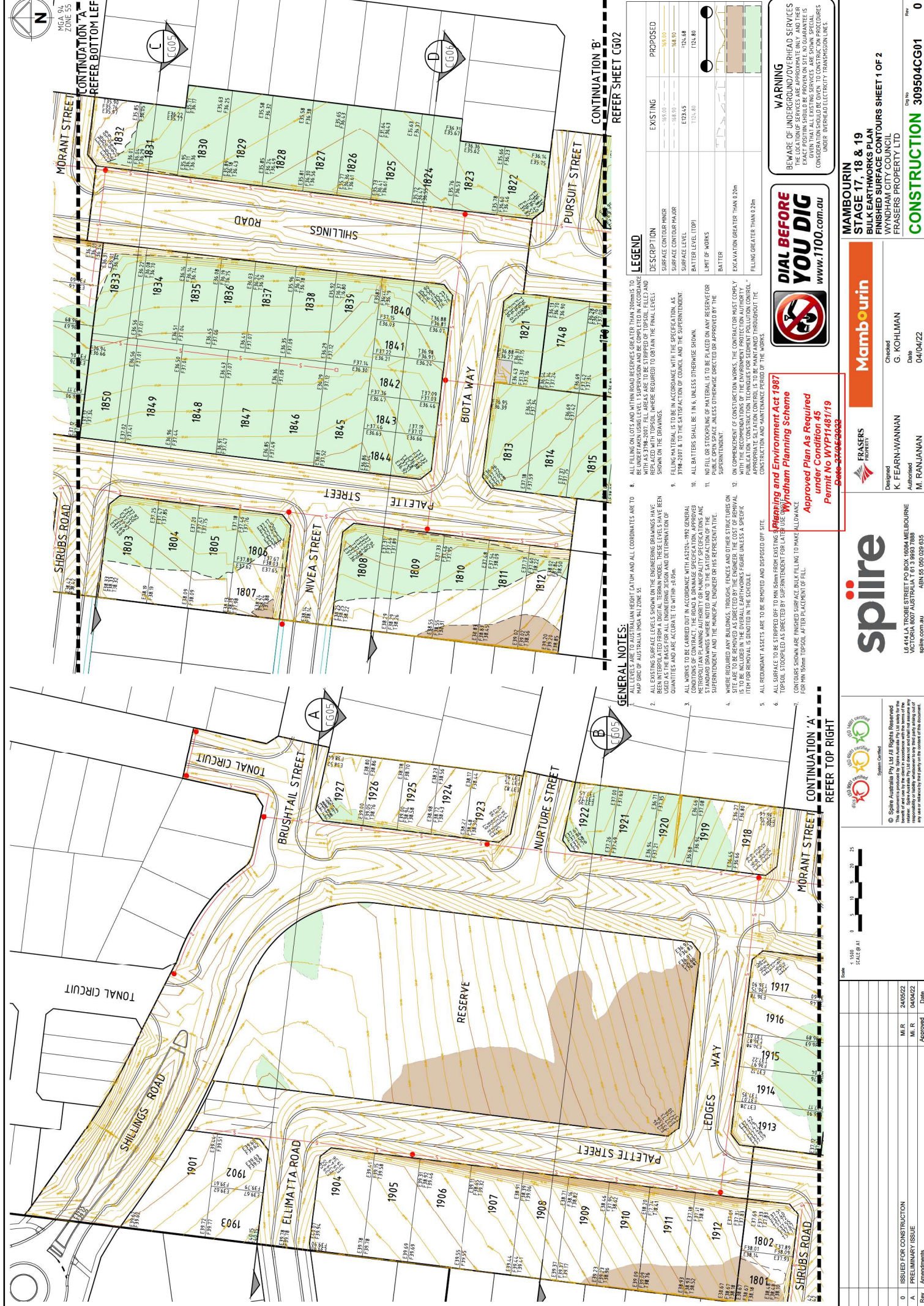
For & on behalf of
Geotechnical Laboratories Pty Ltd.

Sam Loza
Laboratory Manager.



LEVEL ONE
SURVEILLANCE
AND INSPECTION REPORT

APPENDIX A



LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURFACE CONTOUR MINOR	183.00 - 188.00	183.00
SURFACE CONTOUR MAJOR	188.00	188.00
SURFACE LEVEL (TOP)	E2345	1724.88
BATTER LEVEL (TOP)	1124.80	1724.80
LIMIT OF WORKS		
BATTER		
EXCAVATION GREATER THAN 0.70m		
FILLING GREATER THAN 0.20m		

- GENERAL NOTES:**
- ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM AND ALL COORDINATES ARE TO MAP GRID OF AUSTRALIA 1984 ZONE 55.
 - ALL EXISTING SURFACE LEVELS SHOWN ON THE ENGINEERING DRAWINGS HAVE BEEN INTERPOLATED FROM A DIGITAL TERRAIN MODEL. THESE LEVELS HAVE BEEN QUANTIFIED AND ARE ACCURATE TO WITHIN ±0.05m.
 - ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AS/NZS 1547 - ROAD CONSTRUCTION OF CONTRACT, THE ROAD & DRAINAGE SPECIFICATION, APPROVED METROPOLITAN PLANNING AUTHORITY OR MUNICIPALITY SPECIFICATIONS AND STANDARD DRAWINGS WHERE NOTED AND TO THE SATISFACTION OF THE SUPERINTENDENT AND THE MUNICIPAL ENGINEER OR HIS REPRESENTATIVE.
 - WHERE REQUIRED ANY BUILDINGS, TROUGHS, FENCES AND OTHER STRUCTURES ON THE SITE TO BE REMOVED OR MODIFIED TO ACCOMMODATE THE PROPOSED WORKS IS TO BE INCLUDED IN THE OVERALL EXCAVATION FIGURE UNLESS A SPECIFIC ITEM FOR REMOVAL IS DENOTED IN THE SCHEDULE.
 - ALL REDUNDANT ASSETS ARE TO BE REMOVED AND DISPOSED OFF SITE.
 - SURFACE TO BE STEPPED OFF TO MIN 50mm FROM EXISTING TOPOGRAPHY. STEPPED AS DIRECTED BY SUPERINTENDENT FOR LANDSCAPE CONTOURS SHOWN ARE FINISHED SURFACE BULK FILL TO MAKE ALLOWANCE FOR MIN 50mm TOPOSOIL AFTER PLACEMENT OF FILL.
 - ALL FILLING ON LOTS AND WITHIN ROAD RESERVES GREATER THAN 200mm IS TO BE CARRIED OUT IN ACCORDANCE WITH AS/NZS 1547 - ROAD CONSTRUCTION OF CONTRACT, THE ROAD & DRAINAGE SPECIFICATION, APPROVED METROPOLITAN PLANNING AUTHORITY OR MUNICIPALITY SPECIFICATIONS AND STANDARD DRAWINGS WHERE NOTED AND TO THE SATISFACTION OF THE SUPERINTENDENT AND THE MUNICIPAL ENGINEER OR HIS REPRESENTATIVE.
 - FILLING MATERIAL IS TO BE IN ACCORDANCE WITH THE SPECIFICATION, AS 3798-2007 & TO THE SATISFACTION OF COUNCIL AND THE SUPERINTENDENT.
 - ALL BATTERS SHALL BE 1:1.6, UNLESS OTHERWISE SHOWN.
 - NO FILL OR STOCKPILING OF MATERIALS IS TO BE PLACED ON ANY RESERVE FOR THE PURPOSES OF CONSTRUCTION WORKS. THE CONTRACTOR MUST COMPLY WITH THE RECOMMENDATIONS OF THE ENVIRONMENT PROTECTION AUTHORITY (EPA) "CONSTRUCTION TECHNIQUES FOR SEDIMENT POLLUTION CONTROL" (EPA 611) AND THE "GUIDELINES FOR CONSTRUCTION AND MAINTENANCE OF THE LOTS, CONSTRUCTION AND MAINTENANCE PERMITS FOR THE LOTS."
 - ON COMPLETION OF CONSTRUCTION WORKS, THE CONTRACTOR MUST COMPLY WITH THE RECOMMENDATIONS OF THE ENVIRONMENT PROTECTION AUTHORITY (EPA) "CONSTRUCTION TECHNIQUES FOR SEDIMENT POLLUTION CONTROL" (EPA 611) AND THE "GUIDELINES FOR CONSTRUCTION AND MAINTENANCE OF THE LOTS, CONSTRUCTION AND MAINTENANCE PERMITS FOR THE LOTS."

WARNING

BEWARE OF UNDERGROUND/OVERHEAD SERVICES
 THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE AS GUARANTEES IS NOT GIVEN. CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTION PROCEDURES UNDER OVERHEAD ELECTRICITY TRANSMISSION LINES.

DIAL BEFORE YOU DIG
 www.1100.com.au

MAMBOURIN
 STAGE 17, 18 & 19
 BULK EARTHWORKS PLAN
 FINISHED SURFACE CONTOURS SHEET 1 OF 2
 WYNDHAM CITY COUNCIL
 FRASERS PROPERTY LTD

Designed: K. FEARN-WANNAN
 Checked: G. KOHLMAN
 Authored: M. RANJANAN
 Date: 04/04/22

Permit No WYP11481/19
 Date: 27/05/2022

spire
 16/41 LA TROBE STREET PO BOX 6084 MELBOURNE
 VICTORIA 3007 AUSTRALIA T 61 3 9693 7888
 spire.com.au ABN 55 050 029 635

Rev	Approved	Date
0	ISSUED FOR CONSTRUCTION	
A	PRELIMINARY ISSUE	

Scale: 1:500
 0 5 10 15 20 25
 Metres

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 This drawing is the property of Spire Australia Pty Ltd. It is to be used for the purposes of the project only and is not to be used for any other purpose without the written consent of Spire Australia Pty Ltd. Spire Australia Pty Ltd. is not responsible for any errors or omissions in this drawing and shall not be held liable for any loss or damage arising out of its use or reliance on this drawing in the absence of the contract.



LEVEL ONE
SURVEILLANCE
AND INSPECTION REPORT

APPENDIX B



GEOTECHNICAL LABORATORIES
 ACN 102 571 077
 14 Ravenhall Way, Ravenhall, Vic 3023
 Email: info@geolab.com.au PH: (03) 8361-9140

DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9024/081

LOCATION: SYMON BROS - Mambourin, Stage 18 & 19

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m ³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m ³)	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)
21/09/22	101	<i>Refer to #9024/083 for approx. test site locations.</i>	1.90	24.5	99.5	1.91	23.5	175	1.0 Wetter	104.0	0	0	0
21/09/22	102		1.94	24.5	100.0	1.93	25.0	175	0.5 Drier	97.0	0	0	0
21/09/22	103		1.98	25.5	100.5	✱ 1.97	25.0	175	0.5 Wetter	102.0	5	0	0
21/09/22	104		1.98	24.5	103.0	1.92	25.5	175	1.0 Drier	96.0	0	0	0
21/09/22	105		1.88	22.5	97.0	1.94	23.0	175	0.5 Drier	97.0	0	0	0
21/09/22	106		1.89	23.5	95.0	1.99	21.0	175	2.0 Wetter	110.5	0	0	0

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 10:00am Finish Time: 11:20am

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation, Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)

✱ Indicates APCWD

❖



Accredited for compliance with ISO/IEC 17025 - Testing

NATA Accredited Laboratory Number 14561

MICK CROWE
(Approved Signatory)

Issue Date: 27/9/2022



GEOTECHNICAL LABORATORIES
 ACN 102 571 077
 14 Ravenhall Way, Ravenhall, Vic 3023
 Email: info@geolab.com.au PH: (03) 8361-9140

DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9024/082

LOCATION: SYMON BROS - Mambourin, Stage 18 & 19

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m ³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m ³)	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
21/09/22	107	<i>Refer to #9024/083 for approx. test site locations.</i>	2.06	22.5	102.5	✘ 2.01	22.5	175	0.0 Drier	100.0	12	0	0	
21/09/22	108		1.94	22.0	99.5	1.95	23.5	175	2.0 Drier	92.0	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 10:00am Finish Time: 11:20am

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)

✘ Indicates APCWD

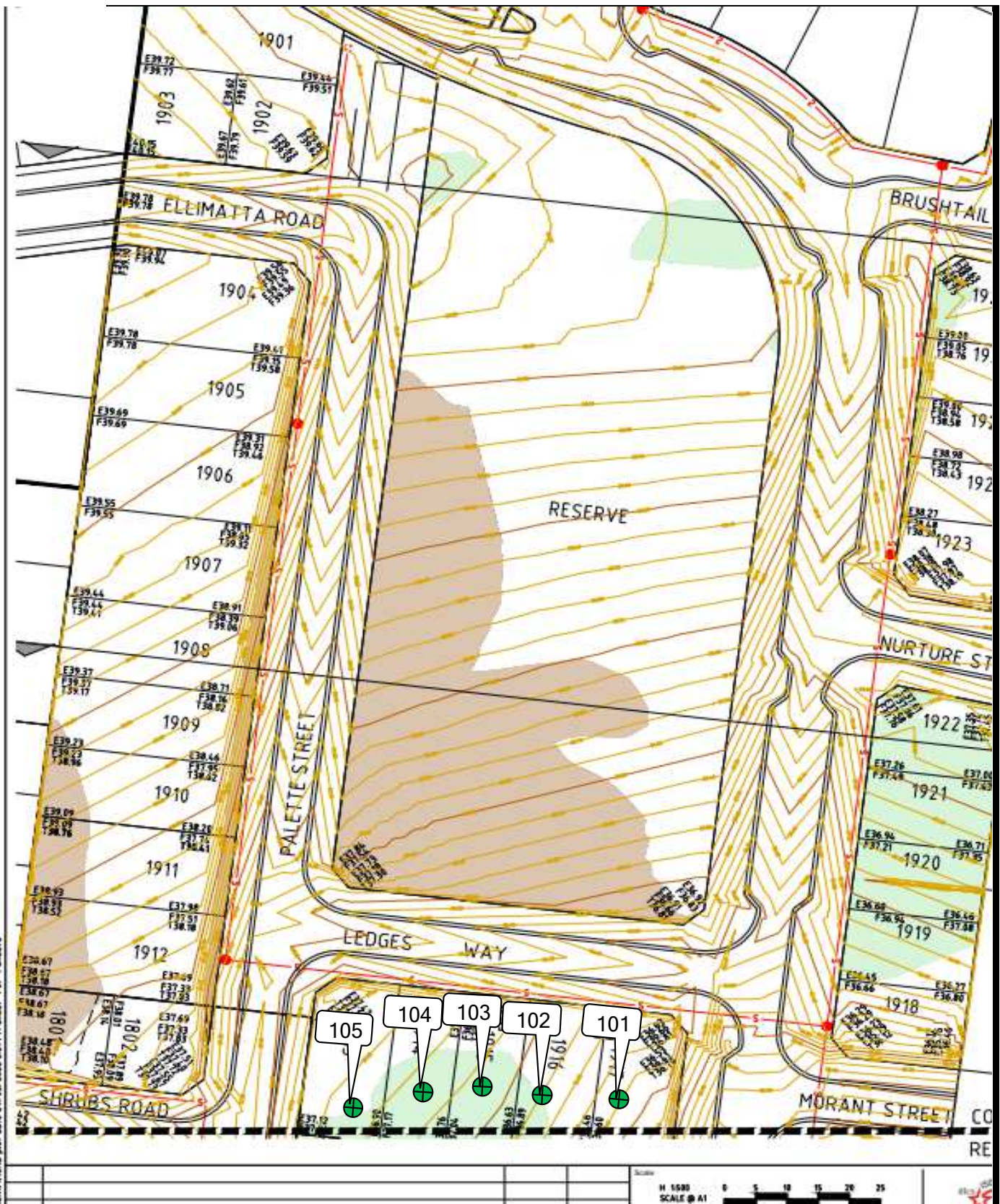


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MICK CROWE
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Issue Date: 27/9/2022



**GEOTECHNICAL
LABORATORIES**

**GEOTECHNICAL LABORATORIES
ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023
Email: info@geolab.com.au PH: (03) 8361-9140

CLIENT: SYMON BROS

LOCATION: Mambourin, Stage 18 & 19

Sketch indicating compaction test locations

DATE: 21/09/2022

OPERATOR: KOB

SCALE: NTS

JOB No.: 9024/083

CHECKED: KK

FIGURE No: 1 of 2



RIGHT DATUM AND ALL COORDINATES ARE TO BE UNDERTAKEN USING LEVEL 1 SUPERVISION AND BE COMPLETED IN ACCORDANCE WITH THE 55.

LEGEND



GEOTECHNICAL LABORATORIES

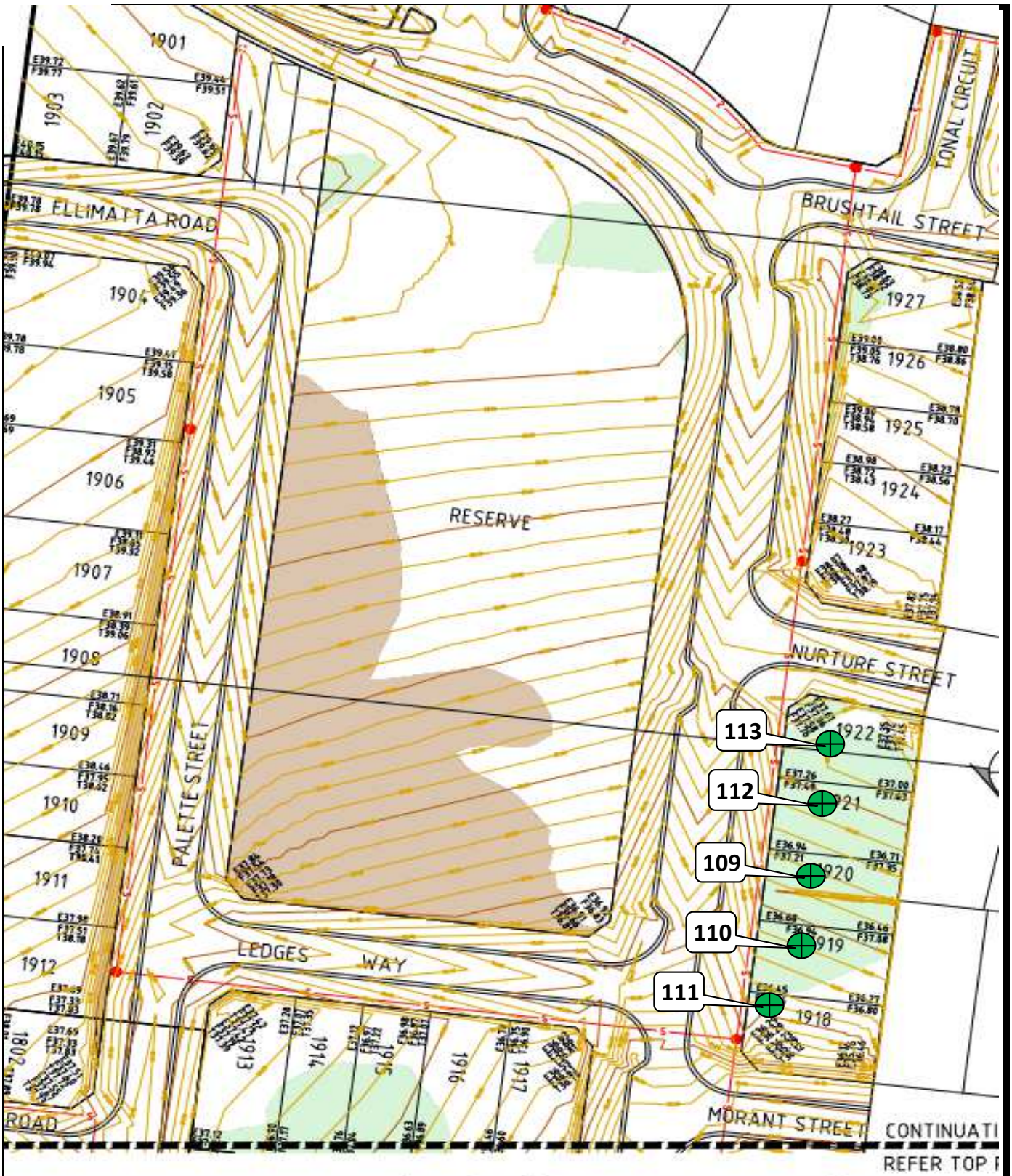
GEOTECHNICAL LABORATORIES

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Email: info@geolab.com.au PH: (03) 8361-9140

CLIENT: SYMON BROS LOCATION: Mambourin, Stage 18 & 19 Sketch indicating compaction test locations	DATE: 21/09/2022	JOB No.: 9024/083
	OPERATOR: KOB	CHECKED: KK
	SCALE: NTS	FIGURE No: 2 of 2



**GEOTECHNICAL
LABORATORIES**

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Email: info@geolab.com.au PH: (03) 8361-9140

CLIENT: SYMON BROS

LOCATION: Mambourin, Stage 19

Sketch indicating compaction test locations

DATE: 26/09/2022

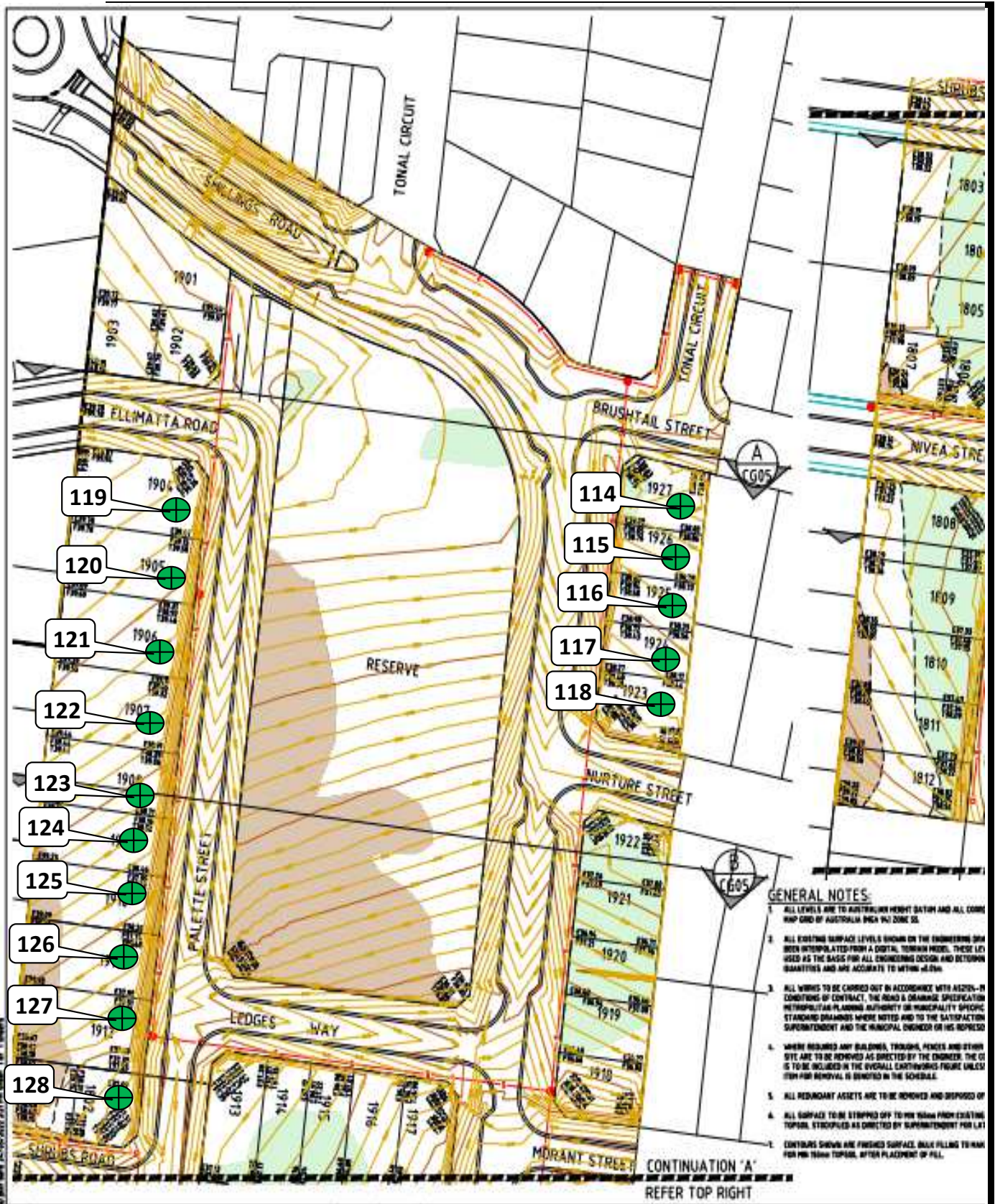
OPERATOR: PS

SCALE: NTS

JOB No.: 9024/085

CHECKED: KK

FIGURE No: -



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CLIENT: SYMON BROS

LOCATION: Mambourin, Stage 19

Sketch indicating compaction test locations

DATE: 27/09/2022

OPERATOR: KOB

SCALE: NTS

JOB No.: 9024/101

CHECKED: KK

FIGURE No: -



DAILY SUMMARY - FIELD DENSITY TESTS

GEOTECHNICAL LABORATORIES

ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

REPORT NO.: # 9024/102

LOCATION: SYMON BROS - Mambourin, Stage 19

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m ³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m ³)	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
29/09/22	129	<i>Refer to #9024/103 for approx. test site locations.</i>	1.89	24.5	98.0	1.93	25.0	175	0.5 Drier	98.0	0	0	0	
29/09/22	130		1.92	25.0	99.0	1.93	25.5	175	0.5 Drier	99.0	0	0	0	
29/09/22	131		1.89	28.0	100.0	1.89	28.0	175	0.0 Drier	100.0	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 8:05am Finish Time: 8:30am

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



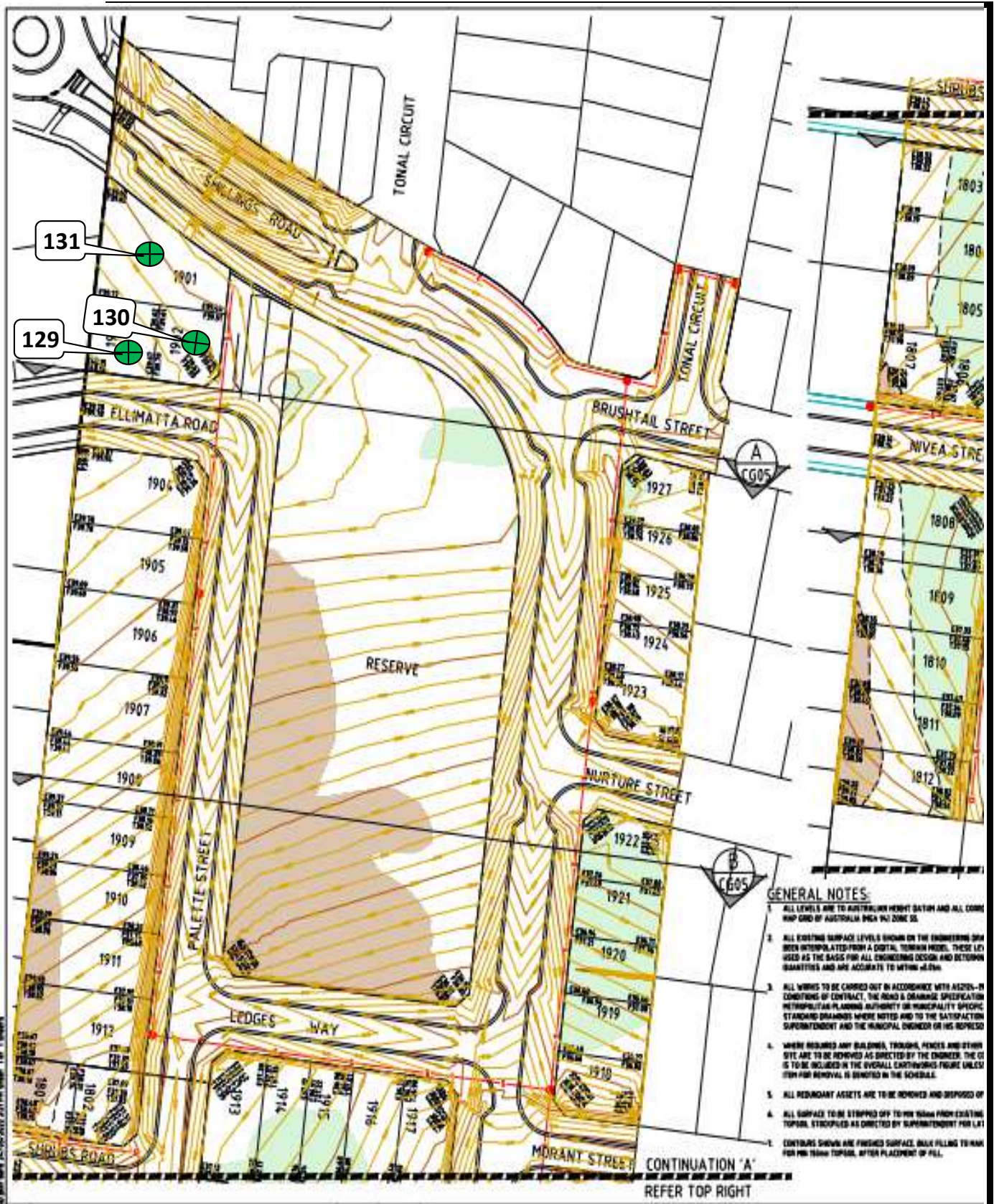
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17025 - Testing

NATA Accredited Laboratory Number 14561

MICK CROWE
(Approved Signatory)

Issue Date: 4/10/2022



- GENERAL NOTES:**
1. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM AND ALL CORRE MAP GRID OF AUSTRALIA 80/64 200K 50.
 2. ALL EXISTING SURFACE LEVELS SHOWN ON THE ENGINEERING DRAWING HAVE BEEN INTERPOLATED FROM A DIGITAL TERRAIN MODEL. THESE LEVELS ARE USED AS THE BASIS FOR ALL ENGINEERING DESIGN AND DETERMINATION OF QUANTITIES AND ARE ACCURATE TO WITHIN ±0.05m.
 3. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH ALL CONDITIONS OF CONTRACT, THE ROAD & DRAINAGE SPECIFICATION METROPOLITAN PLANNING AUTHORITY OR MUNICIPALITY SPECIFIC STANDARD DRAWINGS WHERE NOTED AND TO THE SATISFACTION OF THE SUPERINTENDENT AND THE MUNICIPAL ENGINEER OR HIS REPRESENTATIVE.
 4. WHEN REQUIRED ANY BUILDINGS, TROTTERS, FENCES AND OTHER STRUCTURES TO BE REMOVED AS DIRECTED BY THE ENGINEER. THE QUANTITY OF MATERIAL TO BE REMOVED IS TO BE INCLUDED IN THE OVERALL ESTIMATE UNLESS OTHERWISE NOTED IN THE SCHEDULE.
 5. ALL REDUNDANT ASSETS ARE TO BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER.
 6. ALL SURFACES TO BE STIPPED OFF TO 100 MM FROM EXISTING TOPSOIL. STIPPED AS DIRECTED BY SUPERINTENDENT FOR LAYING OF TOPSOIL.
 7. CONTOURS SHOWN ARE FINISHED SURFACE. SOIL FILLING TO MARK FOR FINISH TOPSOIL, AFTER PLACEMENT OF FILL.



GEOTECHNICAL LABORATORIES

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ACN 102 571 077

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Email: info@geolab.com.au PH: (03) 8361-9140

CLIENT: SYMON BROS

LOCATION: Mambourin, Stage 19

Sketch indicating compaction test locations

DATE: 29/09/2022

OPERATOR: AB

SCALE: NTS

JOB No.: 9024/103

CHECKED: KK

FIGURE No: -