Reference
No.: 2172-130

LEVEL ONE

SURVEILLANCE

AND INSPECTION REPORT

Carried Out
By

GEOTECHNICAL LABORATORIES

PREPARED FOR: -

SYMON BROS. CONSTRUCTIONS PTY LTD

Table of Contents

Appendices

Client Name: Symon Bros. Constructions Pty Ltd

Project Name: Mambourin Estate Stage 9

Date: 8th of April 2022

Author: Mr. Sam Loza

Reference No.: 2172-130

Revision: 01

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 28th of July 2021 to the 25th of March 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). Standard Face Plan Layout Drawing No. 305174CR200 Rev. 2

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 2nd of July 2021 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 CLAY, brown, grey-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
- 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 seventeen 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 28th of July 2021 to the 25th of March 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


FUTURE DEVELOPMENT (COUNTRY GARDENS ESTATE)
EXISTING STAGE 6
FUTURE STAGE 11
RESERVE
EXISTING STAGE 3
WARNING
BOULEVARD
STREET
MAY VALE
HEID ELBERG AVE
BARRABOOL
HUTCHISON ROAD
EXISTING ROCK STOCKPILE TO BE REMOVED
EXISTING FENCE TO BE REMOVED
SUPPLY AND INSTALL CONCRETE EDGE STRIP AS SPECIFIED INCLUDING AG DRAIN.
FOR TURN AROUND DETAILS REFER TO DRAWING 305174R17
LIMIT OF WORKS
ELECTRICAL SUB STATION SITE
PROVIDE HEAVY DUTY VEHICLE CROSSING AS PER EDCM 503.
PROVIDE 3 BOLLARDS AS PER WCC SD10-1 @ 1.5m INTERVALS WITH THE MIDDLE ONE BEING COLLAPSIBLE.
FUTURE PATH BY LANDSCAPE
PROVIDE 225 RCP @ 1 in 100 FOR RESERVE CONNECTION
REMOVE CONCRETE EDGE STRIP AND AG DRAIN AND NEATLY MATCH TO EXISTING ROADWORKS
PROVIDE 375 DIA STUB AT IL 36.610
TBM 12 (Rivet in Rock) RL N/A E 288291.99 N 5803667.92
PROPERTY INLET IL 38.55 MIN

Rev	Amendments	Approved	Date
2	AMENDED RESERVE FINISHED LEVEL	BM	27/05/21
1	AMENDED LOT LAYOUT	ML	22/05/20
0	ISSUED FOR CONSTRUCTION	ML	10/07/19

Scale H 1:500 SCALE @ A1

System Certified

spiire
414 LA TROBE STREET PO BOX 16084 MELBOURNE VICTORIA 8007 AUSTRALIA T 61 3 9993 7888
spiire.com.au ABN 55 050 029 635

FRASERS PROPERTY

Designed R.WEINBER
Checked J. KOEHLER
Authorised M. LETSON
Date 22/05/20

MAMBOURIN ESTATE STAGE 9

ROAD AND DRAINAGE
FACE PLAN
MUNICIPALITY OF WYNDAM
FRASERS PROPERTY

CONSTRUCTION

Drg No 305174CR200
Rev 2

file name 305174CR200.dwg layout name CR200 plotted by Ali Khurshid
file location \\spiire\albdata\Data1\30\305174\Civil\ACAD plot date 05/06/2021 6:17 PM Sheet 2 of 19 Sheets

LEVEL ONE

SURVEILLANCE

AND INSPECTION REPORT

APPENDIX B

GEOTECHNICAL LABORATORIES
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.: # 2182/202
LOCATION: SYMON BROS - Mambourin Stage 9

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m³)	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)
28/07/21	1	***Refer to #2182/203 for approx. test site locations.***	1.76	29.0	100.5	1.76	32.5	175	3.5 Drier	89.5	0	0	0
28/07/21	2		1.87	28.0	103.5	1.81	30.0	175	2.0 Drier	94.0	0	0	0
28/07/21	3		1.80	30.5	102.5	1.75	33.5	175	3.0 Drier	91.5	0	0	0
28/07/21	4		1.79	31.5	103.5	1.73	34.5	175	3.0 Drier	91.0	0	0	0
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite
Test sites located - Geolab Procedure 4, Part 4.4.
Compaction specimens sampled after compaction.
Start Time: 10:05am Finish Time: 10:45am

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
Soil Layer thickness: 200mm
Compaction Test: AS 1289 5.7.1
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)

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing
NATA Accredited Laboratory Number 14561

MICK CROWE
(Approved Signatory)
Issue Date: 30/7/2021

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	**DATE: 28/07/2021**	**JOB No.: 2182/203**
LOCATION: Mambourin Estate Stage 9	**OPERATOR: SL**	**CHECKED: KK**
Sketch indicating compaction test locations	**SCALE: NTS**	**FIGURE No: -**

GEOTECHNICAL LABORATORIES
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DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 2182/204
LOCATION: SYMON BROS - Mambourin Stage 9, 10

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m³)	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)
29/07/21	1	***Refer to #2182/205 for approx. test site locations.***	1.64	30.5	96.5	1.70	34.0	175	3.5 Drier	89.5	0	0	0
29/07/21	2		1.66	30.5	98.5	1.69	34.5	175	4.0 Drier	88.5	0	0	0
29/07/21	3		1.80	30.5	105.0	1.71	34.5	175	4.0 Drier	88.5	0	0	0
29/07/21	4		1.73	30.5	103.0	1.68	34.0	175	3.5 Drier	89.5	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: 10:50am

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
Soil Layer thickness: 200mm
Compaction Test: AS 1289 5.7.1
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)

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing
NATA Accredited Laboratory Number 14561

MICK CROWE
(Approved Signatory)
Issue Date: 2/8/2021

GEOTECHNICAL LABORATORIES

GEOTECHNICAL LABORATORIES
ACN 102 571 077
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CLIENT: SYMON BROS	**DATE: 29/07/2021**	**JOB No.: 2182/205**
LOCATION: Mambourin Estate Stage 9, 10	**OPERATOR: DB**	**CHECKED: MC**
Sketch indicating compaction test locations	**SCALE: NTS**	**FIGURE No: -**

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DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 2182/206
LOCATION: SYMON BROS - Mambourin Stage 9

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m³)	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)
30/07/21	1	***Refer to #2182/207 for approx. test site locations.***	1.83	30.0	102.0	1.80	31.5	175	1.5 Drier	95.0	0	0	0
30/07/21	2		1.75	29.0	98.5	1.77	32.5	175	3.5 Drier	89.0	0	0	0
30/07/21	3		1.71	29.5	97.5	1.75	33.0	175	3.0 Drier	90.5	0	0	0
30/07/21	4		1.72	29.5	96.5	1.78	32.5	175	3.0 Drier	90.5	0	0	0
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite
Test sites located - Geolab Procedure 4, Part 4.4.
Compaction specimens sampled after compaction.
Start Time: 10.45am Finish Time: 11.10am

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
Soil Layer thickness: 200mm
Compaction Test: AS 1289 5.7.1
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)

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing
NATA Accredited Laboratory Number 14561

MICK CROWE
(Approved Signatory)
Issue Date: 3/8/2021

GEOTECHNICAL LABORATORIES

GEOTECHNICAL LABORATORIES
ACN 102 571 077
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Email: info@geolab.com.au PH: (03) 8361-9140

CLIENT: SYMON BROS	**DATE: 30/07/2021**	**JOB No.: 2182/207**
LOCATION: Mambourin Estate Stage 9, 10, 11	**OPERATOR: DB**	**CHECKED: CL**
Sketch indicating compaction test locations	**SCALE: NTS**	**FIGURE No: -**

GEOTECHNICAL LABORATORIES
GEOTECHNICAL LABORATORIES
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DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 2182/381
LOCATION: SYMON BROS - Mambourin Stage 9

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m³)	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)
25/03/22	1	***Refer to #2182/383 for approx. test site locations.***	2.12	22.0	106.5	1.99	21.5	175	0.5 Wetter	103.5	0	0	0
25/03/22	2		2.10	21.0	107.0	✠ 1.96	22.0	175	1.0 Drier	94.5	3	0	0
25/03/22	3		1.83	28.5	101.0	1.81	30.0	175	1.5 Drier	95.0	0	0	0
25/03/22	4		1.97	31.5	103.0	1.91	30.5	175	1.0 Wetter	103.5	0	0	0
25/03/22	5		1.85	33.5	100.0	1.85	29.5	175	3.5 Wetter	112.5	0	0	0
25/03/22	6		2.02	16.0	101.5	1.99	15.0	175	1.0 Wetter	106.0	0	0	0

NOTES: Clayey Fill Ex. Onsite
Test sites located - Geolab Procedure 4, Part 4.3.
Compaction specimens sampled after compaction.
Start Time: 9:45am Finish Time: 11:00am

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
Soil Layer thickness: 200mm
Compaction Test: AS 1289 5.7.1
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
❖

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing
NATA Accredited Laboratory Number 14561

MICK CROWE
(Approved Signatory)
Issue Date: 1/4/2022

GEOTECHNICAL LABORATORIES
GEOTECHNICAL LABORATORIES
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DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 2182/382
LOCATION: SYMON BROS - Mambourin Stage 9

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m³)	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)
25/03/22	7	***Refer to #2182/383 for approx. test site locations.***	1.94	29.0	104.5	1.86	25.5	175	3.5 Wetter	114.0	0	0	0
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite
Test sites located - Geolab Procedure 4, Part 4.3.
Compaction specimens sampled after compaction.
Start Time: 9:45am Finish Time: 11:00am

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.

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Compaction Test: AS 1289 5.7.1
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)

✠
❖

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing
NATA Accredited Laboratory Number 14561

MICK CROWE
(Approved Signatory)
Issue Date: 1/4/2022

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

CLIENT: SYMON BROS	**DATE: 25/03/2022**	**JOB No.: 2182/383**
LOCATION: Mambourin Estate Stage 9	**OPERATOR: BM**	**CHECKED: KK**
Sketch indicating compaction test locations	**SCALE: NTS**	**FIGURE No: -**