

LEVEL ONE

Reference  
No.: 1993-055

SURVEILLANCE

AND INSPECTION REPORT

*Carried Out  
By*



PREPARED FOR: -

DRAPERS CIVIL CONTRACTING PTY LTD



## Table of Contents

1)	Introduction & Scope.....	2
2)	Site Preparation.....	2
3)	Fill Material.....	2
4)	Fill Construction Procedure.....	3
5)	Compaction Control Testing.....	3
6)	Testing Frequency.....	3
7)	Statement of Compliance.....	4
8)	Limitations of this Report.....	4

## Appendices

Appendix A Construction Drawings

Appendix B Daily Field Compaction Summary Results



Client Name: Drapers Civil Contracting Pty Ltd

Project Name: Wandana Estate Stage 1

Date: 14<sup>th</sup> February 2020

Author: Mr. Sam Loza

Reference No.: 1993-055

Revision: 0

Project Manager: Mr. Kieran Missen

### **1. Introduction & Scope**

At the request of Drapers Civil Contracting Pty Ltd, Geotechnical Laboratories has carried out inspection and testing of the above-mentioned site from the 20<sup>th</sup> of April 2018 to 5<sup>th</sup> of June 2018 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 Drapers Civil Contracting Pty Ltd and was used to determine compliance of earthworks in conjunction with the requirements of AS 3798 – 2007 (See Appendix A).

(1). Earthworks Detail Plan Project Reference No. 14808E Rev 01.

General site works involved the placement of fill, using on-site derived clay, to construct the fill to the required finished levels as indicated on the earthworks detail plan drawing.

### **2. Site Preparation**

Site inspections were undertaken on the 20<sup>th</sup> of April 2019 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.

Initial proof roll inspections were performed and subsequently 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 service trenches and road boxing.



The fill material is best described as a CLAY, brown, grey-brown, medium plasticity, slightly silty, slightly moist to moist with basalt gravel 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:

- Dump trucks and / or highway trucks
- A watercart
- A sheepsfoot compactor (815)

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

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 eighteen compaction tests were performed on the allotment 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, Drapers Civil Contracting 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 Drapers Civil Contracting Pty Ltd from the 20<sup>th</sup> of April 2018 to the 5<sup>th</sup> of June 2018 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 Drapers Civil Contracting 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 Drapers Civil Contracting 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.

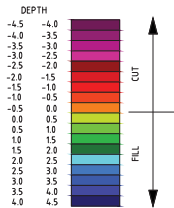


LEVEL ONE  
SURVEILLANCE  
AND INSPECTION REPORT  
  
APPENDIX A

## FILL NOTES

- EXISTING FILL ON SITE IS TO BE USED FOR PROPOSED ENGINEERED FILL. MATERIAL USED FOR ENGINEERED FILL SHOULD MEET THE FOLLOWING REQUIREMENTS.
  - NO WOOD/VEGETATION OR REFUSE.
  - NO CONCRETE OR ROCK PIECES GREATER THAN THAT APPROPRIATE FOR THE LAYER THICKNESS AND TYPE OF COMPACTION CONTROL TESTING.
  - NO STEEL REINFORCING
  - NO ORGANIC SILTS (TOPSOIL) AND MOISTURE SENSITIVE SILT SOIL
  - SOIL TO BE PLACED AT OR NEAR OPTIMUM MOISTURE CONTENT
- TO MINIMIZE DIFFERENTIAL SETTLEMENT IT IS IMPORTANT THAT LAYERS CONSIST OF PREDOMINATELY THE SAME MATERIAL. CONTRACTOR TO BOX INTO THE UNDISTURBED EXISTING SURFACE ADJACENT TO EDGE OF FILL TO PROVIDE A SUITABLE JUNCTION AND AVOID FEATHERED EDGES.
- ON COMPLETION OF THE FILL PLACEMENT, THE GEOTECHNICAL TESTING AUTHORITY SHALL PROVIDE DOCUMENTATION CONFIRMING THE SUITABILITY OF THE SUBGRADE FOR THE INTENDED PURPOSE.
- FILL MATERIAL SHOULD BE PLACED IN A MAXIMUM LOOSE THICKNESS OF 300mm WITH A MAXIMUM PARTICLE SIZE OF 75mm. EACH LAYER SHOULD BE COMPACTED TO A MINIMUM DRY DENSITY RATIO (AS 12895.4.1) OF 95% STANDARD COMPACTION USING A VIBRATING PAD FOOT ROLLER FOR COHESIVE SOILS AND VIBRATING SMOOTH DRUM ROLLER FOR COHESIONLESS SOILS.
- THE TOP 75mm SHOULD CONSIST OF SOIL WITH MAXIMUM PARTICLE SIZE AND MAXIMUM LIQUID LIMIT OF 20mm AND 35% RESPECTIVELY. COMPACTED IN LAYERS WITH MAXIMUM LOOSE THICKNESS OF 300mm TO A MINIMUM DRY DENSITY RATIO (AS 12895.4.1) OF 98% STANDARD COMPACTION.
- CONVENTIONAL COMPACTION SHOULD BE CONDUCTED UNDER LEVEL 1 INSPECTION AND TESTING IN INCREMENTS NOT GREATER THAN 500mm IN ACCORDANCE WITH AS 3798-2007, 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS', SECTION B.
- COMPACTION CONTROL TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH THE TEST FREQUENCY RECOMMENDED IN AS3798-2007, 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS', SECTION 7 & 8.
- THE SURFACE OF ALL FILL LAYERS MUST BE SHAPED TO PROVIDE DRAINAGE AND TO PREVENT PONDING.
- THE CONTRACTOR IS RESPONSIBLE FOR THE TESTING OF ALL FILL. AT THE COMPLETION OF WORKS THE CONTRACTOR SHALL SUPPLY THE SUPERVISING ENGINEER WITH A CERTIFICATE FROM A NATA APPROVED GEOTECHNICAL ENGINEER CERTIFYING THAT FILL MEETS ABOVE REQUIREMENTS AND HAS BEEN TESTED TO LEVEL 1 STANDARDS.

## LEGEND



**NOTE:**  
CONTRACTOR TO UNDERTAKE ALL SITE EARTHWORKS IN ACCORDANCE WITH THE SOIL MANAGEMENT PROTOCOL PREPARED BY GOLDER ASSOCIATES

**NOTE:**  
EXISTING ACTIVE LV ELECTRICAL SUPPLY TO LAND SALES OFFICE. TO BE MAINTAINED DURING STAGE CONSTRUCTION. TO BE DE-COMMISSIONED AT COMPLETION OF WORKS WHERE DIRECTED BY SUPERINTENDENT

— Ex — EXISTING UNDERGROUND ELECTRICAL SUPPLY TO SALES OFFICE

SCALE AT A1 1500



COPYRIGHT: These drawings, plans and specifications and the copyright therein are the property of the BQ Quentini consulting and shall not be used, reproduced or copied, wholly or in part without the written permission of BQ Quentini consulting.

01 ISSUED FOR CONSTRUCTION 13.03.18 A.V. H.J.

Rev Description Date By App

Rev Description Date By App

**GEELONG**  
**Engineering Plan APPROVAL**  
**Council Reference**  
PP-392-2015 Cert 13444  
Approved by: *K. Smith*  
Date: 16/03/2018



COPYRIGHT

All rights reserved.

These drawings, plans and specifications and the copyright therein are the property of the BQ Quentini consulting and shall not be used, reproduced or copied, wholly or in part without the written permission of BQ Quentini consulting.

01 ISSUED FOR CONSTRUCTION 13.03.18 A.V. H.J.

Rev Description Date By App

Rev Description Date By App

**villawood**  
properties  
Communities Designed for Living

**ST. QUENTIN**  
Surveyors - Town Planners - Engineers  
51 LITTLE PYANS STREET,  
P.O. BOX 919, GEELONG 3220  
TELEPHONE (03) 5201 1811 FAX (03) 5229 2909

Project Name WANDANA ESTATE - STAGE 1  
335 BARRABOOL ROAD  
WANDANA HEIGHTS  
Drawing Title EARTHWORKS DETAIL PLAN

Level Datum AHD  
Contour Interval N/A  
Date of Survey 09 / 2015  
Designed By M.J. / N.C.  
Drawn By N.C. / A.V.  
Date Drawn 06.07.17  
Scale NOTED

ISSUED FOR CONSTRUCTION

ENGINEERING MANAGER APPROVED

Project Ref. Sheet No. Rev

14808E 106 01



ENGINEERING



LEVEL ONE  
SURVEILLANCE  
AND INSPECTION REPORT  
  
APPENDIX B



GEOTECHNICAL LABORATORIES  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 2693 Gladstone Park VIC 3043  
PH: (03) 9335 1225

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1992/001

LOCATION: DRAPERS - Wandana Estate Stage 1

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	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)
20/04/18	1	<i>Refer to #1992/002 for approx. test site locations.</i>	1.89	15.0	105.0	1.80	18.5	175	4.0 Drier	79.0	0	0	200
20/04/18	2		1.88	17.5	105.0	1.79	21.0	175	4.0 Drier	82.0	0	0	0
20/04/18	3		1.93	21.5	98.5	1.97	21.5	175	0.0 Drier	99.0	0	0	0
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Onsite Clayey Fill

Test sites located - Geolab Procedure 4, Part 4.4

Compaction specimens sampled after compaction.

Start Time: 10.40am Finish Time: 11.05am

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)

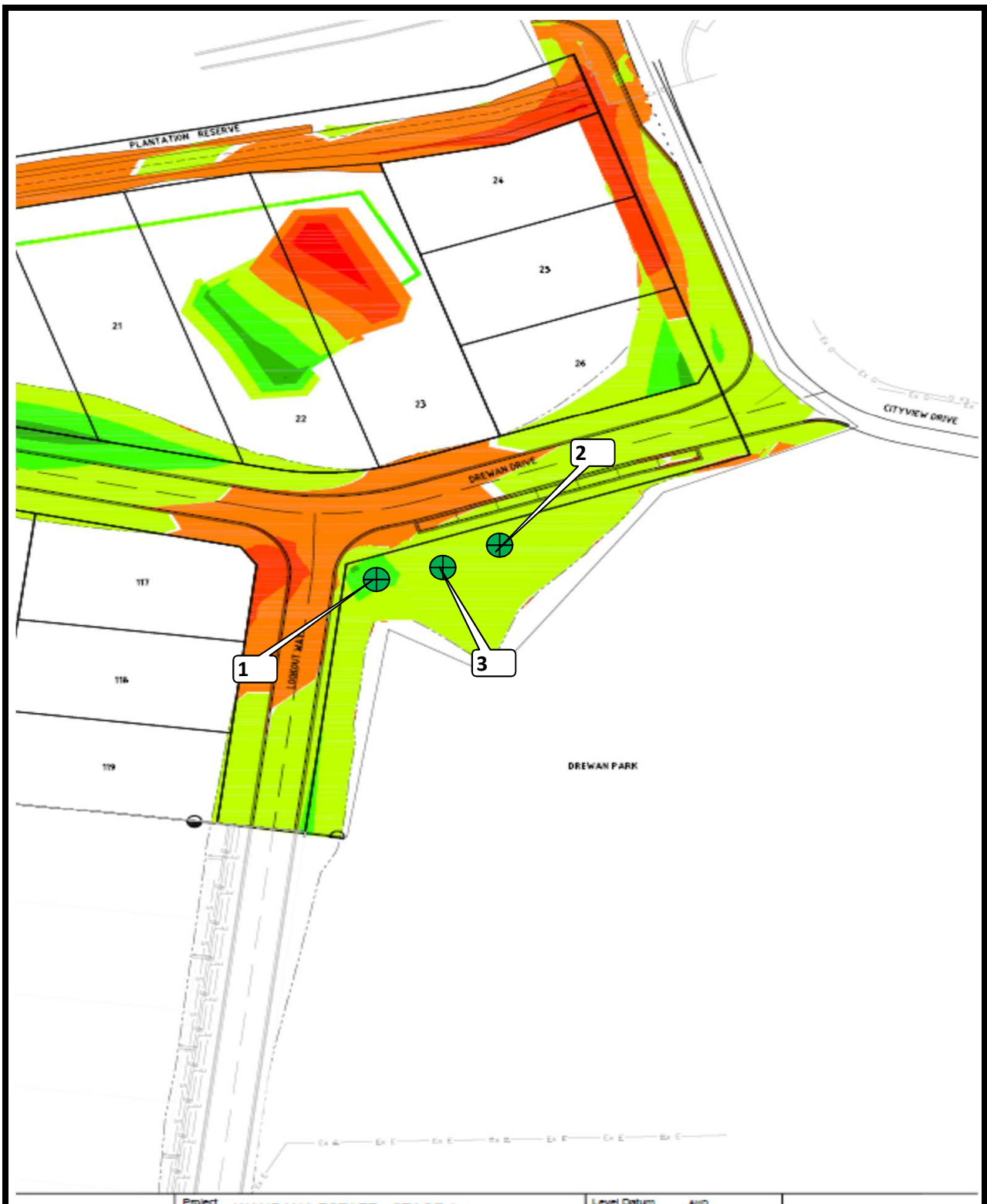


Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. This document may not be reproduced except in full.

NATA Accredited Laboratory Number 14561

MICK CROWE  
(Approved Signatory)

Issue Date: 26/4/2018



**GEOTECHNICAL  
LABORATORIES**

GEOTECHNICAL LABORATORIES  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 184 Keilor VIC 3036  
PH: (03) 9335 1225 Fax: (03) 9335 1775

**CLIENT: DRAPERS**

**LOCATION: Wandana Estate Stage 1**

**Sketch indicating compaction test locations**

**DATE: 20/4/18**

**OPERATOR: JC**

**SCALE: NTS**

**JOB No.: 1992/002**

**CHECKED: EG**

**FIGURE No: -**



GEOTECHNICAL LABORATORIES  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 2693 Gladstone Park VIC 3043  
PH: (03) 9335 1225

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1992/003

LOCATION: DRAPERS - Wandana Estate Stage 1

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	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)
23/04/18	1	<i>Refer to #1992/004 for approx. test site locations.</i>	1.90	21.5	102.5	1.86	22.5	175	1.0 Drier	94.5	0	0	200
23/04/18	2		1.83	18.0	102.0	1.80	22.0	175	4.0 Drier	83.0	0	0	0
23/04/18	3		1.90	21.5	99.0	1.92	22.0	175	0.5 Drier	98.0	0	0	0
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Onsite Clayey Fill

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 1.00pm Finish Time: 1.20pm

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)

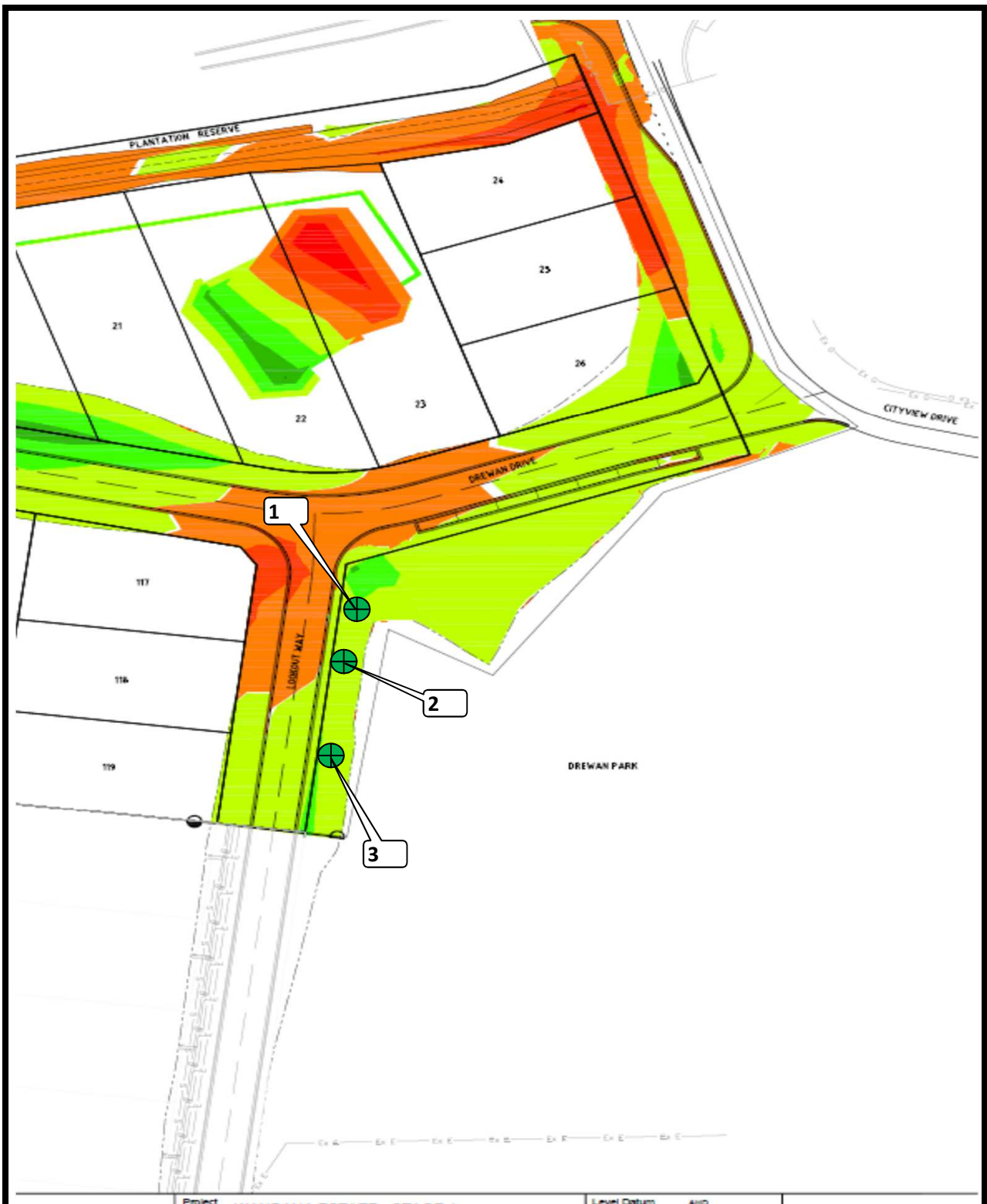


Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. This document may not be reproduced except in full.

NATA Accredited Laboratory Number 14561

MICK CROWE  
(Approved Signatory)

Issue Date: 3/5/2018



**GEOTECHNICAL  
LABORATORIES**

GEOTECHNICAL LABORATORIES  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 184 Keilor VIC 3036  
PH: (03) 9335 1225 Fax: (03) 9335 1775

**CLIENT: DRAPERS**

**LOCATION: Wandana Estate Stage 1**

**Sketch indicating compaction test locations**

**DATE: 23/4/18**

**OPERATOR: JC**

**SCALE: NTS**

**JOB No.: 1992/004**

**CHECKED: EG**

**FIGURE No: -**



GEOTECHNICAL LABORATORIES  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 2693 Gladstone Park VIC 3043  
PH: (03) 9335 1225

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1992/005

LOCATION: DRAPERS - Wandana Estate Stage 1

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	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)
27/04/18	1	<b>Refer to #1992/006 for approx. test site locations.</b>	2.07	17.5	102.0	2.02	18.0	175	0.5 Drier	96.0	0	0	0
27/04/18	2		2.04	13.0	101.0	2.02	15.5	175	2.5 Drier	84.0	0	0	0
27/04/18	3		2.03	16.5	103.0	1.97	18.5	175	1.5 Drier	91.0	0	0	0
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite/Highview Estate

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 11.10am Finish Time: 11.30am

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)

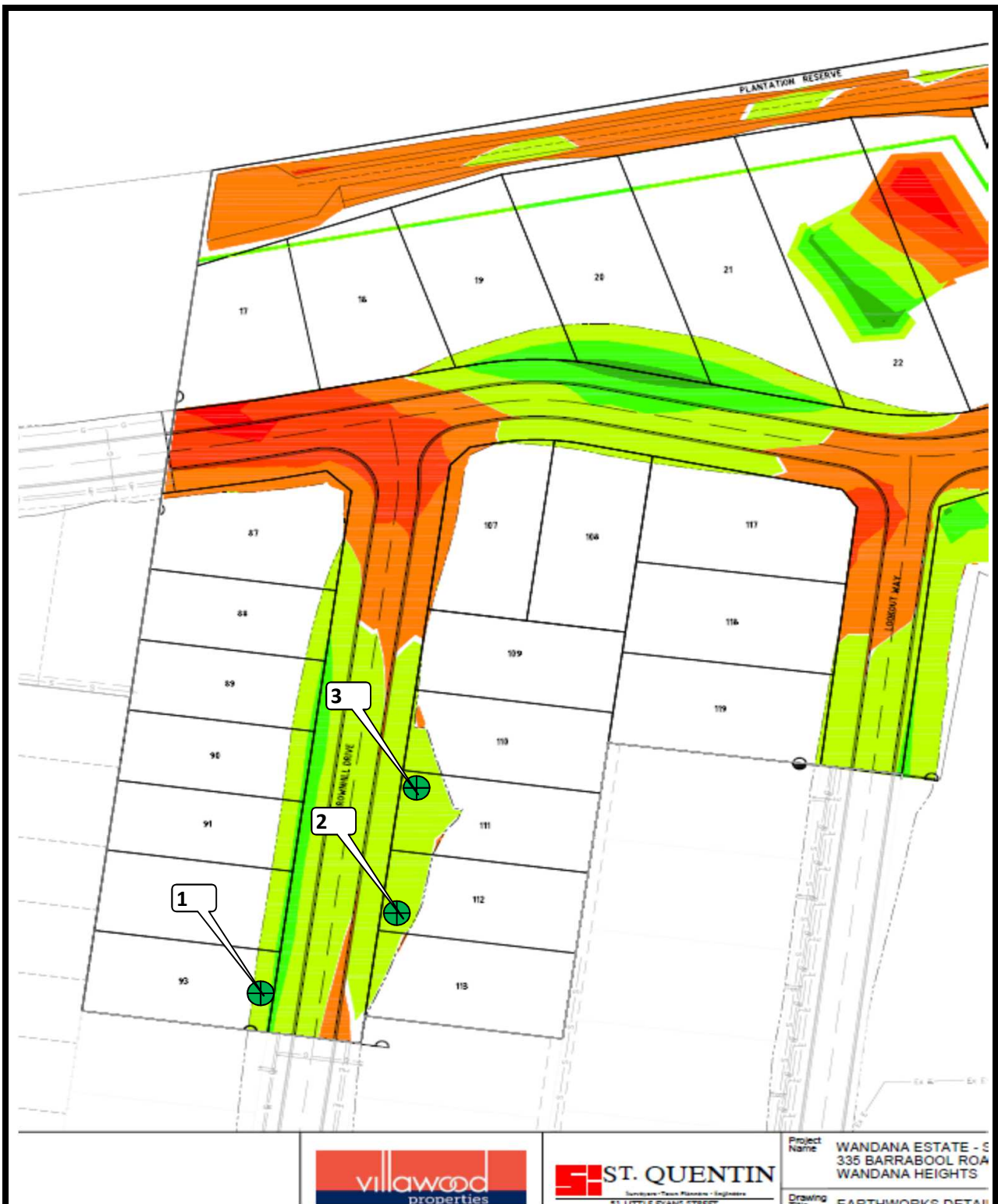


Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. This document may not be reproduced except in full.

NATA Accredited Laboratory Number 14561

MICK CROWE  
(Approved Signatory)

Issue Date: 3/5/2018



Project Name: WANDANA ESTATE - S  
335 BARRABOOL ROAD  
WANDANA HEIGHTS  
Drawing No.: EARTHWORKS DETAIL



**GEOTECHNICAL  
LABORATORIES**

**GEOTECHNICAL LABORATORIES**  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 184 Keilor VIC 3036  
PH: (03) 9335 1225 Fax: (03) 9335 1775

**CLIENT: DRAPERS**

**LOCATION: Wandana Estate Stage 1**

**Sketch indicating compaction test locations**

**DATE: 27/4/18**

**OPERATOR: JC**

**SCALE: NTS**

**JOB No.: 1992/006**

**CHECKED: EG**

**FIGURE No: -**



GEOTECHNICAL LABORATORIES  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 2693 Gladstone Park VIC 3043  
PH: (03) 9335 1225

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1992/007

LOCATION: DRAPERS - Wandana Estate Stage 1

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	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)
26/04/18	1	<i>Refer to #1992/008 for approx. test site locations.</i>	2.10	13.5	101.0	2.07	16.0	175	2.5 Drier	84.5	0	0	0
26/04/18	2		2.13	14.0	97.5	2.19	13.5	175	0.5 Wetter	103.5	0	0	200
26/04/18	3		2.04	15.5	96.0	2.13	15.0	175	0.0 Wetter	101.5	0	0	0
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite/Highview

Test sites located - Geolab Procedure 4, Part 4.4

Compaction specimens sampled after compaction.

Start Time: 11.00am 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)

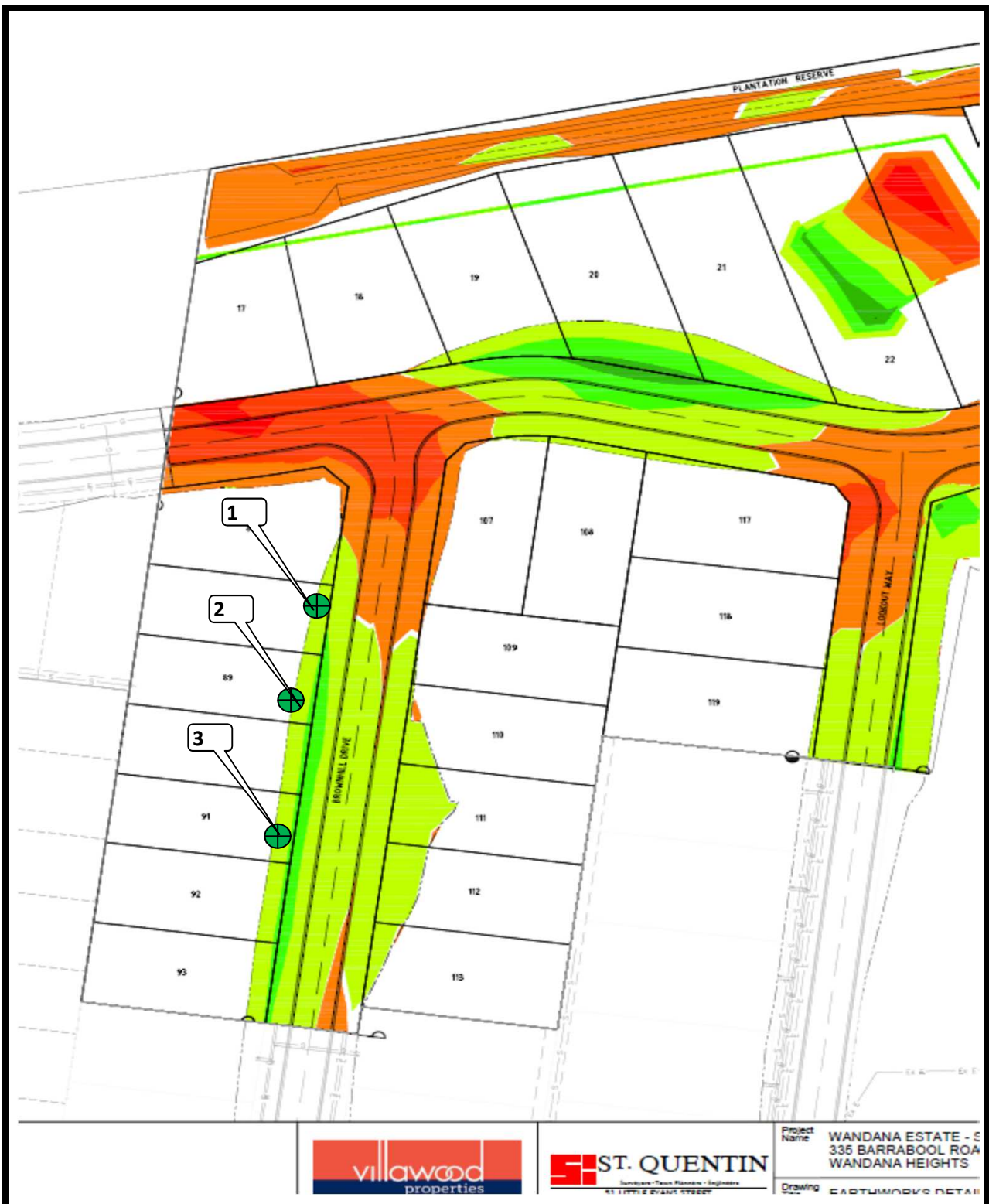


Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. This document may not be reproduced except in full.

NATA Accredited Laboratory Number 14561

MICK CROWE  
(Approved Signatory)

Issue Date: 3/5/2018



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
 PO Box 184 Keilor VIC 3036  
 PH: (03) 9335 1225 Fax: (03) 9335 1775

<b>CLIENT: DRAPERS</b>	<b>DATE: 26/4/18</b>	<b>JOB No.: 1992/008</b>
<b>LOCATION: Wandana Estate Stage 1</b>	<b>OPERATOR: JC</b>	<b>CHECKED: EG</b>
Sketch indicating compaction test locations	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>



GEOTECHNICAL LABORATORIES  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 2693 Gladstone Park VIC 3043  
PH: (03) 9335 1225

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1992/009

LOCATION: DRAPERS - Wandana Estate Stage 1

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	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)
30/04/18	1	<b>Refer to #1992/010 for approx. test site locations.</b>	2.07	19.0	101.5	2.05	18.0	175	1.0 Wetter	105.5	0	0	500
30/04/18	2		2.17	22.0	103.0	✱ 2.11	20.0	175	2.0 Wetter	111.0	14	0	500
30/04/18	3		1.96	23.5	96.5	2.03	21.0	175	2.0 Wetter	110.5	0	0	500
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Highview Estate

Test sites located - Geolab Procedure 4, Part 4.4

Compaction specimens sampled after compaction.

Start Time: 9.50am Finish Time: 10.20am

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

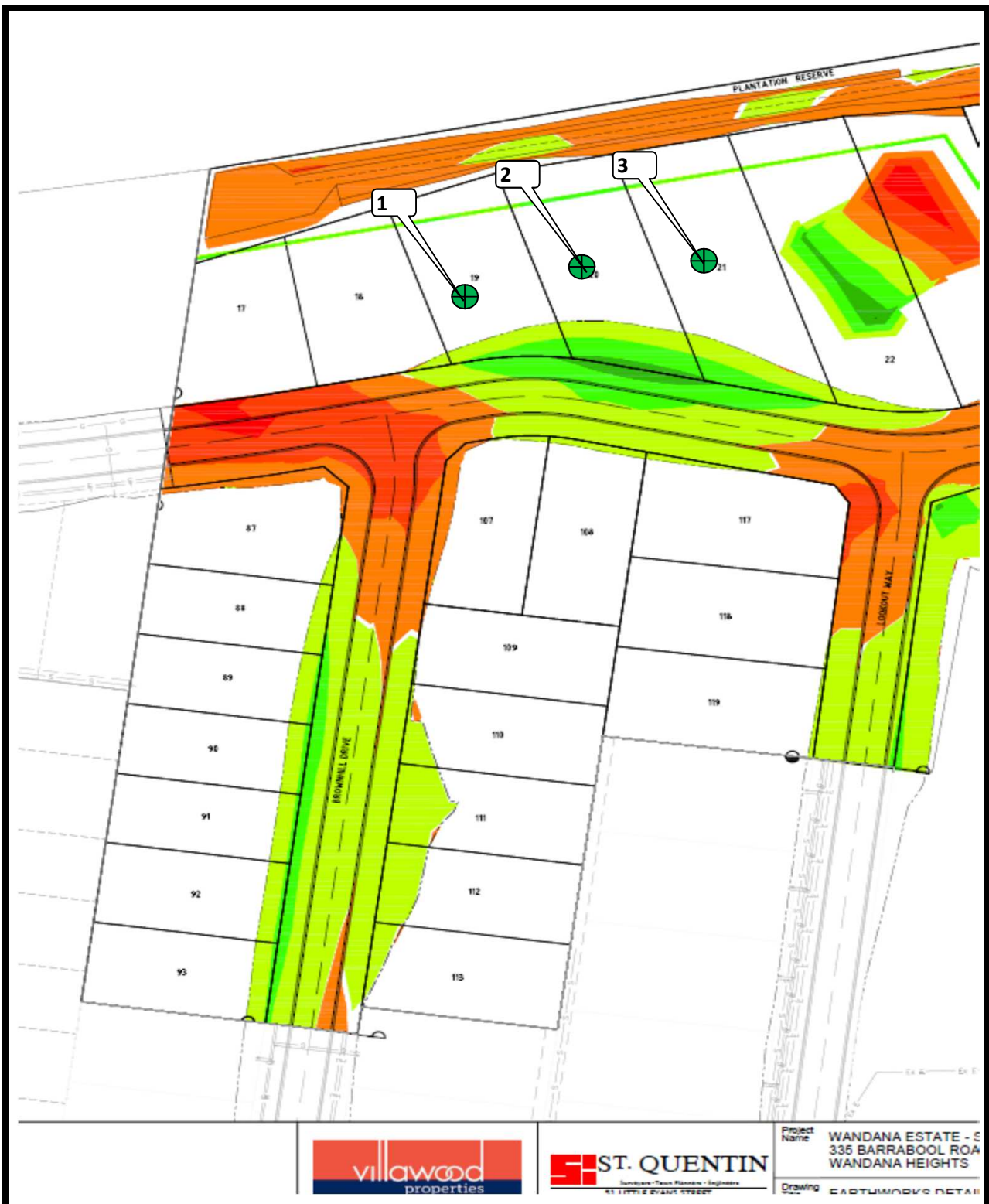


Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. This document may not be reproduced except in full.

NATA Accredited Laboratory Number 14561

MICK CROWE  
(Approved Signatory)

Issue Date: 7/5/2018



Project Name: WANDANA ESTATE - S  
335 BARRABOOL ROAD  
WANDANA HEIGHTS  
Drawing No.: EARTHWORKS DETAIL



**GEOTECHNICAL  
LABORATORIES**

**GEOTECHNICAL LABORATORIES**  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 184 Keilor VIC 3036  
PH: (03) 9335 1225 Fax: (03) 9335 1775

**CLIENT: DRAPERS**

**LOCATION: Wandana Estate Stage 1**

**Sketch indicating compaction test locations**

**DATE: 30/4/18**

**OPERATOR: NW**

**SCALE: NTS**

**JOB No.: 1992/010**

**CHECKED: EG**

**FIGURE No: -**



**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**  
 Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
 PO Box 2693 Gladstone Park VIC 3043  
 PH: (03) 9335 1225

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1992/011

LOCATION: DRAPERS - Wandana Estate Stage 1

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	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)
5/06/18	1	<i>Refer to #1992/012 for approx. test site locations.</i>	2.04	17.0	100.5	2.02	18.0	175	1.0 Drier	93.5	0	0	0
5/06/18	2		1.94	20.5	98.0	1.98	20.5	175	0.0 Wetter	101.0	0	0	0
5/06/18	3		1.98	17.5	100.5	1.96	19.5	175	2.0 Drier	89.0	0	0	0
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 11.41am Finish Time: 11.54am

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)

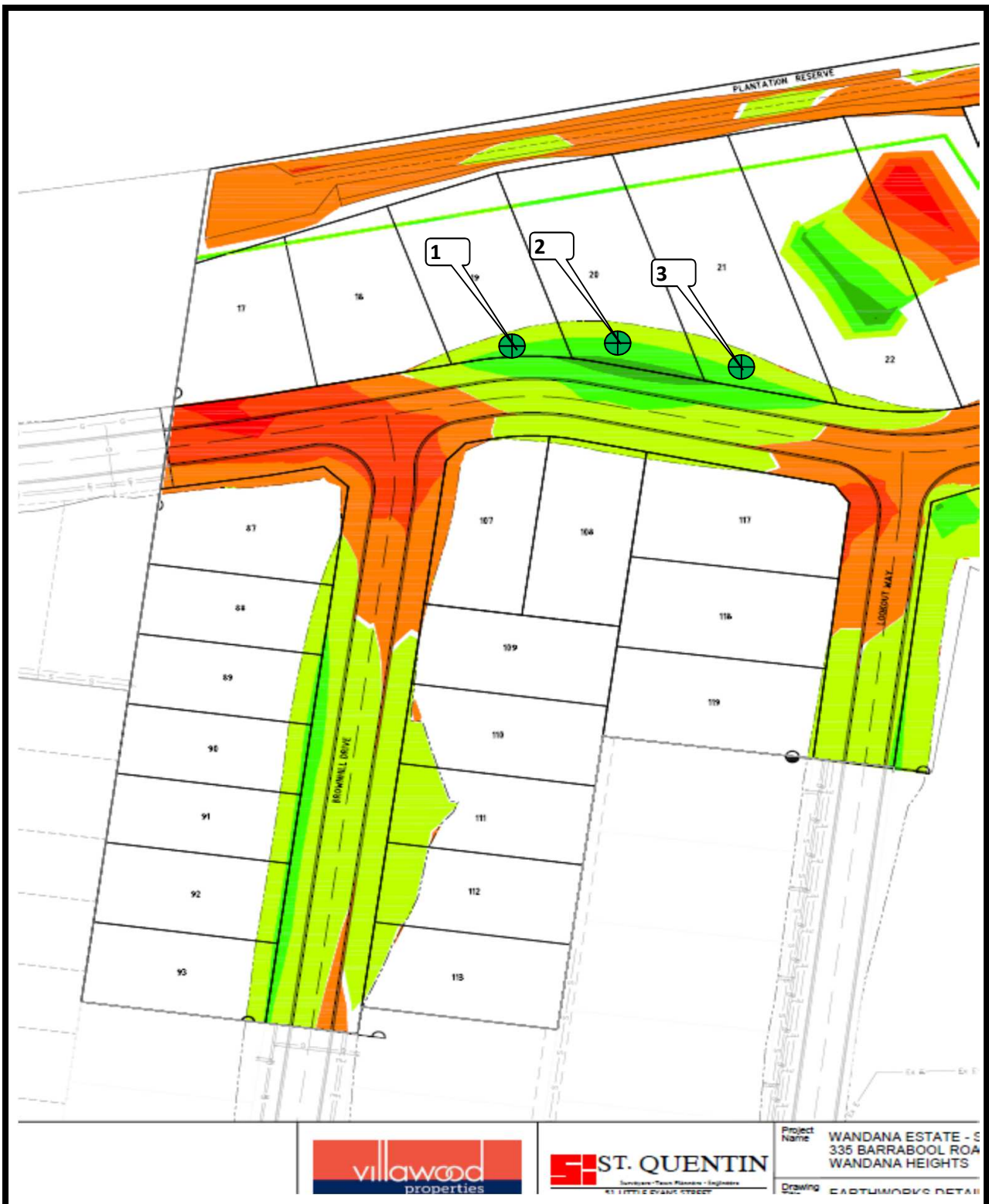


*Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. This document may not be reproduced except in full.*

NATA Accredited Laboratory Number 14561

**MICK CROWE**  
(Approved Signatory)

Issue Date: 7/6/2018



**GEOTECHNICAL  
LABORATORIES**

**GEOTECHNICAL LABORATORIES**  
ACN 102 571 077  
Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043  
PO Box 184 Keilor VIC 3036  
PH: (03) 9335 1225 Fax: (03) 9335 1775

**CLIENT: DRAPERS**

**LOCATION: Wandana Estate Stage 1**

**Sketch indicating compaction test locations**

**DATE: 5/6/18**

**OPERATOR: NW**

**SCALE: NTS**

**JOB No.: 1992/012**

**CHECKED: EG**

**FIGURE No: -**