MORRISON GEOTECHNIC

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Unit 34A, 53-57 Link Drive, Yatala Q 4207 (PO Box 2011, Nerang Q 4211) P (07) 5596 1599
ABN 51 009 878 899
www.morrisongeo.com.au

Gold Coast Office
Job No: GL20/128
Ref No: 21075 Rev.1
Author: Ian Masman
Checked by: Mark Ballard

13th May 2021

Golding Contractors Pty Ltd
Po Box 1643
Milton Qld, 4064

ATTENTION: MR SIMON ELLIOT
Email: simon.elliot@golding.com.au

Dear Sir,

RE: REVISED LEVEL ONE COMPLIANCE REPORT FOR BULK EARTHWORKS FILLING OPERATIONS, GAINSBOROUGH GREENS P3.1 BALANCE WORKS STAGES P3.1A, B, E AND F GAINSBOROUGH DRIVE, PIMPAMA

Table of Contents

1.0 INTRODUCTION

1.1 General

This report presents results of Level One Earthworks Inspections and associated Compaction Compliance testing carried out on Earthworks Fill for proposed residential building platforms and embankment below Subgrade constructed at Gainsborough Greens P3.1 Balance Works Stages P3.1A, B, E and F, Gainsborough Drive, Pimpama, (The Site).

Earthwork's operations were constructed by Golding Contractors (The Client).

Earthwork filling operations at the site was carried out between 27th November 2020 and 19th March 2021.

There was 25,553m3 of general cut to fill earthworks for which 50 field density tests were carried out, and 7,000m3 of replacement fill for the differential settlement areas (as shown in Figure 2) for which 14 field density tests were carried out.

The areas of fill covered by this report are presented as Figure 1 and Figure 2 below.

Figure 1 presents the extent of earthworks as shown on KN Group Drawings 20-118-102C

Figure 2 presents the additional areas of cut in Lots 1437 to 1449, and 1498 to 1510 which were further cut down to approximately half of that lots fill depth to reduce the potential differential settlement due to the variations in fill thickness.

Figure 1: Extent of Fill – KN Group Earthworks Drawings

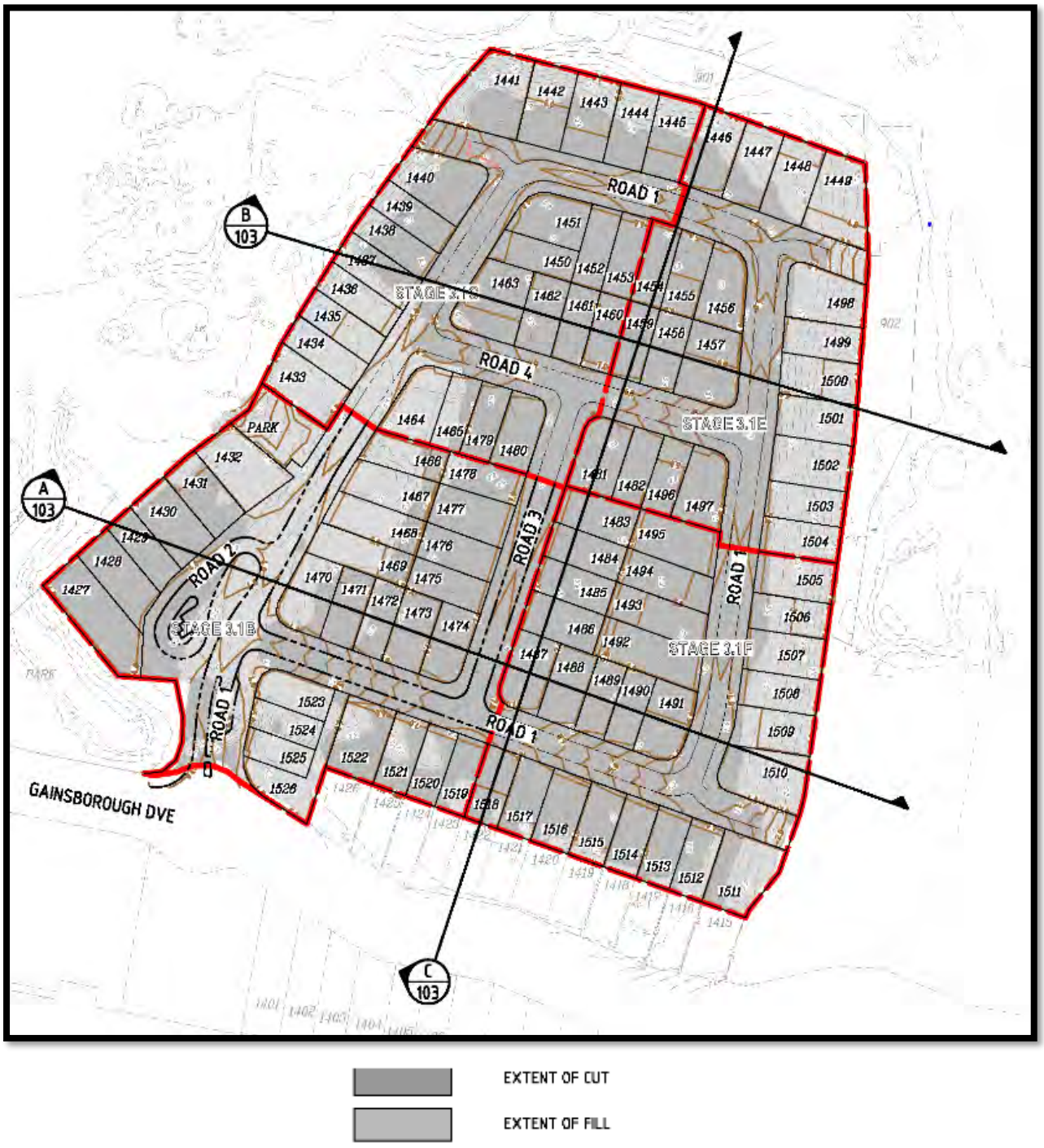
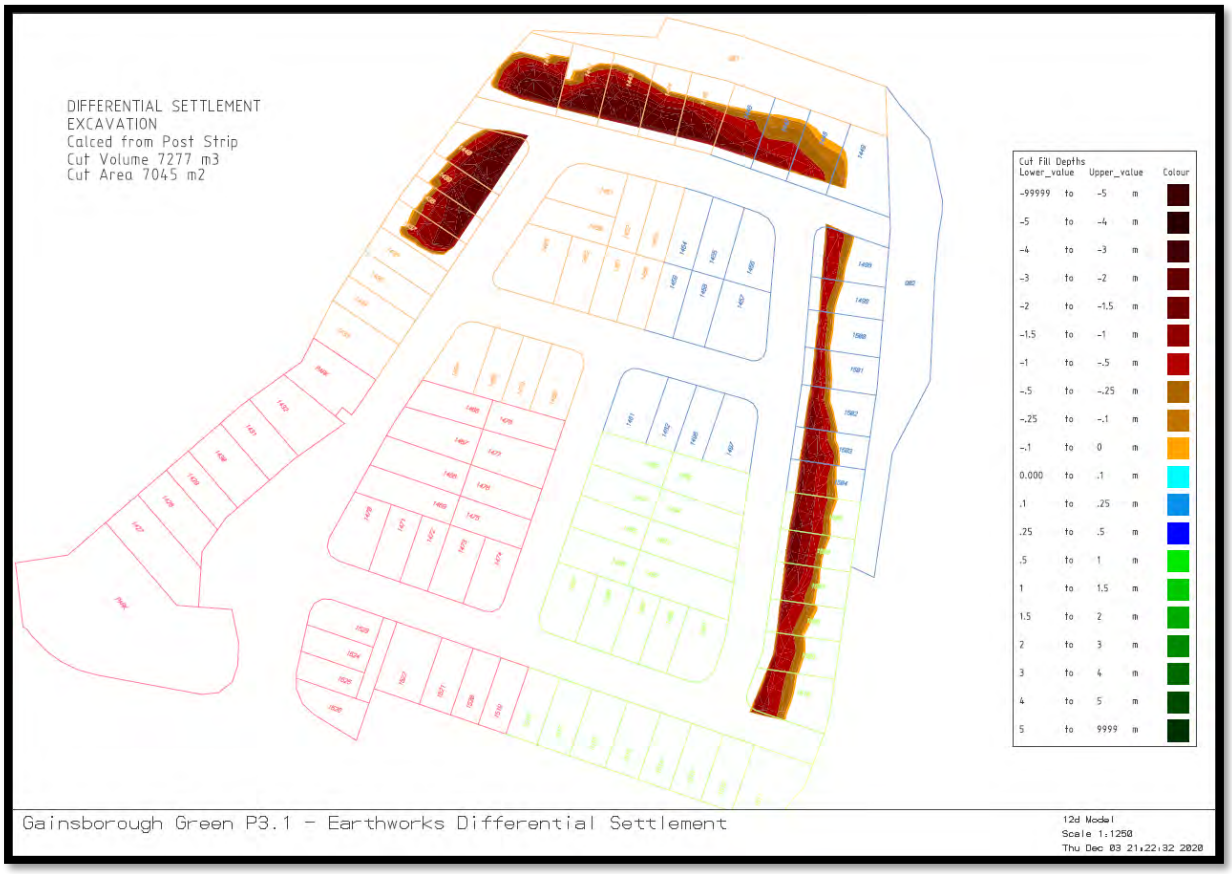


Figure 2: Additional Fill in Cut Areas – Differential Settlement Plan



1.2 Previous Earthworks

Previous earthworks were present at The Site. All previous earthworks at this site have been carried out under Level 1 supervision and testing by Morrison Geotechnic. Details of this work are contained in our level 1 earthworks reports produced at the time and attached in Appendix D and E of this report.

Please refer to our Morrison Geotechnic Level 1 Reports as follows:

Report Reference number 18153 for Job no. GL18/067, dated 20th August 2018 attached in Appendix D for work carried out between 23rd May and 2nd August 2018.

Report reference number 19117 for Job number GL18/128, dated 21st June 2019 attached in Appendix E for work carried out between 3rd September and 27th November 2018.

1.3 The Project

The purpose for filling at The Site was to form a controlled fill surface for a proposed residential allotments and road embankments.

2.0 THE BRIEF

The Brief from the Client was limited to:

- Level One Inspection and Testing of the placement and compaction of fill materials in general accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments".

- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.1.

- Earthworks Notes on KN Group Drawings.

- Remove and replace cut areas to approximately half of the fill height to reduce the fill thickness variations in allotments where the potential differential settlement between cut and fill may cause "P" site classifications. The identified lots for this procedure were 1437 to 1440, 1498 to 1510, and 1441 to 1449.

3.0 METHODOLOGY

Earthworks Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials.

Field and laboratory testing included a walk over assessments of the existing ground conditions, proof roll testing of the fill foundations, observations of filling and compaction activities and compaction testing.

3.1 Stripped Surface Assessment

The fill areas covered by this report were stripped and cleared of visible loose materials, vegetation, and topsoil.

Materials exposed after stripping and formed the fill foundation can be broadly summarised as:

- Natural - Sandy Clay (CI) –fine to medium grained sands, medium plasticity clay, grey – brown and moist.

- Natural – Extremely Weather sandstone, orange – brown, medium, dense.

There was some existing builders rubble/rubbish which was removed during the cut to fill earthworks.

Following the stripped surface assessment of the fill areas, the foundation was approved for filling using the following process:

- Walk over assessments confirming that a competent natural foundation had been exposed.

- Proof roll testing using large pad foot roller carrying out multiple passes confirming no movement of the exposed natural foundation.

Picture 1: View of The Site During Stripping Operations

Picture 2: View of The Site During Stripping Operations

Picture 3: View of The Site During Stripping Operations

Picture 4: View of The Site During Stripping Operations

3.2 Filling Operations

Fill materials were sourced from on site and can be broadly summarised as: -

- Gravelly Sandy Clay (CL), fine to coarse sand, medium plasticity fines, with fine to coarse gravel, yellow brown and moist.

Placement and compaction of the fill materials was carried out using the following plant: -

- Excavator
- Pad Foot Roller
- Dozer
- Water Truck
- Dump Trucks

The fill materials were moisture conditioned at the fill source and during placement to moisture contents suitable for compaction. Deleterious materials such as organics, sticks, roots and over size particles were sorted and removed during placement or were rejected for use.

Placement of the fill materials was carried out in layers appropriate for the above plant and compacted using the above plant carrying out multiple passes.

Our representative observed the filling process as described above and was assessed to be consistent for the entire thickness of fill.

Field density tests and laboratory compactions were carried out on the fill materials in accordance with Table 5.1 and 8.1 of AS3798 2007 (Guidelines on Earthworks for Commercial and Residential Developments) and tested to AS1289 test methods (Testing of Soils for Engineering Purposes).

The field density tests were carried out in accordance with AS3798 and the test results achieved the minimum required specification of 95% of the Hilf Density at the test locations.

The Location of the field density tests are shown on the Site Plans contained in Appendix A. These test locations and levels were not obtained by survey and therefore should only be considered as approximate.

3.3 Treatment of Potential Differential Settlement Lots

Following a discussion on site between Mick Morrison (Morrison Geotechnic) and Alan Clohessy (Golding Contractors) a recommendation to treat allotments which have the potential to trigger “P” site classifications was submitted to The Client by Mick Morrison via email on the 27th October 2020.

A partial extract of this email referring to differential settlement is presented below.

GST to prevent P classifications.

P classifications can be triggered by variable fill thickness over short distances. A general rule is that fill thickness should not vary more than 2m over a 10 lineal metres.

Building envelope is 5.5m from front and 1.5m from rear

Fill thickness variations of 2m or greater over 10m can occur on lots 1498 to 1510

Fill thickness variations of close to 2m over 10m can occur on lots 1438 to 1440.

Benching into existing slope along the western sides of Lots 1498 to 1510 and eastern sides of 1438 to 1440 are recommended at a level of about half the fill height to reduce the fill thickness variations.

The areas of allotments where this was carried out are as follows:
Eastern ends of Lots 1437 to 1440,
Western ends of Lots 1498 to 1510, and
Southern ends of Lots 1441 to 1449.

Refer to the heat map in Figure 2 for a detailed survey pickup of the excavation prior to placement of fill for these lots.

Picture 5: View of the Site During Construction

Picture 6: View of the Site During Construction

Picture 7: View of the Site During Construction

Picture 8: View of the Site During Construction

4.0 STATEMENT OF COMPLIANCE

Our representatives observed the relevant earthworks operations including the stripped surface, fill placement and compaction operations and carried out field density tests and laboratory compaction tests in accordance with the required standard (AS3798, AS1289). Testing achieved the required specification of 95% Standard at the test locations.

It is confirmed that Level One Inspection and Testing has been carried out on the filling operation and limited to the extent shown in in Figures 1 & 2. Based on the observations made by our Geotechnicians and the results of the field and laboratory tests, the placed and compacted fill at the above project has, as far as we have been able to assess, been constructed in general accordance with the intent of AS3798.

The fill can be deemed to be “controlled” in accordance with AS2870.

5.0 EXCLUSIONS

This statement does not include any topsoil, which may be placed for use as dressing, or any other subsequent earthworks after 19th March 2021.

Assessments of material quality such as soaked CBR and site classifications are excluded from this commission.

Our on-site attendance specifically excludes assessments of fill material quality and engineering properties that are outside the requirements of AS3798 – 2007.

Footings and ground slabs for any structures constructed over natural soils or controlled fill should be designed to accommodate the characteristic ground surface movements and settlement potential. Assessments of these design parameters are beyond the scope of this Report.

6.0 LIMITATIONS

This Report has been prepared by Morrison Geotechnic Pty Ltd (**Morrison Geotechnic**), and may include contributions from Morrison Geotechnic’s officers and employees, sub-contractors, sub-consultants, or agents (**Contributors**).

This Report is for the sole benefit and use of Golding Contractors (**Client**), its designers, clients, and relevant statutory authorities for the sole purpose of providing geotechnical advice and recommendations in respect of Gainsborough Greens P3.1 Balance Works Stages P3.1A, B, E and F, Gainsborough Drive, Pimpama **(Project)**. The Report is only intended to address those issues expressly described in the Brief/ Work Instructions in this Report.

This Report should not be used or relied upon for any other purpose without Morrison Geotechnic’s prior written consent. Morrison Geotechnic and the Contributors do not accept any responsibility or liability in any way whatsoever for the use or reliance of this Report by anyone other than The Client, its designers, its clients, and relevant statutory authorities or by anyone else for any purpose other than that for which it has been prepared.

Except with Morrison Geotechnic’s prior written consent, this Report may not be:

(a) released to any other party, whether in whole or in part (other than to the Client’s officers, employees, advisers, designers, clients, and relevant statutory authorities).

(b) used or relied upon by any other party.

Morrison Geotechnic and the Contributors do not accept any liability or responsibility whatsoever for, or in respect of, any use or reliance upon this Report by any other party. Morrison Geotechnic is not obliged to enter into discussions with any third party in respect of this Report.

The information (including technical information and information obtained through discussions) on which this report is based has been provided by the Client and third parties. Morrison Geotechnic and the Contributors:

(a) have relied upon and presumed the accuracy of this information.
(b) have not verified the accuracy or reliability of this information (other than as expressly stated in this Report).
(c) have not made any independent investigations or enquiries in respect of those matters of which it has no actual knowledge at the time of giving this Report to the Client; and
(d) make no warranty or guarantee, expressed or implied, as to the accuracy or reliability of this information.

Morrison Geotechnic and the Contributors do not accept responsibility or liability for any incorrect assumptions related to this Report. For the avoidance of doubt, this Report:

(a) is not an environmental, contamination or hazardous materials assessment; may be invalid, incomplete or inaccurate (including errors in the scope of work, investigation methodology, observations, opinions and advice) where the information provided to Morrison Geotechnic was invalid, incomplete or inaccurate;
(b) is limited to observations of those parts of the site described in Section 1.0.

No warranty or guarantee, whether express or implied, is made in respect of the geotechnical data, information, advice, opinions, and recommendations present in this Report.

If further information becomes available, or additional assumptions need to be made, Morrison Geotechnic reserves its right to amend this Report.

If you have any queries regarding the above, please contact our Brisbane office.

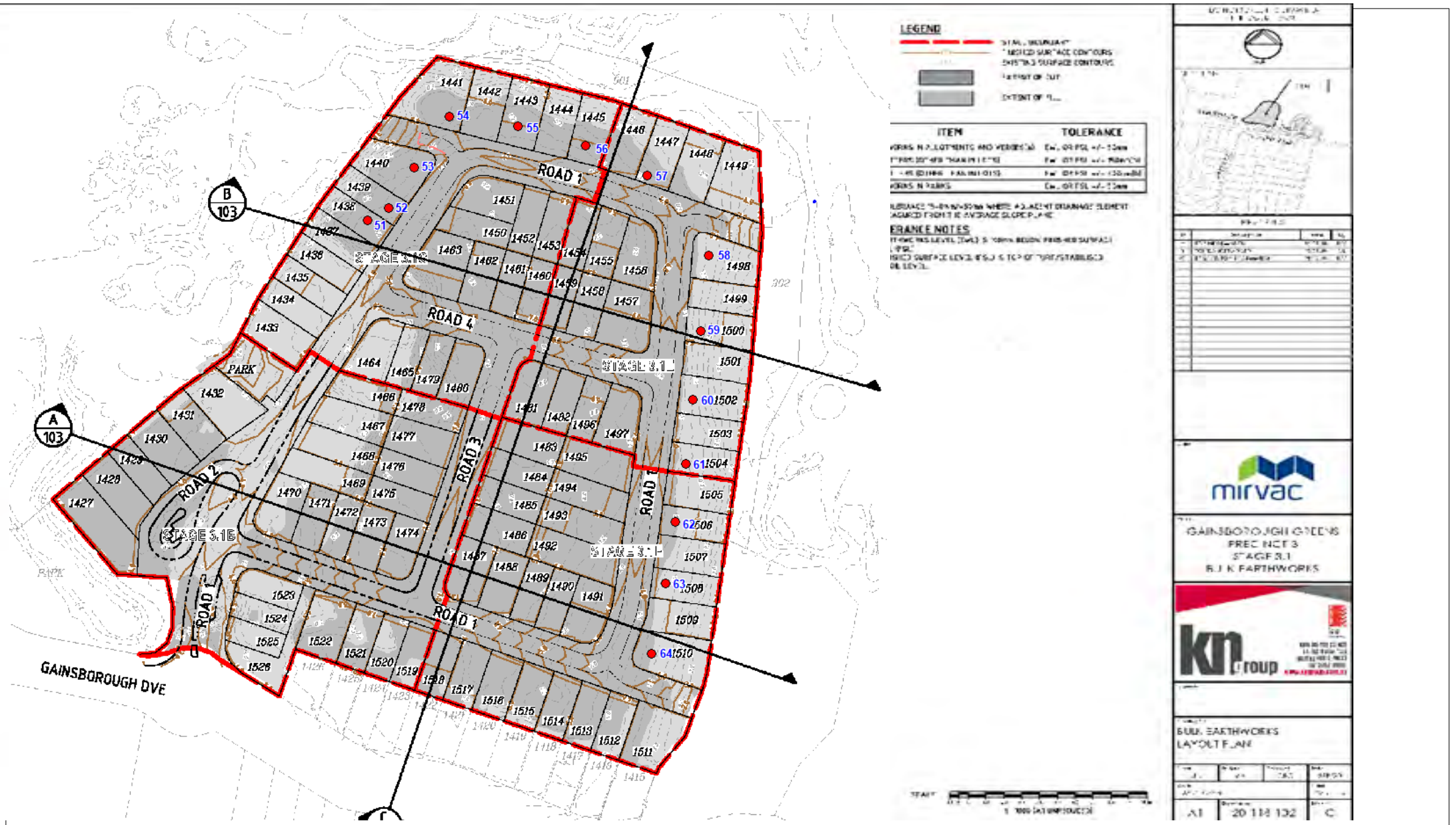
Yours faithfully

Ian Masman
For and on behalf of
MORRISON GEOTECHNIC PTY LIMITED

MARK BALLARD RPEQ 10223
For and on behalf of
MORRISON GEOTECHNIC PTY LIMITED

ATTACHMENTS:
Appendix A – Site Plans Showing Test Locations
Appendix B – Laboratory Test Results Reports
Appendix C – Differential Settlement Excavation Plan
Appendix D – Morrison Geotechnic Level 1 Report GL18/067, dated 20th August 2018
Appendix E – Morrison Geotechnic Level 1 Report GL18/128, dated 21st June 2019
Appendix F – Photo Gallery

Appendix A
(Site Plan, Showing test locations)



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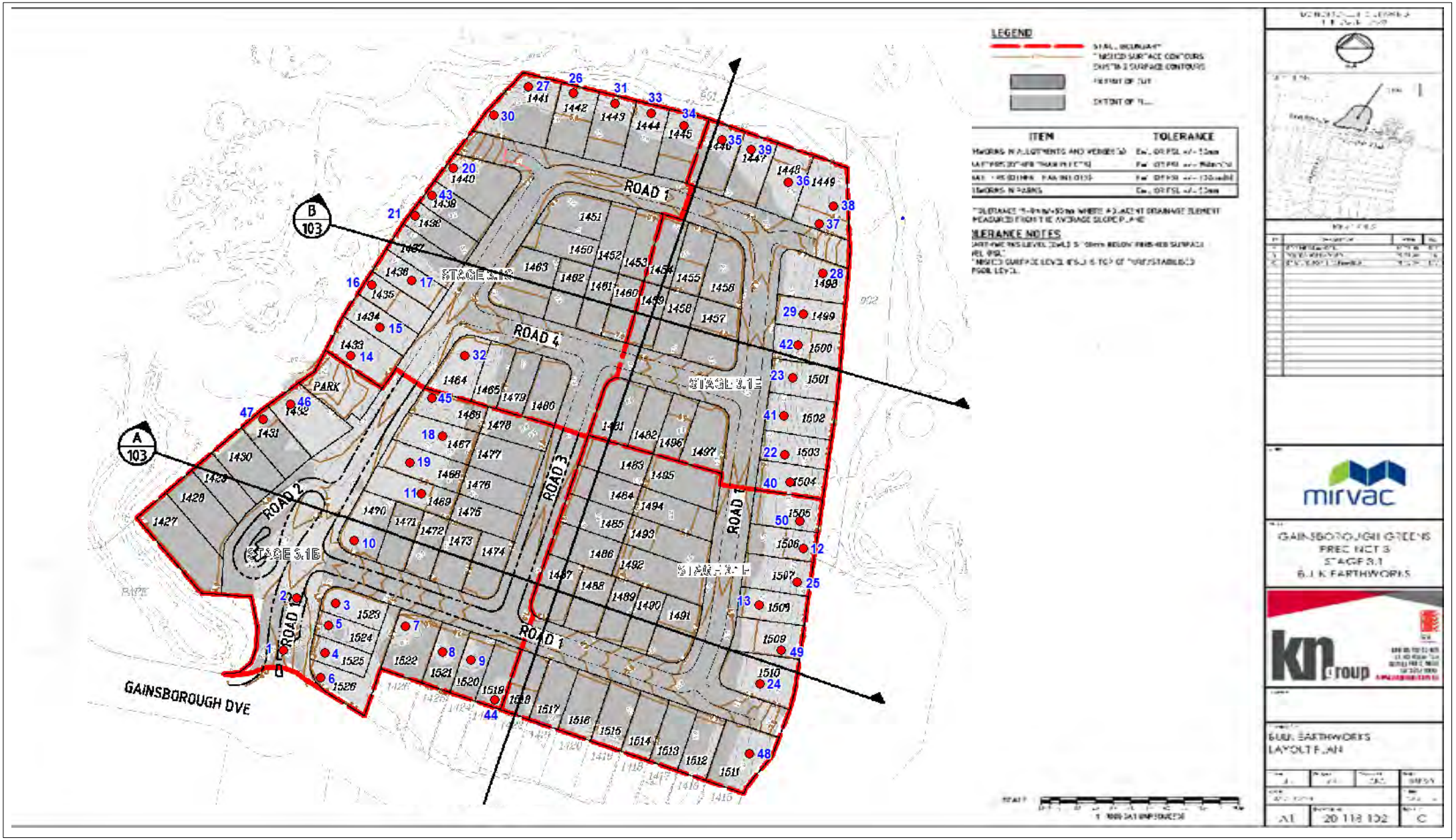
Unit 1/5 Brendan Drive Nerang 4211 Ph: 5596 1599
Email: goldcoastlab@morrisongeo.com.au Fax: 5527 2027

Engineers: D.Dragun
Geologists: L.Bexley & R.Howchin

Map Description :	**Differential Settlement Test Locations**		
Client :	**Golding Contractors**		
Project :	**Gainsborough Greens Precinct 3.1, Stage 3.1A**		
Project No :	**GL20/128**	Date: **09/04/21**	Scale : Not to Scale



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Engineers: D.Dragun
Geologists: R.Howchin

Map Description :	**Field Density Test Locations**		
Client :	**Golding Contractors**		
Project :	**Gainsborough Greens Precinct 3.1, Stage 3.1A**		
Project No :	**GL20/128**	Date: **09/04/21**	Scale : Not to Scale

Appendix B
(Laboratory Test Reports)

Material Test Report

MORRISON GEOTECHNIC
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Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Gold Coast Laboratory
Unit 34A / 53-57 Link Drive Yatala QLD 4207
Phone: (07) 5596 1599
Email: gtaylor@mgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: **GL20/128-1**
Issue Number: 1
Date Issued: 08/11/2020
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4159
Date Sampled: 02/11/2020 1:00
Dates Tested: 02/11/2020 - 03/11/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: Laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	G20-4159A	G20-4159B	
Test Number	1	2	
Date Tested	02/11/2020	02/11/2020	
Time Tested	13:00	13:12	
Test Request #/Location	KAKADU CIRCUIT	KAKADU CIRCUIT	
Chainage (m)	CH 30	CH 40	
Location Offset (m)	ON CENTRELINE	1.5m RIGHT OF CL	
Layer / Reduced Level	1m BELOW SG	0.5m BELOW SG	
Soil Description	Silty Sandy Clay, Brown	Silty Sandy Clay, Brown	
Test Depth (mm)	150	150	
Sieve used to determine oversize (mm)	**	**	
Percentage of Wet Oversize (%)	**	**	
Field Wet Density (FWD) t/m^3	2.02	1.99	
Field Moisture Content %	17.7	19.5	
Field Dry Density (FDD) t/m^3	1.72	1.66	
Peak Converted Wet Density t/m^3	2.03	2.00	
Adjusted Peak Converted Wet Density t/m^3	**	**	
Moisture Variation (Wv) %	0.0	0.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	**99.5**	**99.5**	
Compaction Method	**Standard**	**Standard**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

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Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: **GL20/128-2**
Issue Number: 1
Date Issued: 27/11/2020
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4189
Date Sampled: 06/11/2020 10:30
Dates Tested: 06/11/2020 - 09/11/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: Laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	G20-4189A	G20-4189B	
Test Number	3	4	
Date Tested	06/11/2020	06/11/2020	
Time Tested	**	**	
Test Request #/Location	LOT 1523	LOT 1525	
Line / Offset	O/S SE CNR	O/S SE CNR	
Offset	5m NTH, 5m EAST	4m NTH, 9m EAST	
Layer / Reduced Level	1m BELOW FL	1.5m BELOW FL	
Soil Description	Sandy Clay. Grey-Brown	Sandy Clay. Grey-Brown	
Test Depth (mm)	150	150	
Sieve used to determine oversize (mm)	**	**	
Percentage of Wet Oversize (%)	**	**	
Field Wet Density (FWD) t/m^3	2.00	1.95	
Field Moisture Content %	19.4	17.3	
Field Dry Density (FDD) t/m^3	1.68	1.67	
Peak Converted Wet Density t/m^3	2.00	2.02	
Adjusted Peak Converted Wet Density t/m^3	**	**	
Moisture Variation (Wv) %	1.0	2.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	**100.0**	**97.0**	
Compaction Method	**Standard**	**Standard**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

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Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: **GL20/128-3**
Issue Number: 1
Date Issued: 08/12/2020
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4282
Date Sampled: 19/11/2020 7:00
Dates Tested: 19/11/2020 - 08/12/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	G20-4282A	G20-4282B	
Test Number	5	6	
Date Tested	19/11/2020	19/11/2020	
Time Tested	**	**	
Test Request #/Location	LOT 1524	LOT 1526	
Chainage (m)	O/S SW CNR	O/S SW CNR	
Location Offset (m)	6m NTH, 11m EAST	9m NTH, 6m EAST	
Layer / Reduced Level	0.5m BELOW FL	FINISHED LEVEL	
Soil Description	Sandy Clay. Yellow-Brown	Sandy Clay. Yellow-Brown	
Test Depth (mm)	150	150	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0.0	0.0	
Field Wet Density (FWD) t/m^3	2.07	2.10	
Field Moisture Content %	10.3	9.2	
Field Dry Density (FDD) t/m^3	1.87	1.93	
Peak Converted Wet Density t/m^3	1.99	1.97	
Adjusted Peak Converted Wet Density t/m^3	**	**	
Moisture Variation (Wv) %	4.0	4.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	**104.0**	**107.0**	
Compaction Method	**Standard**	**Standard**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **GL20/128-4**
Issue Number: 1
Date Issued: 15/12/2020
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4400
Date Sampled: 03/12/2020
Dates Tested: 03/12/2020 - 08/12/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: AS 1289.5.7.1 and 1289.2.1.1 laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

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Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	G20-4400A	G20-4400B	G20-4400C	G20-4400D	G20-4400E
Test Number	7	8	9	10	11
Date Tested	03/12/2020	03/12/2020	03/12/2020	03/12/2020	03/12/2020
Time Tested	11:40	11:50	12:00	12:10	12:20
Test Request #/Location	LOT 1522	LOT 1521	LOT 1520	LOT 1470	LOT 1469
Chainage (m)	O/S NW CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR
Location Offset (m)	3m EAST, 5m STH	6m STH, 4m EAST	8m STH, 2m EAST	12m STH, 4m EAST	16m EAST, 5m STH
Layer / Reduced Level	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL
Soil Description	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.92	1.94	1.80	2.07	2.09
Field Moisture Content %	18.7	14.9	11.4	13.9	16.8
Field Dry Density (FDD) t/m^3	1.62	1.69	1.62	1.82	1.79
Peak Converted Wet Density t/m^3	1.97	1.96	1.86	2.06	2.08
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	1.5	1.5	3.0	2.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**97.5**	**99.0**	**97.0**	**100.5**	**100.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Email: gtaylor@mgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: GL20/128-5
Issue Number: 1
Date Issued: 26/01/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4532
Date Sampled: 15/01/2021 11:00
Dates Tested: 15/01/2021 - 23/01/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: AS 1289.5.7.1 and 1289.2.1.1 laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	G21-4532A	G21-4532B	G21-4532C	G21-4532D	G21-4532E	G21-4532F
Test Number	12	13	14	15	16	17
Date Tested	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021
Time Tested	**	**	**	**	**	**
Test Request #/Location	LOT 1506	LOT 1508	LOT 1433	LOT 1434	LOT 1435	LOT 1436
Chainage (m)	O/S SE CNR	O/S SE CNR	O/S SW CNR	O/S SW CNR	O/S SW CNR	O/S SW CNR
Location Offset (m)	5m NTH, 15m WEST	6m NTH, 17m WEST	9m NTH, 11m EAST	6m NTH, 8m EAST	3m NTH, 5m EAST	8m NTH, 11m EAST
Layer / Reduced Level	1.5m BELOW FL	1m BELOW FL	0.5m BELOW FL	FINISHED LEVEL	1m BELOW FL	FINISHED LEVEL
Soil Description	Sandy Clay. Yellow-Brown	Sandy Clay. Yellow-Brown	Sandy Clay. Yellow-Brown	Sandy Clay. Yellow-Brown	Sandy Clay. Yellow-Brown	Sandy Clay. Yellow-Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.00	2.00	2.06	2.07	2.10	2.12
Field Moisture Content %	21.5	24.2	18.8	16.2	17.1	18.0
Field Dry Density (FDD) t/m^3	1.65	1.61	1.73	1.78	1.80	1.80
Peak Converted Wet Density t/m^3	1.97	1.87	2.02	2.03	2.03	2.03
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	-0.5	0.0	-0.5	-0.5	-0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**101.5**	**107.0**	**101.5**	**102.0**	**103.5**	**104.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
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Email: gtaylor@mgeo.com.au

Report Number: GL20/128-6
Issue Number: 1
Date Issued: 04/02/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4563
Date Sampled: 21/01/2021 2:00
Dates Tested: 21/01/2021 - 27/01/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	G21-4563A	G21-4563B	
Test Number	18	19	
Date Tested	21/01/2021	21/01/2021	
Time Tested	14:00	14:10	
Test Request #/Location	LOT 1467	LOT 1468	
Chainage (m)	O/S NW CNR	O/S NW CNR	
Location Offset (m)	14m WEST, 5m STH	11m WEST, 8m STH	
Layer / Reduced Level	FINISHED LEVEL	FINISHED LEVEL	
Soil Description	Silty Sandy Clay, Yellow-brown	Silty Sandy Clay, Yellow-brown	
Test Depth (mm)	150	150	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	**	**	
Field Wet Density (FWD) t/m^3	1.98	2.01	
Field Moisture Content %	20.6	22.2	
Field Dry Density (FDD) t/m^3	1.64	1.64	
Peak Converted Wet Density t/m^3	2.01	2.03	
Adjusted Peak Converted Wet Density t/m^3	**	**	
Moisture Variation (Wv) %	0.5	0.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	**98.5**	**98.5**	
Compaction Method	**Standard**	**Standard**	
Report Remarks	**	**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: **GL20/128-7**
Issue Number: 1
Date Issued: 14/02/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Simon, James
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4614
Date Sampled: 30/01/2021 8:00
Dates Tested: 30/01/2021 - 04/02/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	G21-4614A	G21-4614B	G21-4614C	G21-4614D	G21-4614E	G21-4614F
Test Number	20	21	22	23	24	25
Date Tested	30/01/2021	30/01/2021	30/01/2021	30/01/2021	30/01/2021	30/01/2021
Time Tested	**	**	**	**	**	**
Test Request #/Location	LOT 1440	LOT 1438	LOT 1503	LOT 1501	LOT 1510	LOT 1507
Chainage (m)	O/S SW CNR	O/S NW CNR	O/S SW CNR	O/S SW CNR	O/S SE CNR	O/S SE CNR
Location Offset (m)	8m EAST, 3m NTH	11m NTH, 7m EAST	13m EAST, 9m NTH	15m EAST, 6m NTH	8m WEST, 5m NTH	10m WEST, 4m NTH
Layer / Reduced Level	FINISHED LEVEL	FINISHED LEVEL	1m BELOW FL	1.5m BELOW FL	1.5m BELOW FL	0.5m BELOW FL
Soil Description	Sandy Gravelly Clay. Yellow-Brown	Sandy Gravelly Clay. Yellow-Brown	Sandy Gravelly Clay. Yellow-Brown	Sandy Gravelly Clay. Yellow-Brown	Sandy Gravelly Clay. Yellow-Brown	Sandy Gravelly Clay. Yellow-Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.06	2.10	2.06	2.03	2.11	2.07
Field Moisture Content %	18.7	20.5	18.3	17.7	18.1	10.9
Field Dry Density (FDD) t/m^3	1.74	1.74	1.74	1.73	1.79	1.87
Peak Converted Wet Density t/m^3	2.06	2.02	2.03	2.04	2.04	2.04
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	1.5	0.5	1.5	2.5	2.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**100.0**	**104.0**	**101.5**	**99.5**	**103.5**	**102.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

MORRISON GEOTECHNIC
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Report Number: GL20/128-8
Issue Number: 1
Date Issued: 14/02/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4637
Date Sampled: 05/02/2021
Dates Tested: 05/02/2021 - 10/02/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: AS 1289.5.7.1 and 1289.2.1.1 laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	G21-4637A	G21-4637B	G21-4637C	G21-4637D	G21-4637E	G21-4637F
Test Number	26	27	28	29	30	31
Date Tested	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021
Time Tested	08:00	08:10	08:20	09:15	09:25	09:35
Test Request #/Location	LOT 1442	LOT 1441	LOT 1498	LOT 1499	LOT 1441	LOT 1443
Line / Offset	O/S NW CNR	O/S NW CNR	O/S SE CNR	O/S SE CNR	O/S NW CNR	O/S NE CNR
Offset	9m EAST, 5m STH	15m EAST, 8m STH	7m NTH, 8m WEST	9m NTH, 11m WEST	5m EAST, 15m STH	6m WEST, 12m STH
Layer / Reduced Level	1m BELOW FL	1.5m BELOW FL	2m BELOW FL	1m BELOW FL	FINISHED LEVEL	FINISHED LEVEL
Soil Description	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**	**
Field Wet Density (FWD) t/m^3	2.10	2.10	2.10	2.09	2.06	2.07
Field Moisture Content %	15.6	16.6	15.4	15.9	15.7	16.1
Field Dry Density (FDD) t/m^3	1.82	1.80	1.82	1.80	1.78	1.79
Peak Converted Wet Density t/m^3	2.10	2.12	2.13	2.11	2.12	2.11
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	2.0	2.0	2.0	2.5	2.0	2.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**100.5**	**99.0**	**99.0**	**99.0**	**97.0**	**98.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

MORRISON GEOTECHNIC
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Report Number: GL20/128-9
Issue Number: 1
Date Issued: 14/02/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4661
Date Sampled: 10/02/2021
Dates Tested: 10/02/2021 - 11/02/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: AS 1289.5.7.1 and 1289.2.1.1 laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	G21-4661A	G21-4661B	G21-4661C	G21-4661D
Test Number	32	33	34	35
Date Tested	10/02/2021	10/02/2021	10/02/2021	10/02/2021
Time Tested	**	**	**	**
Test Request #/Location	LOT 1464	LOT 1444	LOT 1445	LOT 1446
Line / Offset	O/S NE CNR	O/S NE CNR	O/S NE CNR	O/S NE CNR
Offset	15m SOUTH 5m WEST	6m SOUTH 5m WEST	6m SOUTH 9m WEST	4m SOUTH 6m WEST
Layer / Reduced Level	FINISHED LEVEL	1m BELOW FL	0.5m BELOW FL	FINISHED LEVEL
Soil Description	Sandy Clay. Pale Brown	Sandy Clay. Pale brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown
Test Depth (mm)	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0
Field Wet Density (FWD) t/m^3	2.07	2.05	2.03	2.02
Field Moisture Content %	16.4	16.8	15.5	15.5
Field Dry Density (FDD) t/m^3	1.78	1.76	1.76	1.75
Peak Converted Wet Density t/m^3	2.00	2.00	2.04	2.03
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	0.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	**103.5**	**102.5**	**99.5**	**99.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

MORRISON GEOTECHNIC
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: GL20/128-10
Issue Number: 1
Date Issued: 18/02/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4672
Date Sampled: 11/02/2021
Dates Tested: 11/02/2021 - 17/02/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: AS 1289.5.7.1 and 1289.2.1.1 laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	G21-4672A	G21-4672B	G21-4672C	G21-4672D	G21-4672E	G21-4672F
Test Number	36	37	38	39	40	41
Date Tested	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021
Time Tested	**	**	**	**	**	**
Test Request #/Location	LOT 1448	LOT 1449	LOT 1449	LOT 1447	LOT 1504	LOT 1502
Line / Offset	O.S NW CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR	O/S SE CNR	O/S SE CNR
Offset	13m EAST, 7m STH	8m EAST, 15m STH	11m EAST, 5m STH	7m EAST, 3m STH	6m WEST, 9m NTH	12m WEST, 6m NTH
Layer / Reduced Level	0.5m BELOW FL	1.5m BELOW FL	FINISHED LEVEL	1m BELOW FL	1m BELOW FL	1.5m BELOW FL
Soil Description	Sandy Gravelly Clay. Orange-Brown	Sandy Gravelly Clay. Orange-Brown	Sandy Gravelly Clay. Orange-Brown	Sandy Gravelly Clay. Orange-Brown	Sandy Gravelly Clay. Orange-Brown	Sandy Gravelly Clay. Orange-Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**	**
Field Wet Density (FWD) t/m^3	2.04	2.04	2.09	2.10	2.06	2.06
Field Moisture Content %	9.6	11.4	13.8	10.1	11.4	8.7
Field Dry Density (FDD) t/m^3	1.86	1.84	1.84	1.91	1.85	1.89
Peak Converted Wet Density t/m^3	2.08	2.09	2.12	2.11	2.08	2.11
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	2.0	1.5	2.0	2.5	1.5	2.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**98.0**	**98.0**	**98.5**	**99.5**	**99.5**	**97.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: **GL20/128-11**
Issue Number: 1
Date Issued: 22/02/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4699
Date Sampled: 16/02/2021
Dates Tested: 16/02/2021 - 18/02/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: AS 1289.5.7.1 and 1289.2.1.1 laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	G21-4699A	G21-4699B	G21-4699C	G21-4699D	G21-4699E	G21-4699F
Test Number	42	43	44	45	46	47
Date Tested	16/02/2021	16/02/2021	16/02/2021	16/02/2021	16/02/2021	16/02/2021
Time Tested	**	**	**	**	**	**
Test Request #/Location	LOT 1500	LOT 1439	LOT 1519	LOT 1466	LOT 1432	LOT 1431
Line / Offset	O/S NE CNR	O/S NW CNR	O/S SE CNR	O/S SW CNR	O/S NW CNR	O/S NW CNR
Offset	5m STH, 12m WEST	3m STH, 10m EAST	3m WEST, 4m NTH	7m EAST, 3m NTH	4m STH, 5m EAST	4m STH, 6m EAST
Layer / Reduced Level	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL
Soil Description	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**	**
Field Wet Density (FWD) t/m^3	2.05	2.05	2.04	2.05	2.05	2.06
Field Moisture Content %	14.0	14.0	12.3	12.4	12.0	12.2
Field Dry Density (FDD) t/m^3	1.80	1.80	1.81	1.82	1.83	1.83
Peak Converted Wet Density t/m^3	2.08	2.07	2.09	2.07	2.10	2.07
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.5	0.0	0.5	0.5	0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**98.5**	**98.5**	**97.5**	**99.0**	**97.5**	**99.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

MORRISON GEOTECHNIC
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: **GL20/128-12**
Issue Number: 1
Date Issued: 26/03/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4883
Dates Tested: 19/03/2021 - 22/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: AS 1289.5.7.1 and 1289.2.1.1 laboratory Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	G21-4883A	G21-4883B	G21-4883C
Test Number	48	49	50
Date Tested	19/03/2021	19/03/2021	19/03/2021
Time Tested	13:00	13:05	13:10
Test Request #/Location	LOT 1511	LOT 1509	LOT 1505
Line / Offset	O/S NE CNR	O/S NE CNR	O/S NE CNR
Offset	6m WEST, 7m SOUTH	9m WEST, 6m SOUTH	8m WEST, 6m SOUTH
Layer / Reduced Level	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL
Soil Description	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**
Field Wet Density (FWD) t/m^3	2.02	2.02	2.01
Field Moisture Content %	20.3	17.6	17.0
Field Dry Density (FDD) t/m^3	1.68	1.72	1.72
Peak Converted Wet Density t/m^3	1.98	1.98	1.98
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**102.0**	**102.0**	**101.5**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
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Gold Coast Laboratory
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Phone: (07) 5596 1599
Email: gtaylor@mgeo.com.au

Report Number: GL20/128-13
Issue Number: 1
Date Issued: 05/04/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Contact: Will, Simon
Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4884
Dates Tested: 19/03/2021 - 25/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	G21-4884A	G21-4884B	G21-4884C	G21-4884D	G21-4884E	G21-4884F
Test Number	51	52	53	54	55	56
Date Tested	19/03/2021	19/03/2021	19/03/2021	19/03/2021	19/03/2021	19/03/2021
Time Tested	11:00	11:10	11:18	11:25	11:36	11:47
Test Request #/Location	LOT 1438	LOT 1439	LOT 1440	LOT 1441	LOT 1443	LOT 1445
Line / Offset	O/S SE CNR	O/S SE CNR	O/S SE CNR	O/S SE CNR	O/S SE CNR	O/S SE CNR
Offset	10m WEST, 3m NTH	12m WEST, 6m NTH	8m WEST, 5m NTH	7m WEST, 7m NTH	8m WEST, 9m NTH	5m WEST, 5m NTH
Layer / Reduced Level	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL
Soil Description	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.00	2.01	1.98	2.00	2.01	1.99
Field Moisture Content %	21.3	19.5	19.2	19.1	13.8	16.6
Field Dry Density (FDD) t/m^3	1.65	1.68	1.66	1.68	1.77	1.71
Peak Converted Wet Density t/m^3	2.01	2.01	1.98	1.99	1.98	1.97
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	-0.5	0.0	0.0	0.0	0.5	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**100.0**	**100.0**	**100.0**	**100.5**	**101.5**	**101.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

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Email: gtaylor@mgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Report Number: **GL20/128-13**
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Date Issued: 05/04/2021
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
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Project Number: GL20/128
Project Name: Gainsborough Greens Precinct 3.1 - Level 1 Earthworks
Project Location: Gainsborough Drive, Pimpama
Work Request: 4884
Dates Tested: 19/03/2021 - 25/03/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Remarks: Testing carried out by Morrison Geotechnic's Darra Laboratory. NATA Accreditation No. 1169, Site No. 1162.
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	G21-4884G	G21-4884H	G21-4884I	G21-4884J	G21-4884K	G21-4884L
Test Number	57	58	59	60	61	62
Date Tested	19/03/2021	19/03/2021	19/03/2021	19/03/2021	19/03/2021	19/03/2021
Time Tested	11:58	12:05	12:13	12:19	12:26	12:35
Test Request #/Location	LOT 1447	LOT 1498	LOT 1500	LOT 1502	LOT 1504	LOT 1506
Line / Offset	O/S SE CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR
Offset	11m WEST, 8m NTH	5m EAST, 5m STH	7m EAST, 8m STH	4m EAST, 6m STH	6m EAST, 3m STH	10m EAST, 6m STH
Layer / Reduced Level	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL
Soil Description	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.02	2.01	1.98	1.99	1.99	2.02
Field Moisture Content %	21.0	18.4	19.3	20.4	20.8	18.0
Field Dry Density (FDD) t/m^3	1.67	1.70	1.66	1.65	1.65	1.71
Peak Converted Wet Density t/m^3	2.03	2.01	1.98	2.00	2.00	2.00
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	-1.0	-0.5	0.0	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**99.5**	**100.0**	**99.5**	**99.5**	**99.5**	**101.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

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Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

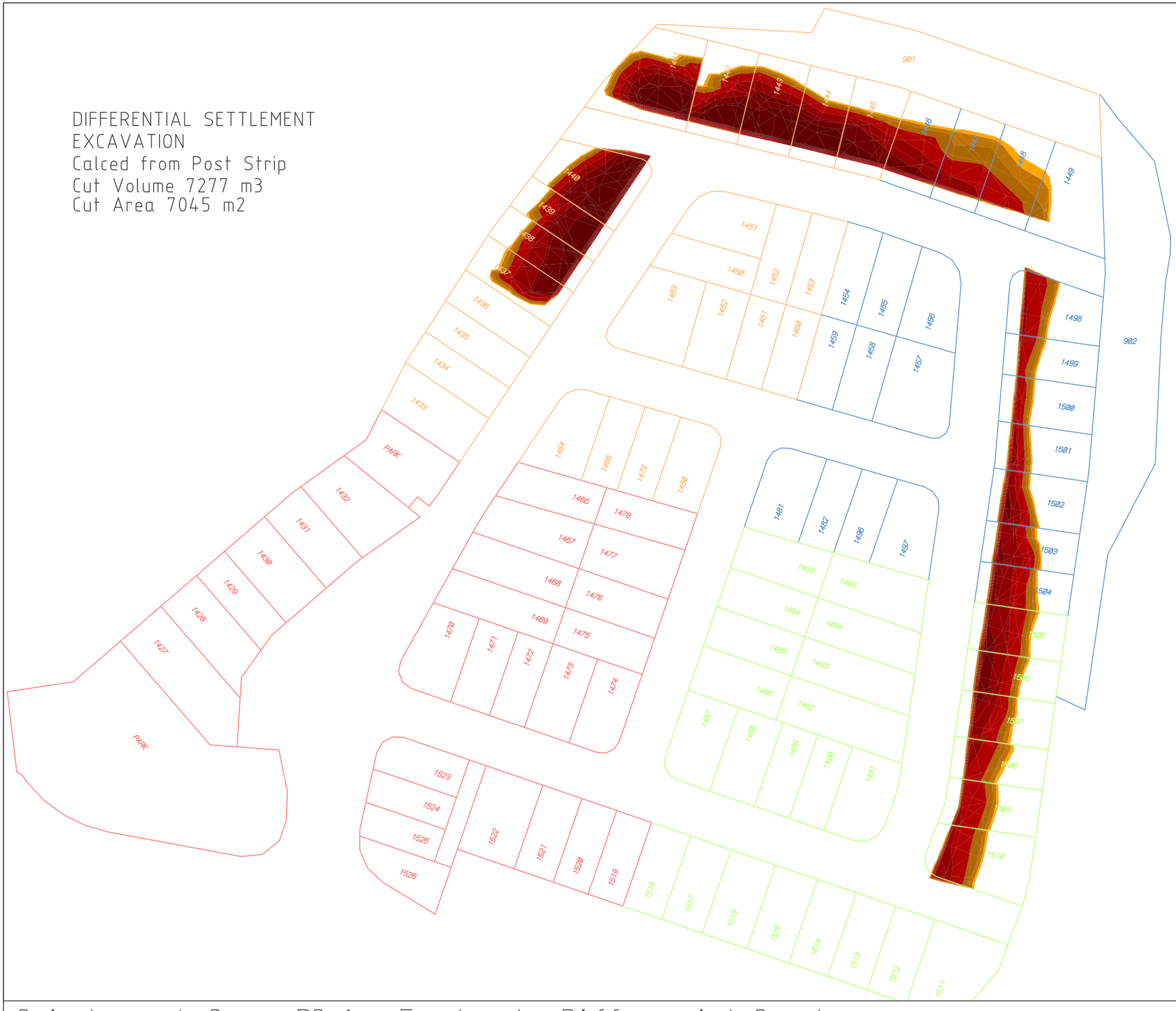
Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	G21-4884M	G21-4884N				
Test Number	63	64				
Date Tested	19/03/2021	19/03/2021				
Time Tested	12:42	12:49				
Test Request #/Location	LOT 1508	LOT 1510				
Line / Offset	O/S NW CNR	O/S NW CNR				
Offset	11m EAST, 6m STH	9m EAST, 5m STH				
Layer / Reduced Level	FINISHED LEVEL	FINISHED LEVEL				
Soil Description	Sandy Clay. Orange-Brown	Sandy Clay. Orange-Brown				
Test Depth (mm)	150	150				
Sieve used to determine oversize (mm)	19.0	19.0				
Percentage of Wet Oversize (%)	0	0				
Field Wet Density (FWD) t/m^3	1.98	2.00				
Field Moisture Content %	20.2	20.3				
Field Dry Density (FDD) t/m^3	1.65	1.66				
Peak Converted Wet Density t/m^3	2.01	2.00				
Adjusted Peak Converted Wet Density t/m^3	**	**				
Moisture Variation (Wv) %	0.0	0.0				
Adjusted Moisture Variation %	**	**				
Hilf Density Ratio (%)	**98.5**	**100.0**				
Compaction Method	**Standard**	**Standard**				
Report Remarks	**	**				

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Appendix C
(Differential Settlement Excavation Plan)

DIFFERENTIAL SETTLEMENT
EXCAVATION
Calced from Post Strip
Cut Volume 7277 m3
Cut Area 7045 m2



Cut Fill Depths Lower_value		Upper_value		Colour
-99999	to	-5	m	
-5	to	-4	m	
-4	to	-3	m	
-3	to	-2	m	
-2	to	-1.5	m	
-1.5	to	-1	m	
-1	to	-.5	m	
-.5	to	-.25	m	
-.25	to	-.1	m	
-.1	to	0	m	
0.000	to	.1	m	
.1	to	.25	m	
.25	to	.5	m	
.5	to	1	m	
1	to	1.5	m	
1.5	to	2	m	
2	to	3	m	
3	to	4	m	
4	to	5	m	
5	to	9999	m	

Gainsborough Green P3.1 - Earthworks Differential Settlement

12d Model
Scale 1:1250
Thu Dec 03 21:22:32 2020

Appendix D
(Level 1 Report GL18/067, Dated 20th August 2018)

MORRISON GEOTECHNIC

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www.morrisongeo.com.au

Gold Coast Office
Job: GL18/067
Ref: 18153
Author: Ian Masman

20th August, 2018

Golding Contractors Pty Ltd
Po Box 1643
Milton Qld, 4064

ATTENTION: MR JESSE SIEBRAND
Email: jesse.siebrand@golding.com.au

Dear Sir

RE: LEVEL ONE COMPLIANCE REPORT FOR EARTHWORKS FILLING OPERATIONS GAINSBOROUGH GREENS – PRECINCT 3.1 PARK GAINSBOROUGH DRIVE, PIMPAMA

Table of Contents

1.0 INTRODUCTION

1.1 General

This report presents results of Level One earthworks inspections, field testing and associated Compaction Compliance testing carried out on earthworks fill placed and compacted to form residential allotments and embankments below subgrade at Gainsborough Greens, Precinct 3.1 Park, Gainsborough Drive, Pimpama (The Site).

The work was commissioned by Mr. Jesse Siebrand representing Golding Contractors (The Client) using Purchase Order 4500227370.

The earthworks were carried out by The Client.

Earthworks operations were carried out intermittently between 23rd May, and the 2nd August, 2018.

The fill earthworks carried out at The Site generally ranges between 0.5m and greater than 5m in thickness. Locally the fill exceeds 6m thickness. AS3798 (Guidelines on Earthworks for Commercial and Residential Developments) is applicable for fill up to 5m thick, refer to Section 2.2, "Filling Operations" for important information regarding fill areas that exceed 5m in depth.

1.2 Previous Earthworks

The Site contained some minor previously placed fill which we classed as uncontrolled fill. This fill was removed to natural ground during the site stripping process prior to placing new fill.

1.3 The Project

The proposed development at The Site includes a park, residential allotments, new pavements, and associated underground service networks.

Earthworks filling is required to form building platforms supporting the proposed residential development, road embankments to support future pavements. Earthworks at The Site included stripping vegetation, organics and topsoil; proof roll testing of the natural ground surface; and then filling The Site to the project design levels.

The Site is surrounded by existing undeveloped land to the North, newly developed land to the East, and Gainsborough Drive to the South and West.

Picture 1: Aerial View of the Site (Image Source: Nearmap.com, showing 1st August, 2018).

2.0 THE BRIEF

The Brief from the Client was limited to:

- Level One Inspections of the placement and compaction of fill materials between the existing ground level and the design earthworks level in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments";
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.1.
- City of Gold Coast Council Requirements.
- Notes on KN Group project drawings.

All other design requirements such as CBR and Quality of Materials, site classification, material assessments, foundation assessments and slope / global stability appraisals were not included in the Brief and are therefore excluded from this Report.

KN Group Earthworks Contour Plans AI-16-156-104E & AI-16-156-105E indicate the extents of fill to be constructed at The Site. The plans are considered to be a reasonable indication of the actual fill constructed during our involvement.

2.1 Additional Requirements

Morrison Geotechnic was not engaged to carry out additional works other than what was outlined in the Brief.

3.0 METHODOLOGY

Earthworks Inspections and Testing was carried out on the stripped and exposed ground surface and during the placement and compaction of fill materials forming road embankments.

Field and laboratory testing included walk over assessments of the existing ground conditions, proof roll testing of the stripped surface including the natural surface observation of filling and compaction activities and field density testing using a soil moisture density gauge and Hilf Density compactions.

3.1 Stripped Surface Assessment

The Site had been cleared of all debris, trees and topsoil. Visible organic matter, uncompacted or loose soil, unsuitable materials and any over wet areas were removed to expose the natural foundation.

The natural materials exposed after stripping and clearing the site which formed the fill foundation can be broadly summarized as:

- Natural – Sandy Clay (CI) dark brown, moist.

The stripped surface was proof rolled by The Client in the presence of our Geotechnicians using a large pad foot roller carrying out multiple passes. Areas where movements were observed beneath the wheels of the plant were removed to a suitable base or tyned, air dried to approximate optimum moisture content and re-compacted. After the above treatments were carried out, the proof rolling process was repeated.

When no visible movement or vertical deflection was observed during proof roll testing, the stripped surface was assessed to be suitable as a foundation for the placement of fill.

Any ponds or dams were dewatered and all wet silts clays and other deleterious materials were removed to a suitable base.

Picture 2: View of the Stripped Surface Prior to the Placement of Fill

3.2 Filling Operations

Fill materials were sourced from cut areas at The Site and imported materials from various stages within the development.

Materials used as fill at The Site can be summarized as: -

- Onsite - Sandy Clay (CI), dark brown, moist.

Placement and compaction of the fill materials was carried out using the following plant:

- Dump Trucks
- Excavator
- Pad Foot Roller
- Dozer

The fill was placed in layers appropriate for the above plant, moisture conditioned at the fill source and during placement and thoroughly mixed to achieve moisture contents suitable for compaction.

To the extent that was reasonably practicable, fill materials visibly containing excessive amounts of silts or deleterious materials such as sticks, oversize particles or construction debris were sorted to remove the contaminants prior to placement, or rejected for use. Some cobble sized particles may remain in the body of the fill, however are unlikely to be in sufficient quantities to adversely affect the performance of the new fill. Sloping areas requiring filling were benched and continually keyed into the slope prior to and during fill placement. Compaction of the fill was carried out using multiple passes of the above compaction plant.

Field density tests and laboratory compactions were carried out on the fill materials in accordance with Table 5.1 and 8.1 of AS3798 2007 (Guidelines on Earthworks for Commercial and Residential Developments) and tested to AS1289 test methods (Testing of Soils for Engineering Purposes). Testing achieved the required compaction specification of 95% Standard compaction.

The location of the field density tests are shown on the Site Plan contained in Appendix A.
The results of the field density and laboratory compaction tests are contained in Appendix B.
These test locations and levels were not obtained by survey and are therefore should only be considered as approximate.

3.3 Fill Thickness Greater than 5m.

Fill thicknesses of greater than 5m and locally up to 6m have been constructed at The Site. The foundation designer for residential structures must take into consideration ground surface settlements when designing slabs and footings. Long term settlements are likely to be gradual however, may accelerate if the fill becomes saturated.

Long term ground surface creep settlements for well compacted fill may range between 0.5% and 1.0% of the thickness of the fill. Differential settlement can occur in the fill and will be proportionate to the variation in fill thickness.

In ground services should utilise flexible couplings in the areas of fill that exceed a thickness of 5m. Flexible retaining walls should be adopted if required at locations where the fill exceeds 5m thick,

The thickness of fill should be considered when assessing the slope stability at this project.

Please refer to the Lot Disclosures Plans which can be requested from the developer for the actual constructed fill thickness and extremities on Individual Lots, particularly for Lots where in excess of 5m depth of fill has been placed, or Lots with varying depths of fill.

Picture 3: Site Earthworks Filling Operations

4.0 STATEMENT OF COMPLIANCE

Our representatives observed the relevant earthworks operations during our engagement including the stripped surface, fill placement and compaction operations and carried out field density tests and laboratory compaction tests in accordance with The Brief.

The fill at The Site has been observed to be placed and compacted in a controlled manner and can be termed "Controlled" as defined in AS2870 (Residential Slabs and Footings).

5.0 EXCLUSIONS

The compliance statement excludes any other subsequent earthworks after 2nd August, 2018. All trench backfill, landscaping fill and other fill placed without our knowledge is also excluded.

Assessments of batter stability, global stability, and material quality such as soaked CBR and site classifications are excluded from this commission. The stability of any fill batters in the long term must take account of the variable materials used for the construction of the fill platforms and all surface loads including traffic loads near the crest of all batters.

Our on-site attendance specifically excludes assessments of fill material quality and engineering properties that are outside the requirements of AS.3798 - 2007, including soil or fill reactivity and soaked CBR values. We note that the fill materials comprise clay soils, which may result in unfavorable site classifications for individual lots and low subgrade design strengths for pavements.

Footings and ground slabs for any structures constructed over natural soils or controlled fill should be designed to accommodate the characteristic ground surface movements and settlement potential. Assessments of these design parameters are beyond the scope of this Report.

Controlled fill (Level 1 Fill) provides an overview that the Earthwork Specification has been met. There are instances where significant long term settlements of controlled fill can occur. Large total and differential settlements can be expected where fill has been placed over soft and compressible soils and where the thickness of controlled fill varies significantly across a lot.

In some cases, fill materials with high silt content can deteriorate in wet weather conditions resulting in allowable bearing pressures less than 100 kPa.

6.0 LIMITATIONS

This Report has been prepared by Morrison Geotechnic Pty Ltd (Morrison Geotechnic), and may include contributions from Morrison Geotechnic's officers and employees, sub-contractors, sub-consultants or agents (Contributors).

This Report is for the sole benefit and use of Golding Contractors Pty Ltd (Client), its designers, clients and relevant statutory authorities for the sole purpose of providing geotechnical advice and recommendations in respect of Gainsborough Greens – Precinct 3.1 Park, Gainsborough Drive, Pimpama Development (Project). The Report is only intended to address those issues expressly described in the Brief/ Work Instructions in this Report. This report should not be relied upon for assessing fill extents and thicknesses.

This Report should not be used or relied upon for any other purpose without Morrison Geotechnic's prior written consent. Morrison Geotechnic and the Contributors do not accept any responsibility or liability in any way whatsoever for the use or reliance of this Report by anyone other than the Client, its designers, its clients and relevant statutory authorities or by anyone else for any purpose other than that for which it has been prepared.

Except with Morrison Geotechnic's prior written consent, this Report may not be:

(a) released to any other party, whether in whole or in part (other than to the Client's officers, employees, advisers, designers, clients and relevant statutory authorities);

(b) Used or relied upon by any other party.

Morrison Geotechnic and the Contributors, do not accept any liability or responsibility whatsoever for, or in respect of, any use or reliance upon this Report by any other party. Morrison Geotechnic is not obliged to enter into discussions with any third party in respect of this Report.

The information (including technical information and information obtained through discussions) on which this report is based has been provided by the Client and third parties. Morrison Geotechnic and the Contributors:

(a) have relied upon and presumed the accuracy of this information;

(b) have not verified the accuracy or reliability of this information (other than as expressly stated in this Report);

(c) have not made any independent investigations or enquiries in respect of those matters of which it has no actual knowledge at the time of giving this Report to the Client; and

(d) Make no warranty or guarantee, expressed or implied, as to the accuracy or reliability of this information.

Morrison Geotechnic and the Contributors do not accept responsibility or liability for any incorrect assumptions related to this Report. For the avoidance of doubt, this Report:

(a) is not an environmental, contamination or hazardous materials assessment; may be invalid, incomplete or inaccurate (including errors in the scope of work, investigation methodology, observations, opinions and advice) where the information provided to Morrison Geotechnic was invalid, incomplete or inaccurate;

(b) Is limited to observations of those parts of the site described in Section 1.0.

No warranty or guarantee, whether express or implied, is made in respect of the geotechnical data, information, advice, opinions and recommendations present in this Report.

If further information becomes available, or additional assumptions need to be made, Morrison Geotechnic reserves its right to amend this Report.

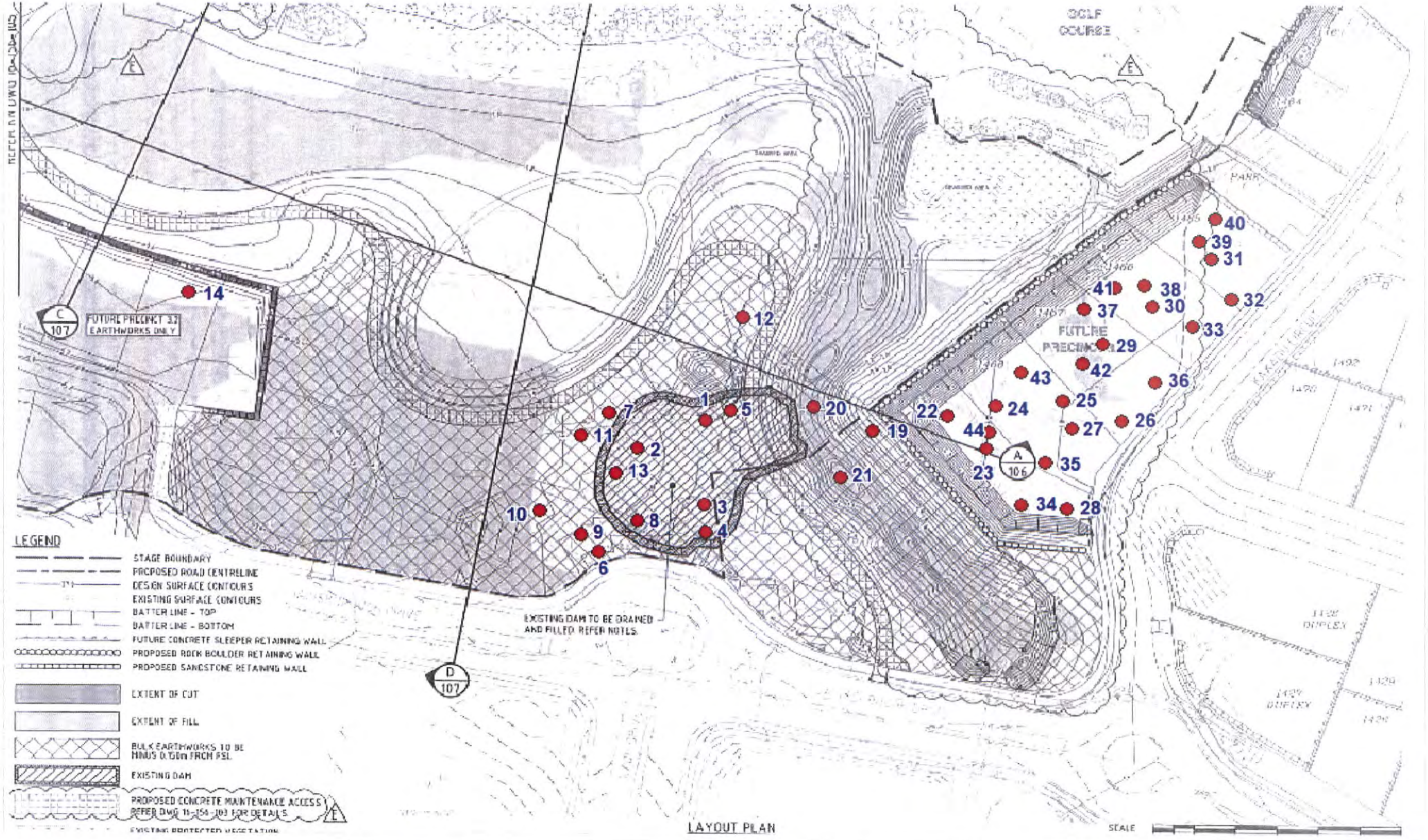
If you have any queries regarding the above, please contact Mr. Ian Masman at our Gold Coast office.

Ian Masman
For and on behalf of
MORRISON GEOTECHNIC PTY LIMITED

ATTACHMENTS:
Appendix A – Site Plan Showing Test Locations
Appendix B – Test Reports
Appendix C – Photo Gallery

APPENDIX 'A'

(Site Plan showing Test Locations)



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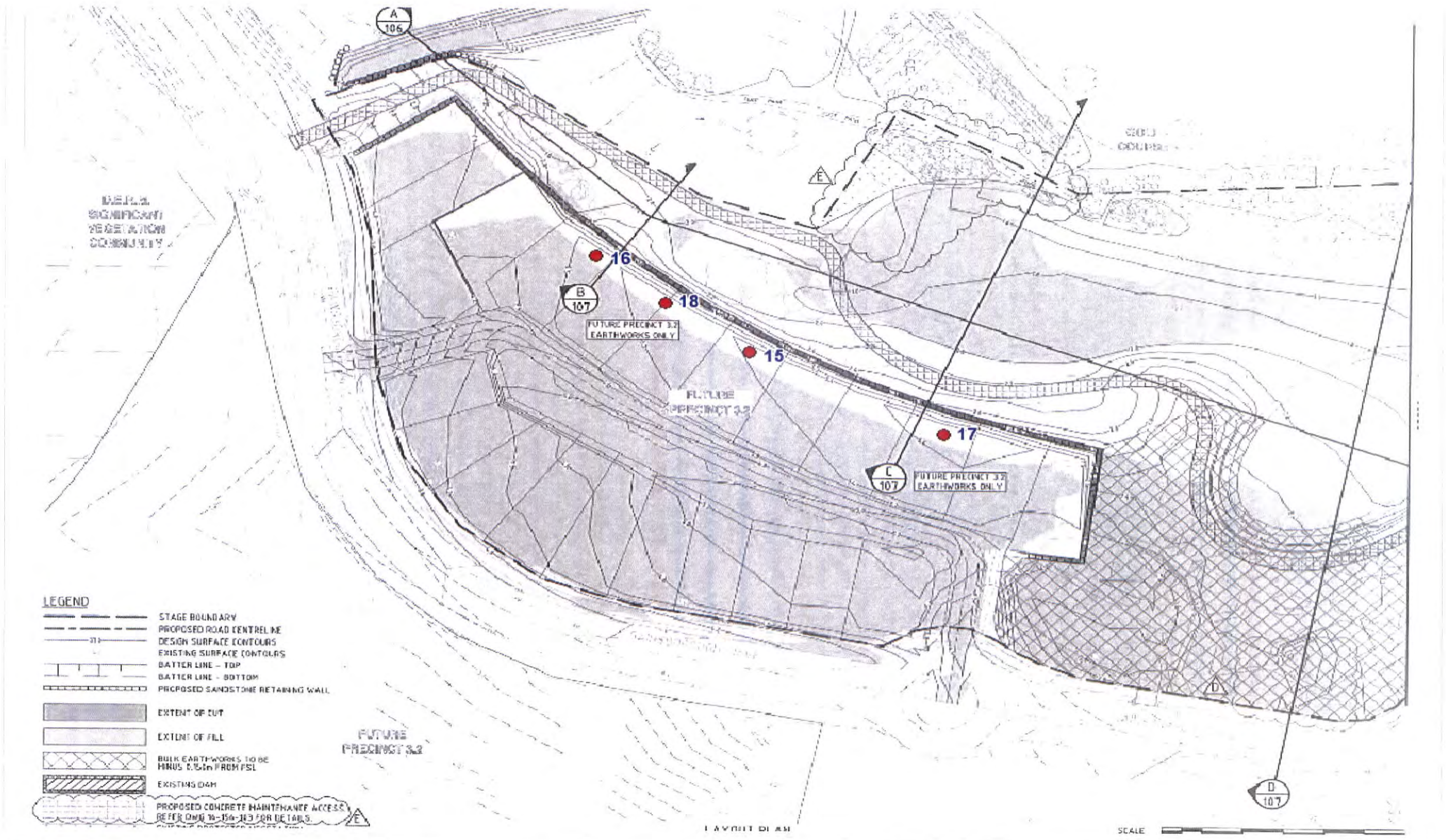
Email: goldcoastlab@morrisongeo.com.au Fax: 5527 2027

Engineers: D.Riley, J.Daly, S.Wynne, D.Dragun, B.Taylor
D.Vanderhor & B.Elsmore
Geologists: L.Bexley & R.Howchin

Map Description :	**Field Density Test Locations**
Client :	**Golding Contractors Pty Ltd**
Project :	Gainsborough Greens - Precinct 3.1 Park
Project No :	GL18/067 20/08/2018 Page 1 of 2



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Map Description :	**Field Density Test Locations**
Client :	**Golding Contractors Pty Ltd**
Project :	Gainsborough Greens - Precinct 3.1 Park
Project No :	GL18/067 20/08/2018 Page 1 of 2

APPENDIX 'B'

(Laboratory Test Results)

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.1/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**5/06/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	243619	243620	243621	
Test Number :	1	2	3	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	30/05/2018	30/05/2018	30/05/2018	
Date Tested :	30/05/2018	30/05/2018	30/05/2018	
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	ONSITE	
Lot Number :				
Sample Location :	REFER TO SITE PLAN 5m BELOW FL	REFER TO SITE PLAN 4.6m BELOW FL	REFER TO SITE PLAN 4.5m BELOW FL	
Test Depth (mm) :	150	150	150	
Layer Depth (mm) :	-	-	-	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	-	-	-	
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	19.0	23.8	20.8	
Hilf MDR Number :	243619	243620	243621	
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	
Compactive Effort :	Standard	Standard	Standard	
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	98.5	99.5	99	
Field Wet Density (t/m³) :	2.020	2.020	2.010	
Optimum Moisture Content (%) :	19.3	24.0	21.0	
Moisture Variation :	0.2	0.1	0.2	
Peak Converted Wet Density (t/m³) :	1.920	1.910	1.910	
Hilf Density Ratio (%) :	**105.0**	**105.5**	**105.5**	
Minimum Specification :	95	95	95	
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.2/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**8/06/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	243651	243652	243653	243654
Test Number :	4	5	6	7
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	31/05/2018	31/05/2018	31/05/2018	31/05/2018
Date Tested :	31/05/2018	31/05/2018	31/05/2018	31/05/2018
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :				
Sample Location :	PARK AREA REFER TO SITE PLAN 4m BELOW FL	PARK AREA REFER TO SITE PLAN 4m BELOW FL	PARK AREA REFER TO SITE PLAN 3.5m BELOW FL	PARK AREA REFER TO SITE PLAN 3.2m BELOW FL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	18.1	19.0	21.1	20.7
Hilf MDR Number :	243651	243652	243653	243654
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	101	98	99.5	99
Field Wet Density (t/m³) :	1.960	1.980	1.980	1.980
Optimum Moisture Content (%) :	18.0	19.4	21.2	20.9
Moisture Variation :	0.0	0.4	0.1	0.2
Peak Converted Wet Density (t/m³) :	1.950	1.930	1.940	1.940
Hilf Density Ratio (%) :	**100.5**	**102.0**	**102.0**	**101.5**
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.3/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**22/06/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244126	244127	244128	244129
Test Number :	8	9	10	11
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	15/06/2018	15/06/2018	15/06/2018	15/06/2018
Date Tested :	15/06/2018	15/06/2018	15/06/2018	15/06/2018
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :				
Sample Location :	REFER TO SITE PLAN 2.8m BELOW FL	REFER TO SITE PLAN 2.5m BELOW FL	REFER TO SITE PLAN 2m BELOW FL	REFER TO SITE PLAN 2m BELOW FL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	150	150	-	150
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	35.0	29.3	34.0	30.3
Hilf MDR Number :	244126	244127	244128	244129
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	102.5	101.5	103.5	103
Field Wet Density (t/m³) :	1.800	1.810	1.790	1.790
Optimum Moisture Content (%) :	34.2	28.8	32.9	29.5
Moisture Variation :	-0.7	-0.4	-0.9	-0.6
Peak Converted Wet Density (t/m³) :	1.860	1.850	1.870	1.890
Hilf Density Ratio (%) :	**97.0**	**98.0**	**95.5**	**95.0**
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.4/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**22/06/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244210	244211	244212	244213
Test Number :	12	13	14	15
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	19/06/2018	19/06/2018	19/06/2018	19/06/2018
Date Tested :	19/06/2018	19/06/2018	19/06/2018	19/06/2018
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :				
Sample Location :	REFER TO SITE PLAN 1.5m BELOW FL	REFER TO SITE PLAN 1.7m BELOW FL	REFER TO SITE PLAN 3m BELOW FL	REFER TO SITE PLAN 2m BELOW FL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	150	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	34.3	34.6	12.1	33.4
Hilf MDR Number :	244210	244211	244212	244213
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	107.5	107	121	107.5
Field Wet Density (t/m³) :	1.910	1.870	1.890	1.910
Optimum Moisture Content (%) :	31.9	32.3	10.0	31.1
Moisture Variation :	-2.1	-2.0	-2.3	-2.1
Peak Converted Wet Density (t/m³) :	1.920	1.900	1.920	1.890
Hilf Density Ratio (%) :	**99.0**	**98.5**	**98.0**	**101.5**
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.5/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**22/06/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244214			
Test Number :	16			
Sampling Method :	AS1289.1.2.1 CL. 6.4			
Date Sampled :	19/06/2018			
Date Tested :	19/06/2018			
Material Type :	GENERAL FILL			
Material Source :	ONSITE			
Lot Number :				
Sample Location :	REFER TO SITE PLAN 1m BELOW FL			
Test Depth (mm) :	150			
Layer Depth (mm) :	-			
Maximum Size (mm) :	19			
Oversize Wet (%) :	-			
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	27.6			
Hilf MDR Number :	244214			
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1			
Compactive Effort :	Standard			
Field Density Method :	AS1289.5.8.1			
Moisture Method :	AS 1289.2.1.1			
Moisture Ratio (%) :	109.5			
Field Wet Density (t/m³) :	1.890			
Optimum Moisture Content (%) :	25.2			
Moisture Variation :	-2.3			
Peak Converted Wet Density (t/m³) :	1.930			
Hilf Density Ratio (%) :	**98.0**			
Minimum Specification :	95			
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.6/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**22/06/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244242	244243		
Test Number :	17	18		
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4		
Date Sampled :	20/06/2018	20/06/2018		
Date Tested :	20/06/2018	20/06/2018		
Material Type :	GENERAL FILL	GENERAL FILL		
Material Source :	ONSITE	ONSITE		
Lot Number :				
Sample Location :	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL		
Test Depth (mm) :	150	150		
Layer Depth (mm) :	150	150		
Maximum Size (mm) :	19	19		
Oversize Wet (%) :	-	-		
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	29.9	28.9		
Hilf MDR Number :	244242	244243		
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1		
Compactive Effort :	Standard	Standard		
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1		
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1		
Moisture Ratio (%) :	102.5	101		
Field Wet Density (t/m³) :	1.930	1.930		
Optimum Moisture Content (%) :	29.1	28.6		
Moisture Variation :	-0.6	-0.1		
Peak Converted Wet Density (t/m³) :	1.940	1.960		
Hilf Density Ratio (%) :	**99.5**	**99.0**		
Minimum Specification :	95	95		
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.7/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**27/06/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244309	244310	244311	
Test Number :	19	20	21	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	21/06/2018	21/06/2018	21/06/2018	
Date Tested :	21/06/2018	21/06/2018	21/06/2018	
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	ONSITE	
Lot Number :				
Sample Location :	REFER TO SITE PLAN 5m BELOW FL	REFER TO SITE PLAN 3.2m BELOW FL	REFER TO SITE PLAN 2m BELOW FL	
Test Depth (mm) :	150	150	150	
Layer Depth (mm) :	-	-	-	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	-	-	-	
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	25.4	22.3	31.1	
Hilf MDR Number :	244309	244310	244311	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	Standard	
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	104	105	102	
Field Wet Density (t/m³) :	1.930	1.940	1.920	
Optimum Moisture Content (%) :	24.4	21.2	30.4	
Moisture Variation :	-0.9	-1.0	-0.5	
Peak Converted Wet Density (t/m³) :	1.880	2.000	1.950	
Hilf Density Ratio (%) :	**102.5**	**97.0**	**98.5**	
Minimum Specification :	95	95	95	
Moisture Specification :	-	-	-	
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.8/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**11/07/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244448	244449	244450	244451
Test Number :	22	23	24	25
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	2/07/2018	2/07/2018	2/07/2018	2/07/2018
Date Tested :	2/07/2018	2/07/2018	2/07/2018	2/07/2018
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :				
Sample Location :	REFER TO SITE PLAN 4.7m BELOW FL	REFER TO SITE PLAN 4m BELOW FL	REFER TO SITE PLAN 3.1m BELOW FL	REFER TO SITE PLAN 2.5m BELOW FL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	31.7	31.5	28.6	31.3
Hilf MDR Number :	244448	244449	244450	244451
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	81.5	80	85	80
Field Wet Density (t/m³) :	1.730	1.760	1.730	1.760
Optimum Moisture Content (%) :	38.9	39.4	33.6	39.0
Moisture Variation :	6.8	7.1	4.6	6.9
Peak Converted Wet Density (t/m³) :	1.710	1.740	1.810	1.770
Hilf Density Ratio (%) :	**101.5**	**101.0**	**95.5**	**99.5**
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.9/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**12/07/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244598	244599	244600	
Test Number :	26	27	28	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	9/07/2018	9/07/2018	9/07/2018	
Date Tested :	9/07/2018	9/07/2018	9/07/2018	
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	ONSITE	
Lot Number :	-	-	-	
Sample Location :	REFER TO SITE PLAN 4m BELOW FL	REFER TO SITE PLAN 2.6m BELOW FL	REFER TO SITE PLAN 2m BELOW FL	
Test Depth (mm) :	150	150	150	
Layer Depth (mm) :	200	-	-	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	-	-	-	
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	33.4	35.3	38.3	
Hilf MDR Number :	244598	244599	244600	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	Standard	
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	103	102.5	102.5	
Field Wet Density (t/m³) :	1.930	1.930	1.910	
Optimum Moisture Content (%) :	32.5	34.5	37.3	
Moisture Variation :	-0.8	-0.6	-0.8	
Peak Converted Wet Density (t/m³) :	1.880	1.890	1.880	
Hilf Density Ratio (%) :	**102.5**	**102.0**	**102.0**	
Minimum Specification :	95	95	95	
Moisture Specification :	-	-	-	
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.10/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**13/07/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244688	244689		
Test Number :	29	30		
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4		
Date Sampled :	11/07/2018	11/07/2018		
Date Tested :	11/07/2018	11/07/2018		
Material Type :	GENERAL FILL	GENERAL FILL		
Material Source :	ONSITE	ONSITE		
Lot Number :	-	-		
Sample Location :	REFER TO SITE PLAN 3.7m BELOW FL	REFER TO SITE PLAN 2.3m BELOW FL		
Test Depth (mm) :	150	150		
Layer Depth (mm) :	-	-		
Maximum Size (mm) :	19	19		
Oversize Wet (%) :	-	-		
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	17.9	24.6		
Hilf MDR Number :	244688	244689		
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1		
Compactive Effort :	Standard	Standard		
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1		
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1		
Moisture Ratio (%) :	103	103.5		
Field Wet Density (t/m³) :	1.970	1.960		
Optimum Moisture Content (%) :	17.4	23.8		
Moisture Variation :	-0.5	-0.7		
Peak Converted Wet Density (t/m³) :	1.950	1.960		
Hilf Density Ratio (%) :	**101.0**	**100.0**		
Minimum Specification :	95	95		
Moisture Specification :	-	-		
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.11/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**24/07/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244857	244858	244859	244860
Test Number :	34	35	36	37
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	19/07/2018	19/07/2018	19/07/2018	19/07/2018
Date Tested :	19/07/2018	19/07/2018	19/07/2018	19/07/2018
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1469	1468	1467	1467
Sample Location :	LOT 1469 REFER TO SITE PLAN 0.8m BELOW FL	LOT 1468 REFER TO SITE PLAN 1m BELOW FL	LOT 1467 REFER TO SITE PLAN 1m BELOW FL	LOT 1467 REFER TO SITE PLAN 0.5m BELOW FL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	7	7	7	8
Oversize Dry (%) :				
Oversize Density (t/m³) :	2.502	2.498	2.480	2.485
Field Moisture Content (%) :	18.6	18.7	18.8	18.8
Hilf MDR Number :	244857	244858	244859	244860
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	91.5	95.5	97.5	92
Field Wet Density (t/m³) :	2.040	2.050	2.040	2.070
Optimum Moisture Content (%) :	20.3	19.6	19.3	20.4
Moisture Variation :	1.6	0.8	0.5	1.6
Peak Converted Wet Density (t/m³) :	2.09*	2.09*	2.09*	2.1*
Hilf Density Ratio (%) :	**97.5**	**98.0**	**97.5**	**99.0**
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

* - denotes adjusted for oversize

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.12/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**24/07/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244861	244862		
Test Number :	38	39		
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4		
Date Sampled :	19/07/2018	19/07/2018		
Date Tested :	19/07/2018	19/07/2018		
Material Type :	GENERAL FILL	GENERAL FILL		
Material Source :	ONSITE	ONSITE		
Lot Number :	1466	1465		
Sample Location :	LOT 1466 REFER TO SITE PLAN FINISHED LEVEL	LOT 1465 REFER TO SITE PLAN FINISHED LEVEL		
Test Depth (mm) :	150	150		
Layer Depth (mm) :	-	-		
Maximum Size (mm) :	19	19		
Oversize Wet (%) :	6	7		
Oversize Dry (%) :				
Oversize Density (t/m³) :	2.491	2.494		
Field Moisture Content (%) :	18.9	10.6		
Hilf MDR Number :	244861	244862		
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1		
Compactive Effort :	Standard	Standard		
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1		
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1		
Moisture Ratio (%) :	96	86		
Field Wet Density (t/m³) :	2.050	2.050		
Optimum Moisture Content (%) :	19.6	12.3		
Moisture Variation :	0.7	1.8		
Peak Converted Wet Density (t/m³) :	2.08*	2.08*		
Hilf Density Ratio (%) :	**98.5**	**99.0**		
Minimum Specification :	95	95		
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

* - denotes adjusted for oversize

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.13/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**24/07/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	244781	244782	244783	
Test Number :	31	32	33	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	17/07/2018	17/07/2018	17/07/2018	
Date Tested :	17/07/2018	17/07/2018	17/07/2018	
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	ONSITE	
Lot Number :	1465	1465	1466	
Sample Location :	LOT 1465 REFER TO SITE PLAN 2.1m BELOW FL	LOT 1465 REFER TO SITE PLAN 0.8m BELOW FL	LOT 1466 REFER TO SITE PLAN 0.6m BELOW FL	
Test Depth (mm) :	150	150	150	
Layer Depth (mm) :	-	-	-	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	-	-	-	
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	17.5	17.8	17.6	
Hilf MDR Number :	244781	244782	244783	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	Standard	
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	100	100	100	
Field Wet Density (t/m³) :	2.090	2.090	2.060	
Optimum Moisture Content (%) :	17.5	17.8	17.6	
Moisture Variation :	0.0	0.0	0.0	
Peak Converted Wet Density (t/m³) :	2.080	2.080	2.070	
Hilf Density Ratio (%) :	**100.5**	**100.5**	**100.0**	
Minimum Specification :	95	95	95	
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.14/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**8/08/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	245144	245145	245146	245147
Test Number :	40	41	42	43
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	2/08/2018	2/08/2018	2/08/2018	2/08/2018
Date Tested :	2/08/2018	2/08/2018	2/08/2018	2/08/2018
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1465	1466	1467	1468
Sample Location :	LOT 1465 REFER TO SITE PLAN FINISHED LEVEL	LOT 1466 REFER TO SITE PLAN FINISHED LEVEL	LOT 1467 REFER TO SITE PLAN FINISHED LEVEL	LOT 1468 REFER TO SITE PLAN FINISHED LEVEL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	26.1	17.3	15.9	16.7
Hilf MDR Number :	245144	245145	245146	245147
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	103	94.5	99	104
Field Wet Density (t/m³) :	1.930	2.060	2.000	2.030
Optimum Moisture Content (%) :	25.3	18.3	16.0	16.1
Moisture Variation :	-0.6	0.9	0.1	-0.5
Peak Converted Wet Density (t/m³) :	1.970	1.990	2.010	2.060
Hilf Density Ratio (%) :	**98.0**	**103.5**	**99.5**	**98.5**
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-067.15/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**8/08/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 PARK**	Order Number :	
Project Number :	**GL18/067**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	245148			
Test Number :	44			
Sampling Method :	AS1289.1.2.1 CL. 6.4			
Date Sampled :	2/08/2018			
Date Tested :	2/08/2018			
Material Type :	GENERAL FILL			
Material Source :	ONSITE			
Lot Number :	1469			
Sample Location :	LOT 1469 REFER TO SITE PLAN FINISHED LEVEL			
Test Depth (mm) :	150			
Layer Depth (mm) :	-			
Maximum Size (mm) :	19			
Oversize Wet (%) :	-			
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	21.0			
Hilf MDR Number :	245148			
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1			
Compactive Effort :	Standard			
Field Density Method :	AS1289.5.8.1			
Moisture Method :	AS 1289.2.1.1			
Moisture Ratio (%) :	103			
Field Wet Density (t/m³) :	2.010			
Optimum Moisture Content (%) :	20.4			
Moisture Variation :	-0.5			
Peak Converted Wet Density (t/m³) :	1.990			
Hilf Density Ratio (%) :	**101.0**			
Minimum Specification :	95			
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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APPENDIX 'C'

(Photo Gallery)


IMG_3388


IMG_3389


IMG_3390


IMG_3391


IMG_3397

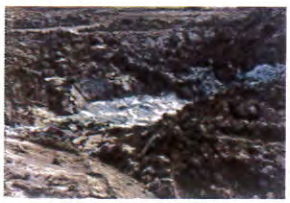

IMG_3398


IMG_3408


IMG_3410


IMG_3411


IMG_3412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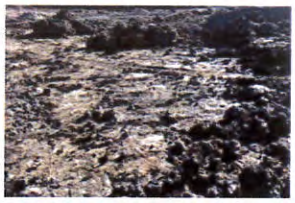
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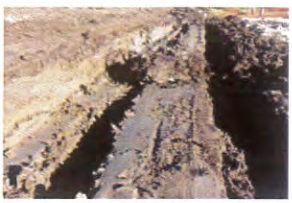
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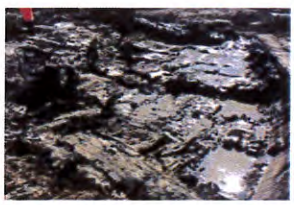
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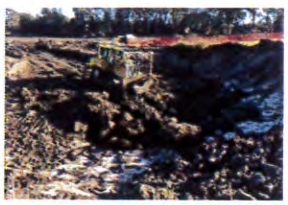
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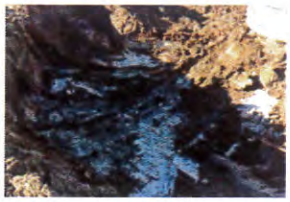
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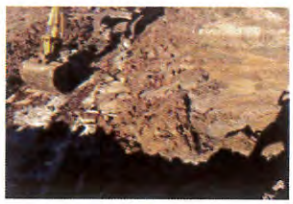
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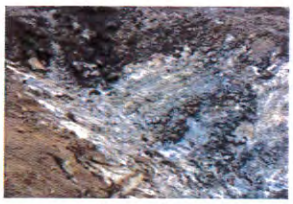
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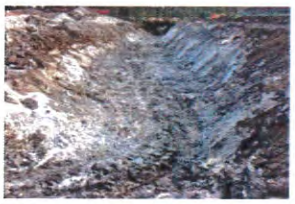
IMG_3589


IMG_3590


IMG_3591


IMG_3593


IMG_3594

Appendix E
(Level 1 Report GL18/128, Dated 21st June, 2019)

MORRISON GEOTECHNIC

Unit 1, 5 Brendan Drive (PO Box 2011), Nerang Q 4211 **P** (07) 5596 1599 **F** (07) 5527 2027
ABN 51 009 878 899
www.morrisongeo.com.au

Gold Coast Office
Job: GL18/128
Ref: 19117
Author: Ian Masman

21st June, 2019

Golding Contractors Pty Ltd
Po Box 1643
Milton Qld, 4064

ATTENTION: MR SIMON ELLIOT
Email: simon.elliot@golding.com.au

Dear Sir

RE: LEVEL ONE COMPLIANCE REPORT FOR EARTHWORKS FILLING OPERATIONS LOTS 1401 TO 1441 GAINSBOROUGH GREENS – STAGE 3.1 EARLYWORKS GAINSBOROUGH DRIVE, PIMPAMA

Table of Contents

1.0 INTRODUCTION

1.1 General

This report presents results of Level One earthworks inspections, field testing and associated Compaction Compliance testing carried out on earthworks fill placed and compacted to form residential allotments 1401 to 1441 at Gainsborough Greens, Stage 3.1 Early works, Gainsborough Drive, Pimpama (The Site).

The work was commissioned by Mr. Simon Elliot representing Golding Contractors (The Client).

The earthworks were carried out by The Client.

Earthworks operations were carried out intermittently between 3rd September 2018 and 27th November, 2018.

1.2 Previous Earthworks

As far as can be determined these were no previous earthworks carried out at the site.

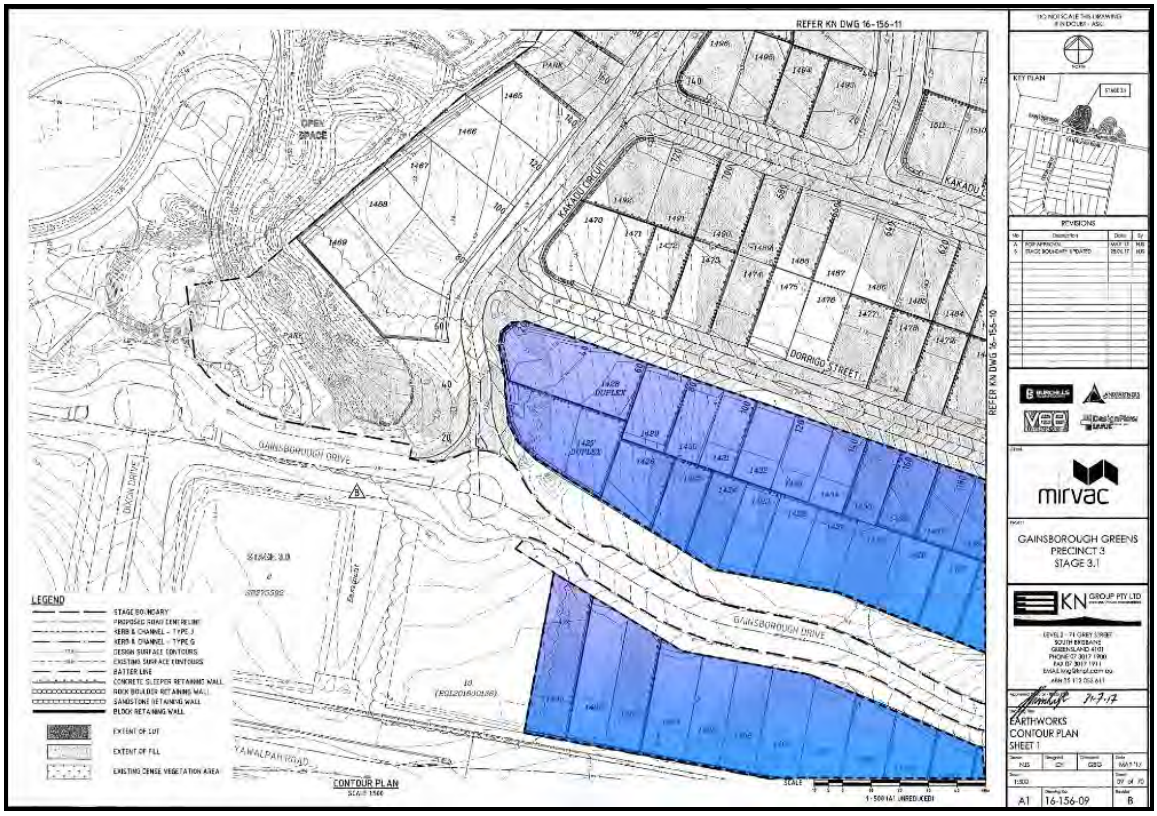
1.3 The Project

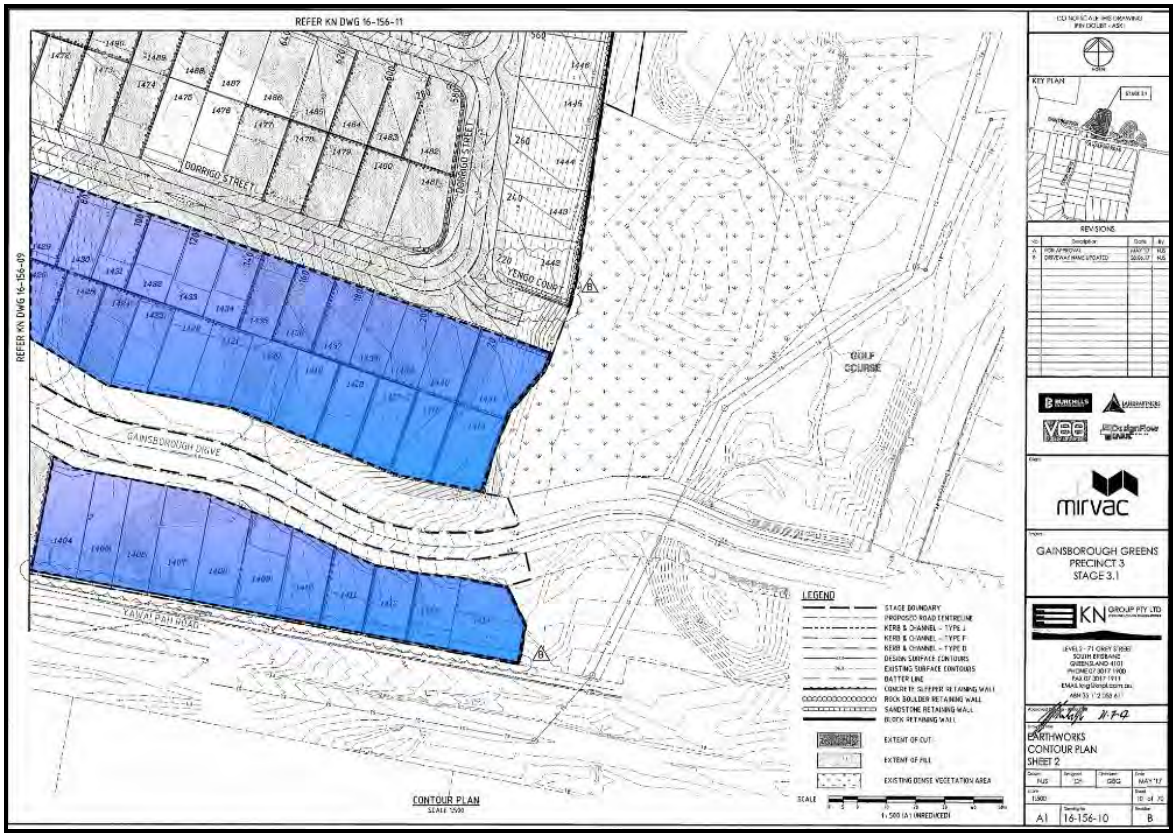
The proposed development at The Site includes, residential allotments.

Earthworks filling is required to form building platforms supporting the proposed residential development. Earthworks at The Site included stripping vegetation, organics and topsoil; proof roll testing of the natural ground surface; and then filling The Site to the project design levels.

The Site is surrounded by existing undeveloped land to the North and East, newly developed land to the West, and Gainsborough Drive to the South.

Pictures 1 & 2: Site plans showing fill areas.





2.0 THE BRIEF

The Brief from the Client was limited to:

- Level One Inspections of the placement and compaction of fill materials between the existing ground level and the design earthworks level in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments";
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.1.
- City of Gold Coast Council Requirements.
- Notes on KN Group project drawings.

All other design requirements such as CBR and Quality of Materials, site classification, material assessments, foundation assessments and slope / global stability appraisals were not included in the Brief and are therefore excluded from this Report.

KN Group Earthworks Contour Plans 16-156-098 – 16-156-10B indicate the extents of fill to be constructed at The Site. The plans are considered to be a reasonable indication of the actual fill constructed during our involvement.

2.1 Additional Requirements

Morrison Geotechnic was not engaged to carry out additional works other than what was outlined in the Brief.

3.0 METHODOLOGY

Earthworks Inspections and Testing was carried out on the stripped and exposed ground surface and during the placement and compaction of fill materials forming road embankments.

Field and laboratory testing included walk over assessments of the existing ground conditions, proof roll testing of the stripped surface including the natural surface observation of filling and compaction activities and field density testing using a soil moisture density gauge and Hilf Density compactions.

3.1 Stripped Surface Assessment

The Site had been cleared of all debris, trees and topsoil. Visible organic matter, uncompacted or loose soil, unsuitable materials and any over wet areas were removed to expose the natural foundation.

The natural materials exposed after stripping and clearing the site which formed the fill foundation can be broadly summarized as:

- Natural – Sandy Clay (CI) dark brown, moist.

The stripped surface was proof rolled by The Client in the presence of our Geotechnicians using a large pad foot roller carrying out multiple passes. Areas where movements were observed beneath the wheels of the plant were removed to a suitable base or tyned, air dried to approximate optimum moisture content and re-compacted. After the above treatments were carried out, the proof rolling process was repeated.

When no visible movement or vertical deflection was observed during proof roll testing, the stripped surface was assessed to be suitable as a foundation for the placement of fill.

Any ponds or dams were dewatered and all wet silts clays and other deleterious materials were removed to a suitable base.

Picture 2: View of the Stripped Surface Prior to the Placement of Fill

3.2 Filling Operations

Fill materials were sourced from cut areas at The Site and imported materials from various stages within the development.

Materials used as fill at The Site can be summarized as: -

- Onsite - Sandy Clay (CI), dark brown, moist.

Placement and compaction of the fill materials was carried out using the following plant:

- Dump Trucks
- Excavator
- Pad Foot Roller
- Dozer

The fill was placed in layers appropriate for the above plant, moisture conditioned at the fill source and during placement and thoroughly mixed to achieve moisture contents suitable for compaction.

To the extent that was reasonably practicable, fill materials visibly containing excessive amounts of silts or deleterious materials such as sticks, oversize particles or construction debris were sorted to remove the contaminants prior to placement, or rejected for use. Some cobble sized particles may remain in the body of the fill, however are unlikely to be in sufficient quantities to adversely affect the performance of the new fill. Sloping areas requiring filling were benched and continually keyed into the slope prior to and during fill placement. Compaction of the fill was carried out using multiple passes of the above compaction plant.

Field density tests and laboratory compactions were carried out on the fill materials in accordance with Table 5.1 and 8.1 of AS3798 2007 (Guidelines on Earthworks for Commercial and Residential

Developments) and tested to AS1289 test methods (Testing of Soils for Engineering Purposes). Testing achieved the required compaction specification of 95% Standard compaction.

The location of the field density tests are shown on the Site Plan contained in Appendix A.
The results of the field density and laboratory compaction tests are contained in Appendix B.
These test locations and levels were not obtained by survey and are therefore should only be considered as approximate.

Picture 3: Site Earthworks Filling Operations

4.0 STATEMENT OF COMPLIANCE

Our representatives observed the relevant earthworks operations during our engagement including the stripped surface, fill placement and compaction operations and carried out field density tests and laboratory compaction tests in accordance with The Brief.

The fill at The Site has been observed to be placed and compacted in a controlled manner and can be termed “Controlled” as defined in AS2870 (Residential Slabs and Footings).

5.0 EXCLUSIONS

The compliance statement excludes any other subsequent earthworks after 27th November, 2018. All trench backfill, landscaping fill and other fill placed without our knowledge is also excluded.

Assessments of batter stability, global stability, and material quality such as soaked CBR and site classifications are excluded from this commission. The stability of any fill batters in the long term must take account of the variable materials used for the construction of the fill platforms and all surface loads including traffic loads near the crest of all batters.

Our on-site attendance specifically excludes assessments of fill material quality and engineering properties that are outside the requirements of AS.3798 - 2007, including soil or fill reactivity and soaked CBR values. We note that the fill materials comprise clay soils, which may result in unfavorable site classifications for individual lots and low subgrade design strengths for pavements.

Footings and ground slabs for any structures constructed over natural soils or controlled fill should be designed to accommodate the characteristic ground surface movements and settlement potential. Assessments of these design parameters are beyond the scope of this Report.

Controlled fill (Level 1 Fill) provides an overview that the Earthwork Specification has been met. There are instances where significant long term settlements of controlled fill can occur. Large total and differential settlements can be expected where fill has been placed over soft and compressible soils and where the thickness of controlled fill varies significantly across a lot.

In some cases, fill materials with high silt content can deteriorate in wet weather conditions resulting in allowable bearing pressures less than 100 kPa.

6.0 LIMITATIONS

This Report has been prepared by Morrison Geotechnic Pty Ltd (Morrison Geotechnic), and may include contributions from Morrison Geotechnic's officers and employees, sub-contractors, sub-consultants or agents (Contributors).

This Report is for the sole benefit and use of Golding Contractors Pty Ltd (Client), its designers, clients and relevant statutory authorities for the sole purpose of providing geotechnical advice and recommendations in respect of allotments 1401 to 1441, Gainsborough Greens – Precinct 3 Stage 3.1, Gainsborough Drive, Pimpama Development (Project). The Report is only intended to address those issues expressly described in the Brief/ Work Instructions in this Report. This report should not be relied upon for assessing fill extents and thicknesses.

This Report should not be used or relied upon for any other purpose without Morrison Geotechnic's prior written consent. Morrison Geotechnic and the Contributors do not accept any responsibility or liability in any way whatsoever for the use or reliance of this Report by anyone other than the Client, its designers, its clients and relevant statutory authorities or by anyone else for any purpose other than that for which it has been prepared.

Except with Morrison Geotechnic's prior written consent, this Report may not be:

(a) released to any other party, whether in whole or in part (other than to the Client's officers, employees, advisers, designers, clients and relevant statutory authorities);

(b) Used or relied upon by any other party.

Morrison Geotechnic and the Contributors, do not accept any liability or responsibility whatsoever for, or in respect of, any use or reliance upon this Report by any other party. Morrison Geotechnic is not obliged to enter into discussions with any third party in respect of this Report.

The information (including technical information and information obtained through discussions) on which this report is based has been provided by the Client and third parties. Morrison Geotechnic and the Contributors:

(a) have relied upon and presumed the accuracy of this information;

(b) have not verified the accuracy or reliability of this information (other than as expressly stated in this Report);

(c) have not made any independent investigations or enquiries in respect of those matters of which it has no actual knowledge at the time of giving this Report to the Client; and

(d) Make no warranty or guarantee, expressed or implied, as to the accuracy or reliability of this information.

Morrison Geotechnic and the Contributors do not accept responsibility or liability for any incorrect assumptions related to this Report. For the avoidance of doubt, this Report:

(a) is not an environmental, contamination or hazardous materials assessment; may be invalid, incomplete or inaccurate (including errors in the scope of work, investigation methodology, observations, opinions and advice) where the information provided to Morrison Geotechnic was invalid, incomplete or inaccurate;

(b) Is limited to observations of those parts of the site described in Section 1.0.

No warranty or guarantee, whether express or implied, is made in respect of the geotechnical data, information, advice, opinions and recommendations present in this Report.

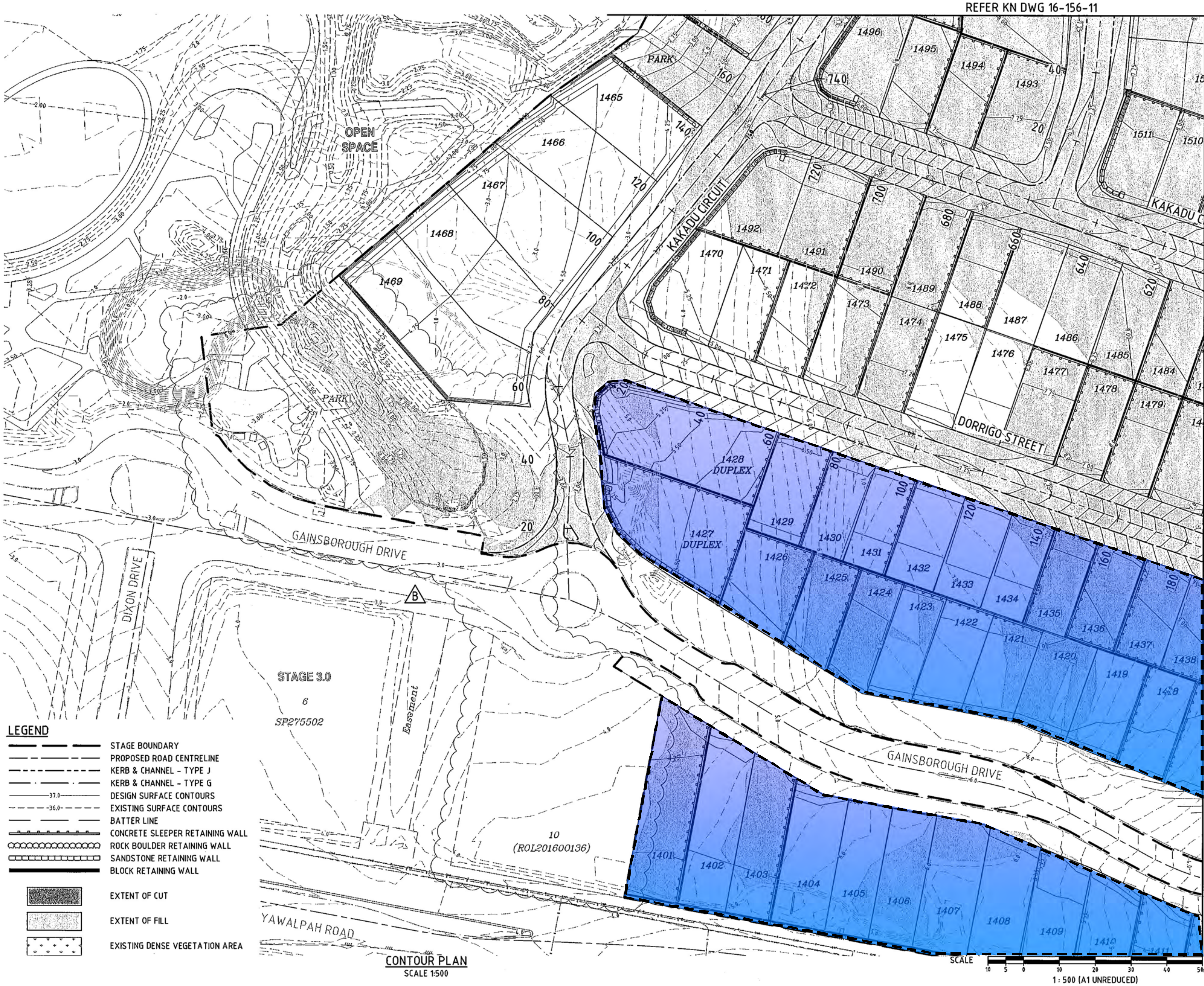
If further information becomes available, or additional assumptions need to be made, Morrison Geotechnic reserves its right to amend this Report.

If you have any queries regarding the above, please contact Mr. Ian Masman at our Gold Coast office.

Ian Masman
For and on behalf of
MORRISON GEOTECHNIC PTY LIMITED

ATTACHMENTS:
Appendix A – Site Plan
Appendix B – Test Reports

Appendix A
(Site Plan)



LEGEND

- STAGE BOUNDARY
- PROPOSED ROAD CENTRELINE
- KERB & CHANNEL - TYPE J
- KERB & CHANNEL - TYPE G
- 37.0 DESIGN SURFACE CONTOURS
- 36.0 EXISTING SURFACE CONTOURS
- BATTER LINE
- CONCRETE SLEEPER RETAINING WALL
- ROCK BOULDER RETAINING WALL
- SANDSTONE RETAINING WALL
- BLOCK RETAINING WALL
- EXTENT OF CUT
- EXTENT OF FILL
- EXISTING DENSE VEGETATION AREA

CONTOUR PLAN

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NORTH

KEY PLAN

STAGE 3.1 · GAINSBOROUGH DRIVE · YAWALPAH ROAD · DIXON DRIVE

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	MAY '17	NJS
B	STAGE BOUNDARY UPDATED	28.06.17	NJS

BURCHILLS · LANDPARTNERS · VEE · DesignFlow

Client: mirvac

Project:
GAINSBOROUGH GREENS
PRECINCT 3
STAGE 3.1

KN GROUP PTY LTD
CONSULTING ENGINEERS
LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved Director - RPEQ 1988 [signature] 31-7-17

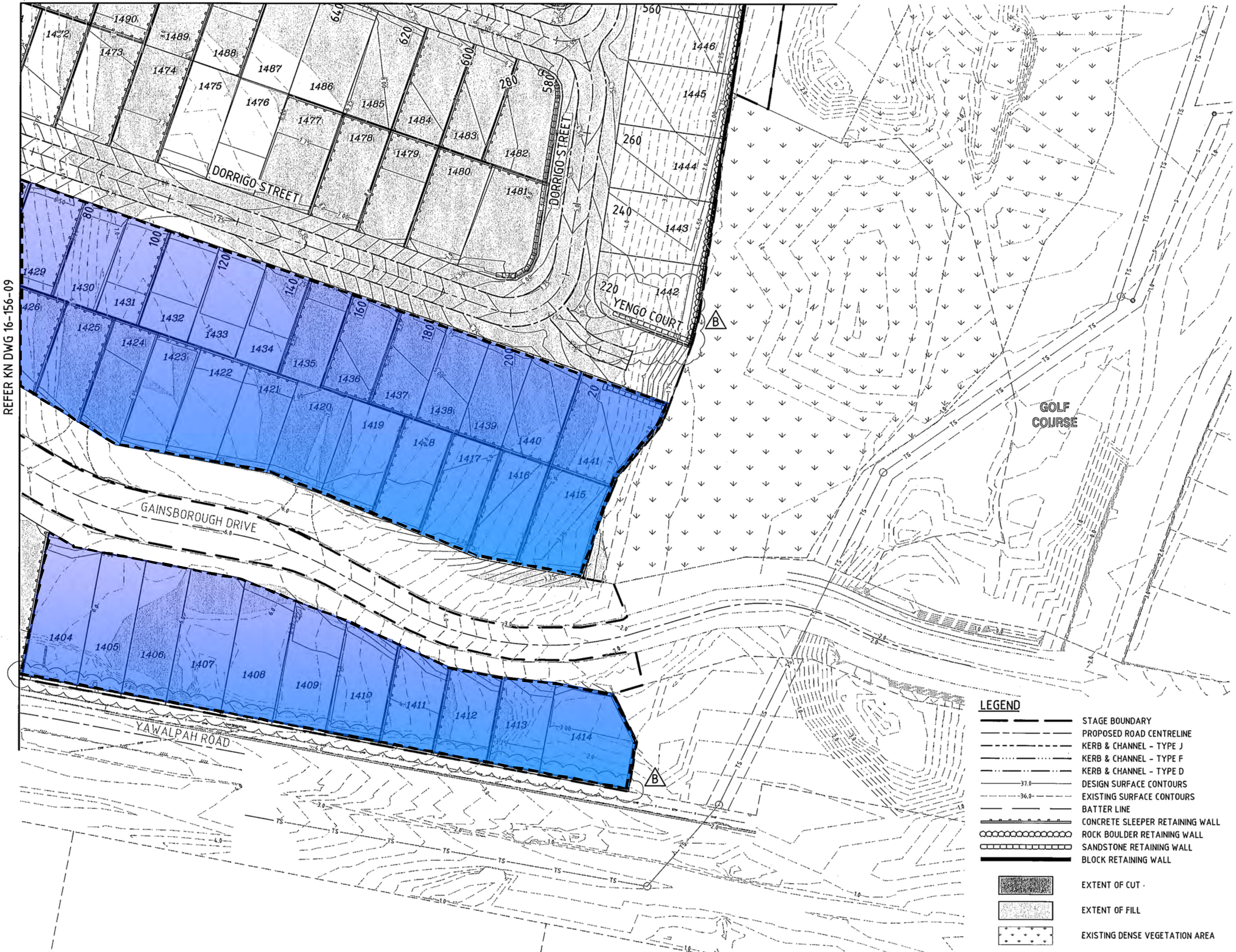
Drawing Title:
EARTHWORKS
CONTOUR PLAN
SHEET 1

Drawn	Designed	Checked	Date
NJS	CH	GBG	MAY '17

Scale	Sheet
1:500	09 of 70

	Drawing No	Revision
A1	16-156-09	B

REFER KN DWG 16-156-11



LEGEND

- STAGE BOUNDARY
- PROPOSED ROAD CENTRELINE
- KERB & CHANNEL - TYPE J
- KERB & CHANNEL - TYPE F
- KERB & CHANNEL - TYPE D
- DESIGN SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- BATTER LINE
- CONCRETE SLEEPER RETAINING WALL
- ROCK BOULDER RETAINING WALL
- SANDSTONE RETAINING WALL
- BLOCK RETAINING WALL
- EXTENT OF CUT
- EXTENT OF FILL
- EXISTING DENSE VEGETATION AREA

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CONTOUR PLAN
SCALE 1:500

DO NOT SCALE THIS DRAWING
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NORTH

KEY PLAN
STAGE 3.1
GAINSBOROUGH DRIVE
YAWALPAH ROAD
DIXON DRIVE

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	MAY '17	NJS
B	DRIVEWAY NAME UPDATED	28.06.17	NJS

BURCHILLS
LANDPARTNERS
VEE
DesignFlow

Client
mirvac

Project
GAINSBOROUGH GREENS
PRECINCT 3
STAGE 3.1

KN GROUP PTY LTD
CONSULTING ENGINEERS
LEVEL 2 - 71 GREY STREET
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QUEENSLAND 4101
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FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved Director - RPEQ 1898 31-7-17

Drawing Title
EARTHWORKS
CONTOUR PLAN
SHEET 2

Drawn	Designed	Checked	Date
NJS	CH	GBG	MAY '17

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A1 Drawing No 16-156-10 Revision B

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Appendix B
(Laboratory Test Reports)

MORRISON GEOTECHNIC

Brisbane | Gold Coast | Maroochydore
Unit 1, 5 Brendan Drive (PO Box 2011), Nerang Q 4211 P (07) 5596 1599 F (07) 5527 2027
ABN 51 009 878 899
www.morrisongeo.com.au

Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-128.1/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**10/09/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 EARLY WORKS**	Order Number :	
Project Number :	**GL18/128**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

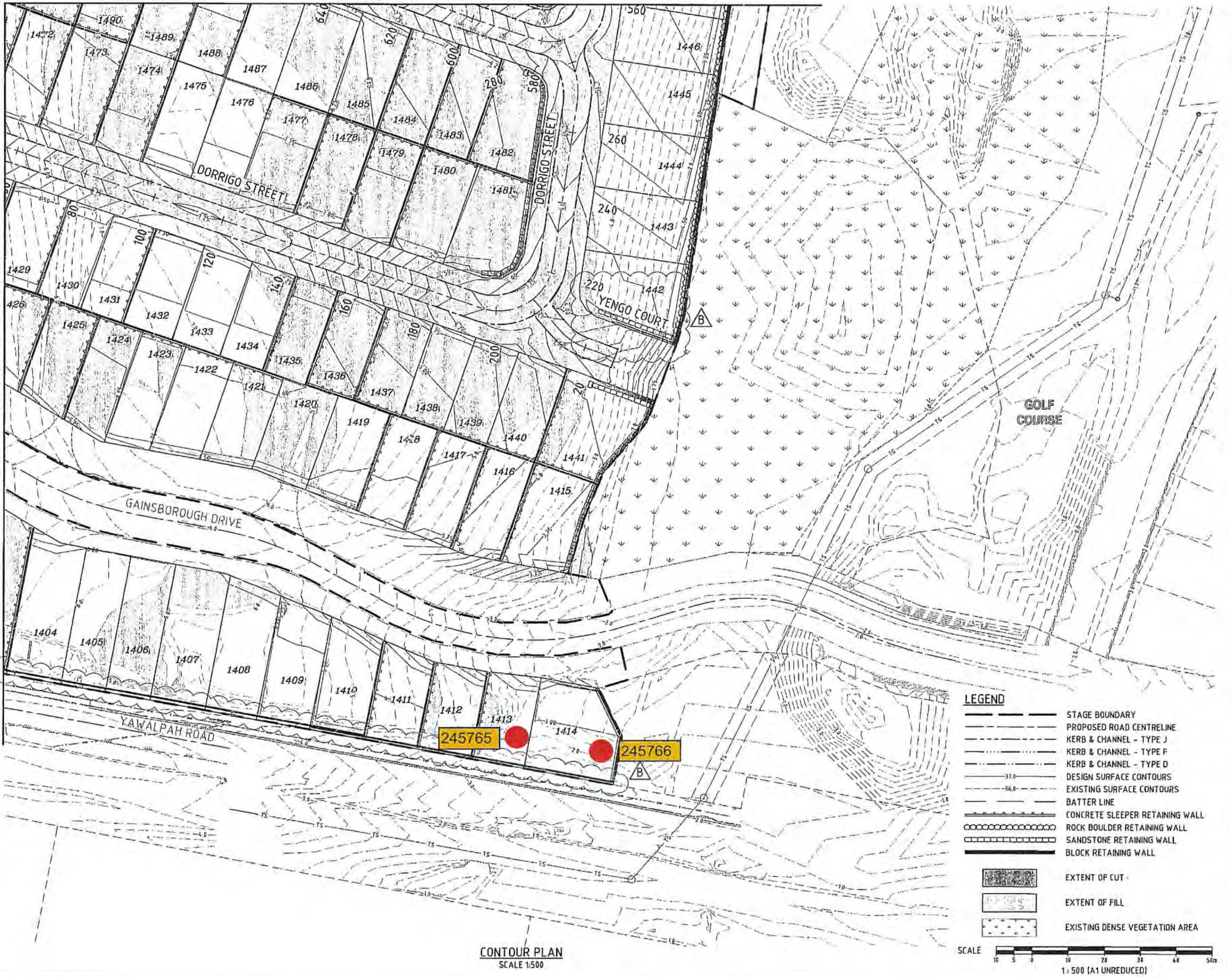
Sample Number :	245765	245766		
Test Number :	1	2		
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4		
Date Sampled :	3/09/2018	3/09/2018		
Date Tested :	3/09/2018	3/09/2018		
Material Type :	GENERAL FILL	GENERAL FILL		
Material Source :	ONSITE	ONSITE		
Lot Number :	1413	1414		
Sample Location :	LOT 1413 REFER TO SITE PLAN 0.5m BELOW FL	LOT 1414 REFER TO SITE PLAN 0.5m BELOW FL		
Test Depth (mm) :	150	150		
Layer Depth (mm) :	-	-		
Maximum Size (mm) :	19	19		
Oversize Wet (%) :	-	-		
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	18.6	18.1		
Hilf MDR Number :	245765	245766		
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1		
Compactive Effort :	Standard	Standard		
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1		
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1		
Moisture Ratio (%) :	101	101		
Field Wet Density (t/m³) :	2.010	2.000		
Optimum Moisture Content (%) :	18.4	18.0		
Moisture Variation :	-0.1	0.0		
Peak Converted Wet Density (t/m³) :	2.030	2.020		
Hilf Density Ratio (%) :	**99.0**	**99.0**		
Minimum Specification :	95	95		
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

NATA
WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.

APPROVED SIGNATORY

GARY TAYLOR (Gold Coast) - WORKS SUPERVISOR
NATA Accreditation Number
1169



CONTOUR PLAN
SCALE 1:500

LEGEND

- STAGE BOUNDARY
- PROPOSED ROAD CENTRELINE
- KERB & CHANNEL - TYPE J
- KERB & CHANNEL - TYPE F
- KERB & CHANNEL - TYPE D
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- ROCK BOULDER RETAINING WALL
- SANDSTONE RETAINING WALL
- BLOCK RETAINING WALL
- EXTENT OF CUT
- EXTENT OF FILL
- EXISTING DENSE VEGETATION AREA

SCALE 1 : 500 (A1 UNREDUCED)

DO NOT SCALE THIS DRAWING
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NORTH

KEY PLAN

STAGE 3.1

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	MAY '17	NJS
B	DRIVEWAY NAME UPDATED	28.06.17	NJS

BURCHILLS
LANDPARTNERS
DesignFlow

Client
mirvac

Project
GAINSBOROUGH GREENS
PRECINCT 3
STAGE 3.1

KN GROUP PTY LTD
CONSULTING ENGINEERS
LEVEL 2 - 71 GREY STREET
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QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved 31-7-17

Drawing Title
EARTHWORKS
CONTOUR PLAN
SHEET 2

Drawn	Designed	Checked	Date
NJS	CH	GBG	MAY '17
Scale 1:500			Sheet 10 of 70
A1	Drawing No 16-156-10		Revision B

MORRISON GEOTECHNIC

Brisbane | Gold Coast | Maroochydore
Unit 1, 5 Brendan Drive (PO Box 2011), Nerang Q 4211 P (07) 5596 1599 F (07) 5527 2027
ABN 51 009 878 899
www.morrisongeo.com.au

Hilf Density Ratio Report

Client :	**GOLDING CONTRACTORS**	Report Number:	**GL18-128.2/1**
Address :	**Po Box 65, Arundel BC, QLD, 4214**	Report Date :	**26/09/2018**
Project Name :	**GAINSBOROUGH GREENS - STAGE 3.1 EARLY WORKS**	Order Number :	
Project Number :	**GL18/128**	Test Method :	**AS1289.5.8.1 & 5.7.1**
Location:	**GAINSBOROUGH DRIVE , PIMPAMA**	**Page 1 of 1**	

Sample Number :	246280	246281	246282	
Test Number :	3	4		
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	21/09/2018	21/09/2018	21/09/2018	
Date Tested :	21/09/2018	21/09/2018	21/09/2018	
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	ONSITE	
Lot Number :	1414	1413	1410	
Sample Location :	LOT 1414 REFER TO SITE PLAN FINISHED LEVEL	LOT 1413 REFER TO SITE PLAN FINISHED LEVEL	LOT 1410 REFER TO SITE PLAN FINISHED LEVEL	
Test Depth (mm) :	100	150	150	
Layer Depth (mm) :	-	-	-	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	-	-	-	
Oversize Dry (%) :				
Oversize Density (t/m³) :				
Field Moisture Content (%) :	24.4	19.2	15.9	
Hilf MDR Number :	246280	246281	246282	
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	
Compactive Effort :	Standard	Standard	Standard	
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	89.5	101.5	80.5	
Field Wet Density (t/m³) :	1.890	2.000	1.930	
Optimum Moisture Content (%) :	27.2	18.9	19.8	
Moisture Variation :	2.8	-0.1	3.9	
Peak Converted Wet Density (t/m³) :	1.810	1.950	1.910	
Hilf Density Ratio (%) :	**104.5**	**102.5**	**101.0**	
Minimum Specification :	95	95	95	
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

NATA
WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.

APPROVED SIGNATORY

GARY TAYLOR (Gold Coast) - WORKS SUPERVISOR
NATA Accreditation Number
1169

REFER KN DWG 16-156-11

LEGEND

	STAGE BOUNDARY
	PROPOSED ROAD CENTRELINE
	KERB & CHANNEL - TYPE J
	KERB & CHANNEL - TYPE F
	KERB & CHANNEL - TYPE D
37.0	DESIGN SURFACE CONTOURS
36.0	EXISTING SURFACE CONTOURS
	BATTER LINE
	CONCRETE SLEEPER RETAINING WALL
	ROCK BOULDER RETAINING WALL
	SANDSTONE RETAINING WALL
	BLOCK RETAINING WALL
	EXTENT OF CUT
	EXTENT OF FILL
	EXISTING DENSE VEGETATION AREA

SCALE 10 5 0 10 20 30 40 50m
1:500 (A1 UNREDUCED)

CONTOUR PLAN
SCALE 1:500

DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!

NORTH

KEY PLAN

STAGE 3.1

GAINSBOROUGH DRIVE
YAWALPAH ROAD
DIXON DRIVE

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	MAY '17	NJS
B	DRIVEWAY NAME UPDATED	28.06.17	NJS

BURCHILLS
LANDPARTNERS
VEE
DesignFlow

Client
mirvac

Project
GAINSBOROUGH GREENS
PRECINCT 3
STAGE 3.1

KN GROUP PTY LTD
CONSULTING ENGINEERS
LEVEL 2 - 71 GREY STREET
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QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved Director - RPEQ 1998
31.7.17

Drawing Title
EARTHWORKS
CONTOUR PLAN
SHEET 2

Drawn	Designed	Checked	Date
NJS	CH	GBG	MAY '17
Scale 1:500			Sheet 10 of 70
A1	Drawing No 16-156-10		Revision B

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Material Test Report

Report Number: GL18/128-1
Issue Number: 1
Date Issued: 08/12/2018
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Project Number: GL18/128
Project Name: EARTHWORKS - GAINSBOROUGH GREENS - STAGE 3.1 EARLY WORKS, GAINSBOROUGH DRIVE
Project Location: PIMPAMA
Work Request: 71
Date Sampled: 27/11/2018
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material Source: Onsite

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Gold Coast Laboratory
Unit 1, 5 Brendan Drive Nerang QLD 4211
Phone: (07) 5596 1599
Email: goldcoastlab@morrisongeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	G18-71A	G18-71B	G18-71C	G18-71D	G18-71E
Date Tested	27/11/2018	27/11/2018	27/11/2018	27/11/2018	27/11/2018
Time Tested	09:00	09:10	09:20	09:30	09:40
Test Request #/Location	LOT: 1429, O/S NE CNR	LOT: 1422, O/S NE CNR	LOT: 1430, O/S NE CNR	LOT: 1431, O/S NE CNR	LOT: 1432, O/S NE CNR
Easting	10m SOUTH	27m SOUTH	18m SOUTH	10m SOUTH	30m SOUTH
Northing	15m WEST	11m WEST	9m WEST	11m WEST	9m WEST
Elevation (m)	FINISHED LEVEL	FINISHED LEVEL	0.5m BELOW FL	FINISHED LEVEL	0.3m BELOW FL
Soil Description	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	2.01	2.04	2.01	2.00	2.04
Field Moisture Content %	16.9	18.5	19.0	18.3	21.5
Field Dry Density (FDD) t/m^3	1.72	1.72	1.69	1.69	1.68
Peak Converted Wet Density t/m^3	2.05	2.06	2.11	2.05	1.96
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	-1.0	-1.5	-1.0	-0.5	-0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**97.5**	**99.0**	**95.0**	**97.5**	**104.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: GL18/128-1
Issue Number: 1
Date Issued: 08/12/2018
Client: GOLDING CONTRACTORS PTY LTD
P O BOX 1643, MILTON QLD 4064
Project Number: GL18/128
Project Name: EARTHWORKS - GAINSBOROUGH GREENS - STAGE 3.1 EARLY WORKS, GAINSBOROUGH DRIVE
Project Location: PIMPAMA
Work Request: 71
Date Sampled: 27/11/2018
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material Source: Onsite

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Approved Signatory: Gary Taylor
Geotech Field Supervisor
NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	G18-71F	G18-71G	G18-71H
Date Tested	27/11/2018	27/11/2018	27/11/2018
Time Tested	09:50	10:00	10:10
Test Request #/Location	LOT: 1433, O/S NE CNR	LOT: 1434, O/S NE CNR	LOT: 1426, O/S NE CNR
Easting	16m SOUTH	12m SOUTH	15m SOUTH
Northing	10m WEST	10m WEST	15m WEST
Elevation (m)	FINISHED LEVEL	FINISHED LEVEL	FINISHED LEVEL
Soil Description	GENERAL FILL	GENERAL FILL	GENERAL FILL
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.99	1.97	2.01
Field Moisture Content %	26.4	27.0	15.6
Field Dry Density (FDD) t/m^3	1.58	1.55	1.74
Peak Converted Wet Density t/m^3	2.00	1.96	2.01
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	-1.0	-1.0	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**99.5**	**100.5**	**100.0**
Compaction Method	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

MORRISON GEOTECHNIC

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Hilf Density Ratio Report

Client :	GOLDING CONTRACTORS	Report Number:	GL18-128.3/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	26/11/2018
Project Name :	GAINSBOROUGH GREENS - STAGE 3.1 EARLY WORKS	Order Number :	
Project Number :	GL18/128	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	GAINSBOROUGH DRIVE , PIMPAMA		

Sample Number :	247143	247144	247145	
Test Number :	6	7	8	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	2/11/2018	2/11/2018	2/11/2018	
Date Tested :	2/11/2018	2/11/2018	2/11/2018	
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	ONSITE	
Lot Number :	1414	1414	1413	
Sample Location :	LOT 1414 REFER TO SITE PLAN 0.5m BELOW FL	LOT 1414 REFER TO SITE PLAN FINISHED LEVEL	LOT 1413 REFER TO SITE PLAN FINISHED LEVEL	
Test Depth (mm) :	150	150	150	
Layer Depth (mm) :	-	-	-	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	8	4	4	
Oversize Dry (%) :				
Oversize Density (t/m³) :	2.487	2.478	2.470	
Field Moisture Content (%) :	20.5	9.4	21.2	
Hilf MDR Number :	247143	247144	247145	
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	
Compactive Effort :	Standard	Standard	Standard	
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	104.5	108.5	104	
Field Wet Density (t/m³) :	2.020	2.020	2.000	
Optimum Moisture Content (%) :	19.6	8.7	20.4	
Moisture Variation :	-0.7	-0.7	-0.7	
Peak Converted Wet Density (t/m³) :	2.03*	2.01*	2.02*	
Hilf Density Ratio (%) :	99.5	100.0	99.0	
Minimum Specification :	95	95	95	
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

* - denotes adjusted for oversize

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.

APPROVED SIGNATORY

S Taylor

GARY TAYLOR (Gold Coast) - WORKS SUPERVISOR
NATA Accreditation Number
1169

Appendix F
(Photo Gallery)


20201203_141109000_iOS


20201203_141122000_iOS


20201203_141209000_iOS


ın from 2020-11-02 10_43_50


ın from 2020-11-02 10_44_10


ı from 2020-11-02 10_46_44


ın from 2020-11-02 10_47_01


ın from 2020-11-02 10_50_06


ın from 2020-11-02 10_50_22


ın from 2020-11-02 11_31_43


ı from 2020-11-02 11_32_05


ın from 2020-11-02 11_32_56


ın from 2020-11-02 11_36_07


ın from 2020-11-02 11_37_50


ın from 2020-11-02 11_38_29


ı from 2020-11-02 11_49_29


ın from 2020-11-02 11_50_26


ın from 2020-11-05 02_16_07


ın from 2020-11-05 11_27_45


ın from 2020-11-05 11_28_01


ı from 2020-11-05 11_28_21


ın from 2020-11-05 11_29_02


ın from 2020-11-05 11_40_46


ın from 2020-11-25 08_04_18


ın from 2020-11-25 08_05_06


ı from 2020-11-30 02_14_11


ın from 2020-11-30 02_20_33


ın from 2020-11-30 02_21_40


ın from 2020-12-03 04_21_48


ın from 2020-12-03 04_22_10


ı from 2020-12-03 04_22_47


ın from 2020-12-03 04_23_16


ın from 2020-12-03 04_29_48


ın from 2020-12-03 04_30_03


ın from 2020-12-03 04_30_45


ı from 2020-12-04 01_04_53


ın from 2020-12-04 01_05_09


ın from 2020-12-04 01_06_08


ın from 2020-12-04 01_06_27


ın from 2020-12-04 11_58_04


ı from 2020-12-04 11_58_21


ın from 2021-01-14 09_26_29


ın from 2021-01-14 09_26_48


ın from 2021-01-21 02_55_41


ın from 2021-01-21 03_04_54


ı from 2021-01-21 03_05_09


ın from 2021-01-21 07_46_04


ın from 2021-01-21 07_48_10


ın from 2021-01-21 07_49_04


ın from 2021-01-21 07_49_33


ı from 2021-01-21 07_50_02


ın from 2021-01-21 08_18_46


ın from 2021-01-21 08_20_03


ın from 2021-01-21 08_20_24


ın from 2021-01-21 08_24_38


ı from 2021-01-21 08_29_54


ın from 2021-01-21 08_44_32


ın from 2021-01-21 08_46_21


ın from 2021-01-21 08_52_56


ın from 2021-01-22 07_35_34


ı from 2021-01-22 08_31_41


ın from 2021-01-22 08_52_45


ın from 2021-01-22 08_54_49


ın from 2021-01-22 08_56_27


ın from 2021-01-22 08_59_04


ı from 2021-01-27 02_24_43


ın from 2021-01-27 02_25_14


ın from 2021-01-27 02_45_46


ın from 2021-01-27 02_47_05


ın from 2021-01-27 02_47_56


ı from 2021-01-27 02_48_33


ın from 2021-01-27 12_23_27


ın from 2021-01-27 12_25_25


ın from 2021-01-27 12_25_55


ın from 2021-01-27 12_26_21


ı from 2021-01-29 07_16_03


ın from 2021-01-29 07_16_26


ın from 2021-01-29 07_52_37


ın from 2021-01-29 07_53_00


ın from 2021-01-29 07_53_46


ı from 2021-01-29 07_56_15


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ın from 2021-01-29 07_59_15


ın from 2021-01-29 08_01_05


ın from 2021-02-01 12_15_06


ı from 2021-02-01 12_15_32


ın from 2021-02-01 12_27_38


ın from 2021-02-01 12_30_32


ın from 2021-02-01 12_48_44


ın from 2021-02-01 12_49_15


ı from 2021-02-08 08_16_12


ın from 2021-02-08 08_16_28


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ın from 2021-02-08 08_17_28


ın from 2021-02-09 02_19_14


ı from 2021-02-09 02_41_46


ın from 2021-02-09 02_42_45


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ın from 2021-02-10 10_14_40

ın from 2021-02-10 11_24_47

ın from 2021-02-10 11_28_40

ı from 2021-02-10 11_29_11

ın from 2021-02-10 11_33_15