MORRISON GEOTECHNIC

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ABN 51 009 878 899
www.morrisongeo.com.au

Gold Coast Office
Job: GL18/128
Ref: 18153
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.

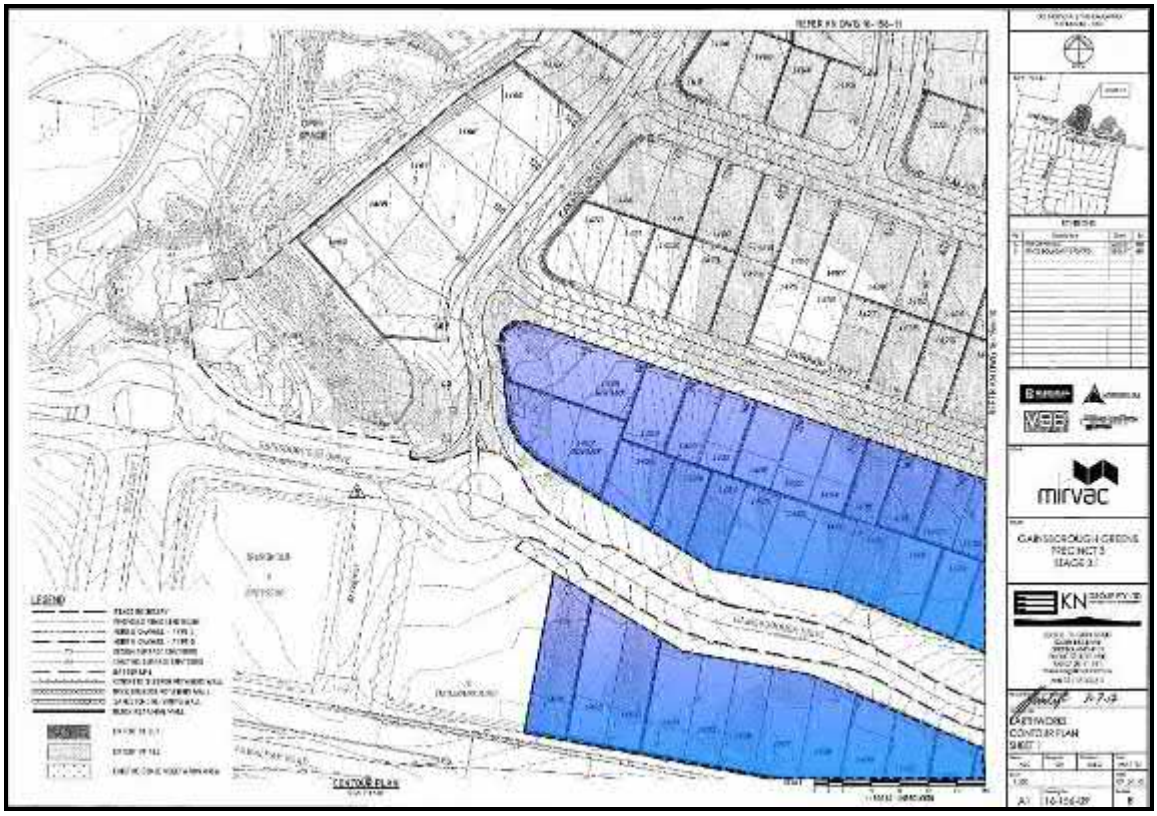
1.3 The Project

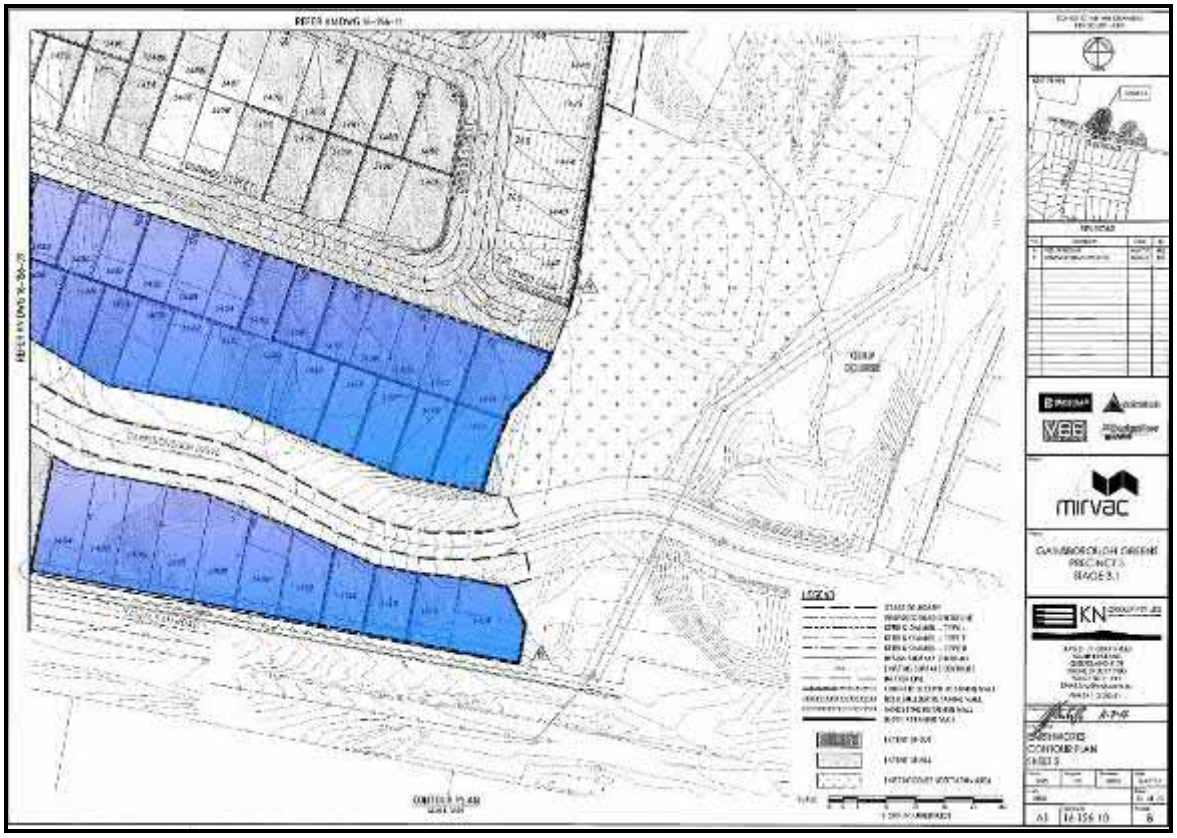
The proposed development at The Site includes, residential allotments.

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.

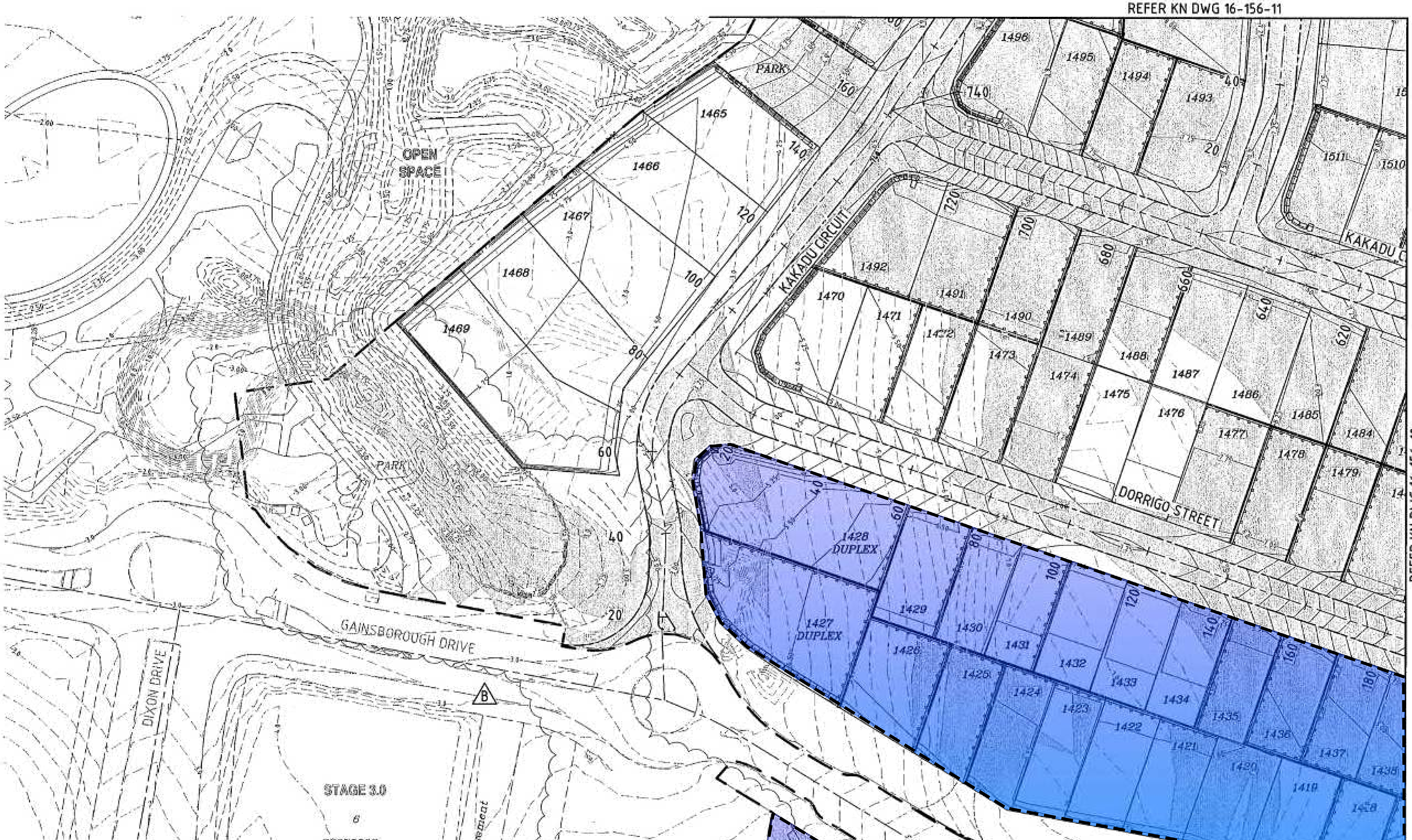
If you have any queries regarding the above, please contact Mr. Ian Masman at our Gold Coast office.

Ian Masman
For and on behalf of
MORRISON GEOTECHNIC PTY LIMITED

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

Appendix A
(Site Plan)

REFER KN DWG 16-156-11



REFER KN DWG 16-156-10

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
SCALE 1:500

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

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	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
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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 [signature] 31-7-17

Drawing Title
EARTHWORKS
CONTOUR PLAN
SHEET 1

Drawn	Designed	Checked	Date
NJS	CH	GBG	MAY '17
Scale 1:500			Sheet 09 of 70
A1	Drawing No 16-156-09		Revision B

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REFER KN DWG 16-156-11

REFER KN DWG 16-156-09

CONTOUR PLAN
SCALE 1:500

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

SCALE 1 : 500 (A1 UNREDUCED)

DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!

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
vee
DesignFlow

Client
mirvac

Project
GAINSBOROUGH GREENS
PRECINCT 3
STAGE 3.1

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Approved 31-7-17

Drawing Title
EARTHWORKS
CONTOUR PLAN
SHEET 2

Drawn	Designed	Checked	Date
NJS	CH	GBG	MAY '17

Scale	Sheet
1:500	10 of 70

Size	Drawing No	Revision
A1	16-156-10	B

Appendix B
(Laboratory Test Reports)

MORRISON GEOTECHNIC

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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

S Taylor

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

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KEY PLAN

STAGE 3.1

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	MAY '17	HJB
B	[illegible]	[illegible]	HJB

mirvac

GAINSBOROUGH GREENS
PRECINCT 3
STAGE 3.1

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QUEENSLAND 4101
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FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

11-7-17

EARTHWORKS
CONTOUR PLAN
SHEET 2

Drawn	Designed	Checked	Date
HJB	CH	GBO	MAY '17

Scale	Sheet
1:500	10 of 70

Size	Drawing	Revision
A1	16-156-10	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
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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**	

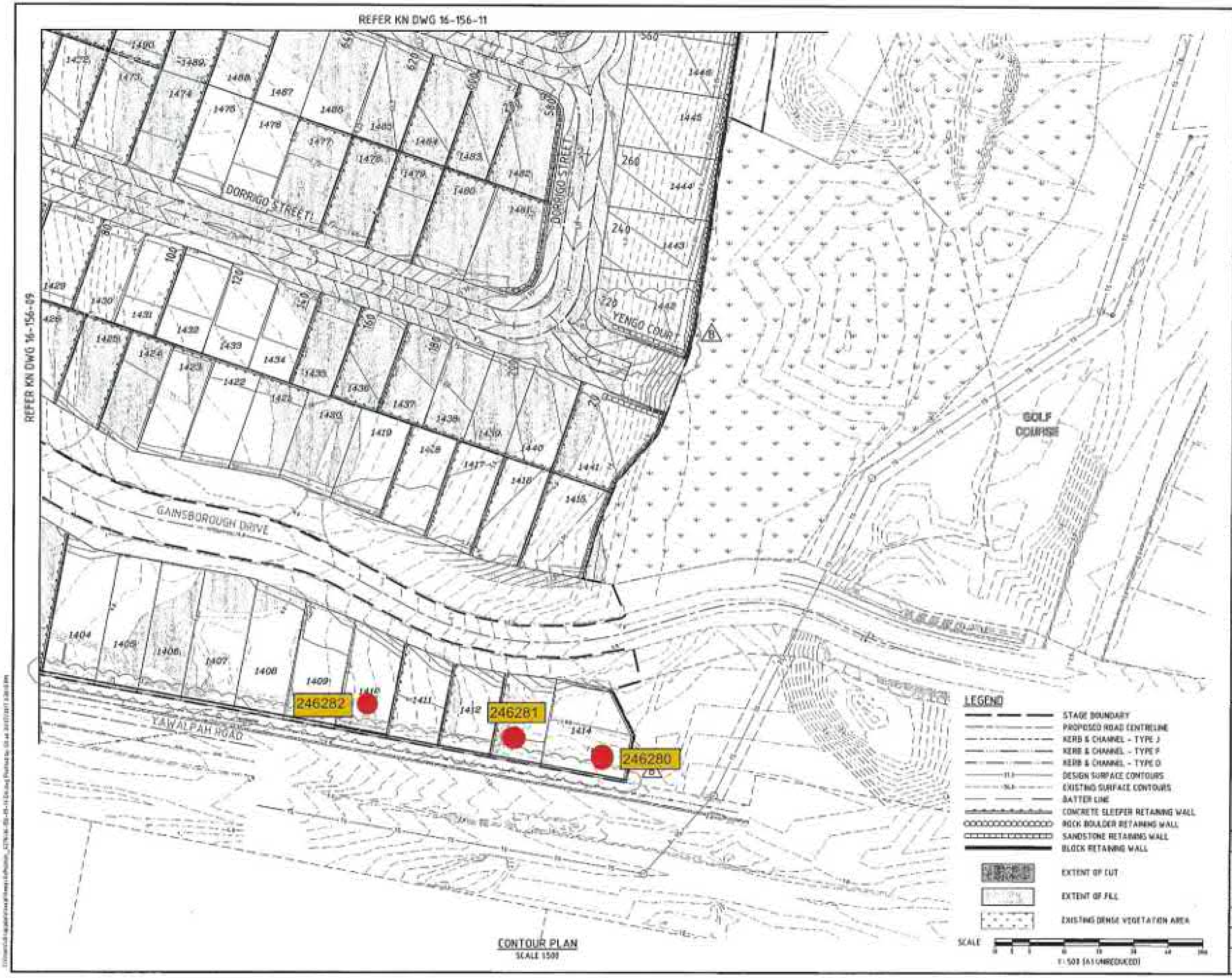
Sample Number :	246280	246281	246282	
Test Number :	3	4		
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	21/09/2018	21/09/2018	21/09/2018	
Date Tested :	21/09/2018	21/09/2018	21/09/2018	
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	
Material 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



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KEY PLAN

REVISIONS

No.	Description	Date	By
A	FOR APPROVAL	MAY'17	
B			

mirvac

GAINSBOROUGH GREENS
PRECINCT 3
STAGE 3.1

KN GROUP PTY LTD

LEVEL 2 - 71 GREY STREET
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FAX 07 3017 1911
EMAIL

EARTHWORKS
CONTOUR PLAN
SHEET 2

Drawn	Designed	Checked	Date
	CH	GBG	MAY'17

Scale	Sheet
1:500	10 of 70

	Drawing No.	Revision
A1	16-156-10	B

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

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
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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	G18-71F	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

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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**	**Page 1 of 1**	

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

Accredited for compliance with ISO/IEC 17025 - Testing.

APPROVED SIGNATORY

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