

Gold Coast Office
Job: GL16/128
Ref: 14955
Author: Ian Masman

16th November, 2016

Golding Contractors Pty Ltd
Po Box 1643
Milton Qld, 4064

ATTENTION: MR CAMERON MCCLURE
Email: Cameron.mcclure@golding.com.au

Dear Sir

**RE: LEVEL ONE EARTHWORKS FILL COMPLIANCE REPORT FOR
GAINSBOROUGH GREENS – PRECINCT 5.4
YAWALPAH ROAD, PIMPAMA**

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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 building platforms and embankments below subgrade at the Gainsborough Greens, Precinct 5.4 development, Yawalpah Road, Pimpama (The Site).

The work was commissioned by Mr. Cameron McClure representing Golding Contractors (The Client) using Purchase Order 4500205586.

The earthworks were carried out by The Client.

Earthworks operations were carried out intermittently between 7th September 2016 and 12th October 2016.

1.2 Previous Earthworks

As far as can be determined, there has been no previous earthworks constructed at The Site.

1.3 The Project

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

Earthworks filling was required to form building platforms supporting proposed residences, and embankments below subgrade supporting future pavements. Earthworks construction 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 bounded by new a subdivision development to the North and South, wetlands to the East, and an existing development to the West.

Picture 1: Aerial View of the Site (Image Source: Nearmap.com, showing 1st October, 2016).



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 levels and the design earthworks levels 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 Plan 15-184-07C indicates 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.

For confirmation of the actual thickness of fill on an individual lot, a Lot Disclosure Plan can be requested from the Developer.

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 surfaces and during the placement and compaction of fill materials forming residential allotments and embankments below subgrade.

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 a natural foundation.

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

- Natural – Sandy Clay (CI - CH), Very Stiff, medium to high plasticity, fine to medium grained sand, yellow / brown and moist.
- Natural – Rock (XW) Extremely weathered and very low strength, grey / yellow/ brown.

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.

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

Onsite – (CI – CH) Sandy Clay, medium to high plasticity, fine to medium sand, yellow/brown, moist.

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

- Dozer
- Water Truck
- Excavator
- 815 Compactor
- Body trucks
- Pad Foot Roller
- Dump Trucks

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 under this Job Number for the recent works achieved the required compaction specification of 95% standard Hilf compaction.

Picture 3: Site Earthworks Filling Operations



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.

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 top soil, which may be placed for use as Lot dressing or any other subsequent earthworks after 12th October 2016. 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 5.4 Yawalpah Road, 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.

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- (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.

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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.

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- (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



M. D. RILEY (RPEQ 5641)

ATTACHMENTS:

- Appendix A – Site Plan Showing Test Locations
- Appendix B – Test Reports

APPENDIX 'A'

(Site Plan showing Test Locations)

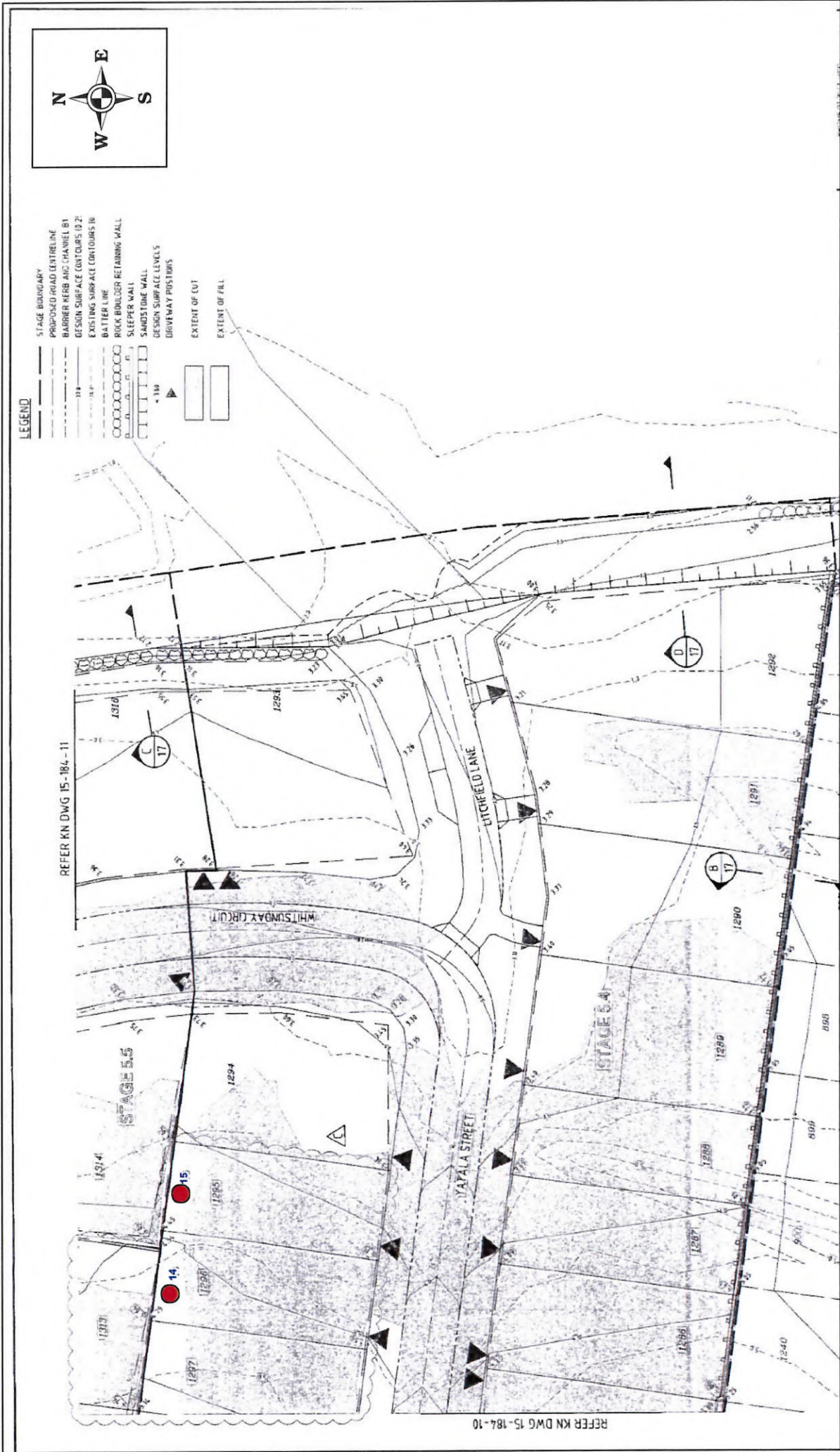


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 D. Vanderhor & B. Elsmore
 Geologists: L. Bexley & R. Howchin

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Map Description :	Field Density Test Locations (Sheet 1 of 3)
Client :	Golding Contractors Pty Ltd
Project :	Gainsborough Greens Precinct 5.4, Yawalpah Road, Pimpama
Project No :	GL16/128
Date :	18/11/16
Scale :	Not to Scale

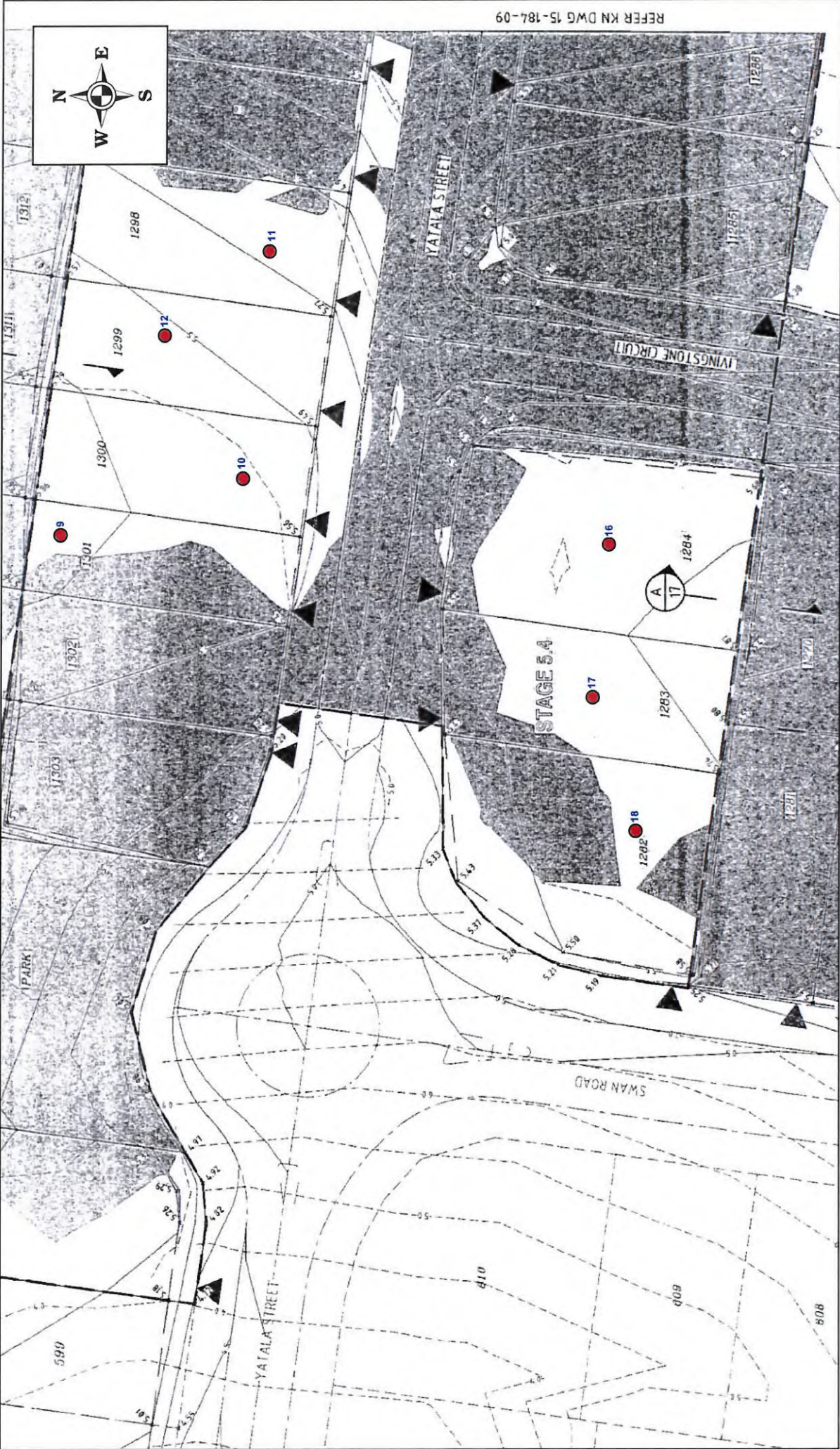


Map Description :	Field Density Test Locations (Sheet 2 of 3)		
Client :	Golding Contractors Pty Ltd		
Project :	Gainsborough Greens Precinct 5.4, Yawalpah Road, Pimpama		
Project No :	GL16/128	Date :	18/11/16
		Scale :	Not to Scale

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Map Description :	Field Density Test Locations (Sheet 3 of 3)
Client :	Golding Contractors Pty Ltd
Project :	Gainsborough Greens Precinct 5.4, Yawalpah Road, Pimpama
Project No. :	GL16/128 Date: 18/11/16 Scale : Not to Scale

APPENDIX 'B'

(Laboratory Test Results)

Hilf Density Ratio Report

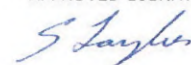
Client :	GOLDING CONTRACTORS	Report Number:	GL16-128.1/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	19/09/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.4	Order Number :	
Project Number :	GL16/128	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	222500	222501	222502	222503
Test Number :	1	2	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	AS1289.1.2.1 CL. 6.4
Date Sampled :	8/09/2016	8/09/2016	8/09/2016	8/09/2016
Date Tested :	8/09/2016	8/09/2016	8/09/2016	8/09/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1293	1292		1292
Sample Location :	REFER TO SITE PLAN 2m BELOW FL	REFER TO SITE PLAN 1.75m BELOW FL	REFER TO SITE PLAN 1.5m BELOW FL	REFER TO SITE PLAN 1.2m 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/m ³) :				
Field Moisture Content (%) :	12.5	13.5	12.7	13.3
Hilf MDR Number :	222500	222501	222502	222503
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 & 5.7.1	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	AS 1289.2.1.1
Moisture Ratio (%) :	89	88.5	89	89
Field Wet Density (t/m ³) :	2.030	2.000	2.040	1.990
Optimum Moisture Content (%) :	14.0	15.2	14.2	14.9
Moisture Variation :	1.6	1.7	1.6	1.6
Peak Converted Wet Density (t/m ³) :	1.990	1.970	1.980	1.970
Hilf Density Ratio (%) :	102.0	101.5	103.0	101.5
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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GARY TAYLOR (Gold Coast) - WORKS SUPERVISOR
 NATA Accreditation Number
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Hilf Density Ratio Report

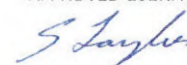
Client :	GOLDING CONTRACTORS	Report Number:	GL16-128.2/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	19/09/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.4	Order Number :	
Project Number :	GL16/128	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	222504	222505	222506	222507
Test Number :	5	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	AS1289.1.2.1 CL. 6.4
Date Sampled :	8/09/2016	8/09/2016	8/09/2016	8/09/2016
Date Tested :	8/09/2016	8/09/2016	8/09/2016	8/09/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1293	1291	1290	1294
Sample Location :	REFER TO SITE PLAN 1m BELOW FL	REFER TO SITE PLAN 0.7m BELOW FL	REFER TO SITE PLAN 0.5m BELOW FL	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/m ³) :				
Field Moisture Content (%) :	10.2	13.0	12.4	12.7
Hilf MDR Number :	222504	222505	222506	222507
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 & 5.7.1	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	AS 1289.2.1.1
Moisture Ratio (%) :	78	89	106.5	96.5
Field Wet Density (t/m ³) :	2.030	2.040	2.060	1.990
Optimum Moisture Content (%) :	13.1	14.6	11.6	13.1
Moisture Variation :	2.9	1.6	-0.8	0.5
Peak Converted Wet Density (t/m ³) :	1.970	1.990	2.010	2.040
Hilf Density Ratio (%) :	103.0	102.5	103.0	98.0
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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GARY TAYLOR (Gold Coast) - WORKS SUPERVISOR
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 1169

Hilf Density Ratio Report

Client : GOLDING CONTRACTORS Address : Po Box 65, Arundel BC, QLD, 4214 Project Name : GAINSBOROUGH GREENS - PRECINCT 5.4 Project Number : GL16/128 Location : SWAN ROAD , PIMPAMA	Report Number: GL16-128.3/1 Report Date : 20/10/2016 Order Number : Test Method : AS1289.5.8.1 & 5.7.1 <p style="text-align: right;">Page 1 of 1</p>
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Sample Number :	224126	224127	224128	224129
Test Number :	9	10	11	12
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 :	12/10/2016	12/10/2016	12/10/2016	12/10/2016
Date Tested :	12/10/2016	12/10/2016	12/10/2016	12/10/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1301	1300	1298	1299
Sample Location :	LOT 1301 REFER TO SITE PLAN FINISHED LEVEL	LOT 1300 REFER TO SITE PLAN FINISHED LEVEL	LOT 1298 REFER TO SITE PLAN FINISHED LEVEL	LOT 1299 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/m ³) :				
Field Moisture Content (%) :	12.6	11.5	12.7	11.6
Hilf MDR Number :	224126	224127	224128	224129
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 & 5.7.1	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	AS 1289.2.1.1
Moisture Ratio (%) :	77	83.5	81.5	77
Field Wet Density (t/m ³) :	2.010	2.050	2.040	2.040
Optimum Moisture Content (%) :	16.4	13.8	15.6	15.0
Moisture Variation :	4.0	2.4	2.9	3.6
Peak Converted Wet Density (t/m ³) :	1.860	1.890	1.880	1.900
Hilf Density Ratio (%) :	108.0	108.5	108.5	107.5
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

Hilf Density Ratio Report

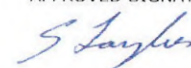
Client : GOLDING CONTRACTORS Address : Po Box 65, Arundel BC, QLD, 4214 Project Name : GAINSBOROUGH GREENS - PRECINCT 5.4 Project Number : GL16/128 Location : SWAN ROAD , PIMPAMA	Report Number : GL16-128.4/1 Report Date : 20/10/2016 Order Number : Test Method : AS1289.5.8.1 & 5.7.1 <p style="text-align: right;">Page 1 of 1</p>
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Sample Number :	224130	224131	224132	224133
Test Number :	13	14	15	16
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 :	12/10/2016	12/10/2016	12/10/2016	12/10/2016
Date Tested :	12/10/2016	12/10/2016	12/10/2016	12/10/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1297	1296	1295	1284
Sample Location :	LOT 1297 REFER TO SITE PLAN FINISHED LEVEL	LOT 1296 REFER TO SITE PLAN FINISHED LEVEL	LOT 1295 REFER TO SITE PLAN FINISHED LEVEL	LOT 1284 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/m ³) :				
Field Moisture Content (%) :	13.4	12.6	12.3	12.5
Hilf MDR Number :	224130	224131	224132	224133
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 & 5.7.1	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	AS 1289.2.1.1
Moisture Ratio (%) :	88.5	74	77.5	78.5
Field Wet Density (t/m ³) :	2.050	2.000	2.040	2.000
Optimum Moisture Content (%) :	15.1	17.1	15.9	15.9
Moisture Variation :	1.8	4.6	3.7	3.5
Peak Converted Wet Density (t/m ³) :	1.930	1.870	1.890	1.850
Hilf Density Ratio (%) :	106.5	107.0	107.5	108.5
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



Accredited for compliance with ISO/IEC 17025 - Testing.

APPROVED SIGNATORY





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

Hilf Density Ratio Report

Client :	GOLDING CONTRACTORS	Report Number:	GL16-128.5/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	20/10/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.4	Order Number :	
Project Number :	GL16/128	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	224134	224135	
Test Number :	17	18	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	12/10/2016	12/10/2016	
Date Tested :	12/10/2016	12/10/2016	
Material Type :	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	
Lot Number :	1283	1282	
Sample Location :	LOT 1283 REFER TO SITE PLAN FINISHED LEVEL	LOT 1282 REFER TO SITE PLAN FINISHED LEVEL	
Test Depth (mm) :	150	150	
Layer Depth (mm) :	-	-	
Maximum Size (mm) :	19	19	
Oversize Wet (%) :	-	-	
Oversize Dry (%) :			
Oversize Density (t/m ³) :			
Field Moisture Content (%) :	11.9	11.2	
Hilf MDR Number :	224134	224135	
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 (%) :	77.5	67.5	
Field Wet Density (t/m ³) :	2.010	2.020	
Optimum Moisture Content (%) :	15.4	16.6	
Moisture Variation :	3.6	5.5	
Peak Converted Wet Density (t/m ³) :	1.900	1.840	
Hilf Density Ratio (%) :	106.0	109.5	
Minimum Specification :	95	95	
Moisture Specification :			
Site Selection :			
Soil Description :			
Remarks :	-		

 <p style="text-align: center;">Accredited for compliance with ISO/IEC 17025 - Testing.</p>	<p>APPROVED SIGNATORY</p>  <p>GARY TAYLOR (Gold Coast) - WORKS SUPERVISOR NATA Accreditation Number 1169</p>
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