

LEVEL ONE COMPLIANCE REPORT

Residential Development – Riverparks Estate
Pauls Road, Upper Caboolture
Stage 26 and 27

PREPARED BY:
PROTEST ENGINEERING

PREPARED FOR:
CARRUTHERS CONTRACTING
PTP/09393- Rev0 | 21 October 2022





Carruthers Contracting
75 Cordwell Road, Yandina QLD 4561

Project Number: PTP/ 09393
Letter Number: PTP/ – 09393 – Rev0
Project Name: Riverparks Stage 26 & 27,
Pauls Road, Upper
Caboolture, 4510

Attention: Jeff James

Email: j.james@carrutherscontracting.com.au

Report on Level 1 Earthworks
Riverparks Stage 26 & 27
Upper Caboolture, QLD, 4510

1. Introduction

This report summarises the results of inspection and testing provided by Protest Engineering (Protest) for the bulk earthworks as part of the proposed subdivision located at Upper Caboolture undertaken between 18 November 2021 to 29 June 2022. The works were undertaken at the request of Carruthers Contracting.

The scope of inspection and testing undertaken was in general accordance with AS3798-2007 *Guidelines on Earthworks for Commercial and Residential Developments*. As part of the inspection and testing undertaken, Protest provided Level 1 supervision in accordance with Section 8.2 of AS3798-2007.

Approximately 7 000m³ of fill was placed at the site with a maximum depth of approximately 2.0m. Drawing No. 8709-04 attached. The frequency of field density testing adopted for this project was based on AS3798-2007, with a minimum of one test per 500m³ placed for a *Type 1 – Large Scale Operation*.

Based off the information provided, the minimum relative compaction requirements were not specified and therefore the criteria in AS3798, Table 5.1 was adopted. A summary of the criteria is summarized in Table 1.

Table 1. Test Request Compaction and Moisture Content Specification

Fill Types	Maximum Dry Density Ratio (%)	Optimum Moisture Content Variation (%)
Residential – lot, fill, house, sites	>95%	±2% (Dry/Wet of OMC ⁽¹⁾)

(Notes: ⁽¹⁾ Optimum Moisture Content)

2. Earthworks Activities

Foundation preparation observed by Protest comprised the removal of topsoil and unsuitable materials across the cut to fill area exposing the underlying natural materials. A test roll was performed on the natural soils using a loaded dump truck and no noticeable movement was observed on the final pass.

Following successful proof rolling, filling operations comprised the placement and compaction of material obtained from onsite cuts which were typically Red and Brown Sandy Clays. Filling materials were placed onsite in uniform layers not exceeding 300 mm thick compacted layers with the plant detailed below. The material used as fill was moisture conditioned at the fill source and during placement then blended to achieve suitable moisture content for compaction. The following heavy plant were used throughout the bulk earthworks component:

- Water Truck
- Dump Trucks
- Pad Foot Roller
- 815 Compactor

A total of fourteen (14) field density ratio tests were undertaken at select locations during the filling operations. Field density testing was carried out using a nuclear gauge and in accordance with the test method

outlined in AS1289.5.8.1. The relative compaction was then determined by comparing the recorded field density with the laboratory maximum bulk density (standard compaction) outlined in test method AS1289.5.7.1.

3. Compliance

As far as it has been able to be determined, it is considered that the bulk earthworks placed and compacted at Riverparks Stage 26 & 27 by Carruthers Contracting between 18 November 2021 to 29 June 2022 comply with the above-mentioned specifications and can be considered as Level 1 'controlled' or structural fill.

4. Comments

Based on the results of the inspections and field density testing whilst Protest were on-site, it is considered that the bulk earthworks at Riverparks Stage 26 & 27 – Upper Caboolture between 18 November 2021 to 29 June 2022 have been undertaken in general accordance with AS3798-2007 *Guidelines on Earthworks for Commercial and Residential Developments*. Protest believes consideration should be given to the following:

- I. This report only certifies the bulk earthworks activities supervised by Protest between 18 November 2021 to 29 September 2022. Protest does not take responsibility for any other bulk earthworks activities that have occurred before or after these dates;
- II. The installation of services or any activities that may cause disruption of the compacted fill;
- III. The suitability of the filled land to support the proposed structures; and

-
- IV. Any variation in filling depth of extent of areas that is not noted within this report or on the individual test report sheets.

5. Constraints

- I. Protest has prepared this report for the bulk earthworks at Riverparks Stage 26 & 27, Upper Caboolture. This report was produced for the sole use of Carruthers Contracting. It should not be used by or depended upon for other projects or purposes on the same or other site or by a third party. In the preparation of this report Protest has relied upon information provided by the client and/or their agents.
- II. The results provided in this report are indicative of the subsurface conditions on the site only at the specific sampling or testing locations, and then only to the depths investigated along with the time the work was carried out. It is known that subsurface conditions can suddenly change due to irregular geological processes and as a result of human influences. Such changes may occur after Protest field testing has been completed.
- III. Certain ground conditions and the materials behaviour observed or contained at the test locations may alter from those which may be encountered elsewhere on the site. Should variations in subsurface conditions be encountered, then additional advice should be sought from Protest and, if required, amendments made.
- IV. Protest cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion given in this report.

We trust that the above information is suitable for your present requirements. Should you have any queries, please do not hesitate to contact the undersigned.

Written By:



Joel Cockram

Branch Manager

p | 0439 179 291

e | joel.cockram@protestengineering.com

Reviewed By:



Liam Manfield

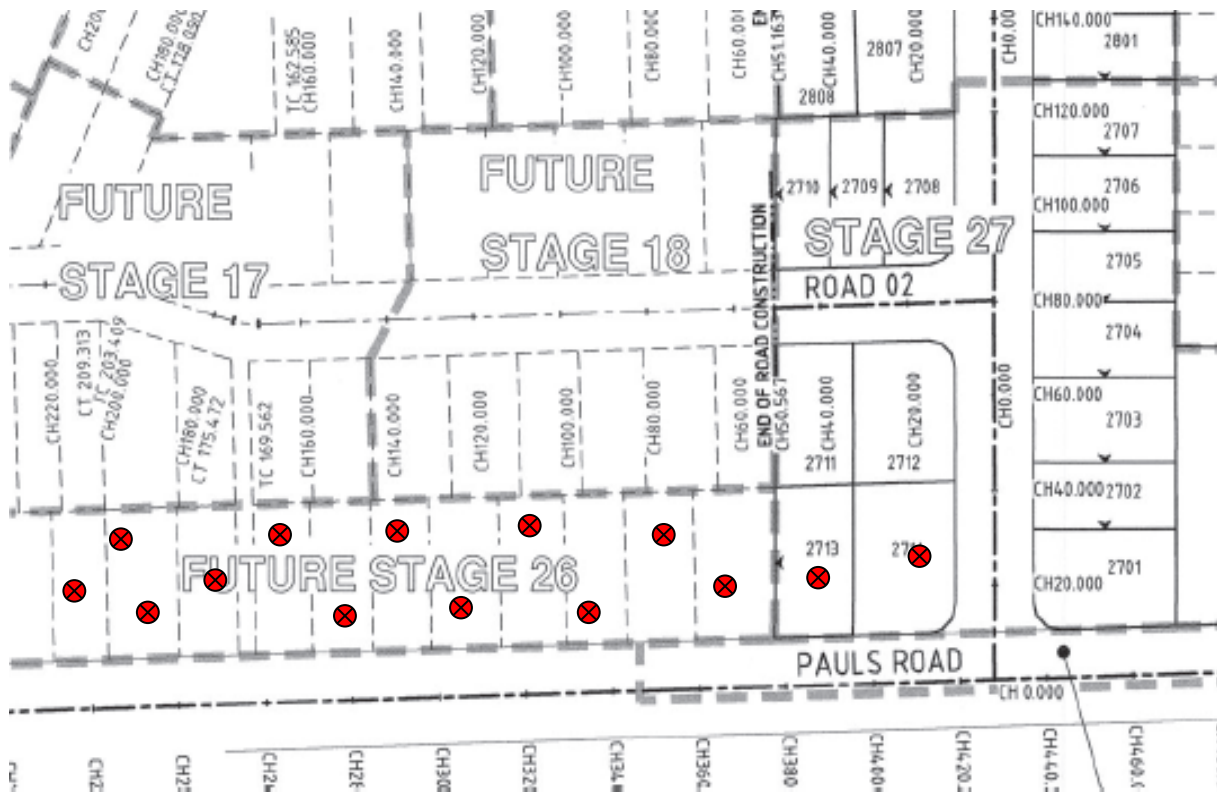
Assistant Branch Manager – Sunshine Coast

p | 0400 040 963

e | liam.manfield@protestengineering.com







Protest Engineering
 ABN: 26 602 913 673
 Unit 4/81 Wises Rd, Maroochydore Qld
 4558
 Phone: 1300 911 304
 Email:
joel.cockram@protestengineering.com

Client :	Carruthers Contracting		
Project :	Residential Subdivision – Riverparks Stage 26 & 27, Upper Caboolture		
Job No :	PTP/09393	Drawing No: 8709-04	Sheeny & Partners Pty Ltd Revision: A
Legend	Approx. General Fill Location		Date: 21 October 2022
	General Fill		Drawing Not To Scale

Soil Compaction and Density Tests Report - Compaction Control

Client :	Carruthers Contracting	Report Number :	SR/PTP/09393 - 18/1
Client Address :	75 Cordwell Road, Yandina, 4561, QLD	Report Date :	21/10/2022
Project Name :	Riverparks Estate - Stages 26 & 27 - Pauls Road Upper Caboolture - ML21/232	Test Request :	-
Project Number :	PTP/09393	Page 1 of 1	
Location :	Upper Caboolture		

Test Methods :	AS1289.5.4.1, AS1289.5.8.1, AS1289.2.1.1, AS1289.5.7.1,					
----------------	---	--	--	--	--	--

Sample Number :	S/165354	S/165355	S/165356	S/165357	S/165358	S/165359
Date Tested :	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022	21/04/2022
Material Source :	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite
For use as :	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Test / Layer Depths :	300 / 300	300 / 300	300 / 300	300 / 300	300 / 300	300 / 300

Sampling Method :	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b
Time :	08:59	09:03	09:09	09:16	09:25	09:34
Lot Number :	-	-	-	-	-	-
Location 1 :	E - 491965.7	E - 491967.5	E - 491956.0	E - 491947.2	E - 491934.2	E - 491924.6
Location 2 :	N - 7002418.6	N - 7002410.5	N - 7002407.9	N - 7002417.2	N - 7002422.5	N - 7002430.1
Location 3 :	-0.8m FL	-0.9m FL	-0.8m FL	-0.7m FL	-0.7m FL	-0.7m FL
Location 4 :	-	-	-	-	-	-

Test Fraction (mm) :	< 19mm	< 19mm	< 19mm	< 19mm	< 19mm	< 19mm
Override Wet :	0%	0%	0%	0%	0%	0%
Override Density - Dry (t/m ³) :	-	-	-	-	-	-
Assigned MDR (Yes/No) :	No	No	No	No	No	No
MDR Sample Number :	S/165354	S/165355	S/165356	S/165357	S/165358	S/165359
MDR Test Date :	12/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Compaction Type :	Standard	Standard	Standard	Standard	Standard	Standard
Soil Description :	Clay	Clay	Clay	Clay	Clay	Clay

<i>MDR Test Results</i>						
PCWD (t/m ³) :	2.02	2.01	2.04	2.02	2.03	2.04
Moisture Variation :	1.0%	2.0%	-0.5%	0.5%	2.0%	0.0%
ADJ PCWD (t/m ³) :	-	-	-	-	-	-
ADJ Moisture Variation :	-	-	-	-	-	-

<i>Moisture Test Results :</i>						
Field Moisture Content :	18.5%	21.0%	22.5%	19.0%	19.5%	16.5%
Moisture Specification :	-	-	-	-	-	-
Variation from OMC :	1.0% Dry of OMC	2.0% Dry of OMC	0.5% Wet of OMC	0.5% Dry of OMC	2.0% Dry of OMC	0.0% Wet of OMC
Relative Moisture Ratio (Q250) :	-	-	-	-	-	-
Moisture Ratio :	N/A	N/A	N/A	N/A	N/A	N/A



<i>Density Test Results</i>						
Field Wet Density (t/m ³) :	2.10	2.08	2.11	2.08	2.07	2.08
Density Specification :	95%	95%	95%	95%	95%	95%
Wet Density Ratio :	104.0%	104.0%	103.5%	103.0%	102.0%	102.0%

--	--	--	--	--	--	--



--	--	--	--	--	--	--

Soil Particle Density (APD) t/m ³ :	
Soil Particle Density (APD) Date :	



Remarks :	AS1289.5.8.1, AS1289.5.7.1 and AS1289.2.1.1 testing conducted by: Accreditation Number: 1169 Site Number: 17071
-----------	--

 <p>WORLD RESPONSIBILITY ACCREDITATION</p>	<p>Note: The results contained in this report relate only to the item/s that were tested/sampled</p> <p>Accredited for Compliance with ISO/ IEC 17025 - Testing</p> <p>Protest Engineering (Sunshine Coast) Accreditation Number - 20499 Base Laboratory Site Number - 24490 - Sunshine Coast</p> <p>Base Laboratory Address - 4/81 Wisers Road, BUDERIM, QLD, 4556</p>	<p>APPROVED SIGNATORY</p>  <p>Liam Manfield - Signatory</p>
	<p>Document Number : RF1</p>	<p>Date : 4/08/2022</p>



Soil Compaction and Density Tests Report - Compaction Control

Client :	Carruthers Contracting		Report Number :	SR/PTP/09393 - 19/1		
Client Address :	75 Cordwell Road, Yandina, 4561, QLD		Report Date :	21/10/2022		
Project Name :	Riverparks Estate - Stages 26 & 27 - Pauls Road Upper Caboolture - ML21/232		Test Request :	-		
Project Number :	PTP/09393		Page 1 of 1			
Location :	Upper Caboolture					
Test Methods :	AS1289.5.4.1, AS1289.5.8.1, AS1289.2.1.1, AS1289.5.7.1,					
Sample Number :	S/165360	S/165361				
Date Tested :	20/10/2022	20/10/2022				
Material Source :	Onsite	Onsite				
For use as :	General Fill	General Fill				
Test / Layer Depths :	300 / 300	300 / 300				
Sampling Method :	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b				
Time :	09:42	09:52				
Lot Number :	-	-				
Location 1 :	E - 491916.6	E - 491900.4				
Location 2 :	N - 7002421.7	N - 7002434.1				
Location 3 :	-0.8m FL	-0.8m FL				
Location 4 :	-	-				
Test Fraction (mm) :	< 19mm	< 19mm				
Override Wet :	0%	0%				
Override Density - Dry (t/m ³) :	-	-				
Assigned MDR (Yes/No) :	No	No				
MDR Sample Number :	S/165360	S/165361				
MDR Test Date :	12/05/2022	12/05/2022				
Compaction Type :	Standard	Standard				
Soil Description :	Clay	Clay				
<i>MDR Test Results</i>						
PCWD (t/m ³) :	2.00	2.00				
Moisture Variation :	2.0%	2.5%				
ADJ PCWD (t/m ³) :	-	-				
ADJ Moisture Variation :	-	-				
<i>Moisture Test Results :</i>						
Field Moisture Content :	19.0%	16.5%				
Moisture Specification :	-	-				
Variation from OMC :	2.0% Dry of OMC	2.5% Dry of OMC				
Relative Moisture Ratio (Q250) :	-	-				
Moisture Ratio :	N/A	N/A				
<i>Density Test Results</i>						
Field Wet Density (t/m ³) :	2.08	2.05				
Density Specification :	95%	95%				
Wet Density Ratio :	104.5%	102.5%				
-						
-						
Soil Particle Density (APD) t/m ³ :						
Soil Particle Density (APD) Date :						
Remarks :	AS1289.5.8.1, AS1289.5.7.1 and AS1289.2.1.1 testing conducted by: Accreditation Number: 1169 Site Number: 17071					
 <small>WORLD RECOGNISED ACCREDITATION</small>	<small>Note: The results contained in this report relate only to the item/s that were tested/sampled</small> Accredited for Compliance with ISO/ IEC 17025 - Testing Protest Engineering (Sunshine Coast) Accreditation Number - 20499 Base Laboratory Site Number - 24490 - Sunshine Coast Base Laboratory Address - 4/81 Wises Road, BUDERIM, QLD, 4556					APPROVED SIGNATORY  Liam Manfield - Signatory
	Document Number : RF1					

Soil Compaction and Density Tests Report - Compaction Control

Client :	Carruthers Contracting			Report Number :	SR/PTP/09393 - 20/1	
Client Address :	75 Cordwell Road, Yandina, 4561, QLD			Report Date :	21/10/2022	
Project Name :	Riverparks Estate - Stages 26 & 27 - Pauls Road Upper Caboolture - ML21/232			Test Request :	-	
Project Number :	PTP/09393			Page 1 of 1		
Location :	Upper Caboolture					
Test Methods :	AS1289.5.4.1, AS1289.5.8.1, AS1289.2.1.1, AS1289.5.7.1,					
Sample Number :	S/165386	S/165388	S/165389			
Date Tested :	18/11/2021	18/11/2021	18/11/2021			
Material Source :	Onsite	Onsite	Onsite			
For use as :	General Fill	General Fill	General Fill			
Test / Layer Depths :	150 / 200	150 / 200	150 / 200			
Sampling Method :	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b			
Time :	09:30	09:35	09:40			
Lot Number :	-	-	-			
Location 1 :	Refer to Plan	Refer to Plan	Refer to Plan			
Location 2 :	-0.5m FL	-0.25m FL	FL			
Location 3 :	-	-	-			
Location 4 :	-	-	-			
Test Fraction (mm) :	< 19mm	< 19mm	< 19mm			
OverSize Wet :	0%	0%	0%			
OverSize Density - Dry (t/m ³) :	-	-	-			
Assigned MDR (Yes/No) :	No	No	No			
MDR Sample Number :	S/165386	S/165388	S/165389			
MDR Test Date :	20/11/2021	20/11/2021	20/11/2021			
Compaction Type :	Standard	Standard	Standard			
Soil Description :	Sandy Clay	Sandy Clay	Sandy Clay			
<i>MDR Test Results</i>						
PCWD (t/m ³) :	2.06	2.14	2.05			
Moisture Variation :	-0.5%	-2.5%	-0.5%			
ADJ PCWD (t/m ³) :	-	-	-			
ADJ Moisture Variation :	-	-	-			
<i>Moisture Test Results :</i>						
Field Moisture Content :	19.5%	18.5%	18.0%			
Moisture Specification :	-	-	-			
Variation from OMC :	0.5% Wet of OMC	2.5% Wet of OMC	0.5% Wet of OMC			
Relative Moisture Ratio (Q250) :	-	-	-			
Moisture Ratio :	N/A	N/A	N/A			
<i>Density Test Results</i>						
Field Wet Density (t/m ³) :	2.07	2.14	2.05			
Density Specification :	95%	95%	95%			
Wet Density Ratio :	100.5%	100.0%	100.0%			
Soil Particle Density (APD) t/m ³ :						
Soil Particle Density (APD) Date :						
Remarks :	AS1289.5.8.1, AS1289.5.7.1 and AS1289.2.1.1 testing conducted by: Accreditation Number: 1169 Site Number: 17071					
 <small>WORLD-RECOGNISED ACCREDITATION</small>	<small>Note: The results contained in this report relate only to the item/s that were tested/sampled</small> Accredited for Compliance with ISO/ IEC 17025 - Testing Protest Engineering (Sunshine Coast) Accreditation Number - 20499 Base Laboratory Site Number - 24490 - Sunshine Coast Base Laboratory Address - 4/81 Wises Road, BUDERIM, QLD, 4556			APPROVED SIGNATORY  Liam Manfield - Signatory		

Soil Compaction and Density Tests Report - Compaction Control

Client :	Carruthers Contracting			Report Number :	SR/PTP/09393 - 2/1	
Client Address :	75 Cordwell Road, Yandina, 4561, QLD			Report Date :	4/07/2022	
Project Name :	Riverparks Estate - Stages 26 & 27 - Pauls Road Upper Caboolture - ML21/232			Test Request :	-	
Project Number :	PTP/09393			Page 1 of 1		
Location :	Upper Caboolture					
Test Methods :	AS1289.5.4.1, AS1289.5.8.1, AS1289.2.1.1, AS1289.5.7.1,					
Sample Number :	S/142551	S/142553	S/142554			
Date Tested :	29/06/2022	29/06/2022	29/06/2022			
Material Source :	Onsite	Onsite	Onsite			
For use as :	General Fill	General Fill	General Fill			
Test / Layer Depths :	300 / 300	300 / 300	300 / 300			
Sampling Method :	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b			
Time :	11:10	11:13	11:19			
Lot Number :	-	-	-			
Location 1 :	E: 491975.9	E: 491963.9	E: 491948.7			
Location 2 :	N: 7002406.9	N: 7002413.4	N: 7002419.4			
Location 3 :	RL: -0.2 F/L	RL: -0.3 F/L	RL: -0.3 F/L			
Location 4 :	-	-	-			
Test Fraction (mm) :	< 19mm	< 19mm	< 19mm			
Oversize Wet :	0%	0%	0%			
Oversize Density - Dry (t/m ³) :	-	-	-			
Assigned MDR (Yes/No) :	No	No	No			
MDR Sample Number :	S/142551	S/142553	S/142554			
MDR Test Date :	30/06/2022	30/06/2022	30/06/2022			
Soil Description :	Standard	Standard	Standard			
Soil Description :	Silty Clay - Brown	Silt Clay - Brown	Silty Clay - Brown			
MDR Test Results						
PCWD (t/m ³) :	2.02	1.94	1.91			
Moisture Variation :	-1.5%	2.0%	0.0%			
ADJ PCWD (t/m ³) :	-	-	-			
ADJ Moisture Variation :	-	-	-			
Moisture Test Results :						
Field Moisture Content :	23.0%	20.0%	19.0%			
Moisture Specification :	-	-	-			
Variation from OMC :	1.5% Wet of OMC	2.0% Dry of OMC	0.0% Wet of OMC			
Relative Moisture Ratio (Q250) :	-	-	-			
Moisture Ratio :	N/A	N/A	N/A			
Density Test Results						
Field Wet Density (t/m ³) :	1.99	1.94	1.95			
Density Specification :	95%	95%	95%			
Wet Density Ratio :	98.5%	100.0%	101.5%			
Characteristic Value (Q020) :	CV(min) = 98.8%	CV(max) = 101.2%	Mean = 100.0%	Std. Dev. = 1.5%	n = 3	k = 0.828
	-	-	-			
Soil Particle Density (APD) t/m ³ :						
Soil Particle Density (APD) Date :						
Remarks :						
 <small>WORLDWIDE ACCREDITATION</small>	<small>Note: The results contained in this report relate only to the item/s that were tested/sampled</small> Accredited for Compliance with ISO/ IEC 17025 - Testing Protest Engineering (Sunshine Coast) Accreditation Number - 20499 Base Laboratory Site Number - 24490 - Sunshine Coast Base Laboratory Address - 2/9 Matheson Street, Baringa, QLD 4551			APPROVED SIGNATORY  Dean Liebenberg - Signatory		