

Riverwalk Estate Stage 19B

GITA Inspection Verification Report

Prepared For: Excell Gray Bruni

Report Number P19067A V1

Version Release Date 15 March 2019

Report Released By Richard Schembri

Title Laboratory Manager

Signature



Table of Contents

1 Introduction 3

2 Scope of Work 3

 2.1 Area of Work 3

 2.2 Specification 3

 2.3 Limitations..... 4

3 Construction Method 4

 3.1 Subgrade Preparation 4

 3.2 Fill Placement 4

4 Construction Verification..... 5

5 Statement of Compliance 5

Appendices

- Appendix 1 Test Location Plan
- Appendix 2 Compaction Test Register and Test Certificates

1 Introduction

Terra Firma Laboratories was engaged by *Excell Gray Bruni* as the Geotechnical Inspection and Testing Authority (GITA) to provide Level 1 supervision and testing works on the earthworks component for Riverwalk Estate Stage 19B. This work was conducted over the period on the 5/3/2019

This report presents that the allotment earthworks was carried out in accordance with AS3798-2007 *Guidelines for Earthworks for Commercial and Residential Development* and in compliance with the compaction control specifications established by the contractor.

2 Scope of Work

2.1 Area of Work

The areas of work included lots 1914 through to 1919 and 1921 through to 1923. The site will be a residential estate.

The area on which fill was placed is shown on site plan (Appendix 1: *Test Location Plan*) based on drawings prepared by SMEC, Drawing number 1932E-19B-02 and provided by *Excell Gray Bruni*.

The supervision work by the GITA involved both inspection of sub grade preparation work and full time inspection and testing of fill placement.

2.2 Specification

The technical specification for compaction control requirements was provided by *Excell Gray Bruni* and established that:

Test Rolling is required for all layers of structural fill and materials within 150mm of permanent subgrade level so as to withstand test rolling without visible deformation or springing. Corrective action is required where unstable areas exceed 20% of the area being considered by test rolling.

Section 5.2 of AS3798-2007 (Section 5.2) establishes a specification requirement for a minimum density ratio of not less than 95% noting that soils containing more than 20% of particles coarser than 37.5mm cannot be tested for relative compaction using the procedures of AS1289 5.1.1 and AS1289 5.2.1.

In accordance with Table 8.1 (AS3798), for large scale operations, (greater than 1500m²), the minimum testing frequency is 1 test per layer per material type per 2500m² or 1 test per 500m³

distributed reasonable evenly throughout full depth and area or 3 tests per lot. AS3798 defines a lot as “an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work”. All three of these test frequencies must be achieved and this is typically confirmed to have been achieved when 3 tests per visit (day) have been completed.

2.3 Limitations

Terra Firma Laboratories cannot verify any works completed by others outside of the time period specified in the introduction. Uncontrolled works may include, but are not limited to trenching for services, cut and fill works for slab preparation or subsequent removal of vegetation and back fill of holes unless specified in section 2.1 of this report.

Terra Firma Laboratories cannot verify that the material used as a filling medium is free from chemical or other contamination.

Verification of finished surface level to design levels is outside of the scope of the GITA report.

3 Construction Method

3.1 Subgrade Preparation

At the time of subgrade inspection the following was observed:

- Subgrade preparation involved stripping the site of topsoil, vegetation and organic matter to a depth of approximately 200mm below existing levels.
- The site was cleared of all trees and stumps to the extent necessary for the fill placement to proceed
- The roots of all trees and any debris was removed from site prior to any fill placement

The sub-grade area was then proof-rolled to confirm it was capable of withstanding test rolling without visible deformation or springing and any areas observed to be soft or otherwise unsuitable were rectified. The sub-grade was watered and scarified prior to fill placement to aid layer bonding.

3.2 Fill Placement

The contractor was observed to have suitable construction equipment and plant available on-site during the construction period for use in the fill placement.

All fill was placed in layers of thicknesses not exceeding 300mm. At the completion of a placed layer, compaction testing was performed to confirm appropriate compaction had been achieved and

supported the observations made. It should be noted that the compaction tests are representative samples of the fill placed and support the visual assessment of the works completed. Each house lot does not necessarily require a compaction test to have been conducted within the house allotment but may have been verified by testing conducted within up to a 2500m² area of the house lot.

Final fill placement levels were verified against design level by others. For the purposes of this report, it was observed that finished levels were in accordance with levels marked on site by survey markers.

The final 300mm of fill placed across the site was placed as a topsoil layer or growing medium and should be considered as non-structural, as it was placed in an uncontrolled manner, as allowed by specifications and placement of the final 300mm of fill was not observed by the GITA.

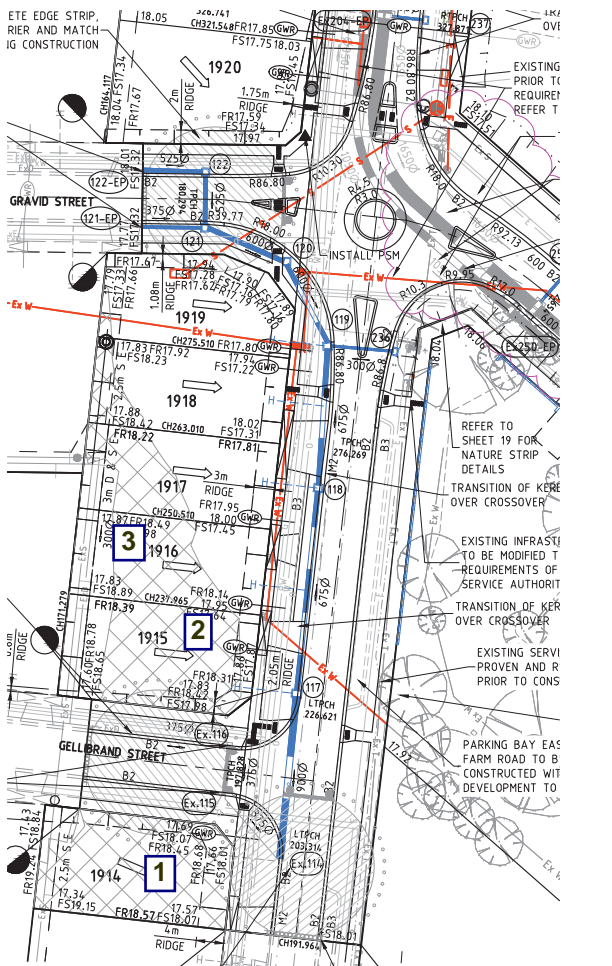
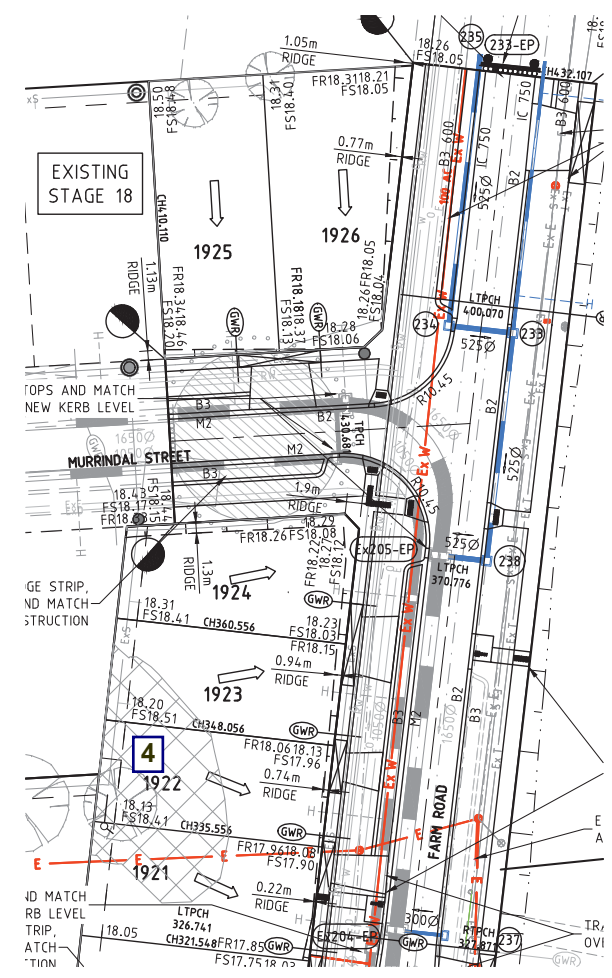
4 Construction Verification

Compaction Verification testing is summarized in a detailed test register with test certificates attached provided in Appendix 2: *Compaction Test Register and Test Certificates*. A test location plan (P19067D1, Appendix 1) providing a schematic of test locations across the extent of scope of works for every placed layer of fill is also documented.

A total of 4 density tests (Hilf method in accordance with 1289 5.7.1) were undertaken. The results summarised in the compaction test register (Appendix 2) confirm that for every layer of fill placed in a specific work area, satisfactory testing was completed.

5 Statement of Compliance

The intention of this report is to provide a description of the earthworks construction for Stage 19B at Riverwalk Estate. For completed fill areas of greater than 300mm, and for works completed on the 5/3/2019, earthworks construction activities were conducted under the full time supervision of the Geotechnical Inspection and Testing Authority. Inspections and testing of the fill areas at this site indicate that both sub grade preparation and fill placement have been conducted in accordance with the specification. The earthworks construction for Stage 19B of Riverwalk Estate was observed to be constructed in compliance with the requirements of the Technical Specification.



Our Head Office
47 National Ave
Pakenham, VIC 3860

Our Laboratories
Pakenham 03 9769 5799
Deer Park 03 8348 5596
Bibra Lake 08 9395 7220

Test Location Plan

not to scale

Client: Excell Gray Bruni

Project: Riverwalk Estate, Stage 19B

Reference: 19067 D1

TERRAFIRMA.COM.AU
TEST LOCATION PLAN 02/24



Compaction Test Register

Client: Excell Gray Bruni **Project No:** P19067
Project: Riverwalk Estate Stage 19B **Specification:** 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
5/03/2019	1	L1		96	Pass	1914	P19067-1
5/03/2019	2	L1		97.5	Pass	1915	P19067-1
5/03/2019	3	L1		97.5	Pass	1916	P19067-1
5/03/2019	4	L1		97.5	Pass	1922	P19067-1

Material Test Report

Report Number: P19067-1
Issue Number: 1
Date Issued: 07/03/2019
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: P19067
Project Name: Riverwalk Stage 19B (Level One)
Project Location: Werribee
Work Request: 483
Material: Clay
Material Source: On Site



Terra Firma Laboratories Pty Ltd
 Deer Park Laboratory
 Factory 1 80-82 Rebecca Drive Ravenhall VIC 3023
 Phone: 0435 751 756
 Email: rschembri@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Richard Schembri
 Lab Manager Deer Park
 NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D19-483A	D19-483B	D19-483C	D19-483D
Test Number	1	2	3	4
Date Tested	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Time Tested	12:00	12:00	12:00	12:00
Test Request #/Location	LOT 1914	LOT 1915	LOT 1916	LOT 1922
Chainage (m)	**	**	**	**
Location Offset (m)	**	**	**	**
Layer / Reduced Level	Layer 1	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	300	300	300	300
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay
Test Depth (mm)	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	4.5	0.0
Field Wet Density (FWD) t/m ³	1.88	1.88	1.90	1.89
Field Moisture Content %	6.0	6.2	6.1	6.2
Field Dry Density (FDD) t/m ³	1.78	1.77	1.80	1.78
Peak Converted Wet Density t/m ³	1.96	1.93	**	1.94
Adjusted Peak Converted Wet Density t/m ³	**	**	1.95	**
Moisture Ratio % (AS 1289.5.4.1)	57.5	58.0	**	58.0
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**	**	61.0	**
Moisture Variation (Wv) %	5.0	5.0	**	5.0
Adjusted Moisture Variation %	**	**	4.5	**
Hilf Density Ratio (%)	96.0	97.5	97.5	97.5
Compaction Method	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC