Five Farms Stage 24

GITA Inspection Verification Report

Prepared For:	Fraser Property
Report Number	P231357A V1
Version Release Date	16 Feb 2024
Report Released By	C Caulfield
Title	Project Manager
Signature	

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Our Laboratories
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Appendices

1 Introduction

Terra Firma Laboratories was engaged by Fraser Property as the Geotechnical Inspection and Testing Authority (GITA) to provide Level 1 supervision and testing works on the earthworks component for Five Farms Stage 24. This work was conducted over the period of 03/03/2023 to 22/09/2023.

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 2401 to 2431 and 2442, bounded by streets AvenatCircuit, Tilllage Court, Mettle Street and Companionship Drive. The site will be a Residential development.

The area on which fill was placed is shown on site plan (Appendix 1: *Test Location Plan*) based on drawings prepared by Beveridge Williams (Drawing Reference: 1702037 24 010 A) and provided by Fraser Property.

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 (Reference from Drawings) for compaction control requirements was provided by Fraser Property 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 1500m^2), the minimum testing frequency is 1 test per layer per material type per 2500m^2 or 1 test per 500m^3 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. The scope and the period of Terra Firma Laboratories as described in the introduction are subject to restrictions and limitations. Terra Firma Laboratories did not perform a complete assessment of all possible conditions and circumstances that may exist at the site. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Terra Firma Laboratories.

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

Any drawings or marked locations presented in this report should be considered only as pictorial evidence of our work. Therefore, unless otherwise stated, any dimensions should not be used for accurate calculations or dimensioning.

Where data has been supplied by the client or a third party, it is assumed that the information is correct unless otherwise stated. No responsibility is accepted by Terra Firma Laboratories for incomplete or inaccurate data supplied by others.

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 to have been conducted within the house allotment but may have been verified by testing conducted within up to a 2500m^2 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 150mm of material 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 150mm of material 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 (P231357D1, 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 36 density tests (Hilf method in accordance with 1289 5.7.1) were undertaken with 5 failed results. The contractor was notified of any failed tests and the failed areas were ripped, watered, compacted and then re-tested to confirm compliance with the specification. 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 24 at Five Farms. For completed fill areas of greater than 300mm, and for works completed between 03/03/2023 and 22/09/2023, 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 24 of Five Farms was observed to be constructed in compliance with the requirements of the Technical Specification.

Appendix 1: Test Location Plan

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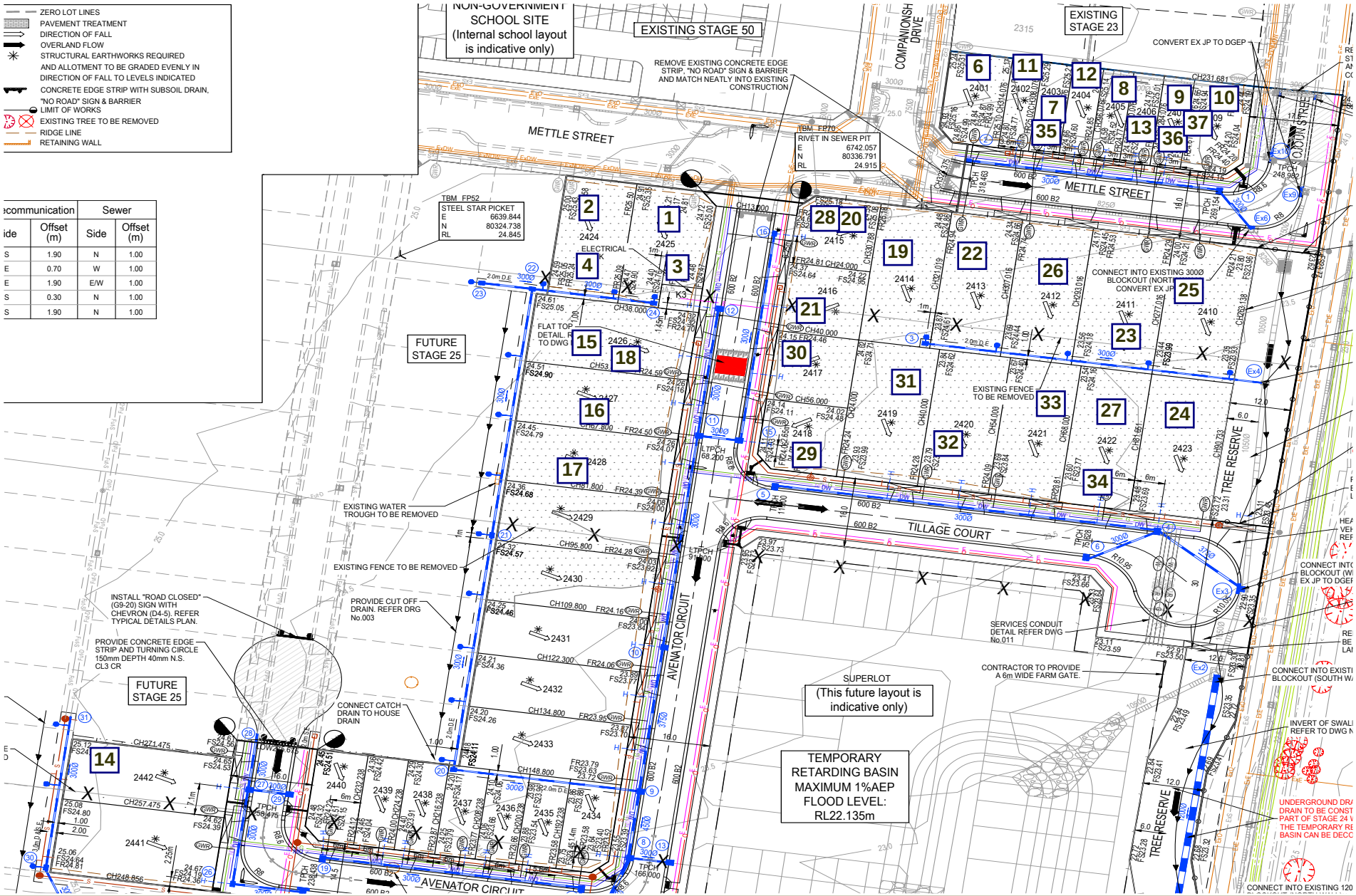
Deer Park 03 8348 5596
Bibra Lake 08 9395 7220



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Our Laboratories
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Deer Park 03 8348 5596
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Test Location Plan

not to scale

Client: Fraser Property

Project: Five Farms Stage 24

Reference: D231357 D1

Appendix 2: Compaction Test Register and Test Certificates

Compaction Test Register

Client: Fraser Property
Project: Five Farms Stage 24
Project No: P231357
Specification: 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
3/03/2023	1	Layer 1		97.0%	Pass	Lot 2425	P231357-1
4/03/2023	2	Layer 2		97.5%	Pass	Lot 2424	P231357-2
7/03/2023	3	Layer 2		101.5%	Pass	Lot 2425	P231357-3
20/03/2023	4	Layer 4		101.5%	Pass	Lot 2424	P231357-4
22/08/2023	6	FInal Layer		97.5%	Pass	Lot 2401	P231357-5
22/08/2023	7	FInal Layer		94.5%	Fail	Lot 2403	P231357-5
22/08/2023	8	FInal Layer		97.0%	Pass	Lot 2405	P231357-5
22/08/2023	9	FInal Layer		92.5%	Fail	Lot 2407	P231357-5
22/08/2023	10	FInal Layer		90.0%	Fail	Lot 2409	P231357-5
23/08/2023	11	FSL		98.0%	Pass	Lot 2402	P231357-6
23/08/2023	12	FSL		99.0%	Pass	Lot 2404	P231357-6
23/08/2023	13	FSL		96.5%	Pass	Lot 2406	P231357-6
25/08/2023	14	Layer 1		99.5%	Pass	Lot 2442	P231357-7
6/09/2023	15	Layer 3		92.5%	Fail	Lot 2426	P231357-8
6/09/2023	16	Layer 2		97.0%	Pass	Lot 2427	P231357-8
6/09/2023	17	Layer 1		98.5%	Pass	Lot 2428	P231357-8
14/09/2023	18	Layer 3	Test #15	104.0%	Pass	Lot 2426	P231357-9
15/09/2023	19	Layer 2		98.5%	Pass	Lot 2414	P231357-10
15/09/2023	20	Layer 1		92.0%	Fail	Lot 2415	P231357-10
15/09/2023	21	Layer 2		98.0%	Pass	Lot 2416	P231357-10
16/09/2023	22	Layer 2		97.5%	Pass	Lot 2413	P231357-11
16/09/2023	23	Layer 2		96.0%	Pass	Lot 2411	P231357-11
16/09/2023	24	Layer 1		99.0%	Pass	Lot 2423	P231357-11
19/09/2023	25	Layer 1		105.5%	Pass	Lot 2410	P231357-12
19/09/2023	26	Layer 1		102.5%	Pass	Lot 2412	P231357-12
19/09/2023	27	Layer 1		98.5%	Pass	Lot 2422	P231357-12
19/09/2023	28	Layer 1	Test #20	99.5%	Pass	Lot 2415	P231357-12
20/09/2023	29	Layer 2		101.5%	Pass	Lot 2418	P231357-13
20/09/2023	30	Layer 2		101.0%	Pass	Lot 2417	P231357-13
20/09/2023	31	Layer 2		97.0%	Pass	Lot 2419	P231357-13
21/09/2023	32	Final Layer		100.5%	Pass	Lot 2420	P231357-14
21/09/2023	33	Final Layer		97.5%	Pass	Lot 2421	P231357-14
21/09/2023	34	Final Layer		98.5%	Pass	Lot 2422	P231357-14
22/09/2023	35	Final Layer	Test #7	99.0%	Pass	Lot 2403	P231357-15
22/09/2023	36	Final Layer	Test #9	99.5%	Pass	Lot 2407	P231357-15
22/09/2023	37	Final Layer	Test #10	102.0%	Pass	Lot 2409	P231357-15

Material Test Report

Report Number: **P231357-1**
Issue Number: 1
Date Issued: 31/03/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 11784
Date Sampled: 03/03/2023 9:00
Dates Tested: 03/03/2023 - 10/03/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Future Stage 24 Level One
Material: Silty CLAY 50/50 Blend
Material Source: Onsite

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NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Chris Caulfield
Project Manager
NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-11784A		
Test Number	5		
Date Tested	03/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2425		
Layer / Reduced Level	Layer 1		
Thickness of Layer (mm)	300		
Soil Description	Silty CLAY 50/50 Blend		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**		
Field Wet Density (FWD) t/m^3	1.96		
Field Moisture Content %	**		
Field Dry Density (FDD) t/m^3	**		
Peak Converted Wet Density t/m^3	2.02		
Adjusted Peak Converted Wet Density t/m^3	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**		
Adj. Field Moisture Content % (AS1289.5.4.1)	**		
Moisture Ratio % (AS1289.5.4.1)	**		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	0.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	**97.0**		
Compaction Method	**Standard**		
Report Remarks	**		

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

Material Test Report

Report Number: **P231357-2**
Issue Number: 1
Date Issued: 31/03/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 11792
Date Sampled: 04/03/2023
Dates Tested: 04/03/2023 - 07/03/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms stage 24
Material: Silty Clay 50/50 Blend
Material Source: Onsite

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NATA WORLD RECOGNISED ACCREDITATION

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Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-11792A		
Test Number	**		
Date Tested	04/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2424		
Layer / Reduced Level	Layer 2		
Thickness of Layer (mm)	300		
Soil Description	Silty Clay 50/50 Blend		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0		
Field Wet Density (FWD) t/m^3	1.96		
Field Moisture Content %	21.2		
Field Dry Density (FDD) t/m^3	1.62		
Peak Converted Wet Density t/m^3	2.01		
Adjusted Peak Converted Wet Density t/m^3	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.4		
Adj. Field Moisture Content % (AS1289.5.4.1)	21.2		
Moisture Ratio % (AS1289.5.4.1)	99.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	0.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	**97.5**		
Compaction Method	**Standard**		
Report Remarks	**		

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

Material Test Report

Report Number: **P231357-3**
Issue Number: 1
Date Issued: 31/03/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 11819
Date Sampled: 07/03/2023 9:00
Dates Tested: 07/03/2023 - 09/03/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Future Stage 24 Level One
Material: Silty CLAY 50/50 Blend
Material Source: Onsite

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NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-11819A		
Test Number	3		
Date Tested	07/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2425		
Layer / Reduced Level	Layer 2		
Thickness of Layer (mm)	300		
Soil Description	Silty CLAY 50/50 Blend		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**		
Field Wet Density (FWD) t/m^3	2.00		
Field Moisture Content %	20.0		
Field Dry Density (FDD) t/m^3	1.67		
Peak Converted Wet Density t/m^3	1.98		
Adjusted Peak Converted Wet Density t/m^3	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**		
Adj. Field Moisture Content % (AS1289.5.4.1)	20.0		
Moisture Ratio % (AS1289.5.4.1)	99.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	0.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	**101.5**		
Compaction Method	**Standard**		
Report Remarks	**		

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

Material Test Report

Report Number: **P231357-4**
Issue Number: 1
Date Issued: 31/03/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 11946
Date Sampled: 20/03/2023 8:45
Dates Tested: 20/03/2023 - 24/03/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Future Stage 24 Level One
Material: Silty CLAY 50/50 Blend
Material Source: Onsite

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Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-11946A		
Test Number	4		
Date Tested	20/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2424		
Layer / Reduced Level	Layer 4		
Thickness of Layer (mm)	300		
Soil Description	Silty CLAY 50/50 Blend		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0		
Field Wet Density (FWD) t/m^3	2.04		
Field Moisture Content %	17.6		
Field Dry Density (FDD) t/m^3	1.74		
Peak Converted Wet Density t/m^3	2.01		
Adjusted Peak Converted Wet Density t/m^3	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	20.0		
Adj. Field Moisture Content % (AS1289.5.4.1)	17.6		
Moisture Ratio % (AS1289.5.4.1)	88.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	2.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	**101.5**		
Compaction Method	**Standard**		
Report Remarks	**		

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

Material Test Report

Report Number: **P231357-5**
Issue Number: 1
Date Issued: 25/08/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13212
Date Sampled: 22/08/2023
Dates Tested: 22/08/2023 - 22/08/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Future Stage 24 Level One
Material: CLAY
Material Source: Onsite

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Approved Signatory: Chris Caulfield
Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	P23-13212A	P23-13212B	P23-13212C	P23-13212D	P23-13212E
Test Number	6	7	8	9	10
Date Tested	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Time Tested	**	**	**	**	**
Test Request #/Location	6 Lot 2401	7 Lot 2403	8 Lot 2405	9 Lot 2407	10 Lot 2409
Layer / Reduced Level	FInal Layer	FInal Layer	FInal Layer	FInal Layer	FInal Layer
Thickness of Layer (mm)	300	300	300	300	300
Soil Description	CLAY	CLAY	CLAY	CLAY	CLAY
Test Depth (mm)	275	275	275	275	275
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
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	**	0	**
Field Wet Density (FWD) t/m^3	2.00	1.98	1.98	1.73	1.87
Field Moisture Content %	20.5	20.0	20.7	25.6	17.8
Field Dry Density (FDD) t/m^3	1.66	1.65	1.64	1.38	1.59
Peak Converted Wet Density t/m^3	2.04	2.10	2.04	1.87	2.08
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	17.6	17.2	**	27.9	**
Adj. Field Moisture Content % (AS1289.5.4.1)	20.5	20.0	20.7	25.6	17.8
Moisture Ratio % (AS1289.5.4.1)	116.5	116.5	103.0	91.5	101.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**
Moisture Variation (Wv) %	-3.0	-3.0	-0.5	2.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**97.5**	**94.5**	**97.0**	**92.5**	**90.0**
Compaction Method	**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

Report Number: **P231357-6**
Issue Number: 1
Date Issued: 30/08/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13218
Date Sampled: 23/08/2023 15:15
Dates Tested: 23/08/2023 - 25/08/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Stage 24 Level One
Material: Sandy silty CLAY
Material Source: Onsite

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NATA WORLD RECOGNISED ACCREDITATION

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Approved Signatory: Chris Caulfield
Project Manager
NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13218A	P23-13218B	P23-13218C
Test Number	11	12	13
Date Tested	23/08/2023	23/08/2023	23/08/2023
Time Tested	**	**	**
Test Request #/Location	Lot 2402	Lot 2404	Lot 2406
Layer / Reduced Level	FSL	FSL	FSL
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy silty CLAY	Sandy silty CLAY	Sandy silty CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	0
Field Wet Density (FWD) t/m^3	1.92	2.08	2.02
Field Moisture Content %	19.6	18.9	14.6
Field Dry Density (FDD) t/m^3	1.61	1.75	1.76
Peak Converted Wet Density t/m^3	1.97	2.10	2.09
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	20.2	16.0	13.4
Adj. Field Moisture Content % (AS1289.5.4.1)	19.6	18.9	14.6
Moisture Ratio % (AS1289.5.4.1)	97.0	118.0	108.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	0.5	-3.0	-1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**98.0**	**99.0**	**96.5**
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

Report Number: **P231357-7**
Issue Number: 1
Date Issued: 06/09/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13257
Date Sampled: 25/08/2023 15:20
Dates Tested: 25/08/2023 - 30/08/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Location: Five Farms Stage 24 Level One
Material: Sandy silty CLAY
Material Source: Onsite

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Approved Signatory: Chris Caulfield
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NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13257A		
Test Number	14		
Date Tested	25/08/2023		
Time Tested	**		
Test Request #/Location	Lot 2442		
Layer / Reduced Level	Layer 1		
Thickness of Layer (mm)	300		
Soil Description	Sandy silty CLAY		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**		
Field Wet Density (FWD) t/m^3	2.16		
Field Moisture Content %	13.1		
Field Dry Density (FDD) t/m^3	1.91		
Peak Converted Wet Density t/m^3	2.17		
Adjusted Peak Converted Wet Density t/m^3	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**		
Adj. Field Moisture Content % (AS1289.5.4.1)	13.1		
Moisture Ratio % (AS1289.5.4.1)	103.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	-0.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	**99.5**		
Compaction Method	**Standard**		
Report Remarks	**		

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

Material Test Report

Report Number: **P231357-8**
Issue Number: 1
Date Issued: 13/09/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13360
Date Sampled: 06/09/2023 8:30
Dates Tested: 06/09/2023 - 08/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Stage 24 Level One
Material: Sandy silty CLAY
Material Source: Onsite

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Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13360A	P23-13360B	P23-13360C
Test Number	15	16	17
Date Tested	06/09/2023	06/09/2023	06/09/2023
Time Tested	**	**	**
Test Request #/Location	Lot 2426	Lot 2427	Lot 2428
Layer / Reduced Level	Layer 3	Layer 2	Layer 1
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy silty CLAY	Sandy silty CLAY	Sandy silty CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m^3	1.90	2.02	2.06
Field Moisture Content %	19.7	18.9	19.4
Field Dry Density (FDD) t/m^3	1.59	1.70	1.73
Peak Converted Wet Density t/m^3	2.06	2.08	2.09
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	19.0	19.0	18.0
Adj. Field Moisture Content % (AS1289.5.4.1)	19.7	18.9	19.4
Moisture Ratio % (AS1289.5.4.1)	104.0	99.5	108.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-0.5	0.0	-1.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**92.5**	**97.0**	**98.5**
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

Report Number: **P231357-9**
Issue Number: 1
Date Issued: 28/09/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13426
Date Sampled: 14/09/2023 14:50
Dates Tested: 14/09/2023 - 15/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Stage 24 Level One
Material: Sandy silty CLAY
Material Source: Onsite

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NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13426A		
Test Number	18		
Date Tested	14/09/2023		
Time Tested	**		
Test Request #/Location	Lot 2426 Retest #15		
Layer / Reduced Level	Layer 3		
Thickness of Layer (mm)	300		
Soil Description	Sandy Silty Clay		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**		
Field Wet Density (FWD) t/m^3	2.12		
Field Moisture Content %	20.0		
Field Dry Density (FDD) t/m^3	1.76		
Peak Converted Wet Density t/m^3	2.04		
Adjusted Peak Converted Wet Density t/m^3	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	19.7		
Adj. Field Moisture Content % (AS1289.5.4.1)	20.0		
Moisture Ratio % (AS1289.5.4.1)	101.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	0.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	**104.0**		
Compaction Method	**Standard**		
Report Remarks	**		

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

Material Test Report

Report Number: **P231357-10**
Issue Number: 1
Date Issued: 19/09/2023
Client: Fraser Property

Contact: Jake
Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13430
Date Sampled: 15/09/2023
Dates Tested: 15/09/2023 - 18/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Stage 24 - Level 1
Material: CLAY
Material Source: Onsite

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Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13430A	P23-13430B	P23-13430C
Test Number	19	20	21
Date Tested	15/09/2023	15/09/2023	15/09/2023
Time Tested	**	**	**
Test Request #/Location	Lot 2414	Lot 2415	Lot 2416
Layer / Reduced Level	Layer 2	Layer 1	Layer 2
Thickness of Layer (mm)	300	300	300
Soil Description	CLAY	CLAY	CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	0
Field Wet Density (FWD) t/m^3	1.99	1.88	1.97
Field Moisture Content %	19.7	19.8	19.5
Field Dry Density (FDD) t/m^3	1.66	1.57	1.65
Peak Converted Wet Density t/m^3	2.02	2.05	2.02
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	19.7	20.0	19.1
Adj. Field Moisture Content % (AS1289.5.4.1)	19.7	19.8	19.5
Moisture Ratio % (AS1289.5.4.1)	100.0	98.5	102.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	0.0	0.5	-0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**98.5**	**92.0**	**98.0**
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

Report Number: **P231357-11**
Issue Number: 1
Date Issued: 28/09/2023
Client: Fraser Property

Contact: Jake
Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13438
Date Sampled: 16/09/2023
Dates Tested: 16/09/2023 - 21/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Fiva Farms - Stage 24
Material: CLAY
Material Source: Onsite

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Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13438A	P23-13438B	P23-13438C
Test Number	22	23	24
Date Tested	16/09/2023	16/09/2023	16/09/2023
Time Tested	**	**	**
Test Request #/Location	Lot 2413	Lot 2411	Lot 2423
Layer / Reduced Level	Layer 2	Layer 2	Layer 1
Thickness of Layer (mm)	300	300	300
Soil Description	CLAY	CLAY	CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m^3	2.00	2.00	1.98
Field Moisture Content %	24.9	18.8	22.1
Field Dry Density (FDD) t/m^3	1.60	1.68	1.62
Peak Converted Wet Density t/m^3	2.05	2.08	2.00
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	**
Adj. Field Moisture Content % (AS1289.5.4.1)	24.9	18.8	22.1
Moisture Ratio % (AS1289.5.4.1)	115.0	102.5	101.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-3.0	-0.5	-0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**97.5**	**96.0**	**99.0**
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

Report Number: **P231357-12**
Issue Number: 1
Date Issued: 28/09/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13455
Date Sampled: 19/09/2023
Dates Tested: 19/09/2023 - 21/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Stage 24 - Level 1
Material: CLAY
Material Source: Onsite

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Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	P23-13455A	P23-13455B	P23-13455C	P23-13455D
Test Number	25	26	27	28
Date Tested	19/09/2023	19/09/2023	19/09/2023	19/09/2023
Time Tested	**	**	**	**
Test Request #/Location	Lot 2410	Lot 2412	Lot 2422	Lot 2415 Retest #20
Layer / Reduced Level	Layer 1	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	300	300	300	300
Soil Description	CLAY	CLAY	CLAY	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
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	0	**
Field Wet Density (FWD) t/m^3	2.05	2.09	1.95	2.02
Field Moisture Content %	21.7	16.8	19.3	19.0
Field Dry Density (FDD) t/m^3	1.69	1.79	1.64	1.70
Peak Converted Wet Density t/m^3	1.95	2.04	1.99	2.03
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	22.5	16.9	19.0	18.7
Adj. Field Moisture Content % (AS1289.5.4.1)	21.7	16.8	19.3	19.0
Moisture Ratio % (AS1289.5.4.1)	96.5	99.5	101.5	102.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**
Moisture Variation (Wv) %	1.0	0.0	-0.5	-0.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	**105.5**	**102.5**	**98.5**	**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

Report Number: **P231357-13**
Issue Number: 1
Date Issued: 28/09/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13465
Date Sampled: 20/09/2023
Dates Tested: 20/09/2023 - 21/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Stage 24 - Level one
Material: CLAY
Material Source: Onsite

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Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13465A	P23-13465B	P23-13465C
Test Number	29	30	31
Date Tested	20/09/2023	20/09/2023	20/09/2023
Time Tested	**	**	**
Test Request #/Location	Lot 2418	Lot 2417	Lot 2419
Layer / Reduced Level	Layer 2	Layer 2	Layer 2
Thickness of Layer (mm)	300	300	300
Soil Description	CLAY	CLAY	CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m^3	2.12	2.09	2.01
Field Moisture Content %	18.0	18.0	19.1
Field Dry Density (FDD) t/m^3	1.80	1.77	1.69
Peak Converted Wet Density t/m^3	2.08	2.07	2.07
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	**
Adj. Field Moisture Content % (AS1289.5.4.1)	18.0	18.0	19.1
Moisture Ratio % (AS1289.5.4.1)	98.0	99.5	105.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	0.5	0.0	-1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**101.5**	**101.0**	**97.0**
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

Report Number: **P231357-14**
Issue Number: 1
Date Issued: 28/09/2023
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Future Stage 24 Level One
Project Location: Clyde
Work Request: 13476
Date Sampled: 21/09/2023
Dates Tested: 21/09/2023 - 22/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Stage 24 - Level One
Material: CLAY
Material Source: Onsite

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Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13476A	P23-13476B	P23-13476C
Test Number	32	33	34
Date Tested	21/09/2023	21/09/2023	21/09/2023
Time Tested	**	**	**
Test Request #/Location	Lot 2420	Lot 2421	Lot 2422
Layer / Reduced Level	Final Layer	Final Layer	Final Layer
Thickness of Layer (mm)	300	300	300
Soil Description	CLAY	CLAY	CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m^3	2.09	2.06	2.07
Field Moisture Content %	17.8	19.9	20.3
Field Dry Density (FDD) t/m^3	1.78	1.72	1.72
Peak Converted Wet Density t/m^3	2.08	2.11	2.10
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	18.0
Adj. Field Moisture Content % (AS1289.5.4.1)	17.8	19.9	20.3
Moisture Ratio % (AS1289.5.4.1)	104.5	110.5	113.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-0.5	-2.0	-2.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**100.5**	**97.5**	**98.5**
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

Report Number: **P231357-15**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Lot Numbers Added*
Date Issued: 16/02/2024
Client: Fraser Property

Project Number: P231357
Project Name: Five Farms Stage 24 Level One
Project Location: Clyde
Work Request: 13484
Date Sampled: 22/09/2023
Dates Tested: 22/09/2023 - 25/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Site Selection: Selected by Client
Location: Five Farms Stage 24 - Level one
Material: CLAY
Material Source: Onsite

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Approved Signatory: Chris Caulfield
Laboratory Manager
NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13484A	P23-13484B	P23-13484C
Test Number	35	36	37
Date Tested	22/09/2023	22/09/2023	22/09/2023
Time Tested	**	**	**
Test Request #/Location	Lot 2403 Retest #7	Lot 2407 Retest #9	Lot 2409 Retest #10
Layer / Reduced Level	Final Layer	Final Layer	Final Layer
Thickness of Layer (mm)	300	300	300
Soil Description	CLAY	CLAY	CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m^3	2.06	2.10	2.12
Field Moisture Content %	18.0	19.1	17.9
Field Dry Density (FDD) t/m^3	1.74	1.76	1.80
Peak Converted Wet Density t/m^3	2.08	2.10	2.08
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	17.4	17.1	**
Adj. Field Moisture Content % (AS1289.5.4.1)	18.0	19.1	17.9
Moisture Ratio % (AS1289.5.4.1)	103.5	111.5	96.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-0.5	-2.0	0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**99.0**	**99.5**	**102.0**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

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