Bartels Run Stage 1
Jackass Flat

Earthworks Supervision Report for
DPJ Civil

Report 24C 0123
April 2024

GTS
GEOTECHNICAL TESTING SERVICES

Hidden Court Estate
Kennington

Earthworks Supervision Report

for
DPJ Civil

Revision

Revision	Date	Authorised
24C 0123	16/04/2024	SEH

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APPENDIX

1 INTRODUCTION

DPJ Civil commissioned Geotechnical Testing Services (GTS) to undertake Level 1 Supervision and testing (AS3798-2007) for the earthworks for the residential subdivision at Bartels Run off Lana Drive, Jackass Flat.

Level 1 Testing was generally performed in line with AS3798-2007 “Guidelines on Earthworks for Commercial and Residential Development” and provides inspection of the construction of controlled fill and compaction testing in accordance with AS1289 “Methods of Testing Soils for Engineering Purposes”. The Level 1 testing was undertaken by Geotechnicians with supervision provided by a Geotechnical Engineer from GTS.

2 SCOPE OF WORKS

2.1 AREA OF WORK

Geotechnical Testing Services provided Level 1 inspection and testing of the engineered fill placed in the drain/swale in Lots 3 to 10 and Lot 31.

The depth of fill across the site varied from none to around 600mm at its deepest with the approximate locations shown on the attached site plan. It is noted that sites/areas with 300mm or less were not included in the controlled fill operations.

2.2 PLACEMENT SPECIFICATION

Whilst there was no earthworks specification compiled for this project, the placement of the fill and associated works generally followed the recommendations outlined in AS3798-2007 “Guidelines for Earthworks for Commercial and Residential Developments” and the construction specification.

In summary, the earthworks comply with the following:

- The layers for residential lots are to be compacted to at least 95% of the density ratio in accordance with AS1289 5.1.1 (or 5.7.1), based on Standard compaction.

Therefore, in accordance with Table 8.1 of AS3798-2007, the filling may be considered small scale (less than 1500m^2) and therefore a minimum of 1 test per 1000m^2 or per residential lot are required. The testing was conducted at 1 test per layer per lot which meets the minimum requirement.

3 INSPECTION AND TESTING

Inspection of the excavated base was conducted by a Senior Geotechnical Engineer and it was observed that the unsuitable material (vegetation, topsoil/silt) had been removed with the base consisting of an extremely weathered Siltstone rock or Silty Clay material of suitable strength.

Level 1 inspection and testing was undertaken by a geotechnician from GTS who nominated the timing and location of the in-situ density tests. The approximate location of each test is recorded on the test reports and attached fill plan.

Laboratory compaction testing was undertaken on a one to one basis at our Bendigo laboratory. A summary of the results of the compaction control testing is presented in a table below with the full NATA endorsed test reports included in the Appendix.

4 SUMMARY OF TEST RESULTS

A summary of the test results is included in the following table with full NATA accredited reports included in the Appendix.

Project No.	Sample No.	Test Date	Location	Reduced Level (mm)	Moisture Variation %O.M.C*	Density Ratio %
1	B23-14108A	5/10/2023	Lot 5	-300	0.5	99.5
2	B23-14108B	5/10/2023	Lot 6	-300	2.0	99.0
3	B23-14108C	5/10/2023	Lot 7	-300	0.0	100.5
4	B23-14108D	5/10/2023	Lot 8	-300	2.0	98.5
5	B23-14108E	5/10/2023	Lot 9	-300	3.0	102.5
6	B23-14108F	5/10/2023	Lot 10	-300	0.5	101.5
7	B23-14164A	10/10/2023	Lot 3	FSL	0.5	100.5
8	B23-14164B	10/10/2023	Lot 5	FSL	0.5	106.0
9	B23-14164C	10/10/2023	Lot 6	FSL	2.0	107.5
10	B23-14164D	10/10/2023	Lot 7	FSL	2.0	106.0
11	B23-14164E	10/10/2023	Lot 8	FSL	2.0	105.5
12	B23-14164F	10/10/2023	Lot 9	FSL	2.0	109.5
13	B23-14164G	10/10/2023	Lot 10	FSL	2.5	104.0
14	B24-15093A	7/03/2024	Lot 31	FSL	1.0	99.5

* Positive Values = Test is **Dry** of OMC; Negative Values = Test is **Wet** of OMC

5 STATEMENT OF COMPLIANCE

GTS personnel have provided Level 1 inspection and testing services during the placement of material for the filling of Lots 3 to 10 and 31. The placement of fill and construction techniques adopted was observed throughout the project.

Based on observations made by GTS personnel and the results of field and laboratory tests, we consider that the fill has been placed and compacted and is considered to be engineered or controlled fill. Therefore, subject to residential site classifications, the controlled fill material is deemed a suitable founding medium for future residential buildings. It is noted that topsoil material may be spread across the sites following completion of these earthworks and that this topsoil material is not considered controlled fill.

Prepared by

Corey Palmer BE (Hons) GradIEAust
Graduate Geotechnical Engineer

Reviewed by

Shane Hampton BE (Hons), MIEAust
Principal Geotechnical Engineer

APPENDIX

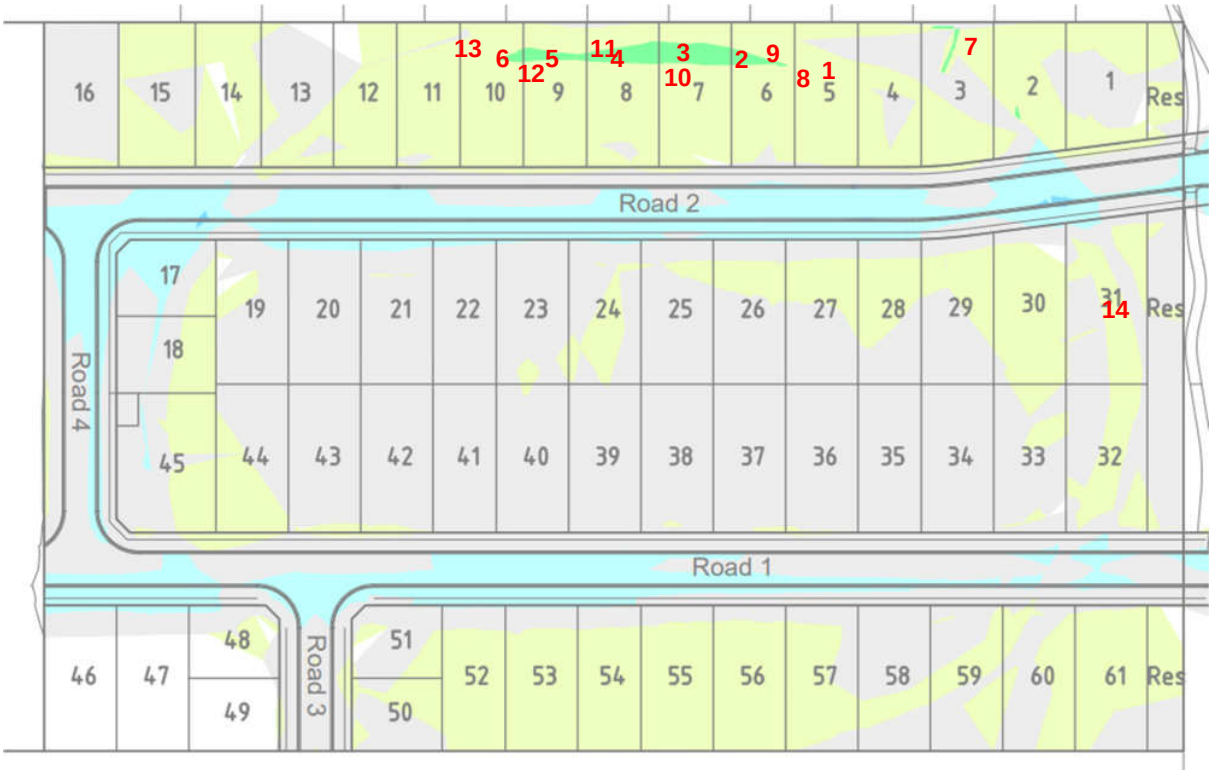

Fig 1 Site Plan

Material Test Report

Report Number: **P232354-1**
Issue Number: 1
Date Issued: 05/10/2023
Client: DPJ Civil Pty Ltd
24 Jewell Court , Bendigo VIC 3550
Project Number: P232354
Project Name: Bartels Run
Project Location: Jackass Flat
Work Request: 14108
Date Sampled: 05/10/2023
Dates Tested: 05/10/2023 - 05/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Location: Stage 1
Material Source: Test Location

Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
13 Alstonvale Court East Bendigo VIC 3550
Phone: (03) 5441 4881
Email: joshl@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Josh Lagodzki
CMT Manager
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	B23-14108A	B23-14108B	B23-14108C	B23-14108D	B23-14108E	B23-14108F
Date Tested	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023
Time Tested	11:17	11:20	11:25	11:28	11:30	11:33
Test Request #/Location	House Blocks Lot 5	House Blocks Lot 6	House Blocks Lot 7	House Blocks Lot 8	House Blocks Lot 9	House Blocks Lot 10
Chainage (m)	Back	Back	Back	Back	Back	Back
Location Offset (m)	**	**	**	**	**	**
Layer / Reduced Level	-300	-300	-300	-300	-300	-300
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly Silty Clay
Test Depth (mm)	275	275	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.09	2.03	2.14	2.02	2.10	2.10
Field Dry Density (FDD) t/m^3	**	**	**	**	**	**
Peak Converted Wet Density t/m^3	2.10	2.05	2.13	2.06	2.05	2.07
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	0.5	2.0	0.0	2.0	3.0	0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**99.5**	**99.0**	**100.5**	**98.5**	**102.5**	**101.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

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

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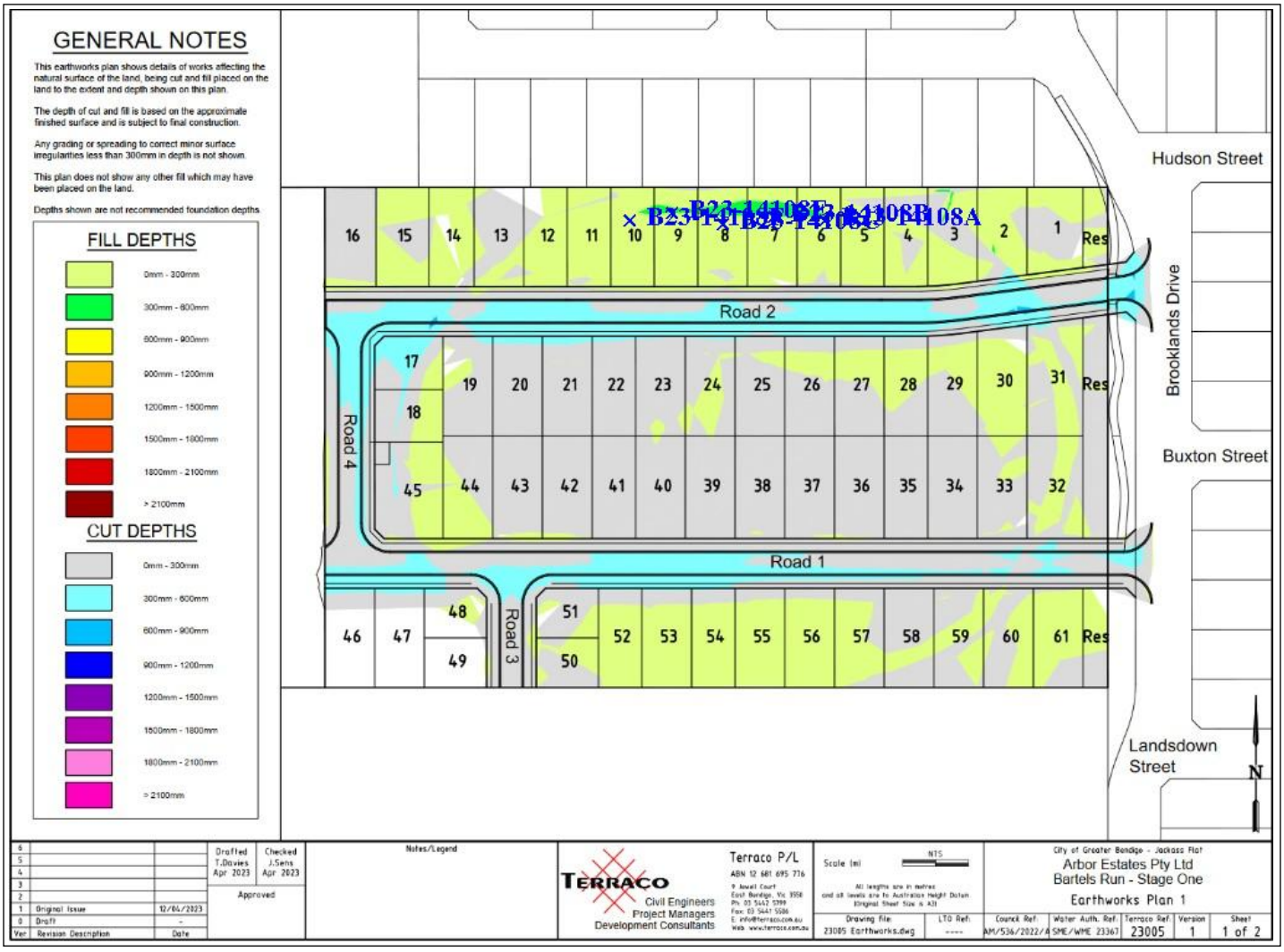
Sample Locations Plan

x - approximate test location



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Material Test Report

Report Number: **P232354-2**
Issue Number: 1
Date Issued: 11/10/2023
Client: DPJ Civil Pty Ltd
24 Jewell Court , Bendigo VIC 3550
Project Number: P232354
Project Name: Bartels Run
Project Location: Jackass Flat
Work Request: 14164
Date Sampled: 10/10/2023
Dates Tested: 10/10/2023 - 11/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Location: Stage 1
Material Source: Test Location

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13 Alstonvale Court East Bendigo VIC 3550
Phone: (03) 5441 4881
Email: joshl@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Josh Lagodzki
CMT Manager
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1				
Sample Number	B23-14164A	B23-14164B	B23-14164C	B23-14164D
Date Tested	10/10/2023	10/10/2023	10/10/2023	10/10/2023
Time Tested	14:29	14:35	14:37	14:42
Test Request #/Location	House Blocks Lot 3	House Blocks Lot 5	House Blocks Lot 6	House Blocks Lot 7
Chainage (m)	Back	Back	Back	Back
Location Offset (m)	**	**	**	**
Layer / Reduced Level	FSL	FSL	FSL	FSL
Thickness of Layer (mm)	300	300	300	300
Soil Description	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly 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
Field Wet Density (FWD) t/m^3	2.06	2.20	2.16	2.13
Field Dry Density (FDD) t/m^3	**	**	**	**
Peak Converted Wet Density t/m^3	2.04	2.07	2.01	2.01
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**
Moisture Variation (Wv) %	0.5	0.5	2.0	2.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	**100.5**	**106.0**	**107.5**	**106.0**
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

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Material Test Report

Report Number: **P232354-2**
Issue Number: 1
Date Issued: 11/10/2023
Client: DPJ Civil Pty Ltd
24 Jewell Court , Bendigo VIC 3550
Project Number: P232354
Project Name: Bartels Run
Project Location: Jackass Flat
Work Request: 14164
Date Sampled: 10/10/2023
Dates Tested: 10/10/2023 - 11/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Location: Stage 1
Material Source: Test Location

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Approved Signatory: Josh Lagodzki
CMT Manager
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1				
Sample Number	B23-14164E	B23-14164F	B23-14164G	
Date Tested	10/10/2023	10/10/2023	10/10/2023	
Time Tested	14:44	14:46	14:51	
Test Request #/Location	House Blocks Lot 8	House Blocks Lot 9	House Blocks Lot 10	
Chainage (m)	Back	Back	Back	
Location Offset (m)	**	**	**	
Layer / Reduced Level	FSL	FSL	FSL	
Thickness of Layer (mm)	300	300	300	
Soil Description	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly 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	
Field Wet Density (FWD) t/m^3	2.16	2.20	2.14	
Field Dry Density (FDD) t/m^3	**	**	**	
Peak Converted Wet Density t/m^3	2.05	2.01	2.06	
Adjusted Peak Converted Wet Density t/m^3	**	**	**	
Moisture Variation (Wv) %	2.0	2.0	2.5	
Adjusted Moisture Variation %	**	**	**	
Hilf Density Ratio (%)	**105.5**	**109.5**	**104.0**	
Compaction Method	**Standard**	**Standard**	**Standard**	
Report Remarks	**	**	**	

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

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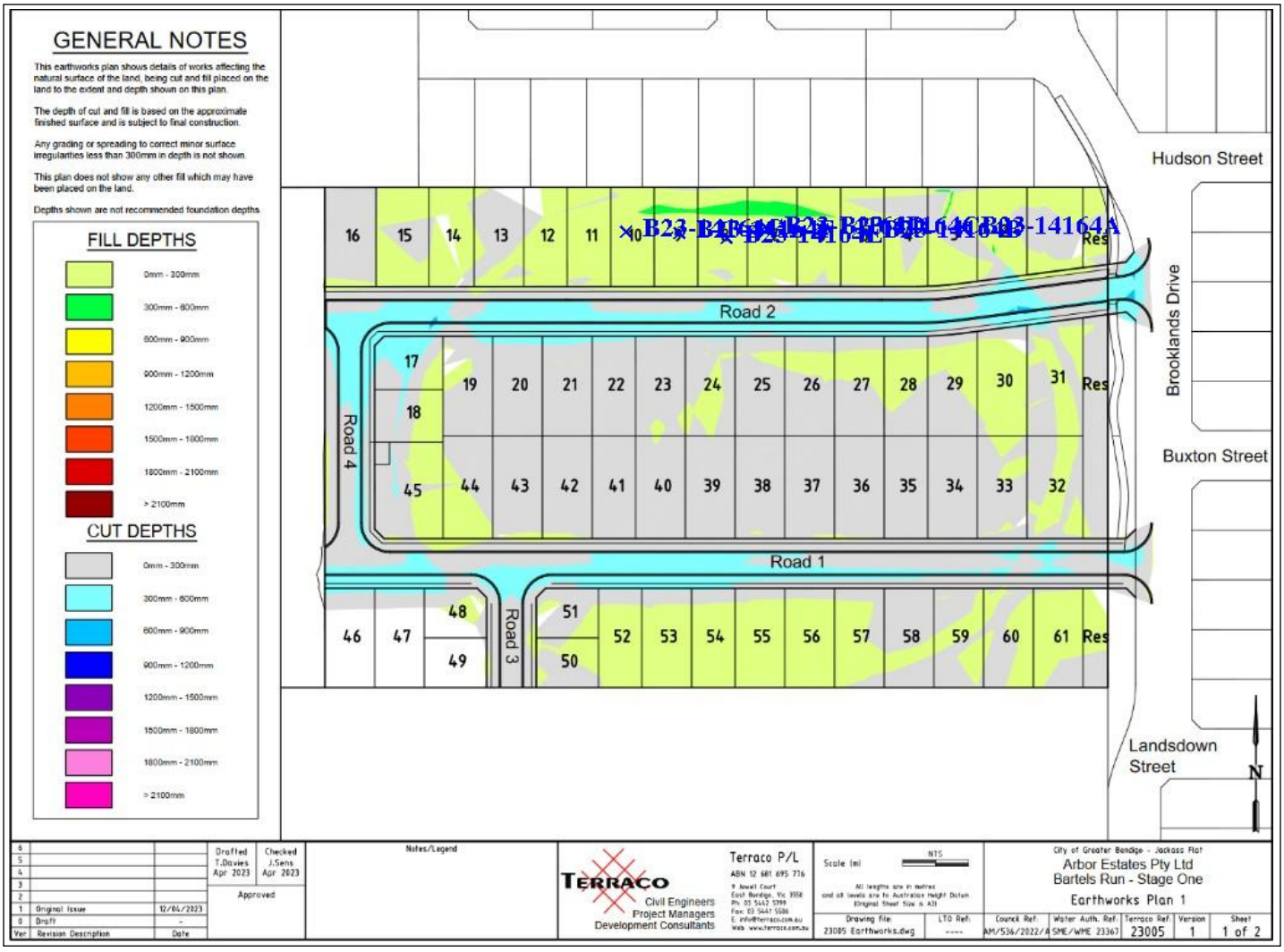
Sample Locations Plan

x - approximate test location



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Material Test Report

Report Number: **P232354-3**
Issue Number: 1
Date Issued: 07/03/2024
Client: DPJ Civil Pty Ltd
24 Jewell Court , Bendigo VIC 3550
Project Number: P232354
Project Name: Bartels Run
Project Location: Jackass Flat
Work Request: 15093
Date Sampled: 07/03/2024
Dates Tested: 07/03/2024 - 07/03/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Location: Jackass Flat - Stage 1
Material Source: Test Location

Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
13 Alstonvale Court East Bendigo VIC 3550
Phone: (03) 5441 4881
Email: tylerw@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Tyler Webb
Laboratory Technician
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1			
Sample Number	B24-15093A		
Date Tested	07/03/2024		
Time Tested	08:21		
Test Request #/Location	Stage 1 House Block		
Chainage (m)	Lot 31		
Location Offset (m)	LHS Centre		
Layer / Reduced Level	FSL		
Thickness of Layer (mm)	250		
Soil Description	Silty Gravelly Clay		
Test Depth (mm)	225		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Field Wet Density (FWD) t/m^3	2.07		
Field Dry Density (FDD) t/m^3	**		
Peak Converted Wet Density t/m^3	2.08		
Adjusted Peak Converted Wet Density t/m^3	**		
Moisture Variation (Wv) %	1.0		
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

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Sample Locations Plan

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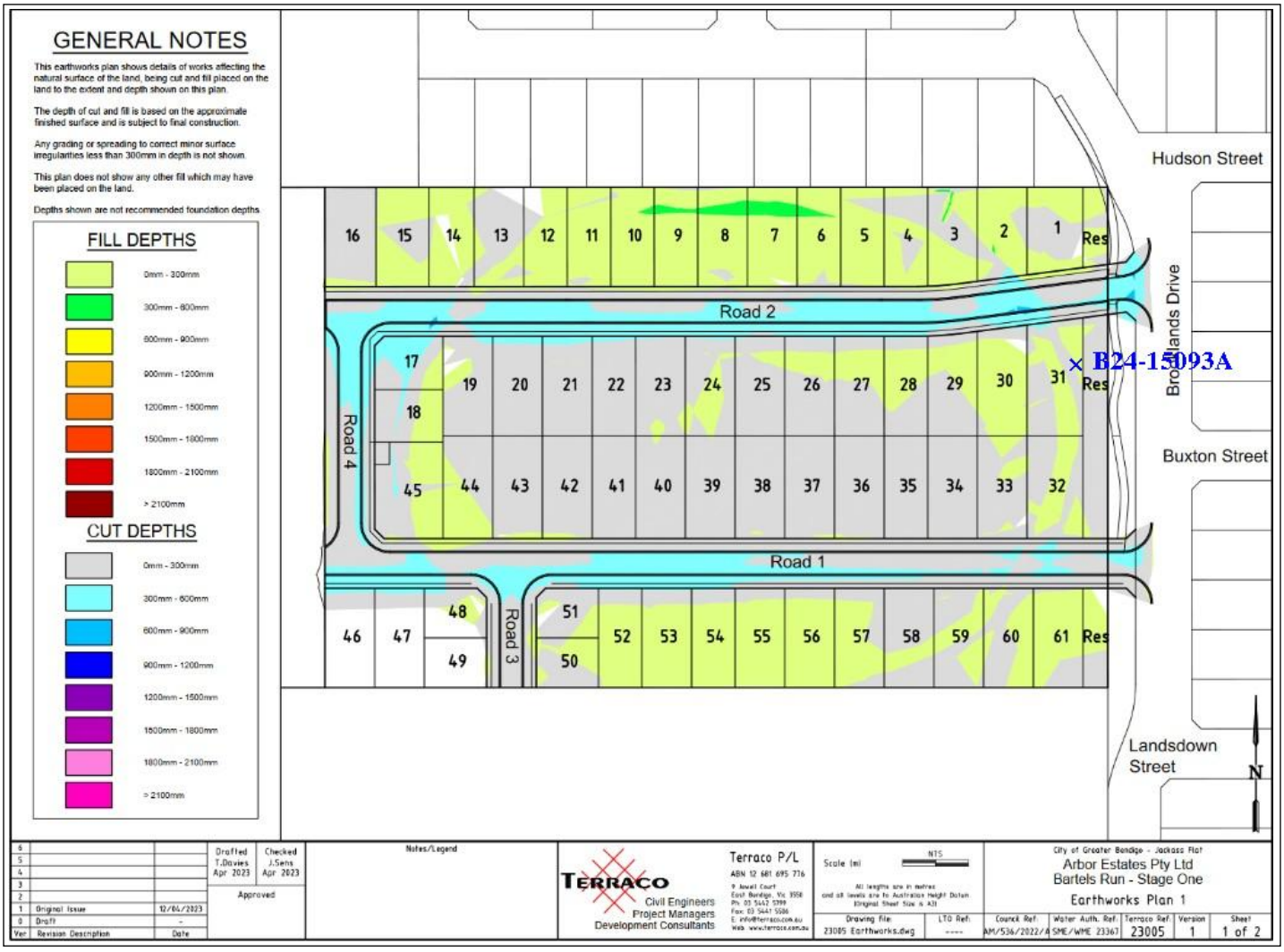

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