



Job No: 8599/113
Our Ref: 8599/113-AA-R1
8 December 2023

Daracon Contractors Pty Ltd
184 Adderley Street
AUBURN NSW 2144
Email: Simpson.Wong@daracon.com.au
Copy: Sabina.Moktan@daracon.com.au

Attention: Mr S Wong

Dear Sir

re: **Newpark – Precinct 7 – Stage 7F**
Abell Road, Marsden Park
Site Classification Report

Please find herewith our site classification report for the proposed dwellings to be located at the above subdivision. A total of sixty-two (62) lots are covered in this report (Lots 8401 to 8462).

This report contains information on sub-surface conditions encountered at the site, together with site classification of the proposed lots in accordance with Australian Standard AS2870-2011 "Residential slabs & footings".

If you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECH TESTING PTY LTD

A handwritten signature in black ink, appearing to be "Joe Chen", is written over a light blue horizontal line.

JOE CHEN
Geotechnical Engineer

TABLE OF CONTENTS

	page
1.0 INTRODUCTION -----	1
2.0 FIELD WORK-----	1
3.0 SITE CONDITIONS -----	1
3.1 Surface Conditions -----	1
3.2 Sub-Surface Conditions-----	1
4.0 LABORATORY TESTING -----	3
5.0 DISCUSSION & RECOMMENDATIONS -----	3
5.1 Assessment of Fill -----	3
5.2 Site Classification -----	3

APPENDICES

<i>APPENDIX A</i>	<i>Table A - Summary of Test Pits Drawing No 8599/113-AA1 (Test Pit Location Plan)</i>
<i>APPENDIX B</i>	<i>Summary of Site Classifications</i>
<i>APPENDIX C</i>	<i>Laboratory Test Results</i>

8599/113-AA-R1
Newpark Precinct 7 Stage 7F, Marsden Park

1.0 INTRODUCTION

This report provides results of a site classification investigation for the proposed dwellings to be located at Abell Road, Marsden Park (Newpark Precinct 7F). A total of sixty-two (62) lots are covered in this report (Lots 8401 to 8462).

Site classification in accordance with AS2870-2011 is only applicable for design of footing systems for a single dwelling, house, townhouse or similar structure that would be detached or separated by a party wall or common wall including buildings classified as Class 1 and Class 10a in the Building Code of Australia (BCA). AS2870 is not suitable for dwellings situated vertically above or below another dwelling. Therefore, a geotechnical investigation would be required for other dwellings to be classified in accordance with the BCA.

It is understood that the proposed dwellings are to be of brick veneer construction and wall loadings are expected to be in the range of 15kN/m to 50kN/m. The maximum working load (safe bearing pressure) would be in the order of 50kPa for ground supported floor slabs and 100kPa for strip and pad footings.

2.0 FIELD WORK

Field work for the investigation was carried out under the full time supervision of a Geotechnical Engineer on 13 September 2023 and consisted of excavation of thirty-one (31) test pits (TP1 to TP31) to depths of the order of 1.5m using a 5 tonne excavator. Test pits at shallow depths were terminated due to refusal on bedrock. The locations of the test pits are shown on the attached Drawing No 8599/113-AA1 in Appendix A. A summary of the field data obtained is presented in Appendix A.

3.0 SITE CONDITIONS

3.1 Surface Conditions

The site is of rectangular shape located off Abell Road and Stoney Creek Road, Marsden Park. The site is bound by sandstone block retaining wall to the west, existing 7E to the north, construction of single/dual storey buildings to the east and open grassland with forestry to the south. The topography of the site is relatively flat with gentle slopes downwards from Abell Road westbound. At the time of investigation, bulk earthworks and construction of internal roads were completed. Site activities include ongoing pipe works and laborious activities. Waterway/dam to the far north.

3.2 Sub-Surface Conditions

Sub-surface conditions encountered in the test pits are detailed in the attached Table A and summarised below in Table 1.

Table 1: Sub-Surface Conditions

Test Pit	Termination Depth (m)	Fill (m)	Natural (m)
TP1	1.5	0.0-1.5	NE
TP2	1.5	0.0-0.5	0.5-1.5
TP3	1.5	0.0-1.5	NE
TP4	1.5	0.0-1.5	NE
TP5	1.5	0.0-1.5	NE
TP6	1.5	0.0-1.5	NE

8599/113-AA-R1
Newpark Precinct 7 Stage 7F, Marsden Park

Test Pit	Termination Depth (m)	Fill (m)	Natural (m)
TP7	1.5	0.0-1.5	NE
TP8	1.5	0.0-1.5	NE
TP9	1.5	0.0-1.5	NE
TP10	1.5	0.0-1.5	NE
TP11	1.5	0.0-1.5	NE
TP12	1.5	0.0-1.5	NE
TP13	1.5	0.0-1.5	NE
TP14	1.5	0.0-1.5	NE
TP15	1.5	0.0-1.5	NE
TP16	1.5	0.0-1.5	NE
TP17	1.5	0.0-1.5	NE
TP18	1.5	0.0-1.5	NE
TP19	1.5	0.0-1.5	NE
TP20	1.5	0.0-1.5	NE
TP21	1.5	0.0-1.5	NE
TP22	1.5	0.0-1.5	NE
TP23	1.5	0.0-1.5	NE
TP24	1.5	0.0-1.5	NE
TP25	1.5	0.0-1.5	NE
TP26	1.5	0.0-1.5	NE
TP27	1.5	0.0-1.5	NE
TP28	1.5	0.0-1.5	NE
TP29	1.5	0.0-1.5	NE
TP30	1.5	0.0-1.5	NE
TP31	1.5	0.0-1.5	NE

NE: Not encountered to the termination depth

The test pit investigation revealed the following generalised sub-surface profile:

Fill	Silty Clay, medium plasticity, brown mottled orange, with gravel Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand
Natural	(CH) Silty CLAY, high plasticity, red-brown mottled grey, trace fine to medium gravel, trace rootlets (CH) Silty CLAY, high plasticity, grey mottled brown-red, trace fine to medium gravel

Groundwater was not observed in the test pits during the short time that they remained open. It must be noted that fluctuations in the level of groundwater might occur due to variations in rainfall, temperature and/or other factors.

8599/113-AA-R1
Newpark Precinct 7 Stage 7F, Marsden Park

4.0 LABORATORY TESTING

A total of one (1) undisturbed 50mm hollow tube (U₅₀) and three disturbed (3) samples were recovered from the site. These samples were tested to determine shrink/swell index and Atterberg limit values. The tests were conducted as per relevant Australian Standards and the results are summarised below and detailed in the attached test certificates.

Table 2: Summary of Test Results

Test Pit	Depth (m)	Material Description	Liquid Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)	Shrink/Swell Index (%/pF)
TP2	1.0-1.2	(CH) Silty CLAY, high plasticity, grey mottled red brown, trace fine to medium gravels	-	-	-	2.5
TP5	0.5-1.0	FILL: Silty Clay, medium plasticity, brown mottled orange, with gravel	44	17	10.5	-
TP20	0.6-0.8	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand	60	20	14.5	-
TP30	0.6-0.8	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand	46	17	11.0	-

5.0 DISCUSSION & RECOMMENDATIONS

5.1 Assessment of Fill

Fill was encountered in several test pits excavated across the site. It should be noted that several field density tests were conducted by Geotech Testing Pty Ltd during the fill placement, and the results are provided in our summary report Ref 8599/84-AB, dated 6 December 2023. Based on our inspection of the fill during the investigation and the above field density tests results, it is our assessment that the fill is "Controlled Fill".

5.2 Site Classification

Based on the field and laboratory results, the site classification to AS2870-2011 "Residential slabs & footings", for the proposed lots are summarised in Appendix B of this report.

It is recommended that footings for the proposed dwellings are founded on the same stratum, below any topsoil or deleterious material, to minimise the potential for differential movement.

The above recommendations are applicable to the Lots at the date of conducting the investigation, being the 13 September 2023 and are made on the following assumptions:

1. The construction requirements of AS2870-2011 must be followed.
2. The recommendations for site maintenance set out in Appendix B of AS2870 are followed.
3. The performance expectations set out in Appendix C of AS2870 are acceptable.

It is recommended that house owners are made aware of the recommendations given by the CSIRO publication, "Guide to Home Owners on Foundation Maintenance and Footing Performance".

GEOTECH TESTING PTY LTD

APPENDIX A

TABLE A SUMMARY OF TEST PITS

**DRAWING NO 8599/113-AA1
(*Test Pit Location Plan*)**

TABLE A

Job No: 8599/113
Our Ref: 8599/113-AA

Page 1 of 3

TEST PIT	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP1	0.0 – 1.5	0.5 – 1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled sub-angular grained, trace sand, M>PL, well compacted @ 1.0m grey mottled brown, with sand
TP2	0.0 – 0.5		FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to coarse gravel, M≈PL, well compacted
	0.5 – 1.0	0.5 – 1.0 (DS)	(CH) Silty CLAY, high plasticity, red-brown mottled grey, trace fine to medium gravel, trace rootlets, M>PL. stiff
	1.0 – 1.5	1.0 – 1.2 (U ₅₀)	(CH) Silty CLAY, high plasticity, grey mottled brown-red, trace fine to medium gravel, M>PL, stiff
TP3	0.0 – 1.5	0.0 – 1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to coarse gravel, with sand, M≥PL, well compacted
TP4	0.0 – 0.5		FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to coarse gravels, trace sand, M=PL, well compacted
	0.5 – 1.5	0.5 – 1.0 (DS)	FILL: Silty Clay, medium plasticity, brown mottled orange, roots with fine to coarse gravels, M=PL, well compacted
TP5	0.0 – 1.5	0.5 – 1.0 (DS)	FILL: Silty Clay, medium plasticity, brown mottled orange, with gravel, trace rootlets, M<PL, well compacted
TP6	0.0 – 1.5	0.5 – 1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, M<PL, well compacted
TP7	0.0 – 1.5	0.5 – 1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, M<PL, well compacted
TP8	0.0 – 1.5	0.5 – 1.0 (DS)	FILL: Silty Clay, medium plasticity, brown mottled orange, with gravel, M<PL, well compacted
TP9	0.0 – 1.5	0.5 – 1.0 (DS)	FILL: Silty Clay, medium plasticity, brown mottled orange, with gravel, M<PL, well compacted

TABLE A

Job No: 8599/113
Our Ref: 8599/113-AA

Page 2 of 3

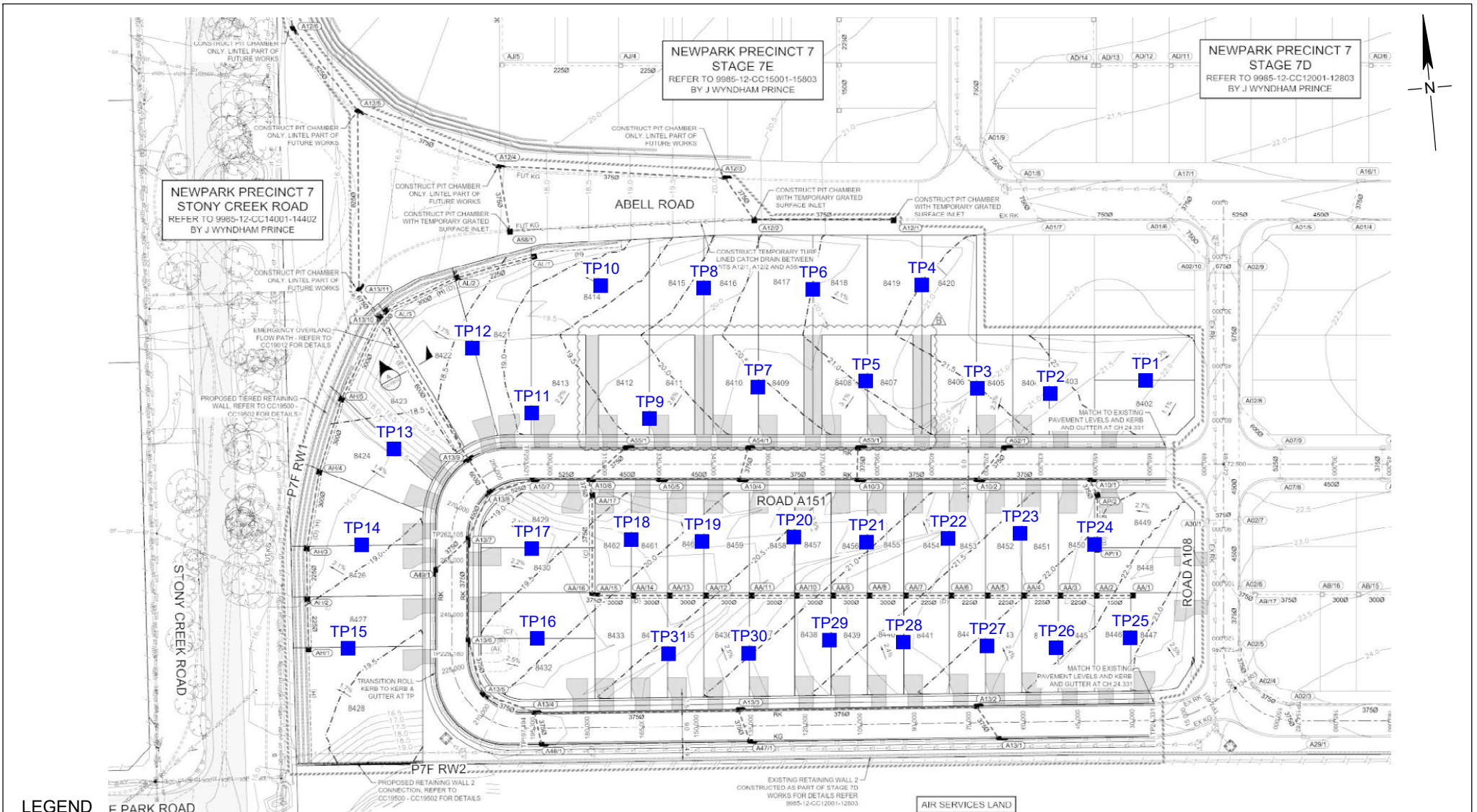
TEST PIT	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP10	0.0 – 1.5	0.5 – 1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, M≈PL, well compacted
TP11	0.0 – 1.5	0.5 – 1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to coarse gravel, with sand, M<PL, well compacted
TP12	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted
TP13	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted
TP14	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted
TP15	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted
TP16	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted
TP17	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted
TP18	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted
TP19	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted
TP20	0.0 – 1.5	0.5 – 1.0 0.6 – 0.8 (Atterberg)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M≤PL, well compacted

TABLE A

Job No: 8599/113
Our Ref: 8599/113-AA

Page 3 of 3

TEST PIT	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP21	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP22	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP23	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP24	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP25	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP26	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP27	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP28	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP29	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP30	0.0 – 1.5	0.5 – 1.0 0.6 – 0.8	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted
TP31	0.0 – 1.5	0.5 – 1.0	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey-orange, fine to cobbled gravel, trace sand, M ₅₀ PL, well compacted



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NOTES

1. Site features are indicative and are not to scale.
2. This drawing has been produced using a base plan provided by others to which additional information e.g test pits, borehole locations or notes have been added. Some or all of the plan may not be relevant at the time of producing this drawing

Daracon Contractors Pty Ltd
 Newpark Precinct 7F
 Marsden Park

Test Pit Locations

Drawing No: 8599/113-AA1
Job No: 8599/113
Drawn By: MH
Date: 19 September 2023
Checked By: JC

File No: 8599-113
 Layers: 0, AA1

APPENDIX B

SUMMARY OF SITE CLASSIFICATIONS

Job No: 8599/113
 Our Ref: 8599/113-AA-R1

TABLE B

SUMMARY OF SITE CLASSIFICATIONS

Newpark Precinct 7F, Marsden Park

Lot	Site Classification	Lot	Site Classification
8401	H1	8432	H1
8402	H1	8433	H1
8403	M	8434	H1
8404	M	8435	H1
8405	M	8436	H1
8406	M	8437	H1
8407	H1	8438	H1
8408	H1	8439	H1
8409	H1	8440	H1
8410	H1	8441	H1
8411	H1	8442	H1
8412	H1	8443	H1
8413	H1	8444	H1
8414	H1	8445	H1
8415	H1	8446	H1
8416	H1	8447	H1
8417	H1	8448	H1
8418	H1	8449	H1
8419	H1	8450	H1
8420	H1	8451	H1
8421	H1	8452	H1
8422	H1	8453	H1
8423	H1	8454	H1
8424	H1	8455	H1
8425	H1	8456	H1
8426	H1	8457	H1
8427	H1	8458	H1
8428	H1	8459	H1
8429	H1	8460	H1
8430	H1	8461	H1
8431	H1	8462	H1

M: Moderately Reactive, Free Surface Movement: 20-40mm

H1: Highly Reactive, Free Surface Movement: 40-60mm

APPENDIX C

LABORATORY TEST RESULTS

TEST RESULTS - SHRINK / SWELL INDEX

DARACON CONTRACTORS PTY LTD
 186 ADDERLEY STREET WEST
 AUBURN NSW 2144

Laboratory: Penrith
 Job No: 8599/113

SITE CLASSIFICATION
 NEWPARK PRECINCT 7F, MARSDEN PARK

Test Procedure: AS 1289 7.1.1				
Sample Identification	Test Pit 2			
Depth (m)	1.0 - 1.2			
Laboratory Number	8599/113-1			
Date Tested:	13/09/2023			
Tested By:	LC			
Checked By:	AK			
Test Description				
Moisture Content				
Initial %	31.2			
Final %	33.2			
Swell %	Nil			
Shrinkage %	4.4			
Shrink/Swell Index %/pF	2.5			
Material Description	(CH) Silty CLAY, high plasticity, grey with red-brown mottling, trace of fine to medium gravel			

Form No R007 Version 13 07/21

Accredited for compliance with
 ISO/IEC 17025 - Testing.

A Kench

Report Date
 19/09/2023



NATA Accreditation Number 2734
 Corporate Site Number 2727

Approved Signatory

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TEST RESULTS - ATTERBERG LIMITS
Test Procedure AS1289 3.1.1, 3.2.1, 3.3.1, 3.4.1

DARACON CONTRACTORS PTY LTD
 186 ADDERLEY STREET WEST
 AUBURN NSW 2144

Laboratory: Penrith
 Job No: 8599/113

PROJECT: SITE CLASSIFICATION
 NEWPARK PRECINCT 7F, MARSDEN PARK

Date Tested: 15/09/2023		Tested By: BG	
		Checked By: AK	
Sample Identification	Test Pit 5	Test Pit 20	Test Pit 30
Laboratory Number	8599/113-2	8599/113-3	8599/113-4
Depth (m)	0.5 - 1.0	0.6 - 0.8	0.6 - 0.8
Test Description			
Liquid Limit (W_L)	44%	60%	46%
Plastic Limit (W_P)	17%	20%	17%
Plastic Index (I_P)	27%	40%	29%
Linear Shrinkage (LS)	11.0%	14.5%	10.5%
Mould Length (mm)	125	127	127
Sample History			
	Oven Dried Dry Sieved	Oven Dried Dry Sieved	Oven Dried Dry Sieved
Material Description			
	FILL: Silty Clay, medium plasticity, orange-brown, trace of fine to medium gravel	FILL: Silty Clay, high plasticity orange-brown & greysome fine to medium gravel	FILL: Silty Clay, medium plasticity, orange-brown & grey, some fine to medium gravel

Form No R004 Version 13 - 07/21 - Issued by ER

A Kench
 Report Date 19/09/2023



Nata Accreditation Number 2734
 Corporate Site Number 2727

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