GEOTECH TESTING PTY LTD ®
ABN 71 076 676 321

Job No: 8599/107
Our Ref: 8599/107-AA-R1
8 December 2023

Daracon Contractors Pty Ltd
184 Adderley Street
AUBURN NSW 2144
Email: SimpsonW@daracon.com.au

Attention: Mr S Wong

Dear Sir

re: **Newpark – Precinct 7 – Stage 7E**
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 eighty-three (83) lots are covered in this report (Lots 8301 to 8383).

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

JOE CHEN
Geotechnical Engineer

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APPENDICES

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 7E). A total of eighty-three (83) lots are covered in this report (Lots 8301 to 8383).

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-six (36) test pits (TP1 to TP36) 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 8599/107-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 stage 7F to the south, 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 earthworks and construction of retaining wall. Stockpiles consist of topsoil/fill, construction materials and sandstone blocks. Waterway/dam visible 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)
TP1	1.5	0.0-1.5
TP2	1.5	0.0-1.5
TP3	1.5	0.0-1.5
TP4	1.5	0.0-1.5
TP5	1.5	0.0-1.5

Test Pit	Termination Depth (m)	Fill (m)
TP6	1.5	0.0-1.5
TP7	1.5	0.0-1.5
TP8	1.5	0.0-1.5
TP9	1.5	0.0-1.5
TP10	1.5	0.0-1.5
TP11	1.5	0.0-1.5
TP12	1.5	0.0-1.5
TP13	1.5	0.0-1.5
TP14	1.5	0.0-1.5
TP15	1.5	0.0-1.5
TP16	1.5	0.0-1.5
TP17	1.5	0.0-1.5
TP18	1.5	0.0-1.5
TP19	1.5	0.0-1.5
TP20	1.5	0.0-1.5
TP21	1.5	0.0-1.5
TP22	1.5	0.0-1.5
TP23	1.5	0.0-1.5
TP24	1.5	0.0-1.5
TP25	1.5	0.0-1.5
TP26	1.5	0.0-1.5
TP27	1.5	0.0-1.5
TP28	1.5	0.0-1.5
TP29	1.5	0.0-1.5
TP30	1.5	0.0-1.5
TP31	1.5	0.0-1.5
TP32	1.5	0.0-1.5
TP33	1.5	0.0-1.5
TP34	1.5	0.0-1.5
TP35	1.5	0.0-1.5
TP36	1.5	0.0-1.5

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

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.

4.0 LABORATORY TESTING

A total of one (1) undisturbed 50mm hollow tube (U_{50}) and four (4) disturbed 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)
TP3	0.6-0.8	FILL: Gravelly Clay, high plasticity, red brown mottled orange, fine to coarse grained gravel, trace sub-rounded cobbles	62	41	16.5	-
TP15	0.2-0.5	FILL: Gravelly Clay, medium plasticity, red brown mottled orange, fine to coarse gravel	36	19	10.5	-
TP18	0.3-0.7	FILL: Gravelly Clay, medium plasticity, brown mottled grey, fine to coarse gravel, trace sand	59	41	16.0	-
TP30	0.2-0.5	FILL: Clayey Gravel, fine to coarse gravel, brown mottled grey, fines of medium plasticity clays, with sand, trace cobbles	-	-	-	0.9
TP36	0.4-0.8	FILL: Gravelly Clay, medium plasticity, brown mottled grey, fine to coarse gravels, trace sand	59	41	16	-

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 8599/102-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 and 14 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 din 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 8599/107-AA1
(*Test Pit Location Plan*)

TABLE A

Job No: 8599/107
Our Ref: 8599/107-AA

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, fine to coarse grained gravel, trace sand, M=PL, well compacted
TP2	0.0-0.6	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse grained gravel, trace sand, M=PL, well compacted
	0.6-1.5		FILL: Gravelly Clay, high plasticity, red brown mottled orange, fine to coarse grained gravel, M≥PL, well compacted
TP3	0.0-1.5	0.5-1.0 (DS) 0.6-0.8 (DS)	FILL: Gravelly Clay, high plasticity, red brown mottled orange, fine to coarse grained gravel, trace sub-rounded cobbles, M≤PL, well compacted
TP4	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, high plasticity, red brown mottled orange, fine to coarse grained gravel, trace sand, M<PL, well compacted
TP5	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse grained gravel, trace sub-rounded cobbles, trace sand, M<PL, well compacted
TP6	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse grained gravel, trace sand, M≤PL, well compacted
TP7	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, high plasticity, red brown mottled orange, fine to coarse grained gravel, trace sand, M≤PL, well compacted
TP8	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse grained gravel, trace sand, trace cobbles, M≤PL, well compacted
TP9	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravel, fragments of siltstones and sand, M≤PL, well compacted
TP10	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, fragments of siltstones, trace sand, M≤PL, well compacted

TABLE A

Job No: 8599/107
Our Ref: 8599/107-AA

TEST PIT	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP11	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravel, fragments of siltstone, trace sand, M≤PL, well compacted
TP12	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace cobble, M≤PL, well compacted
TP13	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace sand, M≤PL, well compacted
TP14	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace sand, M≤PL, well compacted
TP15	0.0-1.5	0.5-1.0 (DS) 0.2-0.5 (U_{50})	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, M≤PL, well compacted
TP16	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravel, with sand, trace cobbles, M≤PL, well compacted
TP17	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, with siltstone fragments, M≤PL, well compacted
TP18	0.0-1.5	0.5-1.0 (DS) 0.3-0.7 (Atterberg)	FILL: Gravelly Clay, high plasticity, brown mottled grey, fine to coarse gravel, trace sand, M<PL, well compacted
TP19	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravel, trace cobble, M≤PL, well compacted
TP20	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace cobble fragments, M≤PL, well compacted
TP21	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, find to coarse gravel, trace cobble fragments and sand, M≤PL, well compacted

TABLE A

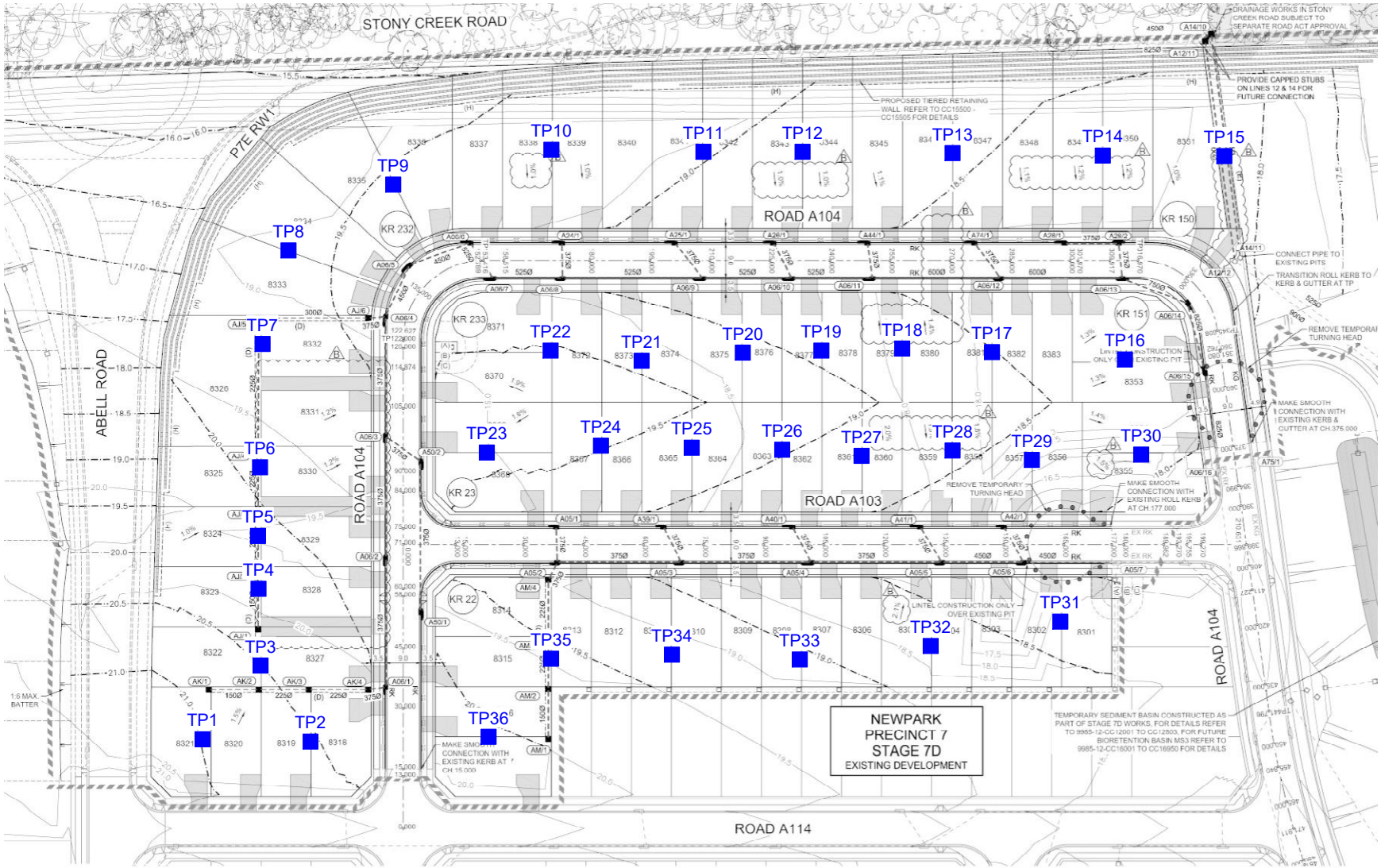
Job No: 8599/107
Our Ref: 8599/107-AA

TEST PIT	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP22	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace sand and cobbles fragments, M≤PL, well compacted
TP23	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace cobble and sand, M≤PL, well compacted @1.0m colour change to dark grey
TP24	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravel, trace sand, M≤PL, well compacted
TP25	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel and trace sand, M≤PL, well compacted
TP26	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel and trace sand, M≤PL, well compacted @ 0.7 to 1.2m sandy gravel, brown grey
TP27	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace sand, M≤PL, well compacted
TP28	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravel, trace sand, M≤PL, well compacted
TP29	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace sand, M≤PL, well compacted
TP30	0.0-1.5	0.5-1.0 (DS)	FILL: Clayey Gravel, fine to coarse grained, brown mottled grey, fines of medium plasticity clays, with sand, trace cobbles, M≤PL, well compacted
TP31	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravel, trace sand and cobbles, M≤PL, well compacted

TABLE A

Job No: 8599/107
Our Ref: 8599/107-AA

TEST PIT	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP32	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, red brown mottled orange, fine to coarse gravels, trace sand, cobbles fragments, M≤PL, well compacted
TP33	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravels, trace sand, M≤PL, well compacted
TP34	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravels, trace sand, M≤PL, well compacted
TP35	0.0-1.5	0.5-1.0 (DS)	FILL: Gravelly Clay, medium to high plasticity, brown mottled grey, fine to coarse gravels, trace sand, M≤PL, well compacted
TP36	0.0-1.5	0.5-1.0 (DS) 0.4-0.8 (DS)	FILL: Gravelly Clay, high plasticity, brown mottled grey, fine to coarse gravels, trace sand, M≤PL, well compacted



LEGEND

Test Pit

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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 7E
Marsden Park

Test Pit Locations

Drawing No: 8599/107-AA1
Job No: 8599/107
Drawn By: MH
Date: 19 September 2023
Checked By: JC

File No: 8599-107
Layers: 0, AA1

APPENDIX B

SUMMARY OF SITE CLASSIFICATIONS

Job No: 8599/107
Our Ref: 8599/107-AA-R1

TABLE B

SUMMARY OF SITE CLASSIFICATIONS

Newpark Precinct 7E, Marsden Park

Lot	Site Classification	Lot	Site Classification	Lot	Site Classification
8301	M	8329	H1	8357	M
8302	M	8330	H1	8358	H1
8303	M	8331	H1	8359	H1
8304	M	8332	H1	8360	M
8305	M	8333	H1	8361	M
8306	H1	8334	H1	8362	M
8307	H1	8335	H1	8363	M
8308	H1	8336	H1	8364	M
8309	H1	8337	H1	8365	M
8310	H1	8338	M	8366	H1
8311	H1	8339	M	8367	H1
8312	H1	8340	H1	8368	M
8313	H1	8341	H1	8369	M
8314	H1	8342	H1	8370	M
8315	H1	8343	M	8371	M
8316	H1	8344	M	8372	M
8317	H1	8345	M	8373	H1
8318	H1	8346	M	8374	H1
8319	H1	8347	M	8375	M
8320	H1	8348	M	8376	M
8321	H1	8349	M	8377	H1
8322	H1	8350	M	8378	H1
8323	H1	8351	M	8379	H1
8324	H1	8352	H1	8380	H1
8325	H1	8353	H1	8381	M
8326	H1	8354	M	8382	M
8327	H1	8355	M	8383	H1
8328	H1	8356	M		

M: Moderately Reactive, Free Surface Movement: 20-40mm
H1: Highly Reactive, Free Surface Movement: 40-60mm

APPENDIX C

LABORATORY TEST RESULTS

GEOTECH TESTING PTY LTD ®
ABN 71 076 676 321

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: 8599/107

PROJECT: SITE CLASSIFICATION
NEWPARK PRECINCT 7E, MARSDEN PARK

Date Tested: 18/09/2023 Tested By: BG
Checked By: AK

Sample Identification	Test Pit 3	Test Pit 18	Test Pit 36
Laboratory Number	8599/107-1	8599/107-3	8599/107-4
Depth (m)	0.6 - 0.8	0.3 - 0.7	0.4 - 0.8
Test Description			
Liquid Limit (W_L)	62%	36%	59%
Plastic Limit (W_P)	18%	17%	19%
Plastic Index (I_P)	44%	19%	41%
Linear Shrinkage (LS)	16.5%	10.5%	16.0%
Mould Length (mm)	127	127	127
Sample History	Oven Dried Dry Sieved	Oven Dried Dry Sieved	Oven Dried Dry Sieved
Material Description	FILL: Gravelly Clay, high plasticity, red-brown with orange-brown mottling,	FILL: Gravelly Clay, medium plasticity, brown & grey	FILL: Gravelly Clay, high plasticity, brown & grey

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

Report Date
A Kench 25/09/2023

Accredited for compliance with ISO/IEC 17025 - Testing.

NATA

Nata Accreditation Number 2734
Corporate Site Number 2727

Approved Signatory

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Unit 4, 18-20 Whyalla Place, Prestons NSW 2170
Telephone: (02) 9607 6111

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GEOTECH TESTING PTY LTD ®
ABN 71 076 676 321

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: 8599/107

PROJECT: SITE CLASSIFICATION
NEWPARK PRECINCT 7E, MARSDEN PARK

Date Tested: 18/09/2023

Tested By: BG
Checked By: AK

Sample Identification	Test Pit 30
Laboratory Number	8599/107-5
Depth (m)	0.6 - 0.8
Test Description	
Liquid Limit (W_L)	51%
Plastic Limit (W_P)	18%
Plastic Index (I_P)	33%
Linear Shrinkage (LS)	15.5%
Mould Length (mm)	125
Sample History	Oven Dried Dry Sieved
Material Description	FILL: Gravelly Clay, medium to high plasticity, brown & grey

Report Date
25/09/2023

A Kench

Accredited for compliance with ISO/IEC 17025 - Testing.

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Corporate Site Number 2727

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ABN 71 076 676 321

TEST RESULTS - SHRINK / SWELL INDEX

DARACON CONTRACTORS PTY LTD
186 ADDERLEY STREET WEST
AUBURN NSW 2144

Laboratory: Penrith
Job No: 8599/107

SITE CLASSIFICATION
NEWPARK PRECINCT 7E, MARSDEN PARK

Test Procedure: AS 1289 7.1.1				
Sample Identification	Test Pit 15			
Depth (m)	0.2 - 0.5			
Laboratory Number	8599/107-2			
Date Tested:	21/09/2023			
Tested By:	LC			
Checked By:	AK			
Test Description				
Moisture Content				
Initial %	11.5			
Final %	15.1			
Swell %	0.6			
Shrinkage %	1.4			
Shrink/Swell Index $\%/_pF$	0.9			
Material Description	FILL: Gravelly Clay, low plasticity, red-brown & orange-brown			

Form No R007 Version 13 07/21

Report Date
26/09/2023

NATA

Accredited for compliance with ISO/IEC 17025 - Testing.

A Kench

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Corporate Site Number 2727

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