

24th January 2023

Elite Soil Testing Pty Ltd
P O Box 644
KALLANGUR QLD 4503

Job No. **22-10-42360**
Report No. **R-14037**

Site Address

Lot 1 Windsor Street
WOODFORD QLD 4514

Commission

Geotechnical Investigation





1.0 INTRODUCTION

APOD Soil Testing Pty Ltd was commissioned to undertake a geotechnical investigation for **Elite Soil Testing Pty Ltd**, (28/10/2022 by email), at the site of the proposed development located at **Lot 1 Windsor Street, Woodford**. Investigation was carried out on the 16/01/2023.

The aim of the investigation was to determine the following:

- The strength capacity of the subsurface profile;
- The nature and characteristics of the subsurface profile;
- Site classification in accordance with AS 2870-2011.

It is understood that a new dwelling is to be constructed.

2.0 SITE OBSERVATIONS

VEGETATION: Sparse grass cover.

SLOPE: Slight. 2% slope (clinometer measurement). As this slope was not formally surveyed, the percentage and direction should be treated as approximate.

ON SITE DRAINAGE: Poor to fair. Site generally drained from North to South.

WATER TABLE: No water table was encountered in the test holes drilled to the target depth of our commission.

3.0 INVESTIGATIONS

Two test holes were drilled within the area of the proposed footings using a 4WD mounted 100mm diameter power auger. Numerous disturbed samples were collected and hand classified. One tube sample was returned to the laboratory and tested for its shrink/swell (Iss) parameters. A pocket penetrometer (PP) was used to determine the strength of the cohesive soils.



4.0 SITE CONDITIONS

The existing soil encountered generally consists of a **silty sand(SM) and silty clay(CI) fill** material underlain by a **natural silty clay(CI)**. **Fill was encountered across the proposed site at the following depths:**

| Bore Hole #1 | Bore Hole #2 |
|--------------|--------------|
| 0-300mm | 0-600mm |

At the time of writing this report, documentation complying with AS 3798 had been sighted, therefore the fill is described as **controlled fill** (Elite Soil Testing Pty Ltd – Project No. J22069).

Minimum allowable bearing capacity:

| Bore Hole #1 | Bore Hole #2 |
|----------------|----------------|
| 100kPa @ 400mm | 100kPa @ 300mm |

For detailed soil descriptions and bore hole locations refer to the log section located in the appendix of this report.

5.0 RESULTS

Bore hole #2 @ 0.7m – 1.0m:- I.s.s. = 1.3% $Y_s = 25\text{mm}$

Y_s calculation for zone of influence of trees:- $Y_{st} = 40\text{mm}$

Y_{st} calculation is a guide only. Design engineer to refer to appendix H & CH of AS2870-2011. The predicted surface movement calculation in this report has been assessed using clause 2.3 of AS 2870 – 2011. **0 cracked zone adopted.** Refer to the appendix of this report for full laboratory results.

6.0 CONCLUSIONS

The shrink/swell index of 1.3% indicates that the silty clay(CI) material is moderately reactive. The calculation of predicted total surface movement of **$Y_s 25\text{mm}$ (Class "M" reactivity)** is subject to seasonal moisture variation due to climatic changes, but not abnormal moisture build up due to leaking pipes, excess watering, poor drainage, large trees or other similar scenarios.

Based on site conditions encountered, soil tests carried out and observations on site, the site is classified **Class "P"** in accordance with Australian Standard 2870-2011 "Residential Slabs and Footings". **Class "P" due to the depth of controlled fill and abnormal moisture conditions. As per AS 2870-2011 Clause 2.1.3 (c) & (e).**

The design engineer must be aware the above quoted Y_s does not take into account ground movements generated by "abnormal" conditions. The design engineer must use calculation provided in appendix H & CH of AS 2870-2011 to ensure that the design provides acceptable performance.



7.0 CONDITIONS OF CLASSIFICATION

The site classification is subject to the following conditions:

- a) Site drainage is adequately provided to direct water away from footings and walls.
- b) Trees are to be located well away from the house in order for aggressive root systems to not aggravate the soil moisture conditions.
- c) This classification does not support the scenario of plumbing leaks. Any identified anomalies are to be rectified immediately to prevent further damage to the superstructure.

Attached is a copy of the paper *CSIRO "Foundation Maintenance and Footing Performance: A Homeowner's Guide"* for further information.

8.0 SITE RECOMMENDATIONS

The ground immediately surrounding the residence is to be graded away from the residence with a fall of 1:20 for the first 1.0 metre to ensure adequate draining away from the residence. A spoon drain is recommended to be installed to drain the water away from the residence.

9.0 REPORT LIMITATIONS

This report does not take into consideration the long-term or short-term effects of any previous, current or potential subsurface work by mining companies or any other body, or potential slope instability problems. At the time of writing this report neither our clients nor the local authority (or any other agent) has made us aware of any problems affecting this allotment.

This investigation is limited in scope and extent, and it is possible that areas may exist which differ from those shown on the test hole records used for this classification. Should any variation from those shown be encountered during excavation work or subsequent earthworks carried out, reappraisal of the classification will be required. Should you require any further information or clarification regarding this report, please contact the undersigned.

APOD Soil Testing Pty Ltd
QBCC Act Licence No: 1064604

Patrice Le Pla
Managing Director
QBCC Act Licence No: 731863
Adv.Dip.Lab.Op

APPENDIX

Log Sections

| TEST SITE 1 | | | | | TEST SITE 2 | | | | | |
|---|---|------|--------------------------------|-----------|--------------------------------|---|----------------------------|--------------------------------|-----------|--|
| Address: Lot 1 Windsor Street, Woodford | | | Job No: 22-10-42360 | | Date: 16/01/2023 | | Technician: Patrice Le Pla | | | |
| Location: Refer to site sketch | | | Location: Refer to site sketch | | Location: Refer to site sketch | | | Location: Refer to site sketch | | |
| Depth (mm) | Description Soil Type-Colour-Consistency | FILL | DCP | PP kPa | Depth (mm) | Description Soil Type-Colour-Consistency | FILL | DCP | PP kPa | |
| 100 | SILTY SAND(SM) (dk.br) | | | | 100 | SILTY SAND(SM) (dk.br) | | | | |
| 200 | - fine to medium grained | | | | 200 | moist & controlled | | | | |
| 300 | slightly moist & controlled | | | | 300 | SILTY CLAY(CI) (mott.rd-or-br-gy) | | | | |
| 400 | SILTY CLAY(CI) (lt.gy.mott.or&rd) | | | | 400 | - with trace sand & gravels | | | | |
| 500 | - with minor sand & trace gravels | | | 450 | 500 | moist & controlled | | | 320 | |
| 600 | | | | | 600 | | | | | |
| 700 | | | | | 700 | SILTY CLAY(CI) (lt.gy.mott.or&rd) | | | | |
| 800 | | | | | 800 | - with minor sand & trace gravels | | | | |
| 900 | | | | | 900 | | | | | |
| 1000 | | | | 450 | 1000 | | | | 390 | |
| 1100 | | | | | 1100 | | | | | |
| 1200 | moist & very stiff | | | | 1200 | | | | | |
| 1300 | | | | | 1300 | | | | | |
| 1400 | | | | | 1400 | moist & very stiff | | | | |
| 1500 | | | | 450 | 1500 | | | | 400 | |
| 1600 | | | | | 1600 | | | | | |
| 1700 | | | | | 1700 | | | | | |
| 1800 | | | | | 1800 | | | | | |
| 1900 | | | | | 1900 | | | | | |
| 2000 | | | | 450 | 2000 | | | | 450 | |
| 2100 | END – with power auger | | | | 2100 | END – with power auger | | | | |
| 2200 | | | | | 2200 | | | | | |
| 2300 | | | | | 2300 | | | | | |
| 2400 | | | | | 2400 | | | | | |
| 2500 | | | | | 2500 | | | | | |
| 2600 | | | | | 2600 | | | | | |
| 2700 | | | | | 2700 | | | | | |
| 2800 | | | | | 2800 | | | | | |
| 2900 | | | | | 2900 | | | | | |
| 3000 | | | | | 3000 | | | | | |
| 3100 | | | | | 3100 | | | | | |

NOMENCLATURE: UTP=Unable to Penetrate DCP=9kg Dynamic Cone Penetrometer PP = Pocket Penetrometer A=Auger
 XW-ROCK=Extremely Weathered Rock Refer Tables 7.3.2 & 7.3.3 AS1726-2017 gy=grey or=orange yell=yellow rd=red
 wh=white br=brown bk=black bl=blue gr=green Refer AS1726-2017 Clause 6.1 for classifying soils.



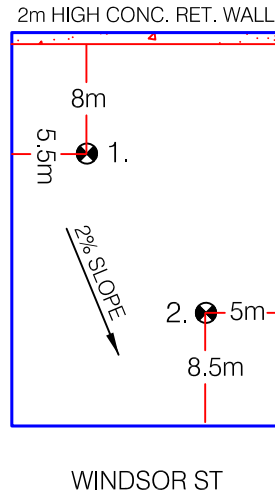
SITE SKETCH

NOT TO SCALE

Address: Lot 1 Windsor St, Woodford

Job No: 22-10-42360

Date: 16/01/2023



⊗ TEST SITES

→ SLOPE DIRECTION

TEST METHODS:

Hand Auger Small Rig(100mm dia.)

SITING:

Existing Plans General Setback

Pegged Met on site Cut/Fill Pad

EXCAVATION PROBLEMS:

Access to Site Shallow Rock

Rubbish in Fill Wet/Dry Collapse

Gravels/Cobbles/Boulders

Fluctuating Water Table Services

VEGETATION: Sparse grass cover,

ON SITE DRAINAGE:

Poor Poor/Fair Fair

Fair/Good Good

SLOPE:

Virtually Flat Slight Gentle

Moderate Steep Very Steep

SHRINK/SWELL TEST RESULTS

| | | | |
|------------------------|----------------------------|----------------------|--|
| Client: | ELITE SOIL TESTING PTY LTD | Lab. No: | 33204 |
| Project: | LOT 1 WINDSOR ST, WOODFORD | Job No: | 22-10-42360 |
| Location: | B.H. 2 @ 0.7m - 1.0m | Date Sampled: | 16/01/2023 |
| Test Procedure: | AS1289 7.1.1/2.1.1 | Description: | lt.gy.mott.or&rd SILTY CLAY with minor sand & trace gravels |

Swell Test

| | | | |
|------------------------------|-------------|------------------|------------------|
| Moisture Content - Initial % | 24.9 | Applied Load kPa | 25 |
| Moisture Content - Final % | 28.1 | Water Used: | Distilled |

Shrink Test

| | | | |
|---------------------------------|--------------|------------------------------|-------------|
| Moisture Content % | 19.4 | Wet Density t/m ³ | 1.93 |
| Extent of Cracking of Specimen | Minor | Inert Inclusions % | -10 |
| Extent of Crumbling of Specimen | Nil | | |

| | | | | | |
|--------------------|------------|----------------|------------|-----------------------------|------------|
| Shrinkage % | 2.3 | Swell % | 0.2 | Shrink/Swell Index % | 1.3 |
|--------------------|------------|----------------|------------|-----------------------------|------------|

Prepared by:



Date: 24/01/2023



This form is to be used by an appointed competent person for the purposes of section 10 of the *Building Act 1975* and sections 73 and 77 of the *Building Regulation 2021* (Design-specification certificate) stating that an aspect of building work or specification will, if installed or carried out as stated in this form, comply with the building assessment provisions.

1. Property description

| | |
|--|---------------------------------|
| Street address | LOT 1 WINDSOR ST, WOODFORD 4514 |
| Lot and plan details (<i>attach list if necessary</i>) | PART OF LOT 1 ON RP 905601 |
| Local government area the land is situated in | MORETON BAY REGIONAL COUNCIL |

2. Description of aspect/s certified

Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the steel roof beams.

| |
|---|
| SITE CLASSIFICATION AS PER AS 2870-2011 |
|---|

3. Basis of certification

Detail the basis for giving the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications were relied upon.

| |
|--------------|
| AS 2870-2011 |
|--------------|

4. Reference documentation

| |
|--|
| AS 2870-2011 – RESIDENTIAL SLABS & FOOTINGS - CONSTRUCTION |
|--|

5. Building certifier reference number and building development approval number

| | | | |
|-------------------------------------|--|---|--|
| Building certifier reference number | | Building development application number | |
|-------------------------------------|--|---|--|

6. Appointed competent person details

Under Part 6 of the *Building Regulation* a person must be assessed as a competent for the type of work (design-specification) by the relevant building certifier.

| | | | |
|---------------------------------------|--|--------|--------------|
| Name (<i>in full</i>) | PATRICE LE PLA | | |
| Company name (<i>if applicable</i>) | APOD SOIL TESTING PTY LTD | | |
| Business phone number | 07 3264 6995 | Mobile | 0411 278 525 |
| Email address | apodsoil@bigpond.com | | |
| Postal address | 53 DRAPERS RD, EATONS HILL 4037 | | |
| Licence or registration number | QBCC LICENCE NO. 1064604 | | |

9. Signature of appointed competent person

This certificate must be signed by the individual assessed and appointed by the building certifier as competent to give design-specification help.

| | | | |
|--|---|--------------------|------------|
| Signature |  | Date | 24/01/2023 |
| LOCAL GOVERNMENT USE ONLY Date received | Click or tap to enter a date. | Reference number/s | |