

Lot 21, Marong Run, Stage 7 Marong

Geotechnical Investigation for Arbor Estates

Report 21C 1165 (Lot 21)
December 2021

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Geotechnical Investigation for Arbor Estates

Revision

| Revision | Authorised | Date |
|-------------------|------------|------------|
| 21C 1165 (Lot 21) | BAB | 22/12/2021 |

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| GTS | On file | 22/12/2021 |
| Darren Pitson Arbor Estates | Email PDF | 22/12/2021 |



1 INTRODUCTION

Arbor Estates commissioned Geotechnical Testing Services (GTS) to conduct a geotechnical investigation for the proposed development at Lot 21, Marong Run, Stage 7 Marong.

The investigation has been conducted for the purpose of assessing general subsurface conditions at the site and consequently assigning a Site Classification in accordance with *AS2870 – 2011 Residential Slabs and Footings*.

2 INVESTIGATION

The investigation was conducted on the 17th of December 2021 using a trailer mounted drill rig to drill 2 boreholes to a depth of 1.5 to 3.0 metres within the designated area. The soil profiles are presented on page 4 and the location of the boreholes are presented on page 5.

At the time of this investigation, the type of development proposed is understood by GTS to be a new residential building. If the actual construction varies from this, then changes may be necessary to this classification report.

3 SITE CONDITION

The site is currently vacant and has been formed to create a surface that is relatively flat. At the time of the investigation, the surface of the site was dry with no grass cover. There were no trees near the investigation site, though a review of aerial photography indicates small to large trees were removed from at or near the site sometime between January 2018 and January 2019. There was no visual evidence of surface cracking or surface rock. No groundwater seepage was encountered over the investigated depths.

Full details of the soil conditions are presented in the borehole logs.

4 SITE CLASSIFICATION

After allowing due consideration to the site geology, soil conditions, drainage, vegetation including trees and known details of the proposed development, the site has been classified as **Class P** (*AS2870-2011*) due to uncontrolled fill in excess of 0.4 metres being identified during the investigation.

If the fill is removed, or the footings extend through the fill and are located in the undisturbed material, they may be designed in accordance with a Class M-D classification.

Foundations designed in accordance with this classification are to be subject to the overriding conditions of Section 5.

5 DISCUSSION

Particular attention should be paid to the design of footings as required by *AS2870 – 2011*.

In addition to the normal founding requirements arising from the above classification, particular conditions at the site dictate that the founding medium and minimum depth below existing surface levels for all footings should be as follows:

- Silty CLAY, high plasticity, red/brown, very stiff
At depth below 0.3 metres in the region of BH2, and below 0.6 metres in the region of BH1

An allowable bearing pressure of 100kPa is available for edge beams, strips and stump footings founded as above. All foundations should extend a minimum of 100mm into the above foundation material. Blinding concrete (minimum strength 15MPa) may be used to bring the excavations up to design levels.

The proposed development should be located a minimum distance of 1 x the mature height of all trees. This distance should be increased by 50% for groups or lines of trees. If this distance is impeded, then the size and distance from the development of the tree(s) needs to be taken into account when designing the foundation.

6 IMPORTANT NOTES ABOUT THIS REPORT

- The site classification presented in Section 4 assumes that the current natural drainage and infiltration conditions at the site will not be markedly affected by the proposed site development work. Care should therefore be taken to ensure that surface water is not permitted to collect adjacent to the structure and that significant changes to seasonal soil moisture equilibria do not develop as a result of service trench construction or tree root action.
- Attention is drawn to Appendix B of AS2870 and CSIRO document *BTF 18 – Foundation Maintenance and Footing Performance: A Homeowner’s Guide* as a guide to maintenance requirement for the proposed structure.
- This is not a comprehensive investigation nor is it economic or practical to determine every subsurface feature on the site. Although this investigation indicates that soil conditions are relatively uniform across the site, it is recommended that the base of all footing excavations be inspected to ensure that the founding medium meets that requirements referenced herein with respect to type and strength of founding materials. If further variations in descriptions in soil types, colour or depths are discovered during construction, this office should be notified immediately so that potential influence on the footings may be assessed.
- The soil colours provided in the borehole logs attached may vary with soil moisture content and individual interpretation, therefore colour alone should not be used to identify these soils.

- Strength characteristics of soils often exhibit a large variation between wet and dry conditions. Soil characteristics of a soil profile are given on the soil conditions at the time of the investigation.
- In the event of significant earthworks being undertaken on the site after this investigation, this report may require an amendment if appropriate.
- If FILL is found during this investigation, it is an indication of what was found during the investigation and it may vary over the site. It may be in the best interest of the buyer/seller to undertake a more detailed investigation, in this instance.

Should you have any further queries concerning these results, please do not hesitate to contact GTS on 03 5441 4881.



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Senior Engineering Geologist

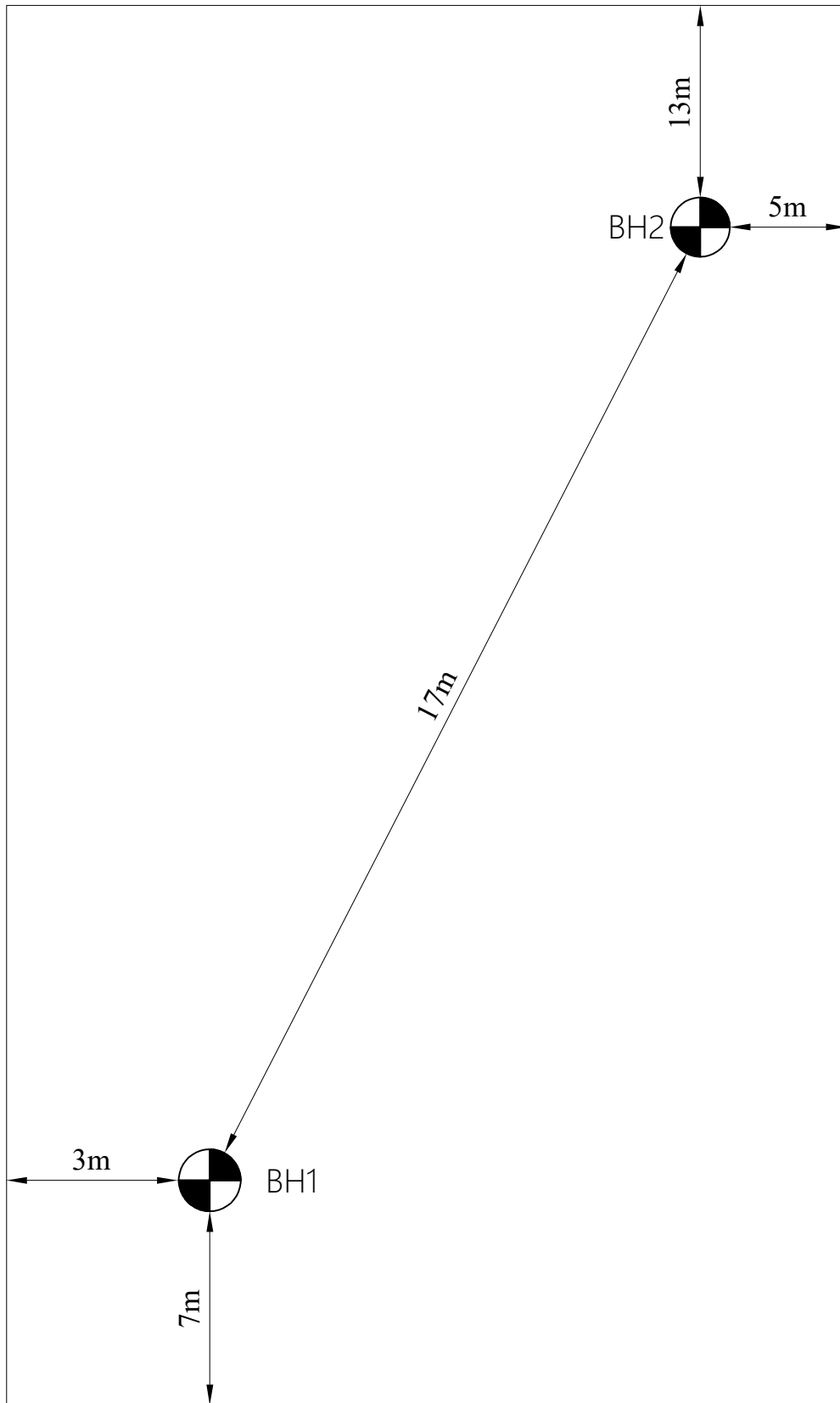
BOREHOLE LOGS

| | | | |
|----------|---------------------------------------|------------------|----------------------|
| Client: | Arbor Estates | Borehole log no: | 1-2 |
| | | Report number: | 21C 1165 (Lot 21) |
| | | Date drilled: | 17/12/2021 |
| Project: | Lot 21, Marong Run, Stage 7 Marong | Logged by: | TP |
| | | Drilling method: | AS |

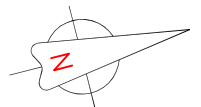
| Profile (mm): | * Structure: (see key) | Material Description: | Moisture Description: | Cohesion Density: | Plasticity: | Testing / Sampling: |
|-----------------------------|------------------------|--|-----------------------|-------------------|--------------|---------------------|
| 0 To 100 To 600 | FILL | BH1 Sandy SILT Dark brown | D | MD | Low | |
| To 850 | | Sandy Silty CLAY Pale brown, fine to coarse sand | D | St | Low – medium | |
| To 1600 | Soil profile | Silty CLAY Red/brown | M | VSt | High | |
| To 2300 | | Clayey SAND Fine to coarse, red/brown, trace fine gravel | D | MD – D | Low | |
| To 3000 | | Gravelly SAND Fine to coarse, brown, fine gravel | D | D | Low | |
| | | Silty CLAY Pale brown, some fine to coarse sand | D | VSt | Medium | |
| 0 To 300 To 700 | FILL | BH2 Sandy SILT Dark brown | D | MD | Low | |
| To 1100 | | Silty CLAY Red/brown | M | VSt | High | |
| To 1500 | Soil profile | Silty CLAY Dark brown, brown, pale brown, some fine to coarse sand | M | VSt | Medium | |
| | | Sandy Silty CLAY Pale brown, fine to coarse sand | D | St | Medium – low | |

Key

| Drilling Method | Moisture Condition | Cohesion | Density | Testing/Sampling |
|---------------------|--------------------|------------------|-------------------|-----------------------------------|
| AS – auger screwing | D – dry | VS – very soft | VL – vey loose | PP – pocket penetrometer |
| HA – hand auger | M – moist | S – soft | L – loose | V – hand vane sheer |
| | VM – very moist | F – firm | MD – medium dense | DCP – dynamic cone penetrometer |
| | W – wet | St – stiff | D – dense | SPT – standard penetration test |
| | | VSt – very stiff | VD – very dense | US – undisturbed sampling |
| | | H – hard | | DS – disturbed sampling |
| | | VH – very hard | | * see notes on bore location page |



JARRUNG STREET



GEOTECHNICAL INVESTIGATION

APPROXIMATE LOCATIONS
NOT TO SCALE

CLIENT: ARBOR ESTATES
PROJECT: LOT 21 MARONG RUN STAGE 7
GOLDIE ST, MARONG

GTS REF: 21C 1165 (21)
CLIENT REF:

DRAWN BY: CP
DATE: 20 DECEMBER 2021