Lot 77 Marong Run Stage 9 Marong

Geotechnical Investigation for Arbor Estates

Report 22C 0766 (Lot 77)
November 2022

GTS
GEOTECHNICAL TESTING SERVICES

www.gts.com.au

Lot 77 Marong Run Stage 9
Marong

Geotechnical Investigation
for
Arbor Estates

Revision

Revision	Authorised	Date
22C 0766 (Lot 77)	SEH	29/11/2022

Distribution (this version only)

Recipient	Format	Date
GTS	On file	29/11/2022
Arbor Estates Attn: Darren Pitson	Email PDF darren@kpdgroup.com.au	29/11/2022

1 INTRODUCTION

Arbor Estates commissioned Geotechnical Testing Services (GTS) to conduct a geotechnical investigation for the proposed development at Lot 77 Marong Run Stage 9, 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 21st of October 2022 using a vehicle mounted drill rig to drill 2 boreholes to depths of 1.5 to 3.0 metres within the designated area. The soil profiles and borehole locations are presented at the end of this report.

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 relatively flat and is currently vacant. At the time of the investigation, the surface of the site was moist with no grass cover. There are no trees across the lot. There was no visual evidence of surface cracking. There was no visual evidence of 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 M-D**.

Class M-D sites have an expected characteristic surface movement (y_s) of 20 to 40mm.

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 SAND, fine to medium, orange/brown, pale brown, loose to medium dense
  At depths below 0.1 metres in the region of BHs 1 and 2.

  Or

- Silty CLAY, high plasticity, brown, red/brown, orange/brown, trace fine to medium sand, very stiff
  At depths below 0.4 metres in the region of BHs 1 and 2.

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. The base of all footing excavations must be free of tree roots.

It is understood the site will undergo topsoiling. This layer of topsoil is unsuitable as a founding medium and the thickness of this layer should be taken into account with the above founding recommendations.

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.

Reviewed by

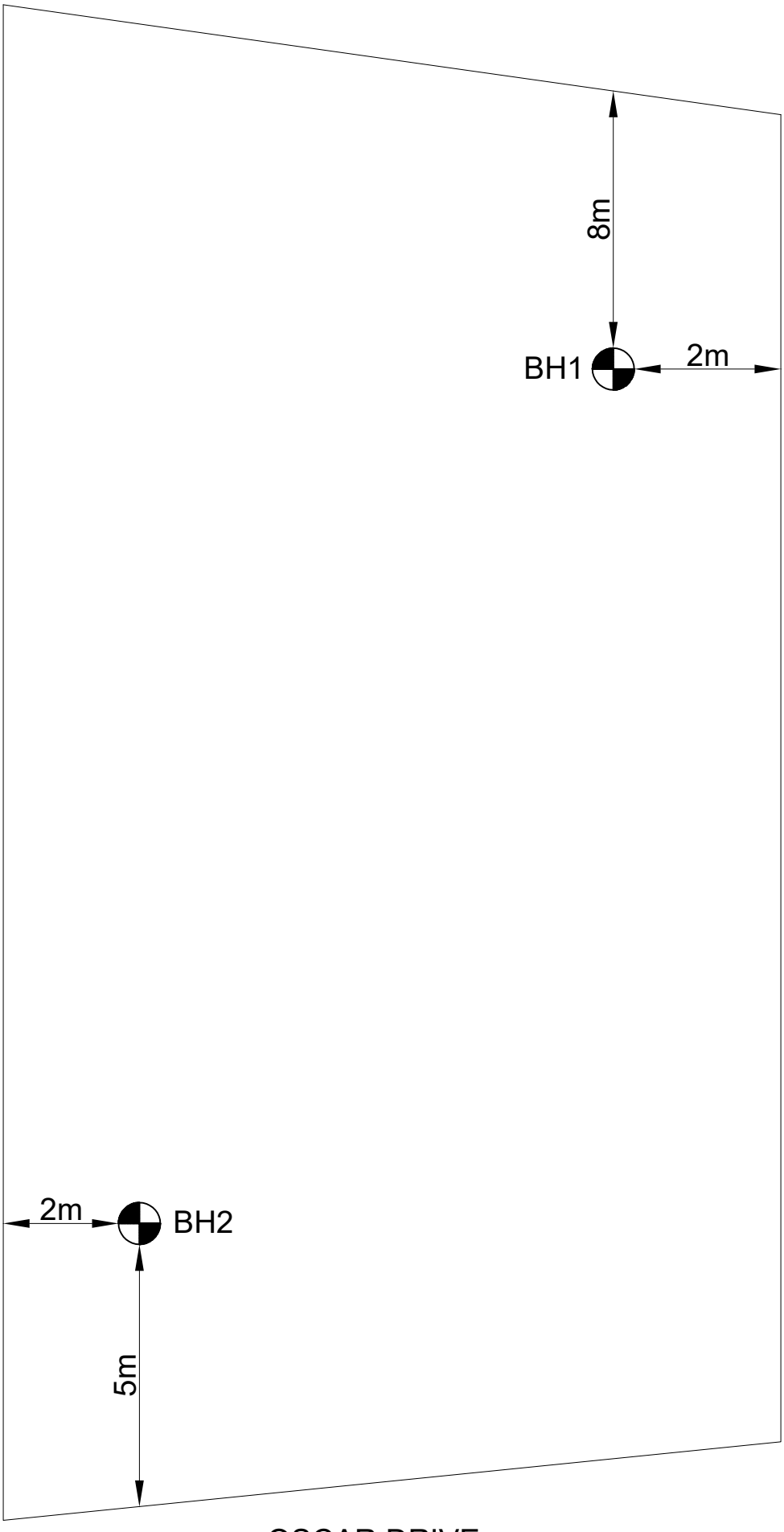
Shane Hampton BE (Hons), MIEAust

Principal Geotechnical Engineer

Client:	Arbor Estates	Borehole log no:	1-2
		Report number:	22C 0766 (Lot 77)
		Date drilled:	21/10/22
Project:	Lot 77, Marong Run Stage 9 Marong	Logged by:	BT
		Drilling method:	AS

Profile (mm):	* Structure: (see key)	Material Description:	Moisture Description:	Cohesion Density:	Plasticity:	Testing / Sampling:
0 To 400	Soil Profile	**BH1** Silty SAND Fine, orange/brown, pale brown	M	L - MD	-	-
To 800		Silty CLAY Brown, red/brown, trace fine to medium sand	M	VSt	High	-
To 1500		Sandy CLAY Brown, pale brown, fine to medium sand	D-M	St	Medium	-
0 To 400	Soil Profile	**BH2** Silty SAND Fine to medium, orange/brown, pale brown	M	L - MD	-	-
To 800		Silty CLAY Red/brown, orange/brown, trace fine to medium sand	M	VSt	High	-
To 2200		Sandy CLAY Pale brown, fine to coarse sand	M	VSt - H	Medium	-
To 3000		Sandy Silty CLAY Brown, pale brown, fine to medium sand	M	VSt	High	-

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
	W – wet	F – firm	MD – medium dense	DCP – dynamic cone penetrometer
		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



GTS GEOTECHNICAL TESTING SERVICES

GEOTECHNICAL INVESTIGATION

APPROXIMATE LOCATIONS
NOT TO SCALE

CLIENT: ARBOR ESTATES
PROJECT: LOT 77 MARONG RUN STAGE 9, MARONG

GTS REF: 22C 0766 (LOT 77)
CLIENT REF:

DRAWN BY: CP
DATE: 27 OCTOBER 2022