Douglas PARTNERS | GROUNDED EXPERTISE

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Project 233368.00
4 February 2025
L.001.Rev0
GS:sj

Report on Geotechnical Desktop Assessment
Proposed Residential Development
Lot 32 Marana Street, Bilambil Heights

1. Introduction

As requested by Yeats Development Consulting Pty Ltd (Project Civil Engineers) on behalf of GTH Project No. 20 Pty Ltd (Project Developer), Douglas Partners Pty Ltd (Douglas) is pleased to provide preliminary geotechnical comments with regards to a modification application for the proposed residential development at the above site. It is understood that the modification application seeks to modify a current major project approval whereby Lot 32 Marana Street, Bilambil Heights (ie the Gemlife site) is to be considered as a separate entity. Figure 1 below indicates Lot 32 in relation to the current major project approval.

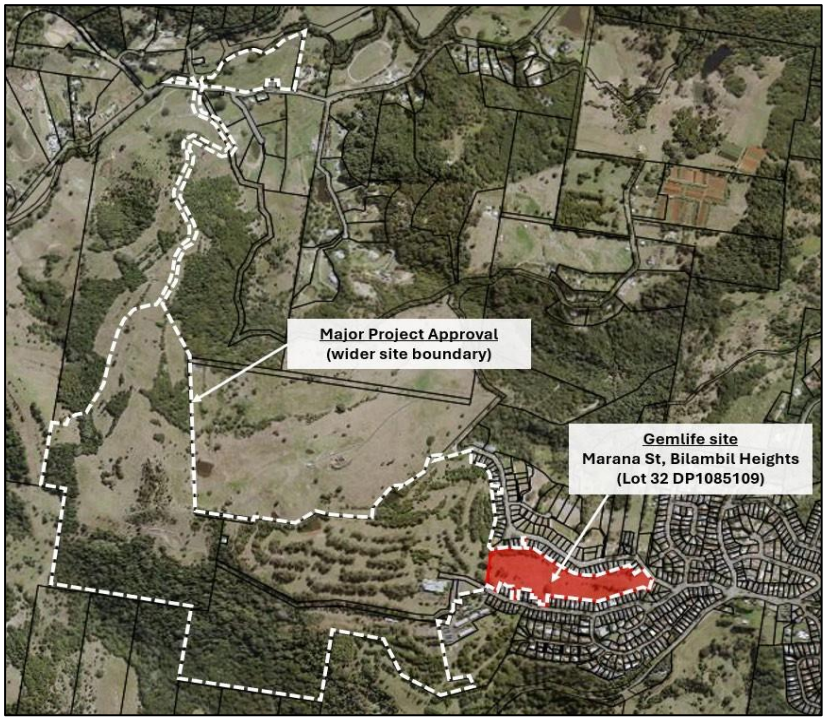

Figure 1: Subject Site (Source: Tweed Shire Council interactive mapping)

The aim of the desktop assessment was to review any relevant, available geotechnical information in the area near the proposed development, and provide preliminary comment with regards to likely subsurface conditions and possible geotechnical constraints.

As part of this desktop assessment, the following geotechnical report was reviewed given that the investigation was near, to the west and adjacent to the site under assessment:

- Douglas (2024) –'*Report on Preliminary Geotechnical Investigation, Bilambil Heights, Proposed Residential Development, 61 Marana Street, Bilambil Heights'* Project 229078.00 dated 5 July 2024.

This report must also be read in conjunction with the attached notes 'About this Report'.

It should be noted that this report is preliminary only and it is subject to a detailed geotechnical investigation being carried out across the site, prior to any DA approval.

2. Site Description

The site is located at Lot 32 Marana Street, Bilambil Heights, towards the western end of Marana Street and is bounded by existing residential dwellings, to the north, south and east and vacant pastoral land and a disused golf course to the west (refer Figure 1).

Based on Metromap Imagery and 'Street View' dated 14 July 2024, the site comprises undulating vacant pastoral land covered with thick grass and scattered small to tall trees throughout.

From supplied contour plans the site varies is elevation from RL 145 m AHD to RL 162 m AHD.

3. Preliminary Comments

3.1 Regional Geology

Reference to the New South Wales Department of Mines, Geological Survey Map, Tweed Heads 1:250,000 series sheet, the site is located within an area underlain by Tertiary Lamington Volcanics typically comprising *"Basalt with members of rhyolite, trachyte, tuff, agglomerate, conglomerate"*.

3.2 Preliminary Historical Aerial Photographic Interpretation

Imagery from 'Metromap' between 2018 and 2024 was reviewed to identify any signs of historical landslips or other features of interest during this assessment. No evidence of landslip was noted during this review, however, two probable earthfill dams were observed.

3.3 Likely Subsurface Conditions

Based on the aforementioned geotechnical investigation report and experience in the area, the subsurface conditions across the site are expected to comprise a veneer of topsoil over residual clay then basalt or metasiltstone.

3.4 Assessment of Subsurface Conditions

Based on this desktop assessment, no geotechnical constraints are expected across the site, that would preclude the land being used for residential development. Such development would require careful engineered bulk earthworks and retention design.

As previously mentioned above, this preliminary assessment is subject to a detailed intrusive geotechnical investigation, associated laboratory testing and analysis, to inform detailed design and would be required prior to any DA approval to confirm or otherwise the preliminary comments on this report.

4. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Lot 32 Marana Street, Bilambil Heights in line with Douglas' proposal 233368.00 dated 3 December 2024 and acceptance received from Brandon Yeats representing GTH Project No. 20 Pty Ltd dated 19 December 2024. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of GTH Project No. 20 Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out for the previous investigation. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during the aforementioned investigations. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed ‘safety in design’ assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

Gary Samuels

Gary Samuels
Senior Associate

Reviewed by

Chris Bell

Chris Bell
Principal

Attachments: About this Report

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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