



Civil & Structural Engineering Design Services Pty. Ltd.

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11th December 2019

Paul Talbot
13 Hyndes Place
DAVIDSON NSW 2085

D-11-267736

Dear Sir & Madam,

Re: Preliminary Geotechnical Assessment – Proposed Alterations & Additions at 13 Hyndes Places, Davidson, NSW

INTRODUCTION

I, Edward A Bennett, practicing civil, structural, geotechnical & environmental engineer, hereby confirm that our company has inspected the above site for the proposed Alterations & Additions and confirm that by review of Councils Policy, a full geotechnical report will **NOT** be required.

PROPOSED DEVELOPMENT

The proposed development consists of Alterations & Additions, new bedroom addition on first floor (northern side) & new Carport to be constructed at the front (North-West side) of the property as show on the architectural details prepared by JAH DESIGN SERVICES refer Appendix 'B'.

These works may include minor excavation, filling, and new piered/piled footing systems to be founded on underlying rock for the retaining wall & the Alterations & additions.

DESCRIPTION OF SITE & SURROUNDING AREA

The site of the new additions is in an area bounded by the side Northern boundary and front North-western Boundary. This work lies to the South-East of Hyndes Place with a uphill slope in the order of less than 5-degree (approximate) range. Council hazard mapping (Figure 1) places the property in land-slip risk class B (Flaking Slopes) – refer to Table 1 for risk class details.

SITE GEOLOGY

The underlying site geology consists of Wianamatta group Hawkesbury Sandstone. This is a Mesozoic era sandstone containing medium to coarse-grained quartz sandstone with very minor shale and laminate lenses. Refer to 1:100000 Sydney geologic mapping for more details (available via references).

GEOTECHNICAL REPORT



From the observations from the site inspection, it was deemed unnecessary to perform any extra/special investigation of the underlying site geology.

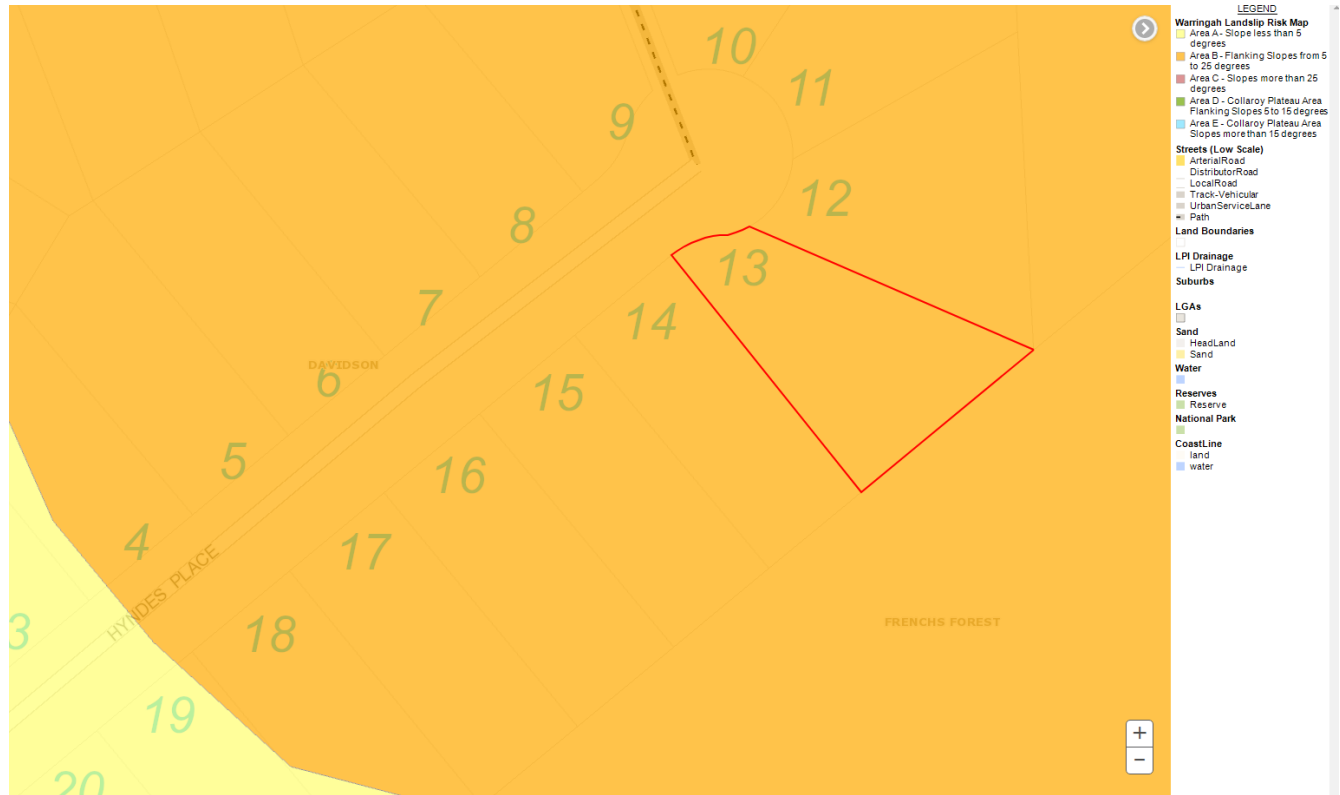


Figure 1: Land slip risk map for Grace Avenue (site location marked in red)

Table 1: Landslip risk classes - from Warringah Council LEP 2011 Landslip Risk

LANDSLIP RISK CLASS			
Landslip Risk Class	Topographic Position	Slope Angle (degrees)	Geology
A	Plateau areas, ridge crests, major spur slopes, footslope areas; and beach, foredune and alluvial flats.	< 5	At higher elevations, generally shallow residual soils developed on Hawkesbury Sandstone. Hawkesbury Sandstone exposed in occasional outcrops and in near vertical road cuts. Some areas of fill. At lower elevations, unconsolidated marine and alluvial sands often overlying deep marine sediments.
B	Flanking slopes.	5 to 25	Colluvial and residual soils, possibly deeper than in Class A, developed on Hawkesbury Sandstone. Minor detached sandstone blocks, occasional exposures of sandstone in cliffs and roadcuts. Occasional fill areas associated with playing fields, roads and some developments.
C	Steeper slopes, generally near coastal areas and adjacent to creeks and major gullies.	> 25	Colluvial soils and bouldery talus, with detached blocks of sandstone on steep escarpment areas, developed on Hawkesbury Sandstone. Near vertical cliffs to approximately 50m high at Dee Why Head.



D	Flanking slopes (Collaroy Plateau area)	5 to 15	Colluvial and residual soils (possibly deeper than in Class A) developed on Narrabeen Group or Hawkesbury Sandstone. Minor detached sandstone blocks, occasional exposures of sandstone in cliffs and <i>road</i> cuts. Occasional <i>fill</i> areas associated with playing fields, roads and some developments.
E	Steeper slopes (Collaroy Plateau area)	> 15	Colluvial & residual soils, boulder & talus, with detached blocks of sandstone on steeper escarpment areas, developed on Narrabeen Group or Hawkesbury Sandstone. Near vertical cliffs up to about 20m high.

OBSERVATIONS

Please refer to appendix A for the photographic record.

- The slope of the front & rear of the property is not excessive
- Top Soil profile is residual clay overlaying sandstone, removal of unconsolidated top soil and depending on the depth to the rock layer, piercing the structural slab would be required.
- No evidence of particularly high risk/hazard zones (unstable slip zones or localized areas of gradient greater than 25 degrees) across the entirety of the site.
- The existing structure is founded on stable footings

RECOMMENDATIONS

Some practices which assist to mitigate risk are as follows and should be adhered to:

1. CLEARING - GOOD hillside practice

- 1.1. Provide siltation fencing and proper barriers around the property at the front boundary
- 1.2. Provide a catch spoon drain across the site at the top of the slope to collect surface run-off and avoid localised slippage from scouring effects
- 1.3. Cover any exposed rock faces to prevent loss of moisture and at risk to spall overnight

2. EXCAVATION

- 2.1. The proposed Development does not require detailed excavation as mechanical equipment will be employed. There is always the likelihood that temporary shoring or underpinning is necessary to prevent ground loss when excavating near or adjacent to cliff faces to ensure safety to the workers at all times.
- 2.2. The excavation for the proposed structure(s) may create a build-up of disposable material which, if not being utilised as on-site suitable fill, shall be placed in special stock piles and be protected and maintained with suitable batters and cover so as not to be transported off-site by natural localised slippage or cause instability of existing batters through heavy rains before being used at a future date.

3. FOUNDATION MATERIALS AND FOOTINGS

- 3.1. It is recommended that all footings for the foundations to be supported on the underlying rock using reinforced concrete piers where necessary. Allow for end bearing piers to penetrate the medium strength sandstone surface by at least 150mm. The allowable bearing capacity for the piers shall be not less than 500kPa.

4. SUBSURFACE DRAINAGE



4.1. Any retaining walls are to have adequate subsurface drains such as “strip drains” or sock covered agricultural pipes placed at the rear of the walls to prevent undue hydrostatic pressure.

5. *INSPECTIONS*

5.1. It is recommended that the rock jointing be discovered and inspected by the engineer. The foundation material and pier placement are to be inspected and approved prior to casting any concrete.

5.2. It is an obligation for the certifier/builder/contractor to organise the inspections noted above within 24 hours’ notice notwithstanding that the principal certifying authority and the structural engineer needs to be notified in advance.

6. *ON-GOING MAINTENANCE*

6.1. The property is to be maintained in good order and in accordance with the guidelines set out in CSRIO - BTF 18 “Foundation Maintenance and Footing Performance: A Homeowner’s Guide” and the Australian Geomechanics Article “Landslide Risk Management Concepts and Guidelines” May 2002.

6.2. All retaining walls are to be inspected at intervals not exceeding 20 years.

From evidence obtained during the site inspection, as well as assessment of existing geological data for the site, it has been determined that the proposed works will not adversely affect the geotechnical stability of the site.

Provided all recommendations above are adhered to, the works will be completed following good geotechnical and structural engineering practice.

The development will not cause detrimental impacts because of stormwater discharge from the land and will not cause detrimental impact on the existing subsurface flow conditions including those of other properties.

A full geotechnical report is therefore deemed unnecessary for the proposed development.

Yours faithfully,

E.A. Bennett M.I.E. Aust. Cp Eng. NPER 198230, Member AGS, BPB 0820



REFERENCES

NSW Dept. of Resources & Energy, "Sydney 1:100 000 Geological Map", Accessed 16 July 2014 from <http://www.resourcesandenergy.nsw.gov.au/miners-and-explorers/geoscience-information/geological-maps/1-100-000/sydney-1100-000-geological-map>

Northern Beaches Council eServices, Warringah Council Development Control Plan 2011

<https://services.northernbeaches.nsw.gov.au/icongis/index.html>

APPENDIX A

Photos from visual inspection

IMAGE	Comments
	Google map



- Front of the property







APPENDIX B



PROPOSED GROUND FLOOR PLAN- 15/11
 FOR: TALBOT FAMILY- 13 HYNDES PLACE DAVIDSON



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**GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1 – To be submitted with Development Application**

Development Application for _____	Name of Applicant _____
Address of site <u>13 HYNDES PLACE, DAVIDSON</u>	

Declaration made by geotechnical engineer or engineering geologist or coastal engineer (where applicable) as part of a geotechnical report

I, Edward Bennett on behalf of CIVIL & STRUCTURAL ENGINEERING DESIGN SERVICES PTY LTD.
(Insert Name) (Trading or Company Name)

on this the 4th February 2019 certify that I am a geotechnical engineer or engineering geologist or coastal engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009 and I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least \$2million.

Please mark appropriate box

- have prepared the detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009
- am willing to technically verify that the detailed Geotechnical Report referenced below has been prepared in accordance with the Australian Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009
- have examined the site and the proposed development in detail and have carried out a risk assessment in accordance with Section 6.0 of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm that the results of the risk assessment for the proposed development are in compliance with the Geotechnical Risk Management Policy for Pittwater - 2009 and further detailed geotechnical reporting is not required for the subject site.
- have examined the site and the proposed development/alteration in detail and I am of the opinion that the Development Application only involves Minor Development/Alteration that does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.
- have examined the site and the proposed development/alteration is separate from and is not affected by a Geotechnical Hazard and does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.
- have provided the coastal process and coastal forces analysis for inclusion in the Geotechnical Report

Geotechnical Report Details:

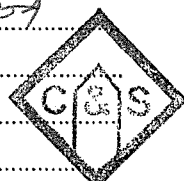
Report Title:	<u>Preliminary Geotechnical Report D-11-267736</u>
Report Date:	<u>11/12/2019</u>
Author:	<u>Edward A Bennett</u>
Author's Company/Organisation:	<u>CIVIL & STRUCTURAL ENGINEERING DESIGN SERVICES PTY LTD</u>

Documentation which relate to or are relied upon in report preparation:

<u>DOCUMENT D-11-267736</u>	<u>3 Wanniti Road, Belrose NSW 2085</u>
	<u>Ph: 9975 3899</u>
	<u>www.civilandstructural.com.au</u>

I am aware that the above Geotechnical Report, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Pittwater Council as the basis for ensuring that the Geotechnical Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature Edward A Bennett
Name Edward A Bennett
Chartered Professional Status NPER
Membership No. 198230
Company _____



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