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21th February 2018

Gordon Halnan
10 & 12 Orara Road
Allambie Heights NSW 2100

H-11-263739B

Dear Sir,

Re: Preliminary Geotechnical Assessment – Proposed Sub-Division at 10 & 12 Orara Road, Allambie Heights, NSW

INTRODUCTION

I, Edward A Bennett, practicing civil, structural, geotechnical & environmental engineer, hereby confirm that I have inspected the above site for the proposed sub - division and confirm that by review of Councils Policy, a full geotechnical report will **NOT** be required. From WSC Web-site under “eServices”, Warringah Development Control Plan, Part E, the Natural Environment, E10.

PROPOSED DEVELOPMENT

The proposed development consists of sub-division at 10 & 12 Orara road, Allambie Heights.

DESCRIPTION OF SITE & SURROUNDING AREA

The site lies on the Western side of Orara Road. The site is entirely within hazard class 'B' according to council hazard mapping (Figure 1).

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 1:100 000 Sydney geologic mapping for more details (available via references).

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

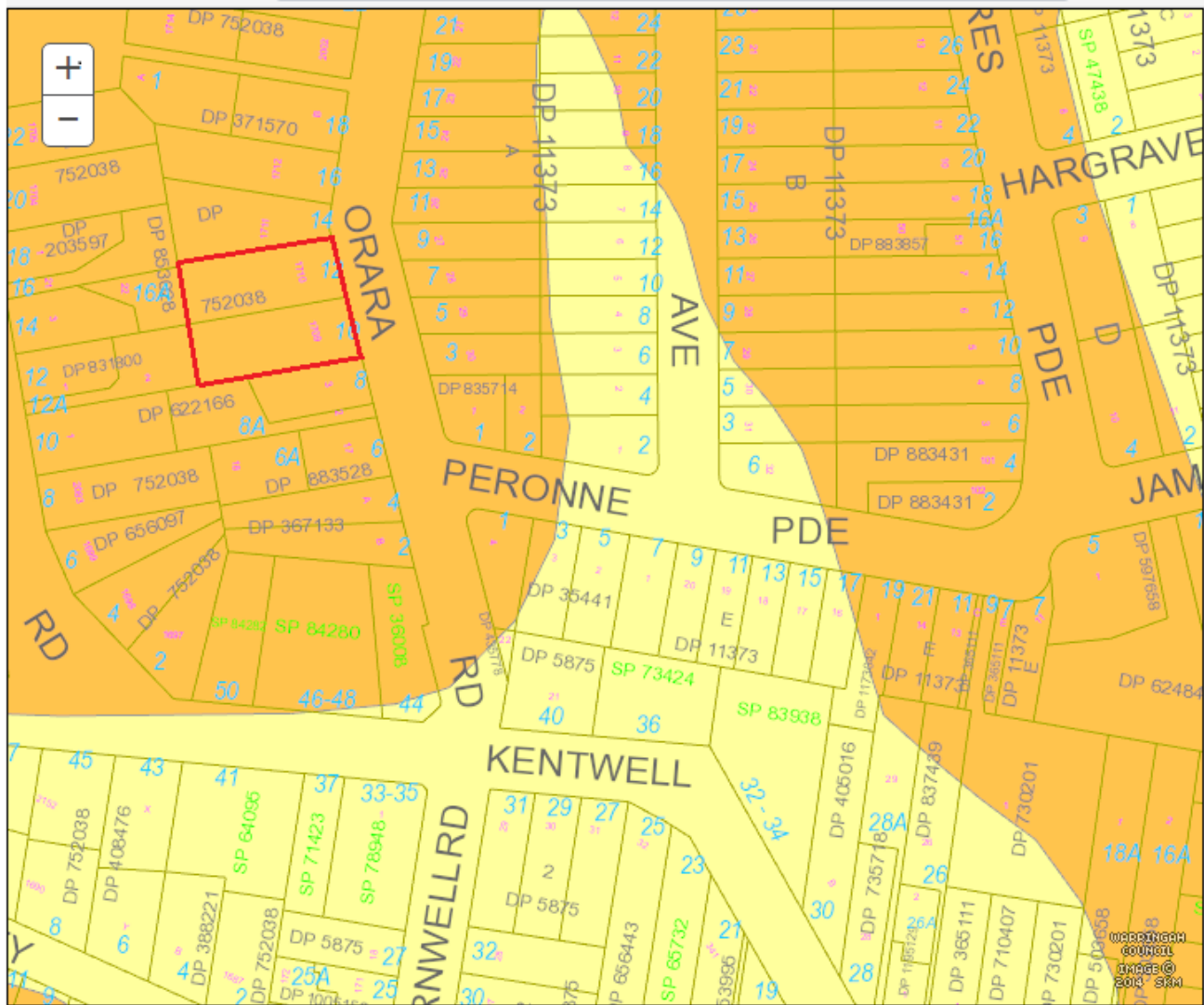


Figure 1: Land slip risk map for Orara Road (site location marked in Red)



Table 1: Landslip risk classes - from Warringah Council DCP Part E10 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 offill. 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 road cuts. Occasional fill areas associated with playing fields, roads and some developments.
E	Steeper slopes (Collaroy Plateau area)	> 15	Colluvial & residual soils & bouldery 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.

RECOMMENDATIONS

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.

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 subdivision or the future construction of:

- a driveway in the property.
- residential building on lot 2.

Yours faithfully,

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



APPENDIX A

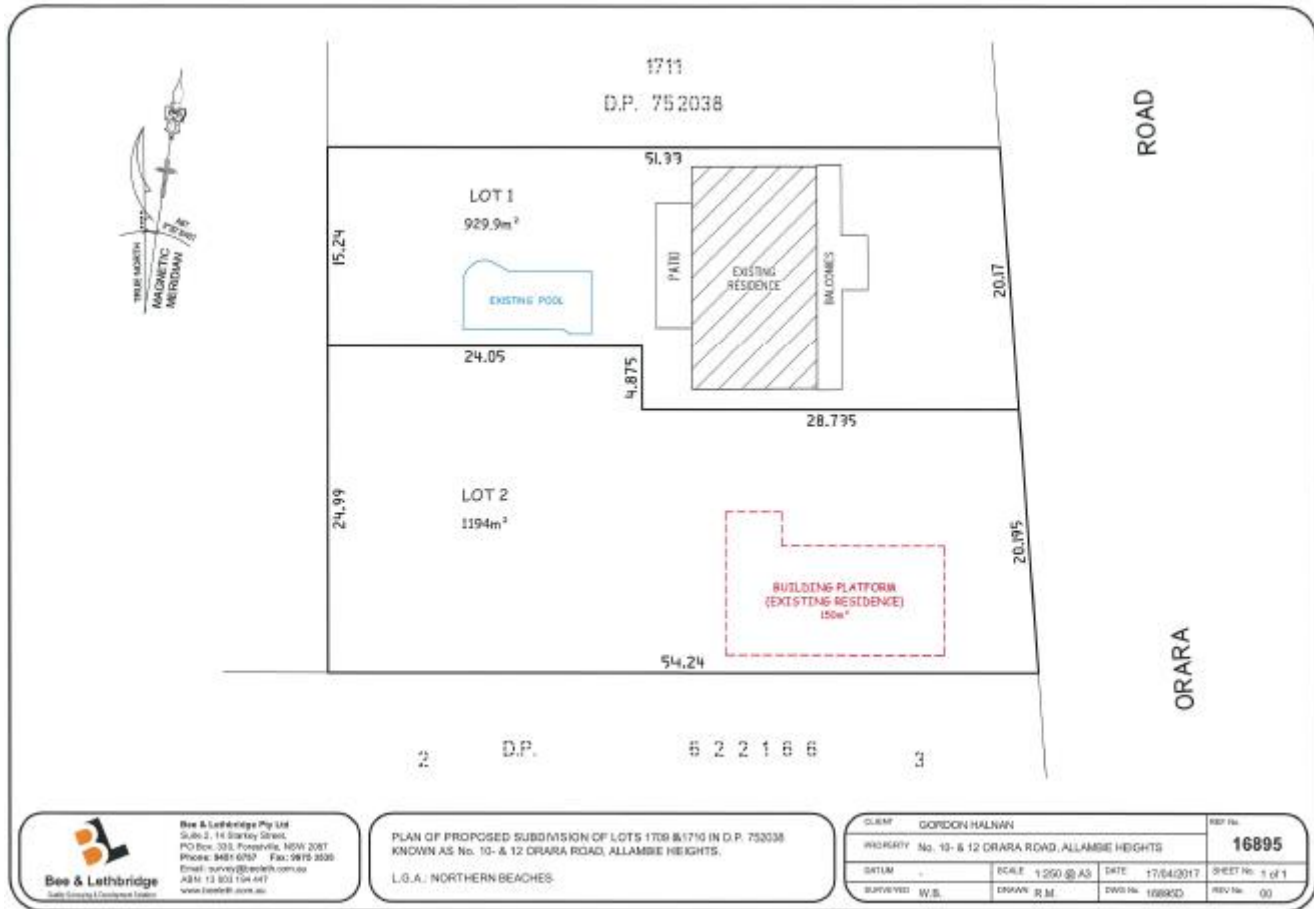


Figure 2: Site plan



APPENDIX B: SITE PHOTOGRAPHS









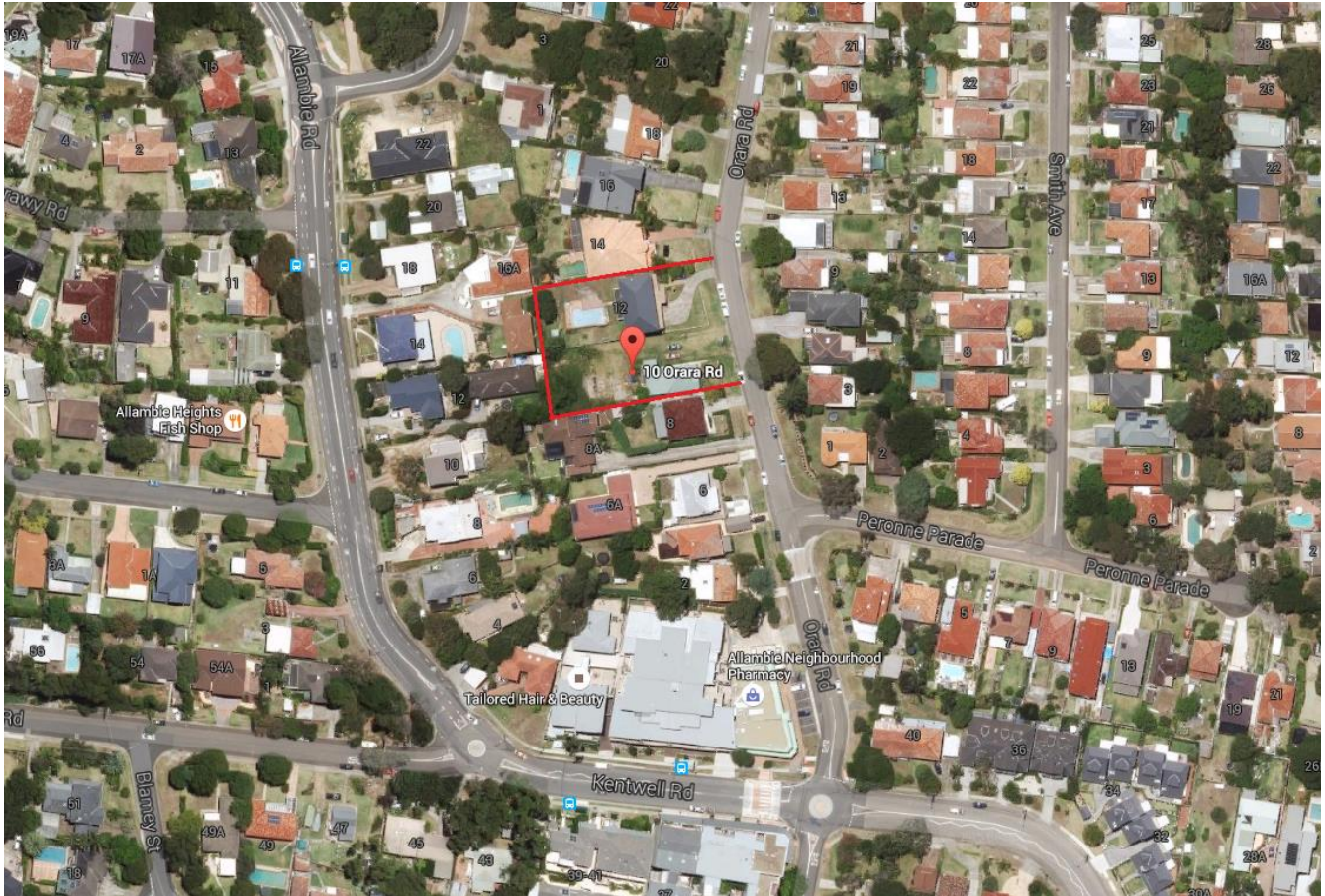


Fig: Google Map view. (10 & 12 Orara Road)