

13 Bungendore Street, Ingleside

Assess Slope Stability

1.0 Scope

To assess the stability of the slope immediately surrounding the proposed Farm Stay Accommodation Building. This does not include an assessment of the slopes over the entire block and specifically deals with the slope above and below the proposed farm stay and the access to it from the road. To assess the suitability of the proposed development, the risk to property and life, and to provide recommendations regarding any proposed foundations and excavations.

2.0 Slope Stability

The site was inspected on the 26th September, 2019 and previously on the 28th February, 2019.

It is proposed to convert an existing Farm Building into a Farm Stay Accommodation Building. The Farm Building has recently been constructed on a cut and fill platform below a rock face that is some 5.0m high. The rock face is made up of beds of competent Medium Strength Sandstone. The lower beds have been trimmed back to fit the shed (Photo 1). The upper beds are undercut in places to the order of ~1.5m (Photo 1). No cracking or other geological defects were observed in the undercut beds that support the overhanging rock. Additionally, given the thickness of the undercut beds to the relatively small overhang length, the undercut rock is expected to stand unsupported over the long term. At the western end, a larger undercut extends back up to 3.0m into the rock face (Photo 2). The maximum overhang length is limited in horizontal extent by bridges of rock at either side that support the formation. Where the overhang is shallower, it is also bridged at either side. No geological defects were observed in the undercut cantilever arm. This formation is also considered stable in the long term (life of the farm stay accommodation).

Historically, filling has been pushed off the rock face from the yard of the house above. As such, the top of the rock face is capped with fill (Photo 3). The fill has recently been battered to stable angles. The fill portion of the cut and fill platform for the existing Farm Building is also battered to stable angles (Photo 4). Medium Strength Sandstone was observed to be outcropping near the base of this fill batter.

3.0 Geotechnical Hazards and Risk Analysis

This is an assessment of the risk to life and property of the slope immediately surrounding the existing Farm Building and the accessway to the shed from the road. The undercut rock face above the Farm Building is a potential hazard (**Hazard One**). The filling that has been placed immediately below the Farm Building is a potential hazard (**Hazard Two**).

Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The undercut rock face failing and impacting on the proposed works below (Photo 2).	The fill that has been placed on the downhill side of the existing Farm Building failing and causing instability (Photo 4).
LIKELIHOOD	'Rare' (10^{-5})	'Unlikely' (10^{-4})
CONSEQUENCES TO PROPERTY	'Major' (60%)	'Medium' (15%)
RISK TO PROPERTY	'Low' (6×10^{-5})	'Low' (2×10^{-5})
RISK TO LIFE	8.3×10^{-7} /annum	1.3×10^{-7} /annum
COMMENTS	'ACCEPTABLE' level of risk to life & property.	'ACCEPTABLE' level of risk to life & property.

(See Aust. Geomech. Jnl. Mar 2007 Vol. 42 No 1, for full explanation of terms)

4.0 Suitability of the Proposed Development for the Site

The proposed Farm Stay Accommodation is suitable for the site. No geotechnical hazards will be created by the completion of the proposed development provided it is carried out in accordance with the requirements of this report and good engineering and building practice.

5.0 Recommendations

Excavation Support Advice

No excavations are required for the proposed conversion.

Footing Advice

No additional footings are required for the proposed conversion.

Protection of Adjoining Properties

No excavations are required that would cause instability or vibration damage on adjoining properties.

Drainage

All drainage is currently discharged to a large stormwater tank further downslope so existing subsurface flow conditions will not be impacted.

6.0 Conclusion

The property has an 'Acceptable Risk Level' in accordance with the 2009 Geotechnical Risk Management Policy for Pittwater.

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Photo 1



Photo 2



Photo 3



Photo 4