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1987/58. Slope stability in an area of the Douglas - Apsley State Forest.

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Abstract

A section of the Douglas - Apsley State Forest known as Coupe 50 has similar topographic features and geology to previously inspected areas where known instability problems exist. Instability problems usually occur along the steep slopes at the edge of topographic benches underlain by Triassic sandstone and mudstone, where the dolerite talus veneer is thin.

Slopes steeper than about 15° (27%) and underlain by dolerite talus are considered to be potentially unstable. These areas have been outlined and inspected. Road routes and areas of forest clearing have been planned in order to avoid these potentially unstable areas.

INTRODUCTION

Geologist D. J. Sloane has inspected an area of the Douglas - Apsley State Forest at Mt Andrew, near Bicheno, in the company of J. Cunningham of the Forestry Commission and W. Robbie of Tasmanian Pulp and Forest Holdings. The purpose of the field inspection was to determine the stability of steeply sloping areas, as well as to assess the suitability of an extension to 'O' Road into an area of Coupe 50.

GEOLOGY AND TOPOGRAPHY

The Coupe 50 area has similar topographic features and geology to previously inspected areas where known instability problems exist. These areas have gently sloping topographic benches beneath dolerite-capped hills. The benches usually have a thin veneer of dolerite talus overlying Triassic sandstone, mudstone and coal measures. Instability problems usually occur along the steep slopes at the edge of the benches, where the dolerite talus is very thin (Sloane, 1978; 1982; 1986). The steep slopes at the edge of the benches are usually a result of the resistance to erosion of the underlying sandstone and mudstone.

Good geological maps of the area are available, and part of a map covering the Coupe 50 region has been reproduced as a transparent overlay (fig. 1). The accompanying section of the topographic map has been marked with the proposed road route, and areas of slope greater than 15° (27%) have been outlined. This slope angle is considered to be a threshold slope angle for dolerite talus overlying Triassic rocks. Previous investigations show that instability problems have occurred above this angle.

PLANNING AND SITE INSPECTION

The combination of the transparent geology overlay and the topographic map indicating the steep slopes is very useful for initial planning. These indicate that the safest route is in fact the route planned by Mr Robbie, and visual inspection confirms this. Site inspection has also confirmed that the steep bench edge in the southern part of the coupe has slopes up to 24° (40%), and weathered mudstone is also exposed in places. The dolerite talus along this slope is therefore extremely thin.

# GEOLOGICAL SKETCH MAP DENISON RIVULET COALFIELD

C. A. BACON 1984

Geology after P. W. Sansom (1978)

Contour interval 20 m

0 1 km

5 cm

## QUATERNARY



Sand and gravel



Dolerite boulder talus

## JURASSIC



Dolerite

## TRIASSIC



Lithic sandstone, mudstone, coal } UPPER PARMEENER  
SUPER-GROUP

## DEVONIAN



Granite

BASE MAP - shows slopes steeper than  
 $15^{\circ}$  (27%)



Underlain by dolerite



Underlain by dolerite talus

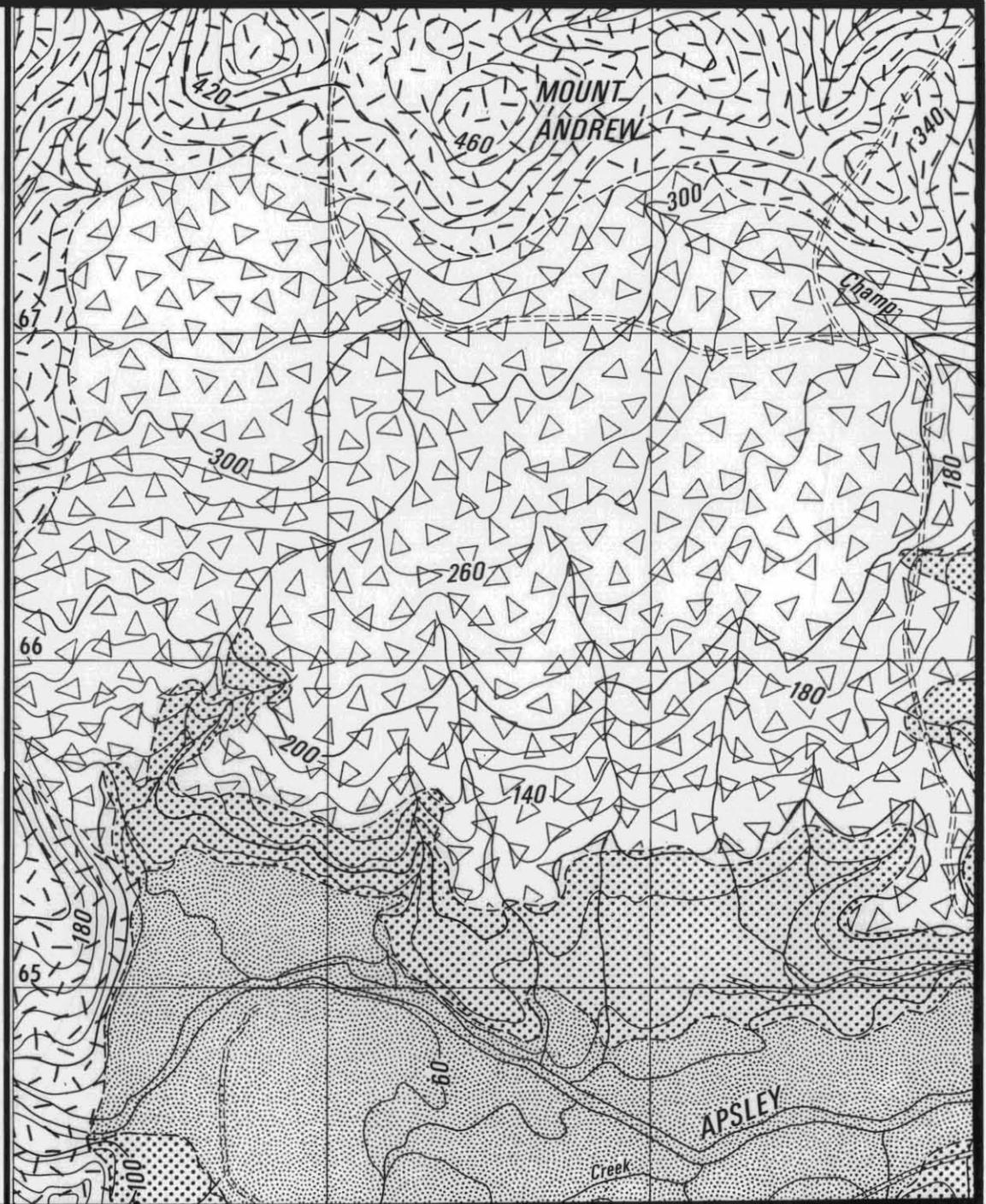
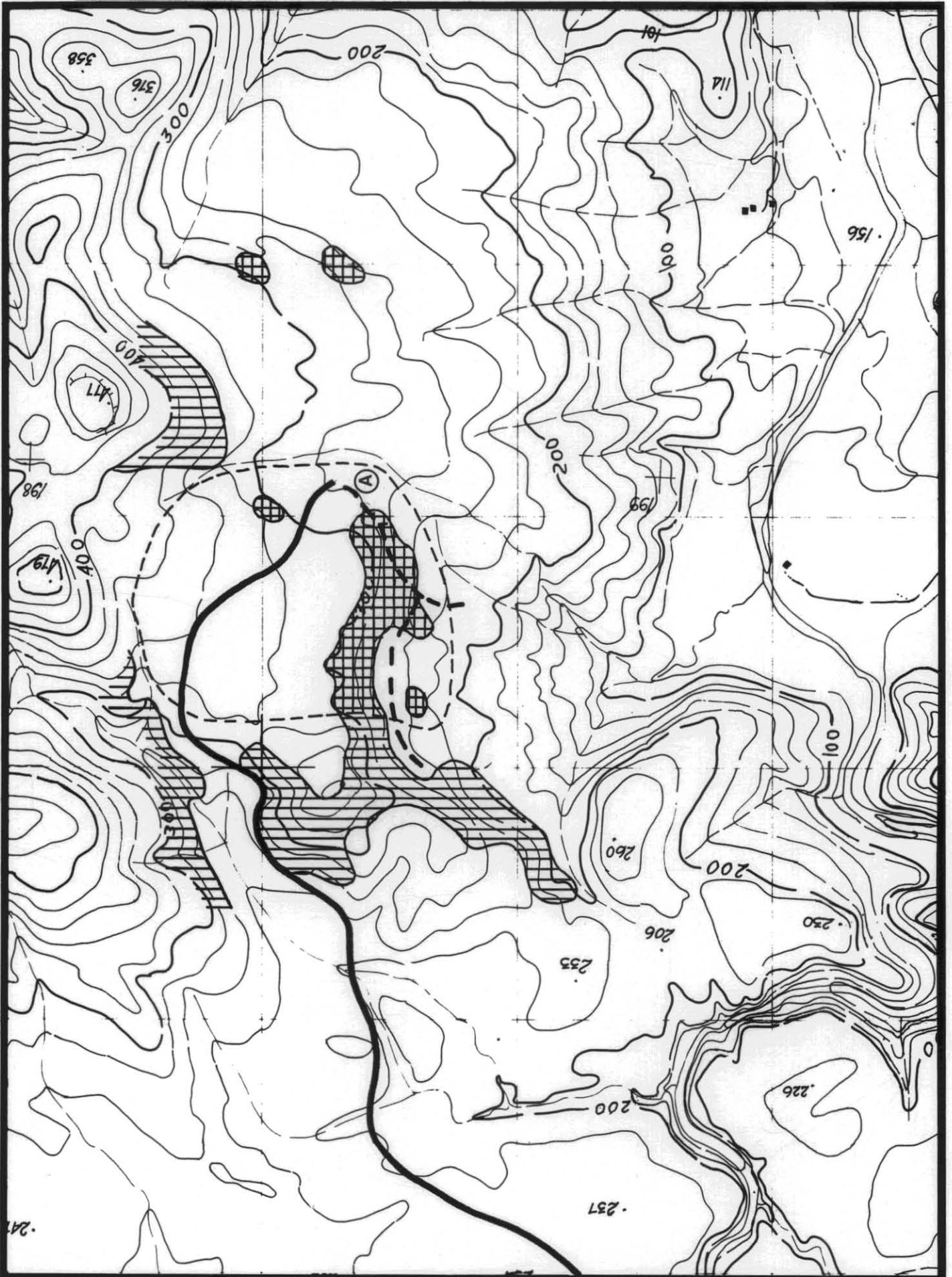


Figure 1.



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5 cm

It is difficult to determine positively if old landslides are present on the steeply sloping area of the coupe. Several small benches were observed, together with small talus lobes and minor areas of possible drainage disruption. The areas of weathered mudstone outcrop are considered to be moderately to highly erodable.

#### RECOMMENDATIONS

It is recommended that the steeply sloping area outlined on the topographic map should be avoided with regard to roading and conventional harvesting methods. The boundary to this area is approximately at the 300 m contour level. It is considered that the area could probably be logged by cable methods at a later date, as this method minimises ground disturbance. Field discussions indicated that it is also advisable not to continue the coupe road beyond point A on the accompanying map. Beyond this point the proposed route traverses the foot of steep slopes before reaching a lower bench. The area of suitable forest in this area is small, and therefore roading is considered uneconomic.

The main access road from 'O' road is considered well planned and is not likely to be affected by potential instability problems. Mr Robbie has previously recognised areas of potential and old instability and avoided them in planning the road route.

#### REFERENCES

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