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The stability of a building block at Tollymore Road, Wynyard.

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Tollymore Road runs for part of its length along the top of cliffs and of steep slopes. These are formed where the sea shore to the west of Table Cape is cutting into Tertiary basalt flows which rise to 100 m above sea level. The basalt has been subjected to deep prolonged weathering and it carries a thick cover of red soil.

The steep slopes adjacent to the cliff-top part of the road have been subdivided into building blocks and this report is concerned with Block 4 [CQ890669].

This block of about 2.6 ha slopes down from the road to the shore at angles of up to 19°. Blocks on either side show basalt outcrops and so are more precipitous and it is evident from these that soil cover can range from nil to a thickness in excess of 3 m. A smooth profiled block such as this could have deep soil on it.

Slopes as steep as this, for example at Devonport, at Ulverstone, and particularly at Boat Harbour are not regarded as stable under conditions of development, and building has been discouraged. Nevertheless in the Tollymore Road area, a close examination of this and adjacent areas did not disclose any evidence of recent movement. Some slope profiles indicate that soil landslide has taken place in the past but the slopes are stable at the present time. Soil creep is active, as might be expected on such slopes, but does not of itself constitute a hazard to building.

The stability of the basalt rock is not thought to be in doubt but that of the soil cover must be regarded as marginal. In other words, only a little disturbance would be needed to promote instability. Once started this could affect areas of the soil cover and could endanger building. The trigger could be provided by road cuts or cuts to provide building areas which divert natural drainage, and particularly by the introduction of concentrated storm-water or septic tank effluent into the soil. An example is provided by the drainage from the small, now overgrown dam on the west side of Block 4 which has caused an earth slump now partially filled with quarry debris.

Building on the block is practicable if the following guidance is followed:

- (1) The foundations must be taken to rock. This may involve some trial pits being sunk in favoured places and may also mean an increased cost for foundations if rock is not present close to the surface.
- (2) Natural drainage should be preserved as far as possible and not diverted by access roads, banks and cuts, and all drainage from both roofs and roadways should be piped or channelled down the slope and disposed of in such a way that no saturation of the soil can take place and so initiate movement.

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