

TASMANIA DEPARTMENT OF MINES
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**Inspection of a block adjoining
O'Brien's subdivision, Dilston**

by W. R. Moore

A block of land adjoining the northern side of O'Brien's subdivision at Dilston was examined on 19 September. The block has a long uniform slope of 9 to 10 degrees from its eastern boundary to the River Tamar. A very short minor slope of 12° was measured approximately 40 m from the eastern boundary.

No rock outcrops were found on the block. Coarsely crystalline dolerite boulders up to one metre in diameter occur on the lower half of the slope. A few ironstone and cemented lateritised fine gravel boulders were also found. Exposed on the pathway to the river is a yellow clay soil and some small quartz pebbles. A yellow sandy clay subsoil was exposed in a large uprooted tree.

From these poor exposures, it would appear that the block has similar geology to the neighbouring blocks of O'Brien's subdivision. On that subdivision, investigation pits and a deep service and stormwater trench dug from the river terrace downslope to the river gave an excellent continuous exposure. A grey surface sandy soil (SM) with small quartz gravel overlies yellow, orange, grey and red mottled clays (CH). Large dolerite boulders, originally thought to be in place towards the foot of the slope on Jones' block, are surface boulders and overlie grey and red mottled clay.

The clays were sampled and are highly plastic, with plasticity indices ranging from 97 to 112 and linear shrinkages from 22 to 31%. A clay sample from a neighbouring house site was shear box tested (Moore, 1985), and gave a very low angle of friction of 11° with a cohesion of 7.9 kPa.

Considering the soil laboratory results, the long slope of 9° and the lack of in situ dolerite, this block and the slope on O'Brien's subdivision can only be considered to have a high potential risk for slope failure, although no evidence of any slope movement on the blocks or houses examined along the slopes north and south of O'Brien's subdivision has been seen to date.

It would not be prudent to ignore this potential risk in siting a house and in the design of its foundations. It is recommended that the house be sited as high on the block as practicable, preferably within 30 m of the eastern boundary. It is also recommended that a subsurface investigation be undertaken on the proposed house site. This would consist of a backhoe pit to an adequate depth to allow an engineering geologist to compare it with neighbouring pits and their soil laboratory results.

Reference

MOORE, W. R. 1985. Soil testing of samples from O'Brien's subdivision, Dilston. *Unpublished Report Department of Mines Tasmania 1985/79.*

[11 October 1985]