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A drainage problem at Grays Road, Fern Tree.

P.C. Stevenson

Advice on a problem of drainage at her property was sought by Mrs E. M. Dunstan of Grays Road, Fern Tree.

The house and land lie on a slope of about 12° on Ferntree Mudstone. The mudstone consists of nearly flat-lying beds about one metre thick which cause the slope to be stepped, but the steps are largely filled by detrital material in the form of angular gravel with a silt matrix. This material was probably formed by a solifluxion process and consists of rock fragments from the mudstone itself which have moved downhill in periglacial conditions, but are now stabilised. This material may be seen in the small quarry on Grays Road.

The material is more permeable than the underlying mudstone and run-off from heavy rain follows the stepped bedrock slope rather than the regular surface slope above. Where excavations, as for a house foundation, have been made and bedrock exposed, this form a surface flow of water when heavy rain saturates the permeable gravel upslope.

A seismic survey of two spreads, confirmed this picture. Along the road above the house, a depth to bedrock of about one metre was measured, while a spread down the north boundary of the property showed steps in bedrock of up to 2 m with corresponding deepening of the gravel cover.

In order to prevent the occasional incursion of groundwater into the house foundations the flow along the bedrock surface must be diverted on the slope close above the house. This could best and most conveniently be done by the excavation of a table drain down to bedrock on the upper side of the road, draining both ways from the highest point in the road. This would need to be about one metre in depth and could be lined over the summit section to facilitate rapid drainage and prevent water flow under the road and so down to the house.

[9 July 1973]