

1976/39. Groundwater prospects near Kettering.

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A 4 ha property near Kettering has been investigated at the request of the owners, Messrs McToldridge and Schooling, who intend to erect a number of holiday units, and require water for general domestic purposes.

The property is situated immediately west of Kettering [EN197243], and occupies a low and almost circular hill separated by a saddle from an easterly spur of Farewell Hill (491 m). The southern side of the spur is drained by Flights Creek to Trial Bay, and on its northern side an unnamed creek drains to Little Oyster Cove. The property occupies the crest of the hill, and is generally flat or gently sloping, except along its northern boundary where the land slopes at about 20° to a road frontage.

GEOLOGY

The property is underlain by a small body of Cretaceous syenite porphyry which intrudes Permian sediments and Jurassic dolerite. The syenite does not crop out, but it has been exposed to a depth of about 2 m in excavations. Near the surface the rock is irregularly, and in places strongly, weathered, but beneath the soil horizon it is relatively fresh and strongly jointed. It is coarse-grained and shows mineralogical gradations from sanidine porphyry to a rock with a doleritic appearance. The contact between syenite and dolerite may therefore be diffuse and hybridised.

The syenite has apparently intruded the country rocks in the form of a dyke or plug.

HYDROLOGY

Little is known of the groundwater characteristics of syenite, and the rock has not been previously drilled for groundwater in Tasmania. Water, if present at all, is confined within secondary openings (mainly joints) within it, and the degree of success of a bore depends on the number, size and permeability of such openings penetrated during drilling. The syenite on the property is strongly jointed near the surface, but it is not known whether such fractures persist at depth, or are closed by weathering products and overburden pressure. Leaman (1967) reports that in the Cygnet area, where syenite dykes are common, the rock offers fewer prospects for successful wells than dolerite. But in turn, little is known of the hydrological properties of dolerite, except that in its fractured, unweathered state it is likely to be a reliable aquifer.

RECOMMENDATIONS

Water drilling always involves risks, and at Kettering, where the properties of the syenite are unknown, these are compounded. Nevertheless, the owners would consider even a low-yielding (approx. 10 l/min) bore successful, and on this basis drilling is recommended. Such a yield may be obtained from a bore sunk in the syenite on the northern side of the property near its road frontage. This site is topographically better suited than any other on the block, and lies adjacent to a power source. Despite the presence of a number of small springs (which are merely surface features), the water table is expected to be deep. Nevertheless, drilling should not extend below about 30-40 m, since water-bearing fractures are likely to be absent below this depth. If the bore is very low yielding, and only a marginal economic proposition, its yield may be increased by developing it with explosives, but this procedure is generally not recommended, since it may cause the sealing of existing permeable fractures.

REFERENCE

LEAMAN, D.E. 1967. The groundwater resources of the Cygnet district.
Undergr.Wat.Supply Pap.Tasm.

[25 June 1976]