

UR1974-67

Permeability of land at Dunalley.

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Mr A. Harrison of Dunalley [EN662511] wishes to instal a septic tank but has been refused permission by the local council unless it could be shown that the ground is permeable. He was advised to approach the Department of Mines for advice on the subsurface permeability. The land is situated some 100 m from the shoreline near the north-eastern entrance to the Dunalley canal on the north side of the town.

GEOLOGY

The area around the canal is underlain by Tertiary sediments consisting of clay and clayey sand while hills around the town are underlain mainly by Jurassic dolerite and some Triassic sediments. These older rocks would underlie the Tertiary sediments at depth (Leaman, 1973, suggested at least 30 m). A boulder bed made up mainly of dolerite fragments covers the Tertiary sediments on Mr Harrison's property and the surrounding land to the shoreline. On the property examined, it probably extends to a depth of at least 2 m but appears thinner towards the shoreline and its thickness may vary considerably from place to place.

SUBSURFACE INVESTIGATIONS

Three holes were drilled on Mr Harrison's property with an auger about 20 mm in diameter to a depth of about 1.5 m. In each hole, soil and plastic brown clay was struck to about one metre and then the boulder bed was struck. The period preceding the time when the holes were drilled, had been wet and the water table was near the surface. In two of the holes the water level remained near the surface after drilling, while in the third, the water level dropped to about 1.5 m below the surface after the boulder bed had been drilled, suggesting that some zones of this material have reasonable drainage properties.

CONCLUSIONS AND RECOMMENDATIONS

It appears possible that zones with reasonable drainage properties may be located in the boulder bed. Further drilling to about 2 m is suggested, with a post-hole digger capable of drilling a hole 10-20 cm in diameter. The drainage properties of any hole could be tested by pouring water down it. It is possible that away from Mr Harrison's block, the boulder bed may thin or completely lens out which would probably mean that drainage would come to the surface before it reached the shoreline. This possibility is a fairly remote one however, as the boulder bed appears to be continuous along the shoreline in the immediate vicinity of Mr Harrison's land. It is unlikely that the Tertiary sediments would have very good drainage properties, from the exposures examined.

It would be advisable to check with the council before proceeding with this further work as there may be other considerations apart from drainage which the council applies before giving approval for a septic tank.

REFERENCE

LEAMAN, D.E. 1973. Water supply prospects, Dunalley State School. *Tech.Rep. Dep.Mines Tasm.* 15:133.

[4 September 1974]