

The groundwater prospects on a property near Carlton were investigated at the request of Mrs R. Oakley. The 2 ha rectangular block fronts on to the Carlton Beach Road about 1.5 km east of the Dodges Ferry turnoff. Although generally flat-lying, it occupies the head of a shallow westerly draining valley and receives surface drainage from more elevated land to the north-west. There is no permanent creek, but a small seepage area occurs in the centre of the block. Water is required for domestic and small-scale gardening purposes.

GEOLOGY

The area is underlain by interbedded Permian? quartz sandstone and mudstone which is exposed on the flanks of the neighbouring hill and which dips approximately 20° NW. Over most of the property the sediments are overlain by a superficial deposit of Quaternary? wind-blown sand of unknown thickness. Clay layers occurring at shallow depth in the sand are probably related to the development of soil profiles.

AUGERING

The sand deposits offer the most favourable prospects for obtaining underground water. Five shallow holes were augered at various points on the property in an attempt to establish the thickness of the sand. In only one hole (in the centre of the seepage area) was it possible to penetrate the impervious clay layer mentioned above. The generalised sequence is:

<i>Depth (m)</i>	<i>Description</i>
0-0.2	Grey-black medium-grained sandy loam (topsoil).
0.2-0.6	Light grey medium-grained clean quartz sand (saturated in two holes).
0.6-1.0	Yellow-brown impervious clay and sandy clay.
1.0-at least 3	Saturated grey-green muddy sand.

Two holes were dry, and bottomed in the clay. Two of the remainder struck water in the sand above the clay. Such water is derived directly from surface run-off and produces a perched water table condition above the clay. Seepages occur where the clay layer is closer to the surface. The remaining auger hole was drilled in the seepage area, striking saturated muddy sands below the clay. However, the maximum depth of sand was not established.

DISCUSSION AND RECOMMENDATIONS

The saturated sands attain a thickness of at least 3 m, thinning rapidly to the north-east and south-west near the property boundaries. Two perched water table conditions exist: the first occurs above the shallow, thin clay layer within the soil profile itself. It has developed sporadically and contains little useful water. The second occurs where the relatively impervious Permian? sediments have prevented effective downward movement of water contained in the overlying sand. This latter source probably contains sufficient water of good quality to meet the needs envisaged.

The water may be obtained either by digging a well, or by sinking a spear bore. The site chosen will depend on convenience, but should be in or near the seepage area at the centre of the property.

[29 October 1973]