

Groundwater investigation, Hayes Property Bridport

W.R. Moore

At the request of Mr E.C. Hayes of Derby, a groundwater investigation was carried out on his property at Bridport on the 5 September 1972. The farm is located on the western side of the Bridport-Scottsdale Highway, 400 yd south of the Bridport aerodrome. The farm includes the alluvial flats west of the highway, the gradual slope and the prominent flat topped NNE-SSW ridge (elevation 350 ft + S.L.) that borders the flats to the west.

GEOLOGY

This ridge is thought to be formed by the baked sandstone and siltstone sediments of the Mathinna Beds following the contact metamorphosed zone between the Mathinna sediments and the intruding granodiorites to the east (see Marshall, 1969). No outcrops were found on the farm which is covered with grey superficial quartz sands and occasional Mathinna sandstone boulders.

HYDROLOGY

A line of seepages, occur on the east side of the ridge, below its shoulder near the break in slope some 30 to 50 ft below the ridge crest. These seepages are reported to run only after heavy rains and dry up completely in summer. Only one was found to be running when the area was visited.

GEOPHYSICS

Two north-south resistivity probes of 200 and 400 ft using a Wenner configuration were run. One probe was located on the valley flats and the other below the crest of the ridge but above the spring line. When plotted both resistivity curves gave the same shape with the break point occurring at a greater depth in the valley floor probe (fig. 1).

Similar two layer resistivity curves with the same resistivity values have been found to occur very commonly elsewhere in the Scottsdale-Bridport area. The areas in which these curves were recorded had very similar relief conditions as present at Hayes farm and the underlying rock is known to be granodiorite.

The upper layer is formed by a thin layer of clay of varying types. These clays can either be Quaternary black organic alluvial clay, white kaolinitic clay or green-grey micaceous clay both of the Tertiary sequence of sediments of the Scottsdale region, or very deeply weathered and decomposed granodiorite. From the location it is thought that the clay layer is most likely to be weathered granodiorite at Hayes farm and as seen from the material forming the walls of the existing water holes.

CONCLUSIONS

Neither the clays derived from granodiorite nor the granodiorite have yielded any great amount of groundwater to date in the Bridport-Scottsdale area, nor have any holes drilled near the Mathinna granodiorite contact. In this situation before attempting any deep boring, several hand auger holes should be drilled in the areas near the present seepages and then pump tested.

The geological and geophysical evidence suggests that runoff into water holes offers a more attractive proposition for a potential water supply for this farm than groundwater.

REFERENCE

MARSHALL, B. 1969. Geological atlas 1 mile series. Zone 7 Sheet 31. .
(8315N). Pipers River. *Explan.Rep.geol.Surv.Tasm.*

[11 September 1972]

PROBE LOCATION 30' BELOW CREST OF NNE-SSW RIDGE. PROBE LOCATION-VALLEY FLOOR.

5 cm

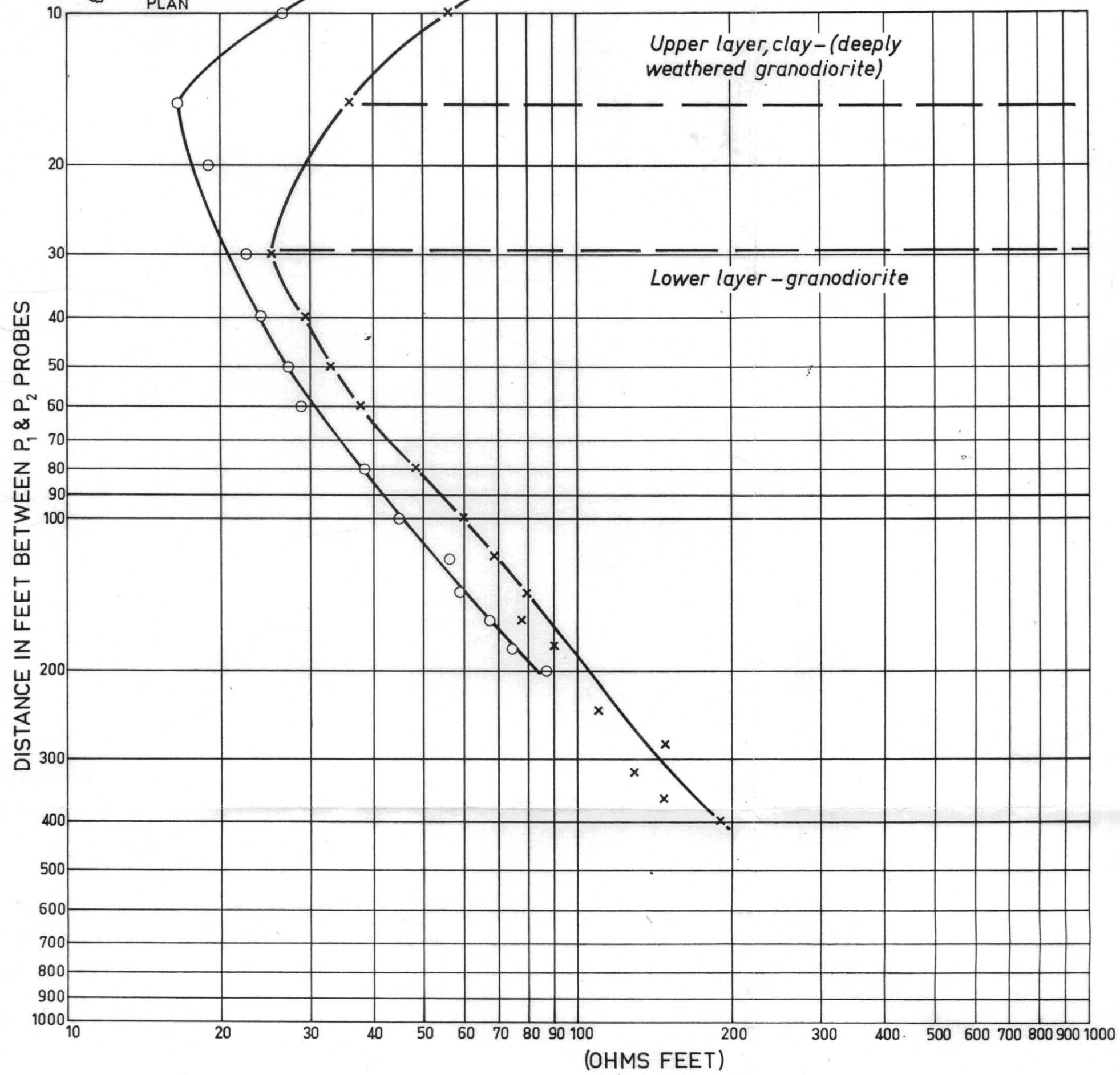
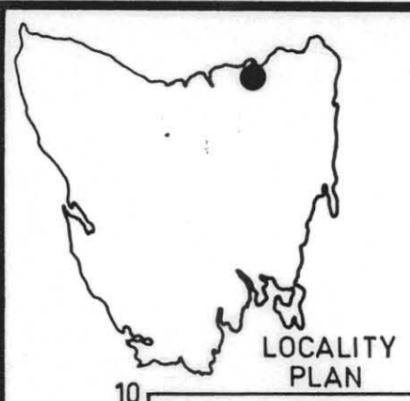


Figure 1. RESISTIVITY CURVES (WENNER CONFIGURATION) E.C. HAYES PROPERTY BRIDPORT

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DRAWN:- H. Mackinnon

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