TR11-104-105

17. GEOLOGICAL CONDITIONS AT PUMPING STATION SITE, NEW NORFOLK

by D. E. Leaman

The site is located some 100 yards along the Boyer road from the Lyell Highway at New Norfolk, and is about 50 feet from the river bank. Elevation is approximately 12-14 feet above river level.

It was required to determine the likely materials to be encountered in excavations, to a depth of 30 feet, for a new pumping station.

The site is located on an alluvial terrace. Recent excavations near the bridge reveal at least 10 feet of chocolate brown soils. No outcrop of solid rock is visible within a quarter of a mile on this bank of the river. The hills to the NW are composed of Triassic sandstone while those to the SW are of Permian (Ferntree Formation) mudstone. Directly across the river are flows of Tertiary basalt, which cap the hill upon which New Norfolk is built.

A resistivity depth probe was made at the site (fig. 36). The curve may be divided into two portions, that of a moderately resistive upper layer (up to 100 ohm-m) and a low resistivity lower layer (approximately 15 ohm-m). The change in slope at about 15 feet probably represents water level.

The upper layer is probably dry alluvial soil, whereas the lower layer could be wet soil or gravel. No basalt, dolerite or Permian mudstone is present to the depth examined as these have very high resistivities (greater than 1000 ohm-m) and would cause the resistivity to increase slowly with depth.

The only materials expected in excavations are alluvial soil near the surface and possibly river gravel at some depth (more than 10 feet). Water level is about 12-15 feet below the surface.

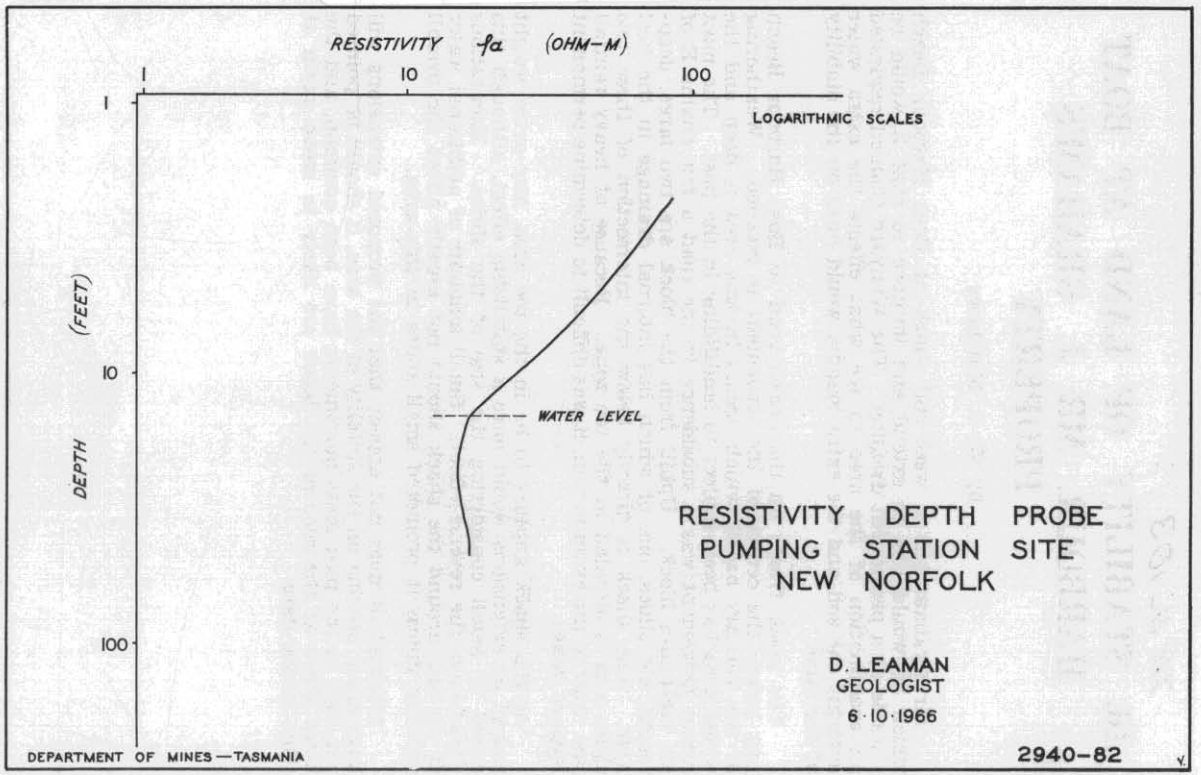
5 cm
RESISTIVITY ρa (OHM-M)
1
10
100
LOGARITHMIC SCALES
DEPTH (FEET)
1
10
100
WATER LEVEL
RESISTIVITY DEPTH PROBE
PUMPING STATION SITE
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FIGURE 36