

TR17-131

29. A report on the site for treatment works, Isandula Creek.

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At the request of Messrs Gutteridge, Haskins and Davey the site was examined on 7 November 1972.

The area of the treatment works is on a saddle between an otherwise isolated hill and the sloping valley side of Isandula Creek (see Geological atlas Sheet 29, Devonport, Burns, 1963). The hill consists of indurated Cambrian mudstone, and has been partly overlaid and concealed by the Tertiary basalt forming the higher ground to the east.

Some landslipping is apparent on basalt in the higher hill slopes, but the mudstones of the hill are quite stable even at high slope angles.

The mudstone-basalt contact on the saddle is deeply weathered in the vicinity of the existing reservoir and the depth to indurated rock is not known. The ground slopes on the saddle are low enough to render ground movement unlikely, but if rock foundation is required then a refraction survey would reveal the depth at which rock could be expected. The mudstone surface is expected to continue into the hill at approximately the same height as it is seen on the saddle.

REFERENCE

BURNS, K.L. 1963. Geological atlas 1 mile series. Zone 7 Sheet 29 (8115N). Devonport. Department of Mines, Tasmania.

The following materials were found:

Material	Velocity (m/s)
Water saturated sand and silt (sandy)	1450
Velocity as water, but indicated by excess depth over known water depth.	1850-1800
Fine clay	1000-7400
Weathered granite	>3800
Granite	

Two profiles are shown in Figure 33 illustrating the typical distribution of the materials. The area is founded on granite with a thick clay covering and weathered granite is commonly present. The clay is overlain by water or saturated sand and the thickness of saturated sand ranges between 1 and 3 m and increases seaward.

CONCLUSION

Filling of the area will cause displacement of much of the saturated clay floor sand and silt, and may displace some of the upper part of the clay deposit. In addition to some displacement, a high degree of consolidation is to be expected, perhaps as much as 40%. The seismic velocity indicates that the clay is well consolidated and therefore only the wet upper layers will be affected by loading (probably less than one metric tonne). The regional geology suggests an over-consolidation in the clay equivalent to at least 30 m of its own thickness, or about 600 kPa, and thus low factors will be noted in the clay from addition of fill. An indication of what is likely