

1977/31. Inspection of two alternative reservoir sites near Ulverstone.

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The Municipality of Ulverstone requested that the Department of Mines inspect and report on two alternative reservoir sites at East Ulverstone (fig. 1). The council proposes to construct a 4.5M l (1 x 10<sup>6</sup> gallon) 'in ground' reservoir of the cut and fill type, lined with a waterproof membrane and probably roofed with a floating cover.

#### GEOLOGY

There appears to be at least two basalt flows separated by Tertiary sediments, occurring as isolated thin outcrops of sand and grit, in the area of proposed construction.

The scarp between the basalt plateau and the coastal plain shows evidence of instability. Earth-flows down the northern scarp of the spur and fronting onto the Bass Highway are active and are considered to have been activated by the free movement of water through the sediments.

An ancient multiple slump landslip complex, now apparently dormant, has formed in Tertiary basalt on the eastern slopes of the spur. A thin horizon of sediments also crop out on the head scarp of this unstable zone.

#### RESERVOIR SITES

Site 1. (Hubbards home site, DQ331428)

The reservoir would be situated on the western side of the spur below the saddle and overlooking Kimberleys Road. It is probable that a layer of Tertiary sediments underlie the reservoir site on about the same contour as the sands and grits cropping out immediately to the north, and on the other side of the saddle to the east. Although the reservoir is to be lined, any leakage is likely to cause a renewal of landslip activity. The sediments would provide a means of concentrating the flow of water through the saddle and into the head regions of these existing unstable areas.

This reservoir site would require detailed investigation to determine the degree of weathering in the basalt and to locate any sedimentary intercalations that are present. A reservoir on this site would be completely artificial and would require considerable modification of the hillside.

Site 2. (Hubbards Creek site, DQ330426)

This site is considered to be the more favourable of the two proposed sites. It is located in the gully on the bottom side of Kimberleys Road. A reservoir at this site would cause less disruption to the existing balanced landform regime, the site having already been partially landscaped by natural processes. Any leakage through the dam, or overflow, would be channelled down the gully. Considerable excavation along the western perimeter of the reservoir will be needed to attain the required capacity at this site. Investigations should concentrate on the nature of the basalt, the degree and depth of weathering and whether the material is rippable or not.

#### CONCLUSION

The construction of a reservoir at Site 2 would have less consequences either in the event of leakage or failure.

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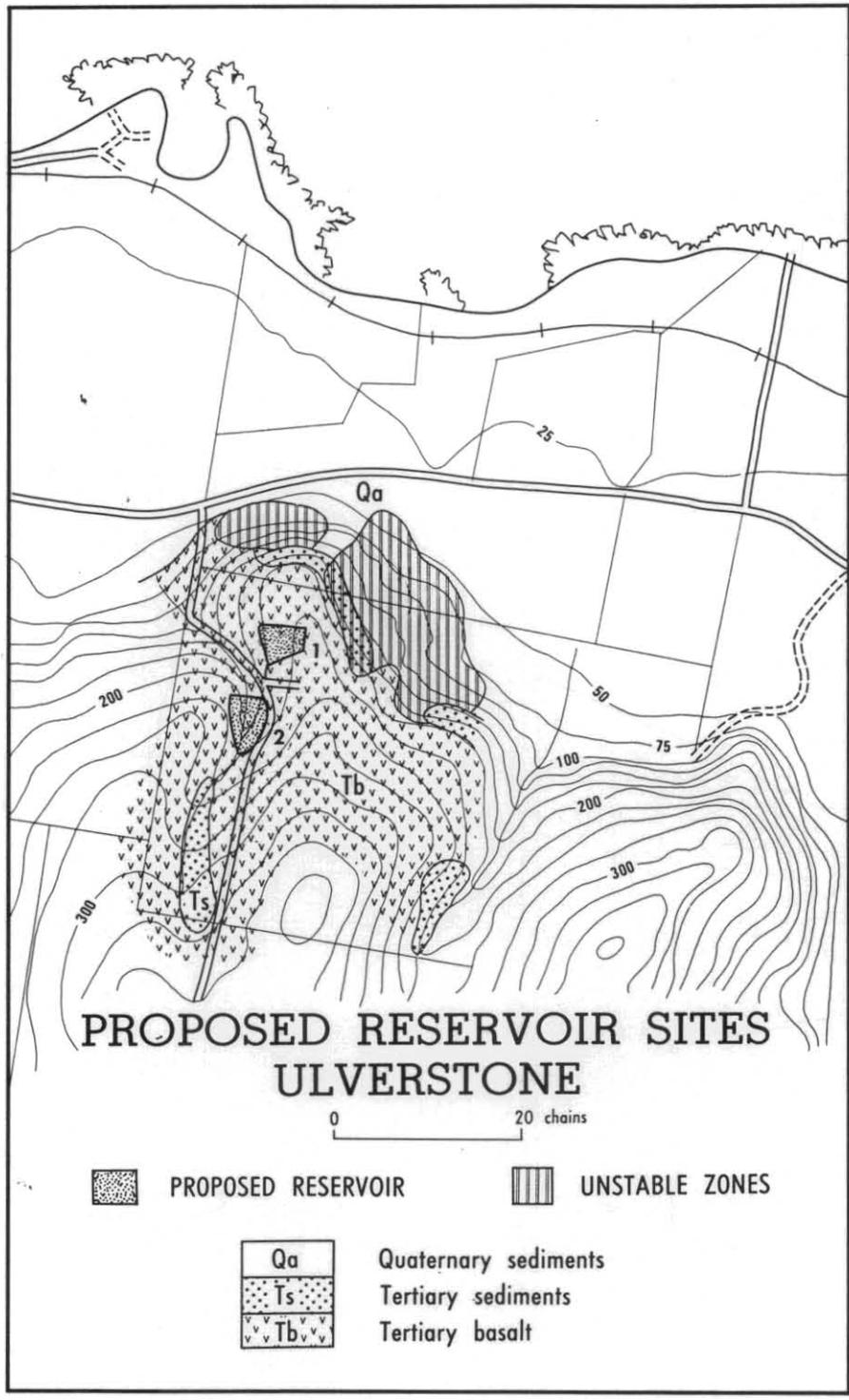


Figure 1

5 cm