

1976/55. Investigation of a proposed reservoir site at Tarooma.

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The Metropolitan Water Board proposes to erect a 4.5 Ml concrete reservoir in Tarooma. The site [EN284454] is at an elevation of 85-95 m, 300 m west of the Channel Highway, and close to existing residential areas. The reservoir will be 30 m in diameter, and 6 m high. The average slope of the site is 12.5°. Construction would therefore involve the excavation of about 10 m of rock at the rear of the reservoir.

The Board enquired whether the site was geologically suitable for the proposed reservoir.

GEOLOGY

The site is underlain by glacio-marine sediments of the Lower Parmeener Malbina Formation. The rocks crop out in small cliff sections on both sides of the creek west of the site, but elsewhere they are buried beneath a thin and patchy grey top soil. Boulders and cobbles are abundant in the area. The sediments apparently dip west at less than 7°, and consist of a variable, and in places fossiliferous, assemblage of buff-brown, poorly sorted, fine- to coarse-grained (pebbly) sandstone, pebbly mudstone and mudstone. Bedding is indistinct, and the rock is irregularly and moderately jointed.

The sediments form a narrow north-south trending wedge, bounded to the east and west by Jurassic dolerite. The western boundary is a sub-horizontal intrusive contact, at an elevation of about 150 m. To the east, the sediments are faulted against dolerite near the Channel Highway.

CONCLUSIONS

The site is geologically suitable for the proposed reservoir. Despite its steepness, the hillside is considered stable. The sediments are hard, moderately jointed, and competent, and their low-angle westerly dip enhances the inherent stability of the site. Soil cover is generally thin, and in places absent. Consequently, the reservoir will be constructed on solid basement. Only in the initial stages of the excavation will the sediments be rippable, and most of the rock will need to be blasted. If such is the case, the proposed 80° cut at the rear of the excavation will be adequate.

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