

TR6-61-63

PROPOSED DAM SITE—ALLENS RIVULET, MUNICIPALITY OF KINGBOROUGH

by W. N. MacLeod.

A proposed dam site on Allens Rivulet, about two miles south-east of Sandfly, was examined on July 13th, 1961, at the request of the City Engineer, Hobart. This site has been suggested as an alternative to the site on Whitewater Creek, near Kingston, which was examined on June 30th, 1961. The dam is intended to be used for bulk storage for Kingborough Municipality.

GEOLOGY OF THE DAM SITE

(See Figure 16).

The dam site is almost wholly underlain by fine-grained sandstone, mudstone and siltstone of Permian age. These sediments are intruded by and almost completely surrounded by dolerite

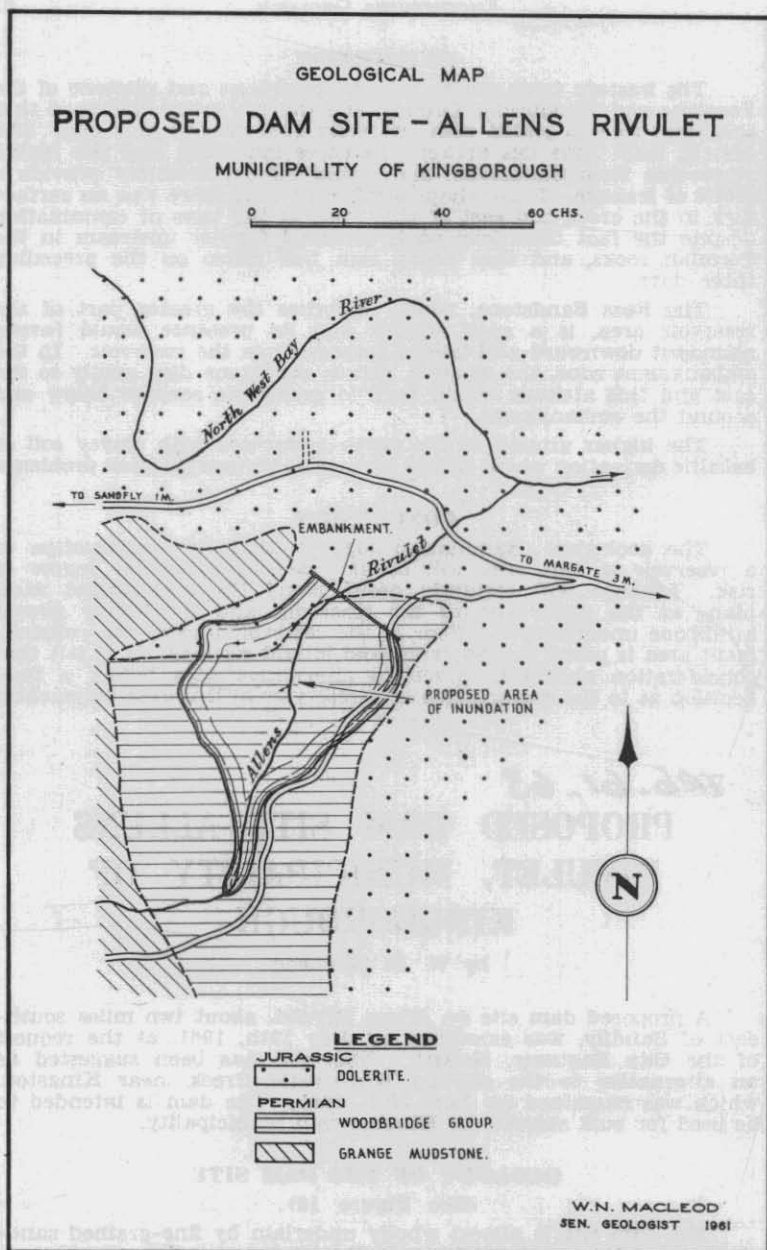


FIGURE 16.

5 cm

which forms much of the higher ground in the environs of the site, including Hickmans Hill (1070 feet) on the eastern side. The Permian sediments in the dam site area have been assigned to the Woodbridge Group. To the west these are conformably underlain by the older Grange Mudstone which includes a similar assemblage of rock types. Both groups are richly fossiliferous and well-bedded in units up to 18 inches thick with frequent intercalations of more fissile mudstone. Exposures of the sediments are rare, but the typical assemblage can be clearly observed in the small quarry on the branch road crossing Allens Rivulet, near the southern extremity of the area to be inundated. The sediments show a general dip to the south of less than 3° . There are two close and persistent vertical joint systems.

In the area north-west of the dam-site, and in the vicinity of the embankment, the proximity of the dolerite has caused induration of the sediments and some measure of recrystallization to produce dense hornstone and quartzite.

The valley floor is covered with a shallow deposit of bouldery alluvium which provides the best ground for cultivation.

HYDROLOGY

There are no adverse geological features for the construction of a reservoir in this area. The fine-grained Permian mudstone and siltstone are of low permeability, this feature has been enhanced by induration over a wide area. No faults are apparent, and if any did exist, the nature of the rocks is such that the fault planes would probably be sealed by clayey pug. At the embankment site, the western wall of the valley is underlain at shallow depth by fresh dolerite which provides an excellent foundation. The eastern side is underlain by indurated mudstone upon which only a shallow soil cover is developed. Only minor leakage along joint planes could be expected.