

PROPOSED DAM SITE - ESPERENCE RIVER

The proposed dam site is situated on the Western Branch of the headwaters of the Esperence River about ten miles from the main South Road at Raminea. It may be reached by driving along the New Forestry Road for six miles (at this date) to near the end of the old tram that followed the Esperence River; and then following a cut track for about three miles to the confluence of the two branches and half a mile beyond.

The Forestry Commission have commenced investigations of a water supply for a proposed Rayon Industry at Dover and have selected this site to construct a dam wall of about 90 feet in height. However, the investigation is still in a very early stage and I understand that no engineer has yet visited the locality or marked out a definite site.

From a geological point of view there are two main questions to answer.

1. Suitability of rock for constructing a dam wall.
2. Ability of the basin behind the wall to hold water.

This western branch of the Esperence flows across an extensive plain underlain by sandstone and mudstone until it breaks through a dolerite hill to join the main stream. It is in this dolerite hill that the suggested dam wall may be built. Dolerite itself makes an excellent foundation for a dam and no faults are apparent in the hill. There is just one word of warning however. Dolerite is not always the hard solid continuous rock that outcrop suggests. Along joints it weathers very deeply to a soft clay. At this point, from the creek bed to 90 feet above, there is no really solid outcrop and the depth to solid rock may vary considerably. It should be noted too, that although the hillside rises steeply to about the 40 foot contour on either side of the Creek, it flattens considerably particularly on the south side, from then on and a dam wall, 90 feet high, would have to be many hundred feet long. Therefore as far as the site for the dam itself is concerned it may be said that, from a geological point of view, it is quite suitable but many test holes would need to be put in before any definite information could be given as to depth to bedrock.

The rock underlying the basin is not quite as suitable. Unfortunately, the plain seems to be entirely covered with soil and undergrowth and no outcrop could be found. However the nature of the soil and small pieces of rock found in the Creek suggest that the dolerite has intruded Triassic Sandstone. Pieces of harder Permian mudstone in the Creek also show that farther west the creek flows through this rock. From a water carrying point of view then there are three factors

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which must be considered.

1. Is the dolerite faulted against the sandstone or is it intrusive?  
I don't think a fault exists between these rocks. Fine grained dolerite seen near the boundary suggests an intrusive contact.
2. Sandstone is a permeable rock and will therefore absorb water. However I consider that the water table is quite close to the surface in the plain area and that the dolerite hill acts as a natural dam just below ground surface. Thus it would not take long for all the rock and soil to absorb water and become saturated.
3. Will the dam lose water in the fault between the mudstone and sandstone? It is not certain where this boundary is, and it may not even be within the water storage area. However, even if it is, I should think it would be sufficiently filled with fault pug to comfortably hold any water.

It would thus appear that from a geological point of view, this site is suitable, but a great more preliminary work is required before any definite decision is given. It is suggested that when a definite site is chosen, holes be put down at about 40 feet intervals to bed rock and also a few holes put down in the plain to bed rock. A geologist could then again visit the site.

Sgd. Terence D. Hughes

GEOLOGIST

The Department of Mines,

HOBART

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