

## UNPUBLISHED REPORT 1963/14

### Flagstaff Gully Dam

by I. B. Jennings

Various examinations of the Flagstaff Gully dam have been carried out because of leakage problems(Jennings, 1964a, 1964b).

The downstream portion of a second leakage path has been examined and a sketch plan and sections are attached. The floor and roof of this section of the pipe were well defined, but in places the clay along the walls was soft and wet and the precise boundaries were difficult to place.

The relevant feature of this portion of the pipe is that there is no evidence for erosion, apart from minor lateral spreading, entirely within the clay. The pipe apparently developed along the clay/rock interface and its course appears to have been determined originally by irregularities on the rock surface. A strong joint, or step, was noted roughly following the leakage path but no evidence could be found for leakage along the joint itself.

These findings confirm some of the points raised by the consultant engineers in their letter dated 18 November 1963. From a geological point of view the following is the position. The failure of this dam has been attributed to leakage along joints or structures in the bedrock which resulted in piping along the surface of the bedrock. However, despite careful examination no structure which could have caused sufficient leakage to initiate piping of this kind in a normal clay has been found, although it is accepted that the bedrock would have been saturated with pore water. In view of these findings I considered that there was sufficient justification for re-examining the physical and mineralogical properties of the clay. The presence of silty bands within the clay is only one of several aspects which should be examined in this connection. Preliminary tests have also been made on the mineralogical composition of the clay and other tests may be desirable. A complete investigation of the properties of the clay would probably lead into fields beyond the scope of normal geological investigations.

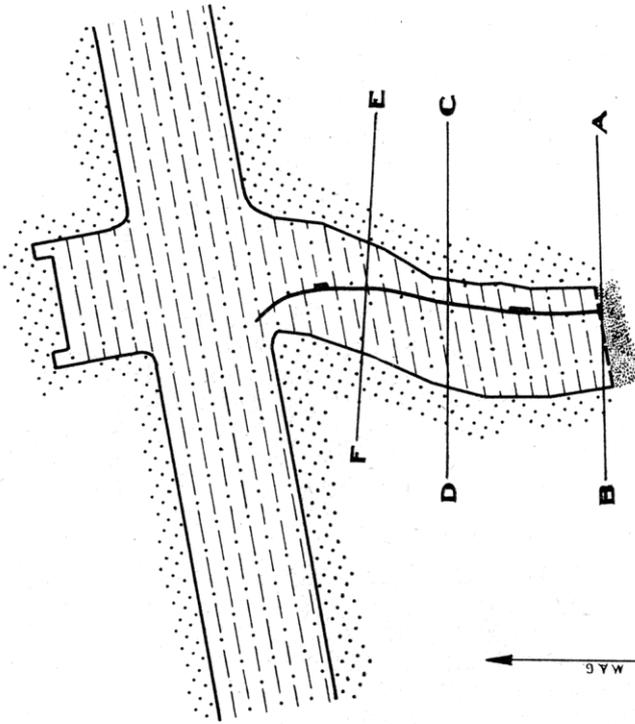
#### References

- JENNINGS, I. B. 1964. Foundation conditions at Flagstaff Gully dam. *Tech. Rep. Dep. Mines Tasm.* 8:115–118.
- JENNINGS, I. B. 1964. Further explorations at Flagstaff Gully dam. *Tech. Rep. Dep. Mines Tasm.* 8:118–121.

[4 December 1963]

SKETCH PLAN & SECTIONS  
 EXPLORATORY WORKINGS IN FLAGSTAFF  
 GULLY DAM

DOWNSTREAM PORTION OF NO 2  
 LEAKAGE PATH



E-F



C-D



A-B

- CLAY .....
- FILTER MATERIAL .....
- HACKLY JOINTED MUDSTONE .....

JOINT WITH DIP .....

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