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LAWRENCE VALE LANDSLIP

Meeting held at Launceston Town Hall on 20.6.60

Present. Director of Mines (Chairman) Dr. Aitcheson (C.S.I.R.O.) Messrs Gill (Geological Consultant) Weibenga and Carter (Bureau of Mineral Resources) and Hughes (Tas. Mines Department).

Purpose A request had been made by Dr. Aitcheson and Mr. Gill that Seismic and other geophysical work be carried out by the Bureau of Mineral Resources to provide further information for their study of the slips in the Launceston area. The purpose of the meeting was to enquire if this work could be carried out by the Bureau and if so was it important to the investigation. This request had first been made in December of last year but the meeting had been delayed for various reasons and already the Bureau had done some preliminery work, principally the logging of drill holes for gamma ray and resistivity tests.

Scope Originally the investigation was of the land slips in the Lawrence Vale Area, their causes and remedies. In 1957, Mr. T. Hughes of Mines Department examined the area and in discussions with & reports to the Launceston City Council suggested certain remedies nad precautions, such as more adequate drainage and building restrictions. Professor Carey, who was engaged by the Launceston City Council in 1958 for this investigation called in Dr. Aitcheson of C.S.I.R.O. and Mr. G. Gill of the Victorian Museum an authority on Tertiary Terrestial Sediments. The sedimentation, hydrology and structure of the area proved much more complicated than at first anticipated and during their investigation other information was sought from them, such as foundations for the Queen Victoria new Hospital on Windmill Hill and the Marine Board's new Graving Dock. These gentlemen therefore wish to extend the scope of their investigations to cover the whole of Launceston underlain by Tertiary Sediments, and area approximately two miles in length and one mile wide. When this investigation is complete and plans and reports lodged with the Launceston Council, they state that no further investigations will be necessary.

Investigations by Bureau required

1. Gamma Ray and Resistivity Tests. Contract drilling has been going on for some time and the Bureau has already applied these tests to the holes drilled. It is proposed to drill another 40 to 50 holes at an average depth of 200 feet and core about 1 in 5. The Bureau will continue to log these holes.

2. Seismic Survey. It is desired to have the Bureau carry out a seismic survey to learn the depth to the top of the dolerite over a wide area. From this survey it is hoped to decipher the general structure of the area, (dips, faults etc.) Mr. Weibenga is not enthusiastic about carrying out a seismic survey on such a built up area, with steep slopes and interrupted by outside noises but is

willing to recommend that it be carried out for a limited period only (3-4 weeks) in November - December 1960. He guarantees accuracy to about 10% and states the outside costs (labour, explosives) would be about £120 per week.

Costs. Thus the costs for the Seismic Survey would approximate £400.

It is presumed that there would be little or no cost for the gamma ray and resistivity tests.

Costs of future boring 40 - 50 holes, average 200 feet at £1 per foot £8000 - 10,000.

For studying movements in situ-instruments, plastic tube etc. £1,000.

Causes of Slip. In the slip area, Tertiary beds of several hundred feet in thickness overlie the dolerite basement. These beds are very complicated being formed of various layers of clay and greywacke sands and gravels differing in thickness and relative position all over the area. Both the Tertiary beds and underlying dolerite have been faulted by two series of movements, one roughly north and south, the later one East and West. Thus the aquifer beds are most irregular and perched water tables common along the critical area, which is the hill formed of Tertiary beds running south from Windmill Hill. The beds dip to the west on the western side (Lawrence Vale) and to the east, on the eastern side (hospital site). Mr. Gill states that slipping can take place in the following formations:-

1. Rock debris in fault zones
2. Plastic clay beds
3. Carbonaceous bands
4. Montmorillonite beds near surface and

that any dips in the beds of more that 5° are suspect. The Lawrence Vale slips are a series of secondary slips on an old slip probably extending down 60 feet.

Terence D Hughes

(T.D. Hughes)
SENIOR GEOLOGIST.
23.6.60.