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24. PRELIMINARY REPORT ON THE SITE FOR A PROPOSED BRIDGE FROM ABATTOIRS POINT TO COURTOY'S POINT

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INTRODUCTION

It is proposed to investigate the geological conditions which would be encountered in a bridge from Abattoirs Point to Courtoy's Point via Dowsing Point. The rock distribution of a general area surrounding the proposed bridge is shown on the accompanying plan. Additional reconnaissance of the shorelines in the vicinity of the abutments of the proposed bridge was carried out by R. Jack on 31st July, 1962. The following remarks are based on this information together with the report on the Tasman Bridge by Carey and Spry (1961) and earlier geological notes on the Hobart district by Lewis (1946).

The early work by Lewis suggested that in an earlier cycle of erosion the Derwent River occupied a course running through Glenorchy, Moonah and New Town, now filled by the "Tertiary" deposits shown on the geological map. This suggestion was supported tentatively by Carey and Spry (1961) but at present no conclusive evidence is available.

If this view is correct it is reasonable to expect that the deep infilled channel between piers 4 and 8 on the Tasman Bridge will be absent in the bed of the river above Cornelian Bay. How-

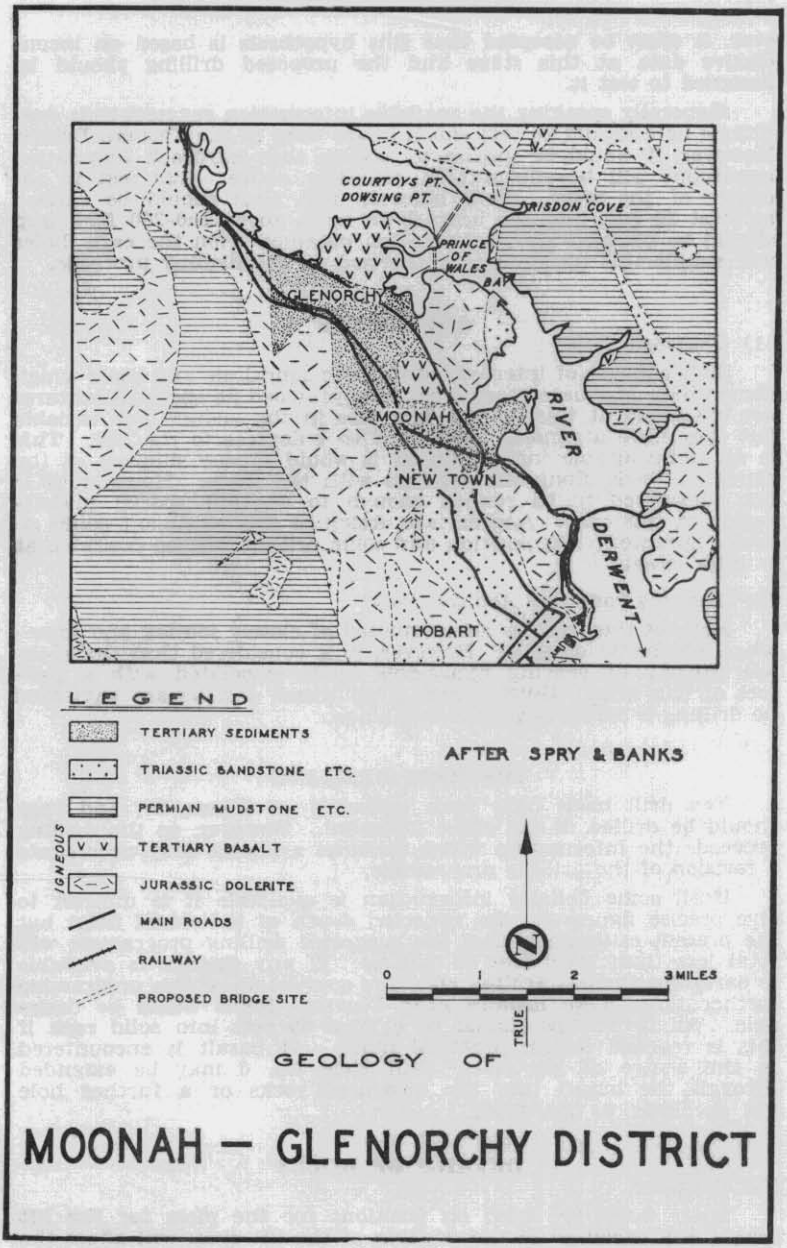

FIGURE 27.

5 cm

ever, it must be accepted that this hypothesis is based on inconclusive data at this stage and the proposed drilling should be designed to test it.

Generally speaking the available information suggests that conditions here should be very much better than at the Tasman Bridge. However, it would be unwise to assume that hardrock foundation conditions will be encountered generally above —130 feet in the centre of the river. Drill holes in this zone should be carried at least 30 feet into the bedrock so holes about 150-200 feet deep should be planned for. Information obtained from the early holes will enable this estimate to be revised as the drilling proceeds.

ABUTMENTS

(1) *Courtoy's Point*

This consists of interbedded Triassic sandstone and shale which should have adequate bearing capacity provided no special structures are envisaged at this point. The dips in the vicinity are variable but they have a general trend of 3 to 4 degrees to the SW. This is an unfavourable inclination as it would favour slippage of the sandstone beds along the partings with the shale. However, it is not considered to be serious enough to warrant special investigation at this time. Appropriate design of this abutment could do much to remedy this position and some drilling will be desirable at a later stage.

(2) *Dowsing Point and Abattoir Point*

Both of these points are composed of closely jointed and somewhat weathered dolerite. However, it is considered that the rocks are capable of bearing reasonable loads associated with a project of this kind. Unless unusual abutment designs are envisaged no drilling is recommended at this stage.

DIAMOND DRILLING

Ten drill holes have been indicated on Figure 27, and they should be drilled in the order indicated. However, as the drilling proceeds the information which becomes available may necessitate a revision of the drilling programme.

Until some definite information is available it is difficult to give precise figures on the expected depth of individual holes but the present estimate is that the suggested drilling programme will total less than 1,500 feet of drilling. If any finance is available to carry out further drilling after the completion of this programme further holes close inshore near Courtoys Point would be desirable. All drill holes should be carried 30 feet into solid rock if this is reached within practical limits. If basalt is encountered in the centre of the river, Drill Hole No. 6 may be extended through the basalt into the basement rocks or a further hole put in closer to the shore.

DETAILS OF HOLES

Nos. 1 *and* 2.

These holes are sited on positions for the piers for the lift span. Any variation in the position of the lift span will affect the position of these holes which should be moved accordingly.

Nos. 3 *to* 7

Are required to test foundation conditions in the bed of the river. They are spaced at 400 feet intervals and should reveal any infilled channel of similar dimensions to that found at Tasman Bridge between Piers 4 and 8.

Nos. 8 *to* 10

Are required to test the foundation conditions across the mouth of Prince of Wales Bay. As it is possible that this bay represents a tributary of the old course of the Derwent when it ran through New Town and Moonah there is a distinct possibility that the bedrock in this area is significantly lower than elsewhere.

REFERENCES

CAREY, S. W. and SPRY, A., 1961.—Geological investigations of the Tasman Bridge site. *Unpublished report.*

LEWIS, A. N., 1946.—Geology of the Hobart District. *Roy. Soc. Tas.*