UR1973_42

Stability of land, Glen Dhu area, Launceston

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Messrs Tandy, Pryor and Rogers, architects, of Launceston requested advice, on behalf of a client, on the stability of a piece of land in Glen Dhu St where it is proposed to build some 80 residential apartments in two storey blocks.

The land is situated between Westbury Road and Glen Dhu Street and on the south side of Rose Lane. It is near the bottom and just to the east of a S-N valley.

GEOLOGY

The area is underlain by Tertiary sediments of the Launceston Beds. These sediments occur upslope to the east and about 15 m up the slope to the west, above which Jurassic dolerite occurs. The Tertiary sediments consist of sand and clay beds, the sand beds often containing mud pellets. The land is situated in an area that was previously used as a clay pit for a brick works. The pit has not been worked for at least 25 years. The floor of the pit has since been covered by fill. The sand beds are best exposed in the southern part of the excavation and stand in almost vertical cliffs.

DISCUSSION OF STABILITY

A landslip which Carey (1958) thought was a slip circle failure occurred in the material behind the pit face and affected Westbury Road. Carey suggested fill should be placed on the toe of the slip i.e. in the clay pit, to stabilise it. Some fill has been placed in the clay pit but movement of the slip is still continuing as evidenced by the regular repairing that is required in Westbury Road. However, the fill does not seem to have been disturbed by these movements.

It seems unlikely that the area of land near Glen Dhu Street (i.e. the land at least 35 m from the steeper land forming the faces of the old clay pit) will be affected by landslip although the possibility should not be completely disregarded. If the slip is a rotational one, then the added weight of the buildings will produce additional stabilising effects. Excavation in the pit or around the slopes could produce further widespread movement of the slip.

Although risk of landslip effects is small, difficulties could be experienced with the foundation material. Settlement could occur if the buildings are founded in the fill and the Tertiary sediments underlying the fill could have a low bearing strength. Investigations of these possibilities should be made. It is possible that if dolerite occurs at shallow depth beneath the area, then the foundations could be founded on this rock.

SUGGESTED INVESTIGATIONS

(1) If the depth to bedrock (probably dolerite) is small, it could be determined approximately with a small seismic survey. The Department could undertake this work if required. This would indicate whether founding the structures on basement rock would be feasible. Drilling would be required to confirm the seismic results and also to examine the overlying material.

(2) If bedrock is not at shallow depth or it is not feasible to use it as a foundation material, then the fill and Tertiary sediments should be

drilled and their bearing capacity and potential for settlement should be determined. This would probably require the drilling of 4-6 holes to 15-25 m in depth and should be done under the supervision of an engineer who is expert in soil mechanics.

It is likely that some difficulty could be experienced in drilling through the fill as a wide variety of materials is often used for this purpose.

REFERENCE

CAREY, S.W. 1958. *Preliminary examination of landslides in Lawrence Vale area, City of Launceston.* [Report to City Council].

[28 May 1973]