UR1975_44

Foundation conditions at Ravenswood.

W.L. Matthews

The Housing Department requested advice on the depth to solid foundation on an area of land at Ravenswood [EQ146148] where it is proposed to build villa units. Some test pits were dug by the Housing Department and revealed peaty soil overlying brown silty clay with some water. The area forms part of a new subdivision being developed by the Housing Department north-east of the centre of Ravenswood. Seismic work has been undertaken to indicate the depth of bedrock.

GEOLOGY AND RELIEF

The subdivision is being developed in a NW-trending valley between two low ridges. The lower parts of the valley are relatively flat.

The ridges on either side of the valley are underlain by dolerite and the slopes and floor of the valley by Tertiary sediments and perhaps some thin Quaternary deposits at the surface.

SEISMIC SURVEY

Three seismic spreads were fired in the position shown on the sketch plan (fig. 1). The interval between geophones and between the shot point and the first geophone was 7.6 m. An extension shot 30.5 m from the first geophone was fired on the south end of Spread 1.

The results of the seismic spreads are summarised in Table 1.

Table 1. RESULTS OF SEISMIC SPREADS

Spread No.	*First Layer (V_0)*		*Second Layer (V_1)*
	Velocity (m/s)	*Thickness (m)*	*Velocity (m/s)*
1	625	2.7-4.0	1830
2	655	2.7-3.7	1800
3	610	2.7-4.0	1920

The extension shot on the end of Spread 1 only indicated a maximum velocity of 1830 m/s which is the same as that indicated with the 7.6 m shot distance.

It is apparent that the surface material (2.7-4 m thick) is soil and relatively unconsolidated material. The material underlying it could be any of a variety of materials - weathered dolerite, weathered Permian rock or possibly laterite which often occurs near the contact of dolerite and Tertiary sediments in the Launceston area. It is possible also that the higher velocity material is Tertiary sediments although these tend to exhibit seismic velocities in the range of about 1100-1500 m/s in an undisturbed state below the water table. Consolidation processes may have occurred to produce a more compacted material which is common in other areas.

CONCLUSION

From the results of the seismic spreads, it is apparent that 2.7-4 m of soil and unconsolidated material overlies much more compact material.

This lower material may be weathered dolerite, weathered Permian sediments, laterite or possibly compacted Tertiary sediments. Drilling could be undertaken to identify the lower material.

[27 June 1975]

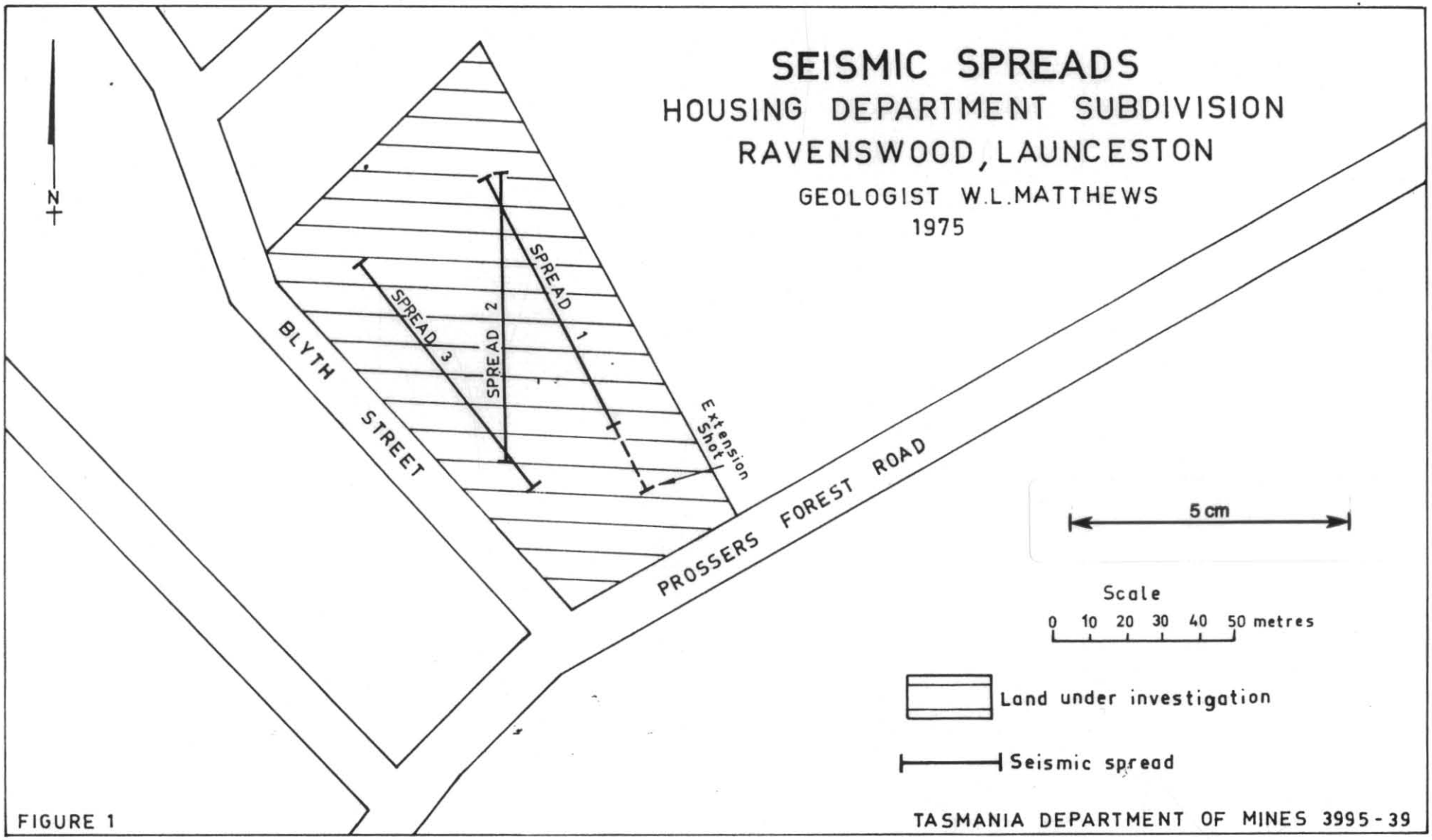
SEISMIC SPREADS
HOUSING DEPARTMENT SUBDIVISION
RAVENSWOOD, LAUNCESTON
GEOLOGIST W.L.MATTHEWS
1975
N
SPREAD 1
SPREAD 2
SPREAD 3
Extension Shot
BLYTH STREET
PROSSERS FOREST ROAD
5 cm
Scale
0 10 20 30 40 50 metres
Land under investigation
Seismic spread
TASMANIA DEPARTMENT OF MINES 3995-39

FIGURE 1