TR13-108_110

16. SEISMIC SURVEY, GORGE BRIDGE SITE, LAUNCESTON

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INTRODUCTION

At the request of the Public Works Department a seismic survey was undertaken at the site of the N abutment of the proposed E bridge over Cataract Gorge, Launceston.

GEOLOGY

Geological mapping of the area has shown a major fault passing close to or through the site and the following rock type sequence would be expected.

Rock type	Depth (maximum)
Recent Alluvium (mud and soil)	30
Tertiary Clay and Gravel	130
Jurassic Dolerite	1,000

GEOPHYSICS

Methods and Equipment

A portable 12 channel refractor seismograph manufactured by Geospace Corporation, Houston, Texas, and Hall-Sears X2 model K Geophones with a natural frequency of 14 cycles/second were used.

Four spreads composed of 12 geophones spaced 100 feet apart covered the site (see fig. 23). Charges of gelignite were detonated on the river bed and in shot holes approximately 6.0 feet deep on the land. The shot holes were placed 10 feet, 100 feet and 200 feet from the spread where possible.

Results

The velocities of the longitudinal seismic waves observed from the different layers were:—

Rock type	Seismic velocity (feet/second)
Alluvium	1,250
Clay	5,500
Dolerite (weathered)	6,750
Dolerite (unweathered)	10,000

The seismic results are shown as profiles on cross section 1 to 4 inclusive (fig. 24) and as contours on dolerite on the site plan (fig. 23). All heights are based on state datum.

CONCLUSION

The area investigated shows an eroded fault scarp of dolerite which has been covered by Tertiary clay and Recent alluvium and would be considered unsuitable for an abutment foundation area.

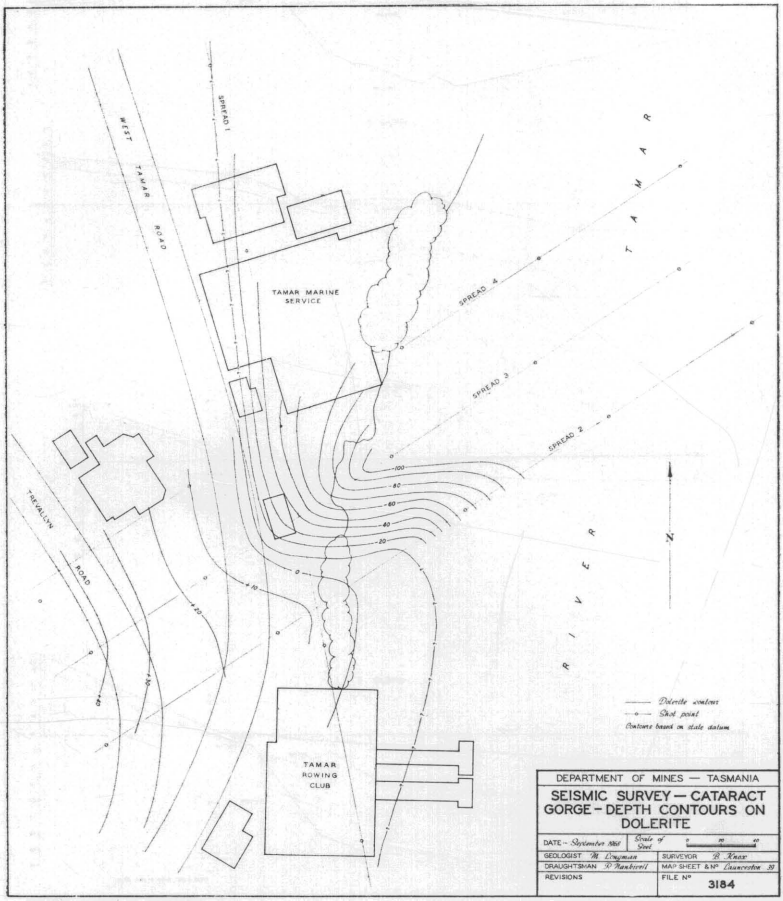

FIGURE 23.

5 cm

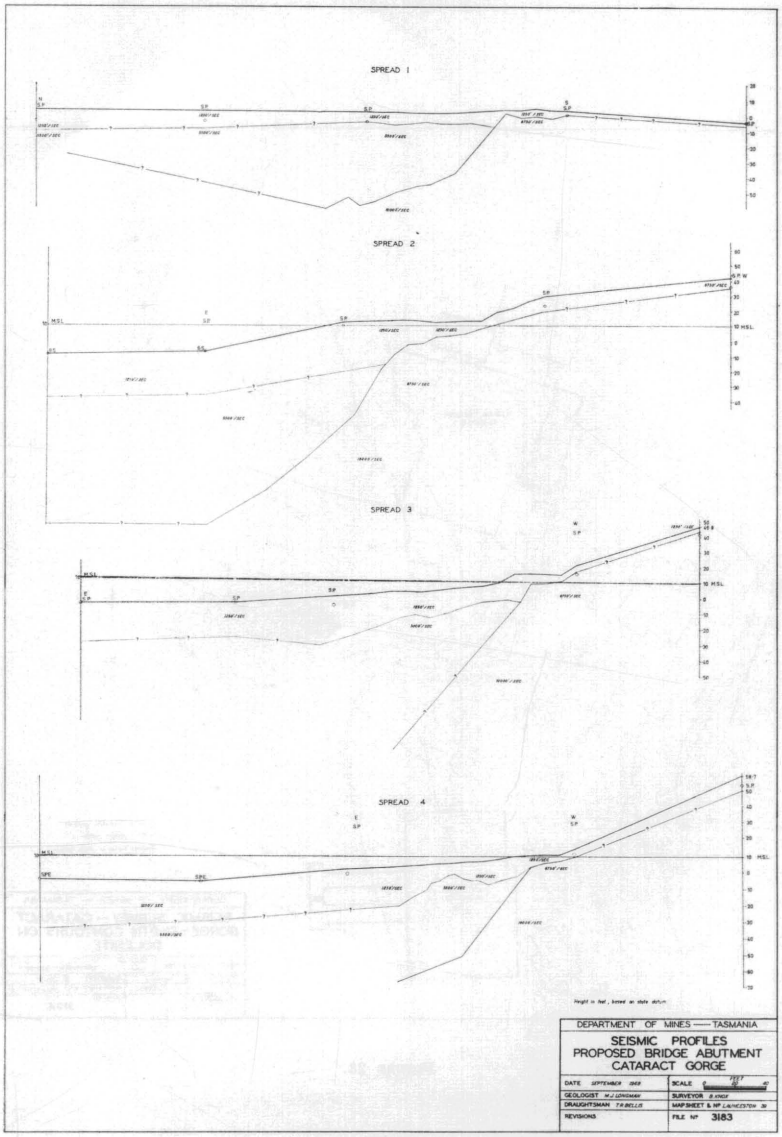

FIGURE 24.

5 cm