

TR13-100-103

11. SEISMIC SURVEY, DEPARTMENT OF THE ARMY, DOWSING POINT, HOBART

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INTRODUCTION

At the request of the Commonwealth Department of Works a seismic survey was undertaken at the proposed vehicle coverage site to determine the depth of weathered rock overlying the bed-rock.

GEOPHYSICS

Methods and Equipment

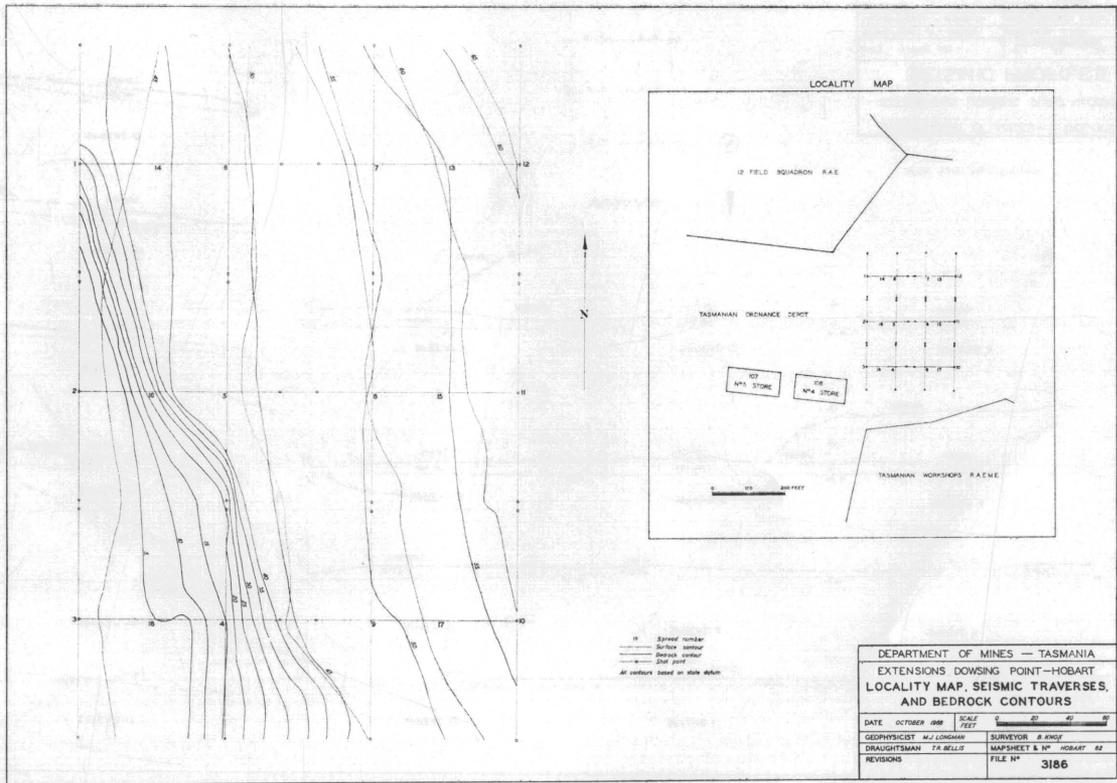
The seismic equipment used was a portable 12 channel refractor seismograph type GT2 manufactured by Geospace Corporation, Houston, Texas and Hall Sears type X2 model K geophones with a natural frequency of 14 cycles/second. The equipment was modified to record 0.2 milliseconds.

Eighteen spreads were used to cover the site. Each spread was composed of 12 geophones spaced 10 feet apart with shot holes approximately 3 feet deep spaced 10 feet from each end of the spread. All spreads were overlapped to provide adequate check coverage (see fig. 20). An Olivetti Programma 101 was used for all calculations and an accuracy of $\pm 5\%$ for the first layer and $\pm 10\%$ for the second layer is expected.

Results

The velocity of longitudinal seismic waves observed from the layers are:—

Rock type	Seismic waves (feet/second)
Soil and fill	800
Unconsolidated clay and sand	2,750-4,000
Weathered dolerite (harder material with faster speed)	5,500-8,750



The seismic results are shown as profiles on sections 1 to 18 (fig. 21) and as contours to bedrock on the site plan (fig. 20). All heights are based on state datum.

Soil and fill covers the whole site and is from 3 to 9 feet thick. In the N the soil rests directly on weathered dolerite and in the S on clay. Crossing the site is a buried cliff with over 35 feet of clay indicated on the N side.

CONCLUSIONS

As it is intended to level the site the majority of the material to be removed would be solid dolerite. The seismic velocity of this material is high and indicates that blasting will be necessary.