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Seismic survey at a proposed reservoir site near Barrington.

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Abstract

A seismic survey was carried out at a proposed reservoir site near Barrington. Seismic data indicate that rock within 8 m of the surface will be rippable.

INTRODUCTION

A seismic survey was carried out on a proposed reservoir site near Barrington [DQ388200] following a request from Pitt and Sherry, consulting engineers.

The reservoirs are to be located on the northern side of a small hill which slopes at approximately 12° in this direction. The geological map of the area indicates that Cambrian Gog Range Greywacke is the underlying rock type. The presence of basalt boulders in the vicinity of the proposed reservoir indicates that the hill probably has a thin basalt cap. Cambrian rocks crop out in the vicinity of a small well at the foot of the hill.

SEISMIC SURVEY

Three seismic spreads (fig. 1) were arranged with a 4-metre geophone spacing. All spreads show that there is no solid bedrock within a depth of at least 8 m below the ground surface. The seismic profiles (fig. 2) indicate approximate depths to the various velocity layers encountered. The main features of the spreads indicate that topsoil or dry silty clay, which may contain basalt boulders, (seismic velocity 300-350 m/s) overlies clay or sandy clay (seismic velocity 600-650 m/s). The latter material may be very weathered basalt containing weathered boulders. Underlying this at a depth of between 5 and 7 m is material with a seismic velocity of 1100-1400 m/s. This may be weathered, basalt-derived material containing basalt boulders or silty-clay material derived from the weathering of the Gog Range Greywacke. The upper surface of this material is undulating.

CONCLUSIONS

All materials are considered rippable by bulldozers to a depth of at least 8 m from the ground surface. Trial pits may be advisable to determine the nature of the materials of lower seismic velocity (300-350 m/s and 600-650 m/s). The centre of Spreads 1 and 2 would be ideal locations.

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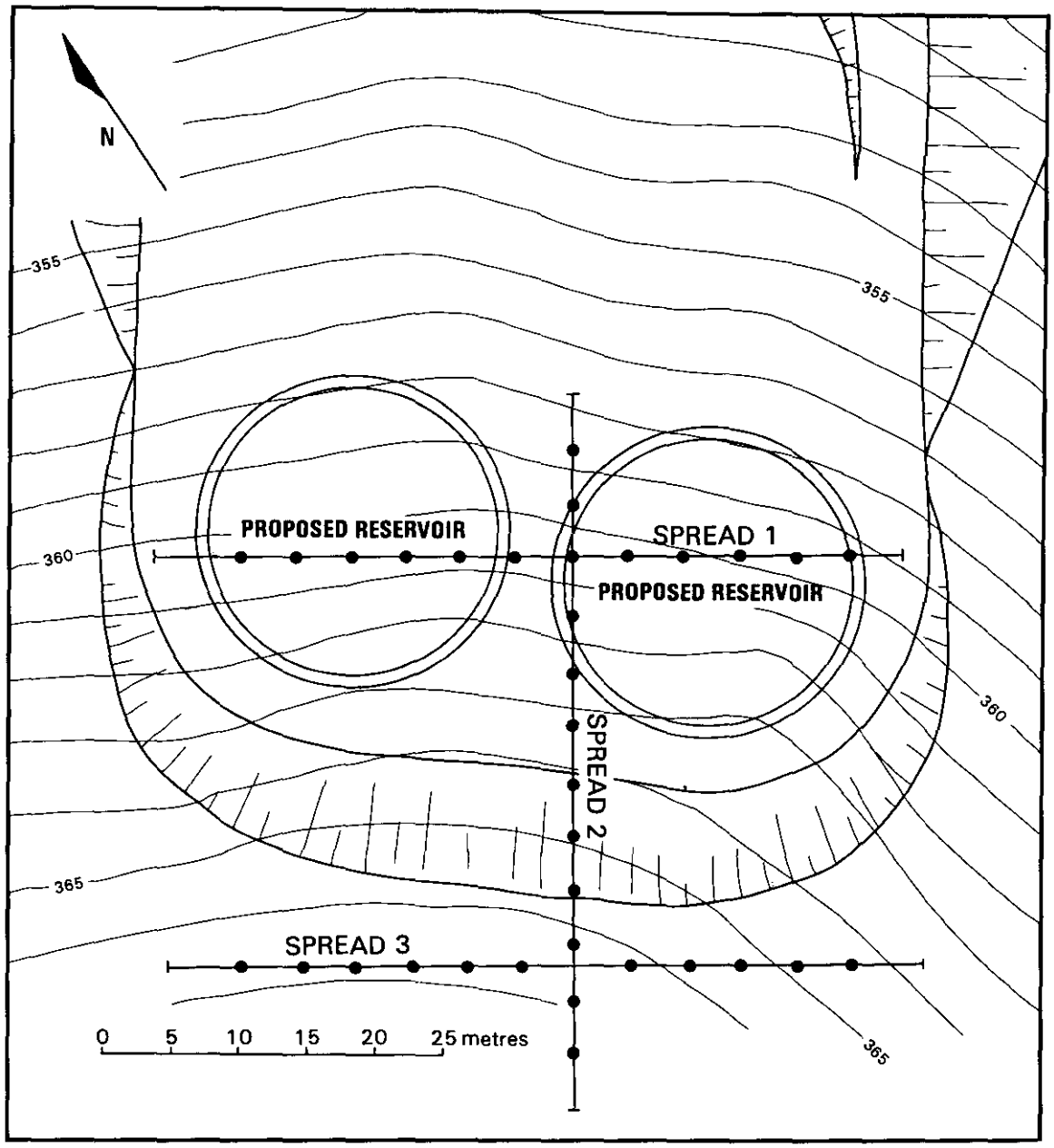

Figure 1. *Location of seismic spreads.*

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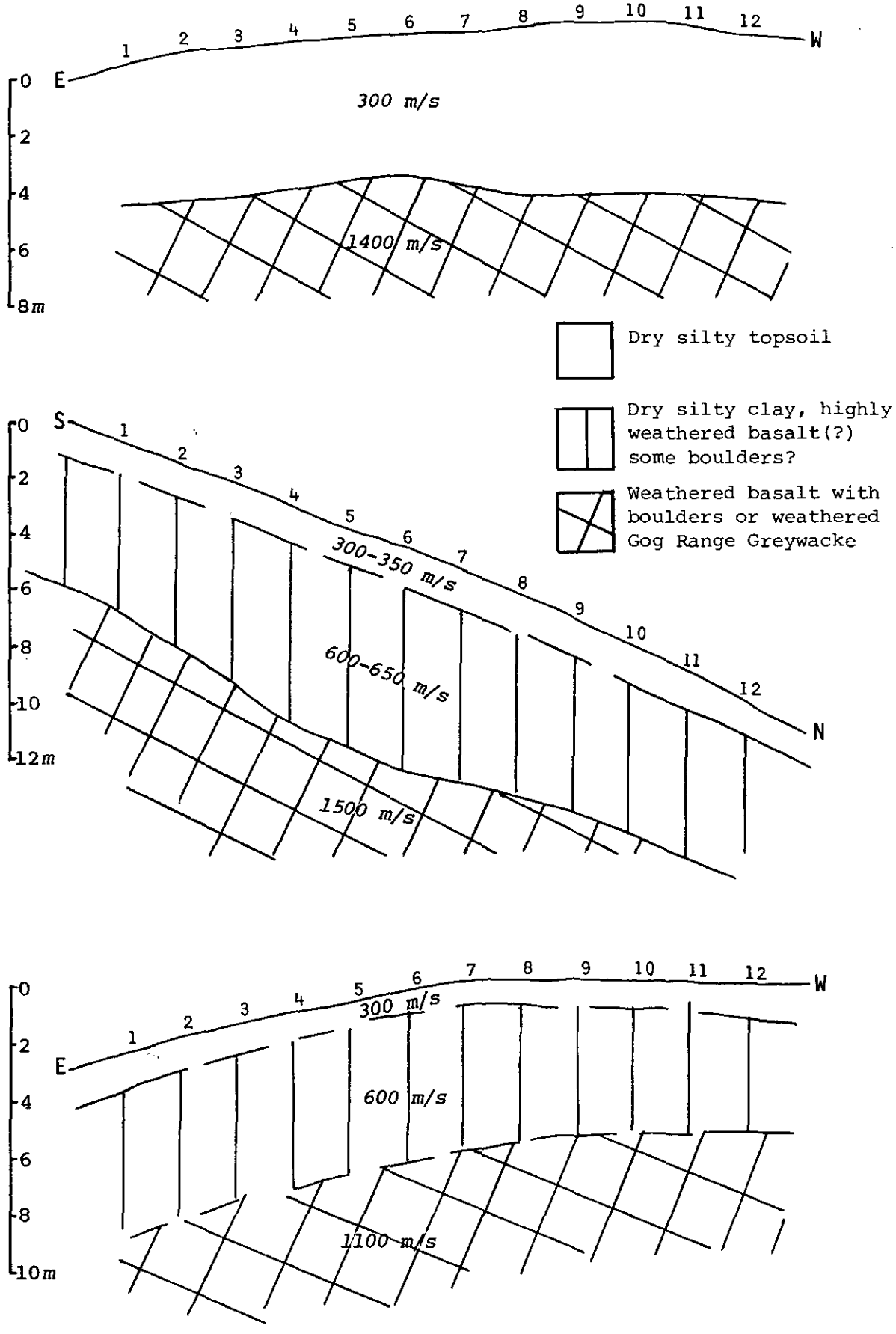

Figure 2. *Seismic profiles, reservoir site, Barrington.*

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