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Supplementary seismic survey—Proctors Road area

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Abstract

A further three seismic spreads were fired in the Proctors Road area, with extension shots and wider geophone spacings. The seismic spreads indicated considerable depths of low and intermediate velocity material.

INTRODUCTION

A further three seismic spreads have been fired in the Proctors Road area (fig. 1) at the request of V. M. Threader, Consulting Geologist. A wider geophone spacing (15 m) was used so that more refractions from deeper levels (and higher velocities) were indicated on more geophones. Extension shots were also fired on the end of each spread (except on the east end of spread 3), which further increased the number of geophones indicating higher velocity. The three spreads were located near the northern part of the area previously examined.

SEISMIC RESULTS

The approximate locations of the spreads are shown on the Figure 2.

The interpreted profiles resulting from firing at each end of the spreads (15 m from the first geophone) and from the extended shots (45 m from the first geophone) are shown separately. Slightly different velocities result from these extension shots.

The depth to fairly definite, competent, close-jointed dolerite in all three spreads varies from about 15 to 30 m, with the extended shot profiles suggesting a slightly lesser thickness of overlying material. As indicated previously (Matthews, 1989), the intermediate velocities (approximately 2200–3500 m/sec) may indicate relatively fresh, open-jointed dolerite or variably weathered rock.

CONCLUSIONS

The wider-spaced seismic spreads suggest that considerable depths of low and intermediate velocity material overlies relatively competent unweathered dolerite. This is consistent with the results of the previous survey.

REFERENCE

MATTHEWS, W. L. 1989. Seismic survey in the Proctors Road area. *Unpubl. Rep. Dep. Mines Tasm.* 1989/25

[24 July 1989]

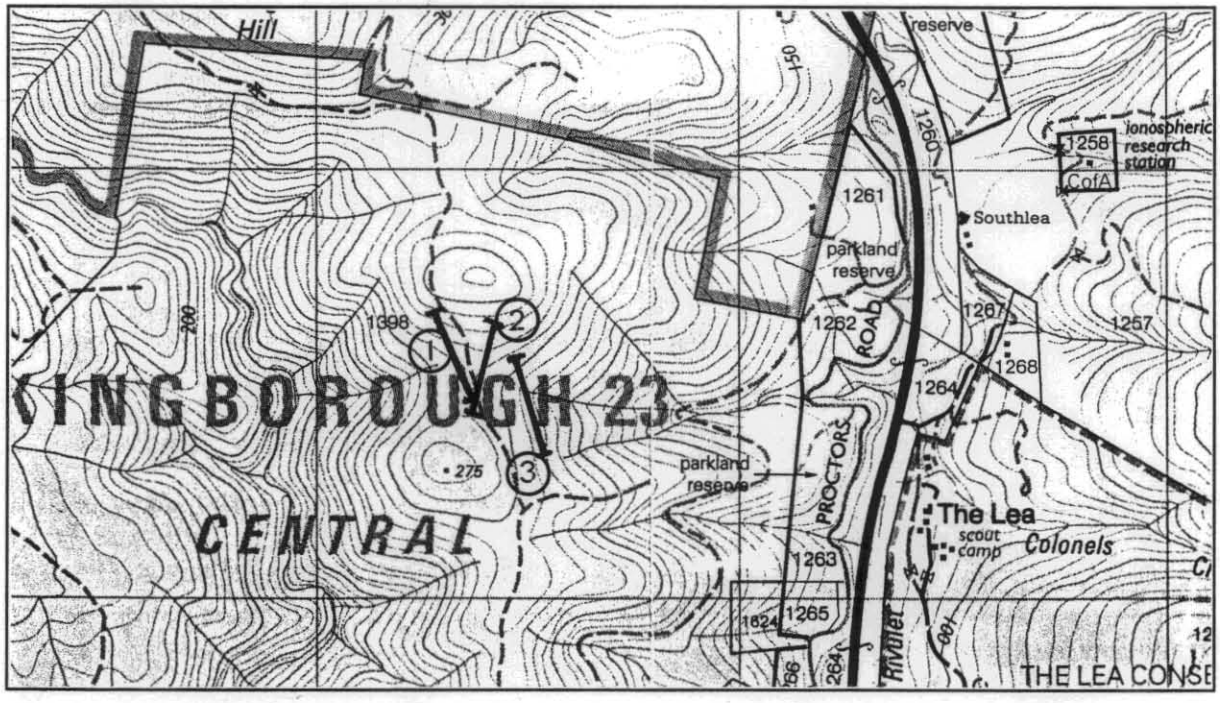

Figure 1. *Location of study area.*

5 cm

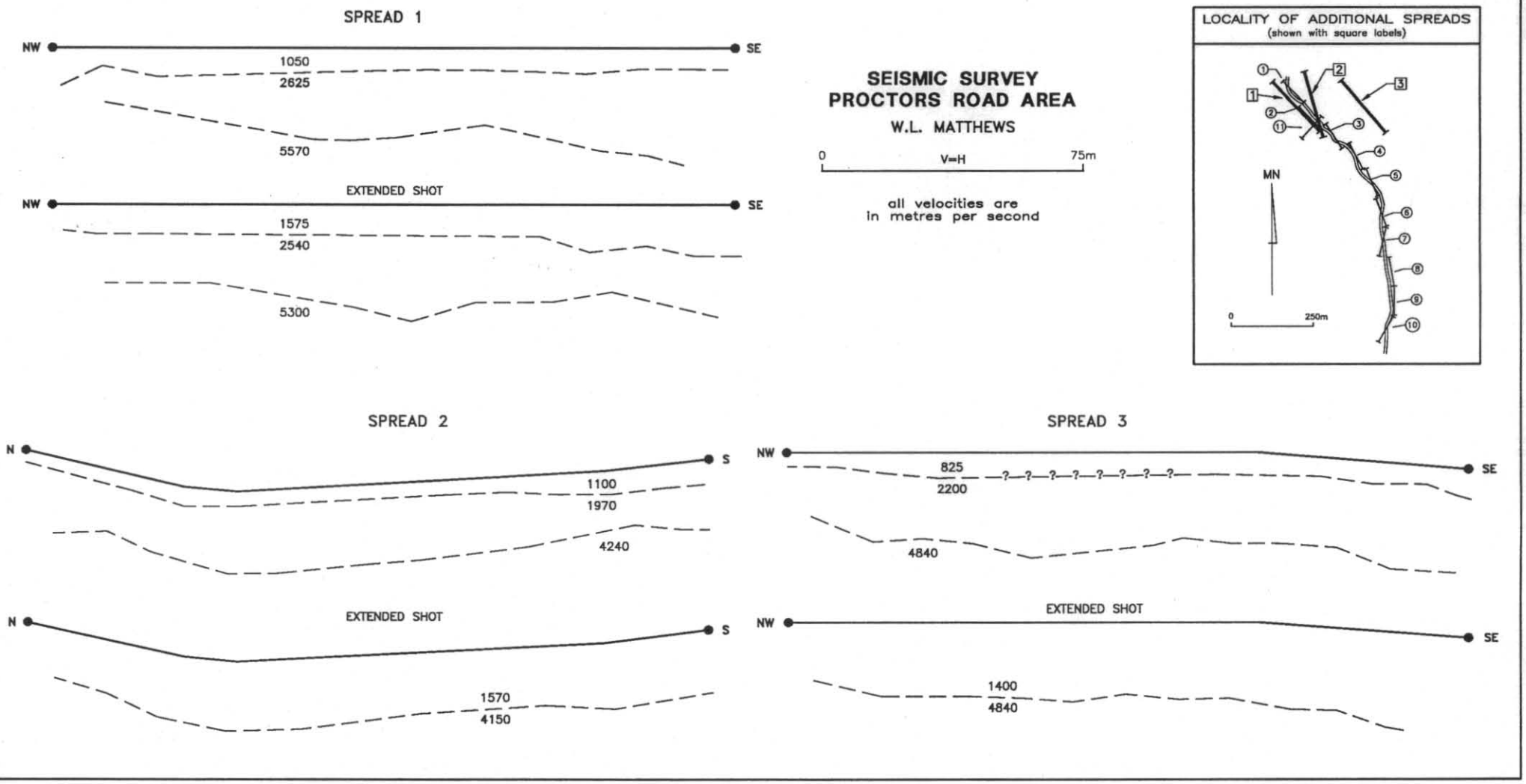
SPREAD 1
NW
SE
1050
2625
5570
EXTENDED SHOT
NW
SE
1575
2540
5300
SEISMIC SURVEY
PROCTORS ROAD AREA
W.L. MATTHEWS
0
V=H
75m
all velocities are
in metres per second
LOCALITY OF ADDITIONAL SPREADS
(shown with square labels)
MN
0
250m
SPREAD 2
N
S
1100
1970
4240
EXTENDED SHOT
N
S
1570
4150
SPREAD 3
NW
SE
825
2200
4840
EXTENDED SHOT
NW
SE
1400
4840

Figure 2.

5 cm

APPENDIX 1

Time/distance data

Spread 1

Geophone	Time (m/sec)	Distance (m)
North-west end		
0	-	0
1	14	15
2	26	30
3	28	45
4	32	60
5	34	75
6	41	90
7	42	105
8	44	120
9	47	135
10	54	150
11	56	165
12	59	180
South-east end		
0	-	0
1	16	15
2	22	30
3	29.5	45
4	34.5	60
5	40.5	75
6	45	90
7	51	105
8	51	120
9	53.5	135
10	56.5	150
11	60	165
12	61	180

Extension shot

North-west end		
0	-	0
1	26	45
2	32	60
3	35	75
4	38	90
5	40	105
6	45	120
7	49	135
8	50	150
9	53	165
10	55	180
11	59	195
12	64	210
South-east end		
0	-	0
1	32	45
2	36	60
3	43	75
4	45	90
5	50	105
6	52.5	120
7	59	135
8	57	150
9	60	165
10	65	180
11	66	195
12	66	210

Spread 2

Geophone	Time (m/sec)	Distance (m)
South end		
0	-	0
1	17	15
2	25	30
3	31	45
4	37	60
5	42	75
6	48	90
7	50	105
8	55	120
9	61	135
10	61	150
11	61	165
12	63	180
North end		
0	-	0
1	14	15
2	21	30
3	31	45
4	37	60
5	41	75
6	44	90
7	45	105
8	49	120
9	52	135
10	57.5	150
11	58	165
12	62	180

Extension shot

South end		
0	-	0
1	35	45
2	40	60
3	45	75
4	45	90
5	50	105
6	55	120
7	60	135
8	62.5	150
9	69	165
10	69	180
11	69	195
12	69	210
North end		
0	-	0
1	26	45
2	31	60
3	38.5	75
4	43	90
5	45	105
6	48	120
7	50	135
8	52.5	150
9	55	165
10	59	180
11	64	195
12	67.5	210

Spread 3

Geophone	Time (m/sec)	Distance (m)
East end		
0	-	0
1	19	15
2	30	30
3	34	45
4	42.5	60
5	48	75
6	52	90
7	52	105
8	58	120
9	59	135
10	63	150
11	64	165
12	65	180
West End		
0	-	0
1	17	15
2	28	30
3	36	45
4	40	60
5	46	75
6	48	90
7	50	105
8	53	120
9	60	135
10	61	150
11	66	165
12	70	180

Extension shot

West End		
0	-	0
1	32	45
2	42?	60
3	44?, 56?	75
4	47	90
5	52	105
6	56	120
7	56	135
8	62	150
9	64	165
10	70	180
11	70	195
12	80	210