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6611
Part 2 of 2

SHORT REPORT

on a

SEISMIC REFRACTION SURVEY

on the

SV CLAIM GROUP

SKUHOST CREEK AREA, KAMLOOPS M.D., B.C.

Report for:

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by:

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dated:

August 16, 1977

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6611
MAP NO. PART 2 OF 2



GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

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PART 2
OF 2

SHORT REPORT
on a
SEISMIC REFRACTION SURVEY
on the
SV CLAIM GROUP
SKUHOST CREEK AREA, KAMLOOPS M.D., B.C.

The interpretation of data obtained from the seismic refraction survey carried out on the above-named prospect has been completed. A total of four lines, located as shown on the accompanying Figure No. 1, were profiled. These were labelled SL-1 to SL-4 respectively. The purpose of the study was to determine the thickness of overburden, or otherwise, depth to bedrock. The geophysical information presented here is based upon our best interpretation of field data which were collected according to generally accepted field procedures.

The procedure was as follows:

Twelve geophones were planted at 100-foot intervals along the line of investigation. The 'two-way, in-line' seismic refraction method was used. The data were recorded from five shots; 2 500 feet off-end, one at each end and one mid-spread. A 12-channel, SIE Dresser refraction seismic system was used for recording.

In addition to the four profiles, a velocity spread was done in the area of geophones 1 and 2 of each profile.

The data were interpreted by calculating the delay time for each geophone as follows:

1. Pick the first arrivals from the field records and draw time-distance graphs for each spread;
2. With the help of a 'Russian', determine which points are bedrock and which are overburden, and how many layers occur in the overburden;
3. Draw a delay line for each end shot and from this determine the delay time for each geophone;
4. Proportion the delay time for each geophone into the various times spent in the various layers. Multiply each layer time by the corresponding layer velocity to obtain the layer thickness. Adding the layer thicknesses together will give the total overburden depth.

The seismic-interpretted profiles are shown on Figures 2 to 4 and are drawn at a scale of one inch to 100 feet. They are discussed as follows:

SL-1 (Figure 2)

As shown on Figure 2, this is basically a three-layer case. The first layer has a velocity of 1,000 and 1,200 feet/sec and therefore is probably loose surficial sand and/or gravel. The thickness increases up to 38 feet on the

upper part of the profile. The second layer has a velocity of 6,500 to 8,300 feet/sec and in the writer's opinion, is probably water-saturated glacial till, though the 8,300 feet/sec velocity found below geophones one to four is rather high for this material.

The third layer is most assuredly bedrock, having a velocity of 17,100 feet/sec. The depth to bedrock from the surface varies from 52 feet below geophone 1 to 300 feet below geophone 11. This depth appears to decrease significantly a few hundred feet to the north of the profile since the arrival times at geophones 1 to 4 for the shot 500 feet off end geophone 12 was less than those for the end shot at geophone 12.

A low velocity zone was found to occur between geophones 4 and 5 and has been interpreted to be a fault. The width is unknown but is no greater than 100 feet.

SL-2 (Figure 3)

This is a two-layer case with both layers felt to be overburden. The first is the surficial layer of 1,200 feet/sec, and is probably sands and gravels. The second layer has a velocity of 7,800 feet/sec and is probably water-saturated glacial till as was interpreted for the 6,500-8,300 feet/sec layer on SL-1. The depth to this layer varied from 14 to 66 feet.

Because the spread length (1,100 feet) was not long enough, the depth to bedrock on this profile could not be calculated but is estimated to be 300 to 400 feet.

SL-3 (Figure 4)

This profile is similar in many respects to SL-1. It is a three-layer case with the upper layer being loose, unconsolidated surface material with a velocity of 1,000 feet/sec. Its

thickness varies up to 32 feet at geophone 12. The second layer with a velocity of 6,500 feet/sec is interpreted to be water-saturated glacial till, as in SL-1 and SL-2.

The third layer is bedrock with a significantly lower velocity than SL-1 of 13,500 feet/sec. The lower velocity indicates increased fracturing and/or alteration. The depth to bedrock varies from 20 feet below geophone 1 to 207 feet below geophone 11. For the same reason as was mentioned for SL-1, the depth to bedrock decreases significantly a few hundred feet off of the north end of the profile.

A fault could possibly occur between geophones 5 and 6 because of the sharp difference in overburden depth. This would correlate with the postulated fault on SL-1.

Though its precise depth could not be calculated, a high velocity rock was found to occur a hundred or so feet below geophones 1 to 4. This could be the same rock as that with the 13,500 feet/sec velocity, only unfractured, or possibly, a different phase of the Guichon Creek Batholith.

SL-4

Like SL-2, the depth to bedrock could not be calculated on this line. In addition, the thicknesses of the various layers could not be calculated to the same degree of accuracy as the 1,200 feet/sec layer on SL-2, and, therefore, a profile was not drawn of this line.

The time-distance curves show this profile to consist of up to four layers with the first three layers being overburden and the fourth layer, bedrock.

The first layer consists of loose, unconsolidated sediments and has a velocity of 1,500 to 2,000 feet/sec, and a thickness of 8 to 22 feet. The second layer consists of more compact sediments, probably partially water-saturated, and has a velocity of 3,500 to 4,000 feet/sec and a thickness varying from 39 feet below geophone 12 to 108 feet below geophone 1. The third layer has a velocity of 6,200 feet/sec and is thus probably water-saturated glacial till. Its thickness could only be estimated below geophone 1 where it was 275 feet.

The fourth layer is likely bedrock. Its velocity could not be calculated. The depth to bedrock could only be calculated (in an approximate fashion) at geophone 1 where it was about 400 feet.

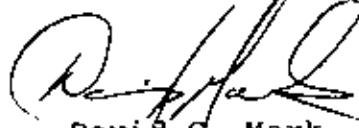
Whether the depth to bedrock increases or decreases towards geophone 12 (near Skuhost Creek) is difficult to determine.

VELOCITY CLASSIFICATION

<u>Velocity (ft/sec)</u>	<u>Suggested Material</u>
1,000 to 2,000	Loose, unconsolidated surface material - noted in field to be very dry and dusty.
3,500 to 4,000 (SL-4 only)	more compact material; velocity typical of sands and gravels.
6,200 to 8,300	water-saturated, dense glacial till.
13,500	lightly fractured bedrock
17,100 to 20,000	bedrock with minimum fracturing

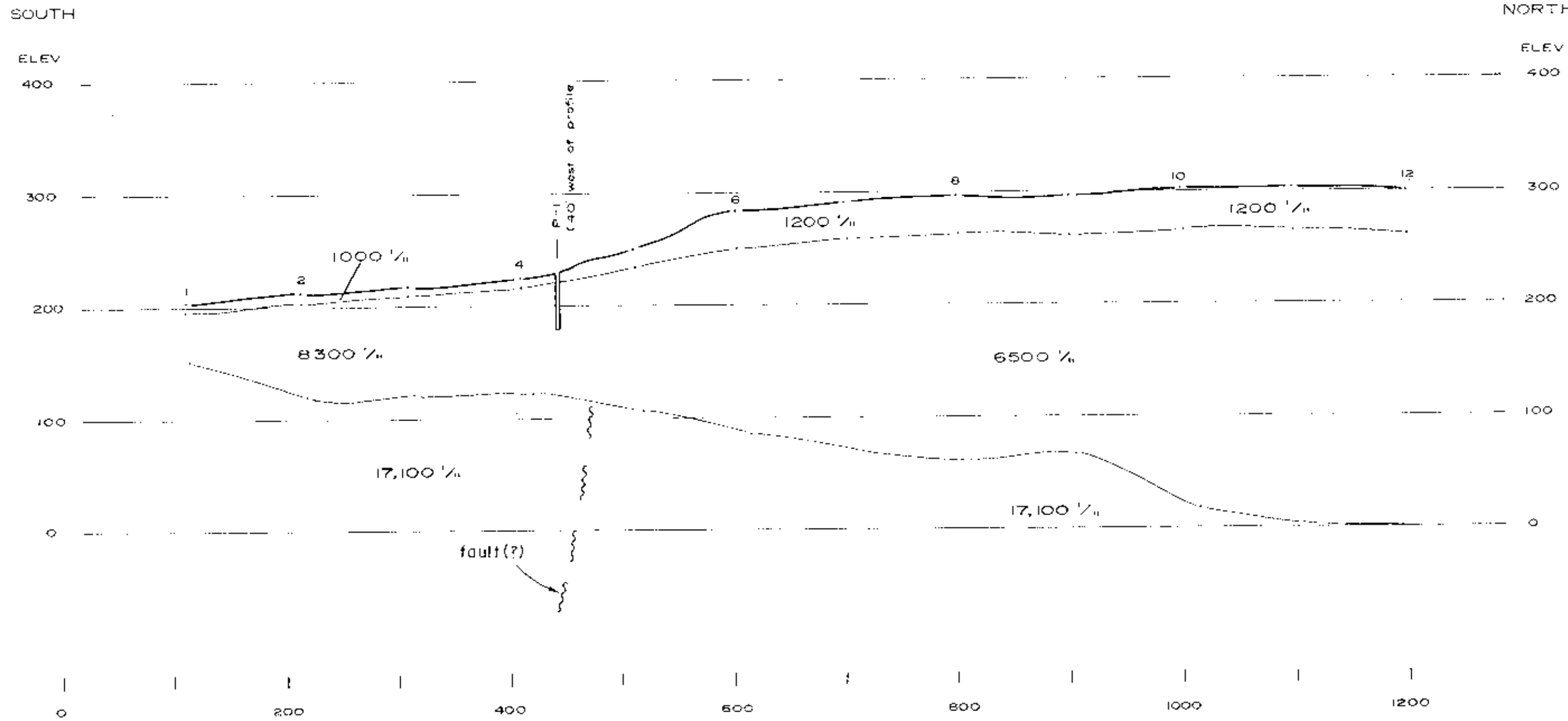
Note: Bedrock in this area has been mapped as acidic intrusives of the Guichon Creek Batholith.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.,

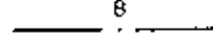
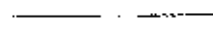
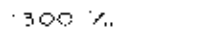


David G. Mark
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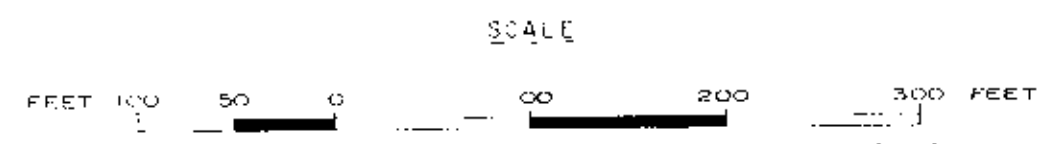
August 16, 1977



LEGEND

-  Geophone location
-  Combined depth point on inferred layer boundary.
-  Average velocity in ft/sec.

NOTE: The elevations above 500 level as shown are estimated only.



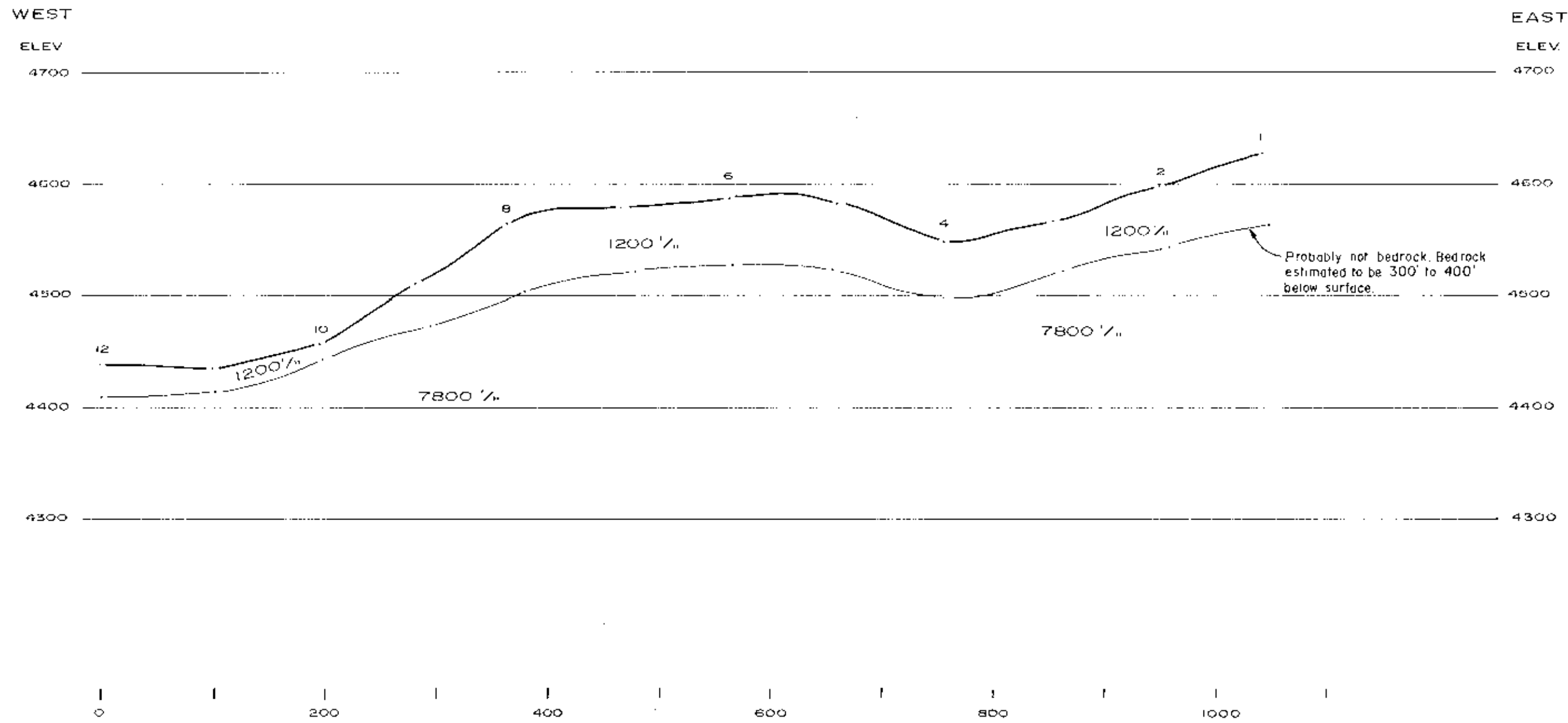
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SKUHOST CREEK AREA, KAMLOOPS M.D., B.C.

SEISMIC REFRACTION STUDY
LINE SL-1

DRAWN BY: D. G. M.	SCALE: 1" = 100'	DATE: AUG. 1977	JOB No: 77-28	FIGURE No. 2
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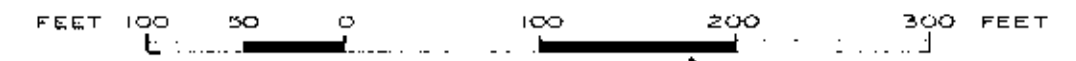


LEGEND

- 8 — Geophone location
- · — Combined depth point on inferred layer boundary.
- 1200' / s Average velocity in ft/sec.

NOTE: The elevations above sea level as shown are estimated only.

SCALE



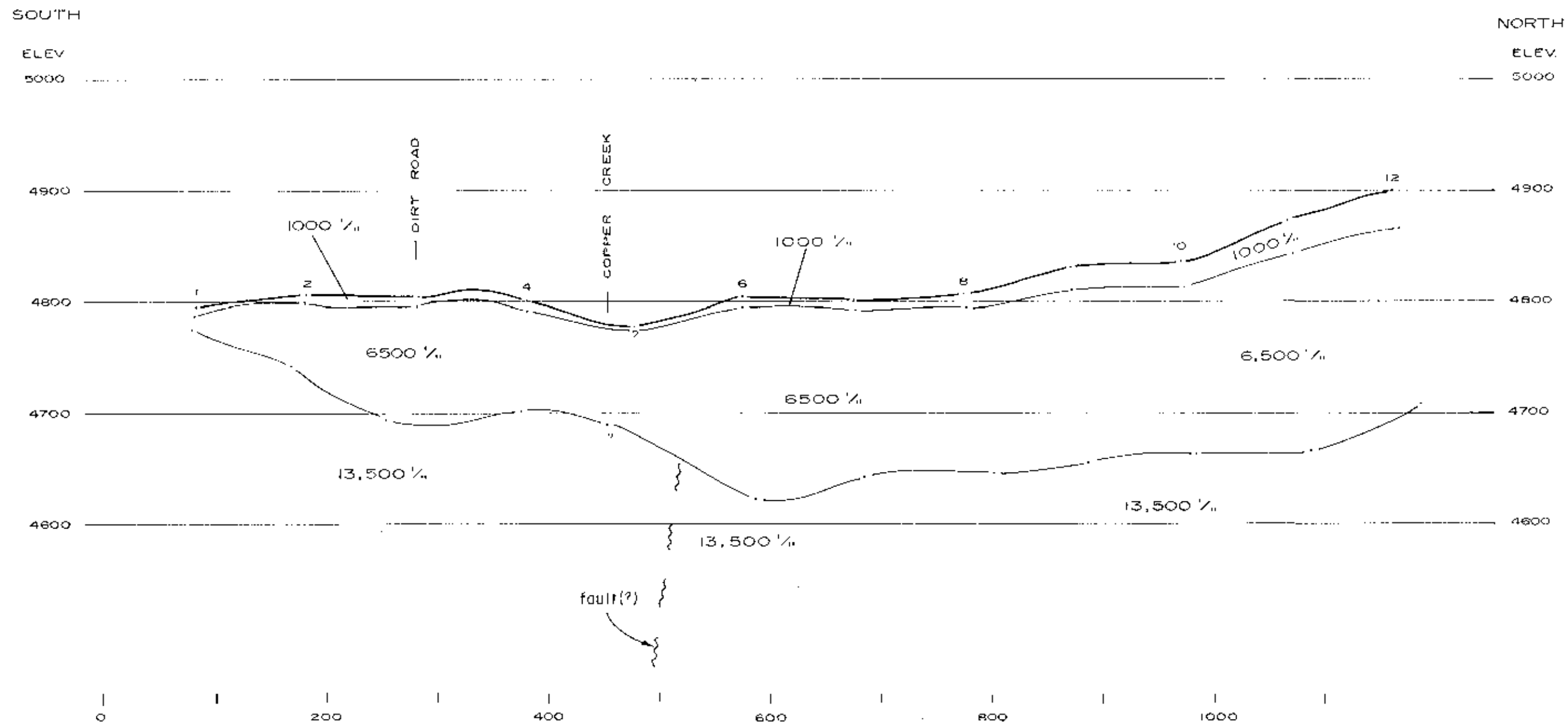
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SEISMIC REFRACTION STUDY
LINE SL - 2

DRAWN BY: D. G. M.	SCALE: 1" = 100'	DATE: AUG. 1977	JOB No: 77-28	FIGURE No. 3
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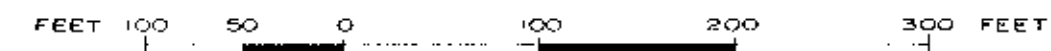


LEGEND

- 8 — Geophone location
- — — Combined depth point on inferred layer boundary.
- 1300 % Average velocity in ft./sec.

NOTE: The elevations above sea level as shown are estimated only.

SCALE



6611
part 1 of 2

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SEISMIC REFRACTION STUDY
LINE SL - 3

DRAWN BY: D. G. M	SCALE: 1" = 100'	DATE: AUG. 1977	JOB No: 77-28	FIGURE No. 4
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