

83-#400-11580

GEOPHYSICAL REPORT

ON A

SEISMIC REFRACTION SURVEY

ON

PLACER LEASES 8447 - 8450

AND THE

HH CLAIM GROUP

HARVEYS CREEK

CARIBOO MINING DISTRICT, BRITISH COLUMBIA

PROPERTY : 4.0 km N25E of the northern tip of Cariboo Lake on Harveys Creek.

: 52° 121° NE

: NTS-93A/14W

WRITTEN FOR : HARVEY CREEK GOLD PLACERS LTD.
2949 Rosemont Drive,
Vancouver, B.C.
V5S 2C7

BY : David G. Mark, Geophysicist
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403-750 West Pender Street
Vancouver, B.C. V6C 2T8

DATED : July 26, 1983



GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,580

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SUMMARY

A seismic refraction survey was carried out over placer leases 8447 to 8450 and the HH Claim Group located on Harveys Creek 4.0 km N25E of the northern tip of Cariboo Lake in the Cariboo M.D., B.C. during the period June 9th to 13th, 1983. The property is located 31.5 km N35E of Likely. The object of the survey was to locate a buried creek channel carrying placer gold and to determine the velocities of and the depths to bedrock, as an aid in the search for lode gold deposits.

The claims are underlain by Cambrian to Mississippian sediments and meta-sediments overlain by glacial till and fluvial sands and gravels.

The survey was carried out using a 24-channel seismic refraction system with 115-meter spreads, 5-meter geophone spacings, and employing explosives as the energy source. Eight spreads were done in total. The data were analyzed using an intercept-delay time technique.

CONCLUSIONS

1. At least one slow velocity zone was located on each profile that is very likely caused by a buried creek channel infilled with sands, gravels, and/or glacial tills. The zone is at least 500 m long and open at the downstream end (southeast) at SL-A. It is also open at the upstream end at SL-F. However, SL-F appears to cross the seismic-interpreted channel near its

opening with Harveys Creek. At this point it also lines up with a visible bedrock channel (not filled with overburden) 100 to 200 m upstream. For the most part, the channel is parallel to the present course of Harveys creek and is probably its ancient course.

2. There were other slow zones detected on SL-A, SL-B, and SL-C. These may reflect other parallel infilled creek channels and/or fault/shear zones which are important for the emplacement of mineralizing fluids.
3. The bedrock velocities in the lower range are indicative of phyllites, argillites, and siltstones. Those in the upper range are indicative of quartzites, meta-greywackes, schists, and limestones. These could also be indicative of volcanics and intrusives though none have been mapped in the area.
4. The bedrock profile is shaped as a series of steps which may possibly be caused by block faulting.
5. The overburden thickness (depth to bedrock) varies from as little as 1 m to as much as 31 m. The average depth is approximately 10 m.

RECOMMENDATIONS

1. Further seismic work should be done to better define the location of the channel, extend its strike length as well as help define the direction of the other slow velocity zones. The location of the work is recommended as follows:

- (a) Between SL-A and SL-B
 - (b) Extension of SL-B to the northeast
 - (c) Between SL-E and SL-F
 - (d) Southeast (downstream) of SL-A
 - (e) Possibly northwest (upstream) of SL-F
2. A gravity survey may be useful in determining the depth of the bedrock channel. Seismic refraction cannot do this since the sides of the channel are steep with slopes greater than 45° .
3. The property should be prospected and/or geologically mapped to help determine the feasibility of the occurrence of bedrock gold mineralization. Soil sampling and possibly other types of geophysics may be a useful aid to this exploration.

GEOPHYSICAL REPORT
ON A
SEISMIC REFRACTION SURVEY
ON
PLACER LEASES 8447 - 8450
AND THE
HH CLAIM GROUP
HARVEYS CREEK
CARIBOO MINING DISTRICT, BRITISH COLUMBIA

INTRODUCTION AND GENERAL REMARKS

This report discusses the field procedure, compilation of data, and interpretation of results of a seismic refraction survey carried out over placer leases and mineral claims located on Harveys Creek in the Cariboo Lake area during the period June 9th to 13th, 1983.

The field work was carried out under the supervision of the writer with 3 helpers. A total of 8 spreads was completed over a profile length of 920 m.

For the placer leases, the prime object was to locate an ancient buried creek channel known to exist in the area. There was strong reason to believe that this channel carried placer gold. A secondary object was to determine the thickness

of overburden which would become important if placer mining was to take place.

For the mineral claims, the object of the survey was to measure bedrock depth and velocity, to assist in the exploration for gold within the bedrock. Knowledge of the bedrock profile may help in the understanding of the area's structure, and in planning drilling programs. Also determining the bedrock velocity helps determine the bedrock lithology. Furthermore, any low velocity zones detected in the bedrock surface could represent fault or shear zones which may be mineralized.

PROPERTY AND OWNERSHIP

The placer property consists of 6 contiguous placer leases as shown on sheet 2 and as described below:

<u>Placer Lease</u>	<u>Tag No.</u>	<u>Expiry Date</u>
8447	—	July 27, 1983
8448	—	July 27, 1983
8449	—	July 27, 1983
8450	—	July 27, 1983
—	P38212	1984
—	P38213	1984

The final 2 claims have recently been staked and therefore lease numbers and the month of record are not yet known.

The HH Claim Group, which completely overlies the placer leases, consists of 6 contiguous mineral claims staked under the 2-post system as shown on Sheet 3 and as described below:

<u>Claim Name</u>	<u>Record No.</u>	<u>No. of Units</u>	<u>Expiry Date</u>
HH 1-6	4535-'40	6	September 30, 1983

The above-noted expiry dates do not take into account the work discussed within this report that will be applied for assessment credits.

All claims and leases are owned by Harvey Creek Gold Placers Ltd. of Vancouver, B.C. with the registered owner being Frank Hallam, president of the aforementioned company.

LOCATION AND ACCESS

The property is located on Harveys Creek 4.0 km N25E of the northern tip of Cariboo Lake and 31.5 km N35E of Likely, B.C., within the Cariboo Mining District.

The geographical coordinates are 52° 50' N latitude and 121° 17' W longitude.

Access is most easily gained by helicopter to a helicopter pad constructed while the seismic survey was in progress. Alternate access is by foot on the Barkerville Trail from Cariboo Lake.

PHYSIOGRAPHY

The property is located within the Quesnel Highlands which is a physiographic division of the Interior Plateau System. Much of the topography consists of upland areas that are remnants of a deeply dissected plateau of moderate relief.

The placer leases and the HH Claim Group lies mainly along

and parallel to Harveys Creek, 1 to 2 km upstream from its junction with the Cariboo River. The sides of the creek valley are moderately steep, with rock bluffs varying in elevation within the property boundaries from 850 meters to 1,220 meters.

HISTORY

Gold was first discovered along Harveys Creek in 1860. It quickly became known as a very rich creek. As much as 2.0 million oz of gold were reportedly taken out prior to 1874 when records were not kept. A 50¢ per oz tax at that time was put on gold mined so that even after 1874 much of the gold mined was not recorded. The recorded gold mined however was 3,853 oz.

Numerous old pits and some adits are located throughout the property area. These were dug as exploration for the buried creek channel. It has been verbally reported that at least one pit and one adit was unsuccessful in locating the channel. The writer observed two pits adjacent to each other on the property that were sloughed in and appeared to have been dug quite deep and therefore quite probably along the buried channel.

No recent work is known to have been carried out on the property.

GEOLOGY

The bedrock underlying the property is probably Devonian to Mississippian sediments and meta-sediments of the Snowshoe Formation and possibly of the Midas Formation. The Snowshoe Formation is composed of quartzite, meta-greywacke, phyllite, schist, and minor limestone. The Midas Formation is comprised of chert, phyllite, argillite, limestone, and minor siltstone.

The overburden consists of fluvial sands and gravels and glacial till.

INSTRUMENTATION

Two 12-channel seismographs, Model 1210F, manufactured by Geometrics/Nimbus of Sunnyvale, California, were used on the project. The two were interfaced together to make up a 24-channel system. The 1210F features signal enhancement by stacking repeated signals in a digital memory. A CRT (cathode ray tube) continuously displays the signal stored in the memory on all channels. The stored signal can then be printed on a permanent paper record by a built-in electric-writing oscillograph. The instrument also contains active signal filters on each amplifier.

Two 90-meter geophone cables were used, as well as 8 cycle/sec marsh geophones, manufactured by Mark Products of Houston, Texas.

The blasting was done with 1 encoder and 2 decoders. Series 200, manufactured by Input/Output of Houston, Texas. These were interfaced with Motorola portable FM radios.

FIELD PROCEDURE

The 'two-way, in-line shot' seismic refraction method was used for all traverses. The technique consisted of laying out 24 geophones in a straight line and recording arrival times from shots fired at either end of the spread. The arrival times from 3 additional shot points approximately every $\frac{1}{4}$ of the spread length within the spread were also recorded. This provided the overburden depth and velocity

variations along the spread, and also gave additional information about the deeper layers. Finally for each spread, two off-end shots were fired at a distance of up to one-half the spread length from the nearest geophone. Since the off-end shots were a good distance from the nearest geophone, it was safely assumed that the first arrivals were in fact from the bedrock surface. This was felt necessary so that the refractions received from other shot points could be correlated and assigned the correct layer number.

Each of the 8 seismic profiles comprised one 115 m long spread (5 m geophone interval). The shots ranged in size from 0.1 to 1.0 kg, and were placed in holes 0.4 to 0.7 m deep.

COMPUTING METHOD

All seismic data was analyzed using an intercept-delay time technique. Implementation of this method requires reverse refraction profiles with bedrock refraction emanating from a common point for at least two detectors. This rock overlap is necessary in order to obtain a true refractor velocity and travel time in the overburden, independent of bedrock dip and/or surface irregularities. The off-end shot times are used to extrapolate the rock locations. With this information and related overburden velocities, it is possible to compute the depth to rock not only below each shot point, but also below each detector. However, the computed depths below shot points should be considered slightly more accurate than those below detectors.

The procedure is 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 plot of the difference in arrival times, 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, adjusting to Snell's Law to obtain the layer thickness. Adding the layer thicknesses together will give the total overburden depth.

DISCUSSION OF RESULTS

The line locations are shown on the survey plan on Sheet 4, at a scale of 1:2,000 (1 cm = 20 m). The interpreted results are shown in section form on Sheets 5 to 12, at a scale of 1:250 (1 cm = 2.5 m).

The seismic refraction work has revealed a 4-layer case along 5 of the 8 spreads surveyed. The remaining 3 spreads, which are spread 3 of SL-A, SL-C and SL-D, were revealed to be 3-layer cases, with 2 overburden layers overlying the bedrock.

The first layer ranges in velocity from 180 to 400 m/s and varies in thickness from 0.2 to 10.0 meters. This velocity layer is likely to represent a loose surficial overburden

with a water content that is quite low. This same velocity range constitutes part of the second layer on SL-A as well as the second layer on SL-B and SL-F. The material could be fluvial sands and gravels or glacial till.

The second layer (third on SL-B and SL-C) is probably the same material as the first layer except more compact with greater water content. It ranges in velocity from 400 to 830 m/s and in thickness from near 0 to 10 m as a second layer and up to 20 m on SL-B as a third layer.

The third layer of overburden varies in velocity from 850 to 1500 m/s and in thickness from near 0 to 27 m. Again it probably is the same material as noted above except more consolidated with a water content nearing saturation.

The third layer on spread 3 of SL-A, on SL-C and on SL-D and the fourth layer on the remaining spreads has a velocity range of 2500 to 5700 m/s and is undoubtedly bedrock. This velocity range can be divided into 2 zones:

1. 2500 to 3400 m/s - probably reflects phyllite, argillite, siltstone and/or a fractured weathered bedrock of the second velocity zone.
2. 4000 to 5700 m/s - probably quartzite, meta-greywacke limestone, and/or possibly intrusives, volcanics.

Velocities above 5000 m/s more likely reflect limestone as well as possibly intrusives, or volcanics though no intrusives or volcanics have been mapped in the area.

The total depth to bedrock varies from 1 m below (SL-A,

G-56) to 31 m below (SL-E, G-15). On all profiles the bedrock subsurface occurs as a series of steps which may be caused by block faulting.

Occurring on all profiles are slow zones within the bedrock. The velocity range is 1390 to 2500 m/s. These slow zones can be caused by fault/shear gouge or buried creek channels that have been infilled with fluvial sands and gravels and/or glacial till. The lower the velocity the more likely it is an infilled creek channel.

The slow zone on SL-F through to SL-B in all likelihood is an infilled channel that parallels the present-day course of Harveys Creek. In fact, it is probably an ancient course of Harveys Creek. Further evidence that this is a channel is that the series of slow zones line up with a visible bedrock channel, ie., it is not infilled with overburden, about 100 to 200 m upstream from SL-F.

The depth to the bottom of the channel can not be determined by seismic refraction and hence the shape of the channel is not shown on the profiles. The reason is that the sides of the channel are steep with slopes greater than 45° . For that reason the first arrival shock waves refract from the sides of the channel rather than the bottom.

The writer has marked the channel on the profiles as well as drawing it on the survey plan (sheet 4). On SL-A, there are 2 slow zones either of which could connect to the seismic interpreted channel on the other profiles. The writer has marked these as "possible channel".

The length of the channel, as shown by lines A through to

F, is at least 500 m. It is open downstream to the southeast of SL-A as well as upstream to the northwest of SL-F. However, it is felt SL-F crosses the channel near its opening with Harveys Creek. That is, there is probably little length to the channel further upstream to SL-F.

It is interesting to note that the seismic-interpreted channel occurs on or near a bedrock step suggesting the channel occurs along a fault zone. This often is the case since creeks or rivers erode bedrock along zones of weakness that are usually faults or shears.

There are 4 other slow zones on profiles SL-A to SL-C that may be either infilled channels or fault/shear zones. Further work is required to determine how the slow zones on each profile connect together.

VELOCITY CLASSIFICATION

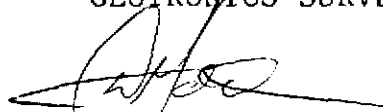
A suggested classification of the velocities is as follows:

<u>Velocity (meters/seconds)</u>	<u>Suggested Material</u>
180 to 400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400 to 830	Overburden: more compact fluvial sands and gravels or glacial till.
850 to 1500	Overburden: fairly consolidated near saturated sands, gravels or glacial till.
1390 to 2500	Overburden: consolidated, water-saturated bedrock channel

infill.

2500 to 3400	Bedrock: phyllite, argillite siltstone; fractured, weathered bedrock of next velocity range.
4000 to 5700	Bedrock: quartzite, meta- greywacke, schist, limestone.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.



David G. Mark,
Geophysicist

July 26, 1983

SELECTED BIBLIOGRAPHY

Campbell, R.B., Geological Map - Quesnel Lake, B.C., Geological Survey of Canada, O.F. 574, 1978.

Bowman, Amos, Placer Mines of Harvey Creek in Cariboo District, B.C., Geological Survey of Canada, pre-1900's?

B.C. Minister of Mines Reports

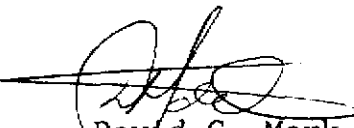
GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at #403-750 West Pender Street, Vancouver, British Columbia.

I further certify:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.
2. I have been practising my profession for the past 15 years and have been active in the mining industry for the past 18 years.
3. I am an active member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.
4. This report is compiled from data obtained from a seismic refraction survey carried out under the supervision of myself during the period June 9th to 13th, 1983.
5. I do not hold any interest in Harvey Creek Gold Placers Ltd. or the HH Claim Group, or in any of the placer leases on Harveys Creek, nor do I expect to receive any interest as a result of writing this report.


David G. Mark,
Geophysicist

July 26, 1983

AFFIDAVIT OF EXPENSES

This is to certify that the seismic refraction survey carried out on Placer Leases 8447 to 8450 and the HH Claim Group from June 9th to the 13th was done to the value of the following:

Field:

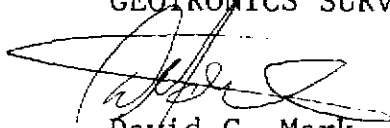
4-man geophysics crew, 67 hours @ \$100/hr	\$ 6,700.00
Board and room, 4 men @ \$350/day for 6 days	2,100.00
Board and room, 3 men @ \$150/day for 10 days	1,500.00
Instrument rental	1,800.00
Truck rental, 10 days @ \$100/day	1,000.00
Boat rental	200.00
Helicopter, 5 hrs @ \$511/hr	2,555.00
Explosives and seismocaps	510.00
Survey supplies	120.00
Airline tickets and airfreight	950.00
	<u>\$17,435.00</u>

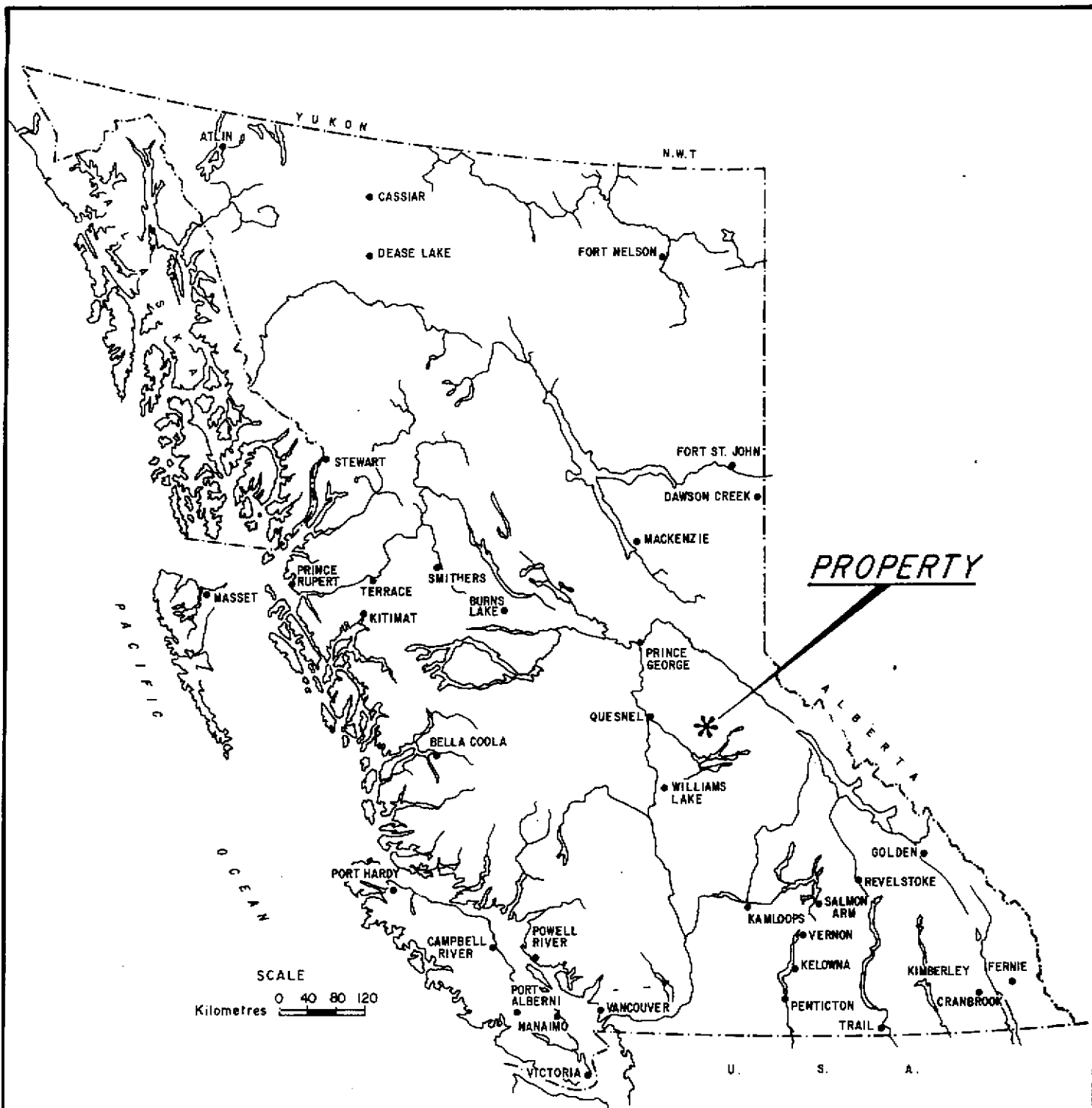
Report:

Geophysicist, 100 hrs @ \$40/hr	\$ 4,000.00
Drafting and printing	1,000.00
Report typing and compilation	150.00
	<u>\$ 5,150.00</u>
	<u><u>\$22,585.00</u></u>

\$4,000.00 of the above has been applied to the placer leases and the remaining \$18,585.00 has been applied to the HH Claim Group.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

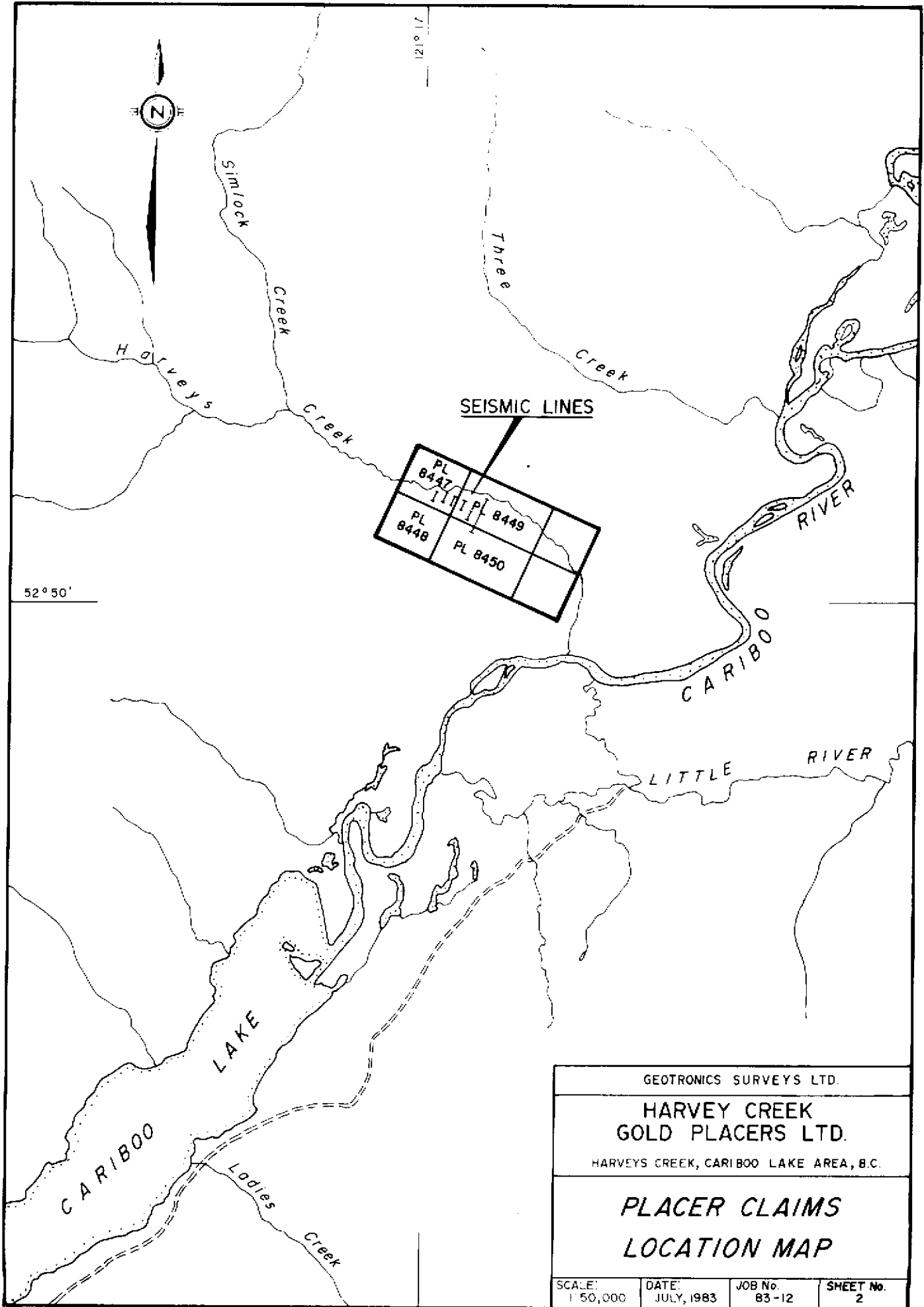

David G. Mark,
Geophysicist



PROPERTY

SCALE
Kilometres 0 40 80 120

GEOTRONICS SURVEYS LTD.			
HARVEY CREEK GOLD PLACERS LTD.			
HARVEYS CREEK, CARIBOO LAKE AREA, B.C.			
<i>LOCATION MAP</i>			
SCALE: 1: 8,000,000	DATE: JULY, 1983	JOB No. 83-12	SHEET No. 1



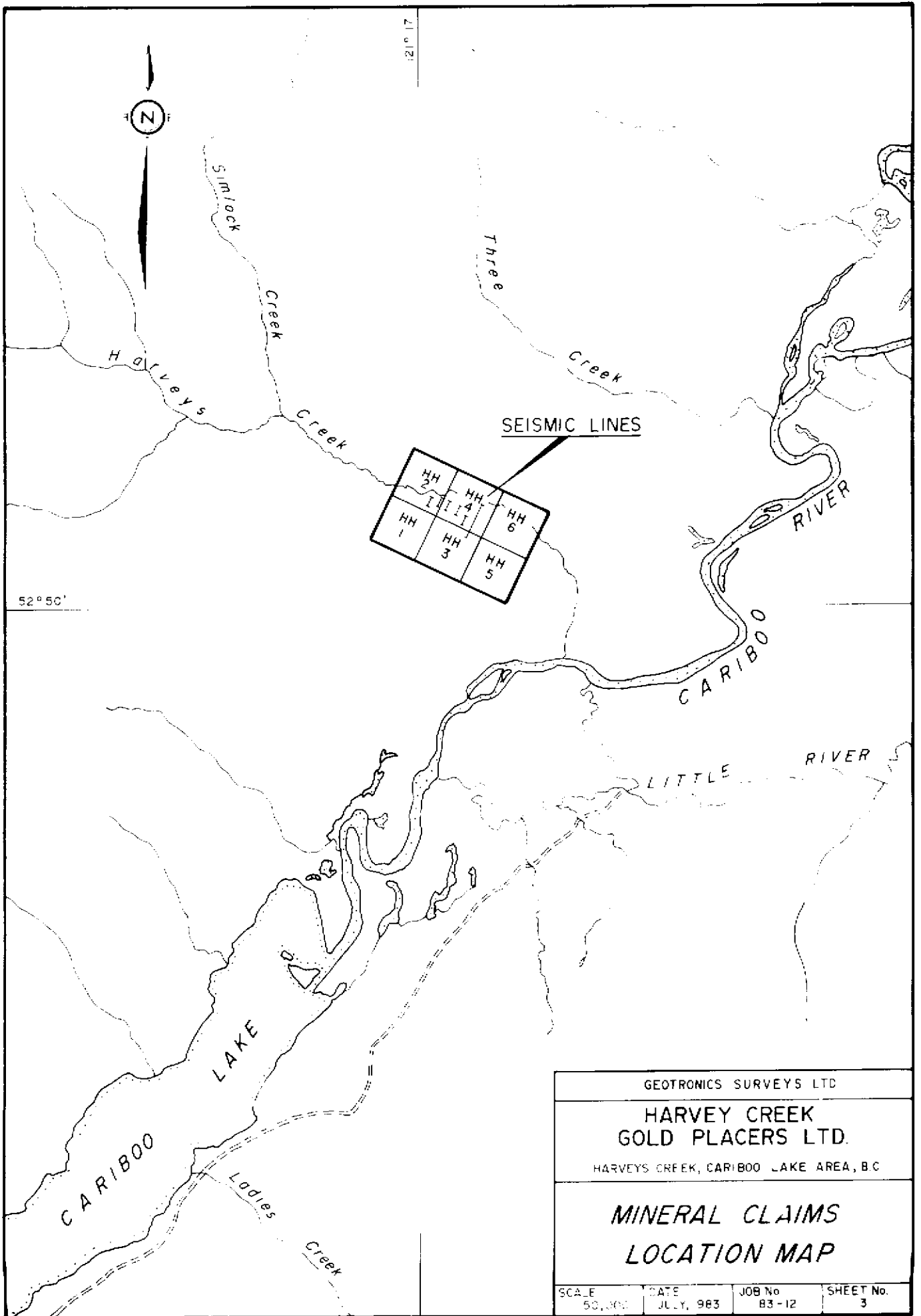
GEOTRONICS SURVEYS LTD.

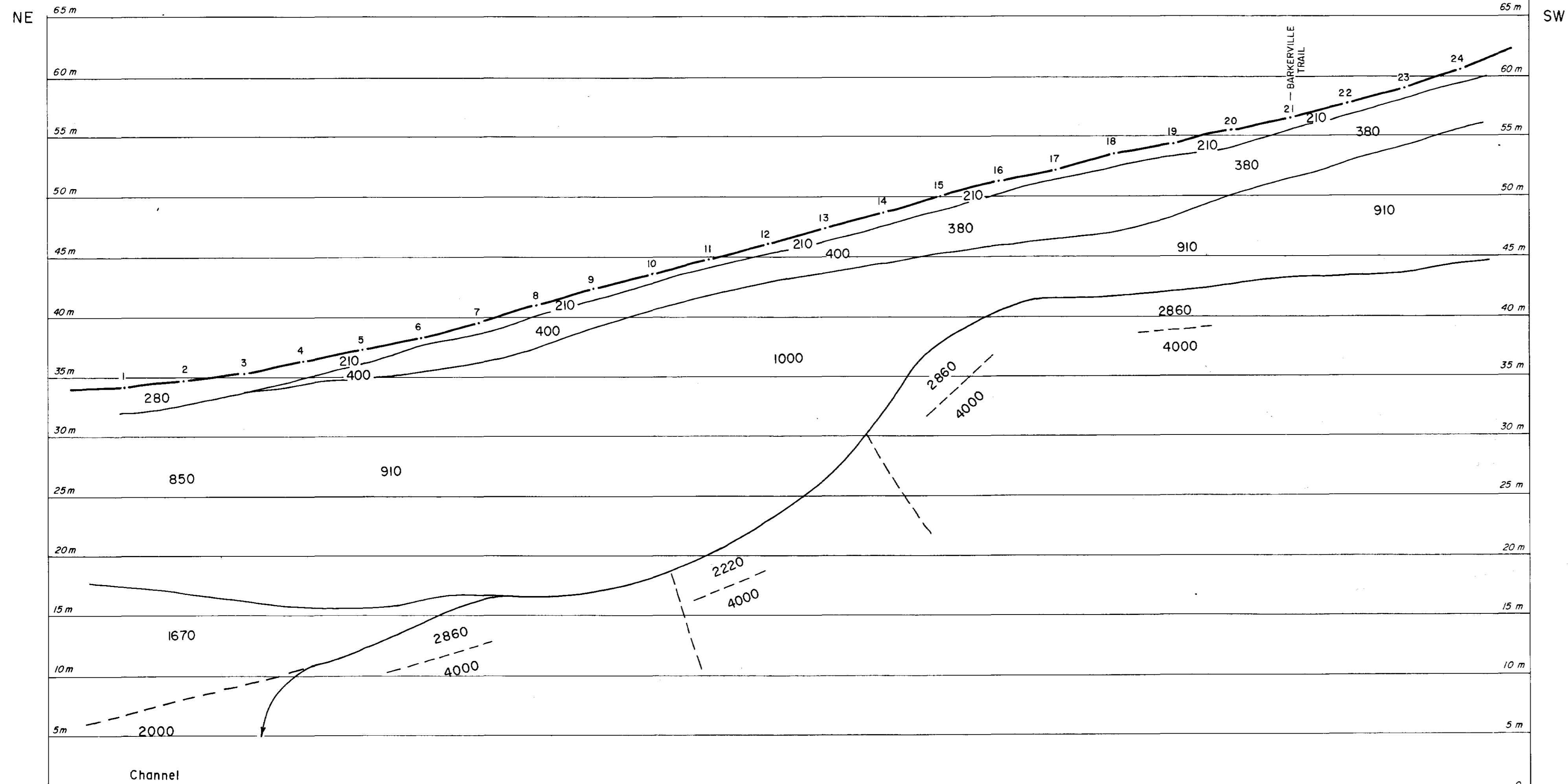
**HARVEY CREEK
GOLD PLACERS LTD.**

HARVEYS CREEK, CARIBOO LAKE AREA, B.C.

**PLACER CLAIMS
LOCATION MAP**

SCALE: 1:50,000	DATE: JULY, 1983	JOB No. 83-12	SHEET No. 2
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LEGEND

- Geophone location
- Calculated seismic interface
- 2860** Average velocity in metres per second

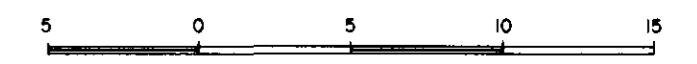
VELOCITY (m/s)	CLASSIFICATION
180 - 400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400 - 830	Overburden: more compact fluvial sands and gravels or glacial till.
850 - 1500	Overburden: fairly consolidated near saturated sands, gravels or glacial tills.
1390 - 2500	Overburden: consolidated, water-saturated bedrock channel infill.
2500 - 3400	Bedrock: phyllite, argillite siltstone; fractured, weathered bedrock of next velocity range.
4000 - 5700	Bedrock: quartzite, metagreywacke, schist, limestone.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

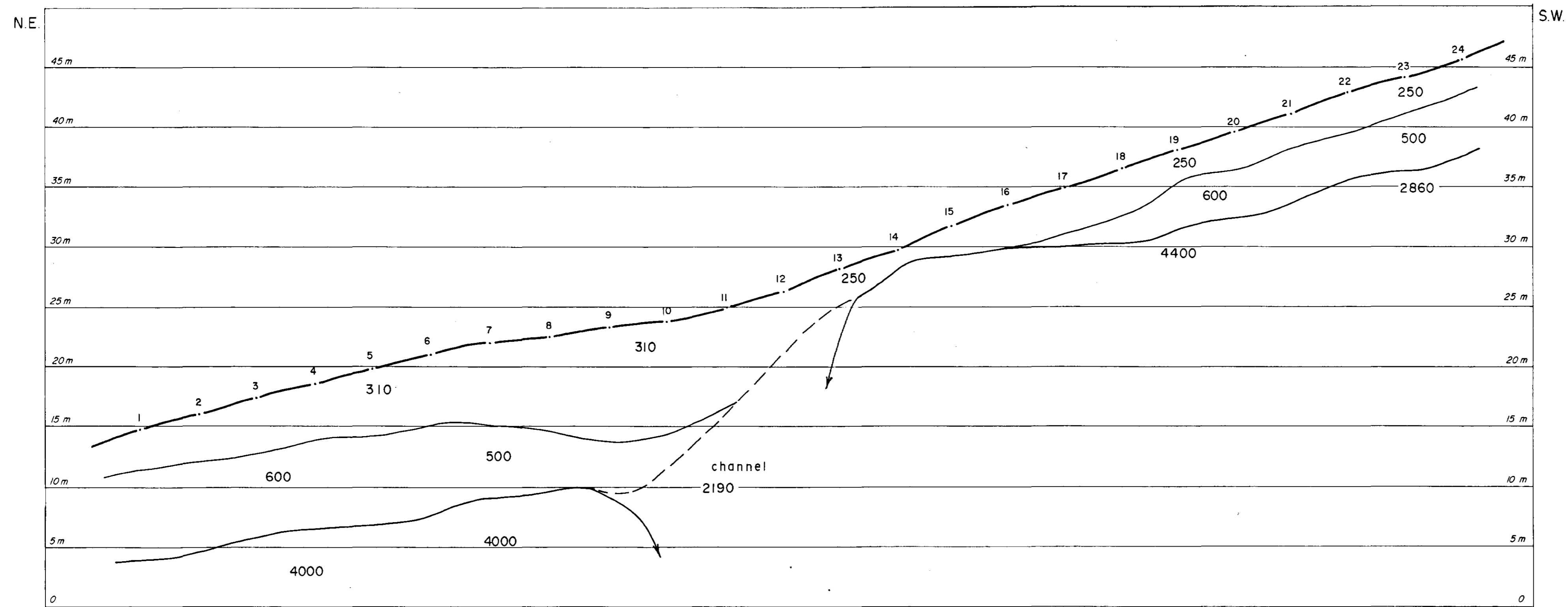
11,580

DIRECTION OF LINE - SW

SCALE IN METRES



GOTRONICS SURVEYS LTD.			
HARVEY CREEK GOLD PLACERS LTD. ①			
P.L. 8447-'50			
HARVEYS CREEK, CARIBOO LAKE AREA, B.C.			
<i>SEISMIC REFRACTION STUDY</i>			
<i>PROFILE SL-F</i>			
SCALE: 1:250	DATE: JULY 1983	JOB No. 83-12	SHEET No. 12



LEGEND

- Geophone location
- Calculated seismic interface
- 600** Average velocity in metres per second

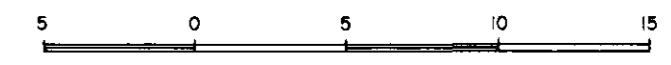
VELOCITY (m/s)	CLASSIFICATION
180-400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400-830	Overburden: more compact fluvial sands and gravels or glacial till.
850-1500	Overburden: fairly consolidated near saturated sands, gravels or glacial tills.
1390-2500	Overburden: consolidated, water-saturated bedrock channel infill.
2500-3400	Bedrock: phyllite, argillite siltstone; fractured, weathered bedrock of next velocity range. Bedrock: quartzite, metagreywacke, schist, limestone.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,580

DIRECTION OF LINE - S.W.

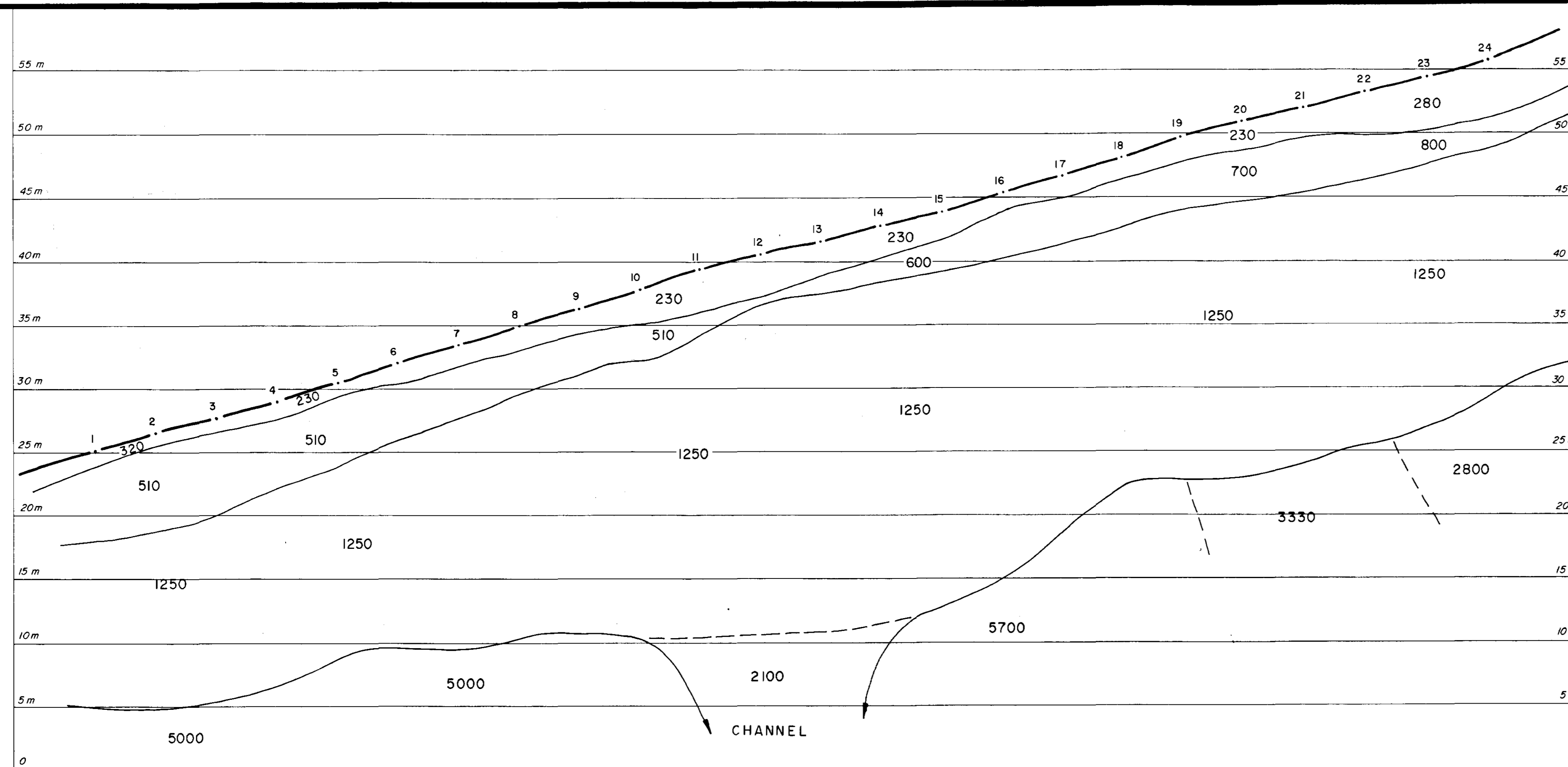
SCALE IN METRES



GEOTRONICS SURVEYS LTD.			
HARVEY CREEK GOLD PLACERS LTD. ②			
P.L. 8447-'50			
HARVEYS CREEK, CARIBOO LAKE AREA, B.C.			
SEISMIC REFRACTION STUDY			
PROFILE SL-D			
SCALE: 1:250	DATE: JULY 1983	JOB No. 83-12	SHEET No. 10

N. E.

S. W.



LEGEND

- 2 Geophone location
- Calculated seismic interface
- 1250 Average velocity in metres per second

VELOCITY (m/s)	CLASSIFICATION
180 - 400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400 - 830	Overburden: more compact fluvial sands and gravels or glacial till.
850 - 1500	Overburden: fairly consolidated near saturated sands, gravels or glacial tills.
1390 - 2500	Overburden: consolidated, water-saturated bedrock channel infill.
2500 - 3400	Bedrock: phyllite, argillite siltstone; fractured, weathered bedrock of next velocity range.
4000 - 5700	Bedrock: quartzite, metagreywacke, schist, limestone.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

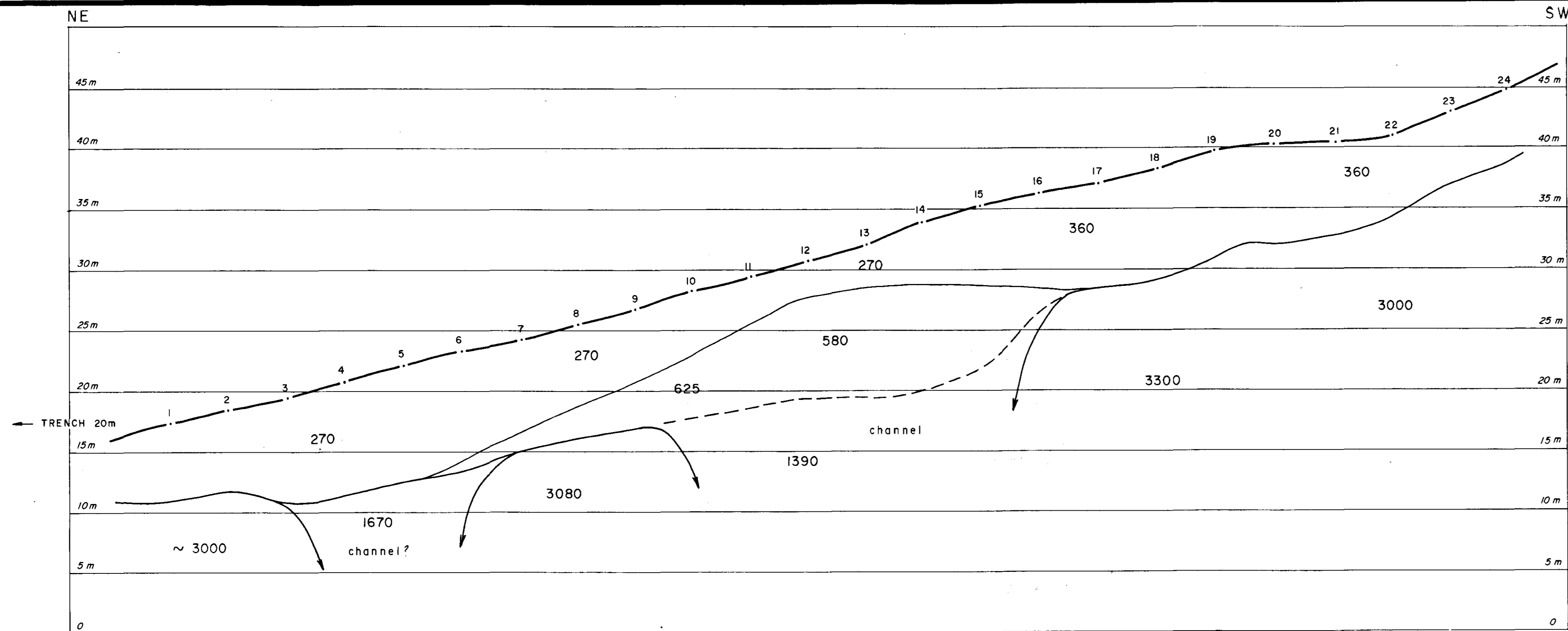
11,580
DIRECTION OF LINE - S.W.
SCALE IN METRES
0 5 10 15

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HARVEY CREEK GOLD PLACERS LTD. ③
P.L. 8447-'50
HARVEYS CREEK, CARIBOO LAKE AREA, B.C.

SEISMIC REFRACTION STUDY
PROFILE SL-E

SCALE: 1 : 250	DATE: JULY 1983	JOB No. 83-12	SHEET No. 11
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LEGEND

- Geophone location
- Calculated seismic interface
- 625 Average velocity in metres per second

VELOCITY (m/s)	CLASSIFICATION
180 - 400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400 - 830	Overburden: more compact fluvial sands and gravels or glacial till.
850 - 1500	Overburden: fairly consolidated near saturated sands, gravels or glacial tills.
1390 - 2500	Overburden: consolidated, water-saturated bedrock channel infill.
2500 - 3400	Bedrock: phyllite, argillite siltstone; fractured, weathered bedrock of next velocity range.
4000 - 5700	Bedrock: quartzite, metagreywacke, schist, limestone.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,580

DIRECTION OF LINE - S.W.
SCALE IN METRES
0 5 10 15

G. GEOTRONICS SURVEYS LTD.

HARVEY CREEK GOLD PLACERS LTD. ④

P.L. 8447-'50

HARVEYS CREEK, CARIBOO LAKE AREA, B.C.

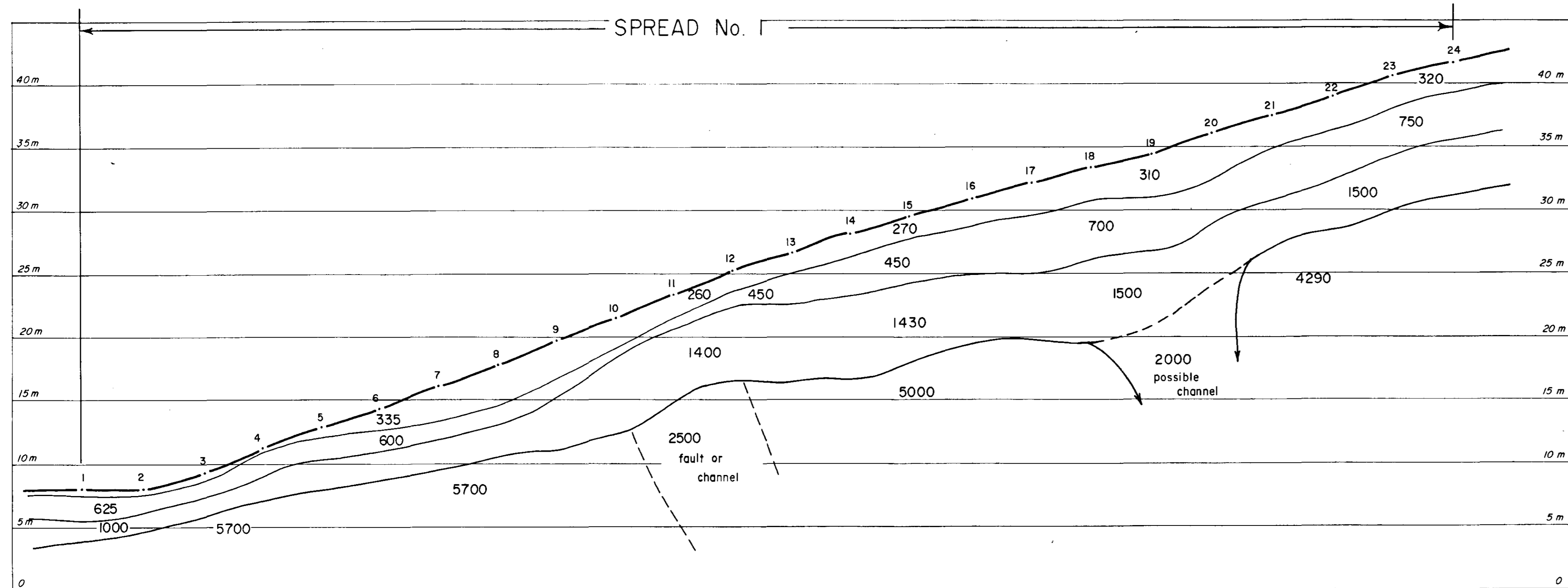
SEISMIC REFRACTION STUDY

PROFILE SL-C

SCALE: 1:250	DATE: JULY 1983	JOB No. 83-12	SHEET No. 9
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N.E.

S.W.



LEGEND

- Geophone location
- Calculated seismic interface
- 1430 Average velocity in metres per second

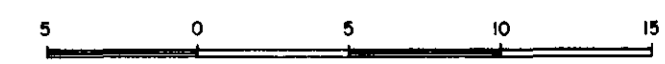
VELOCITY (m/s)	CLASSIFICATION
180 - 400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400 - 830	Overburden: more compact fluvial sands and gravels or glacial till.
850 - 1500	Overburden: fairly consolidated near saturated sands, gravels or glacial tills.
1390 - 2500	Overburden: consolidated, water-saturated bedrock channel infill.
2500 - 3400	Bedrock: phyllite, argillite siltstone; fractured, weathered bedrock of next velocity range.
4000 - 8700	Bedrock: quartzite, metagreywacke, schist, limestone.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,580

DIRECTION OF LINE - S.W.

SCALE IN METRES



GEOTRONICS SURVEYS LTD.

HARVEY CREEK GOLD PLACERS LTD. (5)

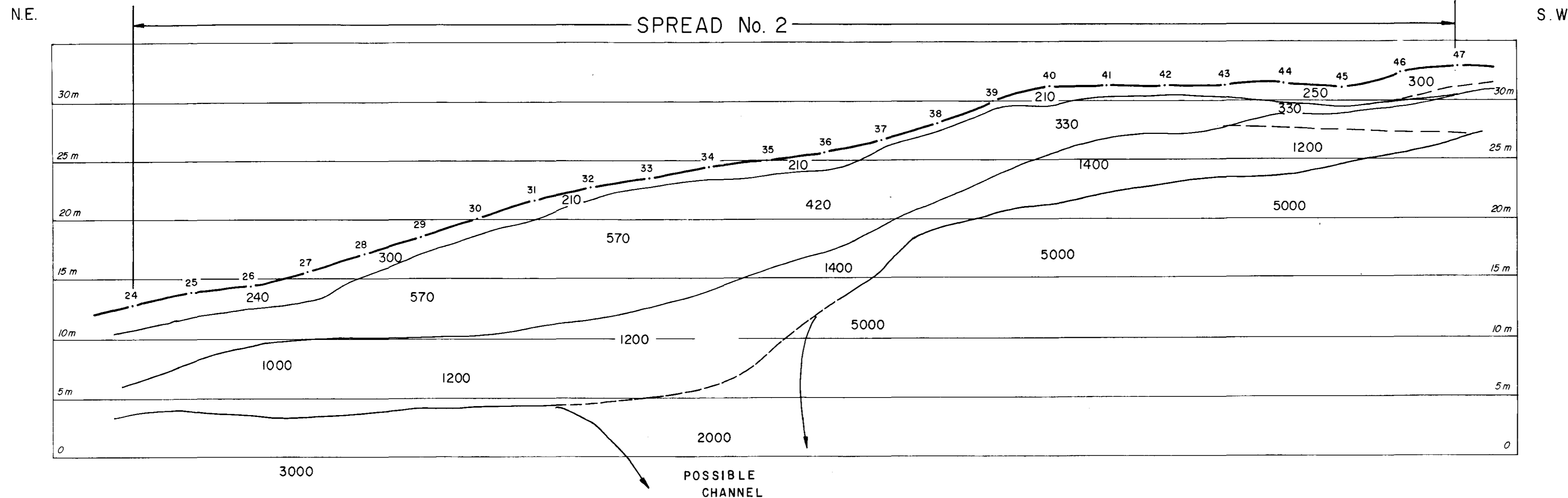
P.L. 8447-'50

HARVEYS CREEK, CARIBOO LAKE AREA, B.C.

SEISMIC REFRACTION STUDY

PROFILE SL-A
SPREAD No. 1

SCALE: 1: 250	DATE: JULY 1983	JOB No. 83-12	SHEET No. 5
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LEGEND

- 2 Geophone location
- Calculated seismic interface
- 1200 Average velocity in metres per second

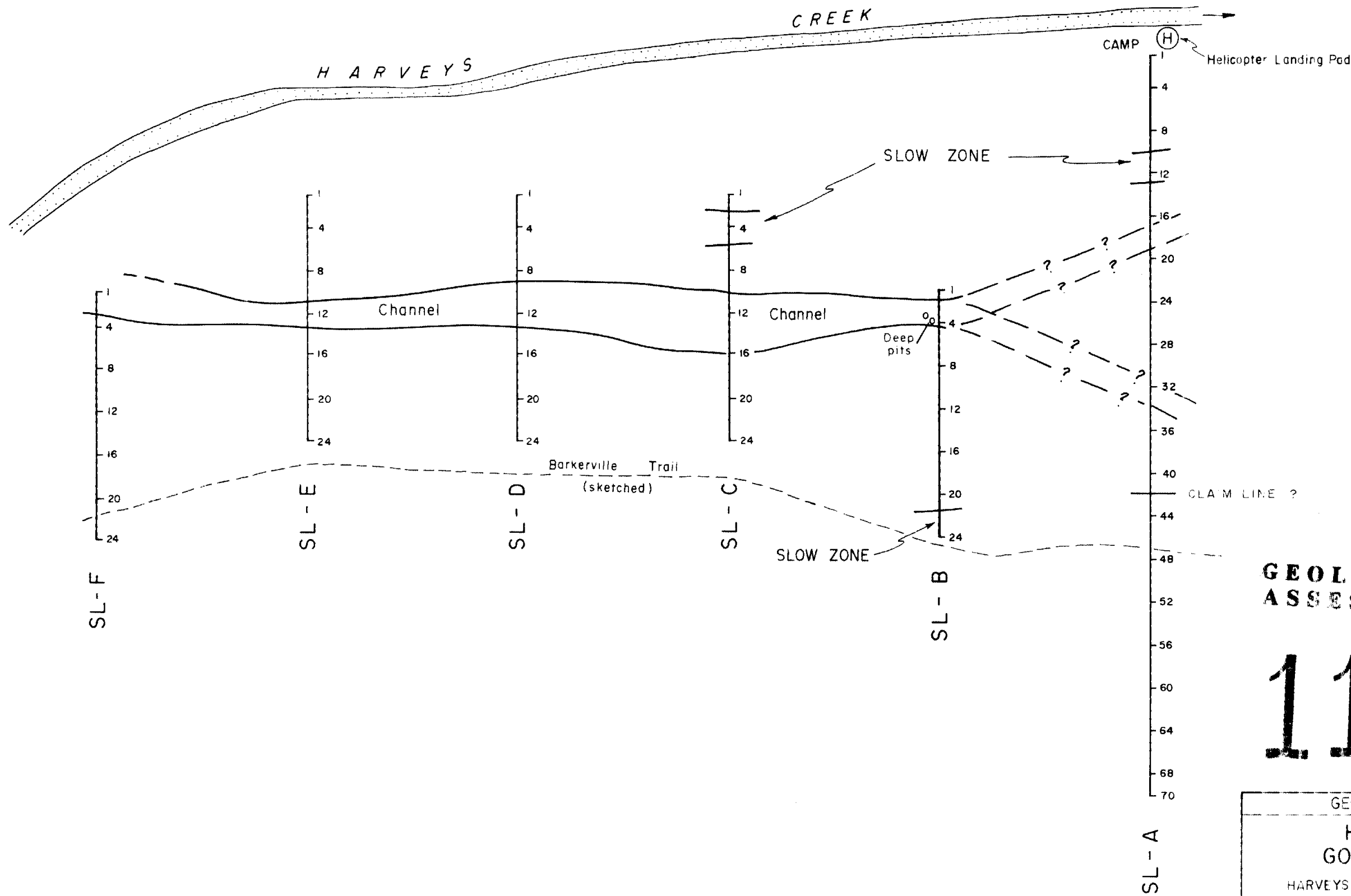
VELOCITY (m/s)	CLASSIFICATION
180 - 400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400 - 830	Overburden: more compact fluvial sands and gravels or glacial till.
850 - 1500	Overburden: fairly consolidated near saturated sands, gravels or glacial tills.
1390 - 2500	Overburden: consolidated, water-saturated bedrock channel infill.
2500 - 3400	Bedrock: phyllite, argillite siltstone, fractured, weathered bedrock of next velocity range.
4000 - 5700	Bedrock: quartzite, metagreywacke, schist, limestone.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11.580

DIRECTION OF LINE - S.W.
SCALE IN METRES

GEOTRONICS SURVEYS LTD.			
HARVEY CREEK GOLD PLACERS LTD. 6			
P.L. 8447-'50			
HARVEYS CREEK, CARIBOO LAKE AREA, B.C.			
SEISMIC REFRACTION STUDY			
PROFILE SL-A SPREAD No.2			
SCALE 1" = 250'	DATE JULY 1983	JOB No. 83-12	SHEET No. 6



**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,580

GOTRONICS SURVEYS LTD
 HARVEY CREEK GOLD PLACERS LTD. (7)
 HARVEYS CREEK, CARIBOO LAKE AREA, B.C.

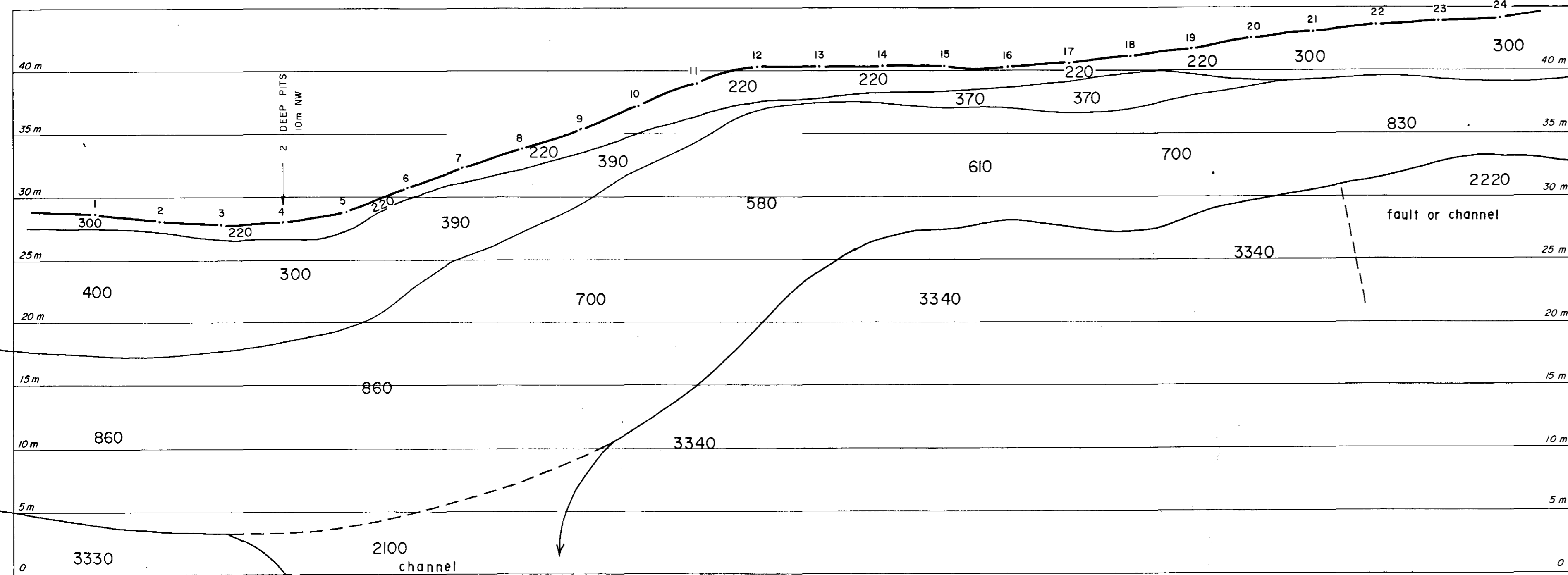
**SEISMIC REFRACTION STUDY
PLAN**

NOTE: SLOW ZONES COULD BE FAULT, SHEAR, OR BURIED CHANNELS.

SCALE 1:2000	DATE JULY, 1993	JOB No 63-2	SHEET No 4
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N.E.

S.W.



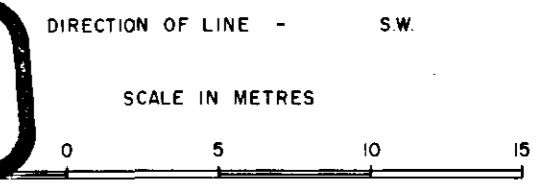
LEGEND

- Geophone location
- Calculated seismic interface
- Average velocity in metres per second

VELOCITY (m/s)	CLASSIFICATION
180 - 400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400 - 830	Overburden: more compact fluvial sands and gravels or glacial till.
850 - 1500	Overburden: fairly consolidated near saturated sands, gravels or glacial tills.
1390 - 2500	Overburden: consolidated, water-saturated bedrock channel infill.
2500 - 3400	Bedrock: phyllite, argillite siltstone; fractured, weathered bedrock of next velocity range.
4000 - 5700	Bedrock: quartzite, metagreywacke, schist, limestone.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,580

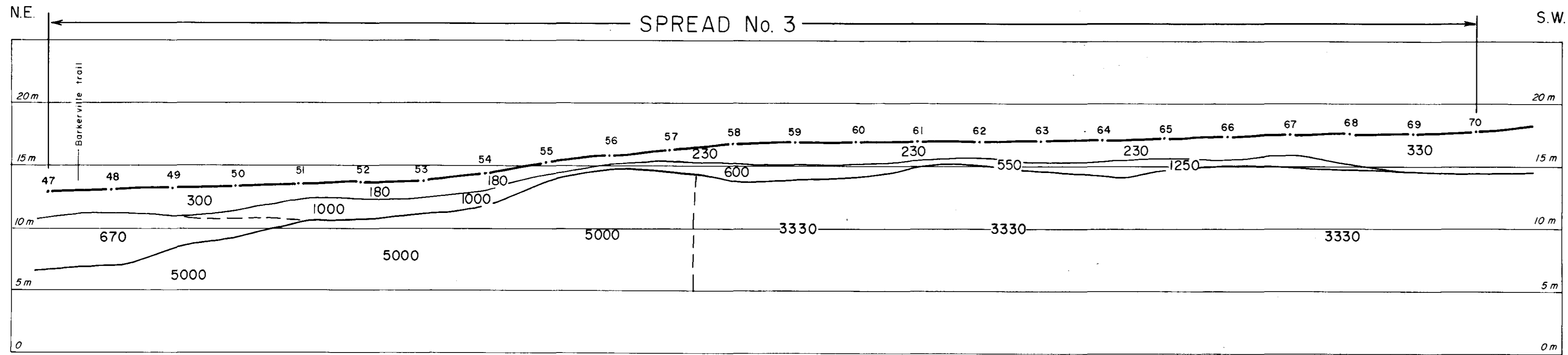


GEOTRONICS SURVEYS LTD.

HARVEY CREEK GOLD PLACERS LTD. ⑧
P.L. 8447-'50
HARVEYS CREEK, CARIBOO LAKE AREA, B.C.

*SEISMIC REFRACTION STUDY
PROFILE SL-B*

SCALE: 1:250	DATE: JULY 1983	JOB No. 83-12	SHEET No. 8
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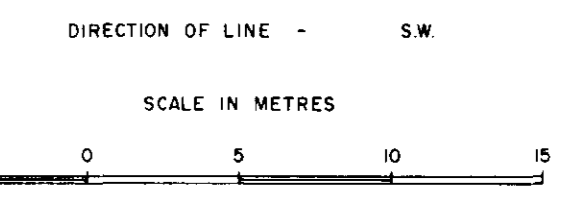
LEGEND

- 2 Geophone location
- Calculated seismic interface
- 5000 Average velocity in metres per second

VELOCITY (m/s)	CLASSIFICATION
180 - 400	Overburden: loose, surficial, dry fluvial sands and gravels or glacial till.
400 - 830	Overburden: more compact fluvial sands and gravels or glacial till.
850 - 1500	Overburden: fairly consolidated near saturated sands, gravels or glacial tills.
1390 - 2500	Overburden: consolidated, water-saturated bedrock channel infill.
2500 - 3400	Bedrock: phyllite, argillite siltstone; fractured, weathered bedrock of next velocity range.
4000 - 5700	Bedrock: quartzite, metagreywacke, schist, limestone.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

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GOTRONICS SURVEYS LTD.

HARVEY CREEK GOLD PLACERS LTD. 9

PL. 8447-'50

HARVEYS CREEK, CARIBOO LAKE AREA, B.C.

SEISMIC REFRACTION STUDY

*PROFILE SL-A
SPREAD No 3*

SCALE 1:250	DATE JULY 1983	JOB No 83-12	SHEET No 7
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