

Part
3 of 3

MINERAL RESOURCES BRANCH ASSESSMENT REPORT 6697 NO. _____
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GEOPHYSICAL SURVEY

SIMILKAMEEN M.D., B.C.

92H-10E ~~7-10-77~~

ACE CLAIM #49 - 20 UNITS

49°-39' : 120°-36' 16-6-77:27-8-77

Alfred R. Allen, P.Eng.

For:

CARDERO RESOURCES LTD.

1620 - 701 West Georgia Street
Vancouver, B.C. V7Y 1G2

By:

ALLEN GEOLOGICAL ENGINEERING LIMITED

202 - 2025 Bellevue
West Vancouver, B.C. V7v 1B9

November 28, 1977.

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MAGNETOMETER SURVEY

ACE CLAIM #49

16-6-77 : 28-8-77

INTRODUCTION

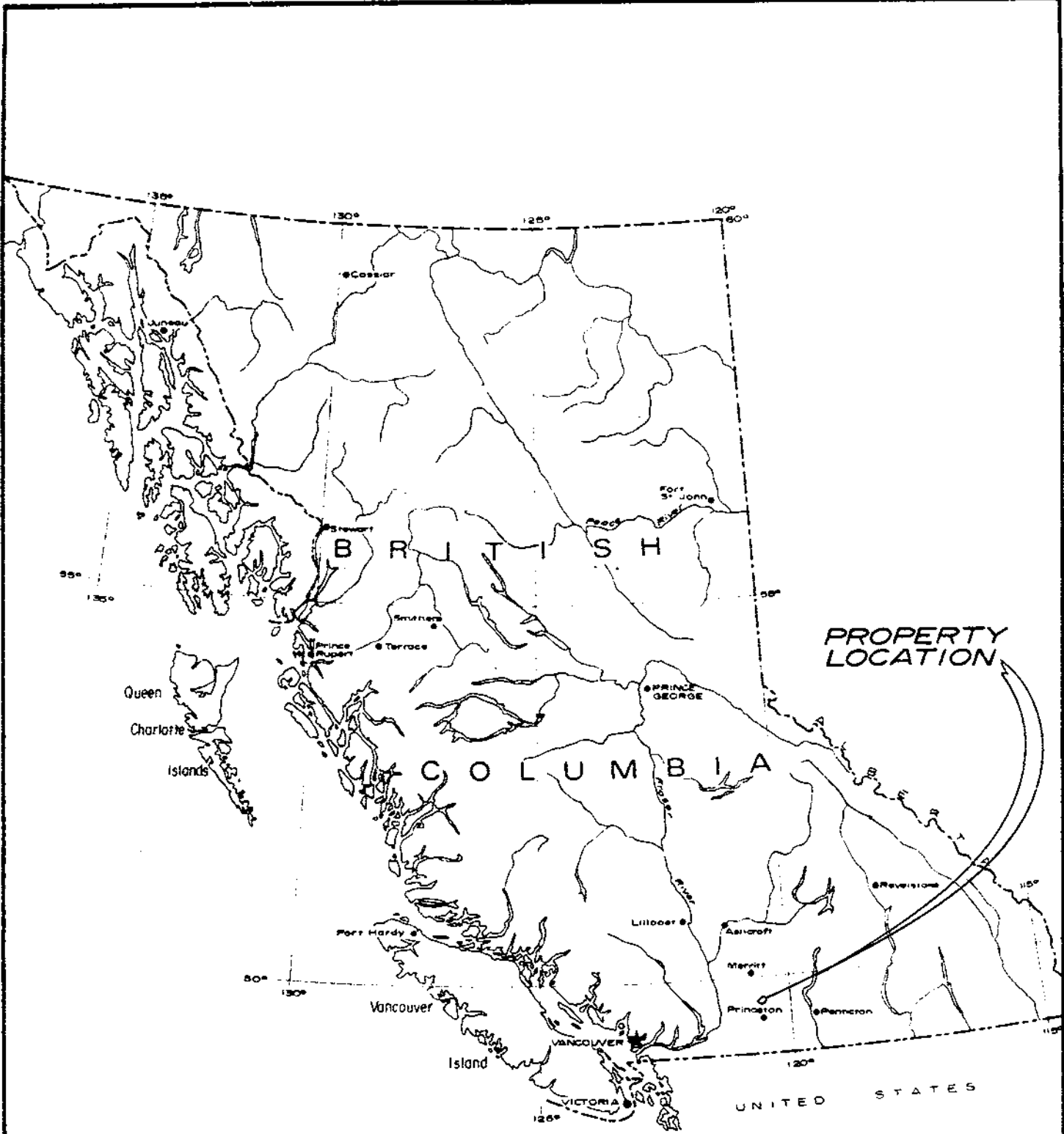
The Ace claim is located 22 metres north of Princeton, B.C., at the south end of Dry Lake and west of Highway #5. The legal corner post is on the east side of the highway about 200 metres north of the gravel storage area of the B.C. Ministry of Highways. The claim was recorded June 4, 1976 as #49.

Mineral showings were discovered on the property in the early 1960's. In 1972 geochemical and geophysical investigations were conducted over part of the claim by D. Cockrane, P.Eng.

On the west side of the faulted contact between the Nicola andesite and the Coast Range granodiorite; pyrite, chalcopyrite, sphalerite, galena, malachite and azurite was partially exposed by trenches.

Over a grid on 500 hectares a magnetometer survey was conducted from June 16 to August 27, 1977. Variations in the vertical component of the earth magnetic field were recorded by a Scintrex MF-1 magnetometer.

Additional investigations are warranted on the northeast quadrant of the Ace claim including a magnetometer survey on a 50 by 50 metre grid at an estimated cost of \$15,000.00.



PROPERTY
LOCATION

CARDERO RESOURCES LTD.

LOCATION MAP

SCALE: 1" = 136 Mls.

Drawn by Date
26/11/77

Checked by Org no. 1

ALLEN GEOLOGICAL
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PROPERTY

The location post of the Ace claim is a few feet east of Highway 5, 22 kilometres north of Princeton, and between the road into the motel on the south side of Dry Lake and the Department of Highways gravel storage area.

The metal tag, number 11382, is firmly affixed to the post.

From the post the claim extends 4 units south and 5 units west, an area of 500 hectares.

The claim was staked by J.C. Turner, agent for George O'Brian, on May 5, and 6, 1976, and recorded June 4, 1976.

The record number is 49.

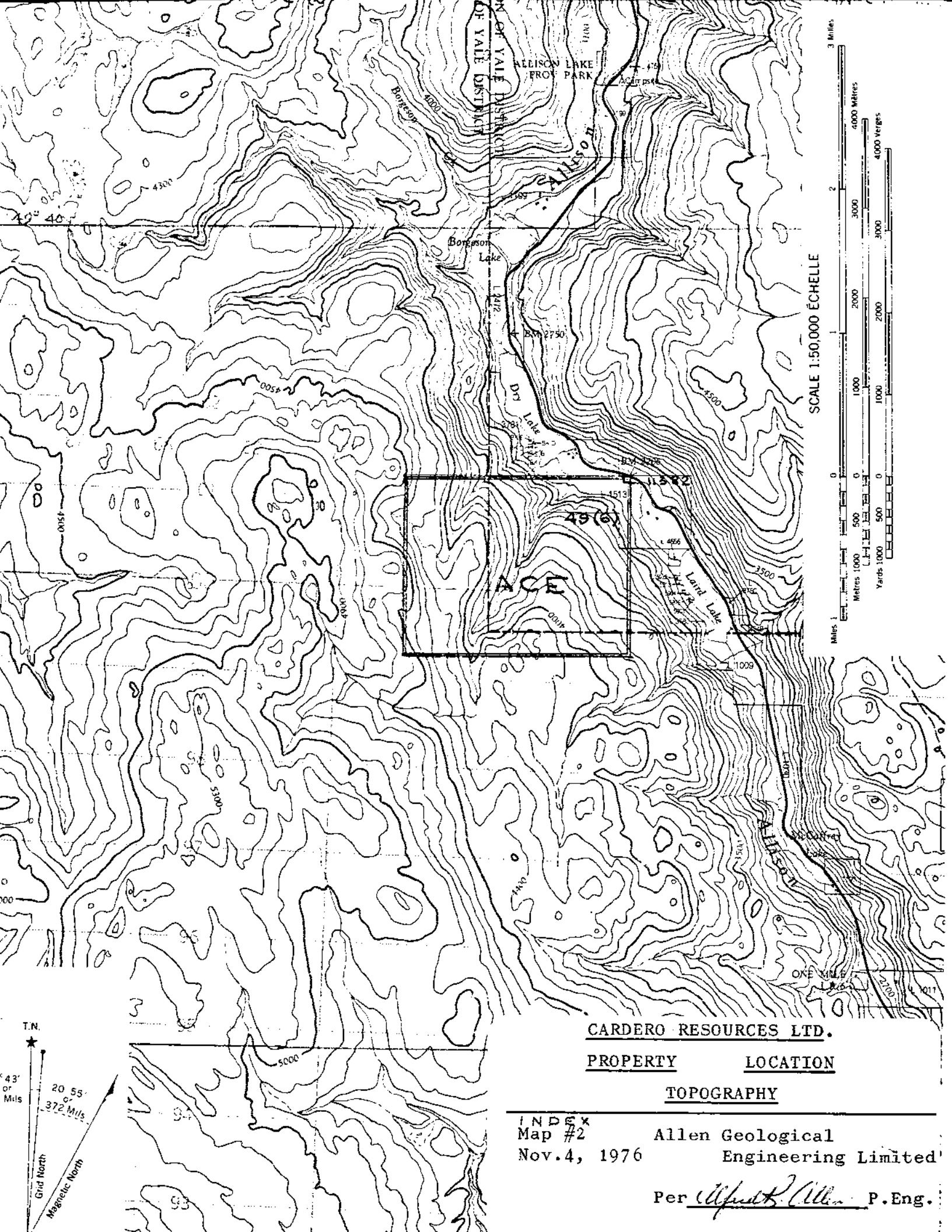
It is shown on the Ministry of Mines and Petroleum Resources Claims Map 92-H-10E and accompanying Index Map #2.

HISTORY

Chalcopyrite, malachite, azurite, sphalerite and pyrite mineralization was discovered on the claim prior to 1970. Reference is made to the area in the 1971-72 report Geology, Exploration and Mining by the Ministry of Mines and Petroleum Resources of B.C.

During the summer of 1972, D. Cochrane, P.Eng., conducted geochemical and magnetometer investigations over about one quarter of the claim area.

The property was acquired by Cardero Resources Ltd., in 1977.



REGION OF YALE DISTRICT
OF YALE DISTRICT

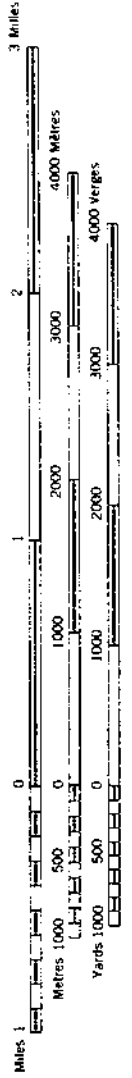
ALLISON LAKE
PROP. PARK

BORNEO LAKE

ACE

LAND LAKE

SCALE 1:50,000 ÉCHELLE



CARDERO RESOURCES LTD.

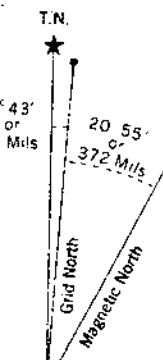
PROPERTY LOCATION

TOPOGRAPHY

INDEX
Map #2
Nov. 4, 1976

Allen Geological
Engineering Limited

Per Alfred B. Allen P. Eng.



TOPOGRAPHY

The Ace claim is located in the Allison Creek Valley about one kilometre south of Dry Lake and west of Liard Lake.

There is a steep rise from the valley at 823 metres above sea level to the west boundary of the claim at 1,370 metres elevation.

Two creeks flow through narrow V-shaped valleys northeasterly across the property into Dry Lake.

The mineral showings are located near the central part of the property on the west flank of the largest creek at 1060m above sea level.

GRID CONTROL

Using chain and Brunton compass a base line was surveyed from the Legal Post west, and close to the location line, to the northwest corner of the claim.

Stations were established every 150 metres by stakes and the line was well flagged and blazed.

From each base line station lines were surveyed by chain and Brunton compass south to the south boundary of the claim. Stations were established at 100 metre intervals by stakes and flagging on all lines.

All stations were marked with the appropriate grid location.

The grid is shown on the accompanying maps #3 and #4.

GEOLOGY

Upper Triassic andesitic rocks of the Nicola Group underlie most of the Ace claim, except for the southeast corner where they are overlain by Cretaceous volcanic rocks of the Kingsvale Group.

The northeast area of the property is underlain by granodiorite and quartz diorite of the Coast Range intrusives. The contact extends from the central east border to the central north border of the claim.

Sheared and altered andesite on the southwest side of the fault contain zones silicified andesite, quartz and calcite with pyrite, pyrrhotite, chalcopyrite, sphalerite and galena.

MAGNETOMETER SURVEY

A magnetometer survey was conducted over the 20 units of the Ace claim to determine the vertical component of the magnetic field at each station of a surveyed grid.

An MF-1 Scintrex instrument was used.

Diurnal variations were recorded at least twice daily at convenient locations on and near the claim.

The magnetometer was calibrated for latitude.

Field notes were corrected for diurnal variations and the final results are shown on Map #3 in the pocket of this report.

The high and low zones are indicated on the Composite Map #4, also in the pocket of this report.

SURVEY RESULTS

The vertical components of the magnetic field are all negative and the relatively high and low zones are shown on accompanying Map #3 Isomagnetic Plan and Map #4 the Composite Plan.

1. Near the northwest corner of the claim a high extends from Q1 to R2 at about 1240m elevation.
2. To the southeast of #1, from N2 to Q11, all within the creek valley, there is a zone of relatively low intensity. The northerly termination of this is within an area of above average copper content in the soil.
3. Three relatively high zones extend southeasterly from N7, L14 and G18. These are each about 250 metres long, and are widely separated, but each strikes southeasterly, and they lie across the trend of the main creek valley.
4. Close to F 5-6, within the granitic rocks on the west side of the main creek valley a distinct high zone lies more or less parallel to a low zone at G 4 to 6 and about 300 metres east of the mineralized showings.
5. To the east, also within the granitic rocks, are high and low parallel zones C5 to D5 and C7 $\frac{1}{2}$ to D7.
6. A relatively low zone lies 40 to 80 metres east of D15 to D20.
7. A relatively low zone lies 20 to 30 metres east of K0 to K3, about 150 metres northerly from the mineralized showings.

DISCUSSION OF RESULTS

The range from low to high intensity of the vertical component of the magnetic field over the claim is 1,700 gammas.

Although no anomalous zone crossed the contact between the Nicola andesitic rocks and the Coast Range intrusives, the following results are considered significant:

1. The low detected 20 to 30 metres east of K0 - K3 lies fairly close to the northerly projection of the mineralized showings exposed by trenches 1,2,3,4 and 5 in the Nicola andesitic rocks and west of the faulted igneous contact. This is steeply sloping overburden covered area, and is considered worthy of additional detailed investigation.
2. The four anomalous zones northeast of the faulted contact, and within the granitic intrusives, represent well defined paired high-low anomalies, perpendicular to each other. The significance of this is unknown, and warrants further investigation.
3. The anomalous low from N2 to Q11 lies close to the shallow, well wooded draw through which the small creek flows. The northeasterly extremity, however, includes the location of soil samples containing 45 to 80 ppm. copper.
4. The four anomalous highs, extending from F19 northwesterly to R2, may be associated with an erratic series of shears, paralleling the main fault contact zone extending from J0 to A12. The anomaly at L14 crosses the deeply incised creek valley at elevation 1,160 metres, whereas the anomalies on both N8 and G18 are at elevation 1,280 metres, indicating a possible southwesterly dip if the three are associated with the same structure or mineral trend.

SUMMARY AND CONCLUSIONS

The Ace claim is located at the south end of Dry Lake, west of Highway #5, 22 metres north of Princeton, B.C.

Prospectors had discovered pyrite, chalcopyrite, sphalerite, galena, malachite and azurite at several locations on the creek banks, and in the 1960's trenches had partially exposed several mineralized zones.

The elevation of the Allison Creek valley at the northeast corner of the claim is 823 metres above sea level. There is a steep rise to 1,370 feet at the southwest boundary. The main creek flows in a steeply incised valley northeasterly across the central area, and a smaller creek traverses the northwest corner of the claim.

A magnetometer survey was conducted on a 100 by 150 metre surveyed grid over the full 500 hectares of the property.

Six variations in the vertical component of the earth magnetic field were outlined.

Additional investigations are warranted and a \$15,000.00 programme has been recommended on the northeast quadrant of the claim.

Respectfully submitted,

ALLEN GEOLOGICAL ENGINEERING LIMITED

Per Alfred R. Allen P.Eng.

Alfred R. Allen

West Vancouver, B.C.

November 28, 1977.

REFERENCES

- Rice, H.M.A., Geological Survey of Canada Memoir 243 1947.
- Cochrane, D.R., Geophysical and Geochemical
Surveys on AT Group Assessment Report
#4349, 1972.
- Skerl, A.C., Geochemical Survey, Allison
Lake Claims, near Princeton, B.C. Assessment Report
#1857, 1969.
- Geology, Exploration and Mining,
B.C. Department of Mines and
Petroleum Resources 1971-72

* * * * *

Allen Geological Engineering Limited

2025 BELLEVUE AVENUE
WEST VANCOUVER, B.C., V7V 1B9

Telephone
604-926-4785

November 28, 1977.

British Columbia Securities Commission
756 Fort Street
Victoria, B.C.

Dear Sirs:

Re: Cardero Resources Ltd.

I hereby consent to the use of my report Dated November 28, 1977, on the Ace claim, Similkameen M.D., B.C., in any prospectus or Statement of Material facts or other material to be filed with the British Columbia Securities Commission or the Vancouver Stock Exchange by Cardero Resources Ltd.

Yours very truly,


Alfred R. Allen P. Eng.
Alfred R. Allen

For:

ALLEN GEOLOGICAL ENGINEERING LTD.

Allen Geological Engineering Limited

2025 BELLEVUE AVENUE
WEST VANCOUVER, B.C., V7V 1B9

Telephone
604-926-4785

CERTIFICATE

November 28, 1977.

I, Alfred R. Allen, certify that:

I am a graduate of the University of British Columbia and hold the following degrees therefrom:

BASc Geological Engineering 1939

MASc Geological Engineering 1941

I am a member of the Association of Professional Engineers of the Province of British Columbia.

I have practised my profession for the past thirty years.

I hold no interest in the properties or securities of Cardero Resources Ltd., or affiliates thereof, nor do I expect to receive any, directly or indirectly.

The accompanying report on the Ace property is based on field work done by the writer June 6, 1977 to August 28, 1977.

I consent to this report being filed with the British Columbia Securities Commission.

Alfred R. Allen P. Eng.

Alfred R. Allen

THE ACE CLAIM #49, Map 92H-10E

SIMILKAMEEN M.D., B.C.

FOR: CARDERO RESOURCES LTD.

PERSONNEL AND TIME

GRID

GEOLOGICAL SURVEY

GEOCHEMICAL SURVEY

MAGNETOMETER SURVEY

FIELD TIME

<u>Name</u>	<u>Month</u>	<u>Grid</u>	<u>Dates</u> <u>Geology</u>	<u>Geochem.</u> <u>& Mag.</u>	<u>Man</u> <u>Days</u>
A.R. Allen,	June:	16-18, 22, 23	15, 24-28		11
	July:	7, 21-23	13-15, 24	3, 16-20	14
	Aug.:		1, 14, 24-27, 30	2, 4-6, 8-10, 19	15
T. Thomas,	Aug.:	24-26		27	4
S. Money,	June:	16-17, 20-30			13
	July:	1, 4-10			8
R. Barnatson,	July:	16, 17, 21-24			6
M. Racher,	June:	26-30			5
	July:	1, 4, 5, 7-10, 13-15 17, 21-23			14
	Aug:			4, 5	2
K. Parks,	June:	16, 17, 21-24			6

MOBILIZATION, MAPPING, REPORTS

A.R. Allen,	June:	6, 13, 14, 22			4
	July:	6, 12, 13-15			2
	Aug.:	3, 24, 29			3
	Sept:	5-10, 13-15			9
	Oct.:	4-9, 14			7
	Nov.:	13, 14, 28			3

TOTAL

126

B.

MAGNETOMETER SURVEYACE CLAIM - #49, Map 92H - 10ESIMILKAMEEN M.D., B.C.FOR: CARDERO RESOURCES LTD.

Personnel, Time and Costs

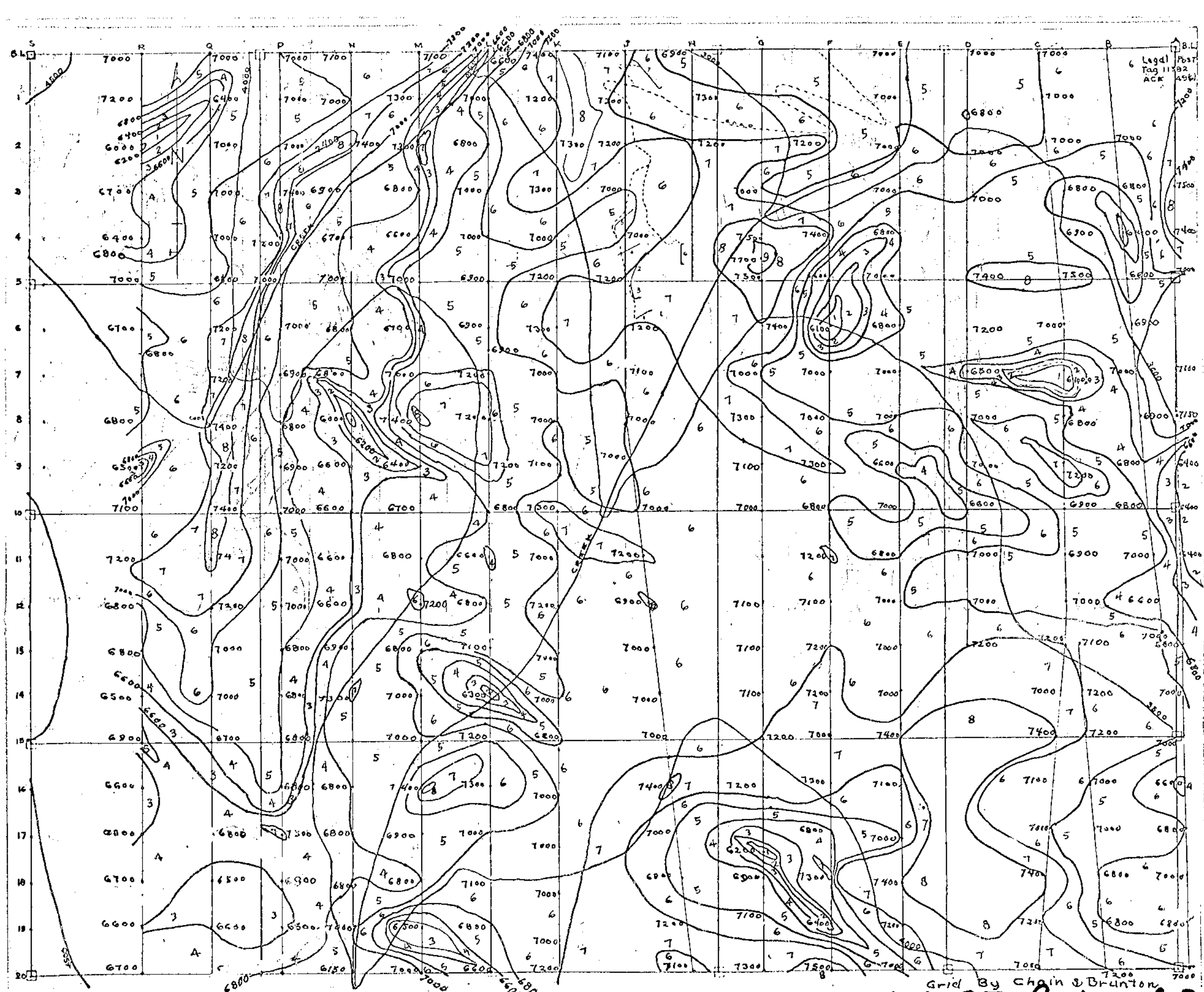
OPERATOR: Alfred R. Allen, Geological Engineer @ \$185.00/day
 202 - 2025 Bellevue, West Vancouver, B.C.
 June 6 - November 28, 1977.

CREW:

T. Thomas, Experienced field man
 R.R. 4, Mission, B.C. @ \$75.00/day
 S. Money, Axeman, Princeton, B.C. @ \$7/hour
 M. Racher, " " " @ \$7/hour
 K. Parkes " " " @ \$7/hour
 R. Barnatson " " " @ \$7/hour

SURVEY

	<u>Man Days</u>	<u>Costs</u>
T. Thomas	$\frac{1}{2}$	\$ 37.50
A.R. Allen	7	1,295.00
M. Racher	1	56.00
GRID	26	2,106.00
TRANSPORTATION, 2 cars @20¢/mile		240.00
ACCOMMODATION, Motel @ \$20.00/day		345.00
SUPPLIES		25.00
FOOD		388.00
MAPS, AIR PHOTOS		17.00
VEHICLE RENTALS, Jeep, Dune Buggy @ \$20/day		54.00
INSTRUMENT RENTAL		294.25
MOBILIZATION, MAPPING, REPORTS, A.R. Allen	11	2,035.00
TOTAL	<u>45$\frac{1}{2}$</u>	<u>\$6,892.75</u>



LEGEND

Isomagnetic Contours
 Vertical Component
 200 Gamma Intervals
 -6000 to -7700 Gammas
 MF-1 Magnetometer

100 200 300 400
 SCALE METRES

CONTOURS - GAMMAS

-6000 - 6199 ① -7000 - 7199 ⑥
 -6200 - 6399 ② -7200 - 7399 ⑦
 -6400 - 6599 ③ -7400 - 7599 ⑧
 -6600 - 6799 ④ -7600 - 7799 ⑨
 -6800 - 6999 ⑤

Grid by Chain & Brunton
6697 Part 3 of 3
GARDERO RESOURCES LTD.

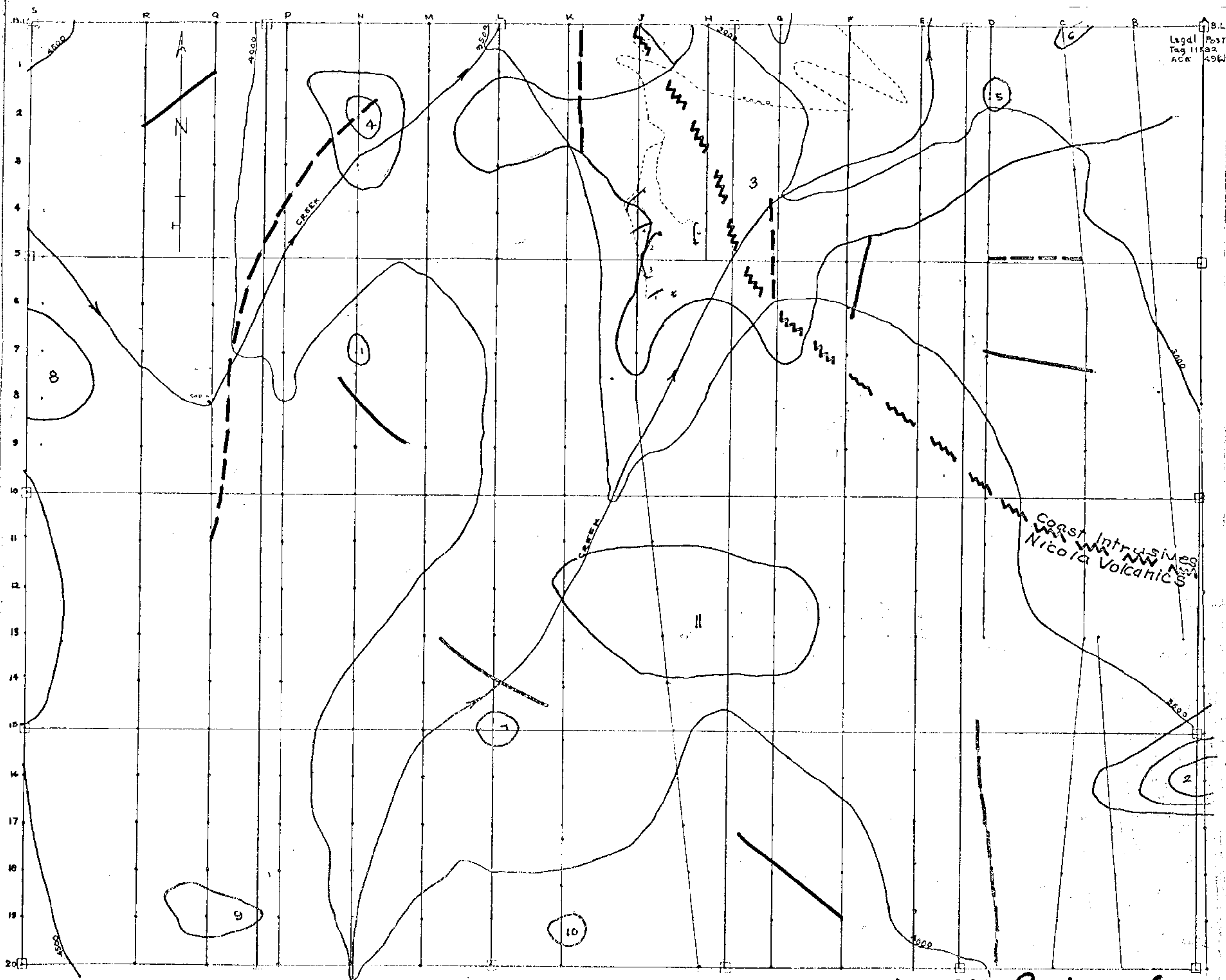
ACE PROPERTY
Similkameen M.D. B.C.

ISOMAGNETIC PLAN
 Scale 1"=200m

No. 3

Date: 27/11/77

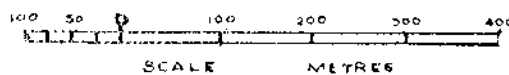
Allen Geological Engineering Ltd.
 Per *Alfred B. Allen* P.Eng.



Legal Post
Tag 11322
ACR 496

LEGEND

- COAST RANGE INTRUSIVES □
- NICOIA VOLCANICS □
- APPROXIMATE LOCATION FAULT CONTACT ~
- GEOCHEMICAL ANOMALIES - COPPER ⑦
- RELATIVE MAGNETIC HIGH —
- RELATIVE MAGNETIC LOW ---
- TRENCHES EXPOSING COPPER MINERALIZATION -
- MINE ROAD - - - - -



COMPOSIT PLAN

6697 Part 3 of 3

CARDERO RESOURCES LTD.

ACE PROPERTY
Similkameen M.D. B.C.

GEOCHEMICAL MAGNETOMETER GEOLOGY
Scale 1"=200m

No. 4
Date: 28/4/77

Allen Geological Engineering Ltd.
Per *Alfred L. Allen* P. Eng.