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250 NORTH GROSVENOR, VANCOUVER, CANADA TELEPHONE: (604) 298-9619

This is report No. EM-70-103
for Aspen Grove Mines Ltd.
HH., Mix & 3-Way Claims
in the Area of Aspen Grove, B.
April 19th to May 14th, 1970

GOVERNMENT AGENT
RECEIVED
MAY 17 1970

MERRITT, B. C.

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PLANS

(Rear)

#1 EM Profile

EM-70-103

#2 Geochemical

EM-70-103-G

#3 *Location Map*

EM-70-103-L

1" = 0.8 mile

elc geophysics ltd.

250 NORTH GROSVENOR, VANCOUVER, CANADA TELEPHONE: (604) 298-9619

ELC GEOPHYSICS GEOPHYSICAL REPORT NO. EM-70-103 ON A GROUND ELECTROMAGNETOMETER GEOPHYSICAL SURVEY CONDUCTED OVER THE HH, MIX, AND 3-WAY CLAIMS IN THE AREA OF ASPEN GROVE, B.C. FOR ASPEN GROVE MINES LIMITED, APRIL 19TH to MAY 14TH 1970

Purpose:

The purpose of the survey was to establish a ground detail survey grid and to electromagnetically survey over the anomalous areas located by a previous magnetometer geophysical Survey No. 69-500-M.

Instrumentation:

The E.M. instrument manufactured by Geonics Instruments of Toronto, Ontario, is a Type EM 16 and was operated from an infinite source consisting of the Naval Radio Station NPG in the State of Washington, U.S.A. on 18.6 Kcs.

Geochemical Analysis:

A total of 278 samples were taken over the grid as shown on Plan NO. EM-70-103-G.

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The samples were taken from the "B" Horizon first by removal of any overlying debris, then digging a hole, using a round-mouthed spade, approximately 15 inches below the surface. A sample from the hole was packaged using a standard kraft soil sample bag obtained from TSL Laboratories Ltd., 325 Howe Street, Vancouver 1, B. C. The sample determinations were made by Bondar-Clegg and Company Ltd. A copy of the Geochemical Laboratory Report is included in this report.

Geological Reference:

R. E. Renshaw, P. Eng., Geological Report, January 19th, 1964.

Dr. A. E. Aho, Geological Report, May 15th, 1964
(Three-Way) Copper property, Aspen Grove Mines Ltd.

Area Surveyed:

The survey grid, resulting profiles, and geochemical results are shown on the drawings No. EM-70-103 and EM-70-103-G. The grid layout and surveys were conducted under the supervision of R.L. Reece. The E.M. survey line spacing is 100

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feet and the station spacing is 50 feet along the grid lines. The Geochemical Survey line spacing averaged 300 feet in the southwest and averaged 200 feet in the northeast, the station spacing was 100 feet over the entire grid.

Presentation:

The surveyed areas are divided into two sections as indicated on our Plans EM-70-103 and EM-70-103G. The sections are relative to the coordinates thereby permitting a direct comparison to the previous survey of Aspen Grove Mines, No. 69-500-M of May 1969. The grids herein shown, cover selected portions of the previous magnetic survey. The grid lines of the Geochemical Survey are identical with the similarly located electromagnetic plan grid line, although the Geochemical grid averaged double the spacing.

The readings were taken at 50 foot intervals with a line spacing of 100 feet. The inphase and the quadrature components of the EM readings are shown in profile form along the grid lines and control lines. The interpretation of these profiles relate to the phase relation of the gradients combined with the cross-overs and associated line features. The interpretation of the EM profiles is principally in linear form of anomalies whereas the Geochemical

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survey is shown principally in the contour form. The scale of values of the EM readings are indicated on the EM Plan. The values shown on the Geochemical Plan indicate parts per million of copper. The contour lines are drawn on the values of 50 and 100 parts per million.

EM Survey Results:

The linear strikes are predominantly alligned in a northwest southeast direction whereas the curving formations or contact regions average strike is magnetically north and south.

The L1, L2 and L3 linear anomalies appear to terminate on the west on a shear zone indicated by the small anomalies L5, L6 and L7. The contact anomaly C1 is fairly clearly defined between 12+00 north and 20+00 north where L4 crosses C1. The relatively strong cross-over profile features within this area indicate prominent interfacial reaction on the contact.

The northeastern portion of the survey also indicates the linear strike trend to the northwest throughout the

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southwest portion, but with the strike to the north north east over the northeast portion. There are four prominent contact anomalies C3, C4, C5, and C6. The contact anomaly C3 becomes prominent north of 30+00 north and extends to the northern boundary of 40+00 north. C4 is clearly defined and fairly strong north of 27+00 north through to 40+00 north. However, there would appear to be more alluvial coverage on the north end of C4. The strongly anomalous area on the southeast corner commencing on 25+00 north at about 2+00 west. This strike appears more prominently on the early magnetic survey of May 1969, shown on Plan No. 69-500-M., and would appear to be the geological demarkation between the northeast section and the southwest section of this grid portion. The linear anomaly L11 follows this strike in the southern portion and joins L12 on the southern line 25+00 north at what would appear to be a shear zone. In the magnetic survey this was referred to as L1 anomaly.

Geochemical Survey Results:

Referring to the Plan EM-70-103-G, the southeast portion indicates an anomaly bracketed by the zone Z1 having readings in excess of 100 parts per million of copper.

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The northsouth contour of this anomaly was substantiated by the highs along the three adjacent lines. Two small random highs also exist on the values 108 and 110.

The northeast portion of the survey shows two anomalous zones of high readings, Z2 and Z3. The Z2 anomalous area shows consistent northsouth high readings extending from 30+00 north to 40+00 north. The high reading on the southern line 25+00 north shows the general association with the higher readings to the north and in a northwesterly direction. Islands of lows indicate the general strike pattern change between the northeast and southwest portion of this grid section. The Z3 anomaly shows a low in the centre, however, when coordinated with the EM survey, these isolated highs are more substantial.

Summary:

There appears to be considerable coordination between the EM anomalies and the Geochemical contours. The Z1 Geochemical anomaly follows the east side of the EM contact anomaly C1, also the linear anomaly L3. There appears a possibility of a local high on L7, but requires an additional line at 19+00 north for the Geochem confirmation.

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The northeast portion of the survey does not show a continuation of the contact anomaly C1, however this might be considered as C5. The area between C3 and C5 is the most consistent northsouth Geochem anomaly including Z2. The C4 contact to the east consistently follows closely with the series of relative high Geochem readings through the centre of the survey in a magnetic northsouth direction. This is particularly surprising in the southern portion where only one high reading above 50 parts per millions exists on each line.

The two highs in the Z3 zone on the Geochem survey appear to be associated with the L12 and L13 linears of the EM Survey. The high Geochem readings on the southern line 25+00 North appear to be associated with the shear zone from L8, L11 and L12, terminating on the southern end of C6. This area is very interesting and should be considered a zone of investigation, especially to the south of it.

Conclusion:

The C5 contact anomaly may be a continuation of C1 to the south. The mineralization appears to be generally

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east of this contact. The C3 contact may be a portion of the western boundary of this area of interest. This north-south area including Z1 and Z2 zones extending to 40+00 North at 2+00 West from 10+00 North at 10+00 West is in line between the surface showings to the north and the x-ray drill hole to the south referred to in Dr. Aho's report of May 16th 1964 on the Three-Way Copper Property.

This is the most pertinent aspect of the survey results.

The coordination of the L1 linear anomaly termination at L12 is also supported by high readings. The C4 contact anomaly shows favourable Geochem coordination and might be considered a potential western edge of a second northsouth trend of interest, equal to C1 - C5.

The results appear to have established a substantial base for a purposeful geological investigation in the subsurface.


D.L.HINGS, P.ENG.
GEOPHYSICIST

A STATEMENT OF COSTS FOR GEOPHYSICAL AND GEOCHEMICAL SURVEY
COVERING THE HH, MIX AND 3-WAY CLAIMS SOUTHEAST OF ASPEN
GROVE, B.C. BY ELC GEOPHYSICS LTD., APRIL 19 TO MAY 14, 1970

Survey Crew:

R.L. Reece	8 days @ \$60	\$ 480.00	
W. Mather	13 days @ \$35	455.00	
G. Olheiser	11 days @ \$35	<u>385.00</u>	
			\$ 1,320.00

Transportation:

4 x 4 Truck Rental			
	13 days @ \$18	\$ 234.00	
600 Miles	@ .10¢	60.00	
Gasoline		<u>30.00</u>	
			\$ 324.00

Living Costs:

31 man days	@ \$10		\$ 310.00
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Instrument:

13 days	@ \$10		\$ 130.00
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Miscellaneous Supplies:

Flagging Lathe, etc.			\$ 150.00
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Data Processing & Drafting:

D.A. Cramer	8 days @ \$50		\$ 400.00
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Geochemical Analysis:

\$ 333.60

Interpretation & Report:

D.L. Hings, P. Eng.			
	3 days @ \$150		\$ 450.00

TOTAL COST			<u>\$ 3,417.60</u>
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KLYCEPTOR GEOPHYSICAL SURVEY

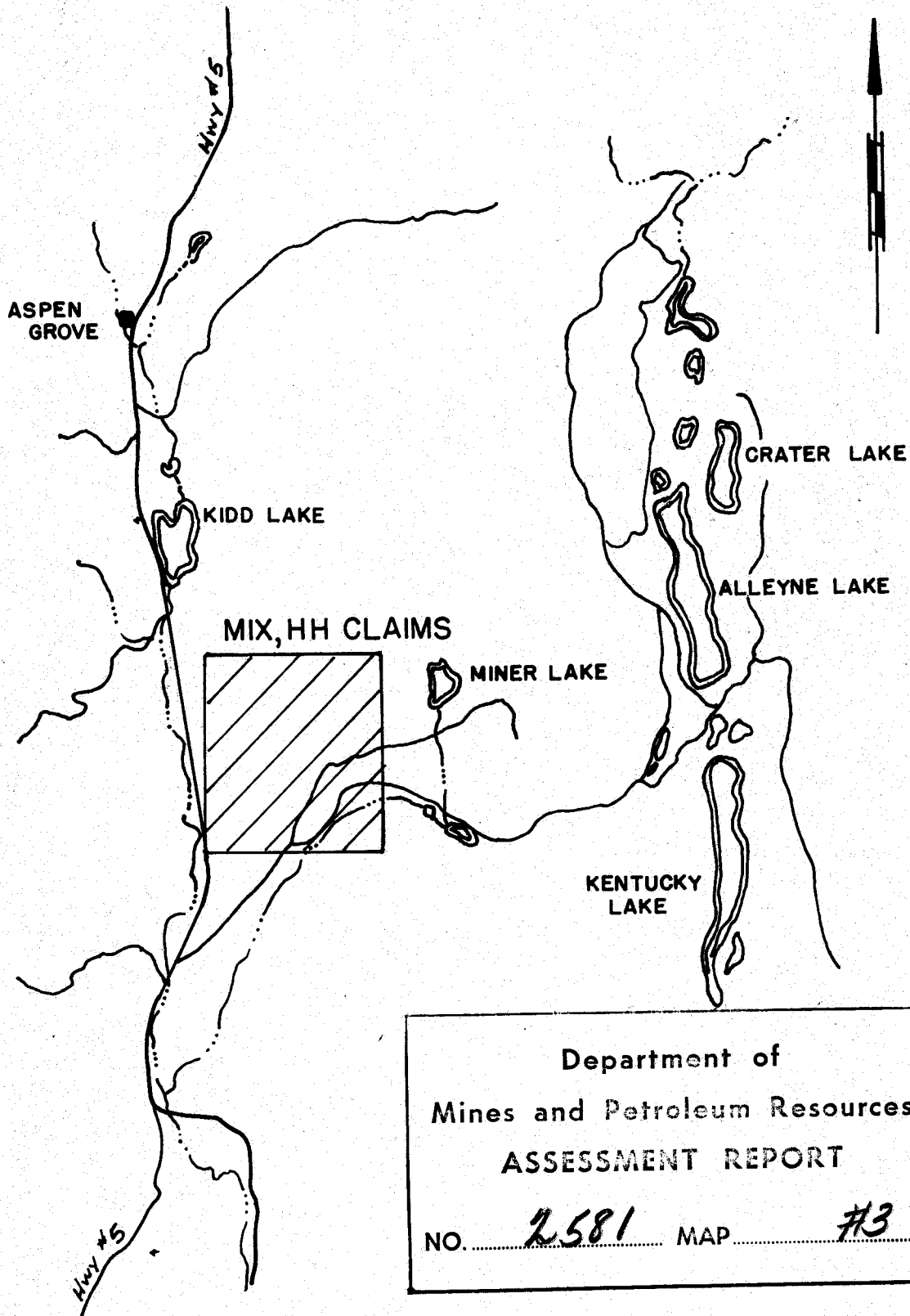
MIX, HH CLAIMS

ASPEN GROVE, B.C.

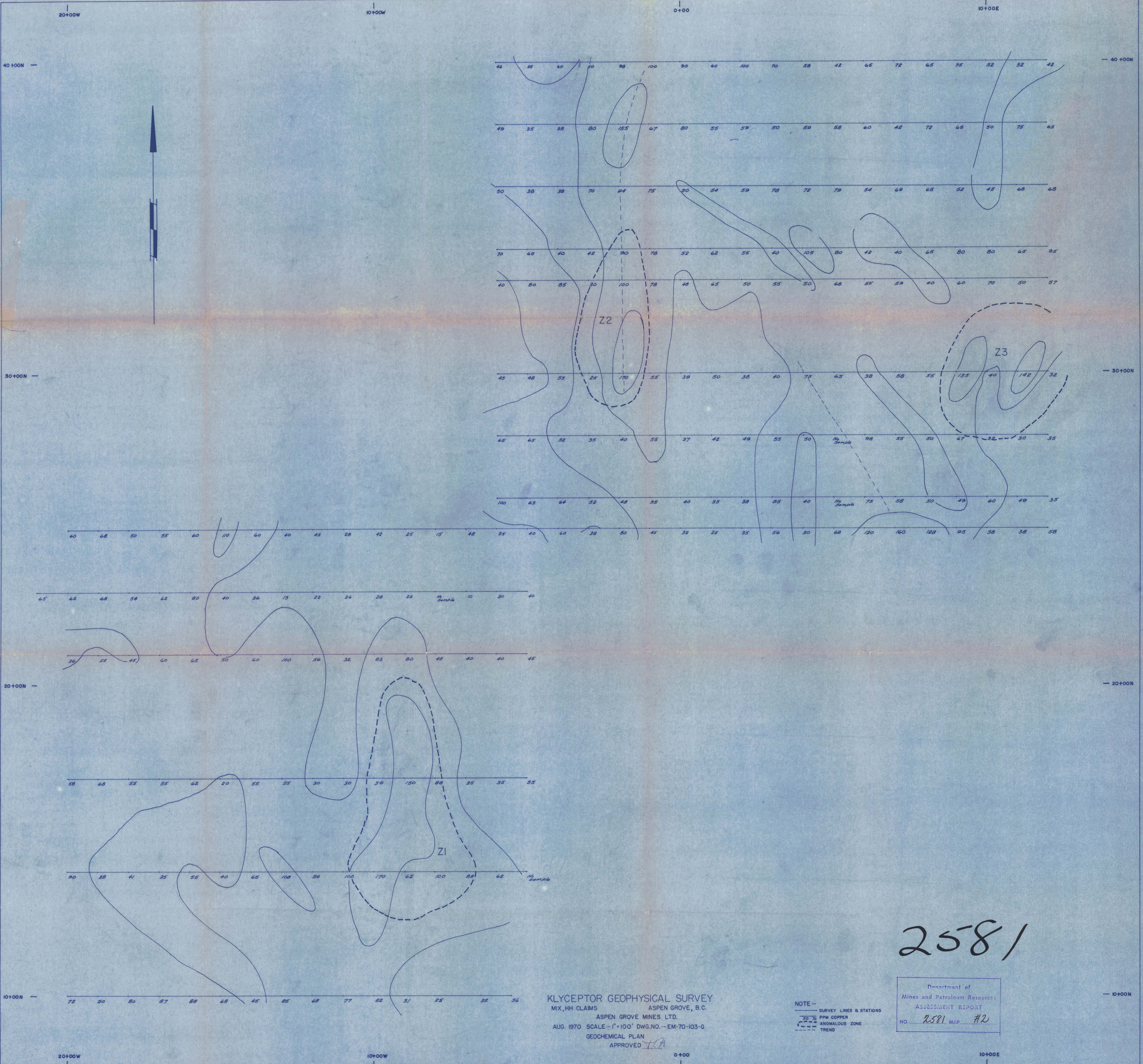
ASPEN GROVE MINES LTD

SEPT. 1970 SCALE :-1"=0.8 MI. DWG.NO.:- EM-70-103-L

LOCATION PLAN



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2581 MAP #3



2581

KLYCEPTOR GEOPHYSICAL SURVEY
 MIX, HH CLAIMS ASPEN GROVE, B.C.
 ASPEN GROVE MINES LTD.
 AUG. 1970 SCALE - 1"=100' DWG. NO. - EM-70-103-G
 GEOCHEMICAL PLAN
 APPROVED [Signature]

NOTE :-
 SURVEY LINES & STATIONS
 PPM COPPER
 ANOMALOUS ZONE
 TREND

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 2581 MAP #2