

GEOLOGICAL AND GEOCHEMICAL REPORT on the
RINGO CLAIM GROUP, OMINECA MINING DIV.

for 94D/8E ①

STELLAC EXPLORATION LTD.

by
D.L.Cooke, Ph.D., P.Eng., Sept. 1, 1972.

3839

D. L. COOKE, Ph.D., P.Eng.
CONSULTING GEOLOGIST

3839

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE

RINGO CLAIM GROUP

FIFTEEN MILES SE OF SUSTUT LAKE

OMINECA MINING DIVISION, 56° 126° SE

for

STELLAC EXPLORATION LTD.
GERMANSEN LANDING, B.C.

by

D. L. Cooke, Ph.D., P.Eng.
Consulting Geologist.

September 1, 1972.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3839 MAP

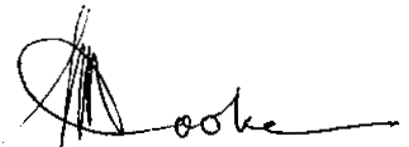


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1" = 500 ft.

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1" = 500 ft.

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1" = 500 ft.

D. L. COOKE & ASSOCIATES LTD.

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ON THE

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FIFTEEN MILES SE OF SUSTUT LAKE

OMINECA MINING DIVISION, 56° 126° SE

Located claims on which assessment credits are requested:

<u>Name of Claims</u>	<u>Credit Requested</u>
<u>RINGO CLAIM GROUP:</u>	
Ringo #1 to 12, inclusive	1 year each
Ringo #13 to 15, "	1 year each
Norlen #9 to 14, "	1 year each
Tumble #3 and 4	1 year each
Total: 23 years.	

Work was done on the Ringo claim group on September 2, 1971 and between July 31, 1972 and August 5, 1972.

Reported by:

D. L. Cooke, Ph.D., P.Eng.

Consulting Geologist.

September 1, 1972.

D. L. COOKE & ASSOCIATES LTD.

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- 1 -

SUMMARY

The Ringo claims are located on a molybdenum prospect near the northern margin of the Hogem batholith, approximately 15 miles southeast of Sustut Lake. Access to the claims is by helicopter 12 miles west from Aiken Lake, which may be reached by road, 100 miles northwest of Germansen Landing, B.C.

Work on the claims was done between the dates August 1, 1971 and August 16, 1972, and consisted of geological mapping and a geochemical soil survey. Soil samples were analyzed for copper, zinc, and molybdenum.

The area is underlain by a north to northwest belt of sheared and foliated volcanic and sedimentary rocks of the Takla Group. Mineralization consists of coarse disseminated blebs of molybdenite, occurring within felsite and pegmatite dikes and within coarse amphibolite zones. The mineralization occurs on the periphery of a pyroxenite body which has intruded the Takla rocks. Minor amounts of pyrite and chalcopyrite are present within quartz veins found in the area.

INTRODUCTION

The Ringo claim group was mapped by the writer on September 2, 1971 and July 31, 1972 to September 5, 1972. Douglas Stelling of Germansen

Landing acted as field assistant during the mapping periods, and also did preliminary prospecting and mapping on August 1, 1972. Soil sampling was done by Glen Brovchenko of Germansen Landing, from July 31, 1972 to August 5, 1972. The exploratory work was instigated at the request of Douglas Stelling for Stellac Exploration Ltd.

The geological mapping was carried out at a scale of 1" = 500 ft. by compass and pace survey. General survey control was provided by traverse lines being tied into the claim location lines. These location lines were chained and flagged at 100 ft. intervals.

The general location of the claims is shown in the insert on Figure 1. The geological map (Figure 1) and the geochemical maps (Figures 2 - 4) were prepared from information collected during the course of this survey. The results are presented and discussed in this report.

As a result of the geological and geochemical work performed, it is requested that assessment credits be applied to the Ringo claim group as follows:

<u>Name of Claim</u>	<u>Record Number</u>	<u>Date Recorded</u>	<u>Credits</u>
Ringo 1 - 12	102393 - 102404	August 16, 1971	1 year each
Ringo 13 - 15	104153 - 104155	September 15, 1971	1 year each
Norlen 9 - 14	104159 - 104164	September 15, 1971	1 year each
Tumble 3 - 4	102073 - 102074	August 11, 1971	<u>1 year each</u>
		Total:	23 years

The total value of assessment credits requested on the Ringo claim group is \$2,300.00. Total expenditure on the geological and soil survey is \$2,337.50.

PROPERTY AND OWNERSHIP

The property consists of the following twenty three contiguous located mineral claims, owned jointly by Douglas Stelling and Leonard J. LaCasse of Germansen Landing, B.C.

<u>Name of Claim</u>	<u>Record Number</u>	<u>Owner</u>
Ringo 1 - 12	102393 - 102404	D. Stelling
Ringo 13 - 15	104153 - 104155	D. Stelling
Norlen 9 - 14	104159 - 104164	D. Stelling
Tumble 3 - 4	102073 - 102074	L. J. LaCasse

LOCATION AND ACCESS (Figure 1, insert)

Latitude: 56° 24' N.

Longitude: 126° 07' W.

Elevation: 5,000' - 7,500'

Mining Division: Omineca.

The Ringo claim group is located 12 miles west of Aiken Lake and 15 miles southeast of Sustut Lake at the head of Dortatelle and Kliyul Creeks. Access is by road to Aiken Lake via Germansen Landing, and then by helicopter up Kliyul Creek. The showings occur above timberline in the vicinity of two small glaciers. This location corresponds generally to the MoS₂ prospect indicated on Map 962A of McConnell Creek (Lord, 1948).

HISTORY

As far as the writer is able to determine, the prospect covered by the Ringo claims was not previously held by any other mineral claims. Although the B.C. Dept. of Mines claim maps indicate possible overlap with the Soup 1 - 10 claims, a description of the location of the Soup claims suggests that they lie on a tributary of Kliyul Creek to the east of the Ringo Group.

GEOLOGY

Regional Geology

The area lies on the northern margin of the Hogem batholith where it is in contact with volcanic and sedimentary rocks of the Takla Group. A small ultrabasic intrusion underlies the eastern portion of the claims, and this mass is in contact with the Takla Group to the north and with the Hogem batholith to the south. Similar geologic associations occur immediately to the east in the Aiken Lake Map-Area (Roots, 1954). The volcanic and sedimentary units range in age from Triassic to Jurassic, and the intrusions from Jurassic to Cretaceous (Lord, 1948).

Detailed Geology (Figure 1)

The claim group is underlain mainly by a northwest trending belt of foliated greenstones. The major fold structure appears to be a broad synclinal feature interrupted by minor faults and folds. In the eastern section of the property, the rocks are mainly sedimentary in nature, and they consist of interbedded argillites, tuffs, and tuffaceous limestones. To the west they are mainly interbedded

phyllites and chloritic amphibolites derived from intermediate to basic volcanic units.

The ultrabasic body which occupies the eastern part of the claim group is a pyroxenite intrusion. It is massive in texture, and consists of interlocking and equigranular pyroxene crystals. Alteration to amphibole and serpentine occurs to a minor extent. Accessory amounts of magnetite, pyrite and pyrrhotite are also present.

A broad zone of massive to coarse grained "knotty" amphibolite occurs in close proximity to the pyroxenite intrusion near the centre of the claims. Irregular patches and swirls of uralite, talc, tremolite, and stringers of carbonate are common within this zone, which appears to be the result of both regional and contact metamorphic forces.

The amphibolite is characterized by abundant interstitial magnetite, and minor quantities of sulphides. Pegmatite and felsite dikes and quartz lenses intersect the deformed volcanic and sedimentary series. The pegmatite consists chiefly of white quartz and pink feldspar within fine grained aplitic margins. White felsite dikes are composed mainly of fine grained feldspar. Carbonate, chlorite, and sub-radial amphibole occur within the host rocks on the margins of these dikes.

MINERALIZATION (Figure 1)

Molybdenite is the mineral of main interest here. It occurs as medium to coarse grained rosettes and flakes, unevenly disseminated within

felsite material scattered in talus over large areas on Ringo #5 and #6 claims. This material was also located in place on Ringo #6 where a mineralized felsite dike 3' by 100' outcrops. Assays of grab samples from this felsite material ranged from a trace to 1.51% Mo.

Lesser amounts of float with molybdenite in felsite also occur together with pegmatite and quartz vein material on the Ringo #2, 3, 7 and 8 claims. Pyrite and chalcopyrite are present to a lesser extent in some float of pegmatite and quartz vein. Material with similar mineralization occurs in two veins above the glacier on Ringo #14. Several rusty weathering areas within the foliated rocks contain pyrite disseminations, but these are void of chalcopyrite and molybdenite mineralization.

GEOCHEMISTRY

The presence of abundant rock exposure and steep talus slopes has prevented the development of soil horizons above timberline. Poorly developed soils exist, however, at lower elevations where a cover of moss, shrubs, and small trees grows. The soil survey was therefore only possible over such areas which occur on the Ringo #1, 3, 5 and 7. Samples were collected every 100 ft. along lines 400 ft. apart.

Sample Preparation and Analysis

The geochemical survey which was completed included the collection and analysis of approximately 150 soil samples. Samples were collected from the B horizon at a depth of six to twelve inches. These samples were placed in kraft paper bags and forwarded to Barringer Research for

analysis for copper, zinc, and molybdenum.

At the Barringer laboratory the samples were dried overnight. They were then sifted and the minus 80 mesh portion of each sample was extracted by an acid attack. A 250 milligram amount was digested with perchloric acid, extracted in an acid solution, and determined for the three elements desired. All determinations were made by atomic absorption spectrophotometry.

The atomic absorption spectrophotometer accepts a small portion of the extract solution which is aspirated into an oxygen-acetylene flame. The flame temperature is sufficient to dissociate most of the sample into the atomic state. The amount of sample absorption of the line spectrum of the particular element being analyzed for is compared with the amounts obtained by previously carefully prepared standard solutions. The values of the standards are plotted on log-log paper with percent absorption against concentration. The amounts of copper, zinc and molybdenum in each sample are read from the graph and converted to parts per million.

Soil Survey Results (Figures 2, 3, 4).

The results for copper, zinc and molybdenum are plotted separately and presented in Figures 2, 3 and 4. Copper values in excess of 100 ppm. are considered anomalous. The most prominent copper anomaly measures 500' x 2,000' (Figure 2), and this coincides well with the areas containing MoS₂ float (Figure 1). This anomaly is open to the east where

talus cover prevented further soil sampling. Several smaller anomalies occur on the western edge of the soil survey area, and these are open to the west.

The results for zinc (Figure 3) do not indicate any prominent anomalous areas, as the majority of the soils contain less than 90 ppm. zinc.

Molybdenum anomalies (+10 ppm.) are less extensive than copper, but they show partial coincidence. The central Mo anomaly, 500' x 1,000' overlies the MoS₂ float train. The anomaly lying down slope from this area is open to the north. Another area to the west coincides with a copper anomaly, and this one is open to the west.

CONCLUSIONS

1. Molybdenite mineralization occurs on the Ringo claims mainly within felsite dikes, and to a lesser extent in pegmatite and amphibolitic zones in close proximity to a pyroxenite intrusion. None of these occurrences are expected to yield substantial tonnages. The grade of molybdenite in felsite, however, may be relatively high.
2. The central molybdenum and coincident copper soil anomaly reflecting talus material is derived from the mineralized felsite dike to the south. The eastern extension of these anomalies may be derived from mineralization underlying the glacier. By analogy, the smaller anomalies lying on the northwest edge of the soil survey area, may indicate the presence of other unexposed or undiscovered molybdenite occurrences.

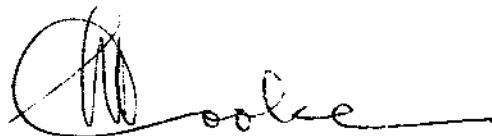
3. Although the mineralized amphibolitic material in float on the Ringo #3 claim was not found in place, the soil survey did not indicate any anomalous source areas upslope from this occurrence.

RECOMMENDATIONS

1. Further soil sampling of the area to the north and west of the present survey area is recommended to define the extent of the copper and molybdenum anomalies indicated on the margins of these areas.
2. Because of the difficulty of access, bulldozer trenching is not recommended. Some blasting and hand trenching may, however, be useful in establishing the tenor of mineralization observed in felsite dikes and quartz veins.

Respectfully submitted,

D. L. COOKE & ASSOCIATES LTD.

A handwritten signature in cursive script, appearing to read 'D. L. Cooke', written over a horizontal line.

D. L. Cooke, Ph.D., P.Eng.
Consulting Geologist.

September 1, 1972.

REFERENCES

1. Lord, C. S., 1948, McConnell Creek Map-Area, Cassiar District,
British Columbia, G.S.C. Mem. 251, 72 pp.
2. Roots, E. F., 1954, Geology and Mineral Deposits of Aiken Lake
Map-Area, British Columbia, G.S.C. Mem. 274, 246 pp.
3. Cooke, D. L., 1971 and 1972, Field Notes and Maps, Ringo Claim Group.

STATEMENT OF EXPENDITURES

ON THE

RINGO CLAIM GROUP

FIFTEEN MILES SE OF SUSTUP LAKE - OMINECA MINING DIVISION 56° 126° SE

GEOLOGY:

FEES AND SALARIES

D. L. Cooke, Consultant - Mapping:

Sept. 2, 1971, July 31, 1972 to Aug. 5, 1972
7 days @ \$100.00/day\$700.00

Douglas Stelling, Field Assistant - Mapping:

Sept. 2, 1971, July 31, 1972 to Aug. 5, 1972
7 days @ \$50.00/day 350.00 \$1,050.00

GEOCHEMISTRY:

Glen Brovchenko, Field Assistant - Sample Collection:

July 31, 1972 to Aug. 5, 1972
6 days @ \$25.00/day\$150.00

Sample Analysis (Barringer Research Ltd.)

150 samples @ \$2.25 ea. for Cu, Zn, Mo 337.50 487.50

TRANSPORTATION:

Bell 63B1 Helicopter (from Aiken Lake)

Sept. 2, 1971 - 1 hr.
July 31, 1972 and Aug. 5, 1972 - 2½ hrs.
i.e. 3½ hrs. @ \$160.00/hr. 560.00

DOMICILE:

Camp Equipment and Food -

20 man days @ \$12.00/day 240.00

Total Expenditures (September 2, 1971 to August 16, 1972) \$2,337.50

Declared before me at the City
of Vancouver, in the
~~Province of~~ British Columbia, this 7
day of Sept. 1972, A.D.

A Commissioner for taking Affidavits within British Columbia or
Notary Public in and for the Province of British Columbia.

STATUTORY DECLARATION IN
SUPPORT OF EXPENDITURES

CANADA) IN THE MATTER OF the Statement of
Province of British Columbia) Expenditures for Geological and
TO WIT) Geochemical work on the Ringo Mineral
Claims in the Omineca Mining Division.

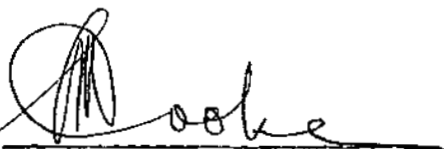
I, DAVID LAWRENCE COOKE, Consulting Geologist of 334 Francis Road,
Richmond, in the Province of British Columbia, DO SOLEMNLY DECLARE:-


1. THAT the Geological Investigation of the Ringo Claim Group was
carried out by me, and the soil survey was done under my
supervision.
2. THAT the Statement of Expenditures set out in Appendix A of
my report "Geological and Geochemical Report on the Ringo
Claim Group", dated September 1, 1972, truly represents the
amounts expended on the said claim group.

AND

I make this solemn Declaration conscientiously believing it to be
true, and knowing that it is of the same force and effect as if
made under oath, and by virtue of the Canada Evidence Act.

DECLARED before me at the)
City of Vancouver, in the)
Province of British Columbia)
this 7th day of Sept)
A.D. 1972.)




A Commissioner for taking
Affidavits for British Columbia.

SUB-MINING RECORDER

D. L. Cooke & Associates Ltd.

D. L. COOKE, Ph.D., P.Eng.
CONSULTING GEOLOGIST

APPENDIX C

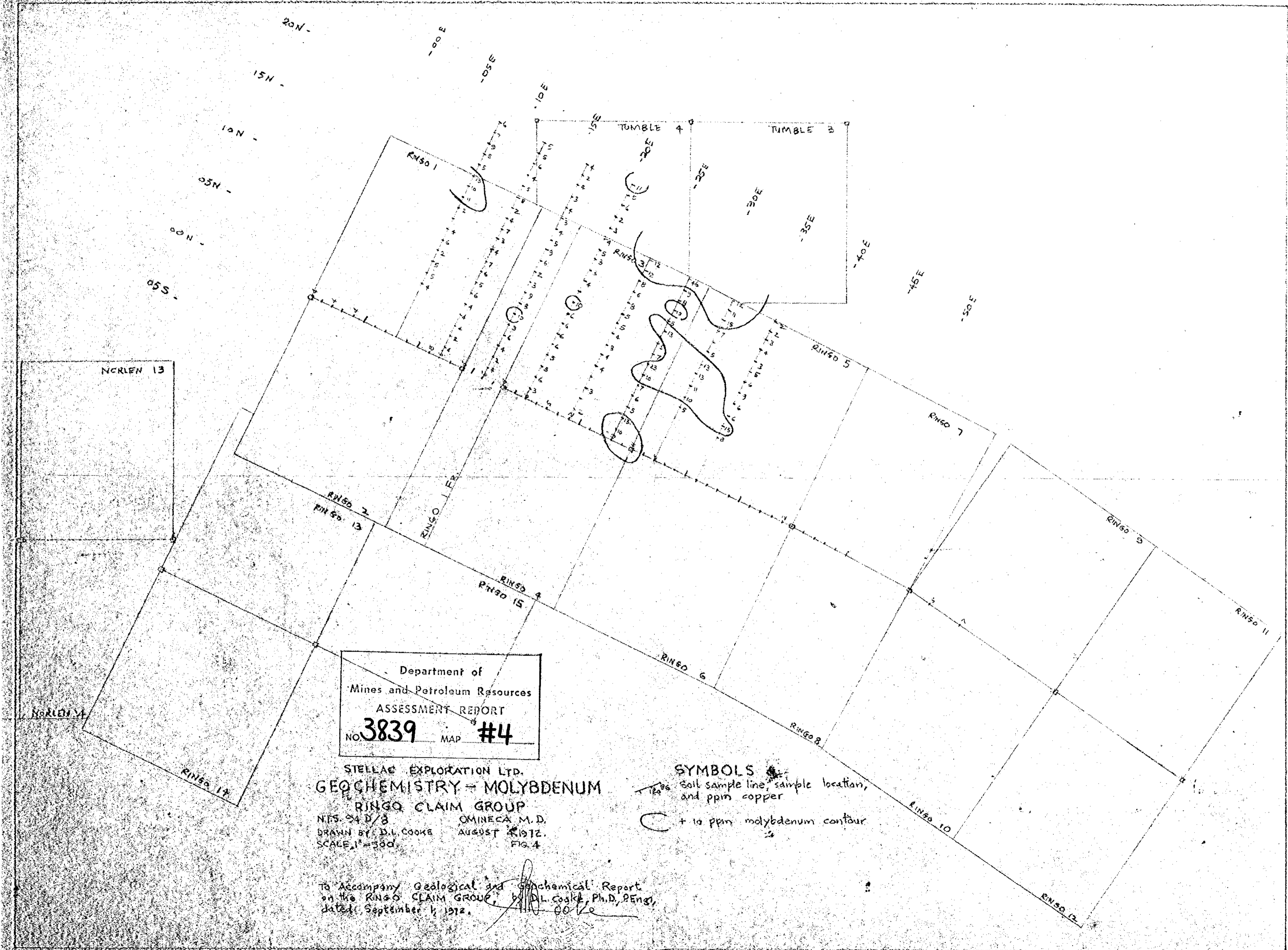
STATEMENT OF QUALIFICATIONS

1. I, David Lawrence Cooke, am a Consulting Geologist, residing at 334 Francis Road, Richmond, B.C., with an office at the same address.
2. I graduated with a B.Sc. degree in Geology from the University of New Brunswick in 1959, and a M.A. degree in Geology from the University of Toronto in 1961. My Ph.D. degree in Geology was conferred by the University of Toronto in 1966.
3. I am a certified member of the Association of Professional Engineers of the Province of British Columbia.
4. I carried out the geological work performed on the Ringo Claim Group, and supervised the soil survey which are described herein.
5. I am the author of this report.

Signed: 

D. L. Cooke, Ph.D., P.Eng.
Consulting Geologist.

September 1, 1972.

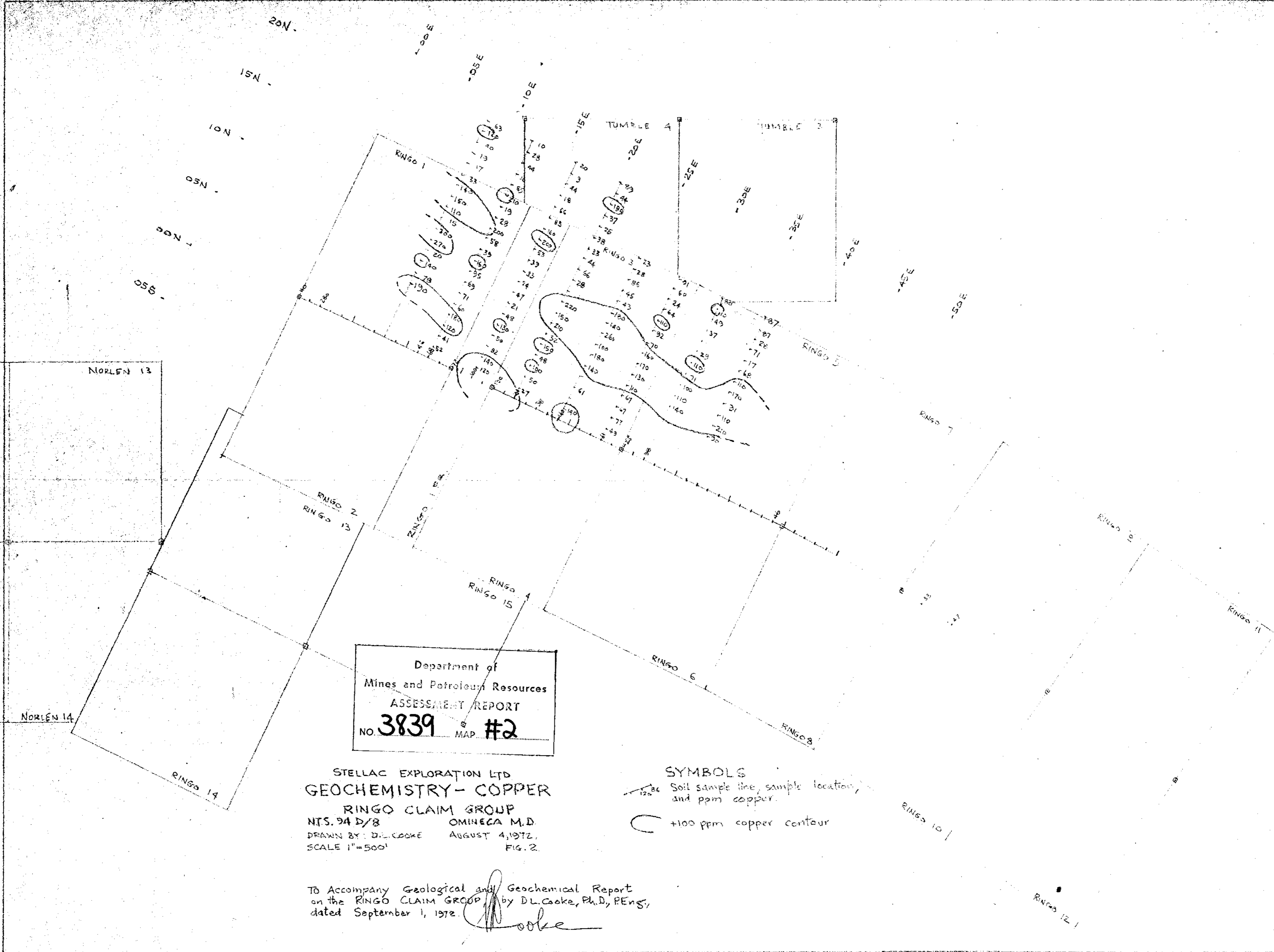


Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. **3839** MAP **#4**

STELLAE EXPLORATION LTD.
GEOCHEMISTRY - MOLYBDENUM
RINGO CLAIM GROUP
 NTS. 94 D/8 OMINECA M.D.
 DRAWN BY: D.L. COOKE AUGUST 1972.
 SCALE: 1" = 500' FIG. 4

SYMBOLS
 — Soil sample line, sample location, and ppm copper
 C + 10 ppm molybdenum contour

To Accompany Geological and Geochemical Report
 on the RINGO CLAIM GROUP, by D.L. COOKE, Ph.D., P.Eng.,
 dated September 1, 1972.



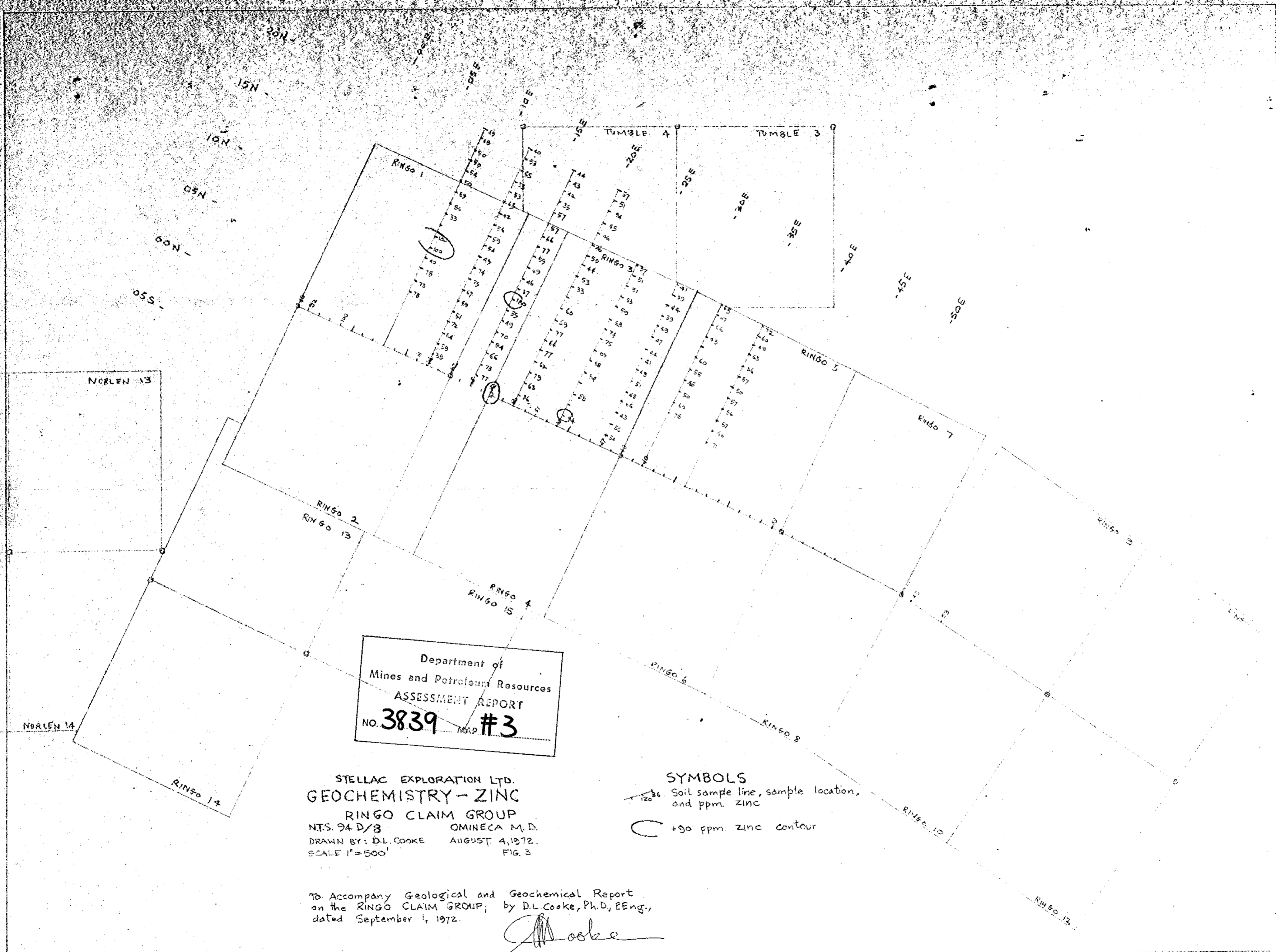
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3839 MAP #2

STELLAC EXPLORATION LTD
GEOCHEMISTRY - COPPER
RINGO CLAIM GROUP
NTS. 94 D/8 OMINECA M.D.
DRAWN BY: D.L. COOKE AUGUST 4, 1972.
SCALE 1"=500' FIG. 2.

SYMBOLS
 Soil sample line, sample location, and ppm copper.
 +100 ppm copper contour

To Accompany Geological and Geochemical Report
on the RINGO CLAIM GROUP, by D.L. Cooke, Ph.D., P.Eng.,
dated September 1, 1972.

Cooke



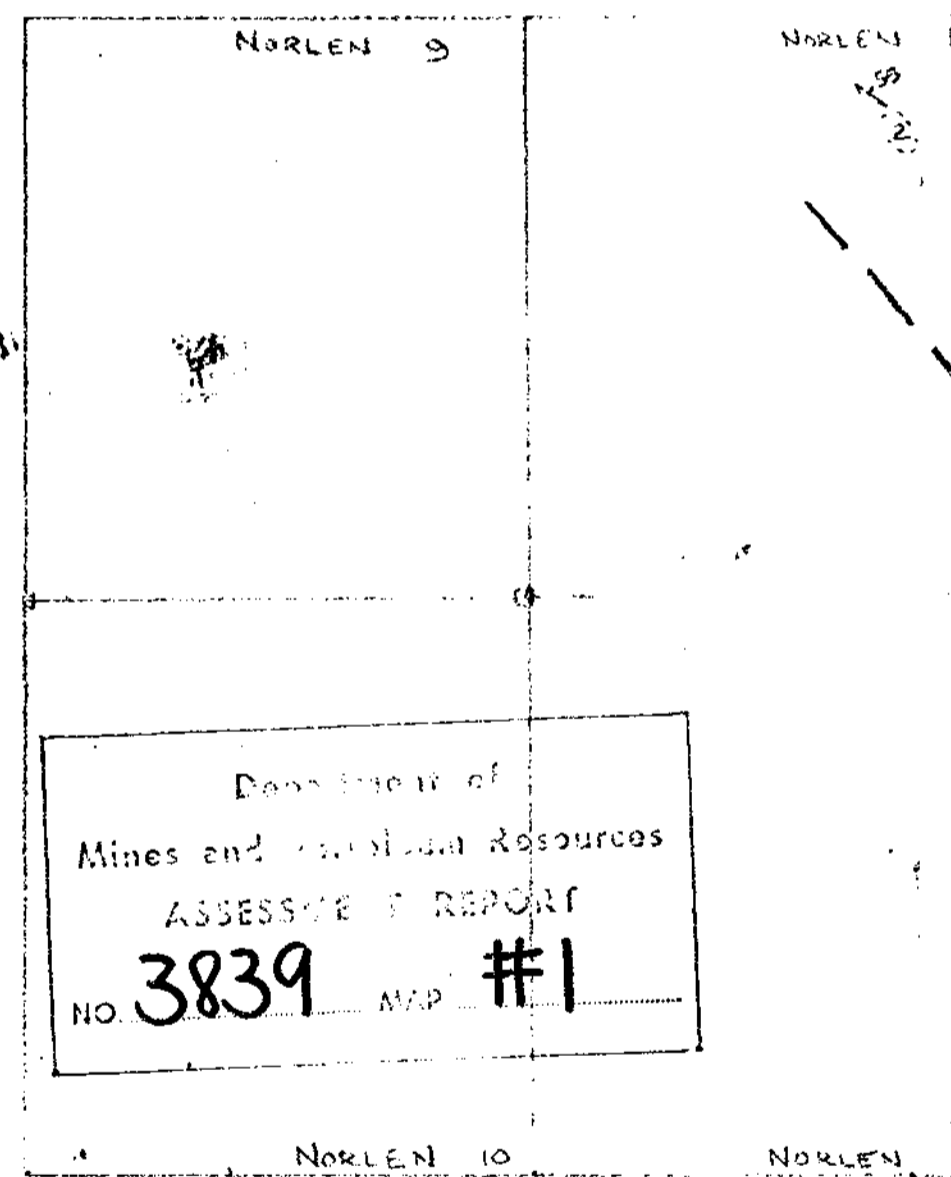
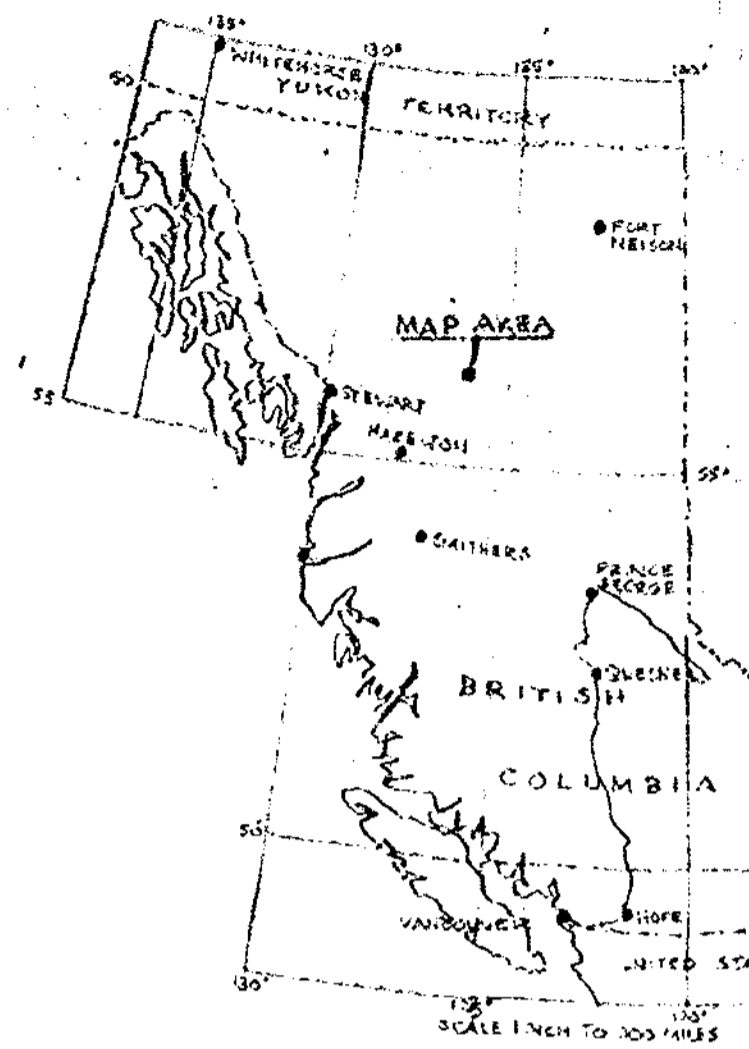
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3839 MAP #3

STELLAC EXPLORATION LTD.
GEOCHEMISTRY - ZINC
RINGO CLAIM GROUP
NTS. 94 D/3 OMINICA M.D.
DRAWN BY: D.L. COOKE AUGUST 4, 1972.
SCALE 1" = 500' FIG. 3

SYMBOLS
 Soil sample line, sample location, and ppm. ZINC
 100 ppm. ZINC contour

To Accompany Geological and Geochemical Report
on the RINGO CLAIM GROUP; by D.L. COOKE, Ph.D., P.Eng.,
dated September 1, 1972.

D.L. COOKE



Department of
Mines and Technical Resources
ASSESSMENT REPORT
NO. 3839 MAP #1

STELLAC EXPLORATION LTD.

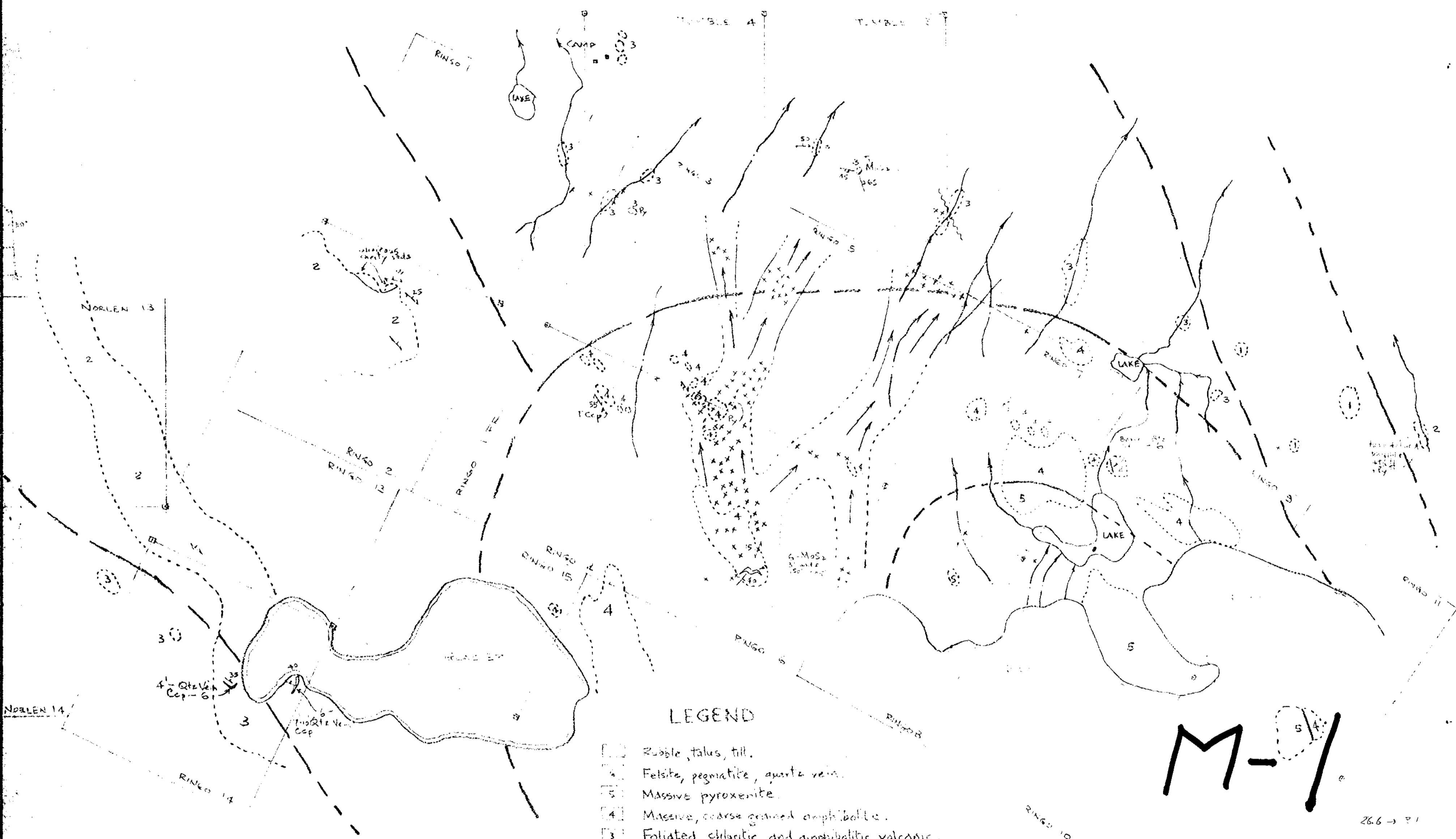
GEOLOGY
RINGO CLAIM GROUP

N.T.S. 94D/8 OMINACA M.D.

Drawn By: DL Cooke; August 4, 1972
Scale 1"=500' FIG. 1

To Accompany Geological and Geochemical Reports on the Ringo Claim Group, by DL Cooke, Ph.D., dated September 1, 1972.

Cooke



LEGEND

- [Symbol] Rubble, talus, till.
- [Symbol] Felsite, pegmatite, quartz vein.
- [Symbol] Massive pyroxenite.
- [Symbol] Massive, coarse grained amphibolite.
- [Symbol] Foliated, chloritic, and amphibolitic volcanic.
- [Symbol] Phyllite, phyllitic tuff and sediment.
- [Symbol] Calcareous pyroclastic.
- [Symbol] Outcrop limit.
- [Symbol] Altitude of foliation.
- [Symbol] Altitude of fractures.
- [Symbol] Geological contact.
- [Symbol] Glacier and permanent ice.
- [Symbol] MoS₂ float and direction of dispersion.
- [Symbol] Claim post and claim boundary.
- [Symbol] Cep Chalcopyrite, Py-Pyrite.

M-1

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26.6 - 27.1