

GEOLOGICAL REPORT
ON THE
HILL PROPERTY
Nadina Lake Area
Omineca Mining Division
British Columbia

FOR
SWIFT MINERALS LTD.

BY
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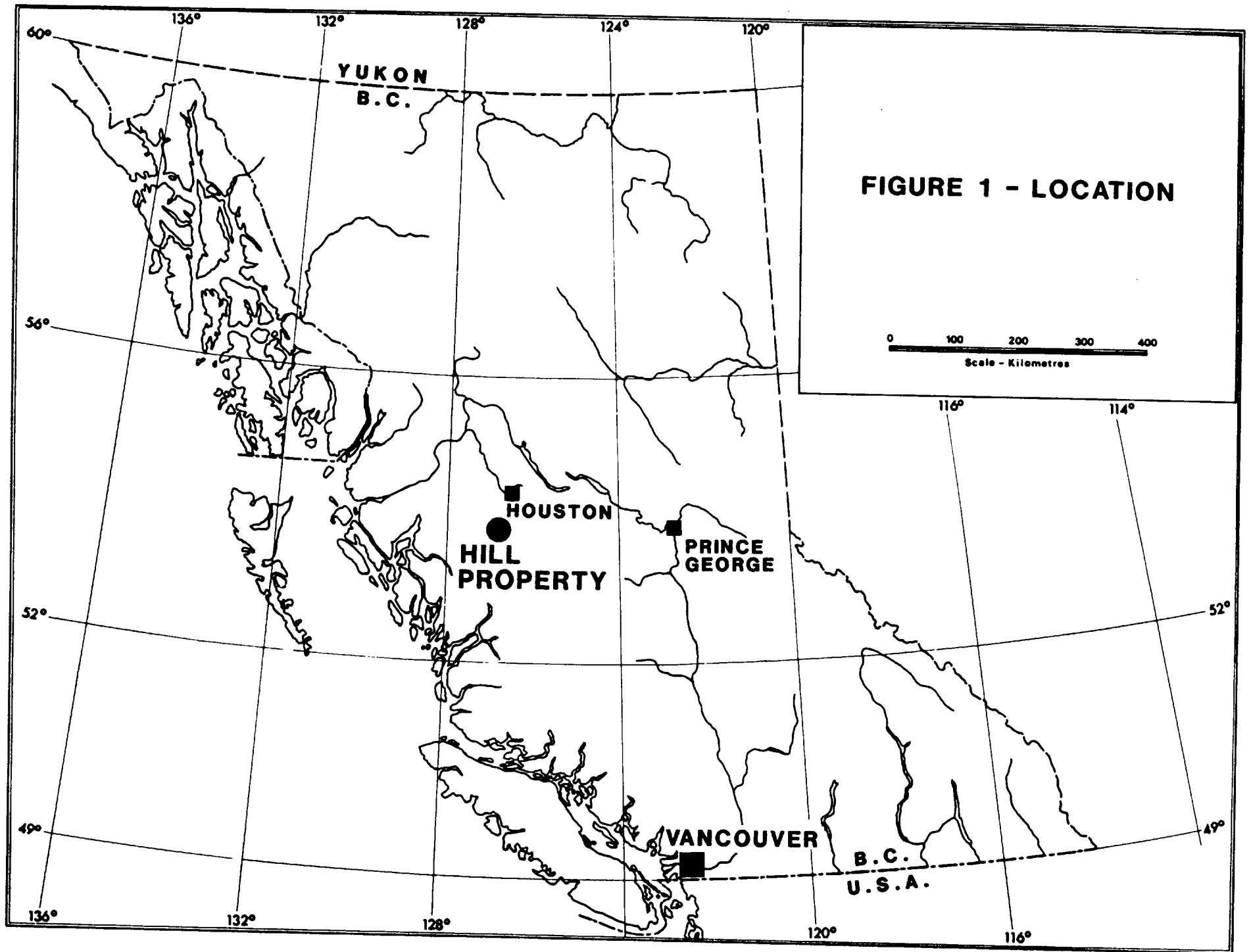
SUMMARY

Swift Minerals Ltd. has an agreement with respect to the HILL mineral claim situated north of Nadina Lake in the Omineca Mining Division of west-central British Columbia.

The HILL property is situated in an area of British Columbia which has demonstrated potential for porphyry copper-molybdenum and precious metals mineralization. Previous exploration work within and adjacent to the property has identified coincident geological, geochemical and geophysical signatures which are typical of a porphyry mineral system.

Previous percussion drilling has partially tested geochemical and geophysical anomalies but results of this drilling are unknown.

It is recommended that the north-central part of the property be further tested for copper-molybdenum and possible related precious metals mineralization by two or three inclined diamond drill holes at an estimated cost of \$50,000.00.



INTRODUCTION

Swift Minerals Ltd. has entered into an agreement with respect to the HILL property which consists of 15 mineral claim units and is situated north of Nadina Lake in west-central British Columbia.

This report, prepared at the request of Swift Minerals Ltd., is based on a review of previous exploration work within and adjacent to the present property area as contained in Provincial Government assessment files. Various published reports and maps dealing with the geological setting of the property have also been used in the preparation of this report.

The writer has not visited the HILL claim but has extensive background knowledge of this area gained by way of geological studies throughout west-central British Columbia and numerous property examinations in the general area of the property.

LOCATION AND ACCESS

The HILL property is situated 55 km southwest of Houston in west-central British Columbia (Figure 1).

The mineral claim is located 5 km north of Nadina Lake and several km west of the Tahtsa Lake road (Figure 2). The geographic centre of the property is at latitude 53°57' North and longitude 126°59' West at the boundary of NTS map-areas 93E/14E and 15W.

Access to the property is by road from Houston by way of the Owen Lake - Tahtsa Lake road and a new logging road which passes south of the claim boundary (Figure 2).

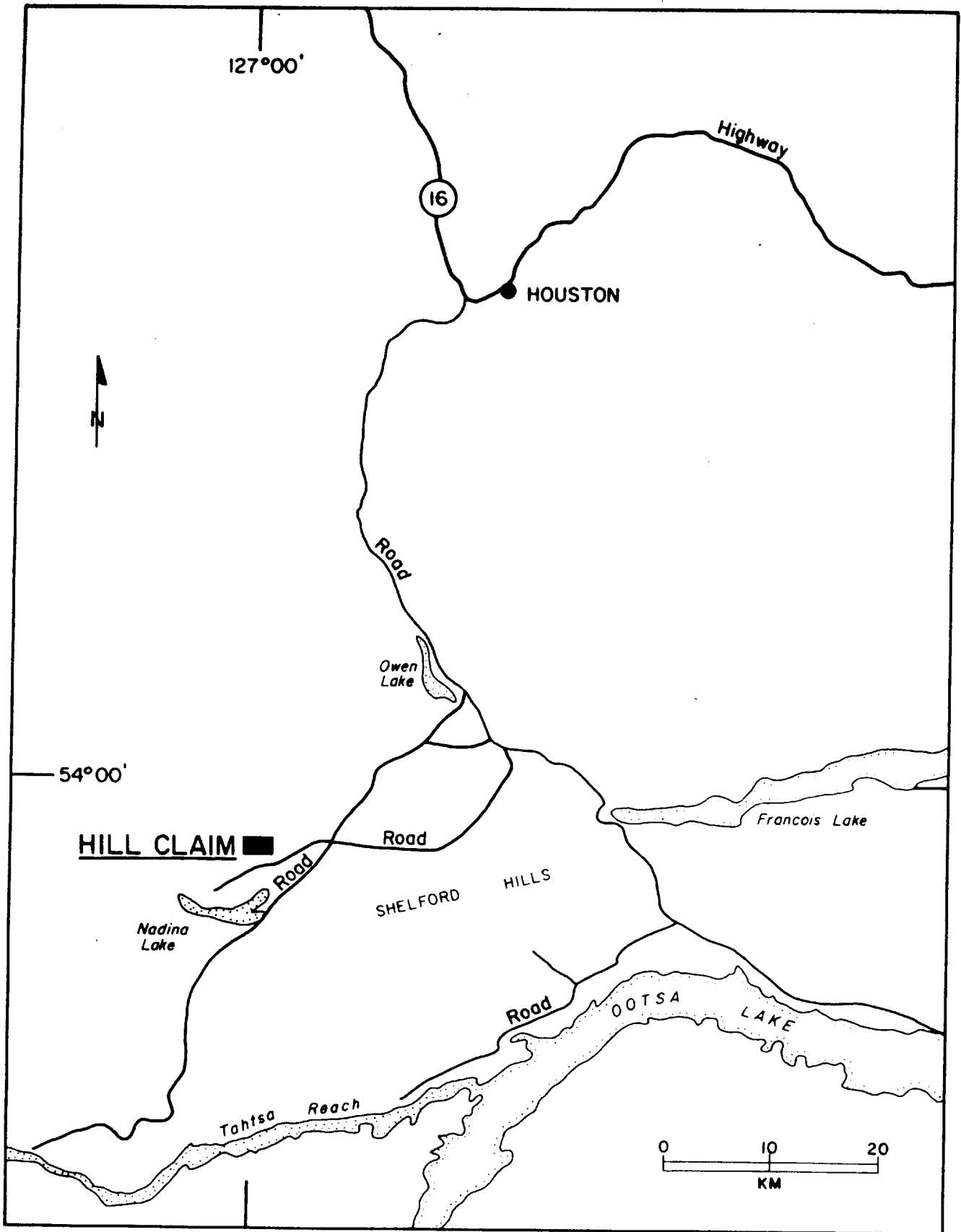


FIGURE 2 - LOCATION - HILL MINERAL CLAIM

Several early 1970's drill access roads could be rehabilitated to provide access to most parts of the present claim.

MINERAL PROPERTY

The HILL property consists of one Modified Grid mineral claim of 15 units in the Omineca Mining Division. No claim posts or lines have been examined by the writer.

While the claim is believed to have been located in accordance with procedures as specified by the Mineral Tenure Act Regulations of the Province of British Columbia, a dispute has been filed pursuant to Section 35 of the Mineral Tenure Act by the owner of the SH#1 mineral claim which overlies the HILL claim. An official inspection was undertaken September 3 of this year and a decision on the status of the HILL claim is pending.

Details of the claim are as follows (Figure 3):

<u>Claim Name</u>	<u>Record Number</u>	<u>Units</u>	<u>Date of Record</u>
HILL	9760	15	August 31, 1988

The claim is registered in the name of R.L. Blusson.

PHYSICAL FEATURES

The HILL claim covers moderate topography in the Nechako Plateau consisting of tree covered slopes and open, swampy valleys. Elevations range from 975 to 1220 metres above sea level.

Bedrock exposures are sparse, being mainly restricted to the tops of some slopes. Much of the property is covered by glacial debris; previous percussion drilling indicates overburden depths

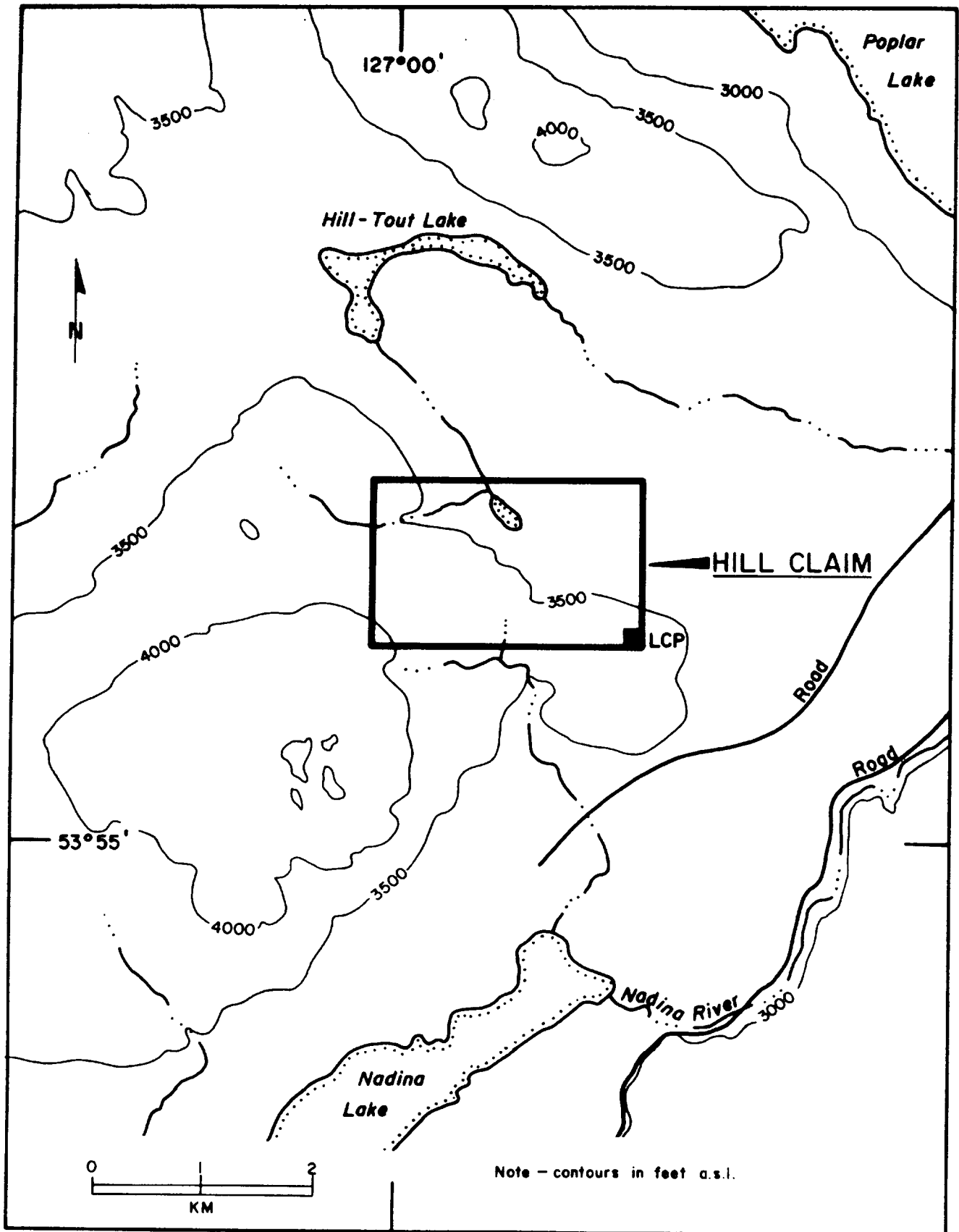


FIGURE 3 - HILL MINERAL CLAIM

ranging from 4 to 35 metres.

HISTORY

Kennco Explorations (western) Ltd. undertook geological and geochemical surveys in an area including the present HILL claim in 1968.

A fairly large group of claims, known as the Dual and Con claims, were further explored between 1971 and 1974 by Passport Mines Ltd. and Quintana Minerals Corporation. This work included geological mapping, soil and rock geochemistry, an Induced Polarization survey and 36 percussion holes totalling 1673 metres.

Newmont Exploration of Canada Ltd. carried out magnetometer and Induced Polarization surveys over an area including the present claim in 1983.

REGIONAL GEOLOGICAL SETTING AND MINERAL DEPOSITS

The Tahtsa Reach - Nadina Lake area of west-central British Columbia is within the Intermontane tectonic belt. Oldest rocks exposed are early to mid Jurassic Hazelton Group volcanic and sedimentary rocks. These are overlain in part by early Cretaceous Skeena Group successor basin sedimentary and lesser volcanic rocks, by late Cretaceous Kasalka Group volcanic rocks and by local outliers of Tertiary basic volcanic rocks (Woodsworth, 1980; Diakow and Drobe, 1989).

The Jurassic and Cretaceous layered sequences are intruded by numerous granitic plutons of late Cretaceous and Tertiary age (Carter, 1981)

Many of these intrusions between Tahtsa Reach and Poplar (Tagetochlain) Lakes have associated porphyry copper and molybdenum mineralization. These include Huckleberry, Ox Lake and Poplar deposits associated with Bulkley porphyritic intrusions of late Cretaceous age and Berg where supergene enriched copper mineralization is related to a Tertiary (Eocene) quartz monzonite porphyry plug. Most of the known deposits have low gold and silver values in addition to copper-molybdenum mineralization.

The area immediately west of the HILL claim, between Nadina and Hill-Tout Lakes (Figure 3), includes several late Cretaceous granitic intrusions which cut Hazelton Group volcanic rocks (Diakow and Drobe, 1989). Three of these intrusions, of granodiorite - quartz diorite composition, have associated copper-molybdenum mineralization which occurs in quartz veinlets and in fractures both within the intrusions and altered country rocks.

PROPERTY GEOLOGY AND MINERALIZATION

As noted previously, very little bedrock is exposed in the area of the HILL claim. Best exposures include grey-green porphyritic andesite flows in the higher areas in the southwest part of the claim. These contain pyrite in fractures and as disseminations (Montgomery and Giroux, 1972). Fragmental volcanic rocks are reported northeast of the small lake in the north-central part of the claim. Based on Diakow and Drobe's (1989) mapping, these may be part of a younger Cretaceous sequence which is separated from the more predominant Hazelton Group volcanics by a northwest-trending fault

marked by the drainage between the small lake and Hill-Tout Lake (Figure 3).

A 1.5 km diameter quartz monzonite porphyry to quartz diorite stock is exposed adjacent to the western claim boundary (Diakow and Drobe, 1989). More mafic phases of the intrusives contain disseminated pyrite and chalcopyrite. A broad zone with 2-5% disseminated pyrite in hornfelsed volcanic rocks extends in an easterly direction through the claim (Montgomery and Giroux, 1972; Figure 4). Some chalcopyrite is present within the pyrite zone and grades of 0.2% copper and 0.002% molybdenum have been reported (Montgomery and Giroux, 1972).

A detailed soil sampling grid, centred on the small lake, indicated anomalous copper values (+200 ppm - up to 1980 ppm) in two areas and one adjacent area with molybdenum values in excess of 6 ppm (Montgomery and Giroux, 1972; Figure 4).

These areas of anomalous soil geochemistry are crudely coincident with higher chargeabilities as defined by Induced Polarization surveys (Neilsen, 1974; Limion, 1983; Figure 4). These chargeability highs reflect the known pyrite zone (Figure 4) and higher apparent resistivity values are marginal to them, just north of the claim boundary.

Magnetic highs form a semi-circular pattern east of the chargeability highs (Limion, 1983).

24 percussion holes totalling approximately 900 metres were drilled within the boundaries of the present HILL claim by Quintana in 1973-74. Most of these were drilled to depths of about 35 metres

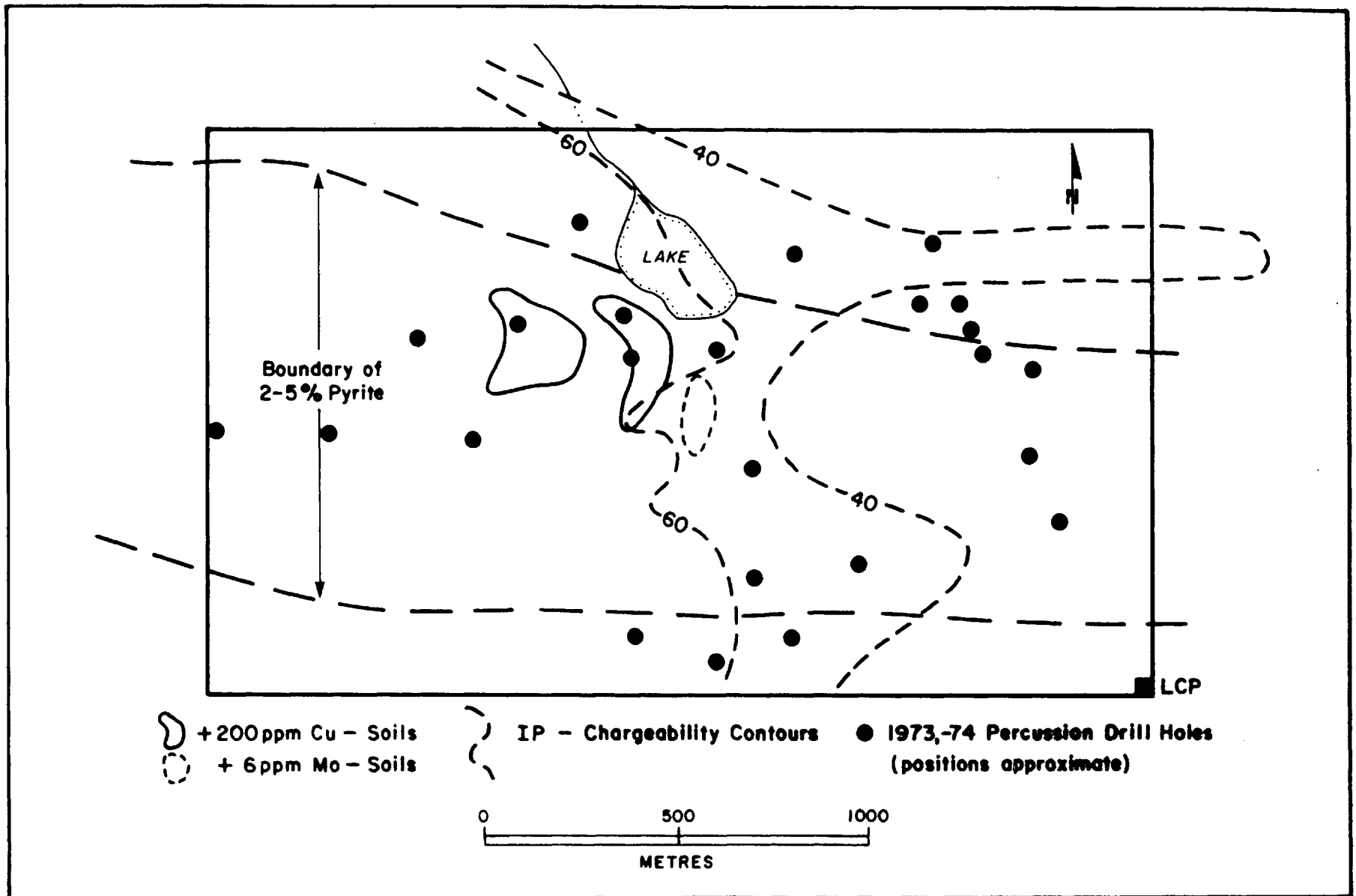


FIGURE 4 - HILL CLAIM - PRINCIPAL GEOCHEMICAL & GEOPHYSICAL FEATURES

and the only information regarding this work in public files pertains to depths of overburden and hole lengths.

It is apparent from Figure 4 that the objectives of the percussion drilling were to test the chargeability high, the pyrite zone and the zones of anomalous copper values in soils. No information regarding lithologies or grades of mineralization encountered is available. It is doubtful if any analyses for precious metals were carried out at that time.

CONCLUSIONS AND RECOMMENDATIONS

Available information indicates that the HILL claim includes geological, geochemical and geophysical targets which have been partially tested by percussion drilling.

Unfortunately, little information is available concerning this drilling. It is important to note however that all holes were vertical, relatively shallow and were concentrated in the eastern and southern portions of the present claim.

In a typical porphyry copper system, higher pyrite concentrations are marginal to zones with better copper grades. Only a few percussion holes have been drilled north of the known limits of the pyrite zone which is crudely coincident with higher chargeabilities and just south of the zone with higher apparent resistivities.

It is recommended that the margins of the pyrite zone be further tested by two or three inclined diamond drill holes. These holes, of 170 metre lengths, should be drilled in a southerly direction from set-ups adjacent to the small lake in the northern claim area.

COST ESTIMATE

Diamond Drilling - 500 metres @ \$75/metre	\$37,500.00
Sample Analyses	\$2,000.00
Supervision, reporting	\$7,500.00
Contingencies	<u>\$3,000.00</u>
Total	\$50,000.00

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REFERENCES

- B.C. Ministry of Energy Mines and Petroleum Resources-
Geology Exploration and Mining 1971 - p.147
1972 - p.346
1973 - p.325
1974 - p.247
- Carter, N.C. (1981): Porphyry Copper and Molybdenum Deposits, West-Central British Columbia; BCMEMPR Bulletin 64
- Diakow, L.J. and Drobe, J.R. (1989): Geology and Mineral Occurrences in North Newcombe Lake Map Sheet, BCMEMPR Open File Map 1989-1
- Howell, W.A. (1974): Lily Project, Quintana Minerals Corporation, BCMEMPR Assessment Reports 5166, 5207, 5277
- Montgomery, J.H. and Giroux, G.H. (1972): Geology and Geochemistry-HT and AFP Groups of Mineral Claims, Omineca Mining Division, BCMEMPR Assessment Report 3877
- Limion, H. (1983): Nadina Project, Report on Newmont Geophysical Surveys, CU 1-4 Claims, Omineca Mining Division, BCMEMPR Assessment Report 11236
- Neilsen, P. (1974): Geophysical Report of the Induced Polarization Survey, Lil and HT Claims, Nadina Lake Area, Omineca Mining Division, BCMEMPR Assessment Report 5314
- Panteleyev, A. (1968): Geological and Geochemical Surveys, Dual Claim Group, Omineca Mining Division, BCMEMPR Assessment Report 1647
- Woodsworth, G.J. (1980): Whitesail Lake - Geological Survey of Canada Open File 708

CERTIFICATE

I, NICHOLAS C. CARTER of Victoria, British Columbia, do hereby certify that:

1. I am a Consulting Geologist registered with the Association of Professional Engineers of British Columbia since 1966.
2. I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962) and the University of British Columbia with Ph.D.(1974).
3. I have practised my profession in eastern and western Canada and in parts of the United States for more than 25 years.
4. The foregoing report is based on a review of previous exploration work on and near the HILL property and on published reports and maps. The writer has not visited the HILL property but has an extensive background in the geology and mineral deposits of west-central British Columbia.
5. I have no interest, direct or indirect, in the HILL mineral claim or in the securities of Swift Minerals Ltd.

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December 4, 1989

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