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GEOLOGICAL REPORT

ON THE

SOUTHAIR PROPERTY

CALLAGHAN CREEK AREA

VANCOUVER MINING DIVISION

BRITISH COLUMBIA

N.T.S. 92J/3E

FOR

CHALICE MINING INC.

BY

STANLEY B. REAMSBOTTOM, Ph.D., P.Eng.

May, 1983

CHALICE MINING INC.
BOX 2240, SECHLT, B.C.
VON 3A0 885-5016

PROPERTY FILE

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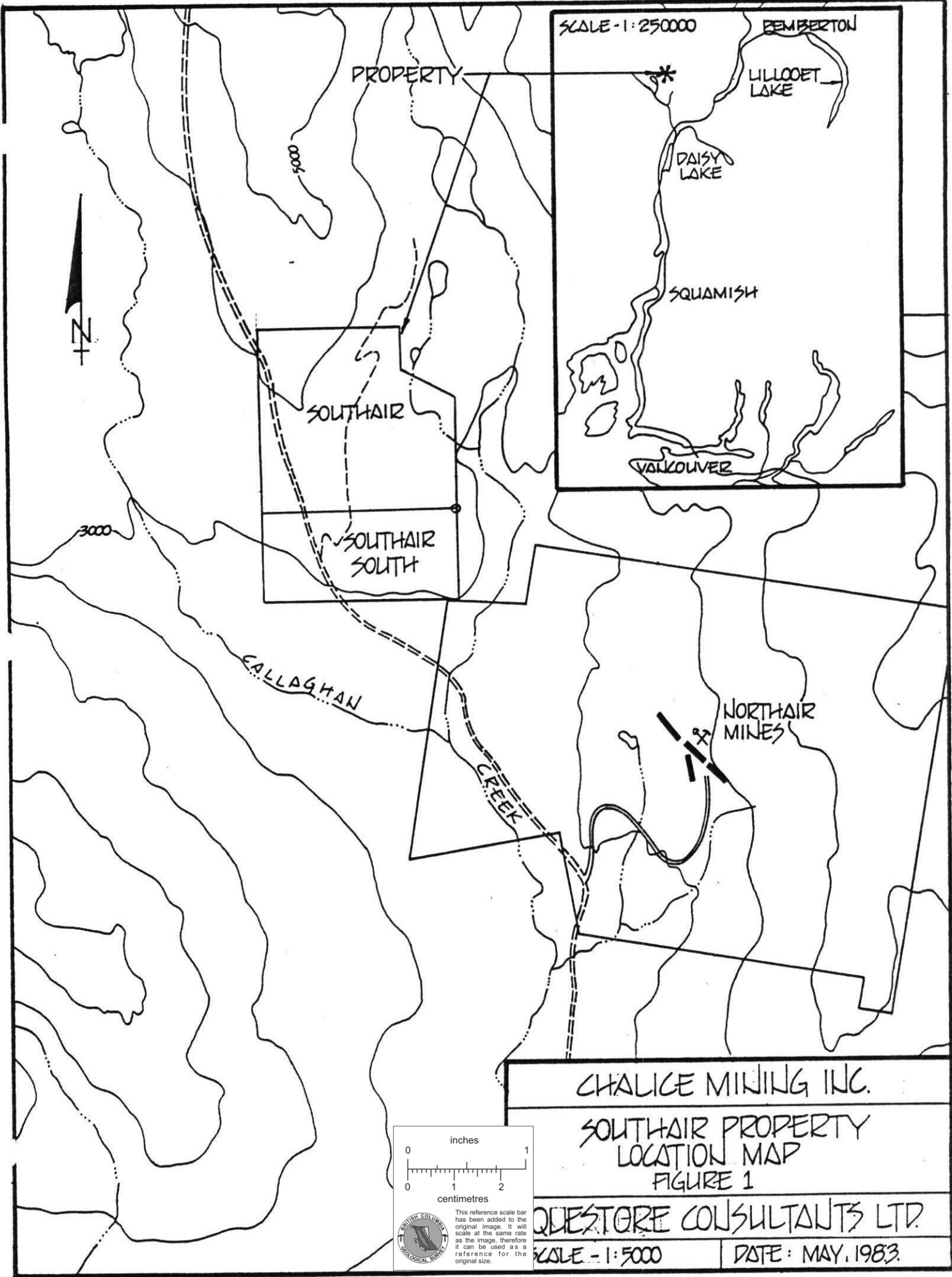
SUMMARY

The Southair property of Chalice Mining Inc. is situated 3 km northwest of the Northair Mine, near Whistler Village, British Columbia.

The property is underlain by a north-trending, sub-vertical sequence of Gambier Group metavolcanic greenstones and metasedimentary schists and calcsilicate skarns which have been intruded by Coast plutons and basic dykes.

Several VLF electromagnetic anomalies have been defined on the property. These are locally geochemically anomalous in silver and lead. Cat trenching on some of the anomalous zones has exposed areas of quartz sulphide mineralization. The lateral extension of the mineral occurrences is as yet undefined. The quartz-chalcopyrite-gold and silver mineralization has returned assays which range in value from .03 - 2.2% copper; trace - 0.06 oz./ton gold; and trace to 0.92 oz./ton silver. Physical characteristics of the mineralization suggests that it has been remobilized as a result of deformation and metamorphism accompanying the intrusion of Coast plutons and dyke swarms. Stratabound volcanogenic gold-silver-sulphide mineralization similar to the Northair deposit may be the source of the located mineralization and as such the property should be thoroughly explored in an attempt to locate Northair-type deposits.

A programme of geological mapping, geochemical surveys, vector pulse EM surveys, cat trenching and follow-up diamond drilling has been recommended for the continued economic evaluation



SCALE - 1:250000

BEMBERTON

LILLOOET LAKE

DAISY LAKE

SQUAMISH

VANCOUVER

PROPERTY

5000

N

SOUTH AIR

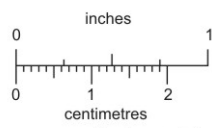
SOUTH AIR SOUTH

3000

CALLAGHAN

CREEK

NORTH AIR MINES



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CHALICE MINING INC.

SOUTH AIR PROPERTY
LOCATION MAP
FIGURE 1

QUESTORE CONSULTANTS LTD.

SCALE - 1:5000

DATE: MAY, 1983

of the property.

The estimated budget for the above is approximately \$116,000.

INTRODUCTION

At the request of Mr. J.P.LaRue, President of Chalice Mining Inc. the writer reviewed the available data on the Southair property. The following report briefly describes the property situation as defined to date and makes recommendations for its continued economic evaluation.

PROPERTY

The Southair property consists of two claims totalling 24 units. Pertinent claim recordation data is as follows:

<u>Claim Name</u>	<u>Record No.</u>	<u>Expiry Date</u>
Southair	344(11)	November 29, 1983
Southair South	822(1)	December 13, 1983

LOCATION AND ACCESS

The mineral claims are located three kilometers northwest of the Northair Mines property (Fig.1) and are readily accessed via the Callaghan Creek gravel road which leaves the Squamish-Pemberton Highway 99, approximately 12 km south of Whistler Village.

HISTORY

The Northair Mine which is immediately southeast of the Southair property produced ore between 1976 and 1982. Total production was in the order of 480,000 tons averaging 0.33 oz./ton gold; 1.56 oz./ton silver; 1% lead; 1.22% zinc. of recovered metals.

Portions of the Southair property were previously held by Abaca Resources Industries Ltd. This area known as the Hit and It claims, was explored by geochemical and geophysical methods in the period 1974-1977. VLF-EM Surveys located several northerly trending electromagnetic anomalies. (Mark 1974). Geochemical soil surveys of the geophysical anomalies indicated anomalous values in Cu, Ag, Au, Pb and Zn. (McGoran 1977). A series of cat trenches and pits were completed on anomalous zones either by Abaca (1975) or by Climex Mining of B.C. Ltd. (1978-1982) (Sweet 1979; LaRue 1982) who acquired the property from J. LaRue in 1978.

The writer visited and geologically mapped a portion of the property in July 1981 and made recommendations to Climex for its continued evaluation (Reamsbottom 1981).

GEOLOGY

Regional

Mineral deposits in the Northair district occur within a roof-pendant of Gambier Group metavolcanic and metasedimentary rocks included within diorite and granodiorite of the Coast

Plutonic Complex.

The Northair property is underlain by a sequence of northerly to northwesterly trending andesitic crystal tuffs, dacitic agglomerates with intercalated siltstones and sandstones; and andesitic agglomerates. Three subvertical ore zones which range in thickness from 2 to 5 m, are known as the Discovery, Warman and Manifold zones. The base and precious metals content of the zones varies. Generally the southern Manifold zone is high in precious metals and low in base metals; the northern Discovery zone is the converse.

Sulphides on the Manifold zone are disseminated or thickly layered in a siliceous carbonate layer. Those within the Discovery zone are both layered and massive.

The physical characteristics of the mineral deposits indicate they were probably volcanogenic in origin but were subsequently remobilized during metamorphism and deformation which accompanied the intrusion of the Coast Plutonic Complex. (Miller, J.H.L., and Sinclair, A.J. 1978).

PROPERTY





The Southair property is underlain by a sequence of northerly trending, subvertically dipping metasedimentary and metavolcanic rocks. Metavolcanics are now chlorite rich schists and greenstones, metasediments are biotite quartz schists with minor quartzite, chert and locally skarn near the contact with Coast Intrusives. (Fig.2).

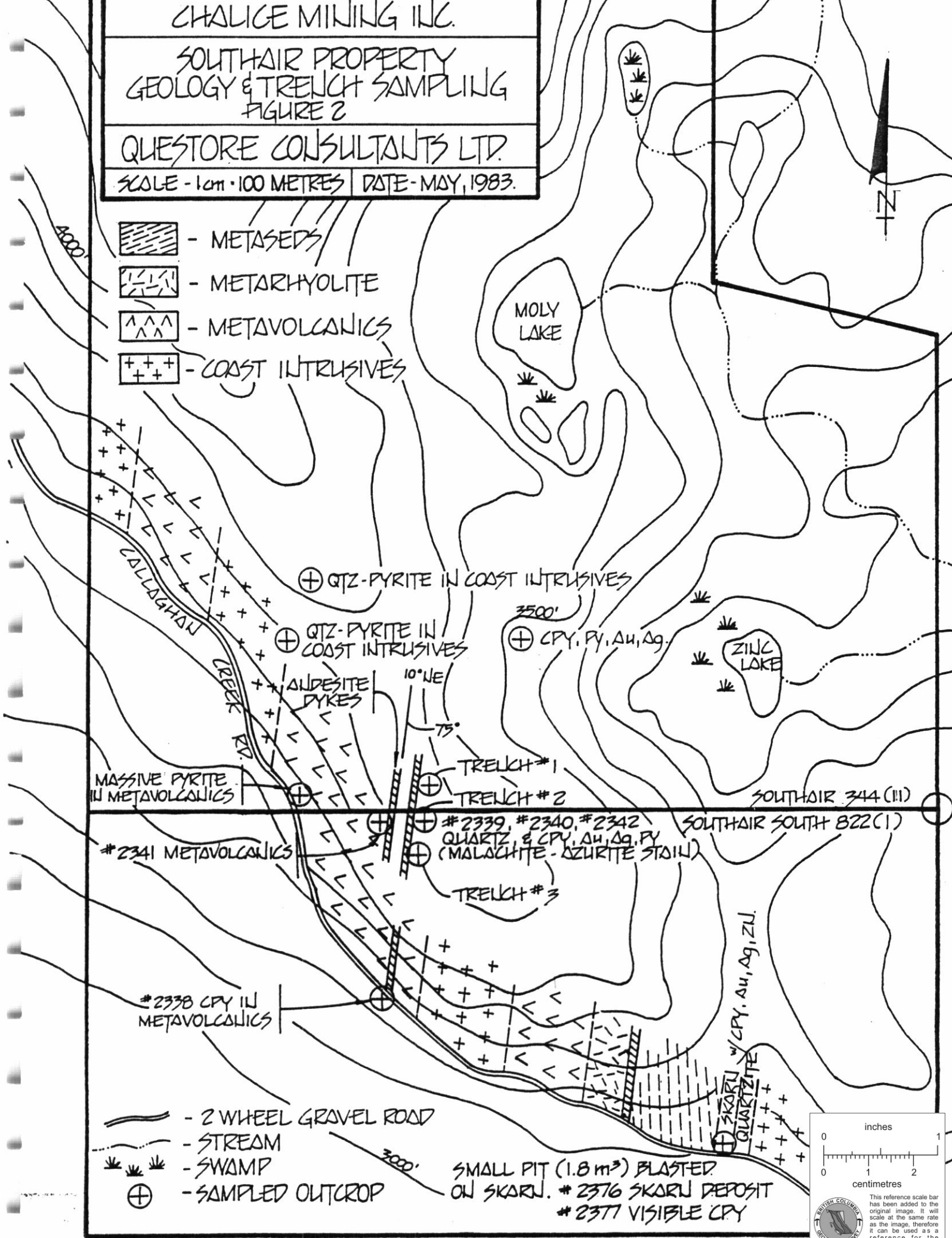
CHALICE MINING INC.

SOUTH AIR PROPERTY GEOLOGY & TRENCH SAMPLING FIGURE 2

QUESTORE CONSULTANTS LTD.

SCALE - 1cm = 100 METRES DATE - MAY, 1983.

-  - METASEDS
-  - METARHYOLITE
-  - METAVOLCANICS
-  - COAST INTRUSIVES



MASSIVE PYRITE IN METAVOLCANICS

#2341 METAVOLCANICS

#2338 CPY IN METAVOLCANICS

⊕ QTZ-PYRITE IN COAST INTRUSIVES

⊕ QTZ-PYRITE IN COAST INTRUSIVES

⊕ CPY, PY, AU, AG

ALDESITE DYKES

10° NE

75°

TRENCH #1

TRENCH #2

TRENCH #3

⊕ #2339, #2340, #2342
QUARTZ & CPY, AU, AG, PY
(MALACHITE - AZURITE STAIN)





SOUTH AIR SOUTH B22 (1)

SOUTH AIR 344 (11)

SKARN w/ CPY, AU, AG, ZU


QUARTZITE

SMALL PIT (1.8 m³) BLASTED ON SKARN. #2376 SKARN DEPOSIT #2377 VISIBLE CPY

-  - 2 WHEEL GRAVEL ROAD
-  - STREAM
-  - SWAMP
-  - SAMPLED OUTCROP

inches 0 1

centimetres 0 1 2

 This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

The metamorphic rocks have been intruded by diorite and granodiorite of the Coast Plutonic Complex and by basic dykes.

The VLF-EM anomalies (Fig.3) mimic the fabric of the country rock and correlate with the dyke swarms and associated mineralization; zones of skarn development near intrusive contacts; rusty gossaniferous zones within metavolcanics; and zones of pyritic quartz mineralization within granodiorites.

Geochemical soil surveys defined anomalous zones associated with the conductive areas. In particular silver-lead anomalies are related to conductors A,B,C,D,F, and G. (Mark 1974) (Fig. 3).

Blast pits or trenches were established on anomalies B,D,H. A 15 metre long mineralized quartz vein was exposed on anomaly B in 1975. A selected sample assayed 2.12% Cu, 0.06 oz./ton gold, and 0.92 oz./ton silver. (Sweet, 1979). Subsequent sampling of the exposed showing returned assays which ranged between trace to 0.036 oz./ton gold and trace to 1.3% copper. (Sookochoff, 1980). Following the writers property examination in 1981 a sampling programme was laid out. Five samples were collected from the pits on anomaly B and two from the skarn of anomaly H.

<u>Sample</u>	<u>Location</u>	<u>Mineralogy</u>	Cu ppm	Zn ppm	Pb ppm	Au oz/T	Ag oz/T
2338	An-B	greenstone	3650	34	4	.003	.22
2339	An-B	qtz-cpy-py	>10000	156	8	.016	.68
2340	An-B	qtz-cpy-py	>10000	80	16	.020	.88
2341	An-B	metavolcs	650	54	2	.003	.02
2342	An-B	qtz-cpy-py	>10000	255	4	.018	.78
2376	An-H	skarn	4	18	--	10ppb	.1ppm
2377	An-H	skarn + qtz	310	18	--	10ppb	.1ppm

Sample locations are given in Figure 2.

CHALICE MINING ILL.

SOUTHAIK PROPERTY
VLF-EM ANOMALIES
FIGURE 3

QUESTORE CONSULTANTS LTD.

SCALE - 1cm = 100 METRES | DATE - MAY, 1983.

4000'

MOLY LAKE

3500'

ZINC LAKE

344 (11)
SOUTHAIK

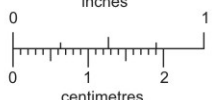
SOUTHAIK SOUTH
822 (1)

CALLAHAN
CREEK


-  - ANOMALIES
-  - 2 WHEEL GRAVEL ROAD
-  - STREAM
-  - SWAMP

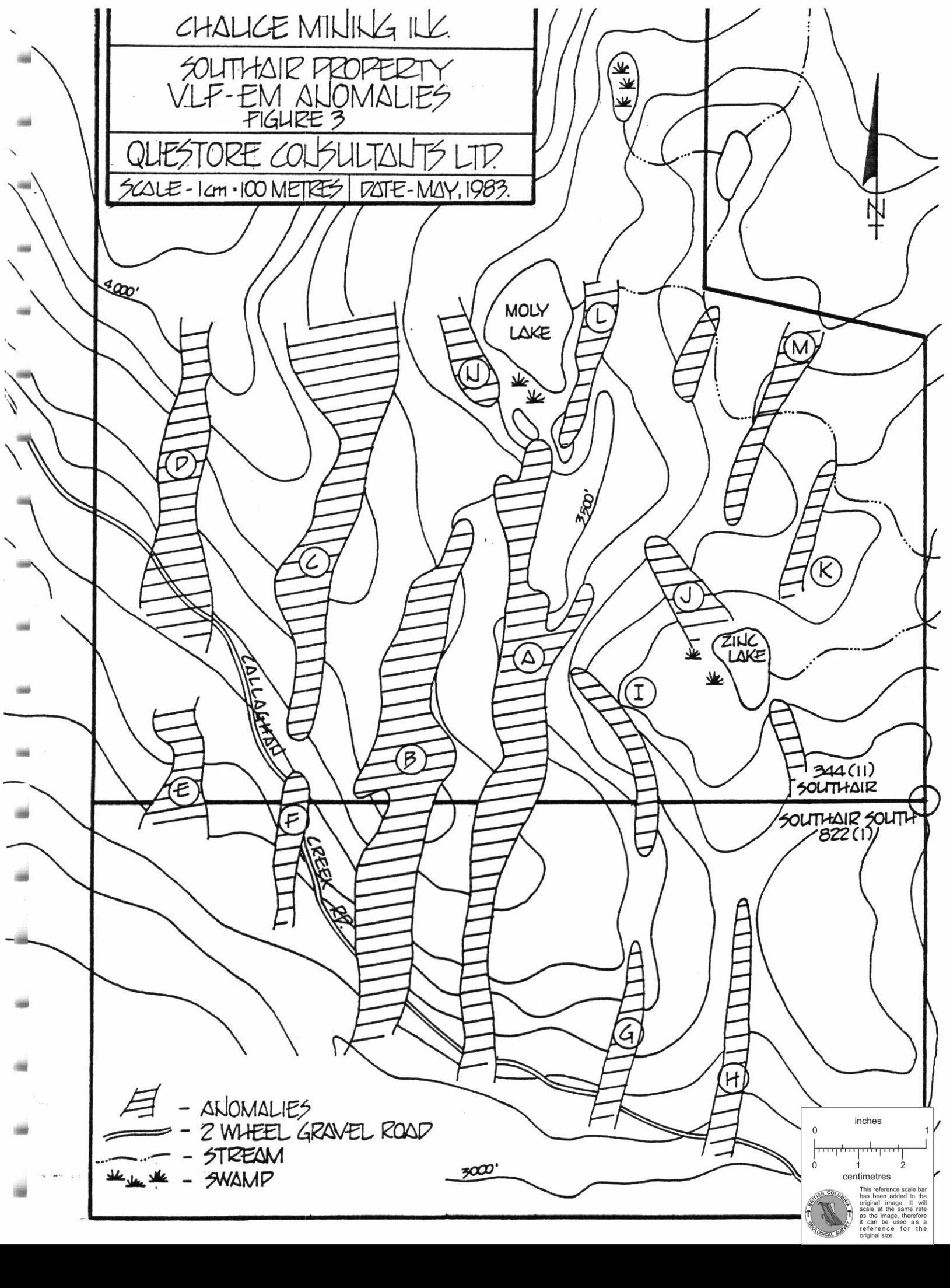
3000'

inches



centimetres

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CONCLUSIONS

Several north-trending conductors, with associated anomalous silver and lead geochemical anomalies have been defined on the Southair property. Pits and trenches on anomaly B have exposed an area of foliate metavolcanics which have been intruded by three thin (2 m) basic dykes. One trench has exposed a 15 x 3 m zone of quartz flooding with associated chalcopyrite, bornite, malachite and azurite.

Samples returned assays of greater than 1% copper, 0.036 oz./ton gold and locally 0.92 oz./ton silver. These irregular pod-like deposits of silica-sulphide are probably the result of remobilization following deformation and metamorphism related to the intrusion of the Coast Plutonic Complex. The thin dyke swarms probably defined channelways for the upward migration and subsequent deposition of mineralizing fluids, and are hence excellent exploration targets. The contact zones between granodiorite and metavolcanics may also have acted as loci for mineral deposition.

Additional exploration on the property should concentrate on examining the known but still unexplored conductors. (Ex. A), but should also attempt to locate at depth zones of syngenetic sulphide mineralization similar to the gold-silver-lead-zinc ores seen at Northair.

RECOMMENDATIONS

Phase 1

- 1) The mineral property should be geologically mapped and

prospected to define in detail the distribution of metamorphic rocks, plutons and dykes. Mineral occurrences should be located, sampled and described in detail. Particular attention should be given to their physical characteristics in light of the probable syngenetic volcanogenic nature of the Northair deposit. Mineralization which suggests possible remobilization as a result of metamorphism accompanying intrusion of the Coast Plutonic Complex, may be in close proximity to stratabound sulphides.

2) The old baseline and grid which was cut on the property in the 1970's should be reestablished.

3) Re-orientation geochemical soil samples should be collected from selected lines which were shown by past surveys to be anomalous. These would cross-check the previous work and definitively relocate the anomalous zones.

4) Vector-pulse electromagnetic surveys should be used to conclusively define subvertical sheet-like conductive zones. This geophysical technique is deeply penetrating and has the ability to define conductive zones buried 300 m below surface.

5) Near surface conductors should be exposed by a programme of cat trenching. Geology should be defined and any mineralization sampled and assayed.

Phase II

6) Anomalous zones defined by the above programme may contain Northair type economic mineralization and should be drill-tested.

ESTIMATED BUDGETPhase I

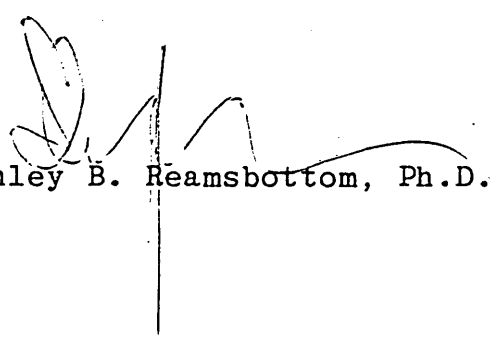
1) Geological Mapping:	
1 geologist, 7 days @ \$250/day plus report	\$ 3,400.00
2) Grid re-establishment	3,000.00
3) Re-orientation geochemistry	
500 samples @ \$15/sample	7,500.00
Sample collection	3,000.00
4) Vector pulse - EM	
14 days @ \$625/day	8,750.00
Report and geophysicist	5,000.00
5) <u>Cat Trenching</u>	
Cat rent: 7 days x 10 hr. x \$90/hr.	6,300.00
Assaying, supervision	<u>4,000.00</u>
<u>TOTAL Phase I</u>	40,950.00

Phase II

6) Diamond drilling (if required)	
2,000 ft. @ \$30/ft.	60,000.00
7) Contingency	<u>15,000.00</u>
<u>TOTAL Phase II</u>	75,000.00

TOTAL PHASE I AND PHASE II \$115,950.00

Respectfully submitted


Stanley B. Reamsbottom, Ph.D., P.Eng.

REFERENCES

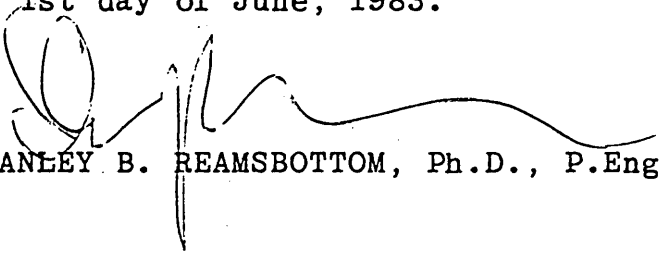
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- RODDICK, J.A., and T.G. Woodsworth, G.S.C. Paper 75-1
- SOOKOCHOFF, L., (1980) GEOLOGICAL REPORT ON THE SOUTHAIR PROPERTY FOR CLIMEX MINING OF B.C.

CERTIFICATE

I, STANLEY B. REAMSBOTTOM, DO HEREBY CERTIFY:

- 1) THAT I am a Consulting Geologist with offices at 1200; 780 West Pender Street, Vancouver, B.C.
- 2) THAT I am a graduate of the University of Aberdeen, Scotland, 1968 with a B.Sc., Geology (1st Class Honours) degree.
- 3) THAT I am a graduate of the University of British Columbia, Vancouver, with M.Sc. Geology (1971) and Ph.D. Geology (1974) degrees.
- 4) THAT I am a registered member of the Association of Professional Engineers of British Columbia.
- 5) THAT I have practised my profession for 15 years.
- 6) THAT I have no direct, indirect or contingent interest in the mineral claims which are held by Chalice Mines Inc. in the Callaghan Creek area, nor in the securities of Chalice Mines Inc. nor do I intend to receive any such interest.
- 7) THAT this report dated June 1, 1983 is based on an examination of the Southair property and on review of government and company reports on the property and district.

DATED AT VANCOUVER, B.C. THIS 1st day of June, 1983.


STANLEY B. REAMSBOTTOM, Ph.D., P.Eng.