841177

KING SALMON PROSPECT

PROPERTY EXAMINATION REPORT

Examination:

5th to 7th of September, 1975

Location:

1.5 miles North of King Salmon Lake, B.C.
25 miles East of Tulsequah, 60 miles South of Atlin,
160 miles from Whitehorse, Y.T.
58° 45'N 132° 55'W N.T.S. 104K

Access:

Helicopter or Floatplane to King Salmon Lake.

Claims:

Old Barb 3, 4, 5, and 6 claims. New "Barb" claim (20 units)
Formerly known as B.W.M. property.

Terrain:

Fairly rugged, hummocky. Showing is at 3,500 feet above sea level; King Salmon Lake at 2,000 feet above sea level.

Geology:

The general setting is the U. Triassic King Salmon Formation, intruded in the vicinity of the showings by small Jurassic and/or Cretaceous quartz diorite and feldspar porphyry intrusives.

The King Salmon Formation appears to consist in general of mainly coarse clastics of volcanic origin deposited in a rapidly sinking trough during active Stuhini Group volcanism.

In detail, there is considerable variation. J.G. Souther describes the King Salmon rocks in the vicinity of the showing as consisting of a well bedded 3,000 foot sedimentary sequence, the lower 2,000 feet consisting of greywackes, volcanic sandstones, and grits, grading up into an upper 1,000 feet of sandy siltstone, argillaceous quartzite, and shale. Underlying and overlying this assemblage are andesites of probably submarine deposition, interlayered with tuffs and some coarse volcanoclastics.

Mapping carried out during the examination, (See attached map), suggests a predominantly andesitic pile with siltstone, shale, and occasional argillite interbeds. In several locations there are relatively thin horizons which may be either siliceous sediments or tuffaceous units of rhyolitic composition. Some thin section work is currently in progress on these. A specimen of "argillite" formerly mapped was found by C. Main in thin section to be a fine-grained, crystalline tuff.

The stratigraphic orientation is uniform and indicative of broad warping. The few exceptions to this may be related to dragging along faults.

A number of linears observed on the airphotos were established to be faults. The dominant style appears to be block faulting with some thrusting, the latter probably related to the major King Salmon thrust fault, which lies just Northeast of the property. If the stratigraphy as mapped is correct, then offsets on most of the faults would be restricted to a few hundred feet at most.

The central structural feature and the one of most interest is a mineralized breccia pipe, expressed as a rubble gossan over an area 300 feet wide and in excess of 800 feet long. Fragments in the breccia can be identified as feldspar porphyry, andesite, chalcopyrite and some grey banded material (specimen KS-1) which appears siliceous but is soft enough to scratch with a knife. The matrix is almost entirely a drusy quartz. Botryoidal hematite, calcite and epidote are less common constituents of the breccia.

The northern tip of the breccia appears to have been displaced 500 feet southwesterly along a fault. The offset portion is similar in appearance to the main breccia though higher in carbonate and with little or no chalcopyrite.

Mineralization:

(a) Type

Some of the fragments within the breccia pipe, occasionally up to an inch or more in diameter, consist of massive chalcopyrite. A much smaller number consist of massive pyrite or pyrrhotite. The heterogeneity of these fragments, as pointed out by Bob Cathro, constitute one of the singular features of this mineralization. A very few specimens show a square cross-section of chalcopyrite vaguely suggestive of crystallization in situ. At the edge of the breccia zone are several small outcrops of apparent andesitic lapilli tuff, fairly fresh in appearance, with minor disseminated chalcopyrite. It is not clear if the andesite represents country rock or if it is from boulder fragments within the breccia.

Much more rarely, galena is present as a flooding between breccia fragments (specimen KS-1). Sphalerite has been reported from siltstones somewhere immediately East of the property.

Finally, there is a large zone Northeast of the showings, as mapped by T. McLeod of Archer-Cathro & Associates, in which widespread pyritization is evident in andesites. This may be related either to the King Salmon thrust fault or to a quartz-diorite stock or stocks that intrude in that vicinity.

(b) Extent

The distribution is as follows:

(1) A zone within the breccia where approximately 1 rubble fragment in 15 carries chalcopyrite (or malachite) over an area of 70 feet x 150 feet.
(2) A second zone within the main breccia where 1 fragment in 100 carries Cu over an area of about 30 feet by 30 feet.
(3) Traces of chalcopyrite in minor breccia rubble at 3 or 4 other scattered locations. At least two locations are in close proximity to one of the feldspar porphyry dykes.

The second largest gossan on the property, one-half mile Northwest of the main breccia pipe, contains some breccia. No copper was seen but its examination was extremely brief.

Results of work previously carried out on the main showing is reported (R. Cathro, Aug. 71) as follows:

"Assays reported in the Hudson Bay trenching were 0.9% copper and 0.4 ozs./ton silver for a length of 90 feet, 0.4% copper and 0.4 ozs./ton silver for a length of 40 feet, and 0.6% copper and 0.1 ozs./ton silver for 30 feet. The two drill holes were drilled through the breccia pipe from the east, about 500 feet apart. The southern hole, No. 1, was 425 feet long, inclined at 50° from vertical and cut the pipe between 51 feet and 257 feet. Scattered streaks of chalcopyrite, pyrite and minor pyrrhotite were reported for this interval and the overall assay was 0.11% copper. The hole bottomed in "argillaceous sediments". Hole 2 was visually lower in grade and was not assayed. It was 518 feet long, drilled at an angle of 45° and bottomed in quartz diorite. The unassayed portions of the drill core were seen at the property by the writer, although all footage markers have been obliterated."

The study by Main has shown that the composition of the sulfides is unusual. Assays conducted by Chemex Labs Ltd. on selected sulfide specimens and country rock gave the following results (certificates 13850, 13873):

	Cu ppm	Mo ppm	W ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Sb %	SO_4 %
Porphyry	38	5	< 5	16	62	0.5	< 30		
Volcanic	500	0	60	16	133	0.8	< 30		
Tuff	562	0	< 5	18	82	2.5	< 30		
Breccia frag 1	19.7%	0	< 5	26	2300	265.0	< 30	< 0.01	
Breccia frag 2	3.16%	0	< 5	39	430	49.0	< 30		
Breccia frag 3	1.22%	0	< 5	30	349	38.0	< 30		
Limonite from Breccia frag 3	1.10%	0	< 5	200	1200	127.0	40		0.98

A previous random-spaced geochemical sampling of the key claims produced a number of anomalous samples, the majority of which lie either in, or close to, breccia and fracture zones. The metal correlations are curious (See attached map), but, except for the Mo, are consistent with the reported types of mineralization.

Mineral Genesis:

The many unusual features of the mineralization are difficult to explain. Main suggests that the breccia is not a typical high level breccia pipe, and that normal alteration features have been arrested and/or telescoped. He postulates a high level breccia zone, possibly open to the surface, subjected to a high temperature gradient, and permeated by hydrothermal solutions of exhalative origin. He mentions laminar textures in the breccia matrix and suggests, without great confidence, a tectonic origin for them.

Nitsch agrees with a possible massive sulphide origin, but, using the Lowell & Guilbert porphyry model, suggests that "porphyry copper mineralization may occur at some unknown depth below the exposed breccia".

My own view is that the ore possibilities, as related to copper genesis, can be listed in the following order of likelihood:

1. Simple Epigenetic

The presence of feldspar porphyry dykes (elsewhere identified as monzonitic) in the vicinity of much of the copper mineralization suggests a direct connection, even if only structural. However, the main zone trends at right angles to the dyking and it is difficult to envisage the small area/high concentration of copper without some other strong ore control feature.

2. Remobilized Kuroko Deposit

This possibility best explains the size, concentration and heterogeneity of chalcopyrite fragments, but not the relatively low zinc and gold content. The geological environment is permissive, although we do not have a classic volcanic pile in Kuroko terms. Fragmental andesites and probable rhyolitic tuffs are present, however.

3. Remobilized Vein

While this would explain the copper fragment concentration, there is no known evidence of sulphide veins anywhere in the immediate region and it seems intuitively correct that such veins would somewhere outcrop, considering the topography and the unlikelihood that the chalcopyrite fragments have been mobilized more than a few hundred feet.

Economic Considerations:

The main breccia zone outcrops as a low dome, and the associated feldspar porphyry dips at a steep angle beneath the dome - factors which suggest a low waste/ore ratio if surface pitting is ever feasible.

If the mineralization is of Kuroko type, the source horizon, once located, would be fairly easy to follow, a consequence of the consistent stratigraphy.

A transportation route by water is possible. A former trading post is located at the junction of the Inklin and Taku Rivers, suggesting good navigability. The Inklin River is 4 miles from the property and the Taku, 12 miles. These rivers lead via Tulsequah to tide water near Juneau.

Exploration Considerations:

A couple of field days are necessary to begin to consistently sort out the different stratigraphic units. However, the fairly abundant outcrop, and stratigraphic consistency, suggest that carefully controlled mapping could delineate the structure quite well and therefore be of considerable use.

A magnetometer might be useful initially as a means of classifying the gossans and delimiting breccia areas. R. Cathro reports magnetite in some breccia fragments.

Geochemical work would throw light on the significance of the pyritic andesites, and of the previous molybdenum and zinc highs, and of metal correlations in general.

Conclusions:

The overall impression from the property is fairly good. The showings are not large, but host structures and/or host rocks of sufficient volume and complexity are present to provide a reasonably good economic potential.

Recommendations:

An initial program should consist of:

(1) A 100 metres x 50 metres grid of 15 to 20 line kilometres;
(2) Thorough geological mapping;
(3) A soil survey for copper, molybdenum, zinc and lead;
(4) A magnetometer orientation survey.

Total Cost: $12,000.00 to $15,000.00

David Arscott

DAVID ARSCOTT, P. ENG.

DA:kin

19 Sept. 75

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List of Relevant Data

August 1, 1975

Reports by Bob Cathro: November, 1970
April, 1971
April, 1972

G.S.C. Memoir 362, Geology and Mineral Deposits of Tulsequah Map Area,
J.G. Souther, 1971

G.S.C. Memoir 248, Taku River Map Area,
F.A. Kerr, 1948

G.S.C. Map 1262A, Tulsequah and Juneau, 1:250,000

Theses: (1) Charles Main, U.B.C., April, 1971

(2) J. Nitsch, U.B.C., April, 1973

Air Photos: B.C. 1934 - 101

A. 11446 - 312 to 326

Newmont Mining Corporation of Canada Limited, 1964, Air and Ground Magnetics

(Availability ??)

B.C. Minister of Mines' Report 1950, pages A75, 76

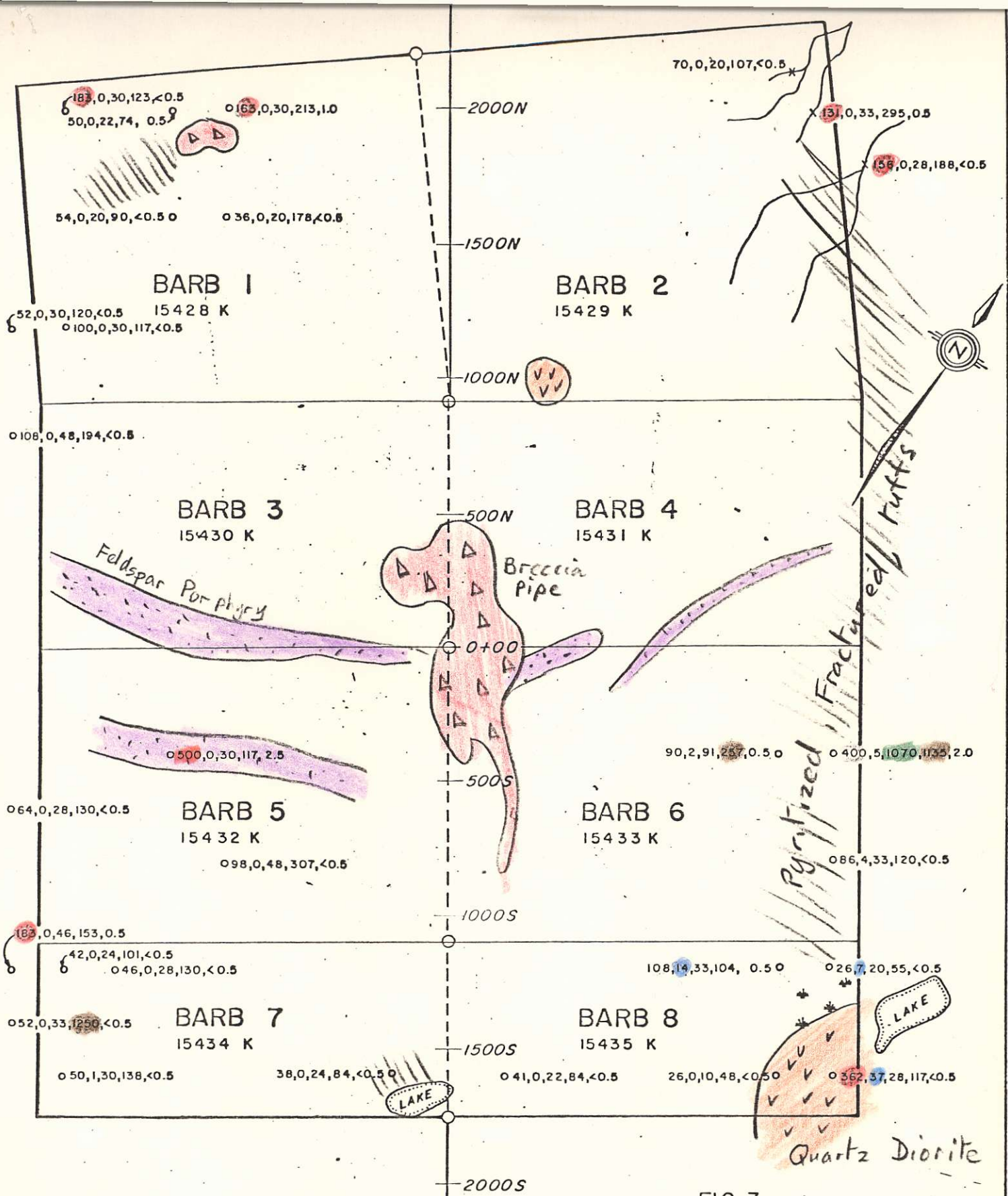


FIG. 3

ARCHER CATHRO & ASSOCIATES LTD

GEOCHEMICAL SAMPLING

BARB 1-8 CLAIMS, MORESBY MINES LTD.

KING SALMON LAKE, B.C.

SCALE 1" = 500'

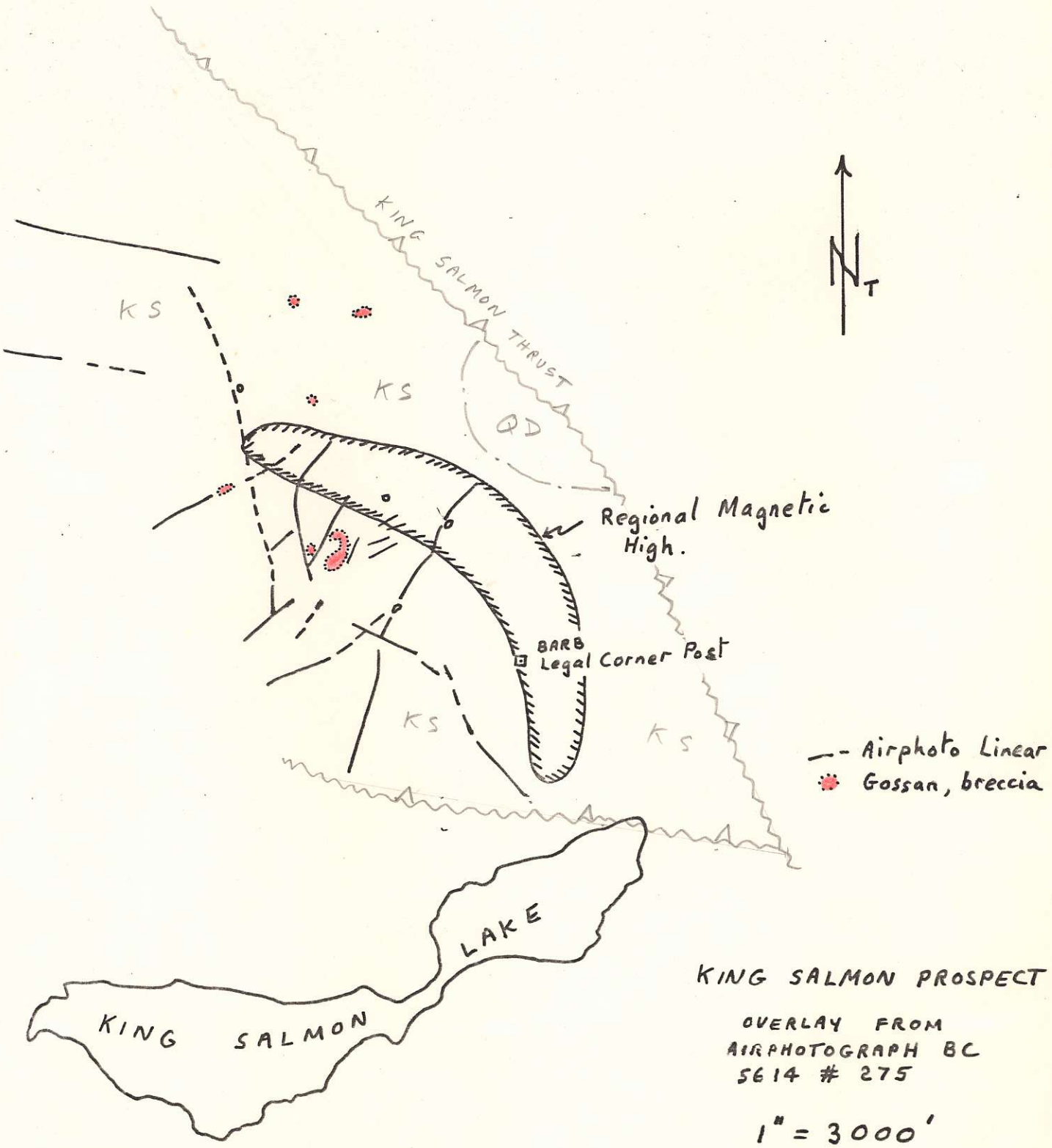
500 0 500 1000

LEGEND

o Soil sample-copper, molybdenum, lead, zinc & silver all in ppm. (in heavy overburden)

x Silt sample-copper, molybdenum, lead, zinc & silver all in ppm.

To accompany report dated Aug 20, 1971

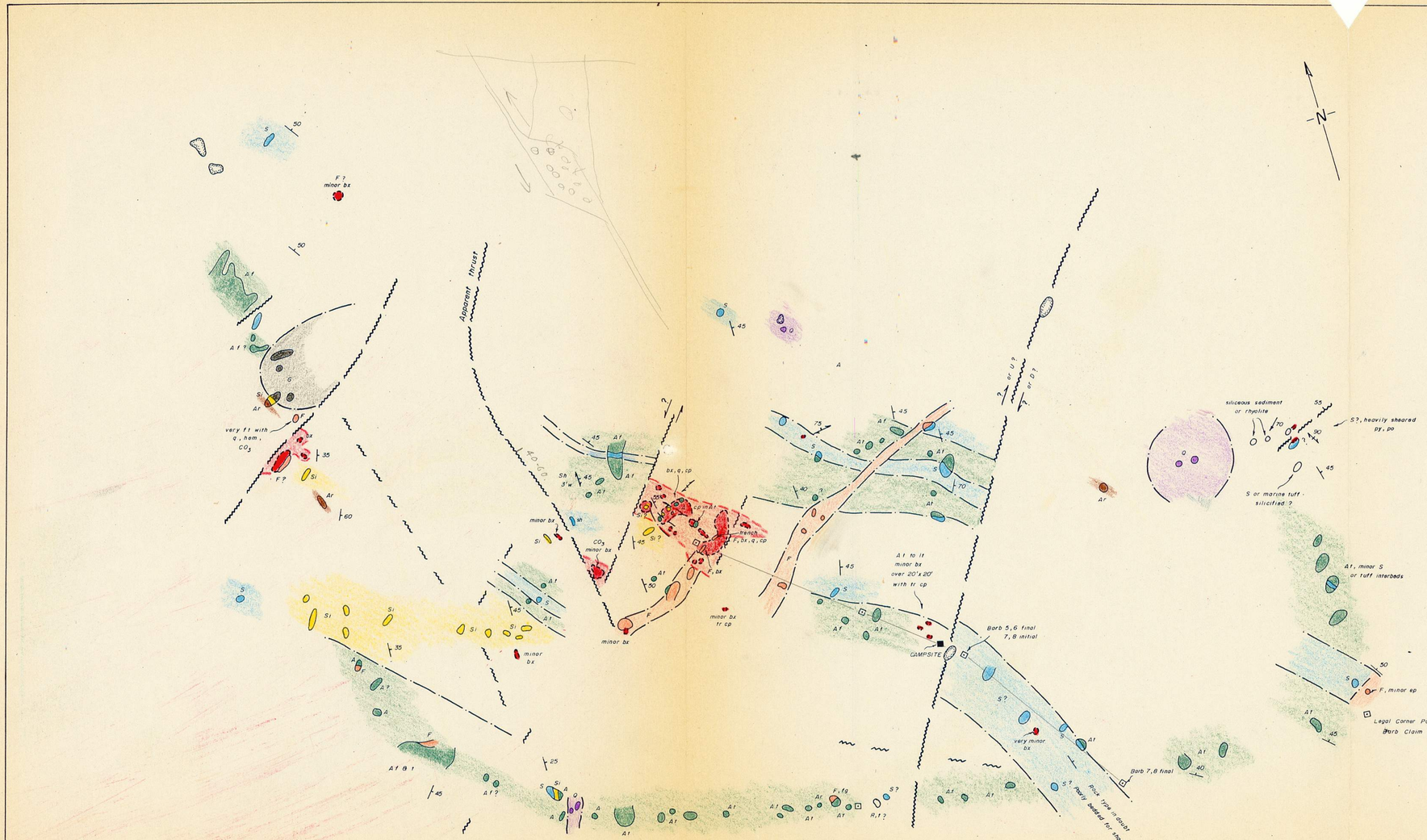


KING SALMON PROSPECT

OVERLAY FROM AIRPHOTOGRAPH BC 5614 # 275

1" = 3000'

KS = King Salmon Fm.
QD = Jurassic Quartz diorite } From Map 1262A



LEGEND

R	Rhyolite	bx	breccia
A	Andesite, dark green	cp	chalcopyrite
S	Shale or tuffaceous sediment	ep	epidote
Si	Siltstone, green to buff, sandy	po	pyrrhotite
F	Feldspar porphyry, grey to white	q	quartz
Ar	Argillite	hem	hematite
Q	Granodiorite to quartz diorite	tr.	trace
G	Gabbro	fg	fine grained
	Gossan in outcrop or rubble	sh	sheared
		fr	fractured

t	tuffaceous
lt	lapilli tuff
f	flow

- Faults, resonably well substantiated
- Faults, from air photo linears only
- Bedding, with dip
- Shear, with dip
- Lineation, with plunge
- Lakes
- Claim post

inches 0 1 0 1 2 centimetres

This reference scale bar has been added to the original image. It will change if the image is resized as the image, therefore it can be used as a reference for the original size.

CHEVRON STANDARD LTD.

C 410

GEOLOGY SKETCH KING SALMON PROSPECT

0 250 500 750 1000 feet

SCALE

D. Arscott

Sept 1975