825478

CHEVRON / CFC JOINT VENTURE

BAR PROJECT

082M/4W, 82M/5W, 92P/1E, 92P/8E
Kamloops Mining Division

Report on 1986 Work Programme

Graeme Evans
Ian D. Pirie
April, 1987

PROPERTY
~~REGIONAL~~
GEOLOGY

Introduction

Volcanics of the Eagle Bay Fm. and Fennell Fm. underlie the field area. The geological mapping was focussed on a linear series of felsic volcanic centres over a strike length of 25 kilometers. At least five felsic centres were identified with more on the Zone / Tylor ground and the Chu Chua property.

While no new Massive Sulphides have been identified the environment, which is similar to Homestake, is ideal for these deposits. Another encouraging aspect is the altered domes themselves carry significant Au and Ag values from the limited testing to date.

The domes are typically massive Quartz-Feldspar Rhyolites with silicification, ~~and~~ albitization ~~around~~ and a quartz-pyrite stockwork. These are normally related to lateral felsic flows and felsic pyroclastics mixed with oceanic sediments.

~~In the Dixon Lake area~~
Tholeiitic ~~Hta~~ Basalts are found on both the Western and Eastern sides of the felsic volcanics. These may represent a more distal contemporaneous environment with the felsic

volcanics as well as underlying them. These basalts are normally interbedded with marine cherts and argillites. Textures in the basalts range from pillow lavas, flow breccias and pyroclastics as well as massive flows. In the Dixon Lake area mafic pyroclastics have been identified very similar to rocks at Rea Gold.

The regional metamorphism is of Greenschist Facies and is most intense at the Southern end of the field area and steadily decreases to the North. This maybe an influence of the Shuswap Metamorphic complex which lies to the East of the field area.

The field area is structurally complex with the volcanics and sediments generally striking North to Northwest but occasionally Northeast. Folding ranges from tight isoclinal folds to large open folds but they both have axial planes parallell to the foliation. There is no evidence in the field area for major thrust faults as reported by Preto: A later series of Northeast trending faults occur along the Barriere River and Simmax Creek. These appear to displace the stratigraphy in the form of right lateral faults.

Tr or Jr ~~late stage~~ gabbro and diorite intrusions and sills intrude into the existing structure. The Baldy Batholith which is a large Cretaceous Intrusive lies to the North of the field area.

Preto has previously identified the Fennell Formation as being an older (Mississ.) underlying sequence (~~Mississ.~~) thrust onto the younger (Carb.) Eagle Bay Formation. Several forms of evidence including crosscutting ~~nature~~ trend of felsic centres in the field area, lack of thrust faults and K-Ar dating suggests the contact is more conformable.

GEOLOGY OF THE SC GRID

(SEE MAPS FOR SCN + SCS)

This grid lies on the Northeastern extreme of the Bar property and consists of 25.5 kilometers of line. Four people worked from July 5th to August 8th mapping and sampling it, taking 295 rock samples which were analyzed for ICP whole rock and Cu, Zn. The grid has 5-10% outcrop exposure.

Two distinct felsic centres in the form of QFP Domes were identified in the 1986 programme. The Northernmost dome lies between L11SN and extends Northwards onto the Chu Chua property. The Southern dome lies between L93N and L99N and like the Northern dome forms a topographical high due to the resistant homogeneous nature of the rock. Typically the rock has a massive siliceous aphanitic groundmass with large (2-4mm) euhedral quartz and feldspar phenocrysts. Generally the rock is strongly silicified and albitized and approximately 30-40% of the time is also sericitized. Characteristically the domes have a strong quartz-pyrite stockwork system which have been found to carry significant silver and gold values.

Proximally to the domes there are rhyolite flows and pyroclastics mixed with marine sediments, dominantly argillites with minor cherts. Most units strike approximately 340° with steep to moderate easterly dips. Near the domes many of the ~~breccias~~ flow breccias ~~flows~~ contain heterolithic angular lapilli and blocks and occassionally well rounded bombs. There are also strongly sericitized crystal tuffs with large subhedral quartz phenocrysts up to 1 cm. in diameter. Large rhyolite flows commonly exhibit flow banding and sometimes flow breccias to large massive flows. Individual flows vary in ~~composition~~ appearance and composition markedly from the absence of feldspars to strong primary sericite alteration, as well as large geochemical ranges (ie. Ba, Na, K values).

> The central part of the grid is dominated by this felsic package while the Eastern and Western edges are dominated by more distal sedimentary rocks. These consist of cherts and chert breccias of chemical nature also indicated by chert slump breccias and graphitic argillites. Cherts vary from ribbon cherts to chert breccias and in colour from grey, orange to green and occasionally appear to have a felsic tuffaceous component. The argillites are thinly laminated to massive and commonly have 2-5% disseminated pyrite and are often very conductive.

Later stage (Jv or JR) diorite sills and plugs have intruded along what appears to be the core of a large anticline. These are fine to medium grained rocks with an equigranular hb-feldspar composition. Rarely these rocks are magnetic with 1-2% disseminated magnetite. The contacts are normally fine grained and weakly saussuritized.

The structure of the SC grid is not well understood but the general impression is the felsic volcanics and diorites form the core of a large anticline striking 340°. Tops evidence on this grid is rare but the general impression (at least for the eastern portion of the grid) is that tops are to the east. Evidence for this are such things as draping of sediment units, flow rip-ups, weak graded bedding and slump structures. No small scale folds were seen on the grid but nearby phyllites show tight isoclinal folding which maybe the case for the far eastern portion of the grid. (continue)

Regional metamorphism in the area of the SC grid is of very low greenschist facies and textures and primary alteration are normally very well preserved.

During October 1986 four NQ holes (Bar 1-4) were drilled to test the domes and favorable horizons proximal to the domes. Bar 1+2 tested the stratigraphy to the East of the Northern Dome and intersected a series of rhyolite flows and crystal tuffs with argillites and minor chert. Unfortunately the conductors were found to be graphitic argillite and Bar 2 did not intersect the QFP intrusive. The favorable stratigraphy was confirmed and a couple of the sericite altered crystal tuffs returned anomalous gold values of up to 590 ppb. as well as sulphide fragments in rhyolite flows with 400 ppb Au. Bar 3+4 concentrated on the Southern dome and Bar 4 had to be abandoned in a strong fault zone before it intersected the QFP dome. Bar 3 collared in the QFP Dome and tested a Max Min II conductor which turned out to be a graphitic argillite. Heavy Quartz-pyrite stockwork was intersected in the QFP Dome with some significant gold and silver values as follows

Bar #3
- 5.01 - 7.53 m (2.52m) averaged 4.45 g/T Au (0.13 opt Au)
- 6.88 - 7.18 m (0.30m) assayed 25.2 g/T Au (0.735 opt Au)
- 6.88 - 7.18 m (0.30m) assayed 134 g/T Ag
- 20.81 - 34.98 m (13.98m) averaged 242 ppb Au

All these results are very anomalous and warrant more detailed work. The indications are that the quartz-pyrite is syngenetic and there is a very good chance of Au-Ag rich massive sulphides existing nearby.

Summary of Work Done

Geology	20 man-days mapping	1:2,500 scale tied into a 16.2km grid with lines every 100m N-S and stations every 25m E-W.
Geochemical	14 man-days sampling 137 rock samples taken	Samples analyzed for Al2O3, Ba, CaO, Fe2O3, K2O, MgO, MnO2, Na2O, Pb, SiO2, TiO2, Zr, Cu and Zn.

RESULTS

Geology (Map 1)

Exposure averages 10-20% with large areas covered by glacial overburden. The area is underlain by a N-NE trending, E and W dipping sequence of volcanics, diorite and sediments. ~~Previous regional mapping, most recently by Preto et al (BCDEMPR Preliminary Map #56) has placed these~~

~~rocks in the Upper Paleozoic Fennell Formation near the Eagle Bay Formation contact.~~

The western portion of the grid is underlain by dominant pyroxene (Uralite?) mafic flows, flow breccias and pillow lavas interbedded with cherts and chert breccias. These rocks are intruded by later mafic diorites and gabbros.

This package appears to be folded into a broad syncline with an axial plane trending at 045o and plunging moderately NE. The NE trending foliation persists even in the diorite indicating that they pre-date the deformation. Tops evidence, found in the pillow lavas, suggests that the units are overturned. Tops are to the west.

The rocks are regionally altered to low greenschist facies. Some silicification on fractures was seen in the NW corner of the grid but this maybe related to the diorite intrusions.

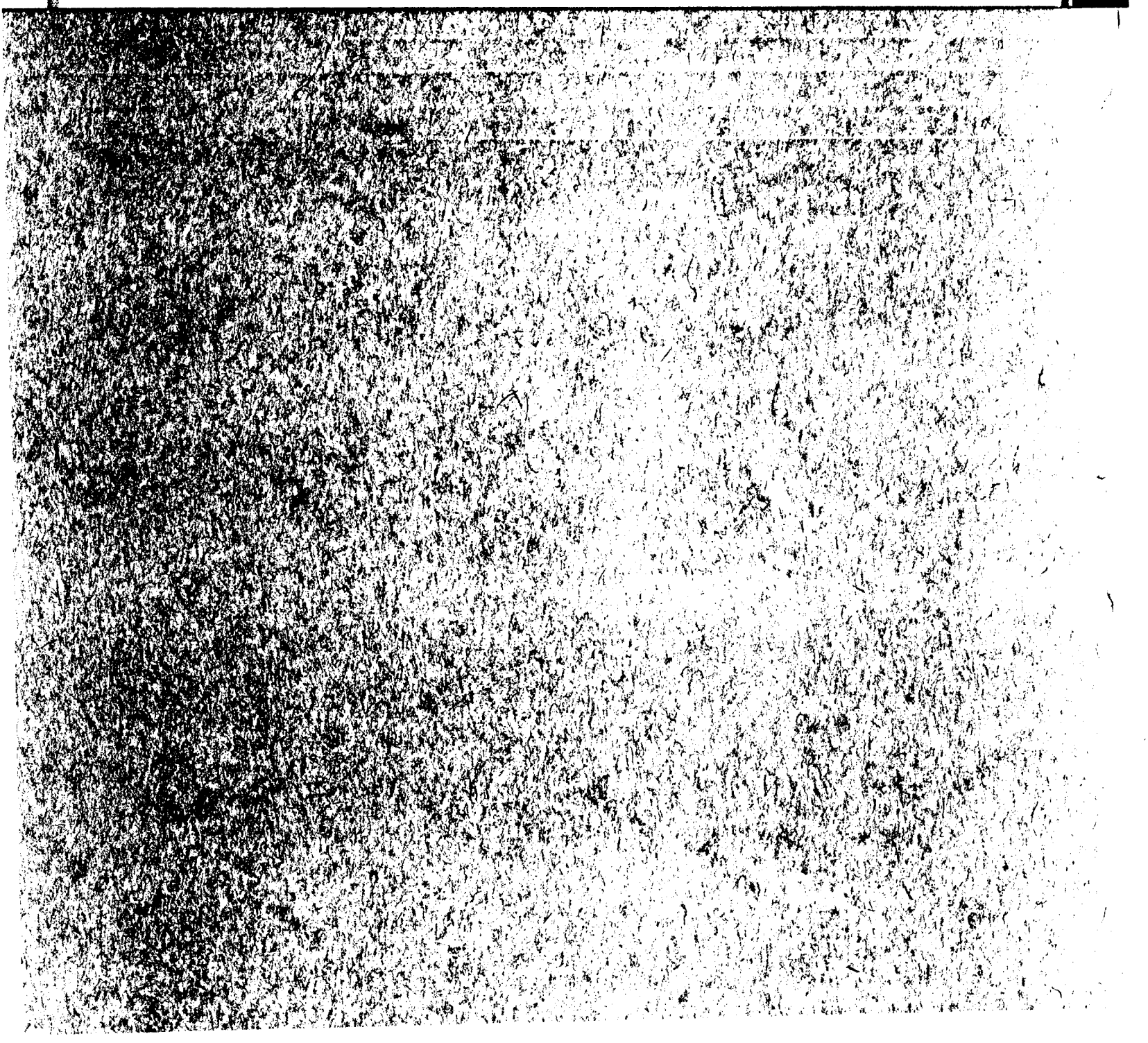
The SE portion of the grid is dominated by felsic intrusives, felsic flows and breccias interbedded with argillites and cherts and chert breccias. They may comprise a felsic volcanic centre. These have also been intruded by massive diorites and gabbros. The largest intrusives exhibit lateral zoning with coarse grained cores containing hornblende crystals as large as 6mm and are occasionally magnetic. The contacts of these intrusives are much finer grained and are weakly saussuritized.

The volcanic-sediment package is a complex stratigraphic package which strikes at 020o. A felsic intrusive outcrops on the eastern margin of the grid. This rock is massive with an aphanitic siliceous groundmass with euhedral quartz phenocrysts up to 4mm and occasionally euhedral feldspar phenocrysts up to 2mm. This rock has been silicified by a quartz-pyrite stockwork as well as sericitized.

The felsic flows exhibit several textures such as flow banding, flow breccias and are often interbedded with felsic ashes. Certain flows contain appreciable amounts of disseminated pyrite and pyrrhotite both as fine disseminations and as angular fragments up to 3cm in diameter. In some areas these sulphides account for up to 20% of the rock volume. The felsic rocks range from aphanitic to porphyritic, the latter containing euhedral quartz and feldspar phenocrysts up to 3mm in diameter and comprising 20% of the volume.

The sediments are dominated by various cherts which range from massive to finely laminated and chert breccias and slump breccias. These often grade into argillites which sometimes are very graphitic and hence, conductive.

The structure in the area is not well understood but bedding suggests a series of tight isoclinal folds striking at 020o. An east-west right lateral fault forms prominent cliffs along L59N and this fault appears to be one of the latest events and may be related to the Barriere River fault.



GEOLOGY OF THE WIKIUP GRID

Between August 20th and September 5 four people mapped and sampled the 30 kilometers of the Wikiup Grid. 198 lithogeochemical samples were taken and analyzed for ICP Wholerock as well as Geochemistry for Cu, Zn, Ag, Au. Outcrop exposure is ~~only~~ approximately 5% on the Wikiup grid with large areas of glacial overburden.

The units strike at 290-320° and dip 40-60° to the ~~North~~ NE. The foliation is parallell to sub parallell, and more intense as well and the units are probably isoclinally folded like ~~those~~ the rocks to the South. The NE half of the grid area is dominantly felsic flows but unlike areas to the North the rocks are dominantly dacitic in composition.

These felsic rocks do have some rhyolite flows but are typically dacite amygdaloidal feldspar porphyry flows. The amygdules are very common and ~~are~~ range from 3mm to 2+cm in diameter. This may indicate the flows were in a shallower marine environment (less than 2000m) than areas to the North. Felsic ashes and tuffs are commonly found with crystals of quartz and feldspars in a strongly sericitized matrix.

Felsic flow breccias are common and occasionally when in contact with argillites they show assimilation of the sediments into the matrix. Argillites are often interbedded with the felsic rocks and these black graphitic argillites are probably most of the Max Min II conductors. While no volcanic dome was located on the grid the thickening of the felsic package indicates one in the proximity ~~and~~. Indeed the sequence maybe related to a felsic dome located to the southeast of the grid on the Zone/Tylox property. This dome is a typical siliceous QFP rhyolite with a strong quartz-pyrite stockwork and acquisition of the ground should be pursued further in case the dome has precious metal values.

The ~~southeastern~~ western portion of the grid has a transition into a mafic ~~dominant~~ volcanic package. These range from Basalts to Andesites. The very southwestern edge of the grid has well defined basalt flows and flow breccias with moderate carbonate and hematite alteration. Large areas have been mapped as various forms of wackes. These rocks have a high mafic content and maybe pyroclastics but bedding features and the presence of sediments (ie. Argillite.)

have caused us to group them as Epiclastic rocks. These rocks are normally very foliated and have a dirty grey-brown appearance. These rocks also commonly have strong carbonate alteration with green micas (fuchsite?). Some anomalous gold values (up to 35ppb) have come out of these units and their similarity to the Rea Gold pyroclastics in an equivalent environment make them a good target needing more detailed work.

There are several small diorite plugs of medium grained hornblende diorite ~~comm~~ with minor pyrrhotite and weak saussuritization. The ~~rocks~~ volcanic package has a higher metamorphic grade to middle-upper greenschist facies with chlorite and sericite schists becoming common. A NE trending right lateral fault displaces units through L138N and this maybe related to late stage faults along the Barriere River.

MPH Consulting Ltd. was contracted to conduct a Max Min II survey over the grid. They outlined several conductors which are conformable to the stratigraphy. Due to heavy logging on the grid area these are almost all accessible by road and could easily be tested by trenching.

GEOLOGY OF THE LITTLE DIXON LAKE GRID

In 1986 an additional 11 kilometers of grid was added to the Dixon Lake Grid to cover another felsic dome just North of Little Dixon Lake. Mapping and sampling took place from Sept. 6 to Sept. 23 and 89 lithogeochemical samples were analyzed for ICP wholerock and geochemistry for Cu, Zn, Ag, Au.

A felsic dome similar to the domes on the SC grid was located between L101N and L107N. The dome is strongly silicified with a ~~good~~ strong quartz-pyrite stockwork. The few samples taken indicated the presence of gold (up to 70ppb) and detailed mapping and sampling should be carried out. The dome may also be ~~res~~ the source of a nearby stream sediment sample running an anomalous 1100ppb.

Proximal to dome felsic flows and pyroclastic breccias extend laterally and often contain 1-5% disseminated pyrite. One particular rhyolite flow by L101N at 12+50E contains 15-30% pyrite as disseminations and fragments up to 1cm in diameter.

To the southwest of the felsic package there a package of chlorite schists approximately 300 m wide.

These schists are compositionally andesites and are thick vesicular and amygdaloidal flows. These flows have minor amounts of ~~volcanically derived~~ wackes with a strong volcanic component. Vesicles and amygdules range in size from 3mm to 15mm in diameter.

To the southwest of this package is a belt of sediments dominated by volcanically derived wackes with some graphitic argillites and a limestone unit. The limestone unit has slump features indicating it is overturned. As well this unit confirms this area is also a shallower water marine environment. The units strike at 315° and dip to the northeast from 20 to 60° and appear overturned. Folding probably does occur but to this date there is not enough information to predict the nature. Foliation is paralell to bedding and the rocks are altered to High grade greenschist facies.

Due to lack of exposure (2-3%) this grid was also soil sampled and the 565 samples were analyzed for Cu, Pb, Zn, Ag, Au. MPH Consulting Ltd. was contracted to conduct a Max Min II survey and several conductors were outlined which are conformable with the stratigraphy.

Dixon Lake Grid 1986 Work

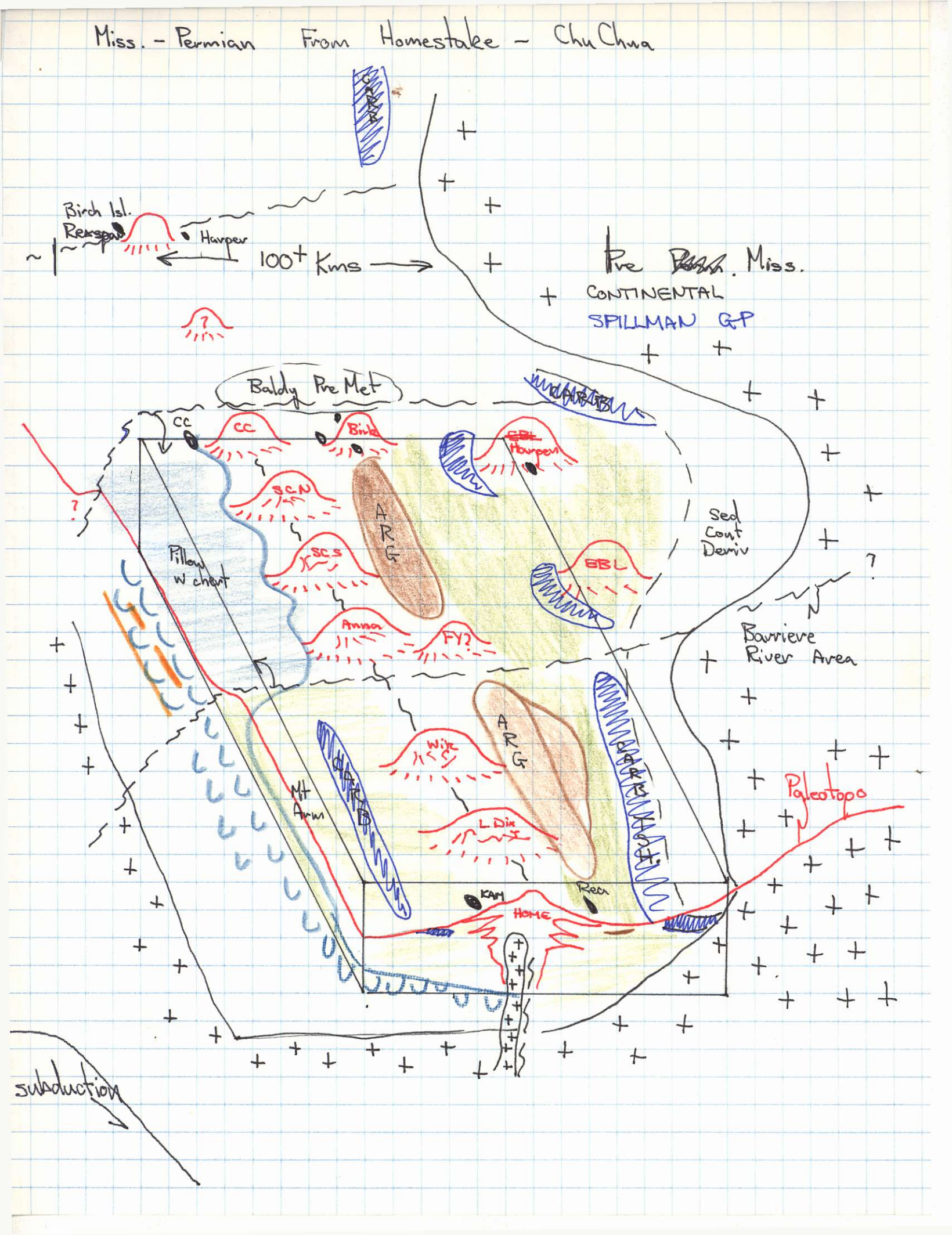
In 1986 three NQ diamond drill holes (Bar 5, 6, 7) were drilled on favorable targets on the Dixon Lake Grid. An additional 11 kilometers of grid were cut to fill in the grid and a VLF survey completed the grid coverage, as well as 430 soil samples were taken and analyzed for Cu, Pb, Zn, Ag, and As. A total of 11.4 kilometers of Max Min II survey were conducted by MPH Consulting Ltd. to confirm VLF anomallies.

Bar 5 (154.23M) and Bar 6 (154.23M) tested a Max Min II anomaly with a coincident Ag soil geochemical anomally in an area of mafic volcanics and sediments. Both Bar 5 and 6 intersected a sequence of basalt flows and pyroclasties interbedded with cherts and argillites. A graphitic argillite turned out to be the Max Min II conductor and Ag values in the holes are very low and don't explain the surface geochemical anomaly. Tops evidence suggests this area is not overturned although there is a large amount of isoclinal? folding in the grid area. The rocks are moderately foliated and the basalts are altered to a chlorite schist. The Bedding in this area strikes approx. 320° and dips 80-90° NE.

(199.09M)

Bar 7 V is approximately 2 kilometers southeast of Bar 5+6. I tested the mafic - sediment contact on a weak Max Min II conductor. The hole intersected a series of ~~m~~basalt tuffs, flows and argillites. The conductor again turned out to be a graphitic argillite ~~&~~ and the area ~~was~~ is flooded by 30-40% Quartz-Carbonate veins. The units strike at approx. 325° and dip at 60° NE. The mafic volcanics are altered to chlorite schists with a moderate foliation.

While no significant mineralization was encountered the holes confirmed that geology ~~sim~~ ~~is~~ similar to the Rea Gold environment exist in the Dixon Lake area~~s~~. The contact between mafic pyroclastics and sediments appears critical and we have located these in the Dixon Lake area with compositions and textures similar to those at Rea Gold.


Miss. - Permian From Homestake - Chu Chua
Birch Isl.
Harper
100+ Kms
Pre Miss.
CONTINENTAL
SPILLMAN GP
Baldy Pre Met
CC
Birch
EBL
Harper
SCN
SCS
ARG
Pillow w chert
Sed Cont Deriv
EBL
Barriere River Area
Anna
FY?
Wik
ARG
Mt Ann
L Dix
Paleotopo
KAM
Rea
HOME
subduction

Maps For Bar Report

1	~~Bar Project~~	SC N	Geology
2		SC N	Litho / Sample Locat^{n}
3		SC N	Na_2O, K_2O
4		SC N	Ba, Cu, Cu, Zn
5		SC N	SiO_2, TiO_2, CaO, MgO
6		SC N	Fe_2O_3, MnO_2, Al_2O_3, Zn
7		SC S	Geol.
8		SC S	Litho Locat^{n}
9		SC S	Na_2O
10		SC S	Ba
11		SC S	SiO_2
12		SC S	Fe_2O_3
13		Anna	Geol.
14		Anna	Litho. Locat^{n}
15		Anna	Na_2O
16		Anna	Ba
17		Anna	SiO_2
18		Anna	Fe_2O_3
19		Wick.	Geol
20		Wick	Litho Locat^{n}
21		Wick	Na_2O
22		Wick	Ba
23		Wick	SiO_2
24		Wick	Fe_2O_3
25		Little Dixon	Geol
26		L.D.	Litho Locat^{n}
27		L.D.	Na_2O
28		L.D.	Ba
29		L.D.	SiO_2
30		L.D.	Fe_2O_3

N.B.
just include
Geology maps for now

31 Bar 1+2 section Geol
32 Bar 1+2 Litho
33 Bar 3 Geol
34 Bar 3 Litho
35 Bar 4 Geol
36 Bar 4 Litho
37 Bar 5 Geol
38 Bar 5 Litho
39 Bar 6 Geol
40 Bar 6 Litho
41 Bar 7 Geol
42 Bar 7 Litho

1 SCN Max Min II 444
2 1777 hz
3 SCS ——
4 ——
5 Anna ——
6 ——
7 Wick ——
8 ——
9 L.D. ——
10 ——

BAR 87 Program

1/ Sample existing domes (SCN, SCS, Anna, Little Dixon Lake)

2/ Sample Dome and decide whether to aquire Zone/Tylor ground

3/ Trenching (5-6 S.C. (Conductors), 11 Conductors on Wiki; 3+ on little Dixon Lake) (all within 100 M of existing roads)

4/ Map new grid on Anna

5/ Map FY property

6/ Recce for felsics between Anna and SC

7/ Check potential of mafic - felsic contact W. of SC

8/ Extend grid S of Little Dixon Lake and map Bar 1-2, Alex area (probably just map roads - airphoto)

9/ Map extension of Dixon Lake Grid

10/ Fill in V area (mapping) on SC grid

11/ Extend grid between Wik + Litt. Dixon Lake?

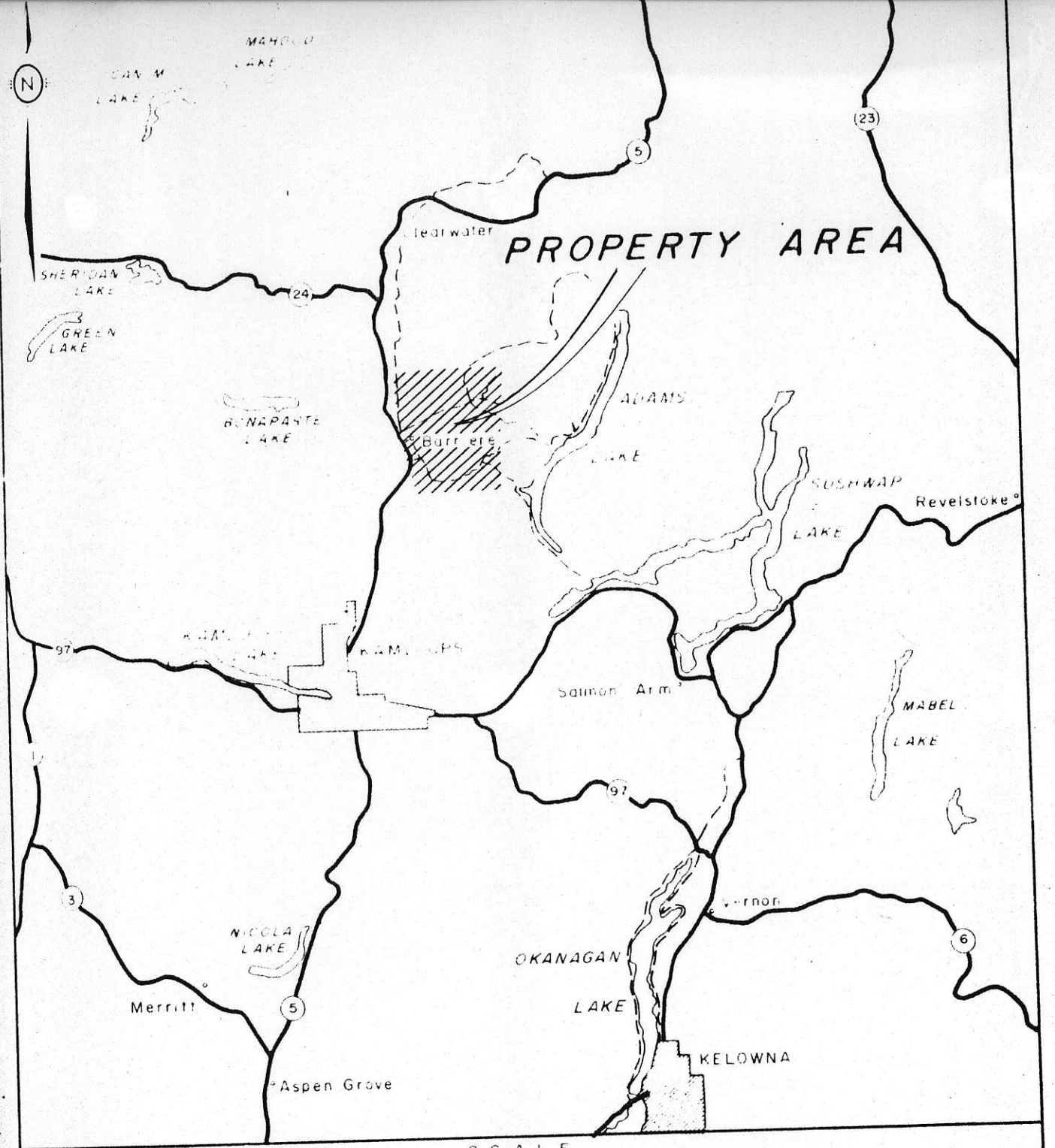
12/ Analyze SC and Anna 1986 (litho) pulps for Ag, Au

13/ Detail map mafic pyros? on Wik.

1986 GEOL. - BAR

*

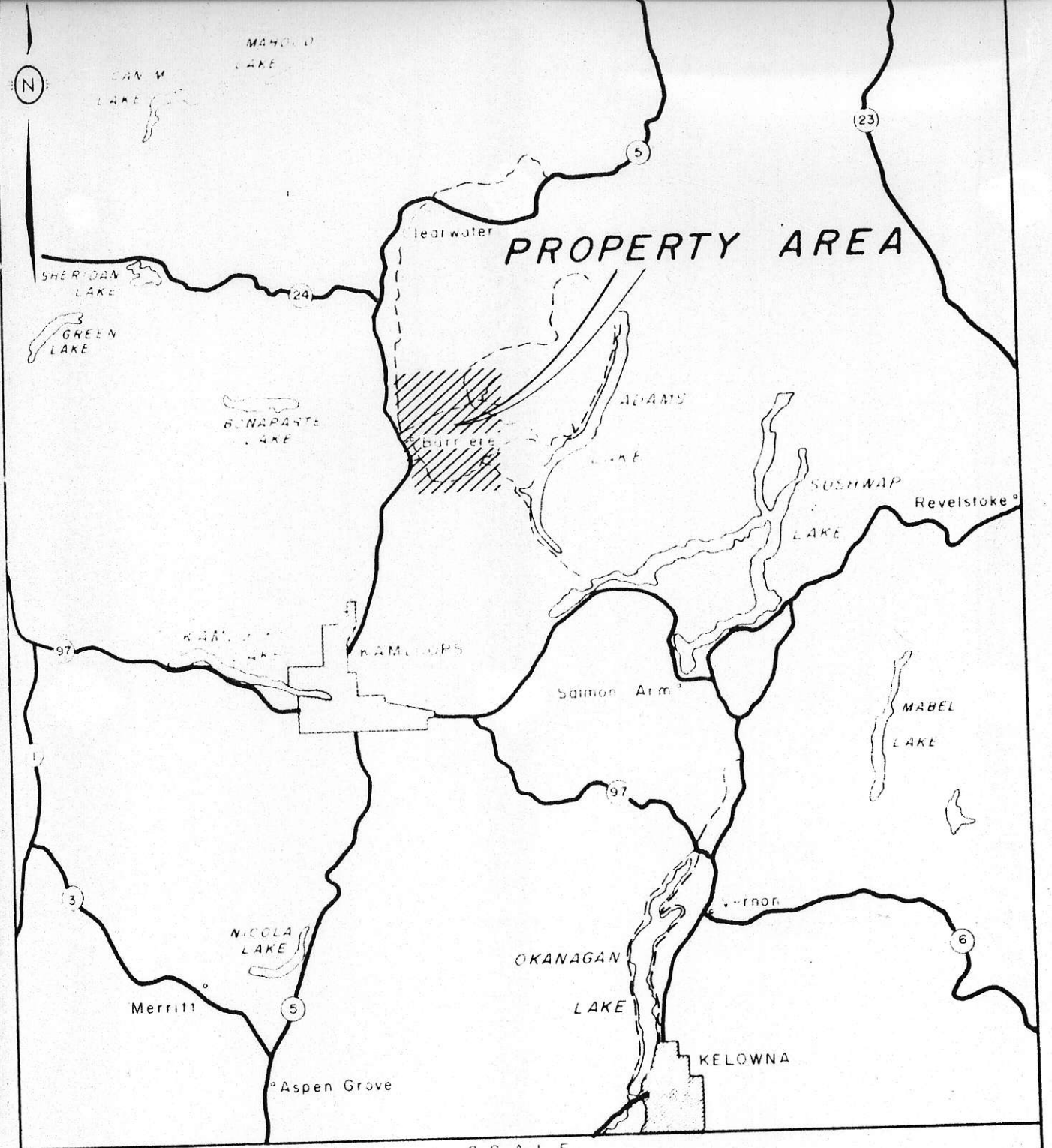
	SC N	SC S	Anna	Wick	Lit Dixon Lk	Dix Lke	FY
GEOL	✓ *	✓ *	✓ Asses	✓ *	✓ *		
LITH.	✓ *	✓ *	✓ *	✓ *	✓ *		
GEOCHEM	✓ *	✓ *	✓ *	✓ *	✓ *		
SOILS					✓ *	✓	
E.M.	DONE	DONE	DONE	✓	✓		
VLF ~~MAG~~						Additio ✓ VLF-	✓
Drilling	Bar 1-4 Asses	Bar 1-4 Asses				Bar 5,6,7	
							Lines



BAR PROJECT

- LOCATION MAP -

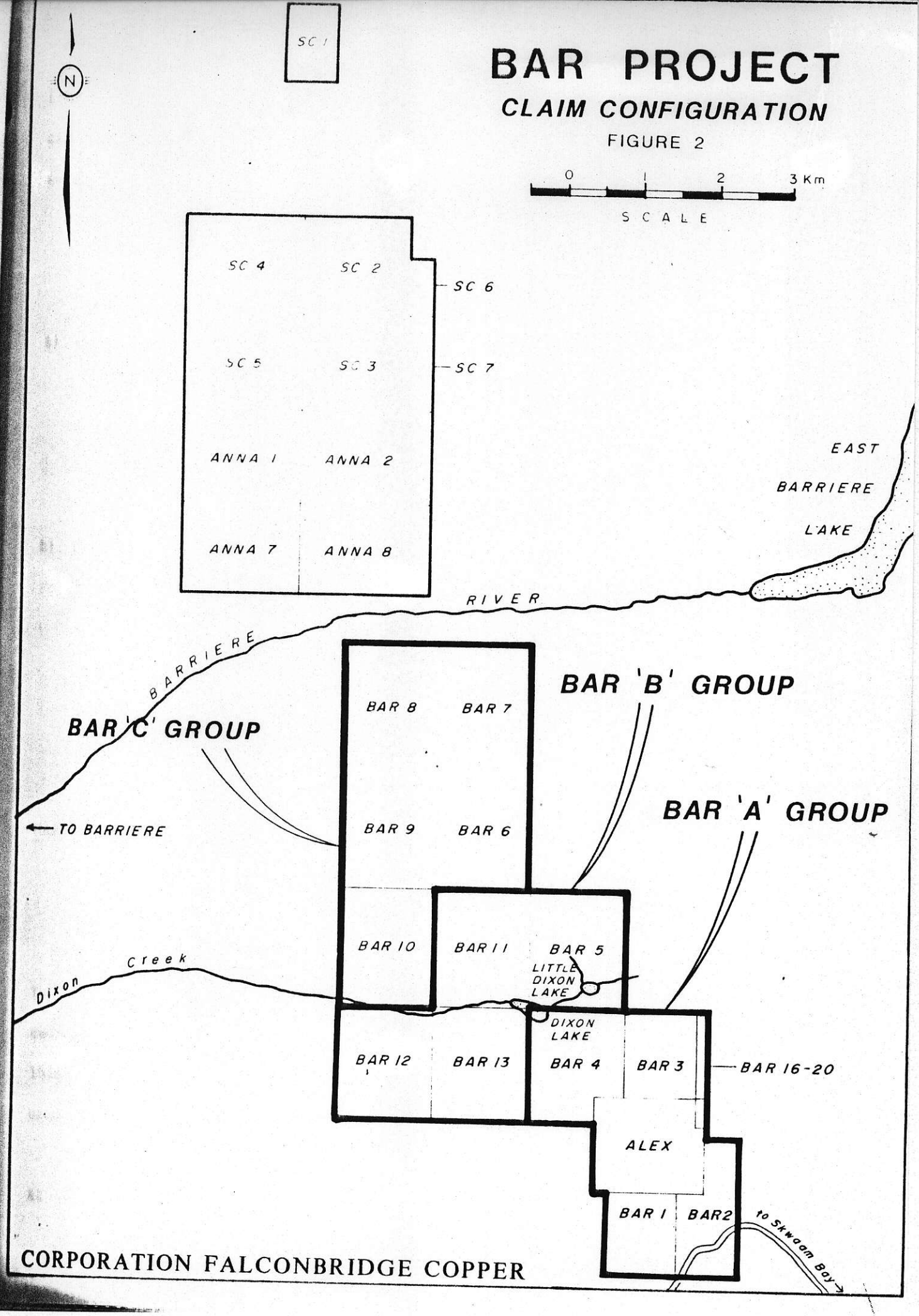
FIGURE 1

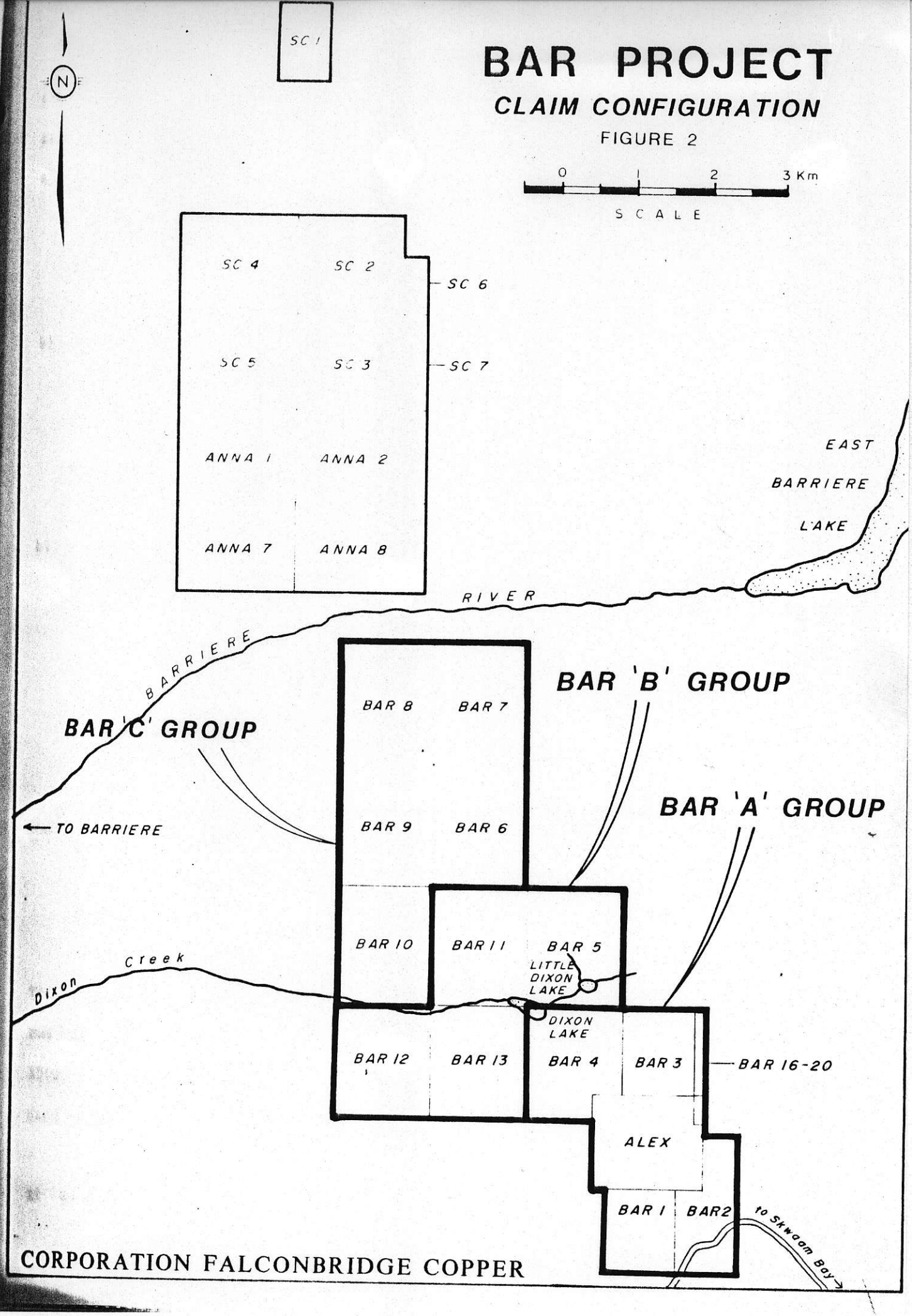


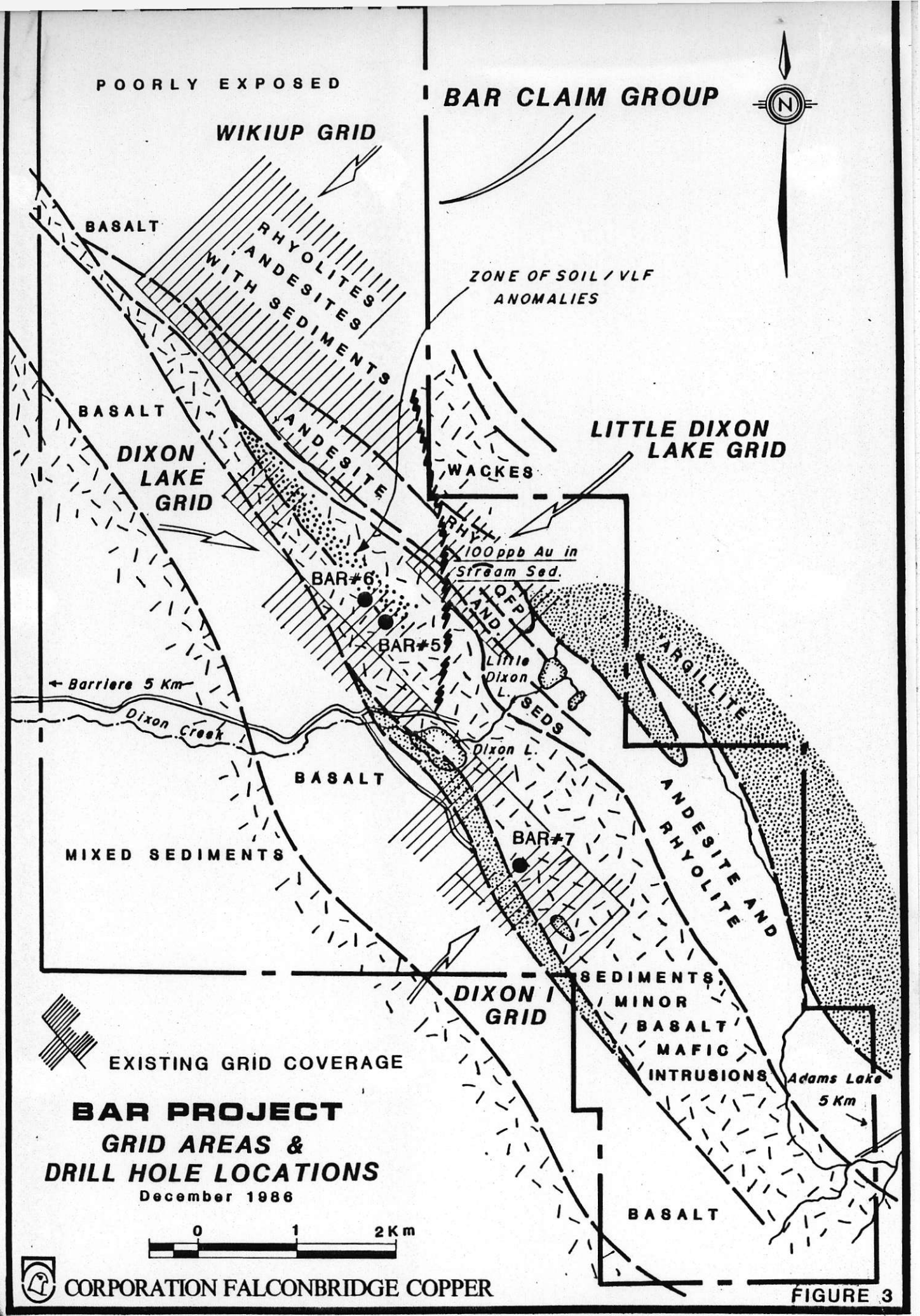
BAR PROJECT

- LOCATION MAP -

FIGURE 1


SC 1
BAR PROJECT
CLAIM CONFIGURATION
FIGURE 2
0 1 2 3 Km
SCALE
N
SC 4
SC 2
SC 6
SC 5
SC 3
SC 7
ANNA 1
ANNA 2
ANNA 7
ANNA 8
EAST
BARRIERE
LAKE
RIVER
BARRIERE
BAR 'B' GROUP
BAR 'C' GROUP
BAR 'A' GROUP
BAR 8
BAR 7
BAR 9
BAR 6
TO BARRIERE
BAR 10
BAR 11
BAR 5
LITTLE DIXON LAKE
Dixon Creek
DIXON LAKE
BAR 12
BAR 13
BAR 4
BAR 3
BAR 16-20
ALEX
BAR 1
BAR2
to Skwaam Bay
CORPORATION FALCONBRIDGE COPPER


SC 1
N
BAR PROJECT
CLAIM CONFIGURATION
FIGURE 2
0 1 2 3 Km
SCALE
SC 4
SC 2
SC 6
SC 5
SC 3
SC 7
ANNA 1
ANNA 2
ANNA 7
ANNA 8
EAST
BARRIERE
LAKE
RIVER
BARRIERE
BAR 'B' GROUP
BAR 'C' GROUP
BAR 'A' GROUP
TO BARRIERE
BAR 8
BAR 7
BAR 9
BAR 6
BAR 10
BAR 11
BAR 5
LITTLE DIXON LAKE
Dixon Creek
DIXON LAKE
BAR 12
BAR 13
BAR 4
BAR 3
BAR 16-20
ALEX
BAR 1
BAR2
to Skwaam Bay
CORPORATION FALCONBRIDGE COPPER


POORLY EXPOSED
BAR CLAIM GROUP
WIKIUP GRID
BASALT
RHYOLITES AND ANDESITES WITH SEDIMENTS
ZONE OF SOIL / VLF ANOMALIES
BASALT
DIXON LAKE GRID
LITTLE DIXON LAKE GRID
WACKES
RHY
100ppb Au in Stream Sed.
BAR#6
BAR#5
QFP AND
Little Dixon L.
SEDS
ARGILLITE
Barriere 5 Km
Dixon Creek
Dixon L.
BASALT
ANDESITE AND RHYOLITE
BAR#7
MIXED SEDIMENTS
DIXON I GRID
SEDIMENTS, MINOR BASALT MAFIC INTRUSIONS
Adams Lake 5 Km
BASALT
EXISTING GRID COVERAGE
BAR PROJECT
GRID AREAS & DRILL HOLE LOCATIONS
December 1986
0 1 2Km
CORPORATION FALCONBRIDGE COPPER
FIGURE 3