

93N/2W  
93N/101

KOOKABURRA GOLD CORP.

203, 693 Seymour Street  
Vancouver, B.C., Canada  
Tel. (604) 681-1919  
Fax (604) 681-0128

881958

COL

Tom Schwaetz  
July 18/89

PROPERTY FILE

93N/101

COL PROJECT

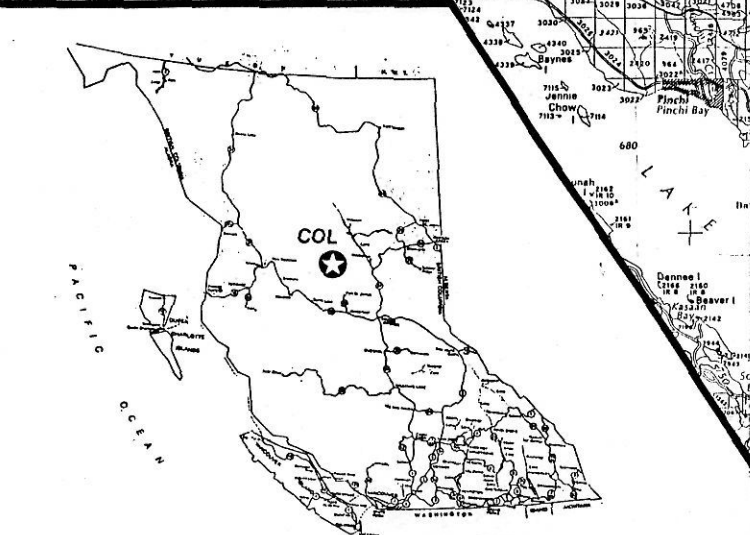
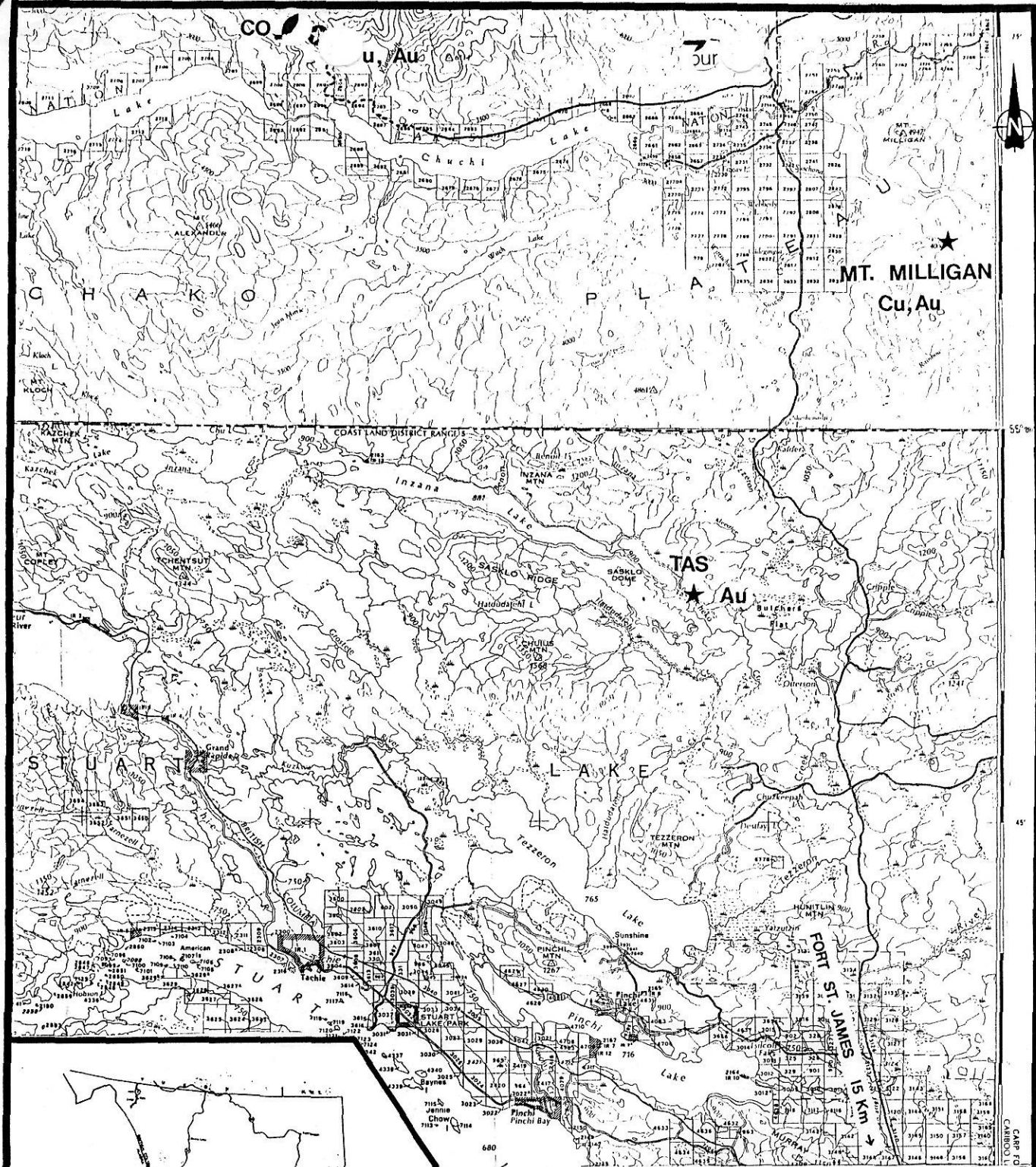
Central B.C.

The Col property, situated 100 km north of Fort St. James B.C., is a member of the alkalic suite of copper porphyries that received preliminary exploration during the porphyry copper boom of the 1960's and early 1970's. Work at that time consisted of geochemistry and geophysics followed by diamond drilling. No major work was done on the property between 1972 and 1988.

Prior to Kookaburra Gold Corp. optioning the property in 1988, the vendor, Mr. Colin Campbell, re-sampled both surface showings and random mineralized sections of drill core; his sampling established the presence of anomalous gold. Additional sampling in the fall of 1987, by David M. Jenkins, consulting geologist, confirmed the vendor's findings obtaining assays that averaged 2.24 g/t Au (0.065 opt) over 3.6m (12 ft). Select samples assay up to 17.4 g/t Au (0.507 opt). The "A Zone", 1 km SE of the "Campbell Trench" area, with 2 m.t. of 0.6% copper indicated, also contains gold. Campbell's sampling included a 3 m (10 ft.) interval that assayed 1.68 g/t Au (0.049 opt). Only a few, widely spaced sections of drill core have been sampled so far!

Work carried out by Kookaburra Gold Corp. in 1988 included constructing a 4 X 4 access road, re-establishing a grid, soil sampling and examining the old drill core. The geochemical sampling has shown the presence of several linear gold anomalies to occur in overburden covered sections between the two areas described above. Individual zones are up to 800 m long and appear to follow major fracture directions. These anomalies have not been tested during the earlier programs and represent attractive exploration targets.

Geological work by Kookaburra indicates that only a portion of the structurally favorable area has been covered by previous grids. The success of this program and of other similar properties along this major alkalic/syenite porphyry trend makes this an exciting exploration play.



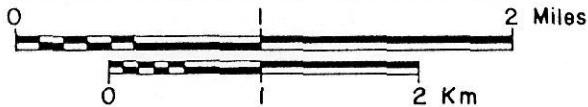
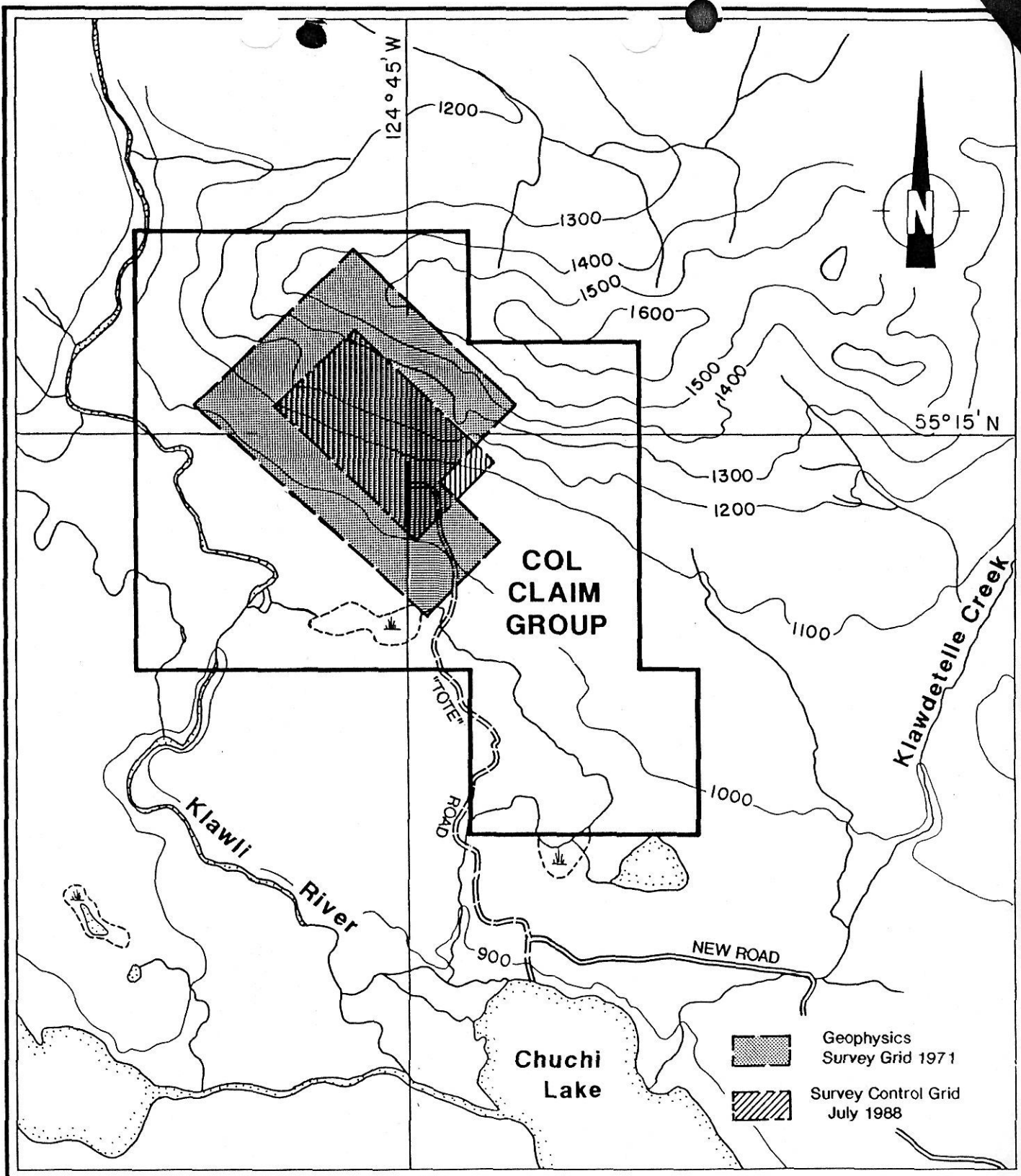
KOOKABURRA GOLD CORP.

**COL GROUP**

0 5 10 20 Km

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drawn by	survey by	figure <b>1</b>

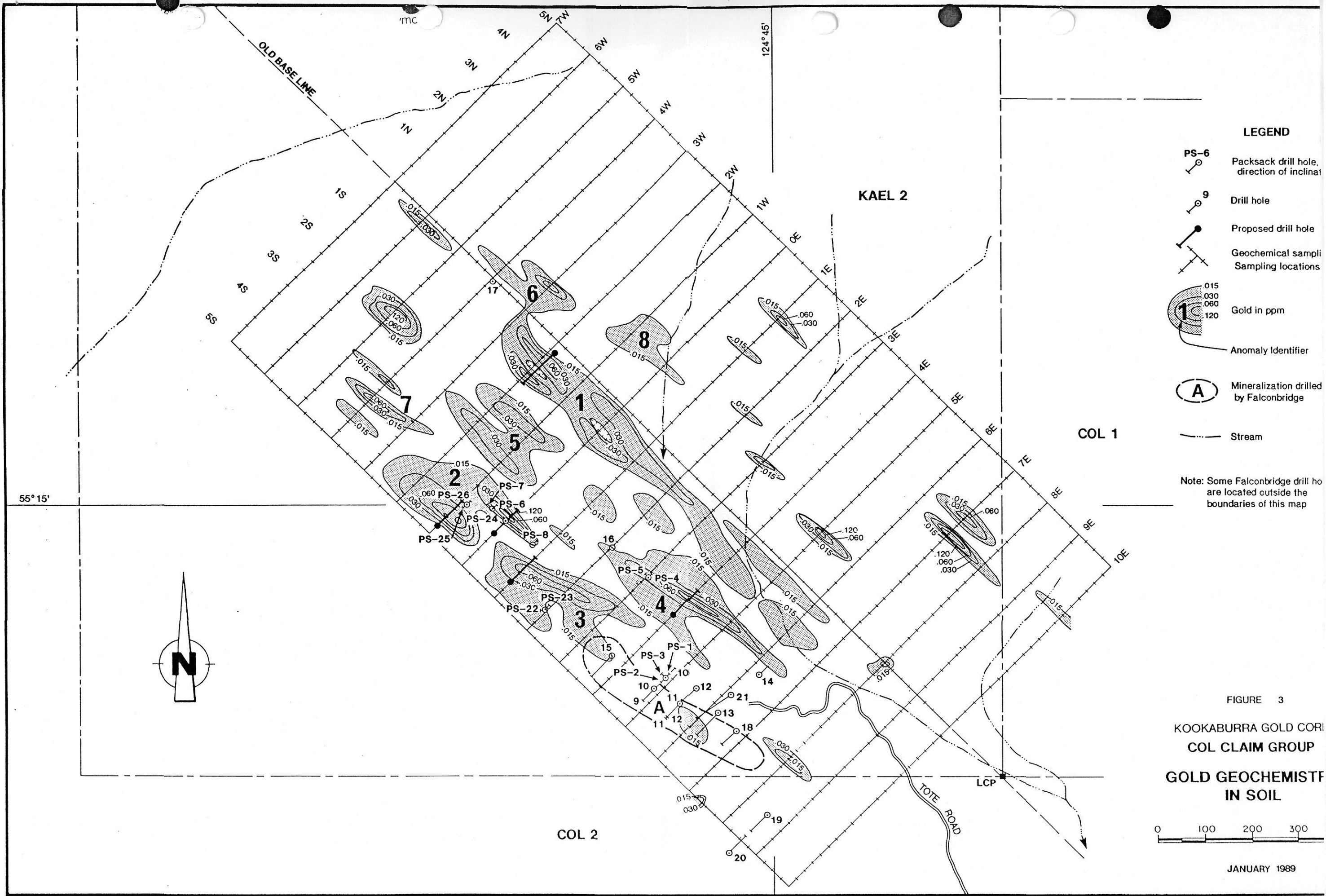
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CANBODU











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FIGURE 2  
 KOOKABURRA GOLD CORP.  
**COL CLAIM GROUP  
 LOCATION MAP**

JANUARY 1989

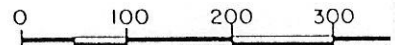


**LEGEND**

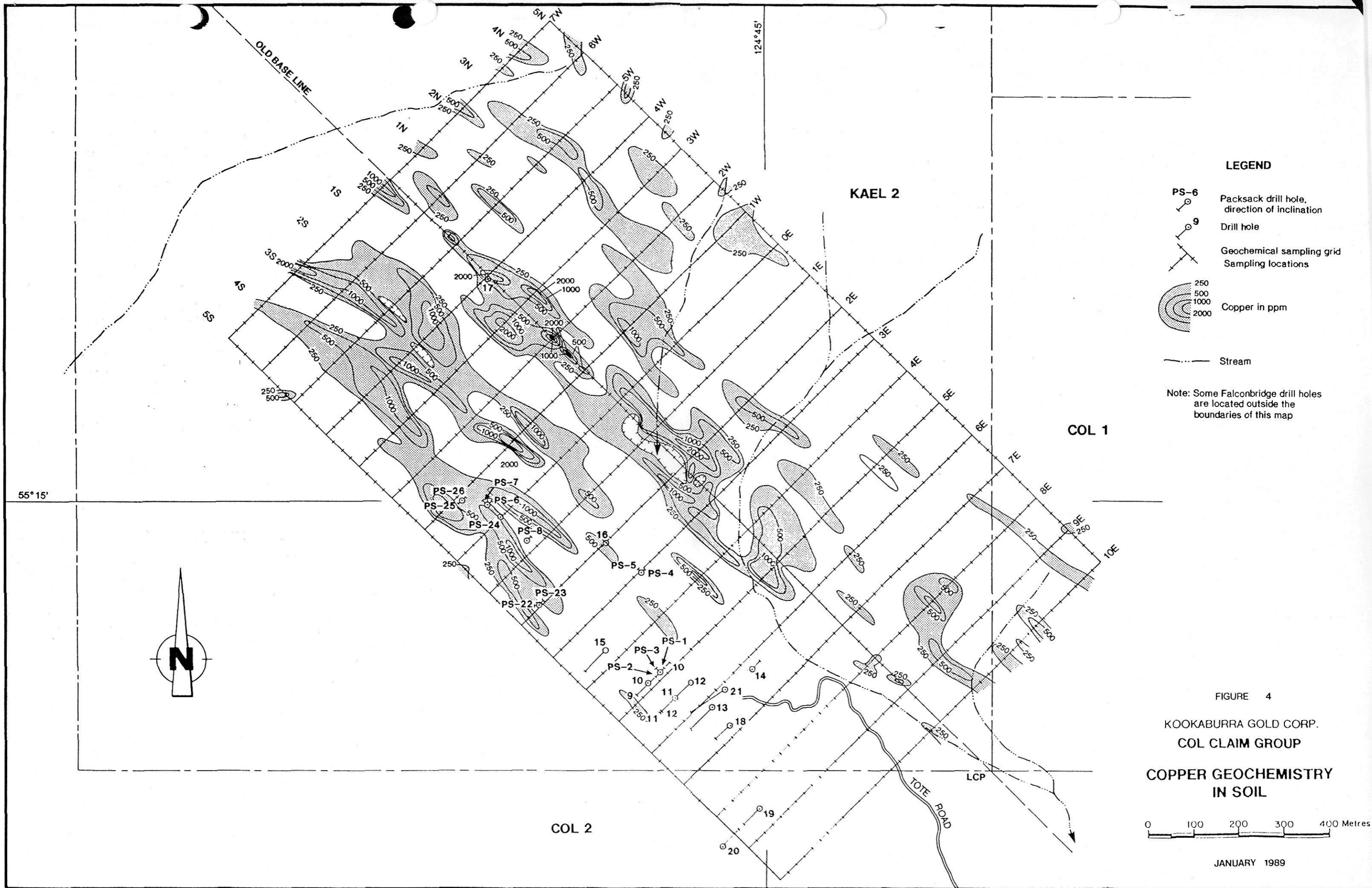
- 
**PS-6** Pack-sack drill hole, direction of inclination
- 
**9** Drill hole
- 
 Proposed drill hole
- 
 Geochemical sampling locations
- 
 Gold in ppm
- 
 Anomaly Identifier
- 
 Mineralization drilled by Falconbridge
- 
 Stream

Note: Some Falconbridge drill holes are located outside the boundaries of this map

FIGURE 3  
 KOOKABURRA GOLD CORRIDOR  
 COL CLAIM GROUP  
 GOLD GEOCHEMISTS IN SOIL



JANUARY 1989



**LEGEND**

- PS-6 Packsack drill hole, direction of inclination
- 9 Drill hole
- Geochemical sampling grid  
Sampling locations
- 250  
500  
1000  
2000  
Copper in ppm
- Stream

Note: Some Falconbridge drill holes are located outside the boundaries of this map

FIGURE 4

KOOKABURRA GOLD CORP.  
COL CLAIM GROUP  
COPPER GEOCHEMISTRY  
IN SOIL

0 100 200 300 400 Metres

JANUARY 1989

**PROSPECTUS DATED DECEMBER 28, 1988  
HAVING AN EFFECTIVE DATE OF JANUARY 9, 1989  
AS AMENDED BY AMENDMENT NO. 1 DATED FEBRUARY 15, 1989  
HAVING AN EFFECTIVE DATE OF FEBRUARY 27, 1989**

*THIS PROSPECTUS CONSTITUTES A PUBLIC OFFERING OF THESE SECURITIES ONLY IN THOSE JURISDICTIONS WHERE THEY MAY BE LAWFULLY OFFERED FOR SALE AND THEREIN ONLY BY PERSONS PERMITTED TO SELL SUCH SECURITIES.*

*NO SECURITIES COMMISSION OR SIMILAR AUTHORITY IN CANADA HAS IN ANY WAY PASSED UPON THE MERITS OF THE SECURITIES OFFERED HEREUNDER AND ANY REPRESENTATION TO THE CONTRARY IS AN OFFENCE.*

**NEW ISSUE**



**KOOKABURRA GOLD CORP.**

#203 - 698 Seymour Street  
Vancouver, British Columbia V6B 3K6  
(hereinafter called the "Issuer")

(Incorporated under the laws of British Columbia)

**500,000 COMMON SHARES WITHOUT PAR VALUE**

Common Shares	Price to Public	Agent's Commission	Net Proceeds to the Issuer
Per Share .....	\$0.45 (1)	\$0.05	\$0.40
Total .....	\$225,000	\$25,000	\$200,000 (2)

(1) The price of the Shares has been determined in negotiation with the Agent.

(2) Before deduction of the balance of the costs of this Issue estimated to be \$20,000.

**THERE IS NO MARKET THROUGH WHICH THESE SECURITIES MAY BE SOLD.**

THE VANCOUVER STOCK EXCHANGE HAS CONDITIONALLY LISTED THE SECURITIES BEING OFFERED PURSUANT TO THIS PROSPECTUS. LISTING IS SUBJECT TO THE ISSUER FULFILLING ALL THE LISTING REQUIREMENTS OF THE VANCOUVER STOCK EXCHANGE ON OR BEFORE JULY 10, 1989, INCLUDING PRESCRIBED DISTRIBUTION AND FINANCIAL REQUIREMENTS. THE OFFERING WILL BE MADE WITHIN 180 DAYS FROM THE DATE UPON WHICH THE SECURITIES OF THE ISSUER ARE CONDITIONALLY LISTED ON THE EXCHANGE. A PURCHASE OF THE SECURITIES OFFERED BY THIS PROSPECTUS MUST BE CONSIDERED AS SPECULATION. THE PROPERTIES IN WHICH THE ISSUER HAS AN INTEREST ARE IN THE EXPLORATION AND DEVELOPMENT STAGE ONLY AND ARE WITHOUT A KNOWN BODY OF COMMERCIAL ORE. NO SURVEY OF ANY PROPERTY OF THE ISSUER HAS BEEN MADE AND THEREFORE, IN ACCORDANCE WITH THE LAWS OF THE JURISDICTION IN WHICH SUCH PROPERTY IS SITUATE, ITS EXISTENCE AND AREA COULD BE IN DOUBT. THE ISSUE PRICE TO THE PUBLIC PER COMMON SHARE EXCEEDS THE ISSUER'S NET TANGIBLE BOOK VALUE PER COMMON SHARE AT JULY 7, 1988, AFTER GIVING EFFECT TO THIS OFFERING BY \$0.2846, REPRESENTING AN IMMEDIATE AND SUBSTANTIAL DILUTION OF 63.24%. REFER TO "RISK FACTORS AND DILUTION" HEREIN FOR DETAILS. NO PERSON IS AUTHORIZED BY THE ISSUER TO PROVIDE ANY INFORMATION OR TO MAKE ANY REPRESENTATION OTHER THAN THOSE CONTAINED IN THIS PROSPECTUS IN CONNECTION WITH THE ISSUE AND SALE OF THE SECURITIES OFFERED BY THE ISSUER.

UPON COMPLETION OF THIS OFFERING, THIS ISSUE WILL REPRESENT 16.67% OF THE COMMON SHARES THEN OUTSTANDING AS COMPARED TO 82.18% THAT WILL THEN BE OWNED BY THE PROMOTERS, DIRECTORS, OFFICERS AND SUBSTANTIAL SECURITY HOLDERS OF THE ISSUER. REFER TO THE HEADING "PRINCIPAL HOLDERS OF SECURITIES" HEREIN FOR DETAILS OF COMMON SHARES HELD BY SUCH PERSONS.

ONE OR MORE OF THE DIRECTORS OF THE ISSUER HAS AN INTEREST, DIRECT OR INDIRECT, IN OTHER NATURAL RESOURCE COMPANIES. SEE "DIRECTORS AND OFFICERS" FOR A COMMENT AS TO THE RESOLUTION OF POSSIBLE CONFLICTS OF INTEREST.

THIS OFFERING IS SUBJECT TO A MINIMUM SUBSCRIPTION BEING RECEIVED BY THE ISSUER WITHIN 180 DAYS OF THE EFFECTIVE DATE OF JANUARY 9, 1989. FURTHER PARTICULARS OF THE MINIMUM SUBSCRIPTION ARE DISCLOSED ON PAGE 4 IMMEDIATELY BEFORE THE CAPTION "USE OF PROCEEDS".

WE, AS AGENT, CONDITIONALLY OFFER THESE SECURITIES SUBJECT TO PRIOR SALE, IF, AS AND WHEN ISSUED BY THE ISSUER AND ACCEPTED BY US IN ACCORDANCE WITH THE CONDITIONS CONTAINED IN THE AGENCY AGREEMENT REFERRED TO UNDER "PLAN OF DISTRIBUTION" AND SUBJECT TO APPROVAL OF ALL LEGAL MATTERS ON BEHALF OF THE ISSUER BY ANGUS, McCLELLAN, RUBENSTEIN & HASLAM, BARRISTERS AND SOLICITORS.

**UNION SECURITIES LTD.**

#1300 - 409 Granville Street  
Vancouver, British Columbia V6C 1T2

## 1. SUMMARY

The property was explored as a porphyry copper target by Falconbridge Nickel Mines Limited from 1970 to mid 1972. It remained idle until 1984 when a resampling of ten foot intervals of the core identified for the first time the presence of gold in the mineralization. In the latter study, gold was found to occur in amounts up to 2.17 ppm in the higher grade copper intersections. Further study proved that gold occurred in similar amounts in at least two separate zones. This new data converted a large low grade copper prospect into an important gold exploration project with potential to develop moderate tonnages of economic grade gold/copper mineralization.

The Col Claim Group consists of 47 units divided in 3 lode claims. They are located in the Omineca Mining Division approximately 108 kilometres north of Fort St. James, British Columbia. Access to the claims is at present by foot or by helicopter, but roads lead to within 5 kilometres of the property. The intervening terrain is moderate and road construction should be neither difficult nor expensive. Rail transportation for concentrates or heavy equipment exists in Fort St. James. The claims are located on a ridge between 950 and 1550 metres in elevation. Local relief is moderate and does not represent an obvious constraint to open pit mining.

The Falconbridge work program included soil geochemistry, I.P., ground magnetics, and V.L.F. surveys. A total of 7741 feet of diamond drilling was carried out. That work identified areas highly anomalous in copper and less so in molybdenum and silver. The largest anomaly has dimensions of 1450 metres by 1200 metres and is open to the northeast. Most of the geophysical signatures appear to be due to host rock lithology and do not directly identify mineralization. Weak I.P. signatures can be interpreted in light of bornite/chalcopyrite rich and pyrite poor mineralogy, which would not be expected to have a strong I.P. signature, to indicate narrow linear zones of higher grade copper mineralization. A number of these are coincident with anomalous copper geochemistry in soils and remain untested by diamond drilling.

Most of the core which was obtained in the work program was of packsack or AX size. As a consequence of the small core diameter, sulfides were lost from the core and the assays undervalue the higher grade intersections. Most of the drilling was concentrated on I.P. anomalies which occur outside of the areas of anomalous copper geochemistry. Much of this drilling failed to encounter economic sulfides. One area, zone "A", was drilled in detail and a drill indicated tonnage of 2,000,000 tons at a grade of 0.6% copper was reported by Rivera (1973) for the zone. This specific mineralization was represented in the copper geochemical data

Suite 525  
890 West Pender Street  
Vancouver, B.C., Canada  
V6C 1J9  
Telephone (604) 684-6463

**GEOLOGICAL REPORT ON THE  
COL CLAIM GROUP**

Latitude 55° 15'N  
Longitude 124° 45'W  
NTS 93-N-2 and 93-N-7

**Omineca Mining Division  
British Columbia**

**For**

**KOOKABURRA GOLD CORP.  
203-698 Seymour  
Vancouver, B.C.**

**By**

**David M. Jenkins, M.S., F.G.A.C.  
May 30, 1988  
Revised September 30, 1988**



base as a single point anomaly. It was one of the stronger I.P. anomalies. Samples of split core have given gold analyses up to 1.68 ppm over 10 feet of core. Only one drill hole was located within the largest copper geochemical anomaly. It contained a 50 foot intersection grading 0.66% copper. Gold analyses obtained in the 1980's ranged up to 2.17 ppm over 10 feet of core. The same zone exposed in a nearby trench was sampled by the author. Three samples collected across the 12 feet wide trench gave a weighted average of 2.24 ppm of gold and 3.15% copper, present in part in secondary carbonate minerals. Falconbridge interpreted this higher grade mineralization to be controlled by a 10 to 20 foot wide structure within a much more weakly mineralized mass.

Most of the coincident copper and I.P. anomalies were not recognized or their significances were not appreciated by Falconbridge. Most of these anomalies remain untested by drilling. More recent information indicates significant gold contents in at least some of these coincident anomalies. Because gold in the deposit was not identified by earlier workers, its distribution and tenor in the deposit are unknown. The presence of gold in potentially economic amounts in a mineralized system as large as that identified on the Col claims defines an important exploration target which warrants an expenditure of risk capital to explore it.

A two phase program is recommended. The first consists of a re-assay of existing core, soil geochemical sampling and geological studies at an estimated cost of CDN\$ 91,000.00. Subject to satisfactory results in Phase 1, a 1000 metre diamond drilling program is recommended. It is estimated that the cost for Phase 2 will be CDN\$ 130,000.00.

## 2. INTRODUCTION

AINSWORTH-JENKINS HOLDINGS INC. (AJH) examined the Col Claim Group near Chuchi Lake in October of 1987. Kookaburra Gold Corp. (KGC) of 203-698 Seymour, Vancouver, British Columbia, requested AJH to write a report of its findings during it's study of the property and to make recommendations.

Major sources of information consulted during the course of this study include reports for Falconbridge Nickel Mines Limited by Band (1971), Harper (1972), and Wares (1971); a memorandum by Placer Development Limited's then Chief Geophysicist, R.A. Rivera; and reports by Colin Campbell, a graduate geologist who vended the Col Group to KGC.

An examination of the Col Claim Group was carried out by David M. Jenkins, of AJH, on the 2<sup>nd</sup> of October 1987. He was accompanied in the field by Colin Campbell. Conditions for the examination were ideal. The weather was clear and cool and the ground was free of snow cover.

### 3. PROPERTY

The Col Group consists of the contiguous Col #1, Col #2, and Kael #2 lode mineral claims comprising a total of 47 units. Table I summarizes the record numbers, dates of record and number of units in each claim of the Group. Colin Campbell was the owner of record at the time of the examination. KGC has acquired from him a 100% interest in the claims subject to certain annual payments and a 3% net smelter royalty. Locations of the claims are shown on figures 1 and 2.

TABLE 1. CLAIMS COMPRISING THE COL GROUP

NAME	NUMBER OF UNITS	RECORD NUMBER	DATE OF RECORD
Col #1	9	8651(8)	5 Aug. 1987
Col #2	18	8652(8)	5 Aug. 1987
Kael #2	20	6531(9)	28 Sept. 1984

### 4. LOCATION AND ACCESS

The claims are located in the Omineca Mining Division of British Columbia, approximately 108 kilometres north of the town of Fort St. James. The exact location is on the border between N.T.S. map sheets 93-N-2 and 93-N-7 where latitude 55° 15'N and longitude 124° 45'W intersect in the southeast quarter of the Kael #2 Claim. This location is approximately five kilometres north of the west end of Chuchi Lake.

Access to the claims is from Fort St. James to the Forestry campsite on the north end of Chuchi Lake a road distance on the order of 135 kilometres, thence 20 kilometres by boat to the southern end of the "tote road" at the west end of the lake and then up the road to the campsite on the claims. Logging roads now reach to within five kilometres east of the claims. The intervening terrain is moderate to gentle and providing vehicular access to the claims should be relatively simple and cost effective for exploration purposes. Access for production purposes would require the construction of an all weather access road north of Chuchi Lake to connect with the road from Germansen Landing to Fort St. James. Depending on the actual route chosen this would entail the upgrading or construction of between 30 and 40 kilometres of road.

The claims are located on an east-west trending ridge (Figure 3). With the exception of the northernmost units of the Kael #2 Claim the claims are on the south facing slope of the ridge and range from 950 metres to 1550 metres in elevation. The 600 metres of local relief occurs over a horizontal distance of 3250 metres. There is therefore a moderate slope which should not cause excessive problems in a development phase.

Requisite infrastructure to support a mining operation does not

exist in close proximity to the claims. Exploration must prove a deposit with sufficient tonnage and grade to support the cost of providing power, housing and transportation routes. Rail transport for supplies and concentrates is available at Fort St. James.

## 5. HISTORY OF THE PROPERTY

The property was staked by Colin Campbell in 1969 following a stream sediment geochemical survey. The following year it was optioned to Falconbridge Nickel Mines Limited, which company explored the claims until mid 1972. The property was explored by soil geochemical sampling and limited packsack drilling in 1970. This work identified several multi-element geochemical anomalies, the largest of which in the copper data has dimensions of 1450 metres long by 1200 metres wide inside of the 150 ppm contour. It is still open to the northeast. The other anomalies are smaller but two of them are not closed by the data. Packsack drilling results, in areas not anomalous in copper, revealed high grade copper zones (Wares, 1971). Geophysical exploration in 1971 included Induced Polarization (I.P.), ground magnetics and V.L.F. E.M.16 surveys. Geological mapping and additional diamond drilling were completed in that year. Geophysical signatures encountered were largely controlled by host rock lithology and did not obviously identify mineralization. The I.P. results, while weak, did indicate the mineralization encountered in the drilling. Diamond drilling focused on following copper mineralization located by surface work, but which was outside of the major copper geochemical anomalies. The sulfide mineralogy of mineralization intersected in this work consisted largely of bornite and chalcopyrite. Pyrite was only a minor component. Copper grades ranged up to 1.32% copper over 60 feet (18.46 m). Only one hole, No. 17, was drilled in a major copper geochemical anomaly. At that point it coincided with an I.P. anomaly. Hole 17 contained an intersection 50 feet (15.4 m) wide which carried a grade of 0.66% copper within a zone of much lower grade. Comparison of assays of core with assays of sludge proved that the AX size core significantly undervalues the mineralization due to the loss of sulfides. Exploration during 1972 consisted of a limited and unsuccessful diamond drilling program to test the strongest I.P. signatures even though they were hundreds of metres southeast from known areas of anomalous geochemistry. The project total of 7741 feet (2381.85 metres) of diamond drilling failed to find economic mineralization and Falconbridge terminated their option. Descriptions of Falconbridge's drill holes comprise Appendix A.

Placer Development Limited reviewed the Falconbridge Data in 1973. They recognized that the sulfide mineralogy, due to the lack of pyrite and the relative abundance of bornite, could reach ore grade and still be a very poor I.P. target. Rivera (1973) re-interpreted the data by contouring the frequency effect and concluded that as much as 20,000,000 tons could exist at similar or

Direction of  
ice movement?

Potential

lower copper grades than Zone "A" as drilled by Falconbridge. No consideration was given to the gold potential of the mineralization in Rivera's study due to lack of information. Smith (1973) reported in a letter to Campbell that Zone "A" contained a drill indicated tonnage of 2,000,000 tons at a copper grade of 0.6%.

In 1984 Campbell sampled a small number of ten foot segments of drill core for gold. The results of his core sampling confirmed the presence of gold in the system with analyses up to 2.17 ppm (0.063 oz./s. ton) over ten feet. While the data base is too small for formal statistical evaluation, comparison with Falconbridge's copper assays demonstrates autocorrelation between gold values in excess of 0.5 ppm and higher grade copper contents. Copper grades in the range of 1.0% or greater have significant probability of containing greater than one gram of gold per short ton. Resampling of trenches has allowed Campbell to carefully select samples which range tenor to slightly in excess of 0.5 oz./s. ton.

Because the interpretation of the I.P. data by Falconbridge failed to take into account the rather special mineralogy of the mineralization, relative to that of porphyry copper deposits, they were led into fringe area pyritic and argillic alteration with their drilling. The effect of this was their work left the areas of anomalous copper mineralization and coincident weak I.P. signatures largely untested. Placer, while recognizing the error in Falconbridge's otherwise excellent work, thought the contained metal value was too low to be economically viable due to limited tonnage at expected grades. The work by Campbell in identifying the presence of gold, in potentially economically significant quantities, with the higher grade copper suggests that the dollar value of the contained metal may be considerably higher than previously believed. A new study to determine the areal distribution and grade of gold within the deposit is warranted and could lead to identification and development of economically viable reserves.

## 6. GEOLOGY

### 6.1. REGIONAL GEOLOGY

The geology of the terrain surrounding the Col Group is illustrated on Figure 4 which is after Garnett (1978). The oldest outcropping rocks in the vicinity are the andesitic and basaltic volcanic rocks of the Triassic-Jurassic aged Takla Group. These have been intruded by various phases of the Hogem Batholith which ranges in age from Triassic-Jurassic to the Lower Cretaceous.

The Hogem Batholith is a composite intrusion which contains at least three plutons of varying chemical composition. Garnett

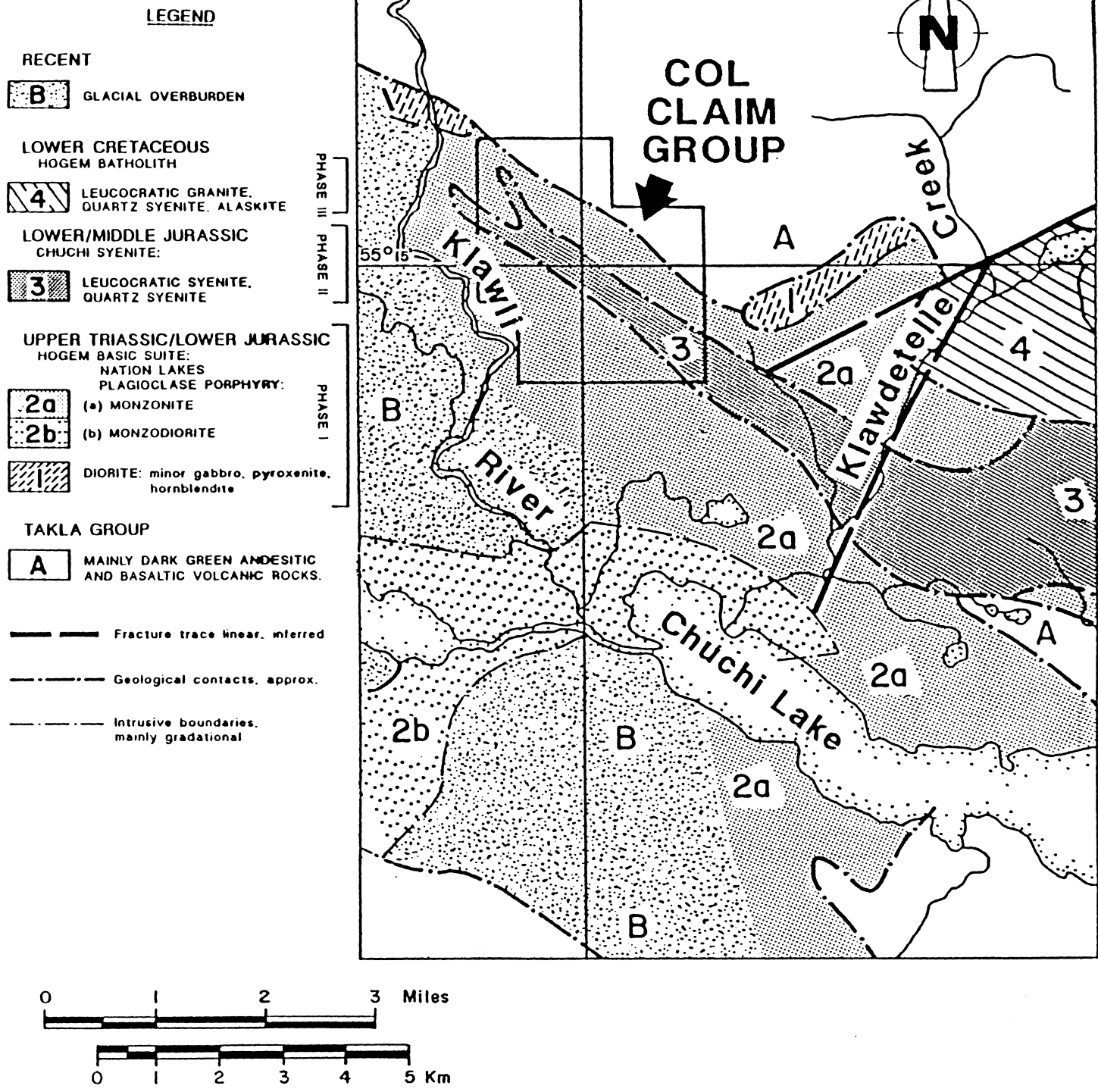


FIGURE 4  
 KOOKABURRA GOLD CORP.  
**REGIONAL GEOLOGY**  
**NORTHWEST OF CHUCHI LAKE**

Geology by Garnett (1978) 15 September 1988  
 AINSWORTH-JENKINS HOLDINGS INC.

*Handwritten signature*

(1978) has subdivided the Hogem Batholith into three separate phases of differing chemical composition. Phase I granodiorite and Phase III granite are best categorized as calc-alkaline intrusive rocks. Phase II syenite is alkaline and Phase I basic suite is predominately alkaline.

Same as  
Mr. Milligan  
(+ gabbro)

In the region of the Col claims Takla rocks were first intruded by diorite and subsequently by monzodiorite and monzonite of Garnett's Phase I of the Hogem Batholith. The latter two lithologies are porphyritic with plagioclase laths ranging from 2 to 5 centimetres in long dimension enclosed in a matrix of vitreous orthoclase. Mafic minerals may comprise up to 30% of the rock. Mafic minerals are according to Garnett predominately clinopyroxene with biotite varying from an equal abundance to a minor associate.

As per  
starking  
routine?

Hornfels?

Leucocratic syenite or quartz syenite belonging to Garnett's Phase II alkaline suite was latter intruded into Takla and Phase I rocks. Garnett calls these rocks the Chuchi Syenite and describes them as "pink, fine to medium grained, allotriomorphic granular with euhedral, twinned plagioclase laths, subordinate to interstitial and subhedral orthoclase and microcline-perthite".

Contacts with Phase I monzonite and monzodiorite are poorly exposed and not well defined. The contacts have the appearance of being gradational on a regional scale but this aspect is thought to be the result of potash metasomatism of Phase I rocks.

Contacts with the younger granite and alaskite of Phase III also appear to be gradational. While there is a possibility of a gradation from syenite to quartz syenite to granite, Garnett believes that any apparent gradation is due to contact effects.

Copper mineralization accompanies syenitic intrusions of the Hogem batholith in a number of areas. These occurrences exhibit "syngenetic characteristics and have none of the main alteration and structural features of the major Cordilleran porphyry deposits of the alkaline suite" (Garnett, 1978).

→ probably hadn't seen  
or read enough!

Garnett describes Phase III leucocratic granitic rocks as pink to orange and fine to medium grained with occasional miarolitic cavities. Microcline-perthite and quartz make up 90 per cent of their volume. Mafic minerals comprise less than 15 per cent of the rocks and the major mafic mineral component is biotite with minor hornblende.

Figure 4 also illustrates the presence of two directions of faulting, one of which strikes E.N.E. and the other northeast. Twenty-five kilometres to the west the batholith is bounded by a broad fault zone which strikes generally N.N.W. Topographic features suggest that another major structure with a similar strike may exist near the western boundary of the claims.

Pinchi  
Fault?

## 6.2. PROPERTY GEOLOGY

Geological mapping on the property predated the work by Garnett and did not benefit from the regional perspective provided by his study. The rock units identified in the property work are very similar to those mapped by Garnett and the geological sequences are also similar. The mapped rocks range from basaltic volcanics of the Takla Group as the oldest to Phase III granites as the youngest. The major difference in interpretation relates to the timing of the various intrusions.

flows or  
pyroclastics,  
or both?  
K-spar rich?

Work on the property found all of the intrusive lithotypes mixed on an outcrop scale, with a range of chemical compositions from one end point of Hogem Batholith rocks to the other. It was reported by A. Elliot (in Harper, 1972) that there were probably no clear cut boundaries between the various phases, but rather there were semi-continuous pulses of magma. The magma changed over time by decrease in proportion of ferromagnesian minerals and an increase in the proportion of potash feldspar. In single outcrops as many as five separate intrusive phases can be identified on the basis of cross-cutting relationships. Simplified property geology is shown on Figure 5.

How much  
time?  
1 ma?  
2 ma?  
10 ma?

Elliot (in Harper, 1972) describes the potash alteration of the intrusive rocks as the most obvious and important style of alteration seen on the property. Early stages of alteration in monzonitic rocks consist of fine grained pink discoloration along fractures and are accompanied by minor amounts of chlorite filling. Later and more intense stages of potash alteration lead to replacement of rock distal from fractures and a coarsening of texture. In the most intense alteration quartz becomes a significant component and the texture becomes pegmatitic.

2/1a  
Mt. Milligan

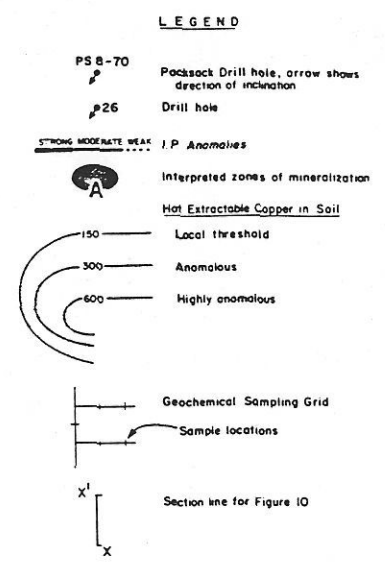
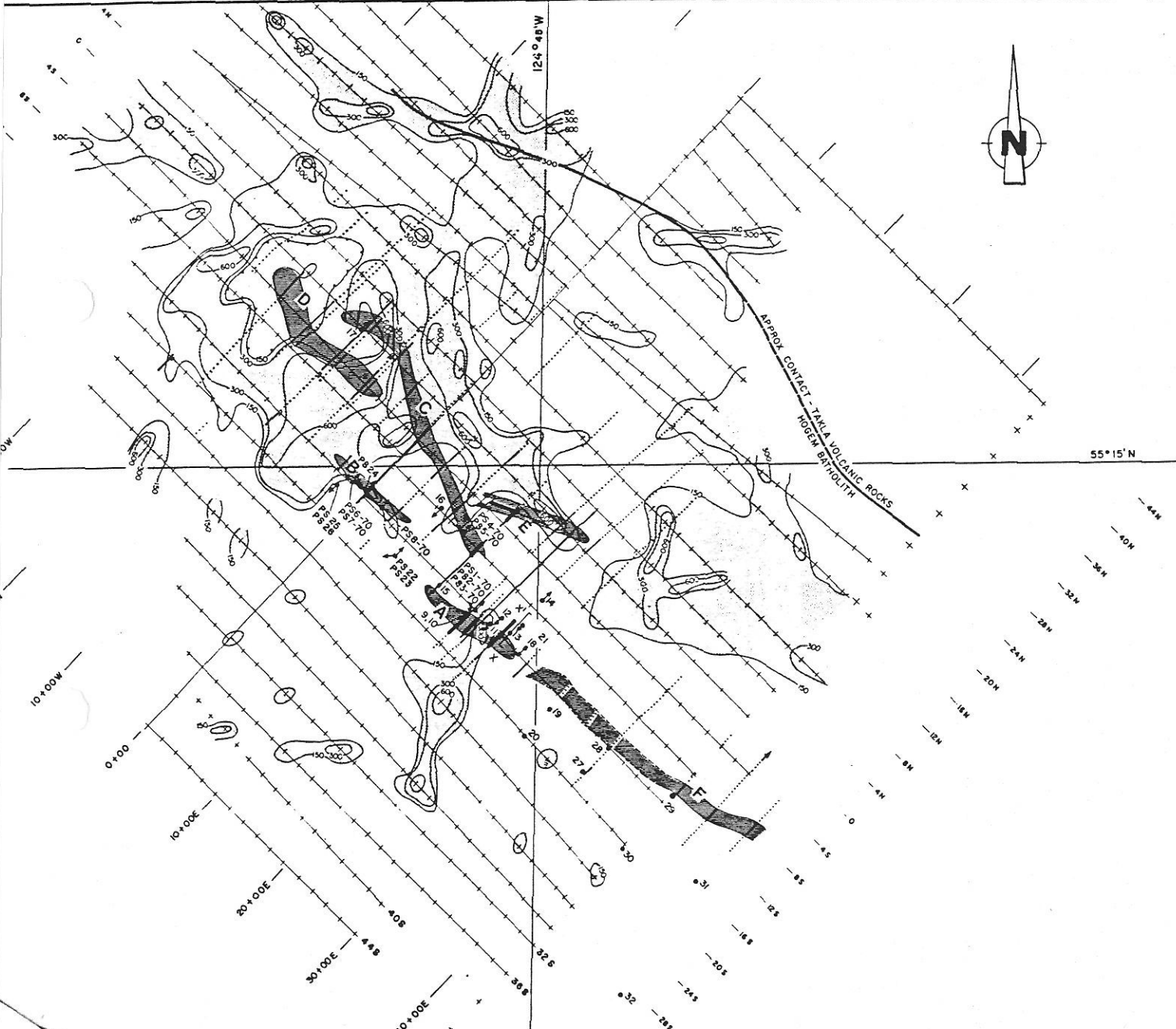
not at  
Mt. Milligan

Elliot reports that kaolinization of feldspar grains is moderate over the entire property. It preferentially alters the calcic cores of plagioclase grains in preference to the sodic plagioclase rims or orthoclase grains. He reports that this alteration is most intense in areas of potash feldspathitization. The wide spread character of kaolinization was not observed by this author.

Air-photo interpretation of topographic features suggests the presence of a number of faults. Elliot writes that these seem to be sub-vertical and strike in several direction, but the strongest faults strike at about  $140^{\circ}$ . Fracturing is most intense in the western part of the property. These are mostly subvertical with predominate strikes of  $45^{\circ}$  and  $140^{\circ}$ .

## 7. MINERALIZATION

Harper (1972) reported that "Practically every outcrop of intru-



*D. Arvey*

FIGURE 5  
 KOUKABURRA GOLD CORP.  
 GEOCHEMICAL & GEOPHYSICAL  
 COMPILATION MAP  
 COL CLAIM GROUP

Geophysical Interpretation by Rivera (1973)  
 15 SEPTEMBER 1988  
 400 0 400 800 1200 1600 Ft.  
 100 0 100 200 300 400 500 M  
 AINSWORTH - JENKINS HOLDINGS INC.



live in the central part of the property contains visible copper mineralization of one form or another". He divides the mineralization into barren country rock, fringe zone rock and high grade zone rock.

Much barren appearing syenitic rock contains patchy and weakly developed chalcopyrite and/or pyrite. Sulfide volume seldom exceeds 0.50%. Superimposed over both monzonite and syenite are sporadically and randomly distributed shears and fractures with chalcopyrite and/or pyrite and rarely bornite. The spacing of these is sufficiently wide that the total volume of sulfides is less than 0.25%. Leaching is extreme enough that disseminated sulfides are rarely visible at the surface and except in rare situations the fractures are leached entirely of sulfides in the top 12 inches of the outcrop.

Fringe zone rocks show an increase in the amount of disseminated sulfide and a change in mineralogy. Pyrite disappears, the volume of chalcopyrite increases and bornite appears. The increase in grade is not obvious in natural outcrops due to surficial leaching. The only outcrop of high grade mineralization in the Zone "A" area drilled in detail by Falconbridge appears "barren" (quotes by Harper) and cut by abundant fractures. Minor malachite is visible on fault planes forming faces of the outcrop. Drilling below the outcrop disclosed that the fractures were filled with bands of bornite and/or chalcopyrite. Secondary malachite and/or chalcocite were observed for the first 20 feet in the drill hole but comprise a very minor component of the mineralization. Secondary enrichment is not recognized as an important aspect of mineralization on this property. This particular zone strikes approximately 120° and is nearly vertical. It is lens shaped at least 1000 feet (300 metres) long, up to 70 feet (21 metres) wide and more than 450 feet (137 metres) deep. Three of the intersections average on the order of 1.0% or greater copper in core across the structure but are separated by other intersections which average less than 0.4% copper. Comparisons between assays of core and assays of sludge prove that considerable copper was lost from the core. In some cases sludge assays are 50% to 85% greater than assays of core. In some high grade intervals no core assays are available.

Rivera (1973) estimated 2,000,000 tons at a weighted average grade of 0.6% copper in Zone "A". Another calculation by Campbell indicated 2,720,000 tons at a grade of 0.54% copper. In this writer's opinion the data are sufficiently flawed that a copper grade can not be confidently assigned to the zone and the calculations by the above two workers can be considered as approximations of the copper grade. Gold values obtained by Campbell, from drill intersections in this zone, are shown on figures 6, 8 and 9. Two samples were collected by this writer from hole 13 and one sample from hole 21. Both holes are in the zone under discussion. Analytical data shown in Table 2 confirm

Campbell's findings.

DPH 17  
(+ Au)

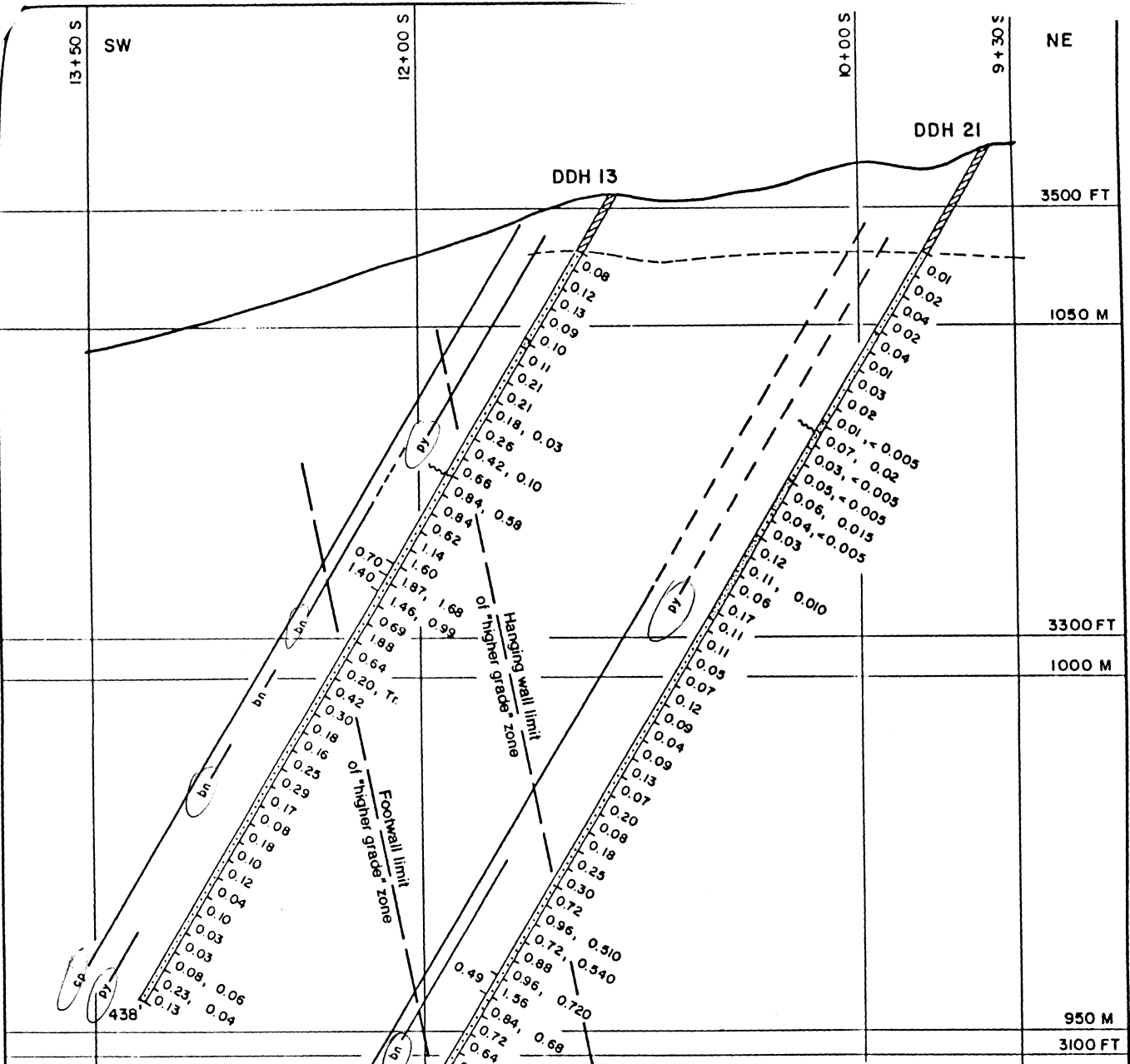
The mineralization reported in the trenches in Zone "C" was cut by drill hole 17 which was sampled by both Campbell and myself. His results are summarized on Figure 7 and my results are included on Table 2. Based on the Falconbridge core assays the best 50 feet long intersection (not true width) averages 0.66% copper (ignoring differences between core and sludge assays). In the drill hole I encountered a five foot interval from 174 to 179 feet in depth which contained 1.1 ppm of gold. This was a selected sample in that the interval taken was assumed to contain significant gold based on observation of samples which had higher gold contents in Campbell's study. Sampling, by the author, of the 12 feet (3.6 metres) exposed in the trench with three samples gave a weighted average gold grade of 2.24 ppm and a copper grade of 3.15%. Two of these samples indicated that the monzonite carries approximately 2.8% copper, partly as secondary copper carbonates and 1.4 ppm of gold. Between the two samples of monzonite a 2.5 feet long sample of fault gouge was collected which contained 4.6% copper (occurring largely as secondary copper minerals) and 5.2 ppm of gold. Harper interprets this zone as cut in the trench and in drill hole 17 as being a 10 to 20 feet wide shear zone which strikes 120° and dips steeply to the northeast. The length of the copper-gold mineralized structure is unknown.

TABLE 2. SUMMARY OF SAMPLES COLLECTED BY D. JENKINS








SAMPLE	LOCATION	WIDTH	DEPTH	Cu	Au	DESCRIPTION
		FEET	FEET	%	PPM	
24851	hole 17	5	174-179	1.1	1.1	Monz., bornite, dk. qtz. vnl.
24852	hole 17	2	179-181	0.04	0.0	Monz., k-alt., minor cpy, qtz vn.
24853	hole 17	7	167-174	0.30	0.2	Monz., k-alt., cpy, qtz. vn.
24854	hole 13	8	207-215	1.68	1.4	Monz., bornite, dk. qtz. vn.
24855	hole 13	7	200-207	1.82	0.7	Monz., less vnlets. than above
24856	hole 21	10	450-460	1.48	0.5	Monz., bornite, dk. qtz. vnlets.
24857	trench		selected	13.1	0.6	Selected for <u>high bornite</u>
24858	trench		selected	2.85	2.3	Selected for qtz. vn.
24859	trench	6.5		2.78	1.5	Cont. chip, monz. west of 24860
24860	trench	2.5		4.60	5.2	Channel sample of gouge
24861	trench	3.0		2.79	1.4	Cont. chip, monz. east of 24860

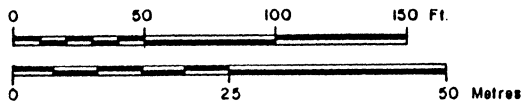
When copper assays of core exceed 1.0%, gold contents are elevated with a maximum reported gold content of 2.175 ppm. Copper contents of less than 0.5% appear, in the limited data base, to be accompanied by economically insignificant gold contents. In a limited review, in hand specimen of certain higher grade intersections, this author noted the presence of considerable disseminated bornite which did not appear to be on fractures and had the appearance of being an original component of the rock. A second population of bornite appears to replace or fringe biotite and

also Mt. Milligan



**LEGEND**

-  Overburden
-  Biotite hornblende monzonite
-  Syenite
-  Fault
-  Inferred contact or trend line
-  0.12, 1.7 %Cu, Au in PPM (sample taken by Campbell)
-  0.5 Au in PPM (sample taken by D.Jenkins)
- cp = chalcopyrite, bn = bornite, py = pyrite



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*Harper*

FIGURE 10  
 KOOKABURRA GOLD CORP.  
 COL CLAIM GROUP  
 ASSAY SECTION 20+00 E  
 9+30S TO 13+50S

Modified from Harper, 1972 15 September 1988  
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other ferromagnesian minerals. A third population of bornite was definitely associated with fractures which may or may not be accompanied by quartz. Pegmatitic veins viewed in outcrop tended to have very rich accumulations of coarse grained bornite and chalcopryrite on their borders. Based on the sampling summarized in Table 2 gold appears to be associated with bornite when accompanied by thin dark colored quartz veinlets. White quartz veinlets, veins, pegmatitic veins, and chalcopryrite did not give strong gold signatures. Selective sampling of intervals with different types of quartz mineralization indicate that it is possible to separate lower grade from higher grade gold bearing mineralization, but the specific control is unknown. White quartz sampled in drill core did not contain large amounts of gold but where sampled in a trench near drill hole 17 Campbell was able to obtain a highly selected sample with a gold content of approximately 0.5 oz./s. ton.

## 8. GEOPHYSICS

Ground magnetic data defined a broad belt of higher values and indicated a number of narrow linear anomalies generally trending 135° to 140°. At least in part the anomalies are related to compositional variations. They do not appear to directly identify mineralization but in a more detailed study dislocation of signatures might be used to locate faults.

Induced polarization metal factors, as interpreted by Falconbridge, identified ten weak to moderately anomalous zones. Most are narrow linear anomalies which parallel structural trends identified by other techniques. The only definite anomaly according to D. Sutherland (in Harper, 1972) was Zone "A". The other indications are for narrow sources. Two of these were drilled. One was tested by drill hole 16 which encountered only minor sulfides. The other was tested by drill hole 17, which was previously described, and in which interesting copper and gold grades were encountered.

The re-interpretation of the I.P. data by Rivera identified six narrow zones of moderate to strong anomalies (Figure 5) warranting additional exploration. These anomalies include all the mineralization drilled by Falconbridge. His work in contrast to that of Falconbridge identifies certain additional areas overlain by geochemically anomalous soil also as being anomalous in terms of I.P. signature and indicative of mineralization.

## 9. GEOCHEMISTRY

The property was sampled on grid lines established at 400 foot intervals and along which samples were collected at 200 foot intervals. Samples were collected from the "B" horizon. The dried samples were screened through nylon screens to remove the minus 80 mesh fraction which was analyzed by Falconbridge for silver,

### 13. REFERENCES

Band, R.B., 1971, Geochemical Report On The Chuchi Group-Col Claims; Unpublished report for Falconbridge Nickel Mines Limited, 4pp.

Campbell, C., 1986, Lithogeochemical Survey Of The Kael #2 Mineral Claim, Omineca Mining Division; B.C. Assessment Report Number 15423, 20pp.

Campbell, C., 1988, Summary Report 1988 Of The Col Copper - Gold Property, Omineca Mining Division; Unpublished report, 9pp.

Garnett, J.A., 1978, Geology and Mineral Occurrences of the Southern Hogen Batholith; Bulletin 70, Province of British Columbia Ministry of Mines and Petroleum Resources, 75pp.

Harper, G., 1972, Progress Report For 1971 On The Chuchi Lake Option - P.N.161, Omineca M.D., N.T.S. No. 93-N-2; Unpublished report for Falconbridge Nickel Mines Limited, 66pp.

Harper, G., 1972, Quarterly Report (#3-72) Describing Work Undertaken On The Optioned Col Claims Between The 1st May And The 31st July 1972 And Also Being A Final Report on Work Completed; Unpublished report for Falconbridge Nickel Mines Limited, 5pp.

Rivera, R.A., 1973, Review Of Geophysical Data On The Falconbridge Chuchi Lake Property, B.C.; Unpublished memorandum, 3pp.

Smith, T., 1973, Letter to Colin Campbell from Placer Development Limited.

Wares, R., 1971, Report On The Campbell Option, Chuchi Lake, Omineca M.D.; Unpublished report for Falconbridge Nickel Mines Limited, 13pp.

Woodcock, J.R., 1972, Chuchi Lake Copper Property; Unpublished letter to Colin Campbell, 6pp.

The data included in this appendix was largely extracted from drill hole summaries prepared by Falconbridge geologists. Their work was carried out using feet and inches to measure distances and lengths. Because little would be gained and in fact accuracy would be lost by conversion of even foot measurements to rounded metric measurements, the system of measurement used by the original workers has been retained in this appendix.

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 No.PS-1-70 Northing 12+00S Easting 16+00E Bearing 045 degrees

Inclination -45 degrees Length 75 ft. 22.85 m. Core Size XRPS  
 -----

Footage

Description

0'-14' Monzonite: biotite hornblende with sparse malachite stains and traces of native copper  
 14-75 Monzonite as above but fresh with sulfides on fractures, sparse feldspathized zones and quartz stringers carry blebs of bornite. Closely spaced (1/4") fracture set oriented at 37 degrees to core axis. Fracture intensity is lower in section from 60 to 75'

-----  
 Hole No.PS-2-70 Northing 12+00S Easting 16+00E Bearing 225 degrees

Inclination -45 degrees Length 50 ft. 15.24 m. Core Size XRPS  
 -----

Footage

Description

0' -20' Monzonite: strongly oxidized with chalcopryite and bornite on fractures  
 20'-50' Monzonite: biotite hornblende, bornite component is much reduced from that above

-----  
 Hole No.PS-3-70 Northing 12+00S Easting 16+00E Bearing 315 degrees

Inclination -45 degrees Length 50 ft. 15.24 m. Core Size XRPS  
 -----

Footage

Description

0'-20' Monzonite: slightly weathered with malachite chalcopryite and bornite on fractures  
 20-50' Monzonite; fresh biotite hornblende, with chalcopryite and bornite on fractures at 45 degrees to core axis.

-----  
 Hole No.PS-4-70 Northing 7+50S Easting 9+80E Bearing 045 degrees