

86-207-14831

05/13 -

GEOLOGICAL AND GEOCHEMICAL  
REPORT ON THE  
GIO 5 MINERAL CLAIM

for  
CK&G Management Ltd.  
Owner-Operator

FILMED

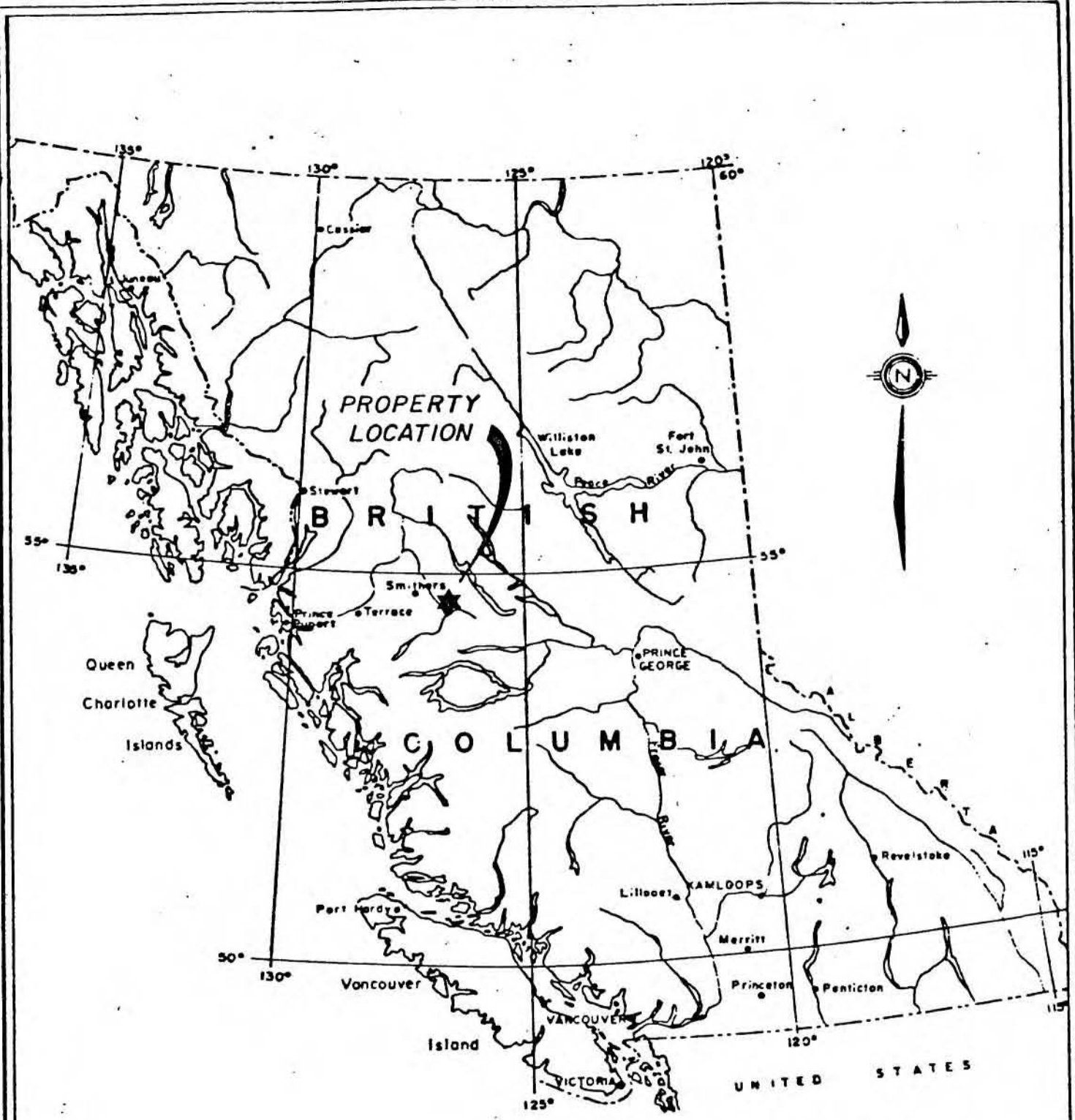
NTS 93L/10E

Omineca Mining Division  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

Latitude  $54^{\circ}36'N$  **14,831** Longitude  $126^{\circ}42'W$  <sup>43.4'</sup>

May 1, 1986

Robert Holland, B.Sc.  
Holland Geoservices Ltd.



LOCATION MAP

FIGURE I

## TABLE OF CONTENTS

	<u>Page</u>
SUMMARY AND CONCLUSIONS	1
LOCATION AND ACCESS	2
INTRODUCTION	3
GEOLOGY	4
MINERALIZATION	7
GEOCHEMISTRY	9
Silver	10
Copper	10
Arsenic	10
Zinc	14
Lead	14
RECOMMENDATIONS	14
REFERENCES	18
STATEMENT OF COSTS	19
QUALIFICATIONS	20

## LIST OF FIGURES

FIGURE 1 - LOCATION MAP	frontispeice
FIGURE 2 - WORK LOCATION MAP	5
FIGURE 3 - GEOLOGY	6
FIGURE 4 - DETAILED GEOLOGY	8
FIGURE 5 - SOIL GEOCHEMISTRY - SILVER	11
FIGURE 6 - SOIL GEOCHEMISTRY - COPPER	12
FIGURE 7 - SOIL GEOCHEMISTRY - ARSENIC	13
FIGURE 8 - SOIL GEOCHEMISTRY - ZINC	15
FIGURE 9 - SOIL GEOCHEMISTRY - LEAD	16

## SUMMARY AND CONCLUSIONS

The Gio 5 claim is owned by CK&G Management Ltd. and lies on the northern flank of Grouse Mountain near Smithers, B.C. The property lies adjacent to the north-east of the Chance silver-copper-gold prospect (Adriatic Resources Corp.) and just north of the Copperhill zinc-copper-silver deposits (Ramm Ventures Ltd. and Teck Corp.). Mineral reserves of 1,080,000 tonnes of low grade material have been outlined on the Copperhill property to 1983 and extensive diamond drilling was carried out in 1984 on adjacent zones. Mineralization is widespread and common on Grouse Mountain and appears to be spatially associated with numerous intrusive dykes and stocks, possibly related to a larger intrusive mass at depth. Weak to strong hornfelsing, sericite-chlorite-carbonate-epidote, and siliceous alterations are common locally.

During October 1985, follow up grid soil geochemistry and geological mapping were carried out in the northwestern part of the Gio 5 claim. No economic mineralization was encountered, however, a zone of weak to intense silicification, at least 550 meters by 200 meters, was outlined along the western claim boundary. Associated with this zone is a large area of coincidentally anomalous silver-zinc-lead soil geochemistry. Values to 6.3 ppm silver, 1744 ppm zinc and 182 ppm lead were obtained. Several small scattered silver-copper and silver-arsenic soil anomalies were also delineated adjacent to this zone with values to 2.5 ppm silver, 534 ppm arsenic and 148 ppm copper. None of the anomalies have been adequately closed off and the siliceous zone remains open to the north, west and south.

The presence of favorable alteration associated with elevated soil geochemistry is very encouraging, particularly in light of the very limited work done to date. More detailed follow up is definitely warranted, and should include expanded soil geochemistry and geological surveys as well as VLF electromagnetics and possibly I.P. (induced polarization). This work should also cover the eastern part of the Gio 4 claim, recently acquired by CK&G Management Ltd., and consideration should be given to acquiring further ground by staking to the north.

#### LOCATION AND ACCESS

The Gio 5 mineral claim, consisting of 20 units, is located on the northern flank of Grouse Mountain, 32 kilometers southeast of the town of Smithers and 22 kilometers north of the town of Houston, in north central British Columbia. The terrain is moderately to gently sloping in the west with large, flat, swampy areas in the eastern part of the claim. Elevations range from 3500 to 4100 feet (1060 to 1250 meters). Rock outcroppings range from poor to fair, with the best exposures in the western half. The claim is generally well timbered with balsam fir and minor spruce and pine.

The summit region of Grouse Mountain can be reached via a rough four wheel drive road, a branch of which ends within 1.2 kilometers of the property. Access to the Gio 5 claim can be made from this point, by foot, along cat roads, an old trail, and then cross country for 800 meters to the southwest corner of the property. Access to the rest of the claim area can be gained best by helicopter to numerous open swampy sites. The Yellowhead Highway, a major arterial route connecting Smithers and Houston

with points east and west, passes within 5.5 kilometers of the claim. Daily air service is available to Smithers from Vancouver, Prince George and Terrace, and major railway and helicopter facilities can be found in both Smithers and Houston.

### INTRODUCTION

Interest in the Grouse Mountain area began in 1914 with the discovery of copper-zinc-silver mineralization at Coppermine Lake near the summit of Grouse Mountain. Since that time, the area has been worked intermittently, with the main focus being on and around the Ruby zone, about 500 meters southwest of Coppermine Lake and 3 kilometers southeast of the Gio 5 claim. This property, referred to as the Copperhill prospect, has seen extensive development work, with over 1100 meters of drifting and crosscutting and over 8400 meters of diamond drilling to 1983. Published mineral reserves from the Ruby zone are 360,000 tonnes of 0.38% copper, 4.23% zinc and 0.88 oz/ton silver, with an additional 720,000 tonnes of lower grade material in extensions to this zone. More recent work, including extensive drilling, was carried out by Teck Corp. under option agreement with Ramm Ventures Ltd. in 1984, and reports suggest a good potential to substantially increase these reserves.

Work has also been conducted by Adriatic Resources Corp. on its Chance 1 high grade silver-copper prospect which adjoins the Copperhill prospect to the north, and the Gio 5 claim to the southwest. Work during 1984 on the Chance Group included detailed geological, soil geochemical, and VLF electromagnetic surveys with follow up diamond drilling. Noranda Exploration has also carried



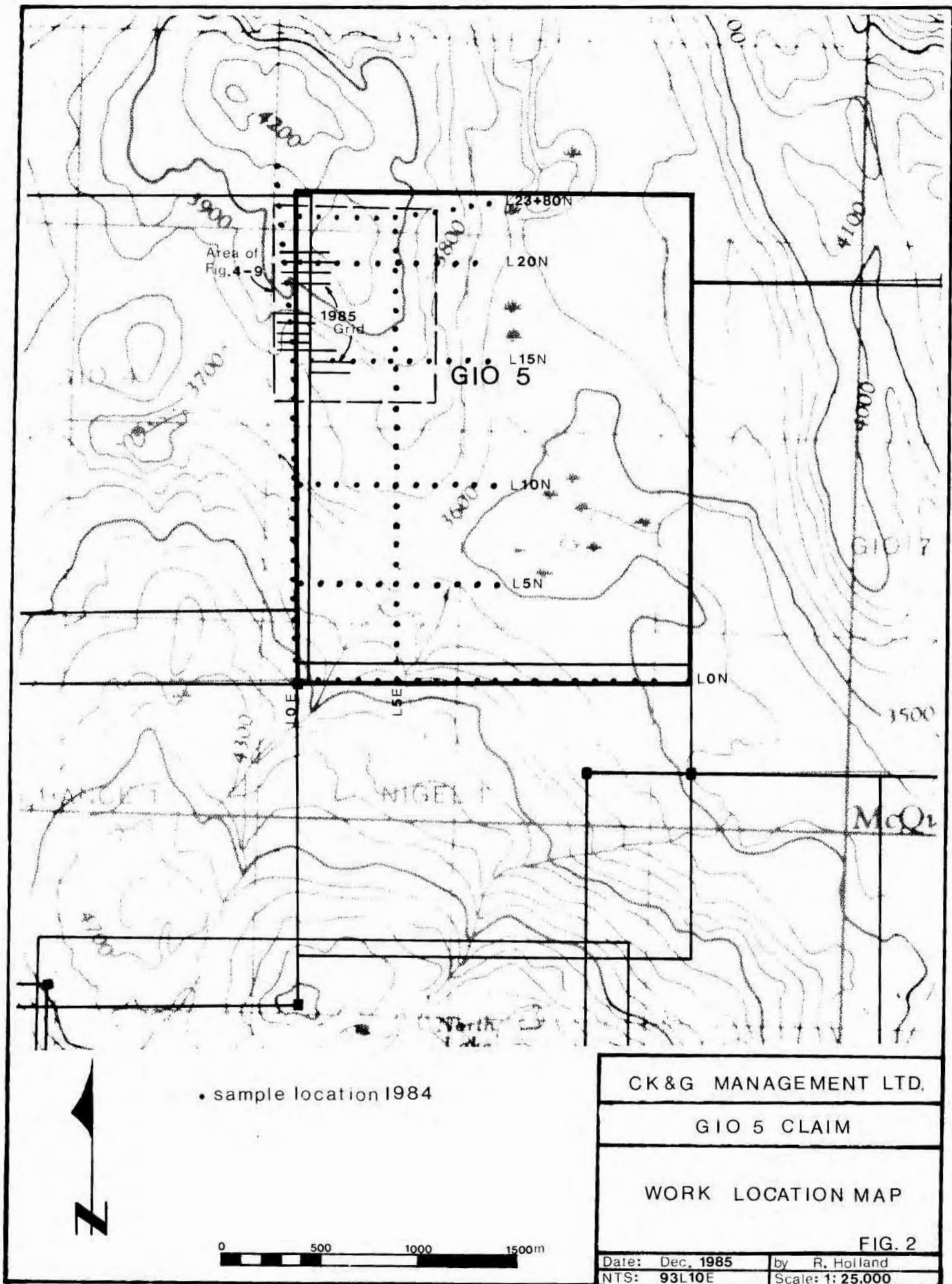
out recent investigations on the Mineral Hill property further to the south. Significant silver-copper-lead-zinc-gold mineralization has been reported on these claims.

The Gio 5 claim was staked in May 1984 for CK&G Management Ltd. and was optioned to Bellabon Resources Corp. in August 1984. A program of reconnaissance geological mapping and soil geochemistry was completed in September-October 1984. In 1985, CK&G Management Ltd. reacquired the claim and conducted follow up geological mapping and soil geochemistry. A total of 107 soil samples and 1 rock sample were collected, and a portion of the claim was mapped at a scale of 1:5000. (see figure 2).

#### GEOLOGY

The Grouse Mountain area is underlain mainly by tuffs, tuffaceous sediments, and minor flow rocks of the lower Jurassic-aged Hazelton Group. These rocks are cut by numerous, generally north to northwest trending dykes ranging from a few meters to in excess of 200 meters wide. The dykes belong to four lithological types: a) trachytoidal feldspar porphyry, b) crowded feldspar porphyry, c) biotite-feldspar porphyry, and d) lamprophyre. These dykes appear to be related genetically and likely stem from the same magma source. In addition to these dykes, a number of small stocks, compositionally similar to but coarser grained than the biotite-feldspar porphyry, have also been observed. Hornfelsing is common but extremely variable within the Hazelton Group adjacent to the dykes and stocks.

The geology of the Gio 5 claim is shown in figure 3. The western half of the claim is largely underlain by



• sample location 1984

CK & G MANAGEMENT LTD.

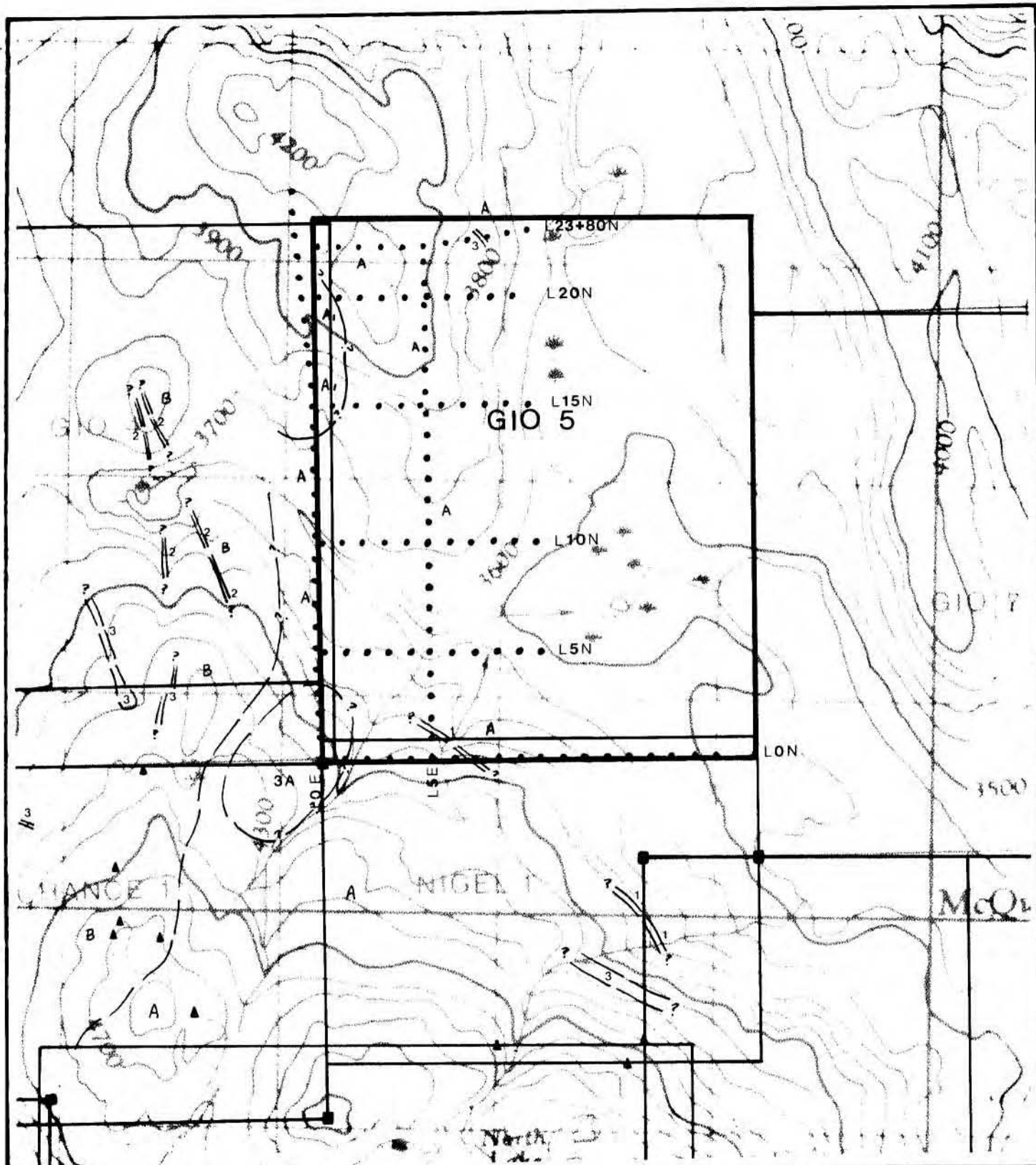
GIO 5 CLAIM

WORK LOCATION MAP

FIG. 2

Date: Dec. 1985	by R. Holland
NTS: 93L10E	Scale: 1: 25,000





▲ Mineral Showing

3 Biotite feldspar porphyry; 3A altered

2 Crowded feldspar porphyry

1 Trachytoidal feldspar porphyry

B Polymictic tuff, graywacke, argillite

A Maroon tuff  
1) silicified



CK & G MANAGEMENT LTD.

GIO 5 CLAIM

GEOLOGY

FIG. 3

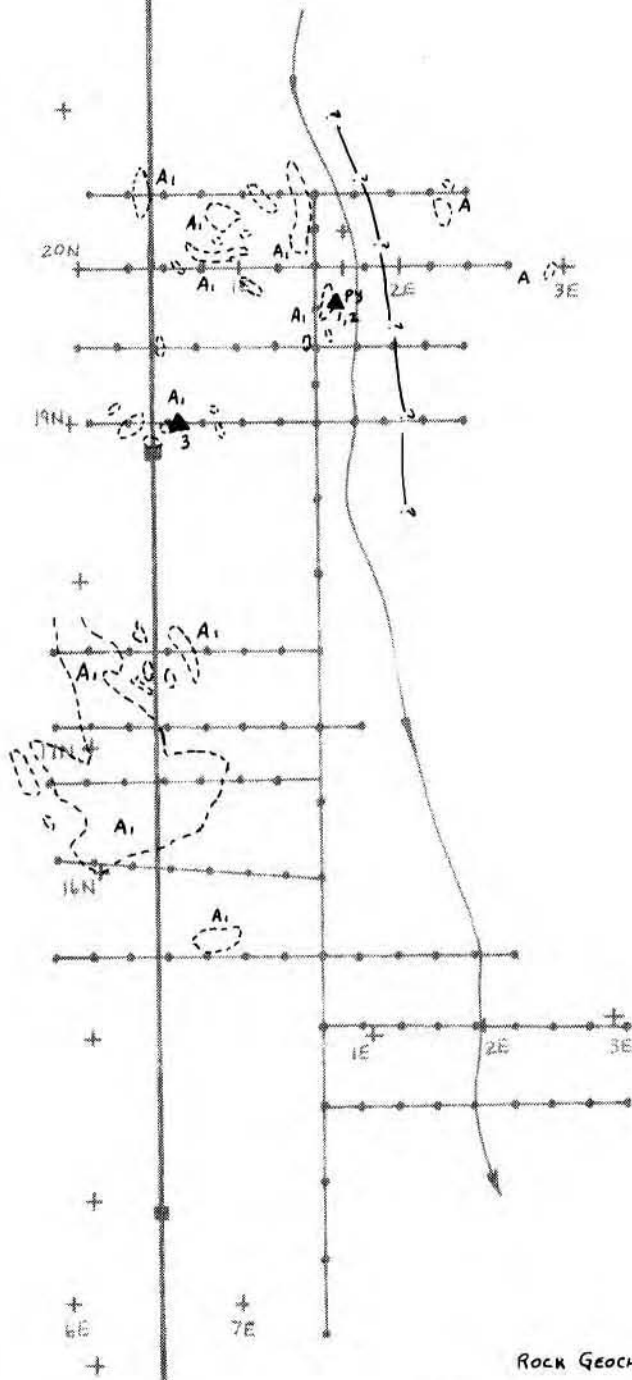
Date: Dec. 1984 by R. Holland  
NTS: 93L10E Scale: 1: 25,000

massive to moderately fissile (cleavage?) maroon (biotite) tuffs with abundant gritty to sandy white fragments (unit A). Intruding these rocks in the southwestern corner of the property is a strongly silicified and altered stock (unit 3A) measuring at least 700 meters by 450 meters. Much of the original mineralogy and texture of this stock has been destroyed, however, a similar, less altered intrusive body, located further south, is comprised of medium grained plagioclase-alkali feldspar-biotite-hornblende?-quartz with numerous plagioclase phenocrysts to 1cm.

In the northwest corner of the claim, unit A rocks commonly show localized weak to strong sericite-chlorite-carbonate-epidote alteration. Strongly silicified tuff outcroppings observed in this area in 1984 were further investigated and shown to cover a zone at least 550 meters by 200 meters along the western claim boundary. Silicification ranges from weak to intense. Coarser grained textures, similar to unit 3A to the south, were noted at several sites, suggesting this zone is, in part, intrusive. Abundant very finely disseminated pyrite was noted at grid coordinates 19+70N, 1+68E but appears erratic in distribution. Fine rusted out pits were also observed at several other sites within the silicified zone. Three rock samples were collected and returned anomalous silver values but no significant copper, lead, zinc or gold responses. The geology of this area is shown in fig. 4.

#### MINERALIZATION

Mineralization is widespread in the relatively flat summit area of Grouse Mountain, south of the Gio 5 claim. These showings form a 2 kilometer wide, north northwest



A maroon tuff  
A<sub>1</sub> altered & silicified tuff; poss. some int.

▲<sup>3</sup> rock grab sample      ○ rock outcrop  
 + 1984 sample site      • 1985 grid station



ROCK GEOCHEM.

No.	Year	Ag ppm	Au ppm	Zn ppm	Pb ppm	Cu ppm
1	'84	2.6	5	43	36	5
2	'84	2.7	5	42	44	4
3	'85	0.9	-	60	27	5

CK&G MANAGEMENT LTD.	
GIO 5 CLAIM	
DETAILED GEOLOGY	
Fig. 4	
Date: April 1986	by: R. Holland
Scale: 1:5000	NTS: 93 L/10

trending belt, parallel to and including many of the dykes in the area. Included in this belt are the important Copperhill and Chance 1 mineral occurrences. This mineralization appears to be a result of a large scale hydrothermal system likely related to a large buried intrusive from which the dykes have originated.

Mineralization on the Chance 1 claim is mainly narrow high grade silver-copper-gold veins and silicified breccia zones consisting largely of tetrahedrite with locally important sphalerite and galena in a quartz-carbonate gangue. The Copperhill prospect occurrences are generally wider and consist of abundant to locally massive chalcopyrite-sphalerite-pyrite in quartz-carbonate rich zones. Values here are mainly copper-zinc with lower grade silver.

No mineralization has yet been located on the Gio 5 claim.

#### GEOCHEMISTRY

A program of follow up soil geochemistry was completed, in the northwestern part of the claim area, to cover areas of favorable alteration and several reconnaissance soil geochemical responses (see figure 2). A compassed, flagged-line grid was established and sampled at 25 meter intervals along 50 meter spaced lines run east-west from a north-south baseline. A total of 107 samples were collected, using a prospector's 'grub hoe', as nearly as possible from the 'B' soil horizon (15 to 25cm depth) with an effort to avoid organic rich or leached material. Each sample was stored in a labelled kraft soil bag and shipped to Acme Analytical Labs in

Vancouver, B.C. for analysis for copper, silver, lead, zinc and arsenic. Standard aqua regia digestion and ICP analysis methods were used on a -80 mesh size fraction. All results are reported in parts per million (ppm) and are tabulated by element in figures 5 to 9.

### Silver

Previous work in the region has indicated a background limit of 0.8 ppm with values greater than 2.0 ppm considered highly anomalous. A large northerly trending zone of anomalous silver values at least 550 meters long by up to 175 meters wide was outlined covering much of the area of silicified rock exposure. Values to 6.3 ppm were obtained. Several other small zones were also delineated with values to 2.5 ppm.

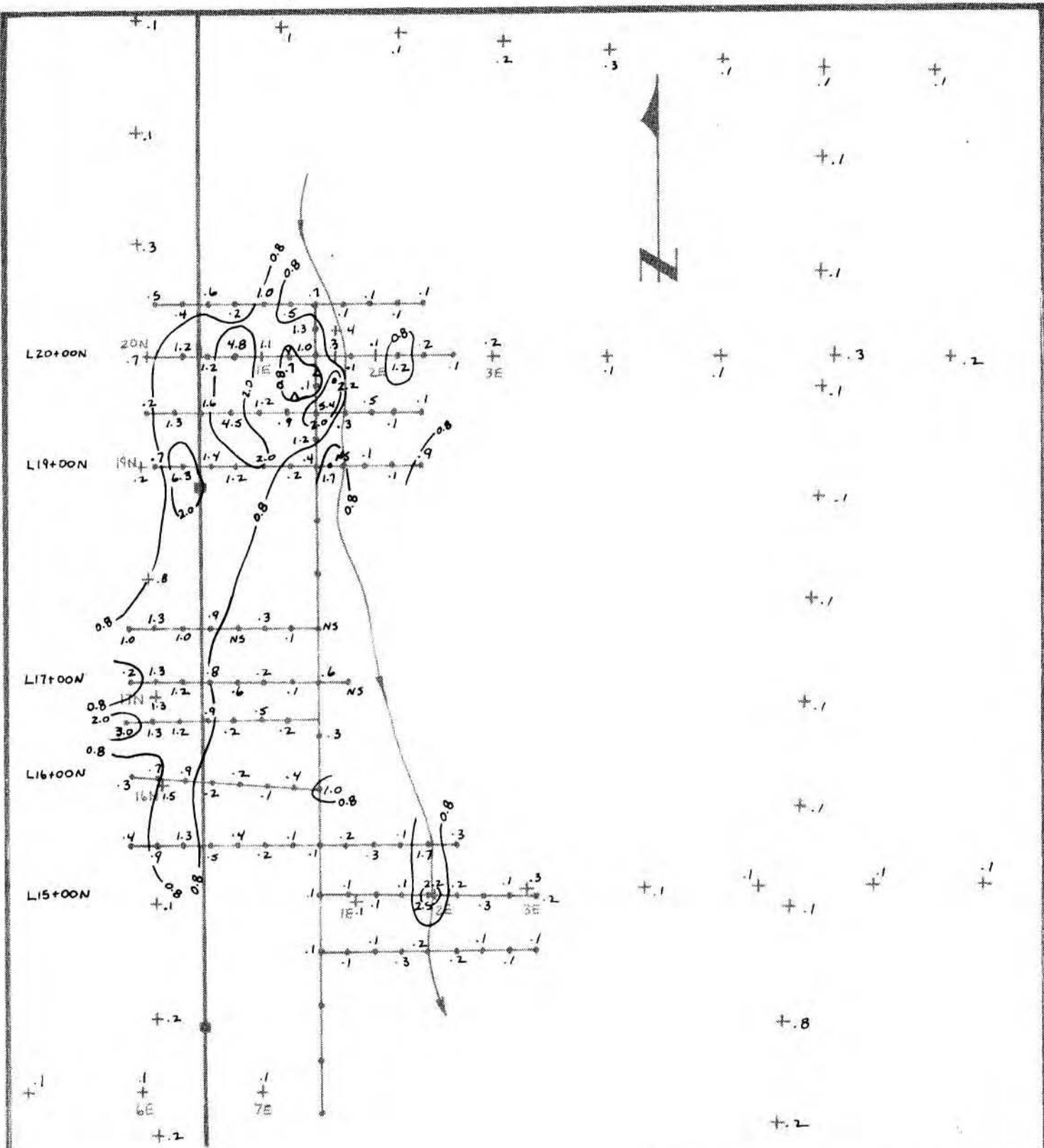
### Copper

The threshold level for copper for the Grouse Mountain region is 50 ppm, with results greater than 100 ppm considered highly anomalous. Background levels on the Gio 5 claim, however, appear to be lower than normal, with few values over 30 ppm. Four small, scattered, weak anomalies were outlined, with values to 148 ppm, all of which are coincidental with zones of anomalous or high background (0.6 to 0.8 ppm) silver. No copper response, however, was obtained related to known silicified outcroppings.

### Arsenic

Background limits for arsenic have been determined to be 35 ppm with values greater than 100 ppm considered highly anomalous. Five small scattered anomalous zones were obtained, two of which had values to 230 ppm and 534 ppm respectively. All are weakly coincidental with silver but not with copper.



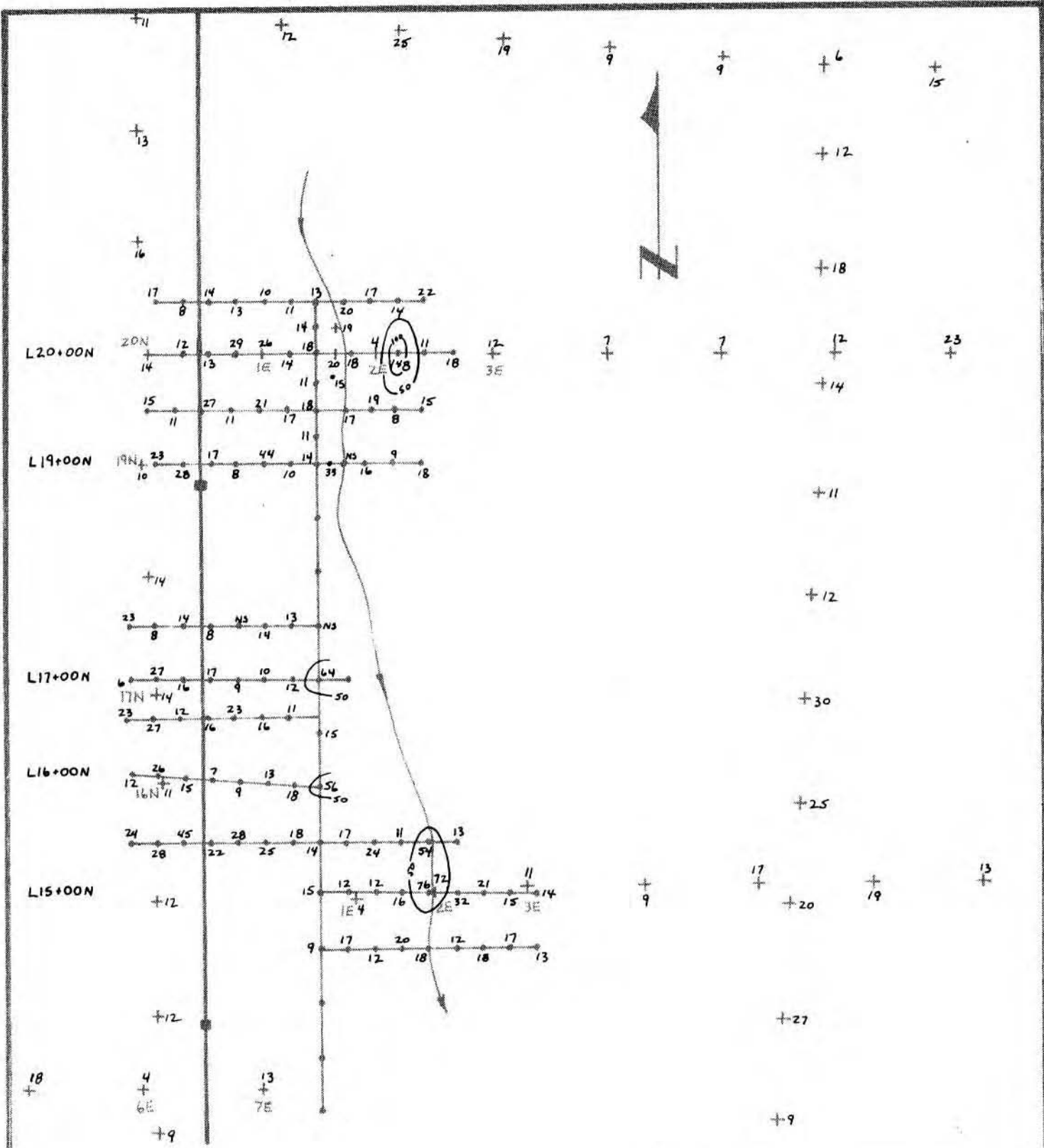


CK&G MANAGEMENT LTD	
GIO 5 CLAIM	
SOIL GEOCHEMISTRY	
SILVER	
PPM Fig. 5	
Date April 1986	by R. Holland
Scale 1:5000	NTS 93 L/10

+ 1984 sample site      • 1985 grid station



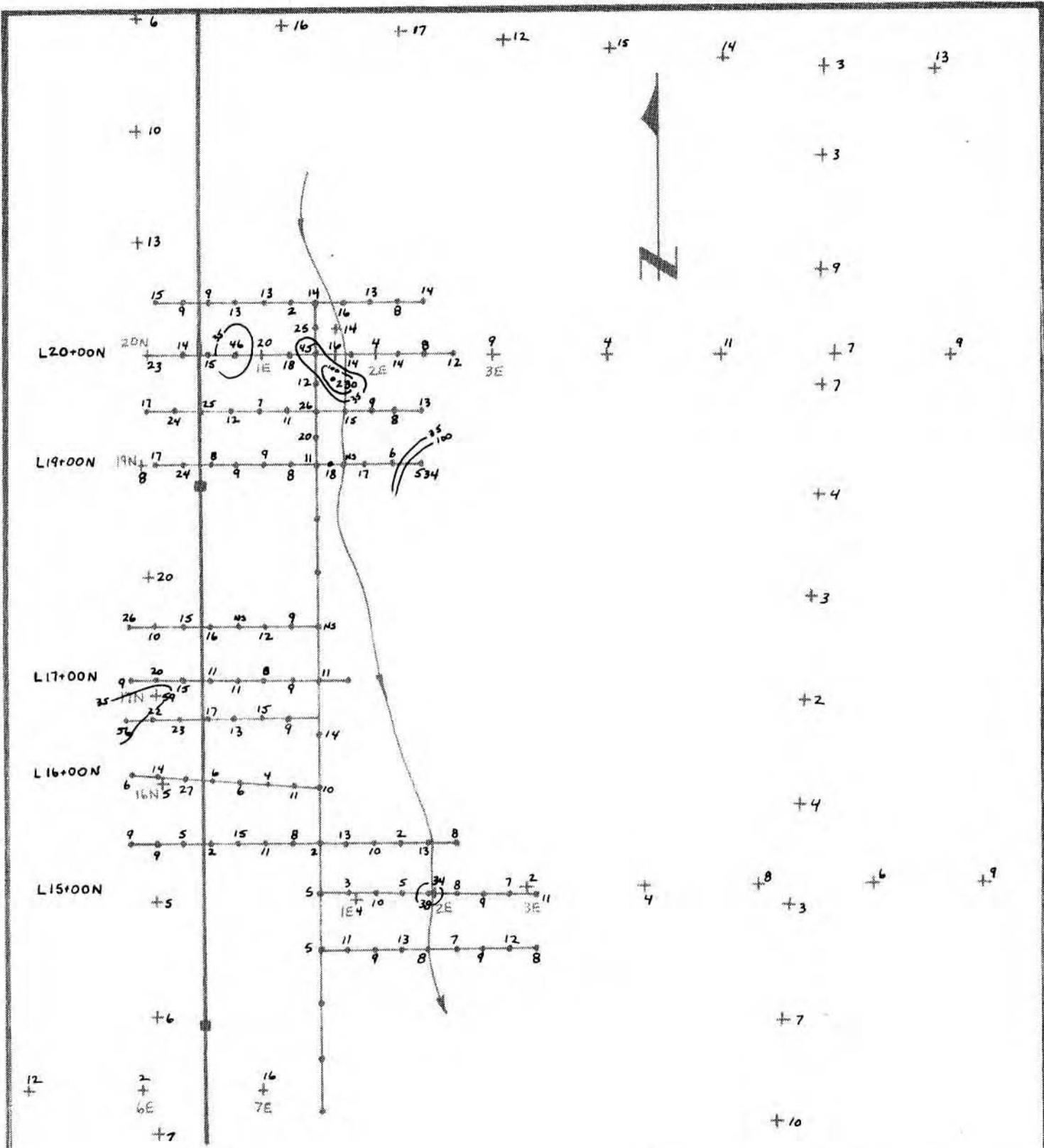




+ 1984 sample site      • 1985 grid station



CK&G MANAGEMENT LTD	
GIO 5 CLAIM	
SOIL GEOCHEMISTRY	
COPPER	
PPM	
Fig. 6	
Date April 1986	by R. Holland
Scale 1:5000	NTS 93 L/10



CK&G MANAGEMENT LTD	
GIO 5 CLAIM	
SOIL GEOCHEMISTRY	
ARSENIC ppm	
Fig. 7	
Date: April 1986	by: R. Holland
Scale: 1:5000	NTS 93 L/10

+ 1984 sample site      ♦ 1985 grid station



### Zinc

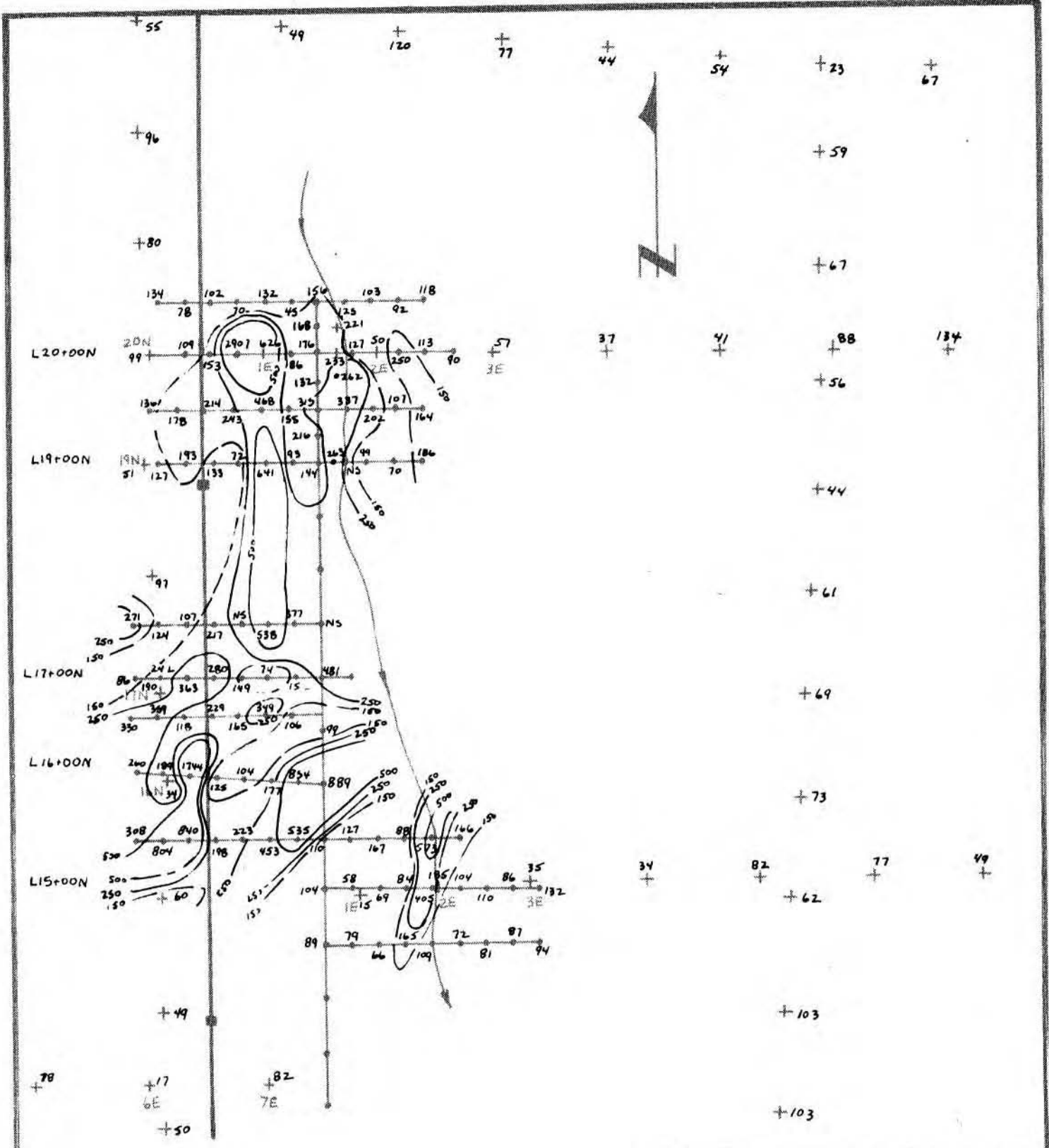
Zinc background limits are normally 250 ppm, with results greater than 500 ppm deemed highly anomalous. It was noted, however, that the background levels within the claim area appear to be lower than normal, commonly less than 100 ppm. High background levels (150 to 250 ppm) are contoured in figure 8 (broken lines). Zinc shows a strong association with silver and with the siliceous alteration, with values to 1744 ppm. Much of the 1985 grid area shows some enrichment in zinc.

### Lead

Regional lead values indicate background to be less than 35 ppm, with highly anomalous values greater than 60 ppm. Four anomalous zones with values to 182 ppm were outlined within the area of siliceous alteration. All of these show a strong correspondence to zinc and, to a lesser degree, silver highs.

### RECOMMENDATIONS

Results to date are encouraging and additional work is recommended to further test and delineate the zone of silicification and associated soil geochemistry response. This work should include expanding the current grid area and conducting further soil geochemistry and geological mapping. A VLF electromagnetic survey and possibly a limited test induced polarization (IP) survey should also be considered. Further ground should also be acquired by staking to the north, and the remainder of the Gio 4 and Gio 5 claims should be further prospected and evaluated. The estimated cost of Phase 1 is as follows:

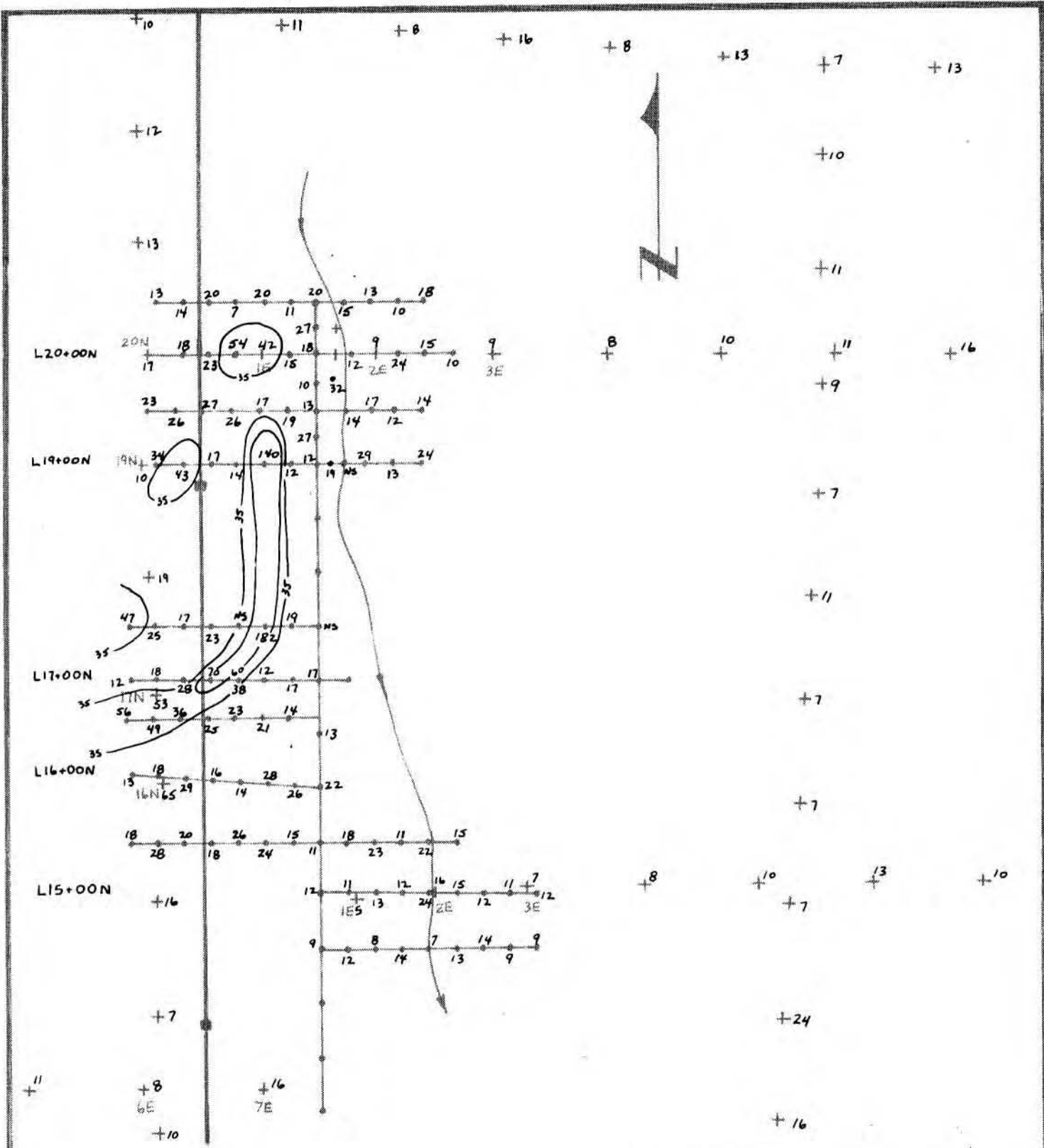


+ 1984 sample site

• 1985 grid station



CK&G MANAGEMENT LTD	
GIO 5 CLAIM	
SOIL GEOCHEMISTRY	
ZINC ppm	
Fig. 8	
Date April 1986	by R. Holland
Scale 1:5000	NTS 93 L / 10



+ 1984 sample site      • 1985 grid station



CK&G MANAGEMENT LTD.	
GIO 5 CLAIM	
SOIL GEOCHEMISTRY	
LEAD ppm	
Fig. 9	
Date April 1986	by R. Holland
Scale 1:5000	NTS 93 L/10

Line Construction	15 days @ \$150.00/day	\$2250.00
Geological Mapping	15 days @ \$250.00/day	3750.00
Geochemical Survey	15 days @ \$150.00/day	2250.00
Geophysical Survey	15 days @ \$150.00/day	2250.00
Assays and Geochemical Analysis		3000.00
Camp Costs	60 days @ \$50.00/day	3000.00
Equipment and Supplies		1000.00
Report and Supervision		2000.00
Mobilization Costs		500.00
Contingencies @ 10%		2000.00

Total of Phase 1 \$22000.00

Should favorable results be obtained by Phase 1, further work in the form of cat or backhoe trenching and diamond drilling would be recommended. Should I.P. prove useful in Phase 1, then expanded coverage would also be recommended. The approximate cost of this work would be as follows:

Diamond Drilling	500 meters @ \$80/m	\$40000.00
Geophysical Survey	20 days @ \$1250/day	25000.00
Linecutting	20 km. @ \$500/km	10000.00
Trenching	200 hours @ \$50/hour	10000.00
Camp Costs		5000.00
Assaying		2000.00
Report & Supervision		8000.00
Contingencies @ 10%		10000.00

---

\$110000.00



REFERENCES

- Borovic, I., Feb. 24, 1981, A Report on the Results of the 1980 Reconnaissance Geology and Geophysical Survey on the Grouse Mountain Copperhill Property, B.C. As. Rpt. 9087
- B.C. Dept. of Mines Annual Report of the Minister of Mines, 1937, p. C11-12.
- Chisholm, E.O., July 2, 1983, Geological Report on the Last Chance 1 and 2 Claims, unpublished report for Adriatic Res. Corp.
- Church, B.N., B.C. Dept. of Mines & Pet. Res., G.E.M., 1969, p. 142-148.
- Church, B.N., Hutter, J.F., B.C. Dept. of Mines & Pet. Res., G.E.M., 1973, p. 334-338.
- Church, B.N., 1972, B.C. Dept. of Mines & Pet. Res., G.E.M., p. 397-417.
- Geol. Surv. of Canada, Open File 351, 1976, Smithers, B.C.
- Holland, R.T., Dec. 6, 1982, Summary Report on the Last Chance 1 and 2 Mineral Claims, unpublished report.
- Holland, R., Dec. 7, 1984, Geological and Geochemical Report on the Gio 4 Mineral Claim, B.C. As. Rpt.
- Holland, R. Dec. 13, 1984, Geological and Geochemical Report on the Gio 5 Mineral Claim, B.C. As. Rpt.
- Holland, R., Jan. 18, 1985, Geological, Geochemical, Geophysical, and Diamond Drill Report on the Chance Mineral Claim Group, B.C. As. Rpt.

STATEMENT OF COSTS

The following costs were incurred by Holland Geoservices Ltd., on behalf of C.K.&G. Management Ltd., for work conducted on their Gio 5 mineral claim on Grouse Mountain near Smithers, B.C. Work was carried out during the period from October 7, 1985 to May 1, 1986.

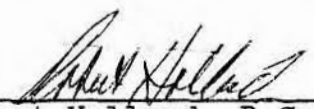
Camp Costs (food)	
4 days @ \$15.00/day	\$60.00
Equipment and Supplies	90.59
Geochemical Analysis	
108 samples @ \$4.77/sample	515.25
Labour Costs	
R. Holland, geologist	
3.5 days @ \$200.00/day	
Oct. 9, April 17, 19, 26, 28, 30	700.00
R. Holland, field assistant	
3 days @ \$125.00/day	
Oct. 7, 9, 13	375.00
Office Costs	
clerical - 3hr. @ \$9.00/hr.	27.00
telephone - long distance calls	7.49
Transportation (gas)	172.50
Truck Rental	
4 days @ \$30.00/day	120.00
	<hr/>
Total Costs	\$2067.83



QUALIFICATIONS

I, Robert Holland, of 13451-112A Avenue, Surrey,  
British Columbia, hereby certify that:

1. I am a graduate of the University of British Columbia (1976) and hold a B.Sc. degree in geology.
2. I am currently employed as a consulting geologist with Holland Geoservices Ltd., of 13451-112A Avenue, Surrey, British Columbia.
3. I have been employed in my profession by various mining exploration companies for the past ten years.
4. I am a Fellow of the Geological Association of Canada.
5. The information contained in this report was obtained as a result of field work carried out under my supervision by Holland Geoservices Ltd. in 1985.
6. Neither Holland Geoservices Ltd. nor myself have any interest, direct or indirect, in the property described, nor in the securities of CK&G Management Ltd.

  
Robert Holland, B.Sc.  
consulting geologist