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SUMMARY REPORT - JOE GROUP

( NEW FAR NORTH EXPLORATION LTD. - )  
(CONSOLIDATED BELLEKENO MINES LTD.)

ANVIL RANGE, YUKON.

by

GORDON D. HOUSE. B.A. (Mod.)

February 10, 1971.

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I. INTRODUCTION

The Joe Group of claims owned by New Far North Exploration Ltd., and Consolidated Bellekeno Mines Ltd., were geologically mapped during the 1970 field season, on a scale of 1" = 400', to check the anomalies found by the 1969 gravity survey program.

II. LOCATION AND ACCESS

The Joe group of claims, listed in Appendix A, are located in the Anvil Range, Lat. 62° 30' N and Long. 133° 30' West, in the Whitehorse Mining Division, about 125 air miles north-northeast of Whitehorse, Yukon.

The Anvil Mine and airstrip, are located about nine miles southeast of the property. The Anvil airstrip is serviced daily from Whitehorse and is also accessible by 240 miles of good gravel road from Whitehorse, via the Klondike Highway to Carmacks and then the Campbell Highway to the townsite of Faro.

During the 1970 season, a cat road was built from the Anvil airstrip to the adjoining Hill-Rust property, which is about three miles from the Joe claims boundary.

III. TOPOGRAPHY AND CLIMATE

The Joe claims are located north of Rose Creek and east of Anvil Creek, at the western end of the Anvil Range of Mountains.

The topography is relatively rugged and elevations range from rounded peaks extending from above 6,000' to 3,000' along Anvil Creek. The vegetation varies from buckbrush and alpine types above timberline at 4,500' to black spruce and willow in the creek bottoms.

A series of fault-controlled valleys have been cut down in the hillsides to form steep cliffs and talus slopes which dissect the claims on the north and west.

Climate is typical for the central Yukon, with warm summers and cold winters, snowfall rarely exceeds four or five feet, but temperatures fall well below zero.

#### IV. PREVIOUS WORK

Since the Joe Claims were staked in late 1965 or early 1966 during the Faro Staking Rush, there have been several different exploration projects on the property.

In 1967 a program of line-cutting and geological mapping with a geochemical soil sampling survey was carried out by Watts, Griffis and McOuat Ltd., for the owners, with inconclusive results.

In 1969 a gravity survey covering 11.0 miles was run by Overland Exploration Services Ltd., for Hecla Mining Company of Canada Ltd. This survey outlined five gravity anomalies in the northern portion of the claims.

During 1970 the claims were mapped geologically along the gravity survey grid lines, with additional detail in two areas of the gravity anomalies.

V. 1970 PROGRAM

In July and August 1970, a program of geological mapping and ground checking of the anomalies in the area covered by the gravity survey, was carried out by the writer.

The camp set up for the Hill-Rust drilling program was utilized as a base for the Joe mapping project. Although it involved commuting four to five miles to the Joe Claims, it eliminated the need to set up a camp on the Joe Group. A total of 21 days was spent on the claims, traversing a total of 12 line miles.

Five main rock types were found on the Joe Group of claims in the area mapped, with complex faulting complicating the relationship between the units. The units are as follows, listed in probable sequence with the oldest first:

Phyllite            Biotite-rich phyllite with quartzose layers, which grades into phyllitic quartzite, occurs in the northern part of the mapped area. The phyllite is fissile with assumed coincident bedding and foliation planes, some chlorite is present and sericite is common.

Phyllite

(Cont.)

The phyllite becomes more schistose to the north and east where it is in contact with the main Anvil Batholith of granitic to quartz dioritic composition.

To the northeast, sills of granitic composition are intruded into more schistose phyllite, roughly coincident with the "bedding".

Phyllitic  
Quartzite

Thin to thick-bedded grey-green to light grey non-calcareous phyllitic quartzite outcrops in the central part of the surveyed area, and to the east where it extends to cover a greater area. Variations from quartzite to phyllite occur in the unit, but mainly it is composed of quartzite with varying amounts of phyllitic impurities. Discontinuous or "wispy" phyllite layers are common and a purple-brown weathered surface typifies the unit.

Local variations to more calcareous members may occur and some volcanic greenstone 'layers' are present.

There is evidence of considerable structural deformation in the form of plastic style deformation with development of chevron folding, and some evidence of 'boundinage' in quartz-rich layers.

Calcareous  
Quartzite

Light green to grey-green, calcareous quartzite with carbonate-rich layers constitute this unit.

The general appearance, while similar to the phyllitic quartzite member, is distinctive in that it has a leached weathered surface, and testing with HCl indicates its calcareous nature.

Calcareous  
Quartzite

(Cont.)

This unit forms part of a broader formation, the Calc-Silicate unit, in which certain layers susceptible to skarning were altered to quartz-diopside skarn.

Marble

More calcareous layers in the calcareous quartzite were recrystallised to marble, giving a white to light brown-grey coarsely crystalline rock, with minor relict bedding in more phyllitic layers. The coarse crystals of calcium carbonate are strongly effervescent with HCl. Several small outcrops of marble near calcareous quartzite were noted north of the base line.

Skarn

A yellow-brown to red-green dense skarn occurs on the Hill-Rust property to the east but only incipient skarning in susceptible layers of the calcareous quartzite unit were noted on the Joe claims. This incipient skarning occurs in calcareous quartzite, just north of the baseline in the area of the marble outcrops.

Greenstone

Small greenstone lenses and layers occur within the phyllite and phyllitic quartzite units but larger more continuous outcrops occur in the southern part of the surveyed area, representing a volcanic sedimentary tuff or lava sequence, whereas the small layers or bands noted to the north are considered intrusive sills. The greenstone is rusty weathering dark green to black

Greenstone

(Cont.)

basalt or gabbro with variable grain size. Magnetite, pyrrhotite and pyrite are usually associated with the greenstone, especially in the thicker sequence to the south.

Amphibolite

Several outcrops of a dark green coarse-grained amphibole/plagioclase-rich rock occur on the base line around L 290 W to L 300 W, occupying steep cliff-like outcroppings. Highly concentrated plastic style folding was noted in a few of the outcrops and due to the coarse grain size and mineral assemblage of the rock, it was classed an amphibolite. Pyrrhotite and pyrite were noted in some of the outcrops.

Intrusive

The main Anvil Batholith lies to the north of the surveyed area, but sills of concordant granite occur in the phyllite to the north of the surveyed area. These are considered to form part of the intrusive phase of the Batholith, despite the relatively sharp margins and lack of migmatitic action.

The Anvil Batholith ranges in composition from quartz monzonite to diorite. Quartz diorite was seen north of the surveyed area but the closest intrusive body, the sills, is of granitic composition. This indicates that there are several intrusive phases related to the Batholith.

## STRUCTURE

Major faulting has played an important part in the present setting of rock types in the surveyed area, apart from the smaller scale structural details which can only be seen in individual outcrop.

The baseline from L 270 W to L 306 W follows down the north side of a steep-sided fault-controlled valley, with talus slopes and some outcrop.

The faulting occurring in the area is believed to be related to the major faulting along the Tintina Trench. It appears that there is a major fault trending along the Anvil Creek Valley which truncates the western end of the Anvil Batholith, and the faults on the Joe claims are sympathetic tension faults roughly en echelon to the major faults in the area.

Smaller scale structures noted in individual outcrops but not correlatable over any distance are plastic style folding and deformation in the greenstones around L 300 W on the baseline, and in phyllitic quartzite north of the baseline around L 250 W. This plastic style deformation is believed to have been contemporaneous with the intrusion of the Anvil Batholith, with later major structural changes associated with the Tintina faulting.

## MINERALIZATION

The chief mineralization noted was accessory magnetite and pyrrhotite in the greenstone and amphibolites. Minor chalcopyrite with pyrite was noted in some of the greenstones to the south of the baseline in the main greenstone area.

No lead or zinc mineralization was noted in the area surveyed.

VI. CONCLUSIONS

The Joe group of claims is favourably located with respect to the Anvil lead-zinc deposit about seven miles to the east. The claims lie along the regional geologic strike but the major sedimentary rock types are more calcareous and volcanic greenstones are more common, than near the Anvil deposit.

Diamond drilling by Atlas Exploration during late 1970, on a property adjacent to the Joe claims on the west, indicates that the area is still of interest to companies with the most experience in the area.

The 1969 gravity survey outlined five gravity anomalies. These were checked on the ground during the 1970 geologic mapping program, but there was no definite indication of the causes, except for possibly substantial variation in overburden thickness.

Topographic variations are locally extreme, but these should have been cancelled out by corrections applied to the original gravity data.

The heavy faulting in the area of the anomalies, with phyllitic quartzite and calcareous quartzite closely associated, could indicate the presence of dense skarn at depth. Dense basic rock types could also be present.

VII. RECOMMENDATIONS

Further work on the Joe group is justified to determine whether the source of the gravity anomalies is a sulfide mass, or dense bodies of skarn or basic rock types.

The geologically favourable location of the group and the continued exploration interest in the immediate area are sufficient to justify an I.P. program to determine whether sulfides are associated with the gravity anomalies.

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GEOLOGIST.

GDH/as.

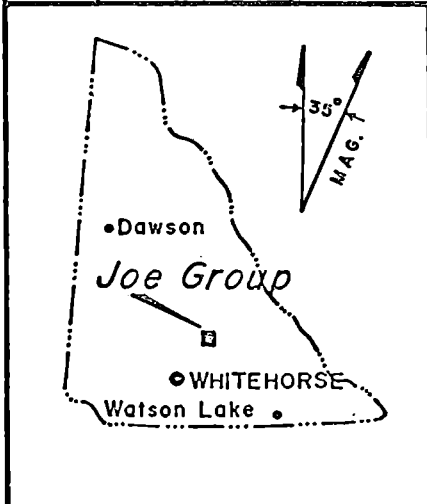
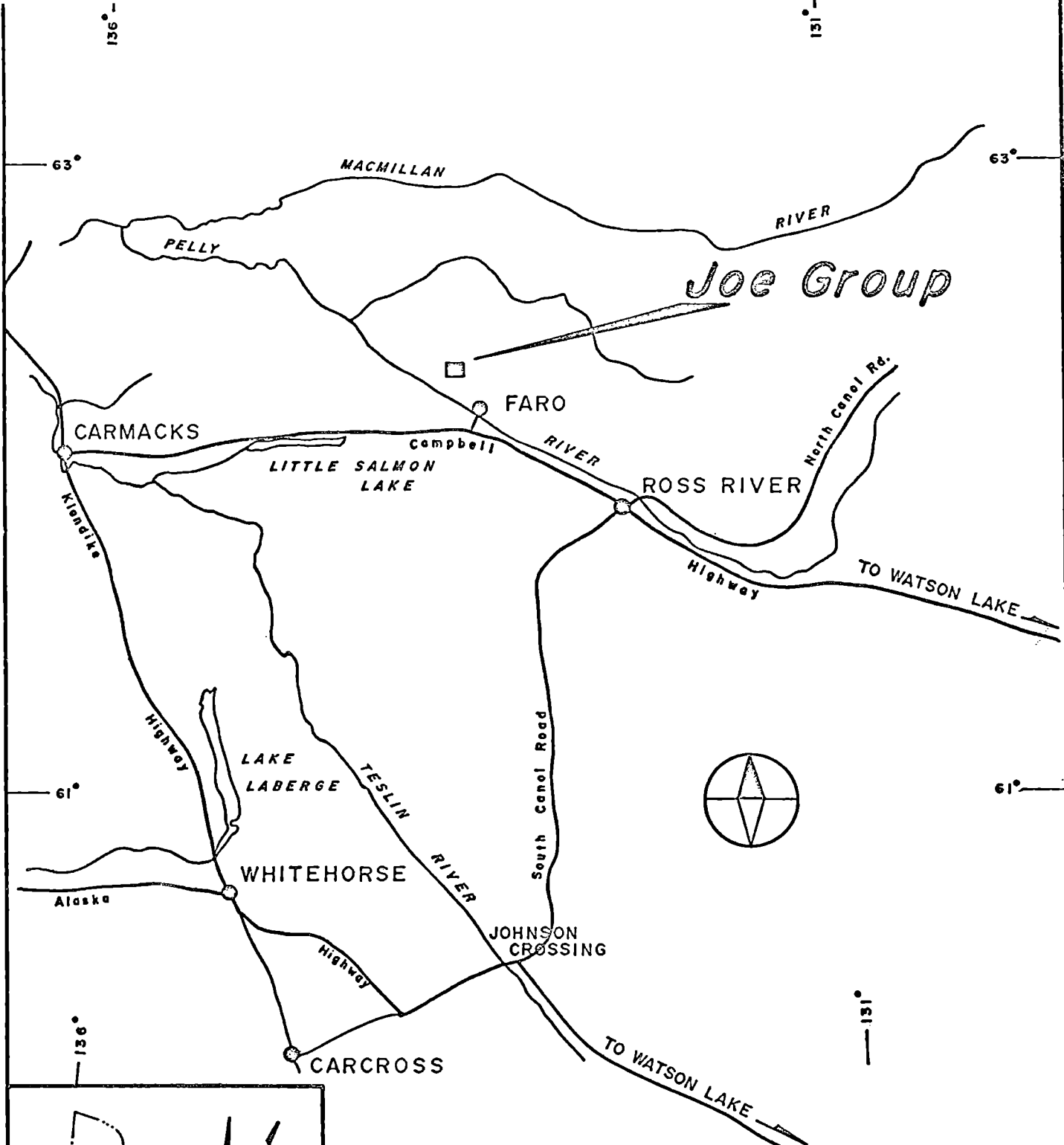


FIG. 1  
 HECLA MINING CO. OF CANADA LTD.  
 LOCATION MAP  
 JOE GROUP OF CLAIMS  
 ANVIL AREA, YUKON TERRITORY



JOE CLAIMS PROJECT

TOTAL PROJECT EXPENDITURES TO DATE

(DECEMBER 31, 1970)

Gravity Survey, September, 1969 Overland Exploration Ltd., Calgary, Alberta	\$ 5,177.50
Mining Recorder, Whitehorse - November, 1969	61.00
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TOTAL EXPENDITURES FOR THE YEAR 1969	\$ 5,283.50

Time, Travel and Accommodation:

Gordon House:

April, 1970: 2 days + \$20.00 travel and accommodation	\$110.00	
May, 1970: 4 days + \$200.00 access	380.00	
July, 1970: 1 day + \$12.00 camp costs	57.00	
Aug., 1970: 19 days Camp costs -	855.00	
Stoves \$40.00		
Tentage 40.00		
Groceries 75.00		
Equipment <u>20.00</u>	175.00	
Sept., 1970: 1 day	<u>45.00</u>	\$ 1,622.00

Harold Linder:

Aug., 1970: 1 day	\$ 90.00	
Dec., 1970: 1 day	<u>90.00</u>	180.00

P. I. Conley:

Dec., 1970: 1 day	\$ <u>95.00</u>	95.00
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TOTAL EXPENDITURES JANUARY 1 TO DECEMBER 31, 1970	<hr/>	<hr/>
	\$ 1,897.00	1,897.00

TOTAL EXPENDITURES, JOE CLAIMS PROJECT, TO DECEMBER 31, 1970		\$ 7,180.50
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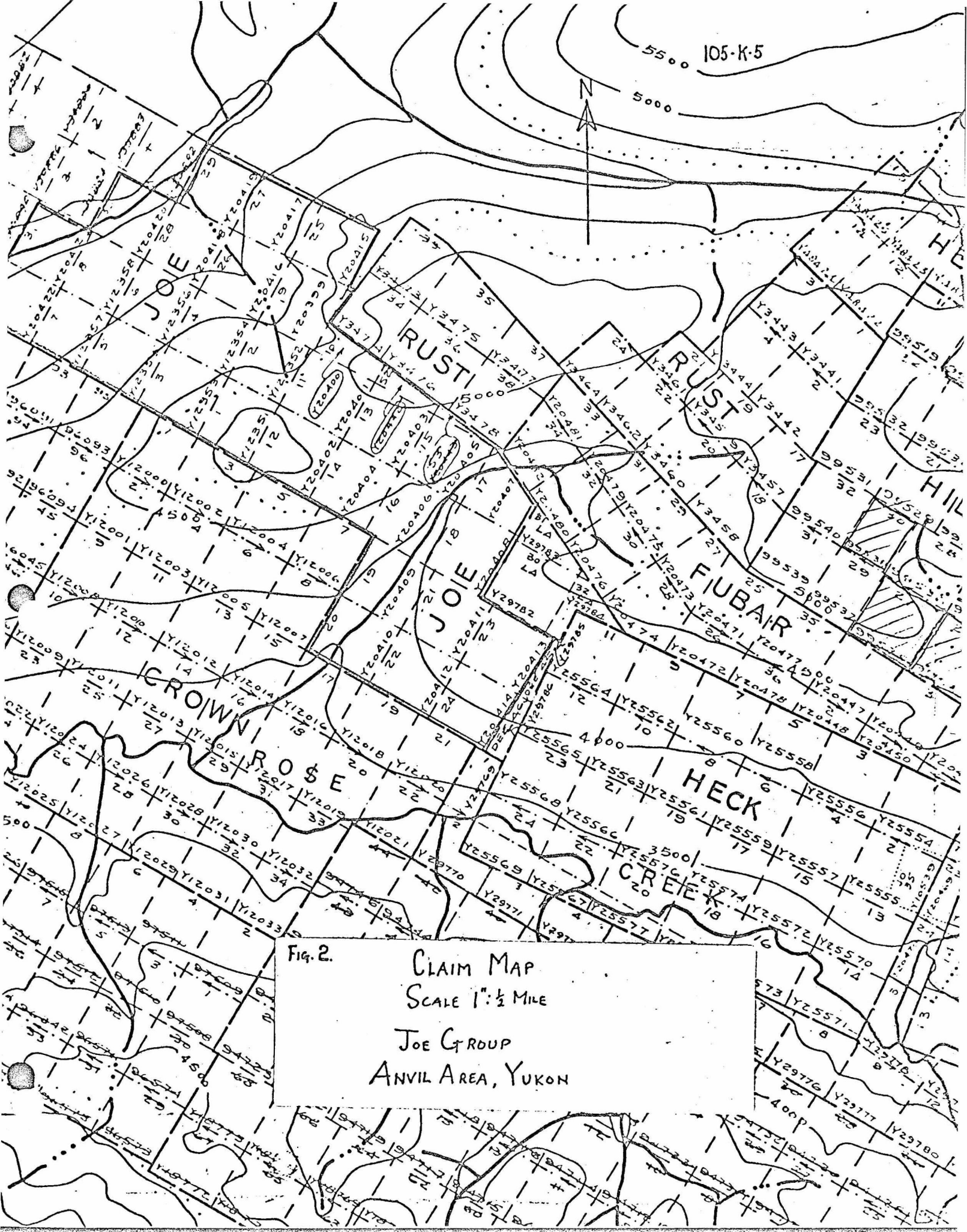


Fig. 2.  
CLAIM MAP  
SCALE 1" = 1/2 MILE  
JOE GROUP  
ANVIL AREA, YUKON