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REPORT

ON

GEOCHEMICAL SURVEYS

TOODOGGONE RIVER AREA

LIARD & OMINECA MINING DIVISION
BRITISH COLUMBIA

FOR

CORDILLERAN ENGINEERING LIMITED

W. F. BONDAR
BONDAR-CLEGG & COMPANY LTD.
OTTAWA, CANADA

JULY 17, L969.

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INTRODUCTION

During the period of July 4 to July 8, 1969, the writer visited the Toodoggone Lake camp of Cordilleran Engineering Limited, in northern British Columbia. Purpose of the visit was to:

1) Examine and assess the West Claim Group stream sediment anomaly which appears to indicate more extensive mineralization than is evident from the known showing.
2) Examine the Tucho Lake stream sediment anomaly and to determine its as yet unexplained source.
3) Re-evaluate the original results of the water survey in the East Sector.
4) Generally advise on field sampling procedures to be used during the 1969 field season.

Acknowledgements

The writer wishes to thank Mr. A. F. Reeve for his assistance in providing the background information on some of the problems and Mr. T. E. Kalnins for his assistance in the field.

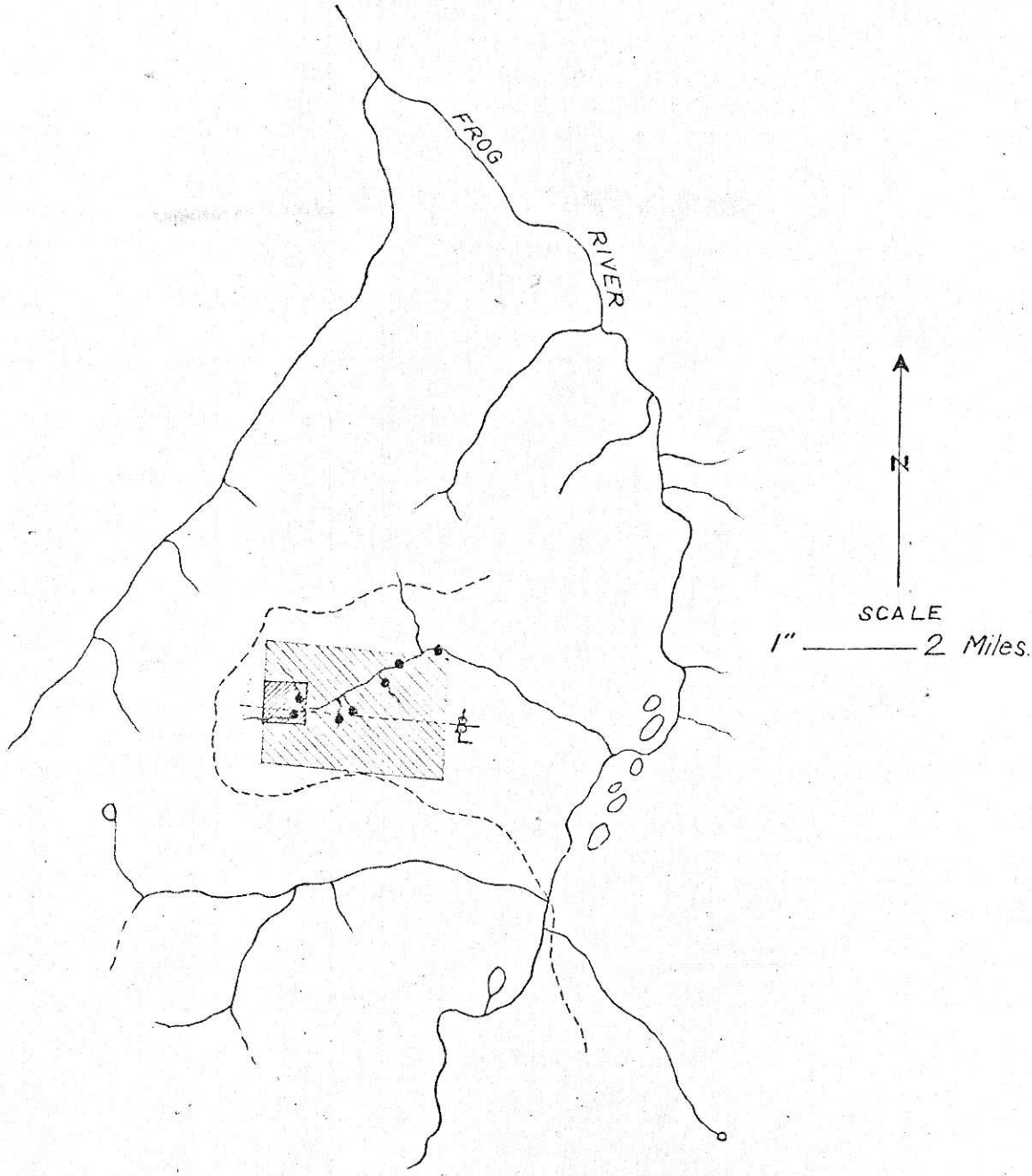
WEST CLAIM GROUP ANOMALY

The West Claim stream sediment anomaly is located approximately 16 miles northwest of Cordex Lake at 127° 07' W longitude and 58° 12' N latitude. It is confined to the upper extent and south side of the stream draining into the Frog River from the known Pb-Zn-Ag occurrence.

The "showing" itself, consists of galena and sphalerite with minor chalcopyrite, pyrite and pyrrhotite. The galena appears to cary significant amounts of silver. Black manganese oxides (hausmannite and pyrolusite) are abundant in and near the mineralized zone and appear to be spatially related te the mineralization. The best grade of mineralization observed by the writer is confined to a relatively small area near the head of the valley and occurs in a steeply dipping fracture zone in silicified schist or phyllite rock. The zone appears to trend at 100° to 110° with steep dips to the north. However, on a smaller scale, it presents a sinewy trace on surface due to tight, small folds, and it may actually occupy the nose of a tight syncline. Weak mineralization has been traced for a distance of some 1,000 feet east of the main showing, before it disappears under overburden.

Results of the stream sediment survey suggest that a possible source of Pb-Zn mineralization may extend eastwards for some considerable distance along the south side of the anomalous stream. The exact cut-off point eastwards has not yet been established. It is recommended that the stream sediment anomaly be staked by

WEST CLAIM GROUP ANOMALY



LEGEND

Height of Land

Anomalous Stream Sediment Site

Proposed Base Line for Soil Survey

Existing Claims in Good Standing (?)

Proposed Area to be Covered by Staking and Soil Surveys

FIG. 1.

tying onto the existing claims held in good standing by Spartan Explorations Limited, and staking eastwards to cover an area extending some 10 claims east of the main showing as indicated by the following sketch (Fig. 1). Actual staking will of course depend on the area held by Spartan.

Preliminary follow-up work should consist of a detailed geochemical stream sediment survey at 500 foot intervals of ALL drainage in the cirque and valley area to establish a cut-off point to the east and analyses for Cu,Pb,Zn,Ag and Mn. This should be followed by soil sampling on a 200' x 100' grid pattern over the anomalous drainage area, and analyses for Pb, Zn, Ag and Mn. The baseline for the grid should be 110° and extend initially for a distance of 8,000 feet east of the main showing. Sampling should be carried out to cover the main showing as well, to serve as a guideline for interpretation of the remaining results.

TUCHO LAKE - ANOMALY

An extensive copper stream sediment anomaly centered some 6 miles west-south west of Tucho Lake and covering some 10 square miles was obtained during the course of preliminary stream sediment surveys in 1968, and no explanation for its source was available.

The anomaly coincides with an extensive gossan zone containing widespread diseminated pyrite and pyrrhotite in silicified and sheared "greenstone" roof pendants. Analysis of a fresh sample of this "greenstone" gave 120 ppn Cu. This value closely approximates the concentration of copper in stream sediments in the area. No evidence of economic copper sulpides was found.

The Tucho Lake anomaly is therefore considered to derive from above background concentrations of copper introduced into the overlying volcanic roof pendants by intensive intrusive activity with the resulting addition of pyrrhotite and pyrite. An economic source of copper mineralization is not indicated.

WATER SURVEY - EAST SECTOR

Results of the original water survey were inconclusive in that in no case was it possible to defenitely correlate high zinc values in water with known or probable occurrences of economic mineralization. These results were discussed originally in an earlier report by the writer, "Results of Geochemical Surveys in the Toodoggone River Area," 1968, and should be referred to by the reader.

Because of a number of factors, both logistical and geochemical, the East Sector does not lend itself very well to conventional stream sediment or water surveys and homogeneous dispersion patterns appear to be the exception, rather than the rule. As a result, it is unlikely that resampling of the area would provide any additional significant information. Instead, the following approach to preliminary follow -up work is recommended.

All "single-site" anomalies should be systematically resampled (waters and stream sediments) and tested for Zn in waters, and Cu, Pb, Zn in sediments. One full day at least, should then be spent at the time of sampling to thoroughly prospect the

drainage area of each "single-site" anomaly, and to sample the area in greater detail if possible. It is suggested that the most conscientious "prospecting" team be used for this work as subtle anomalies may be of greater significence in this area. Additional work, would then depend upon the results of this follow-up.

GENERAL FIELD PROCEDURES

On reviewing the field procedures used and scheduled for the 1969 field season, with Mr. Kalnins, it was concluded that in general, effective use of geochemical methods was being made and that the geochemical programs were well laid out. Following this discussion with Mr. Kalnins, it was suggested that additional orientation work be carried out in the vicinity of small showings since located at the heads of drainage basins or on heights of land, where only a weak or no responce at all was obtained by the single sample collected at the bottom of that drainage. It is recommended that a number of these occurances be sampled every 1000 feet along the length of the stream, sampling every tributary or seepage along the stream, to determine the exact response so as to better assess and possibly modify the existing sampling procedures. This may also lend greater importance to the more subtle, generally weaker "one-site" anomalies in this area.

MISCELLANEOUS

The writer recommends that when drilling the blind anomaly on the Pillar Claim Group, that in addition to assaying all mineralized sections, that each 5 foot section of the entire hole be split and analyzed geochemically for trace Cu,Pb, Zn, Mo and Ag.

SUMMARY & CONCLUSIONS

During the period from July 4 to July 8, 1969 the writer visited the Toodoggone Lake camp to examine and assess the West Claim Group and the Tucho Lake stream sediment anomalies, to re-evaluate the original results of the water survey in the East Sector and to generally advise on geochemical field procedures.

During the visit to the West Claim Group anomaly, it was noted that at least weak Pb-Zn mineralization could be traced for a distance of some 1000 feet east of the known showing. This and the extent of the stream sediment anomaly have suggested the possibility of more widespread mineralization than is indicated or known at the present time so that additional staking and geochemical work is warranted in this area.

Examination of the Tucho Lake copper anomaly suggests that the anomaly is related to the large gossan zone containing above background concentrations of copper introduced into overlying volcanic roof pendants by intense intrusive activity with a resulting addition of pyrrhotite and pyrite. No source of economic copper mineralization is indicated and no further work appears warranted.

Examination of the original water survey data has suggested that for a number of logistical and geochemical reasons, that each "single-site" water and/or sediment anomaly might be of greater significance than is obviously apparent, and they should all be thoroughly re-sampled and prospected in a systematic manner.

In general field procedures are well established and effective. However, some additional orientation work over known mineral occurrences reflected by single samples showing only a negative or weakly positive geochemical response shoule be sampled in greater detail to enable a more effective interpretation of possibly significant but very weak or subtle anomalies.

RECOMMENDATIONS

West Claim Group

The following work is recommended for the West Claim Group anomaly:

1) Staking of additional ground to tie-onto the Spartan Explorations Ltd., group of claims. This coverage should extend eastwards from the showing as indicated in Fig. 1.
2) Detailed geochemical stream sediment survey of ALL drainage in the valley and cirque area to establish a cut-off point to the eastern extension of the possible mineralization. Sampling should be carried out at 500' intervals and analyses performed for Cu,Pb, Zn, Ag and Mn.

3) Soil sampling on a 200' x 100' grid pattern over the entire stream sediment anomaly, and including the known showing. All samples to be analyzed for Pb, Zn, Ag and Mn.

Tucho Lake Anomaly

This is probably a false anomaly indicating only above background concentrations of copper without an evident source of economic copper mineralization. No further work is warranted.

Water Survey - East Sector

The following work is recommended for the East Sector follow-up:

1) Systematically re-sample all anomalous "single-site" anomalies for waters and stream sediments, analyzing waters for Zn and sediments for Cu,Pb,Zn.
2) Spend at least one full day on each "single-site" anomalous drainage thoroughly prospecting and sampling in greater detail to help ascertain the source. A most conscientious prospecting team must be used for this program.
3) Additional work to depend on 2) above.

General Field Procedures

It is recommended that additional orientation sampling be carried out over known mineral occurences reflected by a single negative or weakly positive sample site. The entire stream should be sampled at 1000 foot intervals to determine the

effective length of dispersion trains in the area so that better interpretation of other weak "single-site" anomalies can be made and also with a view to possibly changing sampling procedures in this area to be more effective.

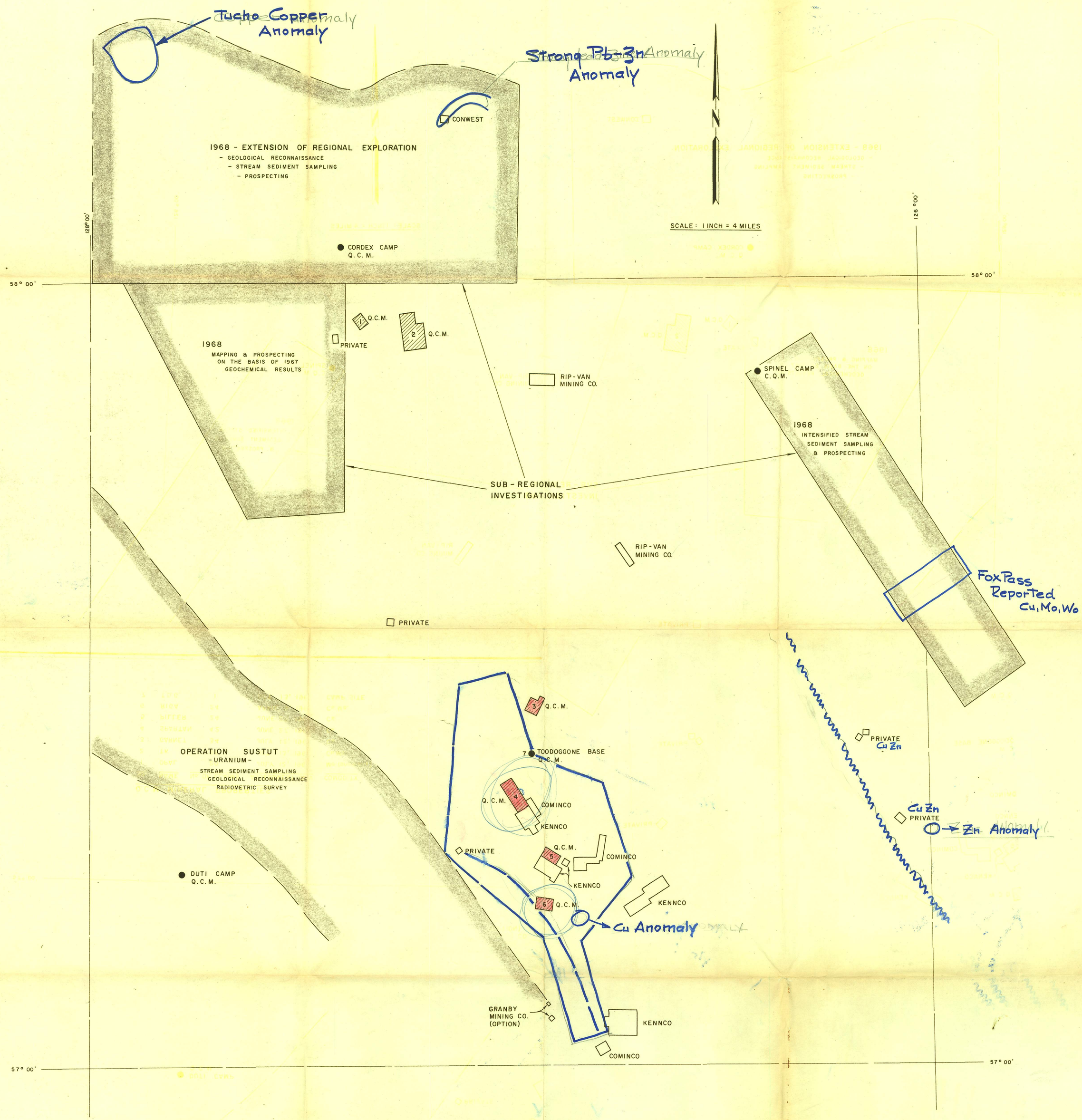
Pillar Claim Group

East 5 foot section of the blind anomaly to be drilled on the Pillar Claim Group should be analyzed geochemically for trace Cu, Pb, Zn, Mo and Ag.

Submitted by:

W. F. Bondar
BONDAR-CLEGG & COMPANY LTD.
OTTAWA, CANADA

July 17, 1969.



Q.C.M. MINERAL PROPERTIES

No.	NAME	No. OF CLAIMS	ASSESSMENT ANIV.	COMODITY
1	OPAL	20	JULY 12, 1969	Mo (anomally)
2	TK	88	OCT. 13, 1968	Cu.Mo.
3	GARNET	34	JULY 12, 1969	Cu.
4	SPARTAN	42	JUNE 27, 1969	Cu.
5	PILLER	24	JUNE 27, 1969	Cu.
6	RIGA	24	APRIL 9, 1969	Cu.Mo.
7	T.D.G.	1	OCT. 13, 1969	CAMP SITE

— 1969 Regional Cleanup

▨ - 1969 Property work

inches 0 1 2
0 1 2 3 4 5 centimetres

BRITISH COLUMBIA GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

QUEBEC CARTIER MINING COMPANY

PROJECT TOODOGGONE

REFERENCE MAP
RE - PROGRESS OF EXPLORATION WORK
TO - AUGUST 31, 1968

BY

CORDILLERAN ENGINEERING LIMITED
VANCOUVER, BRITISH COLUMBIA, CANADA