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CONSULTING GEOLOGICAL ENGINEERS

BENTALL CENTRE, VANCOUVER, B.C. 688-3022 OR 522-1562

POST OFFICE BOX 1708
WHITEHORSE, Y.T.

PROGRESS REPORT

ON

CARIBOU LAKE PROPERTY

FOR

NORTHERN EMPIRE MINES LTD.

SEPTEMBER 15, 1968

R. J. CATHRO

P. ENGINEER

WHITEHORSE, Y.T.

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PLAN OF ZONE 'A', CARIBOU LAKE
PROPERTY, 1" = 400', SHOWING
LOCATION OF TRENCHING, GEOCHEM
AND ROCK SAMPLING IN POCKET.

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(1)

INTRODUCTION

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The Caribou Lake property of Northern Empire Mines Ltd. adjoins the IVAN claims of Anvil Mining Corp. Ltd., about 15 miles north of Anvil's Faro mine and concentrates. During the 1966 and 1967 field seasons, initial exploration, consisting of airborne magnetic and electromagnetic surveys, reconnaissance soil and silt sampling and geological mapping of the limited outcrops, narrowed the search to an area on the west end of the property designated the "A" Zone. (see figure 1) Within this zone, about two square miles in area, scattered copper and zinc soil anomalies occur along and at the crest of a north - facing mountain slope, near the 4000 foot elevation. Prospecting uncovered a few pieces of sulfide float in the overburden. Bulldozer trenching, while severely limited by the steep terrain and permafrost conditions, has succeeded in exposing sulfide mineralization in bedrock. Previous work has been detailed by the writer in reports dated October 1, 1966, July 31, 1967 and March 15, 1968.

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1968 PROGRAM

Between mid June and mid August, a D-6 bulldozer was used to strip and trench copper and zinc geochemical anomalies, continuing a program started in late 1967 which was stopped by freeze-up. A total of 20,000 cubic yards of bedrock and frozen overburden was moved in nine trenches.

Bedrock consists of white to medium grey, thin bedded and strongly jointed chert, with narrow bands of argillite and cherty argillite. The beds strike east - west and dip gently north, into the hillside. Disseminated pyrrhotite, chalcopyrite and sphalerite are widespread in minor amounts and galena is rare. Heavily disseminated to massive sulfide mineralization was found in two places, 2000 feet northeast and 2600 feet north of Marijke Lake, respectively. It consists of a pyrrhotite-pyrite-sphalerite assemblage, with lesser amounts of chalcopyrite and a trace of galena and scheelite.

At the first location, four grab samples assayed in the fall of 1967 ranged between 2.8% and 4.5% zinc, 0.04% and 0.18% copper, 0.18 and 0.32 ozs/ton silver and 0.01 and 0.02 ozs/ton gold. When exposed by further bulldozing in 1968, this showing proved to consist of a sulfide lens less than fifty feet long and ten feet wide averaging about 1.25% zinc, 0.05% copper and 0.10 ozs/ton silver.

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(3)

At the second location, the upper eight feet of a massive pyrrhotite band was exposed. The bottom of the zone is covered by overburden and the full width of the zone is unknown. This mineralization assayed 2.84% zinc, 0.37% copper 0.01% lead, and a trace on gold and silver across the exposed width of eight feet.

Although the trenching program was planned to test the geochemical highs, terrain difficulties and equipment limitations resulted in the actual trenches being positioned somewhat randomly and the overall effectiveness was thus lower than anticipated.

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CONCLUSIONS & RECCOMENDATIONS

Zinc - copper mineralization has been located in bed-rock associated with pyrrhotite and pyrite. It occurs on an overburden-covered slope where geochemistry has proven effective in detecting the mineralized zones. The wallrocks are chert and arjillite of Devonian age.

The mineralization exposed to date is of limited extent and is different in composition and environment from the Faro, Vangorda and Swim deposits nearby. The new mineralization on the Northern Empire Mines Ltd. ^{property} is only fifteen miles from the Faro Mine of Anvil Mining Corp. Ltd., where a 5500 TPD lead-zinc concentrator is being readied for production in late 1969.

The next stage of work should consist of linecutting, ground magnetic and induced polarization (I.P.) surveys, and detailed soil sampling. The linecutting is needed for ground control so that the bulldozer trenches and reconnaissance soil sampling can be accurately plotted. The additional soil sampling should be conducted at 200 foot centers before the terrain is further disturbed by trenching or drilling.

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The estimated budget is as follows:

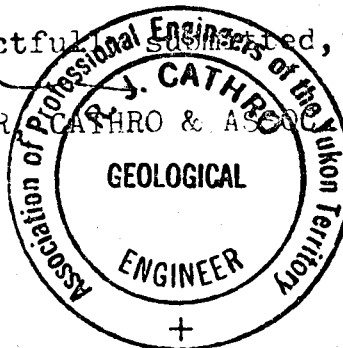
Phase 1

Linecutting	30 LM @ \$100.00	\$3000.00
Magnetic Survey	30 LM @ \$ 65.00	2000.00
I. P. Survey	30LM @ \$400.00	12000.00
Geochemical Sampling	750 @ \$ 4.00	<u>3000.00</u>
	Sub total	\$20,000.00
Aircraft Transport		5000.00
Camp costs		2500.00
Supervision, Reports		<u>2500.00</u>
	Sub total	\$10,000.00

Phase 2 - Diamond drilling contingency

5000 feet AQ size @ \$15.00	<u>\$75,000.00</u>
Total- Phases 1 and 2 -----	\$100,000.00

Respectfully submitted,
R. J. Cathro
ARCHER, CATHRO & ASSOC. LTD.



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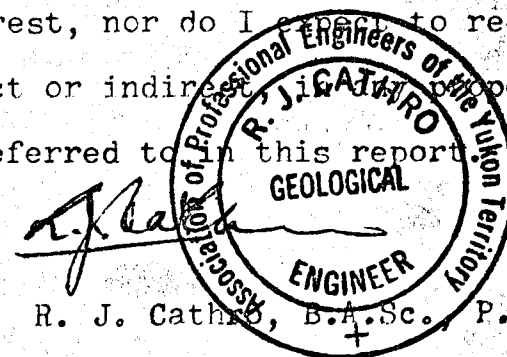
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WHITEHORSE, Y.T.

CERTIFICATE

Sept. 15, 1968

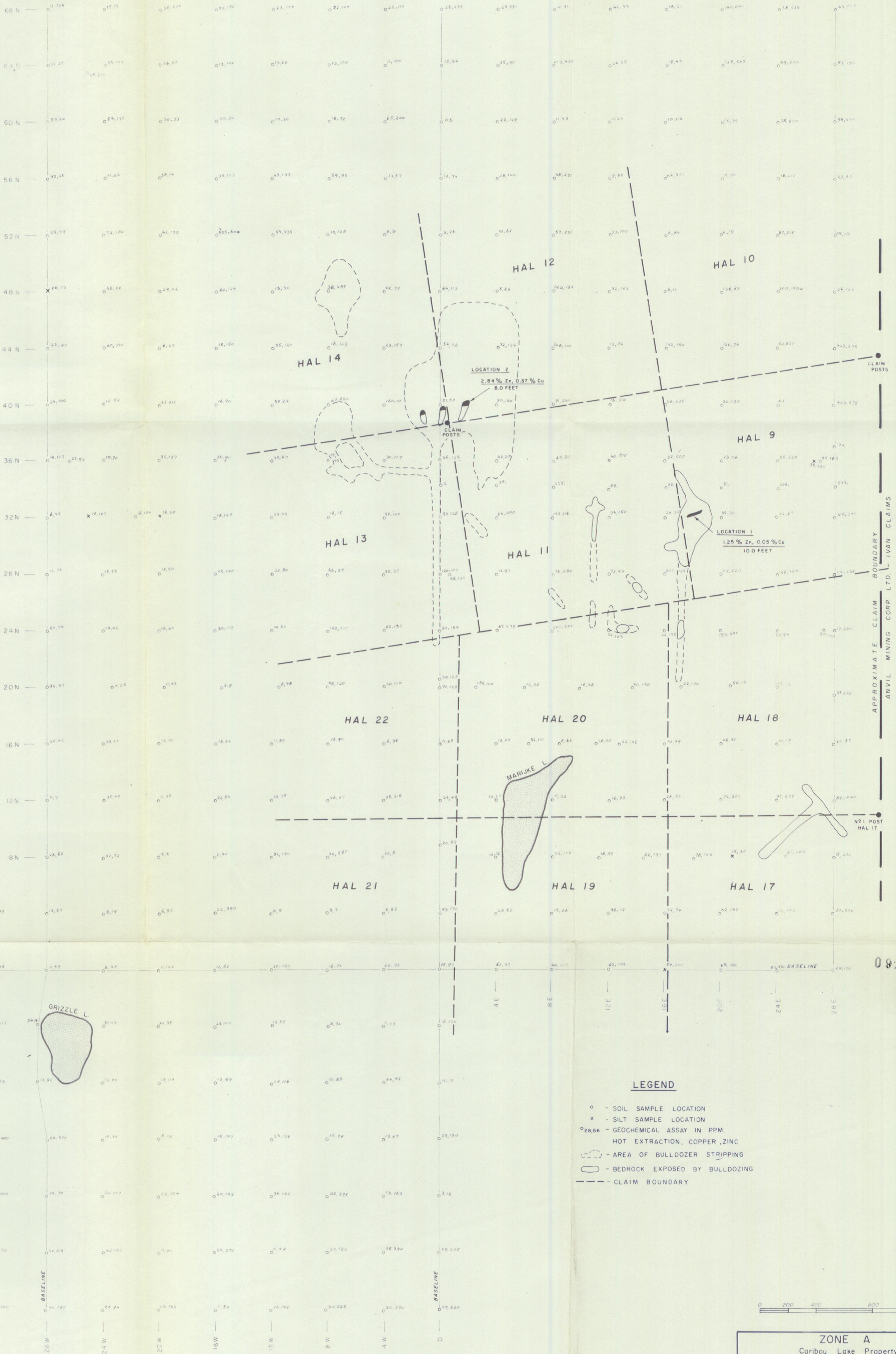
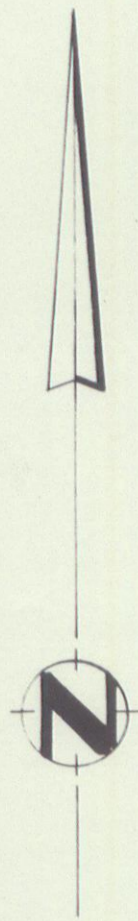
I, Robert J. Cathro, with business and residential address in Whitehorse, Yukon, do hereby declare that:

- (1) I am a consulting geological engineer.
- (2) I am a graduate of the University of British Columbia, 1959.
- (3) I am a registered professional engineer in the Yukon and British Columbia.
- (4) From 1959 to 1966 I was engaged in mining and exploration geology and held positions of responsibility with United Keno Hill Mines Ltd., Giant Yellowknife Mines Ltd., and Eldorado Mining and Refining Ltd.
- (5) I have personally studied the maps and reports referred to in this report and supervised the field exploration of this property.
- (6) I have no interest, nor do I intend to receive any interest, direct or indirect, in the properties or companies referred to in this report.



R. J. Cathro, B.A.Sc., P. Eng.

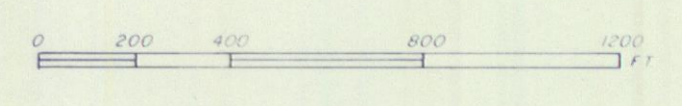
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LEGEND

- - SOIL SAMPLE LOCATION
- × - SILT SAMPLE LOCATION
- 28.56 - GEOCHEMICAL ASSAY IN PPM
HOT EXTRACTION, COPPER, ZINC
- - - AREA OF BULLDOZER STRIPPING
- - BEDROCK EXPOSED BY BULLDOZING
- - - CLAIM BOUNDARY



ZONE A Caribou Lake Property NORTHERN EMPIRE MINES LTD.	
ARCHER, CATHRO & ASSOC. LTD. <i>Consulting Geological Engineers</i>	
DATE	16 Sept 1968
DRAWN	J.P. THORNTON
SCALE	1" = 400' DWG NO. 1.

ARCHER, CATHRO

AND ASSOCIATES LTD.

CONSULTING GEOLOGICAL ENGINEERS

CASCA BUILDING, WHITEHORSE, Y.T. 667-4113

BENTALL CENTRE, VANCOUVER, B.C. 688-3022 OR 522-1562

POST OFFICE BOX 1708
WHITEHORSE, Y.T.

PRELIMINARY REPORT

ON

1967 EXPLORATION PROGRAM

Caribou Lake Property, Yukon

for

NORTHERN EMPIRE MINES LTD.

July 31, 1967

R.J. CATHRO

CONSULTANT

WHITEHORSE, Y.T.

SUMMARY

The initial phase of the 1967 exploration program has been completed on the Northern Empire Mines Ltd. Caribou Lake property in the Anvil-Vangorda district, Yukon. Of the three favourable zones outlined by reconnaissance geochemistry and airborne geophysics in 1966, two have been further explored by grid-type geochemical sampling and geological mapping. An additional 38 claims were staked to cover airborne electromagnetic anomalies extending beyond the property boundary.

Three significant geochemical anomalies have been found on the HAL claims and a program of fill-in geochemical sampling followed by bulldozing is recommended. A zone of electromagnetic anomalies, located near the TARA claims during 1966, has been screened by geochemical sampling and an Induced Polarization survey is recommended over the most geochemically responsive anomalies. Lines have been cut in preparation for this survey.

The budget for the additional geochemical sampling, bulldozing and Induced Polarization survey is estimated at \$40,000.00.

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Figure 1-	Location Plan Caribou Lake Property-	1"=20 miles
Figure 2-	Grid Location Map, 1967 Exploration Program	1"=1270 ft.
Figure 3-	Grid A, Geochemical Distribution Curves -----	
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Figure 5-	Grid A, Copper " -	1"=400 ft.
Figure 6-	Grid A, Zinc " =	1"=400 ft.
Figure 7-	Grid A, Geology -	1"=400 ft.
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Figure 12-	Grid C, Lead " -	1"=800 ft.
Figure 13-	Grid C, Copper " -	1"=800 ft.
Figure 14-	Grid C, Zinc " -	1"=800 ft.
Figure 15-	Grid D, Lead, Zinc, Copper Geochemistry-	1"=400 ft.

INTRODUCTION

Between June 15 and July 2, 1967, a program of detailed soil sampling and prospecting was conducted by a six man field party, under the writer's supervision, on the Caribou Lake property of Northern Empire Mines Ltd. During the same period of time, a program of linecutting and claim staking was completed under contract to White, Hosford and Impey Ltd., Whitehorse.

PROPERTY

The Caribou Lake property comprises 234 contiguous claims, registered in Whitehorse as follows:

Tara 1-49	Y687-735	North. Emp. ML.	Feb. 28, 1968
Dane 1-8	Y759-766	"	Mar. 2, 1968
Dane 9-88	Y1110-1189	"	Mar. 4, 1968
Dane 89-96	Y9823-9830	R. Van Vugt	Aug. 1, 1967
Dane 97-103	Y9831-9837	J. Litsenburger	Aug. 1, 1967
Hal 1-24	Y39-62	North. Emp. ML.	Feb. 21, 1968
Hal 25-28	Y9811-Y9814	A. Charlie	Aug. 1, 1967
Hal 29-36	Y9815-9822	D. Lyman	Aug. 1, 1967
Mark 1-22	99171-99192	North. Emp. ML.	Feb. 15, 1968
Mark 33-44	99203-99214	"	Feb. 15, 1968
Mark 46	99216	"	Feb. 15, 1968
Mark 48	99218	"	Feb. 15, 1968
Mark 50	99220	"	Feb. 15, 1968

Mark 52	99222	North. Emp. ML.	Feb. 15, 1968
Mark 65-72	99235-99242	"	Feb. 15, 1968

An additional 38 claims, were staked during the present program to cover airborne EM anomalies discovered the previous year. These claims are tied onto the north side of the Tara claims and are registered as follows:

Bark 1-8	Y18926-Y18933	E. Johnston	July 6, 1968
9-13	Y18934-Y18938	J. Jackson	"
14-21	Y18940-Y18947	M. Barker	"
22-29	Y18948-Y18955	S. Johnston	"
30-37	Y18956-Y18963	D. Gamble	"
38	Y18939	J. Jackson	"

LOCATION AND ACCESS

The Anvil-Vangorda district lies along the Pelly River, some 125 air miles northeast of Whitehorse. Ross River settlement, in the southeast corner of the district, is 240 miles by all-weather gravel road from Whitehorse via the Alaska Highway and Canol Road. A new resource development road was completed from Watson Lake to Ross River during 1965 and a new highway to connect Ross River to Carmacks is now under construction. At present, some 40 miles of this new road, which follows the southwest side of the Anvil-Vangorda district, have been completed to provide an all-weather route to the Faro Exploration camp.

The Caribou Lake property is accessible by ski or float equipped planes which land on the lake or by Helicopter from Faro camp, which is 15 miles south.

HISTORY

The first mineralization in this district, the Vangorda deposit, was discovered in 1953. No further discoveries were made until July, 1965 when Dynasty Explorations and Cypress Mining Corp. Ltd. found the Faro deposit. This major deposit stimulated a large staking rush and extensive exploration throughout the area.

The Caribou Lake property surrounds the Ivan claims of Anvil Mining Corp. (Dynasty and Cypress). The Ivan claims were staked over a gossan and geochem anomaly which coincided with airborne geophysical anomalies. During the summer of 1966, Anvil drilled several exploration holes on these claims with inconclusive results. Disseminated lead-zinc mineralization was intersected but grade was relatively low and no tonnage could be calculated due to the erratic nature of the occurrence.

The 1966 exploration on the Caribou Lake property, carried out by Yukon Copper Ltd., consisted of a helicopter-borne Mag and EM survey, geological mapping, and reconnaissance soil and silt sampling along claim base lines. All samples were analyzed for copper, lead and zinc by

a hot acid extraction technique.

REGIONAL GEOLOGICAL SETTING

Regional mapping by the Geological Survey of Canada (Map 13-1961) and reconnaissance mapping of the property in 1966 disclosed that the property lies at the contact between Mississippian schists and Devonian sediments, close to the Anvil Batholith. A major regional fault appears to cross the property in a NW-SE direction parallel to the Tintina Fault. Less than 10% of the area is outcrop. The Devonian rocks are mainly chert and carbonaceous, locally graphitic, argillite, with little evidence of folding observed.

The known mineral deposits found to date occur in a Mississippian (or older) metamorphic sequence, which forms a belt five to ten miles wide and at least fifty miles long, paralleling the northeast side of the Pelly River Valley. The trend of the belt coincides with the axis of a broad anticlinal dome caused by the intrusion of the Anvil Batholith. Erosion and glaciation have exposed the granodiorite core and formed the Anvil Mountains, leaving the metamorphic rocks as a crude elliptical halo around the margins.

The main structural feature of the district is the Tintina Fault, which follows the Pelly River

parallel to the trend of the metamorphic rocks and the major anticline. Lateral movement on this fault is thought to exceed 200 miles. Although overburden obscures most of the evidence, an important subsidiary fault system crosses the Anvil district.

Mineralization appears to be confined to structurally deformed siliceous units within the metamorphic sequence. The Faro, Vangorda, and Swim deposits all average about 3 to 5% lead, 5 to 7% zinc, 0.25% copper, and 1 to 2 ozs/ton silver, and have a gross metal value of about \$25.00 per ton at average metal prices. The ore minerals are disseminated in large bodies of pyrite, pyrrhotite and magnetite, many of which are barren or sub-economic in grade. The economic portions of the known deposits vary from under 10 million tons to over 40 million tons, all mineable by open-pit methods. The best exploration approach is to locate these large pyrite-pyrrhotite bodies with geophysics and geochemistry and delineate the economic portions, if present, with diamond drilling.

From the results of the 1966 exploration program, three general areas were selected that warranted further work. Designated the A, B and C Zones, they include the best geophysical and geochemical anomalies in both the Mississippian schist and Devonian sediments.

Zone A- Lying just west of the Ivan claims and on strike with the Zone drilled by Anvil, this area consists of visible disseminated chalcopyrite and sphalerite in a small, pyrite-rich gossan. Scattered encouraging soil and silt values have been obtained over a large area although insufficient sampling was done to prove any continuity. Both magnetic and EM response was low for this zone.

Zone B- situated east and north of the Anvil property within Devonian sediments and close to the inferred NW-trending regional fault, it contains 9 strong EM conductors with ratios greater than 4. Several of these are associated with weak magnetic response. Some weakly anomalous geochemical response was obtained, as well, although few of the reconnaissance lines passed close to the EM anomalies.

Zone C- This zone lies southwest of the Anvil property along the Mississippian-Devonian contact. Both strong magnetic and moderate electromagnetic anomalies are present, although not coincident. This zone is geochemically metal positive with a background five to six times higher than the district average.

1967 EXPLORATION

Zones A and B have been explored by detailed geochemical sampling and geological mapping. In addition, lines have been cut over Zone B. No work has been done as yet on Zone C. Details and results of this preliminary work are discussed separately for each Zone, the locations for which are shown on Figure 2 in the appendix.

ZONE A (see Figures 3-7 in Appendix)General-

Three northsouth baselines, each 2800 feet apart, were cut. Soil samples were taken at 400 foot intervals on lines 400 feet apart established by pace and compass between the baselines. Sample pits were dug to the "B" horizon with a grub-hoe. Each sample was assayed for parts per million lead, zinc and copper, using a hot acid extraction, by Chemex Laboratories Ltd., North Vancouver. Outcrop areas were located and mapped.

Geology-

Rock types within Zone A consists of thin bedded Devonian cherts and cherty argillites with very minor limestone. Disseminated pyrite and arsenopyrite[?] are found in small amounts throughout, particularly in the argillaceous member. Three distinct units are shown

on Figure 7, these are (1) dark chert with minor calcite and aragonite veining (2) grey, white chert and (3) dark pyrite-rich argillaceous chert. Unit 2 produces orange to yellow gossans on weathering. The major structure is a syncline, with steep dipping limbs, the axis of which strikes N20°W and bisects the area mapped. There is no direct evidence of faulting. The area of disseminated copper and zinc mineralization reported by J.J. O'Neill, prospector, during 1966 was not found.

Topography consists of flat ridges giving way to steep sided creek valleys toward the Tay River Valley at the north. Outcrop is only abundant along the ridge tops. Overburden consists of various mixtures of glacial and residual tills covered by a layer of moss and peat from several inches to over 18" deep. The ^{thickest} richest peat covers are found on the permanently frozen north slopes. Vegetation at higher elevations is largely buckbrush with dwarf alder in the creek courses. Below 3500 feet, black spruce predominates in the dry areas and alder and birch in the wet areas.

Geochemistry

All samples were taken from the B soil horizon even though considerable digging was required in certain areas. The soil was generally clay-like and varied in colour from light to red-brown without any particular pattern. A volcanic ash layer about 1 inch thick was usually encountered immediately on top of the soil. A total of 6 silt

samples and 369 soil samples were taken.

Background values for lead and copper are normal for the district while zinc is a little higher than average. Three significant anomalies were located as discussed below:

ANOMALY 1 - This anomaly, centred on Line 12 N-28E, is 800 feet long and 400 feet wide and extends east beyond the area sampled. Lead values range from 116 p.p.m. to 950 p.p.m., zinc values from 685 p.p.m. to 1420 p.p.m., and copper values from 45 p.p.m. to 89 p.p.m. The anomaly occurs on the northeast edge of a flat ridge where there is considerable outcrop of dark cherts with calcite veining. The writer believes that a vein-type deposit is the most likely source of the anomalous values.

ANOMALY 2- This is primarily a copper anomaly that occurs over a large area extending west of baseline 28E between cross lines 24N and 44N. Values range as high as 545 p.p.m. copper with the highest values found on a steep overburden-covered west facing slope on the eastern edge of the grid area. The source of the anomaly could be a gossan that occurs some 800 feet to the east, along the crest of the steep slope, on ground held by Anvil Mining Corp. Ltd.

ANOMALY 3- The centre of this anomaly is found on crossline 52 N at a point 1200 feet east of baseline 28W. Values are as high as 555p.p.m. copper, 105 p.p.m. lead and 600 p.p.m. zinc. The anomaly lies on a west facing slope that exhibits little outcrop. The shape of the anomaly suggests a narrow linear source, probably a vein.

A number of anomalous areas for zinc alone are found elsewhere on the grid. However, considering the generally higher than average zinc background and the mobility of zinc in ground water, these can not be considered significant.

ZONE B (see figures 8-15 in appendix)

General

One large grid area and two small grid areas, designated Grid B, and C and D respectively, were established over airborne electromagnetically anomalous areas located during the 1966 exploration season. Soil samples were taken at 400 foot intervals on lines 400 feet apart on each of the grids and outcrop areas were located and mapped. Crosslines at 400 foot intervals were cut over Grid B, under contract, by White Hosford and Impey, in preparation for ground geophysical surveys.

GEOLOGY

The area covered by Grid B lies along the southern side of the broad Tay River valley. Only a single outcrop, consisting of argillaceous chert was found. Topography is generally flat with alternate ridges and swampy hollows trending almost eastwest or parallel to the direction of glaciation. Overburden consists of moss and peat covered glacial tills. Vegetation is mainly buckbrush with scattered clumps of spruce along the dry ridges.

Grid C is located on a ridge overlooking the south side of Tay River valley. A low swampy divide cuts through the centre of the grid in an eastwest direction. No true outcrops were found but residual float consisting of cherty argillites and argillaceous quartzites is prevalent on the ridges. Overburden consists of intermixed glacial and residual tills capped with moss and peat. As usual in the district, peat accumulations on the north slopes was extensive, often exceeding 18 inches in thickness. Vegetation consists mainly of buckbrush with the occasional clump of spruce and willow.

Grid D is located on the base of a moderate slope rising from the south side of Tay River valley. No outcrop was found and overburden consists of glacial till and/or river terraces of an undetermined thickness. Vegetation consists of willow and spruce.

GEOCHEMISTRY

The geomorphological conditions on Grid B are not favourable for geochemical sampling. At best, mineral deposits buried beneath the glacial till would only be expected to have a surface geochemical reflection near seepage areas. The purpose of the geochemical survey was to screen the extensive electromagnetic anomalies found in this area during 1966. A moderately strong response for zinc and copper was found near the swampy areas south of baseline B.

A moderately strong copper anomaly was found on Grid C immediately downhill from the swampy divide cutting the grid area.

Nothing of significance was found on Grid D but geomorphological conditions here are completely unfavourable for geochemical sampling.

A total of 407 samples were taken on Grids B, C, and D. Analysis and sampling technique was as described for Grid A.

CONCLUSIONS & RECOMMENDATIONS

The three soil anomalies found on Grid A definitely require further investigation as anomalies of similar magnitude elsewhere in the Yukon have led to discoveries of ore grade mineralization. All three anomalies should be sampled on a closer spacing to define targets for a program

of bulldozer trenching and anomalies 1 and 2 should be investigated east of the grid area to the Anvil boundary (about 400-600 feet) by additional sampling.

The geochemical results on Grid B have sufficient contrast to suggest that the airborne electromagnetic anomalies on the southern half of Grid B are the most significant. Although exploration knowledge is limited in these Devonian rocks and outcrop information is scanty, the subtle geochemical response and strong airborne electromagnetic results could well be significant and warrant further investigation. Therefore, the southern half of Grid B should now be explored by an Induced Polarization (I.P.) survey to better define the location, and existence of sulfide deposits for drilling purposes. If time permits, several lines of I.P. should be run across the swampy divide on Grid C.

The DANE 89-103 and HAL 25-36 claims have assessment work due on August 1, 1967. As no work has been done on these claims, and a cash payment would be required in lieu of work, and as they are not favourably located, it is recommended that they be dropped.

Exploration work on Zone C, as recommended by the writer (May 12, 1967), should be completed during 1967 in order to provide the assessment expenditures required on those claims by Feb. 15, 1968.

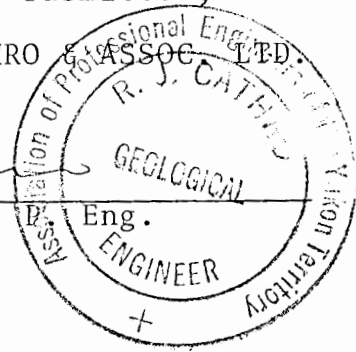
BUDGET

The following budget is prepared assuming additional work is started before September 1, 1967 and that a helicopter will be available on casual rental from the Anvil airstrip.

Soil sampling, Grid A and Zone C	\$5,000.00
Bulldozing, Grid A	15,000.00
I.P. Survey, Grid B and C	7,000.00
Aircraft charter	5,000.00
Supervision, reports	<u>4,000.00</u>
	36,000.00
plus contingencies	<u>4,000.00</u>
	40,000.00

Respectfully submitted,
ARCHER, CATHRO & ASSOC. LTD.


R.J. Cathro, P. Eng.



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CONSULTING GEOLOGICAL ENGINEERS

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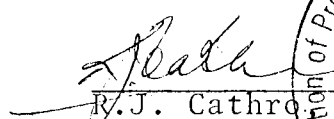
Aug. 1, 1967

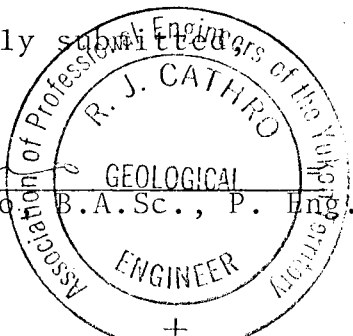
CERTIFICATE

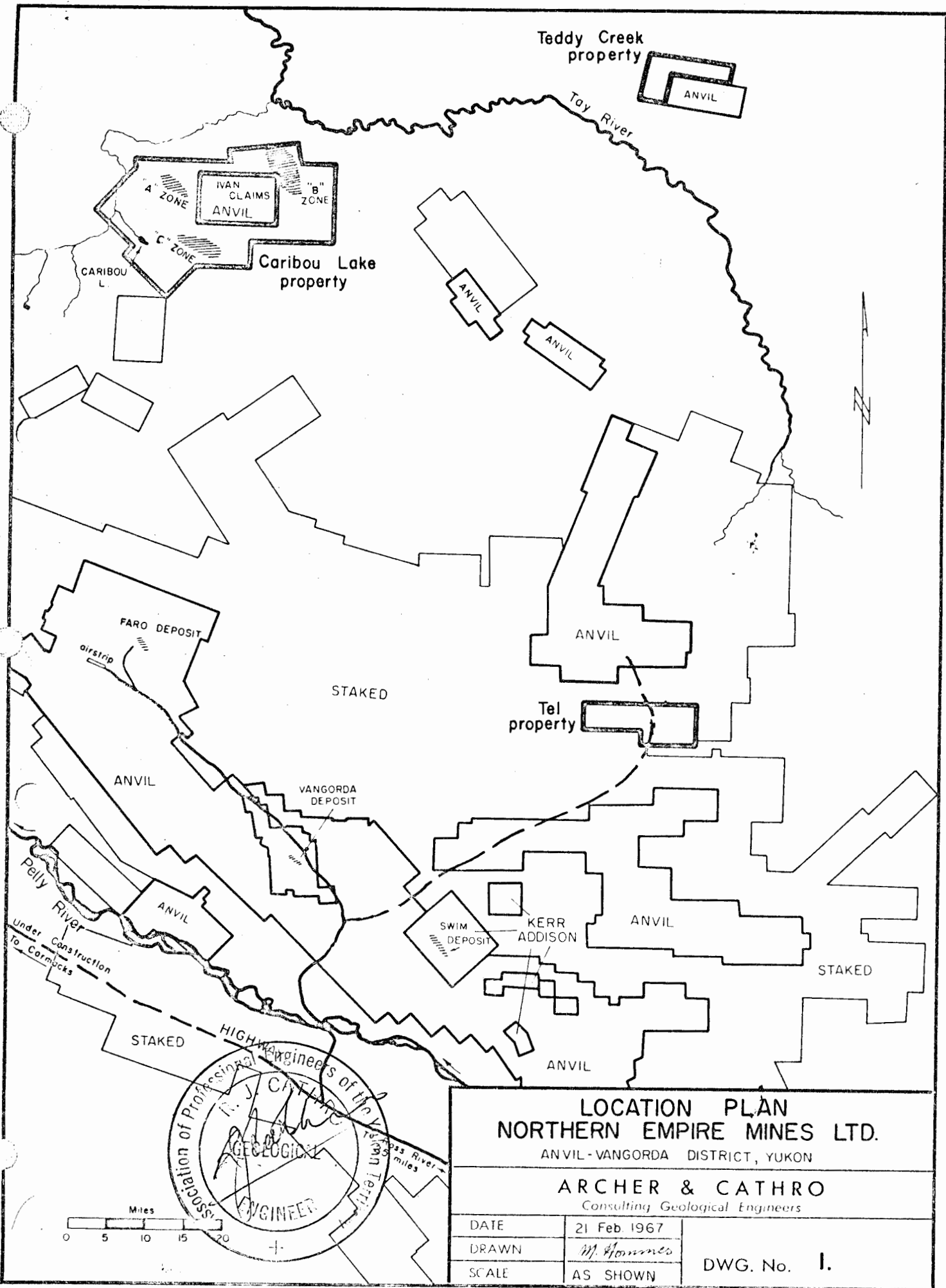
I, Robert J. Cathro, with business and residential address in Whitehorse, Yukon, do hereby declare that:

- (1) I am a consulting geological engineer.
- (2) I am a graduate of the University of British Columbia, 1959.
- (3) I am a registered professional engineer in the Yukon and British Columbia.
- (4) From 1959 to 1966 I was engaged in mining and exploration geology and held positions of responsibility with United Keno Hill Mines Ltd., Giant Yellowknife Mines Ltd., and Eldorado Mining and Refining Ltd.
- (5) I have personally studied the maps and reports referred to in this report and supervised the field exploration of this property.
- (6) I have no interest, nor do I expect to receive any interest, direct or indirect, in any properties or companies referred to in this report.

Respectfully submitted,


R. J. Cathro





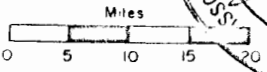
LOCATION PLAN
NORTHERN EMPIRE MINES LTD.

ANVIL-VANGORDA DISTRICT, YUKON

ARCHER & CATHRO
 Consulting Geological Engineers

DATE	21 Feb 1967
DRAWN	M. Hornnes
SCALE	AS SHOWN

DWG. No. I.



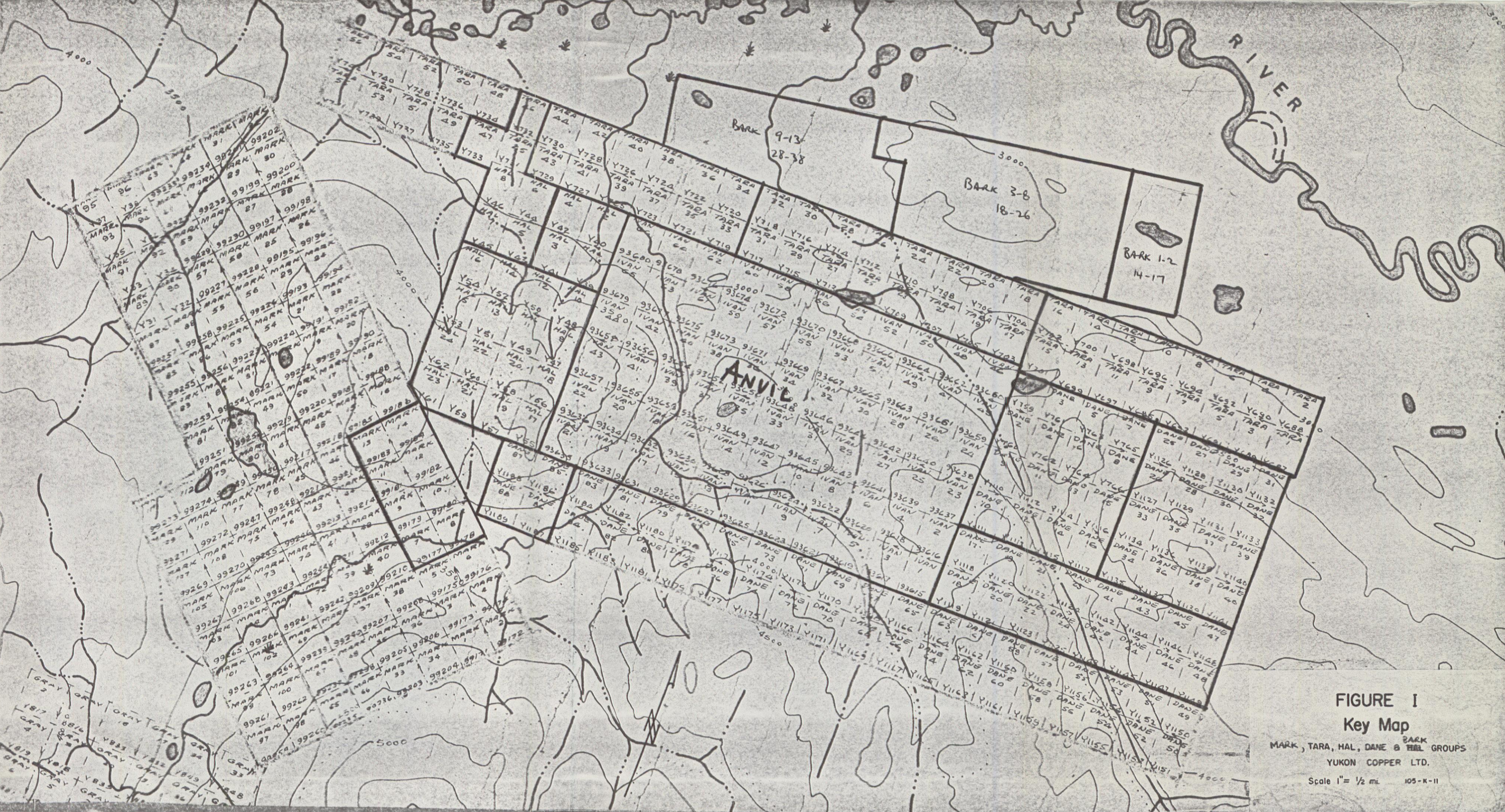


FIGURE I
Key Map

MARK, TARA, HAL, DANE & IVAN GROUPS
YUKON COPPER LTD.

Scale 1" = 1/2 mi. 105-K-11



SOIL SAMPLE GRID LOCATION MAP
1967 EXPLORATION

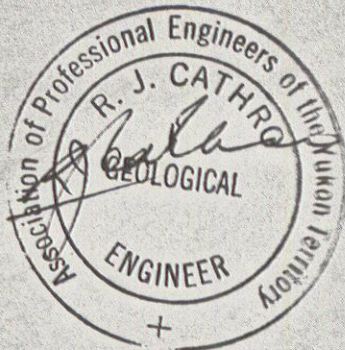
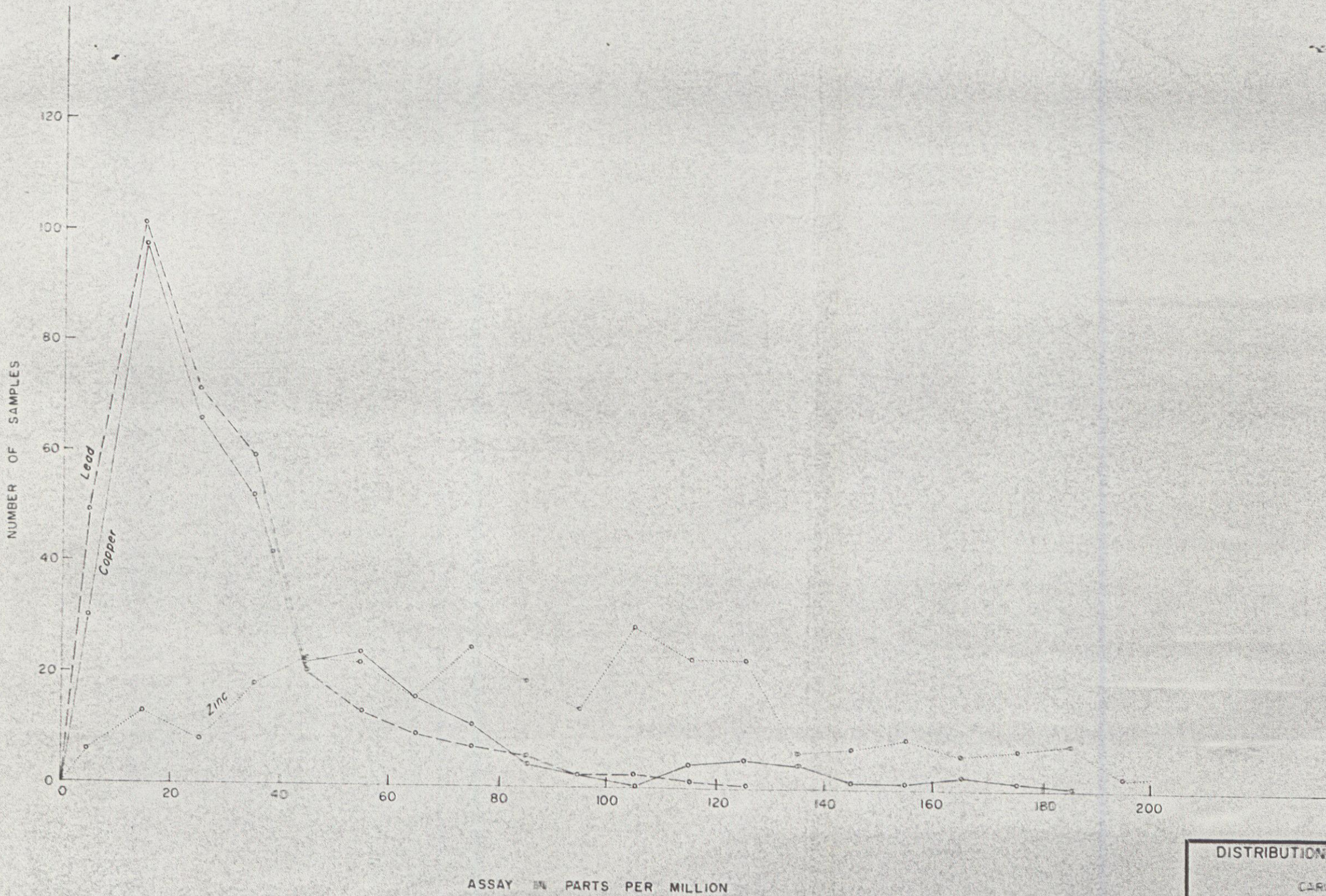
NORTHERN EMPIRE MINES LTD., CARIBOU LAKE PROPERTY, YUKON

Scale Approximately 1" = 1270'

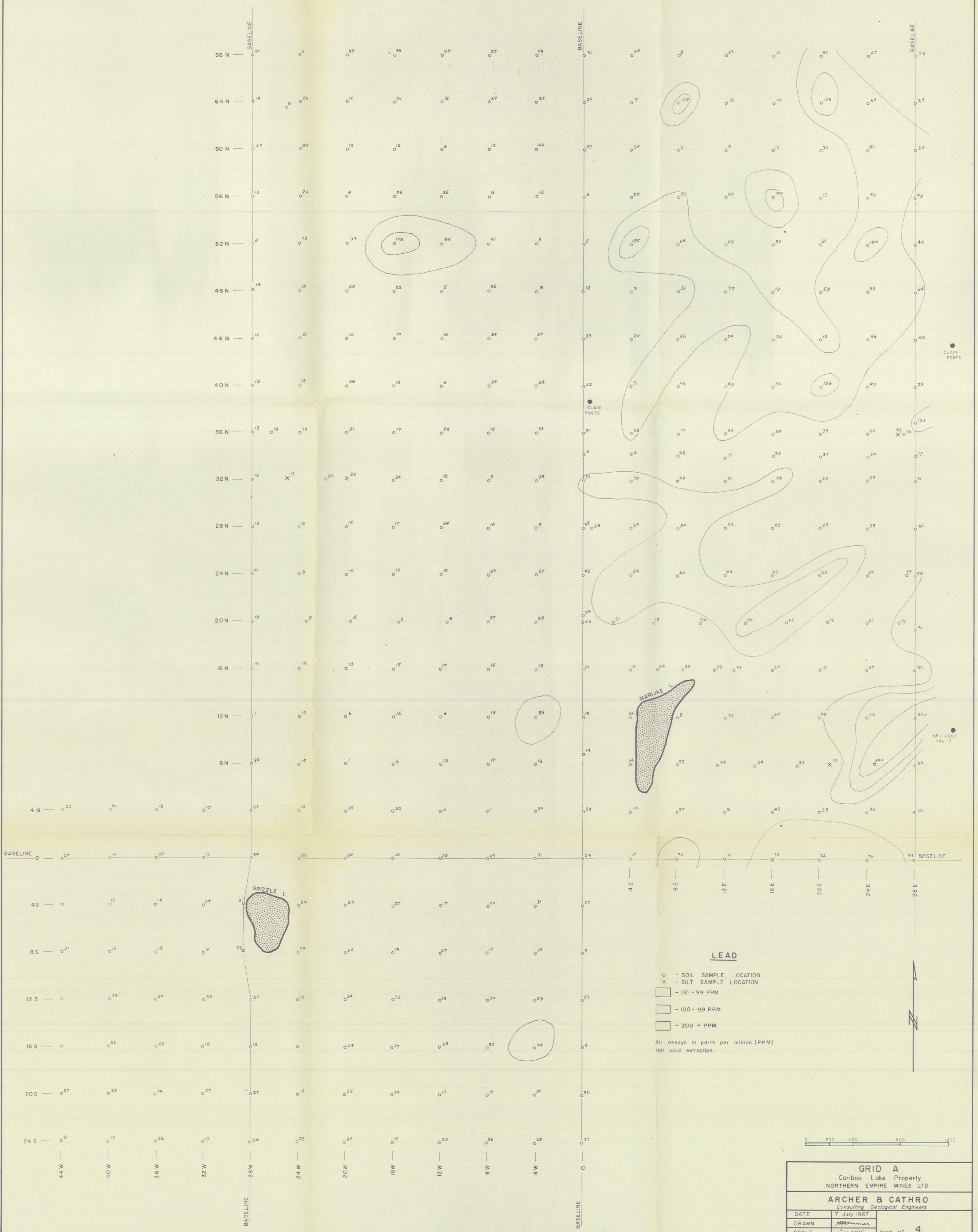
ARCHER, CATRO & ASSOCIATES LTD. ENGINEERS JULY 27, 1967



Fig. 2



DISTRIBUTION OF GEOCHEMICAL ASSAYS GRID A CARIBOU LAKE PROPERTY Northern Empire Mines Ltd.	
ARCHER & CATHRO Consulting Geological Engineers	
DATE	12 July 1967
DRAWN	<i>[Signature]</i>
SCALE	—
DWG. No. 3.	



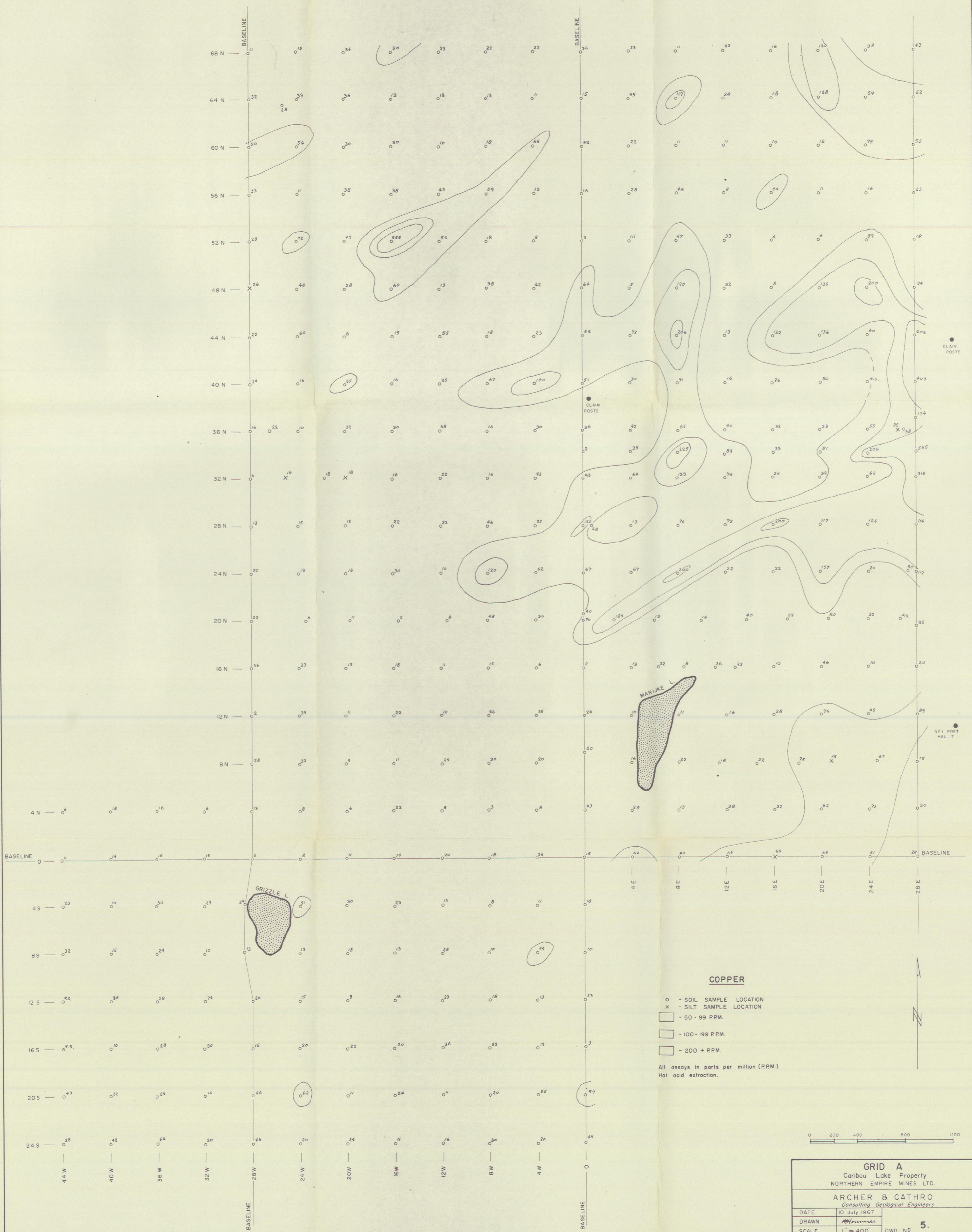
LEAD

- - SOIL SAMPLE LOCATION
- × - SILT SAMPLE LOCATION
- - 50 - 99 PPM
- - 100 - 199 PPM.
- - 200 + PPM.

All assays in parts per million (PPM).
Hot acid extraction.



GRID A	
Caribou Lake Property NORTHERN EMPIRE MINES LTD.	
ARCHER & CATHRO Consulting Geological Engineers	
DATE	7 July 1967
DRAWN	<i>AShammes</i>
SCALE	1" = 400'
DWG. No. 4.	



COPPER

- O - SOIL SAMPLE LOCATION
- X - SILT SAMPLE LOCATION
- [Light Gray Box] - 50 - 99 P.P.M.
- [Medium Gray Box] - 100 - 199 P.P.M.
- [Dark Gray Box] - 200 + P.P.M.

All assays in parts per million (PPM).
Hot acid extraction.



GRID A	
Caribou Lake Property NORTHERN EMPIRE MINES LTD.	
ARCHER & CATHRO Consulting Geological Engineers	
DATE	10 July 1967
DRAWN	M.H. Jones
SCALE	1" = 400'
DWG. NO. 5.	



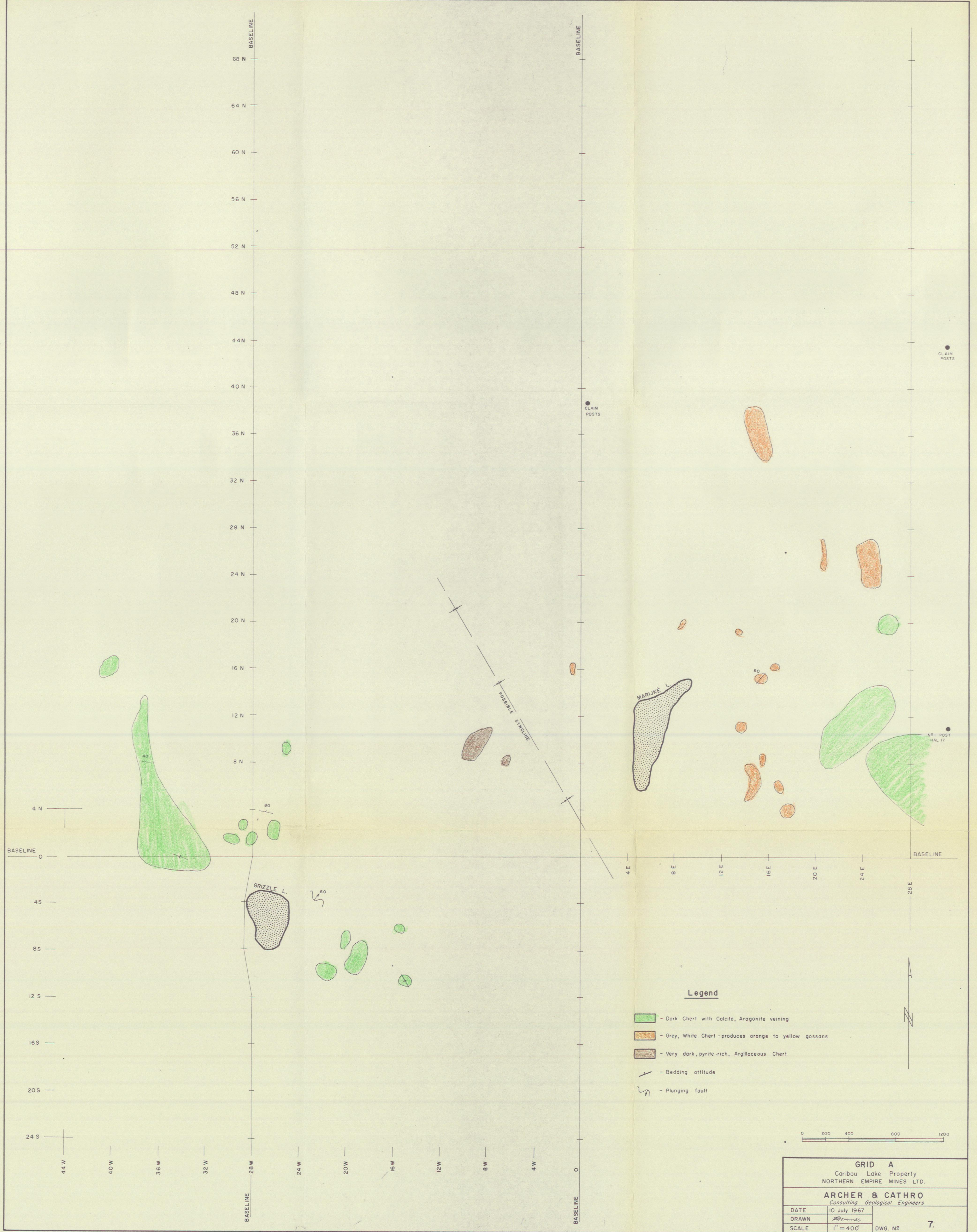
ZINC

- - SOIL SAMPLE LOCATION
- × - SILT SAMPLE LOCATION
- - 150 - 199 P.P.M.
- - 200 - 399 P.P.M.
- - 400 + P.P.M.

All assays in parts per million (P.P.M.)
Hot acid extraction.



GRID A	
Caribou Lake Property NORTHERN EMPIRE MINES LTD.	
ARCHER & CATHRO Consulting Geological Engineers	
DATE	10 July 1967
DRAWN	<i>[Signature]</i>
SCALE	1" = 400'
DWG. No 6.	

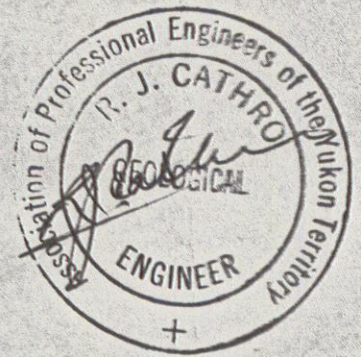
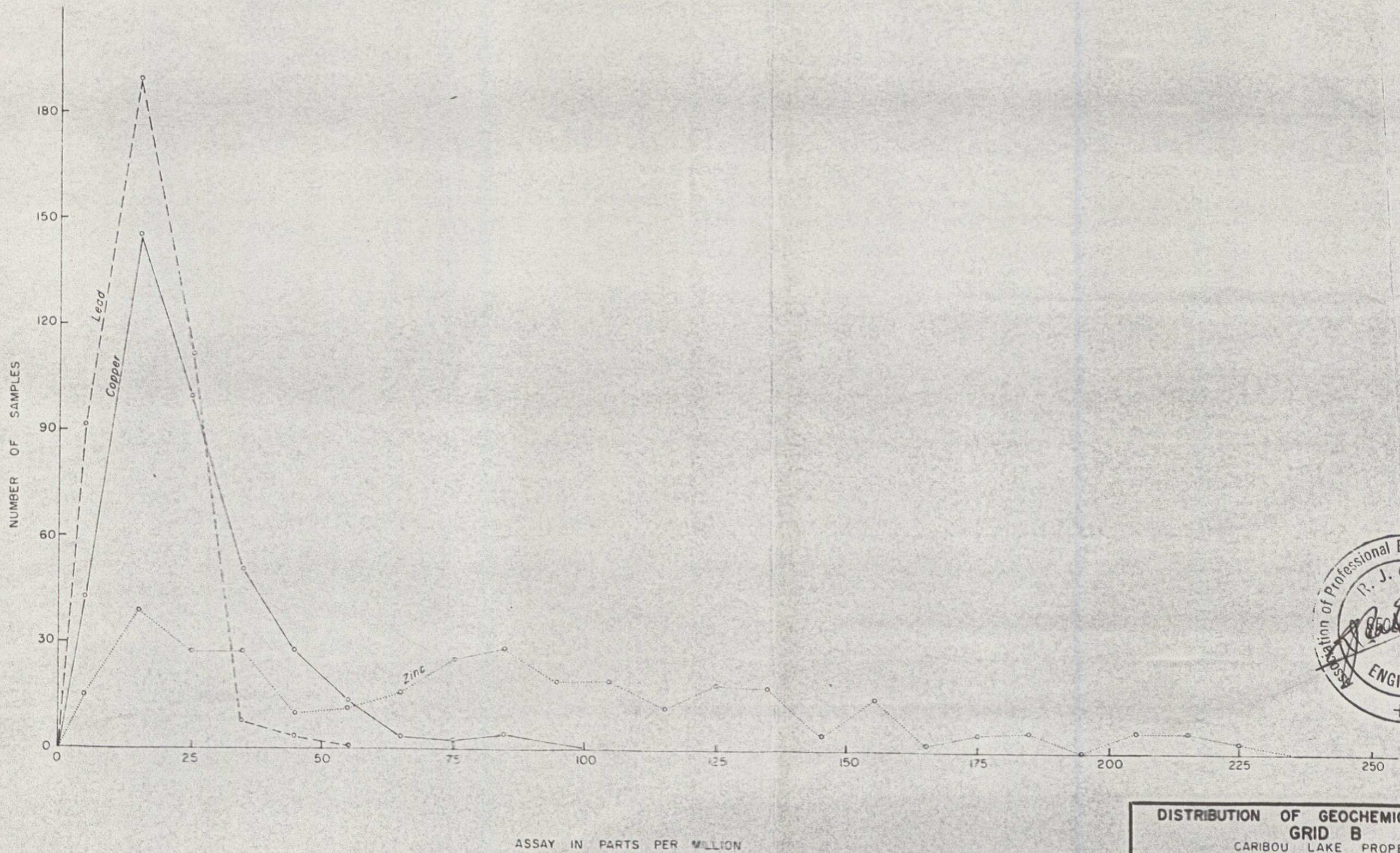


Legend

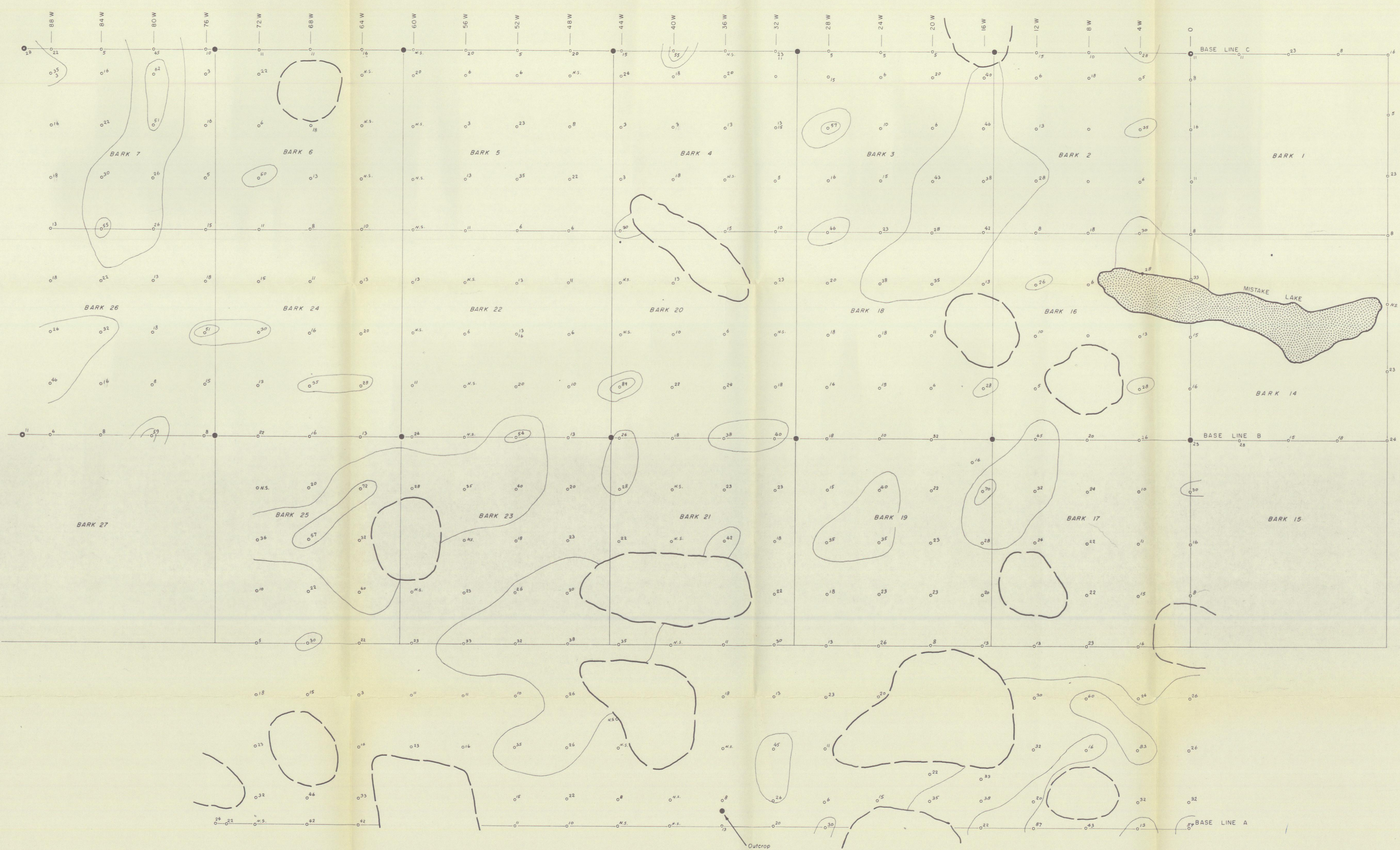
- Dark Chert with Calcite, Aragonite veining
- Grey, White Chert - produces orange to yellow gossans
- Very dark, pyrite-rich, Argillaceous Chert
- Bedding attitude
- Plunging fault



GRID A	
Caribou Lake Property NORTHERN EMPIRE MINES LTD.	
ARCHER & CATHRO Consulting Geological Engineers	
DATE	10 July 1967
DRAWN	Strommes
SCALE	1" = 400'
DWG. NO	7.



DISTRIBUTION OF GEOCHEMICAL ASSAYS		
GRID B		
CARIBOU LAKE PROPERTY Northern Empire Mines Ltd.		
ARCHER & CATHRO Consulting Geological Engineers		
DATE	29 July 1967	DWG. No. 8.
DRAWN	<i>W. G. Smith</i>	
SCALE		

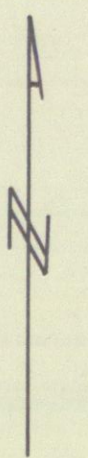


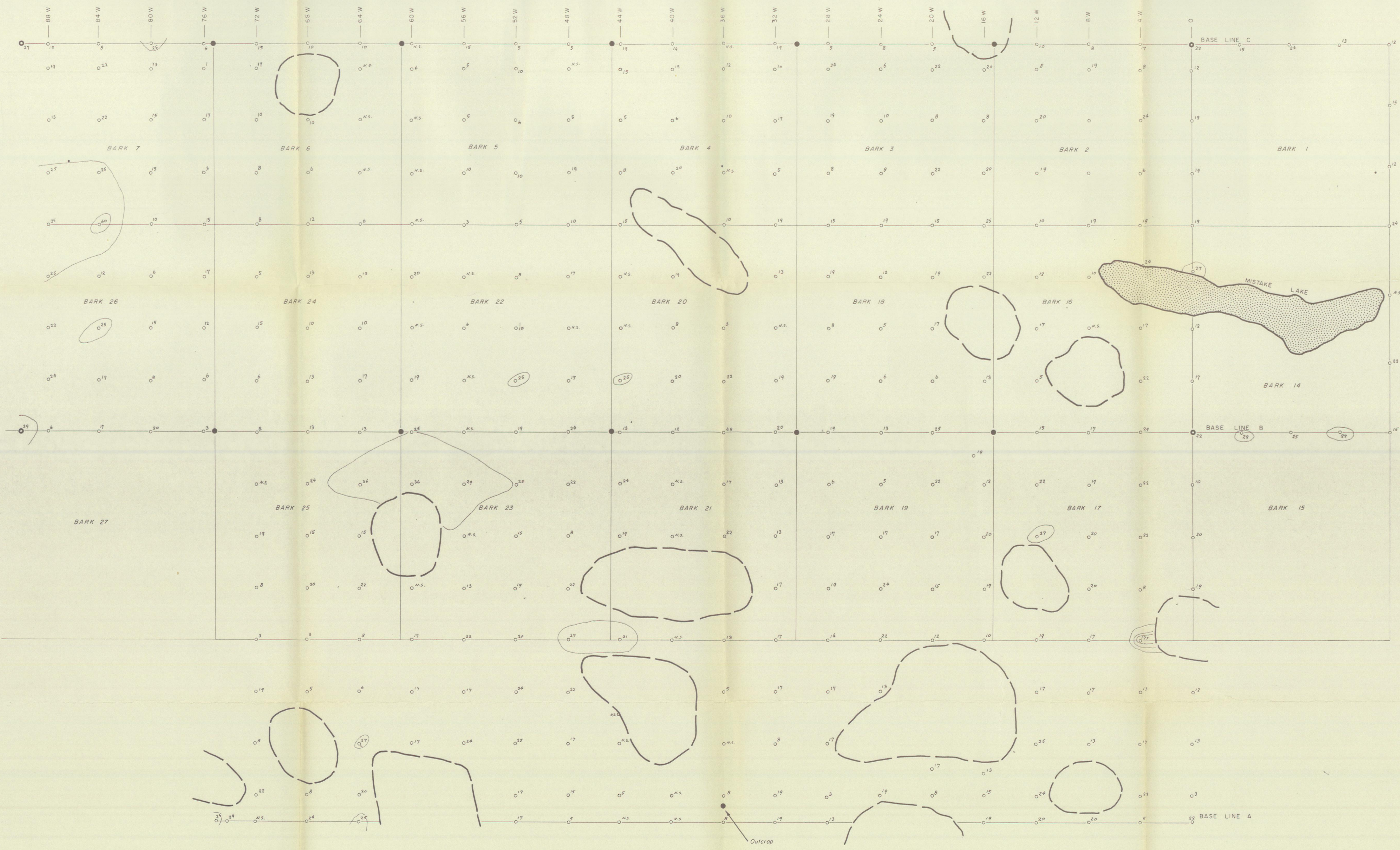
ASSAYS IN PARTS PER MILLION
HOT ACID EXTRACTION

- 25 - 50
- 50 - 100
- 100 +
- SWAMP

Copper Geochemistry

GRID B	
Caribou Lake Property	
NORTHERN EMPIRE MINES LTD.	
ARCHER & CATHRO	
Consulting Geological Engineers	
DATE	6 July 1967
DRAWN	<i>[Signature]</i>
SCALE	1" = 400'
DWG. NO.	9



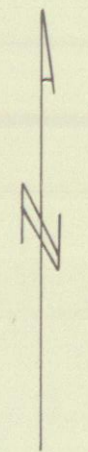


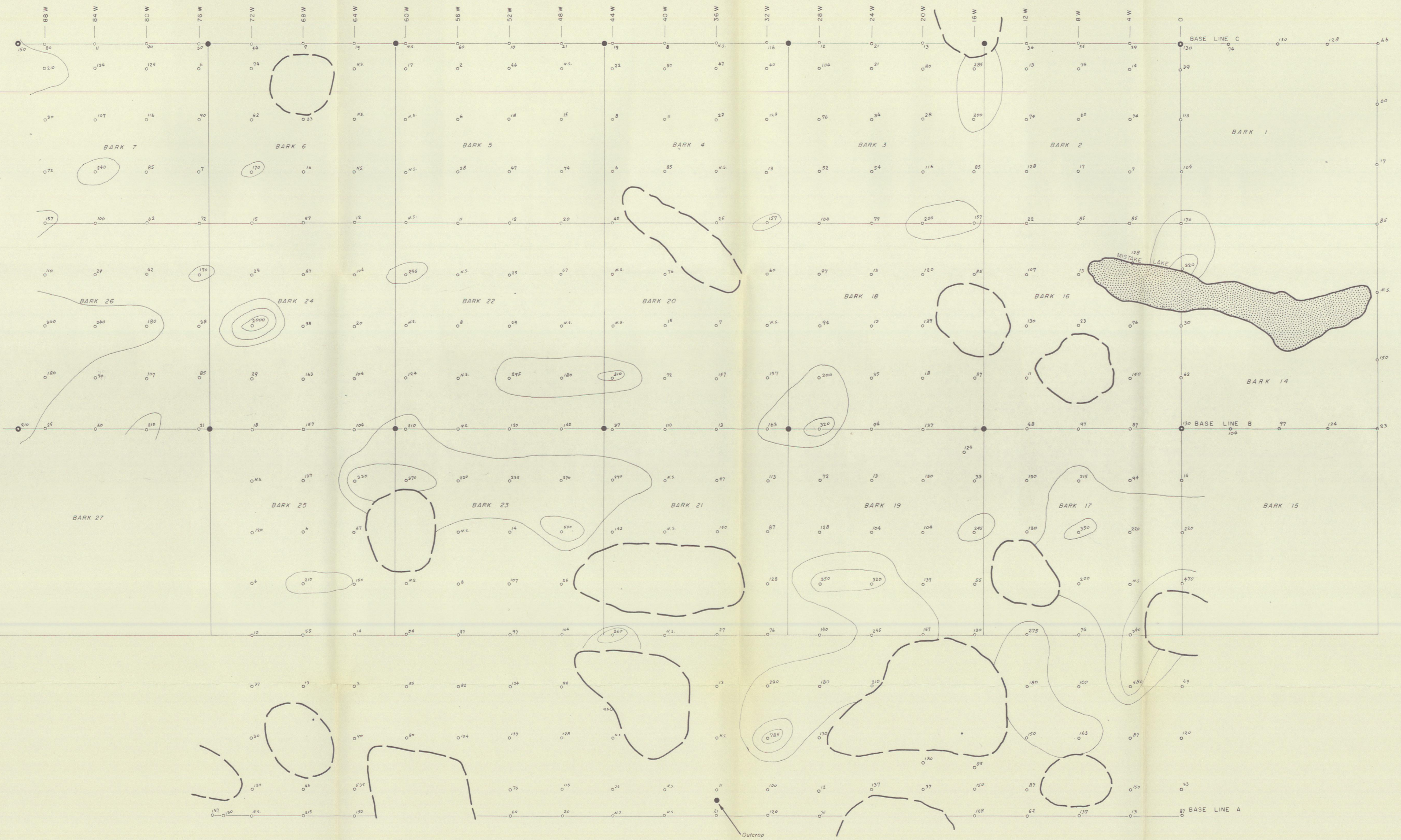
ASSAYS IN PARTS PER MILLION
HOT ACID EXTRACTION

- 25 - 50
- 50 - 100
- 100 +
- SWAMP

Lead Geochemistry

GRID B	
Caribou Lake Property NORTHERN EMPIRE MINES LTD.	
ARCHER & CATHRO Consulting Geological Engineers	
DATE	12 July 1967
DRAWN	<i>[Signature]</i>
SCALE	1" = 400'
DWG. No 10	





ASSAYS IN PARTS PER MILLION
HOT ACID EXTRACTION

- 150 - 300
- 300 - 600
- 600 +
- SWAMP

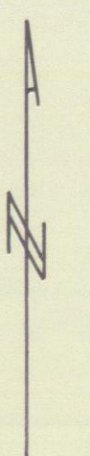
Zinc Geochemistry

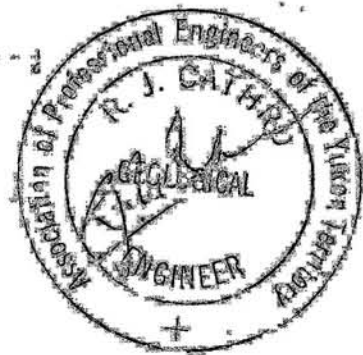
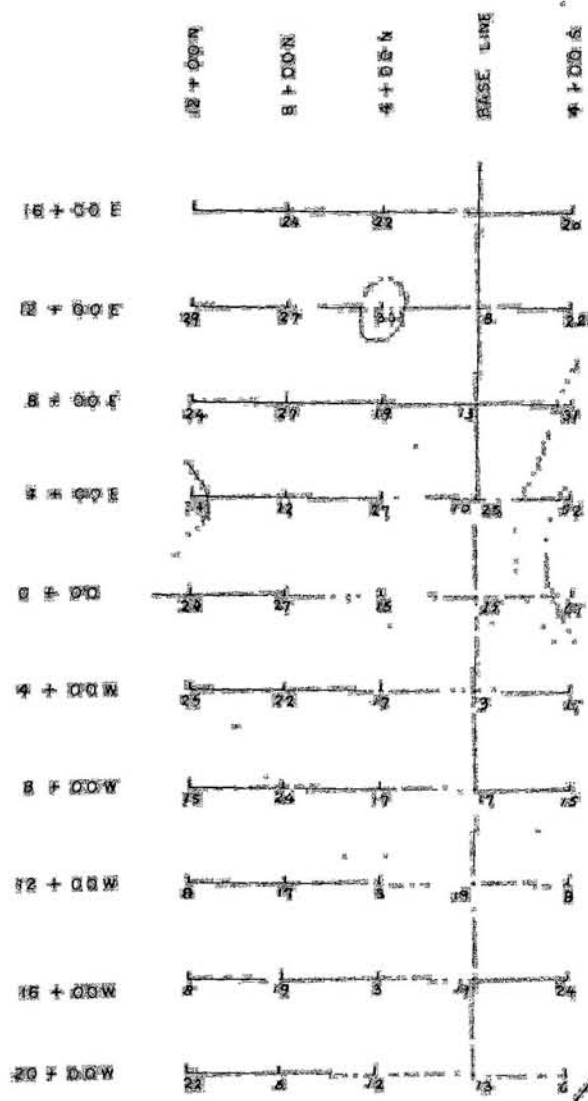
GRID B
Caribou Lake Property
NORTHERN EMPIRE MINES LTD.

ARCHER & CATHRO
Consulting Geological Engineers

DATE	6 July 1967
DRAWN	<i>[Signature]</i>
SCALE	1" = 400'

DWG. NO. //



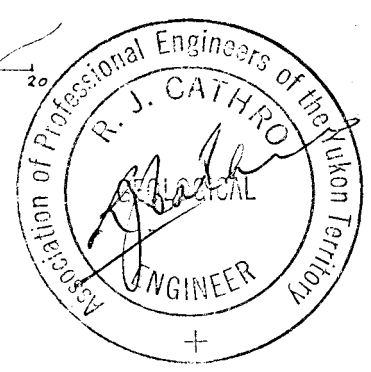
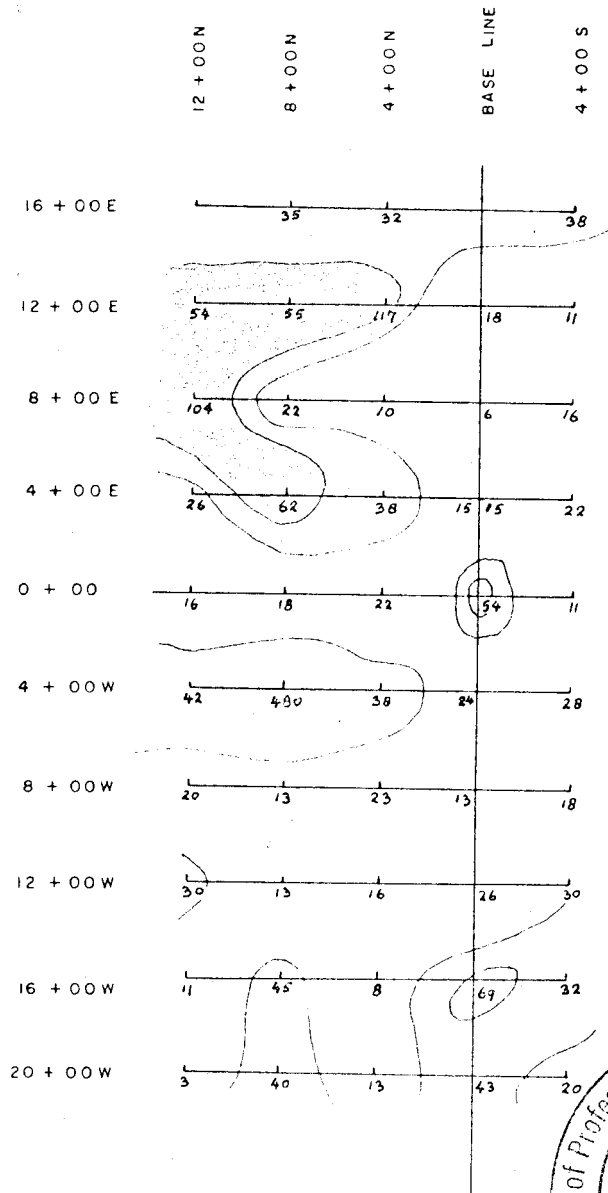


LEAD

ASSAYS IN PARTS PER MILLION
HOT ACID EXTRACTION

- 30 - 50 RPM.
- 50 + RPM.

GRID C		
NORTHERN EMPIRE MINES LTD. ANVIL - VANCOUVER DISTRICT		
ARCHER & CATHRO <i>Consulting Geotechnical Engineers</i>		
DATE	1st July 1967	DWG. No. 12
DRAWN	<i>[Signature]</i>	
SCALE	1" = 50'	

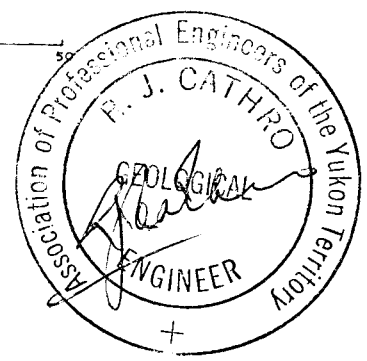
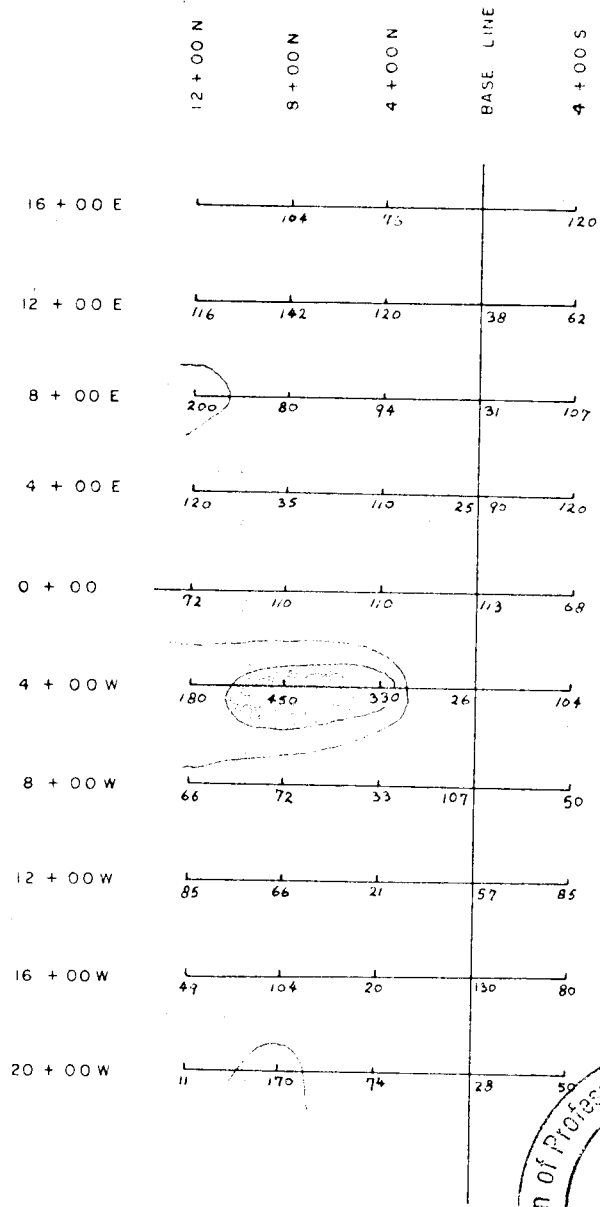


COPPER

ASSAYS IN PARTS PER MILLION
HOT ACID EXTRACTION

- - 30 - 50 PPM.
- - 50 + PPM.

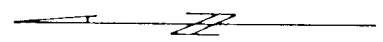
GRID C		
NORTHERN EMPIRE MINES LTD. ANVIL - VANGORDA DISTRICT		
ARCHER & CATHRO Consulting Geological Engineers		
DATE	15 July 1967	DWG. No. 13.
DRAWN	<i>A. Hommes</i>	
SCALE	1" = 800'	



ZINC

ASSAYS IN PARTS PER MILLION
HOT ACID EXTRACTION

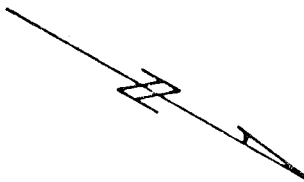
- - 150 - 250 PPM.
- - 250 - 500 PPM.
- - 500 + PPM.



GRID C NORTHERN EMPIRE MINES LTD. ANVIL - VANGORDA DISTRICT		
ARCHER & CATHRO <i>Consulting Geological Engineers</i>		
DATE	15 July 1967	DWG. No. 14.
DRAWN	<i>ADJ. Sommes</i>	
SCALE	1" = 800'	

Q 25, 16, 330

9+00S - Q 22, 28, 310



Q 25, 13, 157

6+00S - Q 6, 6, 25

Q 19, 16, 335

Q 22, 15, 107

Q 24, 35, 124

Q 15, 22, 35

Q 25, 16, 72

3+00S - Q 24, 11, 210

Q 15, 30, 80

Q 13, 10, 64

Q 15, 13, 74

Q 5, 3, 13

Q 13, 16, 30

BASE LINE - Q 15, 10, 34

Q 24, 42, 74

Q 13, 13, 35

Q 15, 18, 72

Q 6, 13, 33

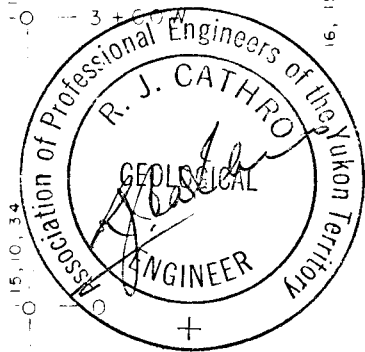
3+00S

15+00W

12+00W

9+00W

6+00W



16, 15, 150 - Assay in PPM. of Lead, Zinc, Copper respectively.

GRID D GEOCHEMISTRY

Caribou Lake Property
NORTHERN EMPIRE MINES LTD.

ARCHER & CATHRO
Consulting Geological Engineers

DATE	28 July 1967
DRAWN	<i>[Signature]</i>
SCALE	1:2000

DWG. No. 15.