ARCHER, CATHRO
AND ASSOCIATES LTD.
CONSULTING GEOLOGICAL ENGINEERS

WHITEHORSE, Y.T. 667-4415 — 6TH FLOOR, TWO BENTALL CENTRE, VANCOUVER, B.C. 688-2568

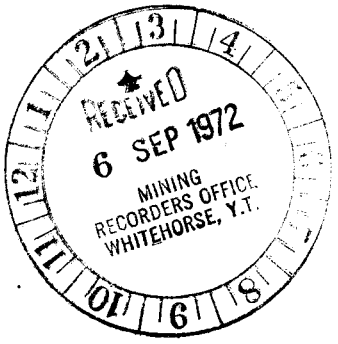
POST OFFICE BOX 4127
WHITEHORSE, Y.T.

REPORT ON

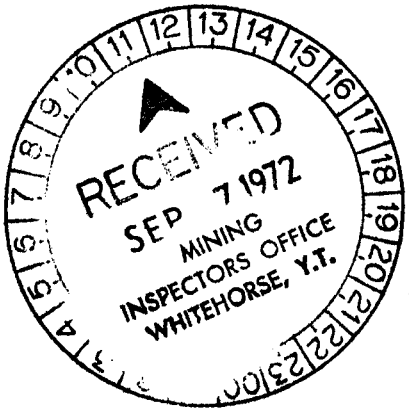
GEOCHEMICAL SAMPLING AND GEOLOGICAL MAPPING

AL 1-24 Mineral Claims

Latitude 62°39' Longitude 137°08'



Whitehorse Mining Division, Yukon



NORTHAIR MINES LTD.

20 July, 1972

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $3240.00

D. B. Craig
~~Resident Geologist~~ or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

~~Commissioner~~ of Yukon Territory
administrator

Alan R. Archer — Consulting Geological Engineer

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Figures in Pocket

INTRODUCTION

The A1 1-24 claims were explored by grid soil sampling and geological mapping during the period July 8 to 12, 1972. In addition, an area of open ground equivalent to eleven full-sized mineral claims, was similarly explored north of the A1 claims. The job was done under contract by Archer, Cathro & Associates Ltd. for Northair Mines Ltd. The field crew consisted of K. Carswell, D. Eaton, D. Bruce and J. Dickinson and supervision was provided by the writer, A.R. Archer.

The purpose of the program was to explore for copper rich zones similar to those being developed four miles to the southwest by Silver Standard Mines Ltd. and United Keno Hill Mines Ltd.

PROPERTY, LOCATION AND ACCESS

The property consists of 24 claims recorded at Whitehorse as follows:

Claim Names	Grant Numbers	Expiry Date
A1 1-24	Y63624-Y62647	27 October, 1972

Figure 1 in the pocket illustrates the position of the individual A1 claims as determined in the field plus the location of nearby claims. The Tuffy claims badly overlap the A1 claims but the A1 claims were staked first and take precedence. There is no overlap of the Dawson Range Joint Venture Pal and Ben claims that lie to the southwest or the Adera B claims that lie to the northwest. Claim tags were attached to the A1 claim posts while the baselines were being chained. The claim location lines were found to be well marked and easy to

follow.

Accessibility of the area to road traffic is illustrated in the insert in the upper right hand corner of each figure. Minto, the nearest point on the Klondike Highway, is about 150 road miles from Whitehorse.

GEOLOGY

Figure 2 illustrates areas where scattered outcrops were located or where "near outcrop" irregular bedrock fragments were found in soil sample pits. The most continuous area of outcrop is in a shallow canyon cut by the creek which flows through the centre of the claim block. All outcrop and float is composed of Jurassic or later granitic rocks somewhat similar to those in which the mineral zones occur on the Silver Standard Mines Ltd. and United Keno Hill Mines Ltd. properties. It is coarse grained, strongly foliated and contains about 15 per cent biotite and hornblende with biotite predominant. In general, the composition varies from a granite to a quartz monzonite or diorite in a west to east direction. The outcrop along the creek exhibits strong north-striking jointing, often spaced as close as two foot intervals, that dips about 75 degrees west. It also exhibits weak alteration of hornblende to chlorite and considerable hematite staining due to alteration of magnetite. Based on the regional geological setting, highly altered andesitic Triassic volcanics or syenites were expected on the eastern side of the claims. However, these were not seen and granitic float and minor outcrop

was found as far east as the steep cut bank facing the Yukon River.

There is no evidence of any significant Pleistocene glaciation except for a few glacial erratics near the top of the bluff facing the Yukon River. Topography is subdued and featureless except for the shallow creek canyon and a few northwest-trending ridges toward the eastern portion of the claims.

Vegetation is usually large spruce trees with scrub spruce and poplar on southern slopes. Several swampy areas, as illustrated on Figures 3 and 4, were encountered, in which soil sampling was difficult.

GEOCHEMICAL SAMPLING

General

The known mineralized areas west of the Al claims consist of gneissic to schistose zones, within the Jurassic or later intrusion, that vary from a few feet to several hundred feet in width. They usually strike northwest and occur in sub-parallel groups. Mineralization consists of bornite, chalcopyrite, chalcocite and traces of pyrite and molybdenite. Weathering results in conversion of copper sulfide to copper oxide with little change in grade. Mobilization of copper in ground water is minimal and stream sediment sampling is ineffective unless the stream happens to cut across a zone. Soil sampling, however, has proven to be a very effective preliminary way of detecting mineralized zones through deep residual overburden

even in areas with an additional light cover of glacial till. A soil sample grid spacing of 400 feet by 400 feet on the known properties would have located all areas of interest. The best indicator metal is copper although weak associated silver and molybdenum values are occasionally obtained. Copper background in the district ranges from 10 parts per million (ppm) to 40 ppm, sometimes rising to 70 ppm in the Triassic volcanics. Threshold is about 40 ppm and values of at least 100 ppm and often more than 1000 ppm are obtained over or near mineralized areas, providing an unusually strong contrast. Swampy or organic-rich areas have a tendency to act as copper collectors and often return values 10 to 30 ppm higher than regional background.

Technique

The corner of the Al 11 to 14 claims was chosen as the zero east and zero north point. Baseline B (zero north) was chained east and west along the claim line and three foot lath pickets established at 400 foot intervals. Each lath was marked with the Baseline letter and the co-ordinate in multiples of 100 feet. For example, a lath on Baseline B located 2400 feet east of the zero point would be marked BL B, 24E. Tie lines were chained south from Baseline B to the southernmost claim line at 1200 feet east and 5200 feet east to establish Baseline A which was chained and picketed similarly to Baseline B. The zero tie line was extended 2800 feet north and Baseline C established to provide control for soil sampling the unstaked ground. The field position of the

claim posts was determined while chaining the baselines and the appropriate claim tag nailed to each post. Ground control was provided by government airphotos enlarged to 1000 feet to the inch.

Soil samples were taken at 400 foot intervals by pace and compass between the 400 foot stations on the baselines. Soil sample locations were marked with an 18 inch lath picket with the appropriate co-ordinate number (i.e. - a soil sample picket 800 feet north of 40E on Baseline B would be marked 40E 8N) and the soil sample bag number printed on the lath with a black felt pen. Figure 3 shows the soil sample bag number for each point and this map would provide the simplest method of relocating the relative position of any soil sample picket in the field. The soil sample points on Figure 3 and 4 are shown as best possible in their true location. A pace and compass traverse that wandered slightly between baselines is drawn in a straight line from the starting position to the actual finishing position. The tie lines, baselines and soil sample lines were well marked with orange glow flagging.

Soil samples were obtained by digging to a B or B plus C horizon with a mattock. Samples were collected in pre-numbered Kraft envelopes and air expressed to Chemex Labs Ltd., North Vancouver, B.C. Each sample was assayed for copper, molybdenum and silver by atomic absorption spectrometry of a nitric-perchloric extraction of a minus 80 mesh fraction. Sample

splits will remain in storage at Chemex for five years in the event that analyses for additional elements are required in the future. Samples from swampy areas vary from fair to poor quality because of the high organic content. Such areas are outlined with a dashed line on Figures 3 and 4. A total of 460 samples were taken and analysed out of a theoretical maximum of 490 for a 400 by 400 foot spacing on 35 full size claims.

Interpretation

Other than the few swampy areas previously mentioned, sample conditions were good. Most of the samples were obtained from a B horizon that varied from a buff to red brown color. A few of the samples near outcrops were taken from a B plus C horizon. A typical soil profile is several inches of moss and/or organic debris underlain by one to eight inches of peaty material above the B horizon.

Figure 4 illustrates soil sample assays in ppm. Samples exceeding the detection limit of less than 1 ppm molybdenum or less than 0.5 ppm silver are plotted in brackets under the copper value. There are no samples with silver or molybdenum assays that approach threshold values. There are no areas of anomalous copper values but there are several areas of above threshold values of interest. The most interesting is found in the northwest portion of the sampled area. Here, above threshold values occur in a northwest linear trend for a length of two thousand feet. Although the response is not

strong, it is substantiated by adjoining higher than average background values and it follows the trend of the known mineralized zones in the district. Two small areas of adjoining above threshold values, one at 6400 east on Baseline C and the other at 4000 north on tie line zero, would be worth investigation if equipment was available on the property. Most of the remaining above threshold values occur as single erratics with no well defined trend and do not justify further work.

CONCLUSIONS AND RECOMMENDATIONS

The area of above threshold copper response in the northwestern portion of the sampled area may indicate a zone of mineralization. The response is too weak to justify a large scale program of follow-up work but does justify several bulldozer trenches if one of the bulldozers presently being operated in the area can be obtained for a few days. If a bulldozer is brought to the property one trench should be cut across the area of weak response at 6400 east on Baseline C and at 4000 north on tie line zero. The total cost of such a program including field mobilization, camp cost and supervision is estimated at $5,000.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES LTD.

A.R. Archer, B.A.Sc., P.Eng.

ARA:st

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POST OFFICE BOX 4127
WHITEHORSE, Y.T.

In Account With
Northair Mines Ltd.
July 22, 1972

Contract soil sampling and geological mapping of AL 1-24 claims - total $3,240.00

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES LTD.

A.R. Archer

ARA:st

Affidavit

I, M.P. Phillips of Box 4127, Whitehorse make oath and say:- That to the best of my knowledge and belief the attached statement of expenditures on the AL 1-24 mineral claims is true and accurate.

M.P. Phillips

Sworn and submitted to
at Whitehorse this
6 day of Sept.

Notary Public, Yukon

ADERA
MINING
B CLAIMS

YUKON

SWAMPY RIVER BENCH

STEEP BLUFF

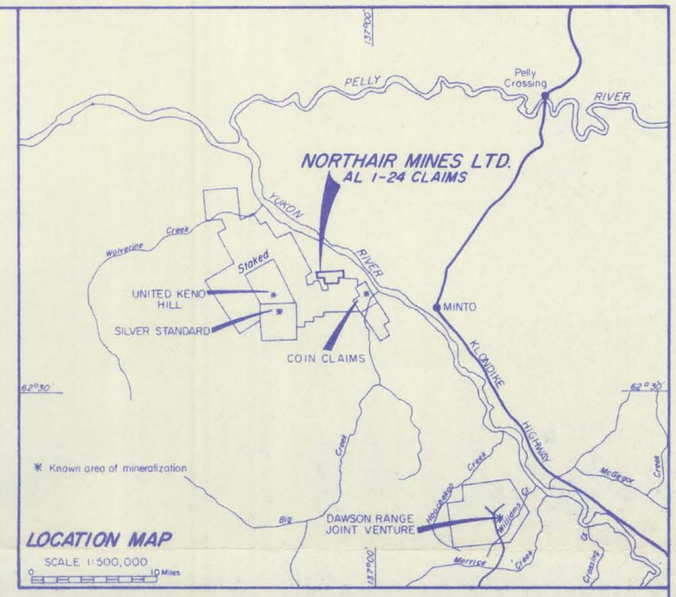
RIVER

AL 16	AL 14	AL 12	AL 10	AL 8	AL 6	AL 4	AL 2
AL 15	AL 13	AL 11	AL 9	AL 7	AL 5	AL 3	AL 1

AL 18	AL 20	AL 22	AL 24
AL 17	AL 19	AL 21	AL 23

TUFFY CLAIMS

DAWSON RANGE JOINT VENTURE
PAL & BEN CLAIMS



LEGEND

☐ Claim post(s)

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GEOLOGICAL ENGINEER

FIG. 1

ARCHER CATHRO & ASSOCIATES LTD.

CLAIM LOCATION MAP

NORTHAIR MINES LTD.

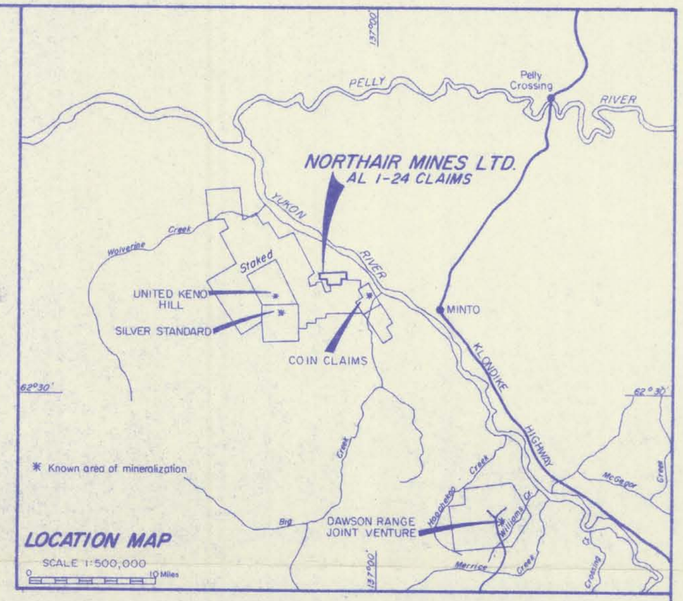
AL 1-24 CLAIMS

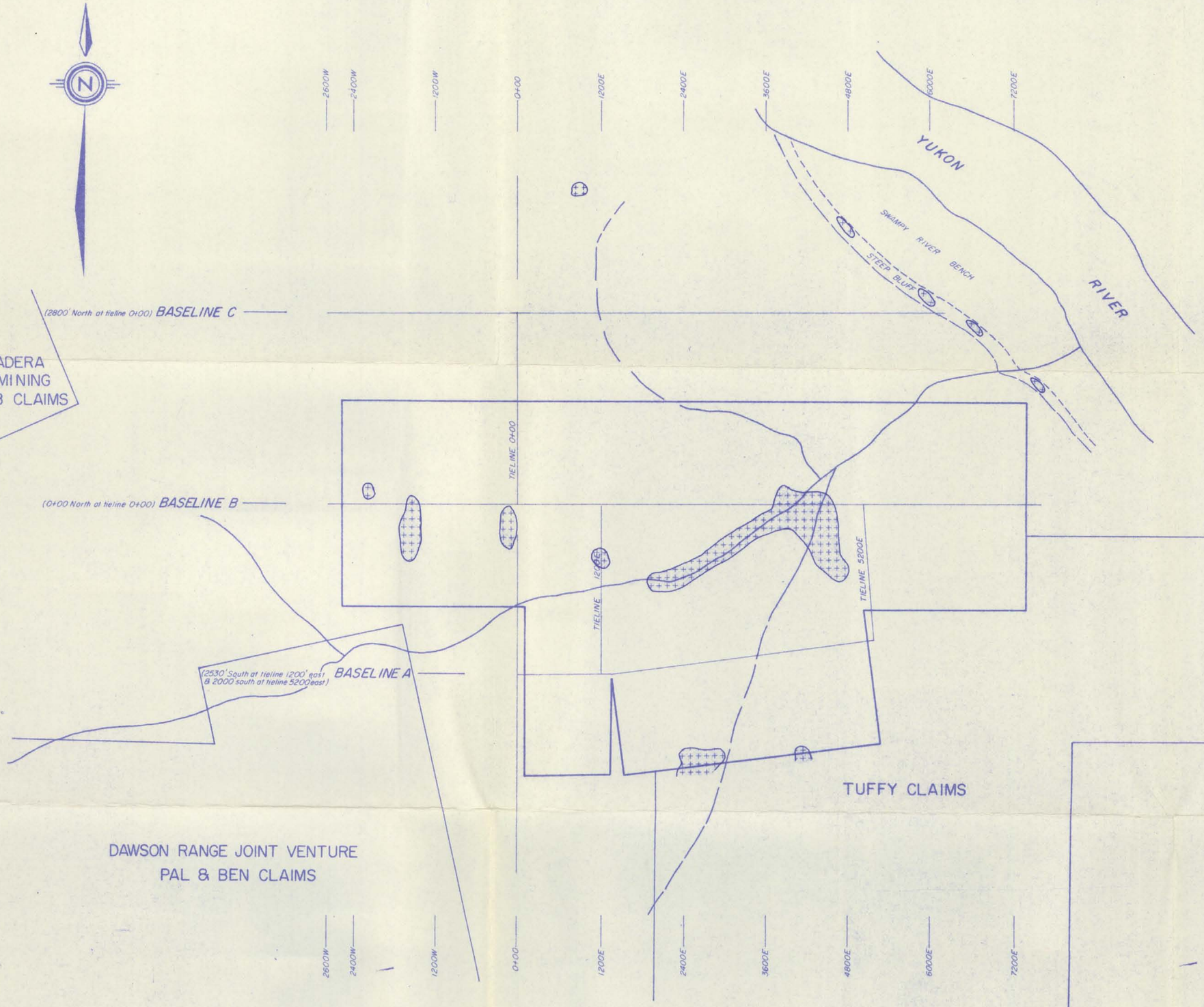
MINTO AREA, YUKON

SCALE 1" = 1000'

1000 0 1000 2000 3000

To accompany report by A. Archer dated July 20, 1972





AGE

GEOLOGY

JURASSIC or LATER INTRUSION — Grades from granodiorite to diorite from west to east. Medium to coarse grained, well foliated and biotite rich. Weak chloritization and epidote.

LEGEND

Area of outcrop or numerous outcrops or where bedrock fragments found in sample pits.

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GEOLOGICAL ENGINEER

FIG. 2

ARCHER CATHRO & ASSOCIATES LTD.

GEOLOGY

NORTHAIR MINES LTD.

AL 1-24 CLAIMS

MINTO AREA, YUKON

SCALE 1" = 1000'

1000 0 1000 2000 3000

To accompany report by A. Archer dated July 2nd, 1972

(2800' North at tieline 0+00) BASELINE C

ADERA MINING B CLAIMS

(0+00 North at tieline 0+00) BASELINE B

(2530' South at tieline 1200' east & 2000' south at tieline 5200 east) BASELINE A

DAWSON RANGE JOINT VENTURE PAL & BEN CLAIMS

TUFFY CLAIMS

YUKON RIVER

SWAMP

SWAMP RIVER BENCH

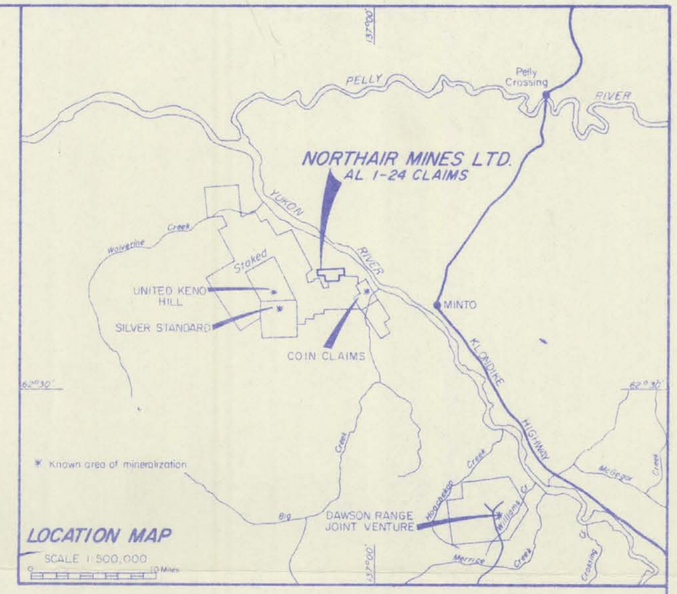
STEEP BLUFF

TIELINE 0+00

TIELINE 1200E

TIELINE 5200E

2600W 2400W 1200W 0+00 1200E 2400E 3600E 4800E 6000E 7200E



LEGEND

------Areas difficult to sample

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FIG. 3

ARCHER CATHRO & ASSOCIATES LTD.

SAMPLE LOCATIONS

NORTHAIR MINES LTD.

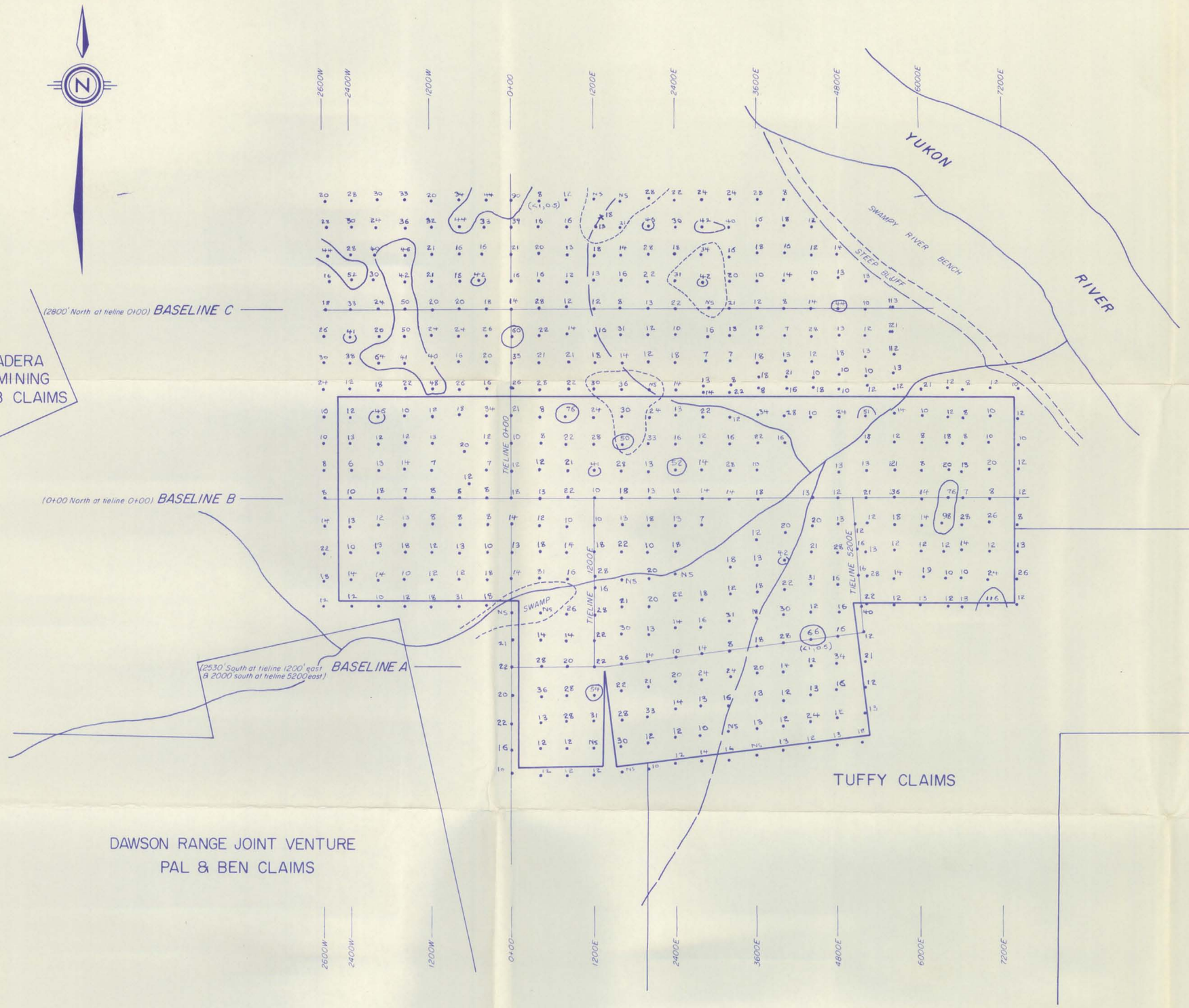
AL 1-24 CLAIMS

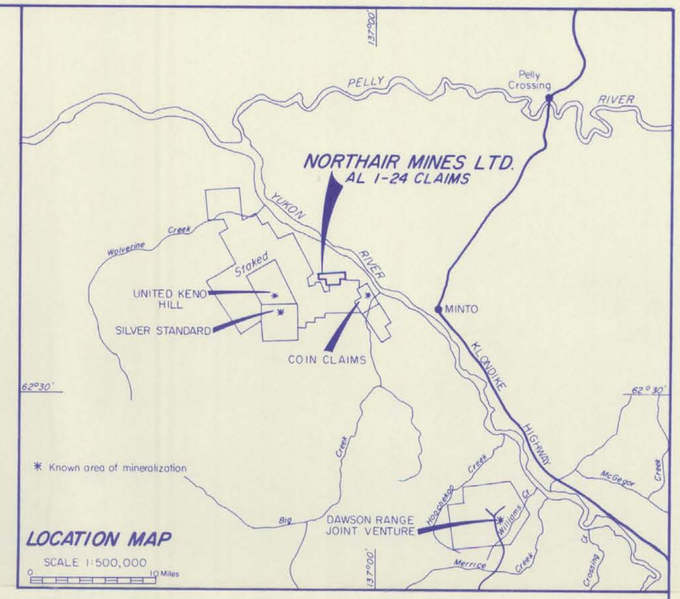
MINTO AREA, YUKON

SCALE 1" = 1000'

1000 0 1000 2000 3000

To accompany report by A. Archer, dated July 20, 1972





LEGEND

- 20 — Sample value for copper in parts-per-million
- (2,<0.5) — Sample value of molybdenum, silver in parts-per-million. All points with molybdenum and silver assays not shown, assayed <1 ppm molybdenum and <0.5 ppm silver
- 70 — Copper values above threshold for area
- Areas difficult to sample

SAMPLES ASSAYED BY CHEMEX LABS LTD, NORTH VAN, analyses by atomic absorption spectrometry of a hot acid extraction

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GEOLOGICAL
ENGINEER

FIG. 4

ARCHER CATHRO & ASSOCIATES LTD.

COPPER, MOLYBDENUM & SILVER GEOCHEMISTRY

NORTHAIR MINES LTD.

AL 1-24 CLAIMS

MINTO AREA, YUKON

SCALE 1" = 1000'

1000 0 1000 2000 3000

To accompany report by A. Archer dated July 20, 1972