Suite 8, 1131 ... St., Vancouver, B.C. ... Telephone ...

ARCTIC ...

GEOLOGICAL, GEOCHEMICAL AND DIAMOND DRILLING REPORT

ON THE

CAB MINERAL CLAIMS

Latitude 64° 59'N Longitude 132° 17'

MAYO MINING DISTRICT, Y.T.

AND

MACKENZIE MINING DISTRICT, N.W.T.

N.T.S. 106-C-15/16 AND 106-F-1/2

CANADA

Work Conducted: May 18, 1974 - December 31, 1974

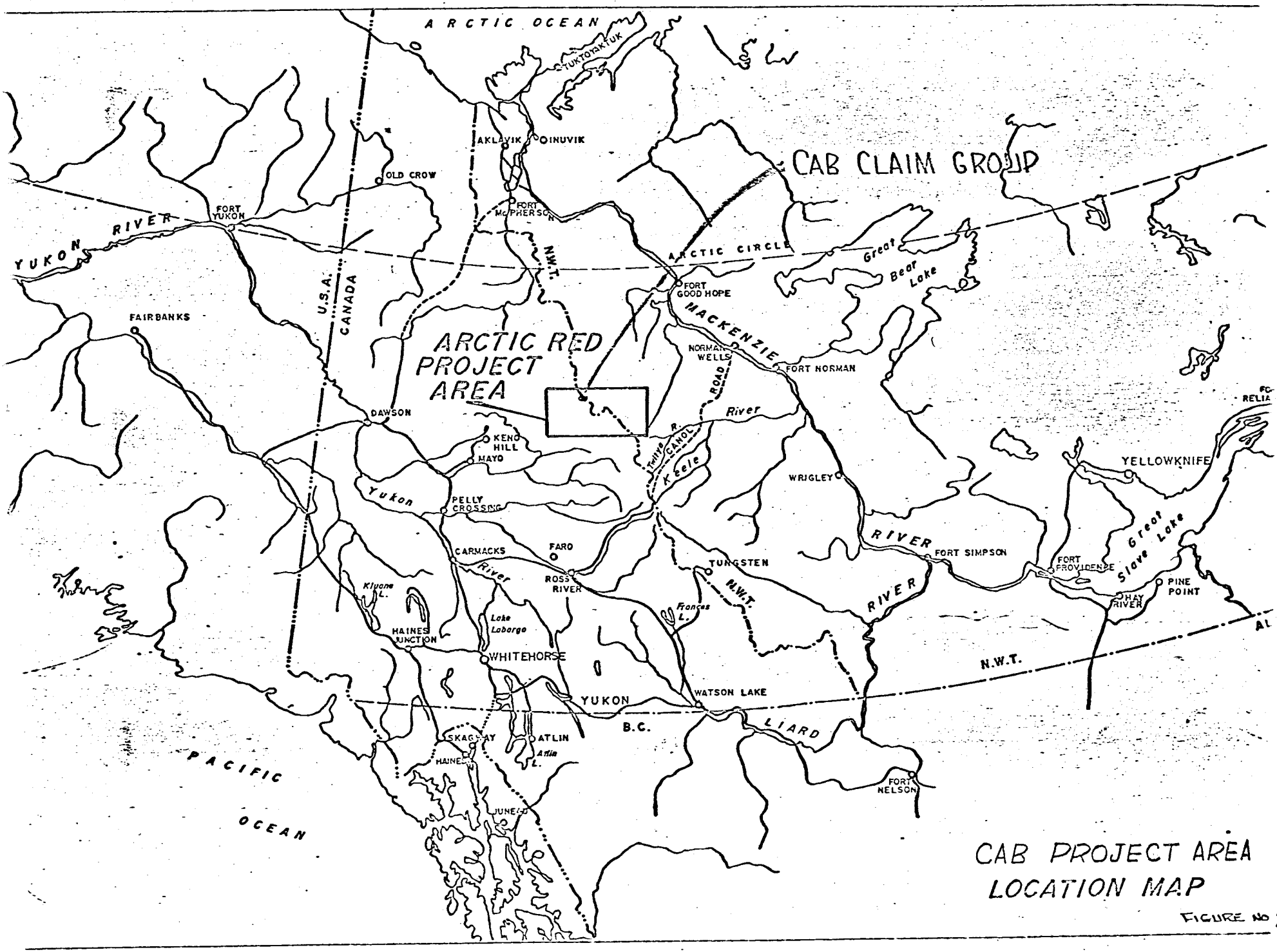
by

...

and

...

February 24, 1975



CAB PROJECT AREA
LOCATION MAP

FIGURE NO 1

CAB MINERAL CLAIMS

LIST OF CLAIMS

N.T.S. 106-C-15/16 & 106-F-1/2

MAYO MINING DISTRICT	Grant Numbers	Recording Date
CAB 5-8	Y89133-Y89136	July 12, 1974
CAB 11-14	Y88992-Y88995	July 8, 1974
CAB 15-18	Y89137-Y89140	July 12, 1974
CAB 50-223	Y95029-Y95202	Aug. 5, 1974
CAB 224-351	Y96315-Y96442	Aug. 22, 1974

TOTAL 314 Mineral Claims

MACKENZIE MINING DISTRICT, N.W.T.		
CAB 1-4	A56755-A56758	July 8, 1974
CAB 9-10	A56771-A56772	July 8, 1974
CAB 19-60	A86231-A86262	Aug. 19, 1974
CAB 353-369	A90753-A90769	Sept. 6, 1974

TOTAL 65 Mineral Claims

TOTAL CAB CLAIMS -	Yukon Territory	314
" " "	Northwest Territories	65
	TOTAL	379

CAB MINERAL CLAIMS

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CAB PROJECT AREA

INTRODUCTION

The CAB No. 1 Mineral Zone was discovered by Welcome North Mines Ltd., on behalf of the Arctic Red Joint Venture in May, 1974. Continued prospecting in the same year led to the discovery of additional mineral occurrences in the vicinity and to the eventual formation of the CAB Project Area.

CAB No. 1 and 2 zones were the subject of a 1,134 foot diamond drill program in the fall of 1974. This initial drilling failed to intersect economic sections of zinc.

In spite of the disappointing drill results, the authors consider the CAB Project Area, including zones 1 and 2, to warrant the further exploratory program recommended herein.

SUMMARY AND CONCLUSIONS

The CAB No. 1 Zone was discovered, in the course of reconnaissance prospecting in late May of 1974, by Mr. Pete Risby, Chief Prospector, Welcome North Mines Ltd.

The zone consists of a 1,500 foot train of zinc-rich float located on a talus slope and interspersed with isolated rock outcrop or near in-place frost heaved mineralized rubble, all within Sekwi Formation. The weakly mineralized western end of the zone is exposed in the bedrock of a creek cut at the slope base. Surface evidence indicates the presence of a stratiform zinc deposit which warrants additional exploration.

Subsequent prospecting along the trend of the CAB 1 host rock led to the discovery of the CAB No. 2 Zone, some 2 miles to the west, by Mr. A. John in July, 1974. Mr. John's discovery coincident with a visit by the Arctic Red Management Committee led to a decision for immediate drilling of that zone. The original 18 mineral claim block was expanded to the present total of 379 claims which covers approximately 15 miles along the favourable strike length of Sekwi rocks.

The CAB showings were examined and, in part, mapped by various geologists assigned to the project during the 1974 field season, but the overall claim group received little exploratory attention subsequent to staking.

Three BQ diamond drill holes were drilled on the principal known CAB zones in September, 1974; one hole, 328 feet in length, on the CAB No. 1 Zone, and two holes, totalling 806 feet, on the CAB No. 2 Zone. This drilling did not intersect zinc mineralized sections equivalent to those that are apparent at the surface of the respective zones. The drill results present something of an enigma but it can be concluded from the results that the CAB mineral occurrences are much more geologically complex than initially thought.

Detailed geological mapping with survey base control is recommended for CAB zones 1 and 2 in 1975. Trenching by conventional or ground sluice methods to increase exposure is also considered important to an understanding of the deposits. In addition, a program of geologically controlled prospecting, geological mapping and silt and soil geochemistry is recommended for the CAB Project Area. Possible future drilling should await the completion of this program.

LOCATION AND ACCESS

The CAB Project Area straddles the border between the Yukon and Northwest Territories, 140 miles to the north-east of Mayo, Yukon Territory, and 170 miles to the west of Norman Wells, Northwest Territories (Figure 1). The approximate coordinates are: latitude 64° 59'N. and longitude 132°27'W.

Access to the area can be gained by helicopter from Mayo or Norman Wells, or by fixed-wing aircraft to Guildersleeve Lake (elevation 4,000 feet) which lies within a few thousands of feet of the property and can facilitate aircraft up to Twin-Otter capacity.

The known CAB showings range in elevation from 4,500 to 5,500 feet. They occur in the rugged Backbone Range of the Mackenzie Mountains which trends east-westerly but is in the area cut by a series of southerly flowing headwater tributaries of the Arctic Red and Snake rivers. Bedrock exposure is largely restricted to the abovementioned stream courses or to the upper reaches of mountain slopes; the intermediate slopes being largely talus and scree covered.

MINERAL CLAIMS

The CAB Project Area consists of the following 379 contiguous located mineral claims in the Mackenzie Mining District of the Yukon Territory (Plate No. 1):

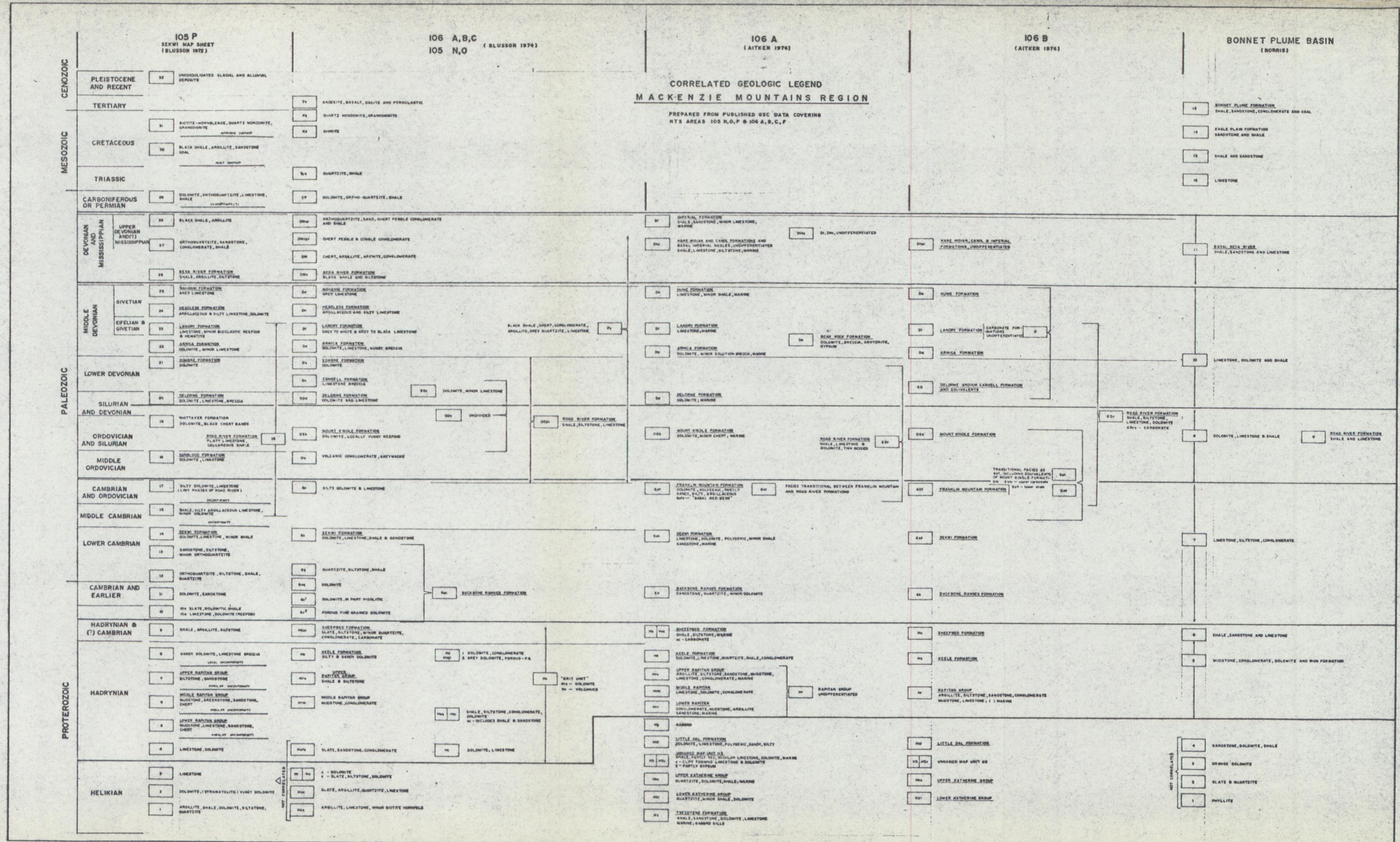
CLAIMS	GRANT NUMBERS	RECORDING DATE
MAYO MINING DISTRICT		
CAB 5- 8	Y89133-Y89136	July 12, 1974
CAB 11- 14	Y88992-Y88995	July 8, 1974
CAB 15- 18	Y89137-Y89140	July 12, 1974
CAB 50-223	Y95029-Y95202	Aug. 5, 1974
CAB 224-351	Y96315-Y96442	Aug. 22, 1974
	TOTAL 314 Mineral Claims	
MACKENZIE MINING DISTRICT		
CAB 1- 4	A56755-A56758	July 8, 1974
CAB 9- 10	A56771-A56772	July 8, 1974
CAB 19- 60	A86231-A86262	Aug. 19, 1974
CAB 353-369	A90753-A90769	Sept. 6, 1974
	TOTAL 65 Mineral Claims	

TOTAL CAB CLAIMS - Yukon Territory	314
- Northwest Territories	65
TOTAL	379

REGIONAL GEOLOGY

The CAB mineralization occurs in Sekwi Formation which is locally 3,000 feet thick, according to recently published preliminary geology maps (Open File #205) by the Geological Survey of Canada. The Sekwi Formation is described as being composed of, "an interbedded sequence of brown and orange weathering thin bedded dolomite, grey and buff mottled limestone, brown shale and sandstone", (G.S.C. Open File #205, June, 1974).

The Sekwi Formation is overlain by Ordovician-Silurian shales and the Road River Formation composed of black shale, siltstones and minor argillitic limestones. A comparison may be made here between the Sekwi of the CAB and that of the AB group. The Sekwi of the AB group is unconformably overlain by Road River shales and argillitic limestones, while 5 miles to the southwest, the Sekwi of the CAB group is followed by Ordovician-Silurian dolomites and limestones. The Road River shales overlie this latter group to complete the succession. (Reference is made to Map 106C, Open File #205, in the region of the CAB and AB groups.) This carbonate-shale succession is downthrown against a southerly-trending fault exposing Hadrynian, Sheepbed and Rapitan formations in the southwest. On a broader, more regional scale, the claim area is centred in a large Silurian-Devonian carbonate basin downfaulted to the northeast against Hadrynian carbonates (Figure 2).



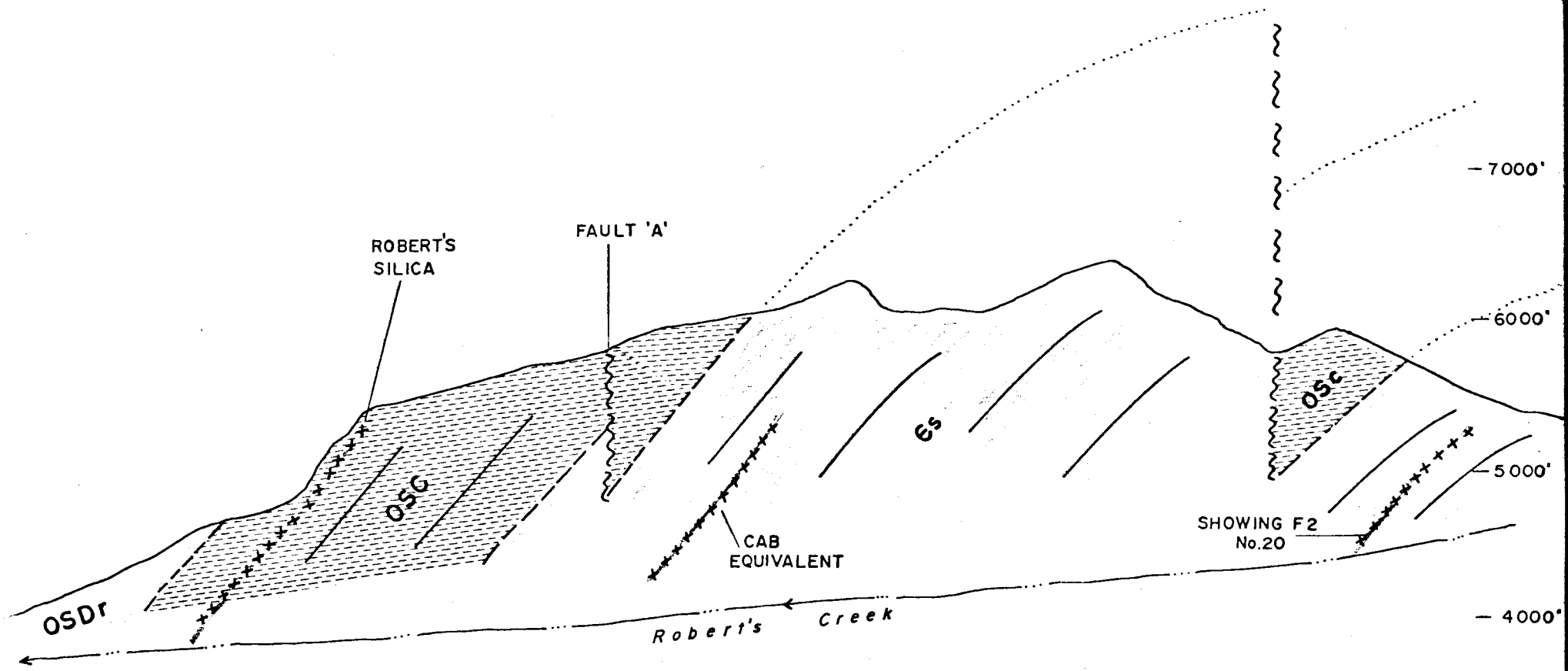
CORRELATED GEOLOGIC LEGEND
MACKENZIE MOUNTAINS REGION
PREPARED FROM PUBLISHED GSC DATA COVERING NTS AREAS 105 N,O,P & 106 A,B,C,F
105 P SEKWI MAP SHEET (BLUSSON 1972)
106 A,B,C 105 N,O (BLUSSON 1974)
106 A (AITKEN 1974)
106 B (AITKEN 1974)
BONNET PLUME BASIN (NORRIS)
CENOZOIC
MESOZOIC
PALEOZOIC
PROTEROZOIC
PLEISTOCENE AND RECENT
TERTIARY
CRETACEOUS
TRIASSIC
CARBONIFEROUS OR PERMIAN
DEVONIAN AND MISSISSIPPIAN
UPPER DEVONIAN AND(?) MISSISSIPPIAN
MIDDLE DEVONIAN
GIVETIAN
EIFELIAN & GIVETIAN
LOWER DEVONIAN
SILURIAN AND DEVONIAN
ORDOVICIAN AND SILURIAN
MIDDLE ORDOVICIAN
CAMBRIAN AND ORDOVICIAN
MIDDLE CAMBRIAN
LOWER CAMBRIAN
CAMBRIAN AND EARLIER
HADRYNIAN & (?) CAMBRIAN
HADRYNIAN
HELIKIAN
NOT CORRELATED

PROPERTY GEOLOGY AND MINERAL OCCURRENCES

The CAB Project Area is underlain by a sequence of sedimentary rocks ranging in age from lower Cambrian to Devonian. Within the area, this sequence is repeatedly down faulted to the north by a series of east-westerly trending faults which in composite comprise the regional tectonic lineament. The majority of known zinc occurrences within the project area occur within dolomitic rocks of the Sekwi Formation. This formation forms a linear belt which strikes throughout the 15 mile length of the claim group (Figure 3 and Plate 2).

The general lithologic sequence within Sekwi, in proximity to the mineralized horizon, has been studied in some detail in the area of the CAB No. 1 Zone. The following description and lithologic units, while particularly pertinent to the CAB No. 1 area, can be applied with varying degrees of accuracy to the CAB No. 2 Zone and to other mineral occurrences within the project area. The units noted are illustrated on CAB No. 1 Zone Geology (Figure 4).

Locally, the Sekwi Formation is regular and well controlled. Dip angles closely follow an azimuth of 210^{o} with dips of 30^{o} to 50^{o} to the southwest. The mineralized bed within map unit 2 is overlain by a tough weathering, orange-brown to light grey dolomite (map unit 3) which forms a hard, resistant caprock to the softer, lower formation. This latter formation, as mapped, is about 700 feet thick and overlies map unit 1, a sequence of shaley, muddy and dolomitic limestones of undetermined thickness.



(LOOKING WEST)

REGIONAL SECTION A - A'

xxxxxx STRATIGRAPHIC POSITIONS ONLY

FIG. 3

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

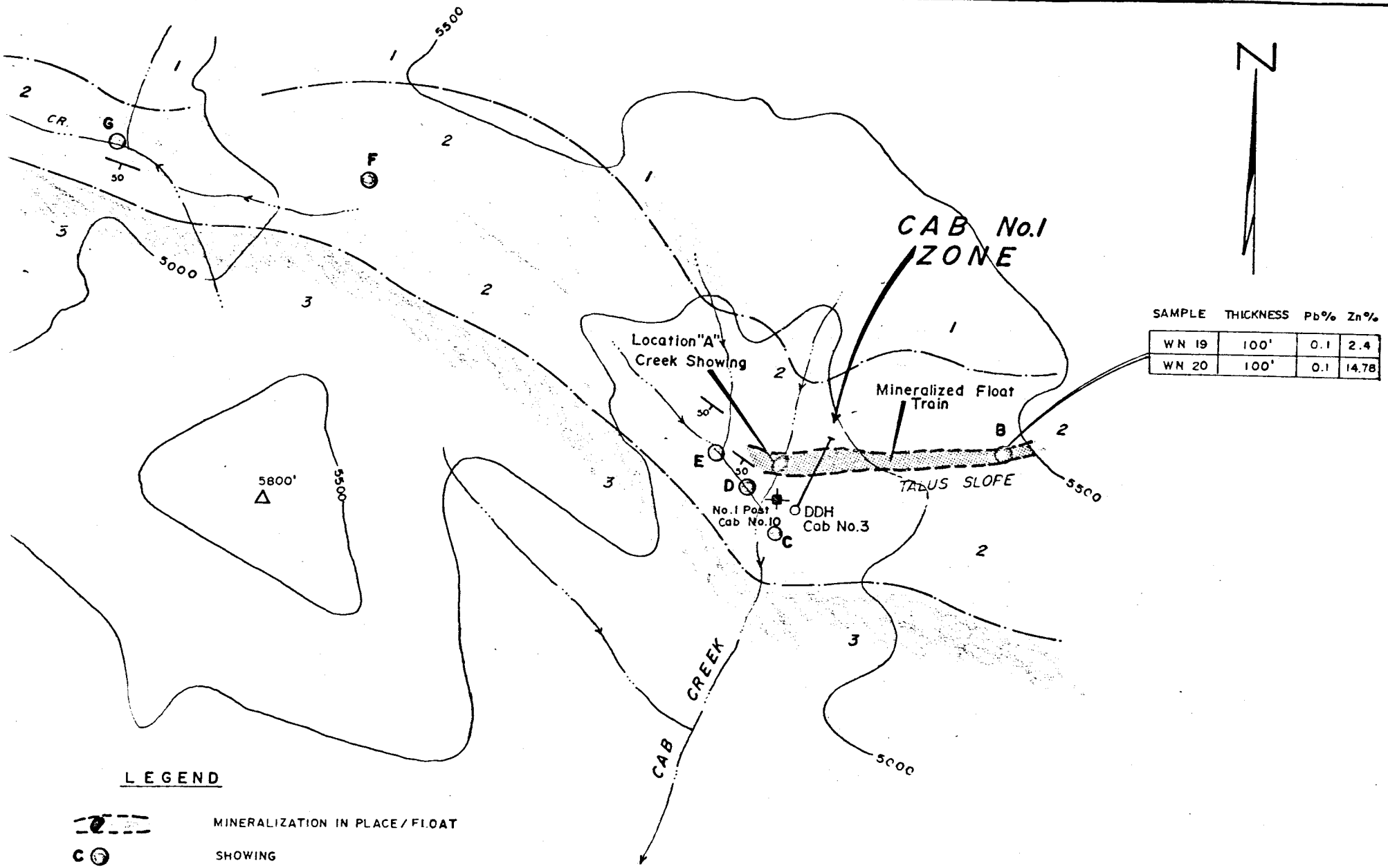
CAB MINERAL CLAIMS

NTS 106 F/2, C/16

GEOLOGICAL SKETCH - SECTION AA

SCALE 1" = 1000'

DEC. 1974



SAMPLE	THICKNESS	Pb%	Zn%
WN 19	100'	0.1	2.4
WN 20	100'	0.1	14.78

LEGEND

- MINERALIZATION IN PLACE / FLOAT
- C — SHOWING
- CONTACT

MAP UNIT

- 1 — GREY TO ORANGE WEATHERING DOLOMITIC LIMESTONE
- 2 — GREY WEATHER. DOLOMITIC LIMESTONE
- 3 — FLAGGY LIMESTONES, SHALES & DOLOMITES

SCALE IN FEET
0 500 1000

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT
CAB PROJECT AREA
CAB No.1 ZONE
GEOLOGY

REVISED: JAN. 12, 1975

FIG. 4

Map Unit 1 is a light grey to red-orange and brown weathering dolomitic limestone. Some argillite bands.

Map Unit 2 consists of a light grey dolomitic limestone, occasionally mottled and flaggy. Deep red-brick weathering surface on some of the talus debris which derives from this formation. Minor breccia zones (occasionally with sphalerite in disseminations). Also disseminated sphalerite in a hard, grey dolomitic limestone as part of the main showing. Semi-massive to massive bedded sphalerite up to 3 inches in thickness separated by barren bands. Locally vuggy dolomitic limestone and muddy bedded limestones +700 feet thick.

Map Unit 3 is made up of an interbedded sequence of flaggy limestones, shales and dolomites, grey and dark brown in weathered surface. Locally muddy, well bedded dolomitic limestones.

The main tectonic trend is N.120°E., both for faulting and regional strike. Locally, tectonic lineaments and faults may be traced over 15 miles. Cross faulting usually postdates the regional fault trend and commonly strikes N.030°E. The creeks in the project area cut through the underlying rock at an approximate azimuth of 030°, following fracture patterns found in outcrop. These latter fractures are generally vertical or steeply dipping to the east, and are a preferred direction for erosion by the creeks.

Zinc is the principal metal found. Sphalerite, smithsonite and hydrozincite are common to all of the occurrences within the project area with galena, barite, pyrite, calcite, quartz and fluorite being accessory minerals.

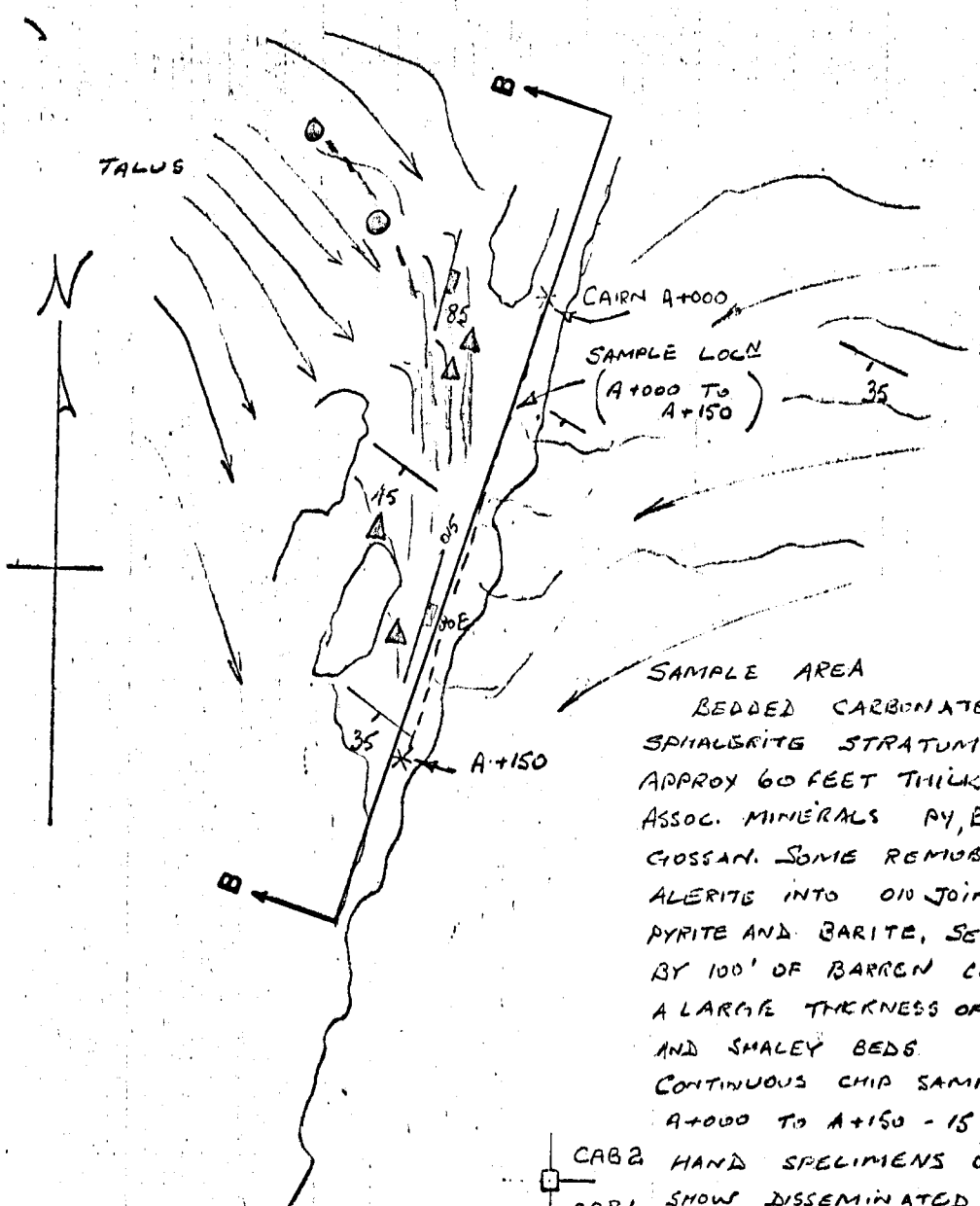
The zinc most commonly occurs as sphalerite bands parallel to the bedding in dolomitic host rocks. This manner of occurrence is in many cases, however, accompanied by a later, remobilized, coarse crystalline sphalerite, which in company with barite, quartz or calcite fills fractures and voids associated with the deposits.

At present there are two known main mineral deposits within the CAB Project Area. These are termed the CAB No's. 1 and 2 Mineral Zones. Other occurrences are identified by N.T.S. indexed showing numbers or by local names. All known mineral occurrences in the area are illustrated on the CAB Project Area - Geology (Plate 2) and are more particularly described hereinafter.

CAB No. 1 Zone

The CAB No. 1 Zone consists of a zinc mineralized float train some 1,500 feet in length within a talus slope. Small, isolated, mineralized outcrop and near in-place patches of frost heaved rubble appear within the loose talus. The weakly mineralized westerly extension of the zone is exposed in the bedrock of Cab Creek at the base of the talus slope (location A, Figure No's. 4 and 5). The mineralization at this point is confined to a particular group of beds in map unit 2 and occurs as disseminations and layers, or as coatings with calcite in vuggy dolomitic breccia rock elsewhere in the succession. Some remobilization of sphalerite is found in 030° fractures with associated barite and pyrite. The latter (pyrite) forms distinctive gossans.

A sequence of samples taken along the west wall of the creek is illustrated in Section BB (Figure 6) and sample results are tabulated herein. The sample series 0001A to 0015A includes a 30 foot section which averages 4.8% combined lead-zinc. A later series of channel samples, taken over the same section, returned 4.2% combined lead-zinc over 25 feet for samples 0026A to 0028A inclusive. This latter sampling was repeated over the more difficult section of the earlier chip sampling survey which failed to reveal reasonable results in an obviously well mineralized area. The sphalerite in the Cab Creek wall is contained in a banded or bedded form within a hard, fine grained dolomite. A prominent gossan is associated with the main mineral concentration as well as with a more pyritic bed upsection from the main showing by



SAMPLE AREA

BEDDED CARBONATES (DOLOMITIC) SPHALERITE STRATUM CARBONATE APPROX 60 FEET THICK, EXTENT LARGE. ASSOC. MINERALS PY, Baryte, ep Limonite GOSSAN. SOME REMOBILIZATION OF SPHALERITE INTO 010 JOINTS WITH ASSOC. PYRITE AND BARITE, SEQUENCE UNDERLAIN BY 100' OF BARREN CARBONATES OVERLYING A LARGE THICKNESS OF BLACK CARBONATES AND SHALEY BEDS.

CONTINUOUS CHIP SAMPLE TAKEN FROM A+000 TO A+150 - 15 SAMPLES TOTAL

HAND SPECIMENS OF MINERALIZATION SHOW DISSEMINATED SPHALERITE IN DARK GREY CARBONATE, ALSO REMOBILISED SPHALERITE WITH ASSOCIATED BARITE IN 010 - 015 JOINT OPENINGS.

FEET
0 25 50

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

CAB PROJECT AREA

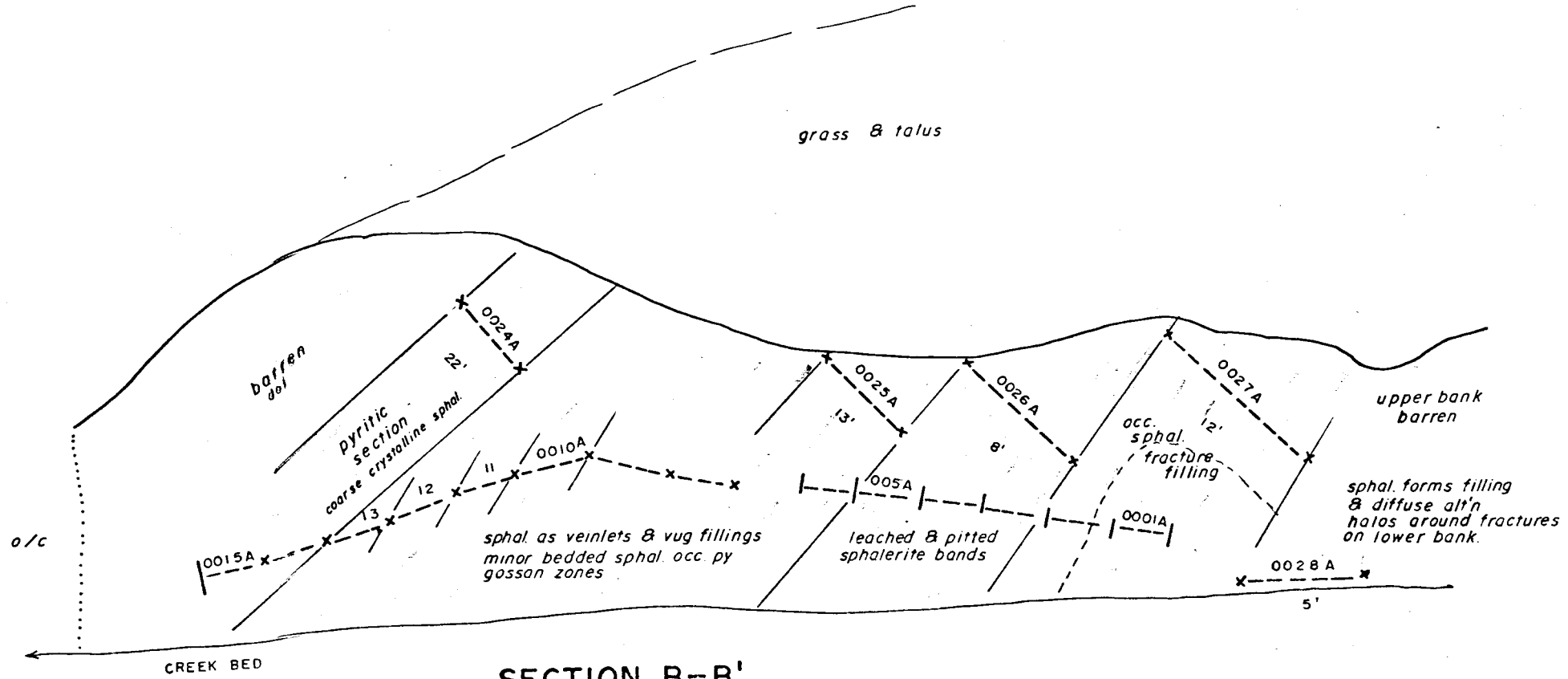
CAB No. 1 ZONE

CREEK SHOWING ("A")

DETAIL GEOLOGY

JAN. '75

FIG: 5



SECTION B–B'

SECTION LOOKING WEST

SAMPLE No.	LENGTH	% Pb	% Zn
0002A	10'	0.03	0.13
0003A	10'	Tr	0.40
0004A	10'	0.03	1.08
0005A	10'	Tr	0.39
0006A	10'	0.01	0.75
0007A	10'	0.03	0.64
0008A	10'	Tr	0.70
0009A	10'	0.01	0.08
0010A	10'	0.03	10.32
0011A	10'	0.03	1.08
0012A	10'	0.04	7.20
0013A	10'	0.03	0.86

SAMPLE No.	LENGTH	% Pb	% Zn
0014A	10'	0.01	0.19
0015A	10'	0.01	0.03
0024A	22'	0.05	3.90
0025A	13'	0.01	0.50
0026A	8'	0.01	3.18
0027A	12'	Tr	1.10
0028A	5'	0.01	13.13

FIG. 6

WELCOME NORTH MINES LTD.

CAB MINERAL CLAIMS

CAB No. 1 ZONE

SKETCH SAMPLE LOCATIONS

NOT TO SCALE

REVISED JAN. 7, 1975

about 50 feet (Figure 6). The main showing contains massive sphalerite as conformable layers up to 3 inches thick separated by more barren horizons.

Along strike and up dip in the talus slope to the east of Cab Creek, the sphalerite occurs as resinous semi-massive to disseminated blebs in a hard, dolomitic host which may assay up to 14.78% Zn (WN20, Assay Table, this report, and location B, Figure 4). This mineralized talus may be traced eastward from the creek for a distance of 1,500 feet up the talus slope. Mineralized talus blocks in this area contain much higher grades of zinc than any seen in the Cab Creek walls at point A. Gossans occur locally along this trace and may be attributable to the pyritic bed, mentioned earlier, which is upsection from the main showing by 50 feet. Barite may also be found locally along this trace. Although scattered mineralized float has been traced for 200 feet to the west of Cab Creek, no mineralization has been found in the second creek, 400 feet away. Overburden cover hampered further efforts at tracing the mineralized zone further to the west.

Mineralization found at locations G, F and B (Figure 4) is considered to belong to the same bedding sequence which contains the CAB No. 1 Zone. This correlation is confirmed by the examination of aerial photos covering the area. Thus, mineralization is discontinuously traceable along strike of the particular formation which includes the main showing for approximately 7,000 feet.

Other showings in the vicinity contain 1%-2% visually estimated zinc in sphalerite. Calcite is a characteristic associate, with sphalerite grains forming internal coatings in calcite-filled vugs and calcite fracture cement. The dominant host rock is a blue grey vuggy dolomite with a grey-brown to deep red weathering surface.

The following samples which were taken on the CAB No. 1 Zone are illustrated on Figure No.'s 4 and 6.

Sample Number	Width	Type	Sampler	Pb %	Zn %	Comments
WN 19	100'	Chip 2' talus	J.G.	0.01	2.40	"In-place" mineralized dolomite, location B, Fig. 4.
WN 20	100'	" " "	P.R.	0.01	14.78	Mineralized talus only, location B, Fig. 4.
WN0001	10'	Chip continuous	F.M.	Tr	0.46	Chip sample along wall of creek, location A, Fig.4, Sketch, Fig.6.
WN0002	10'	Chip	" "	0.03	0.13	" " " " " " " " " " "
WN0003	10'	" "	" "	Tr	0.40	" " " " " " " " " " "
WN0004	10'	" "	" "	0.03	1.08	" " " " " " " " " " "
WN0005	10'	" "	" "	Tr	0.39	" " " " " " " " " " "
WN0006	10'	" "	" "	0.01	0.75	" " " " " " " " " " "
WN0007	10'	" "	" "	0.03	0.64	" " " " " " " " " " "
WN0008	10'	" "	" "	Tr	0.70	" " " " " " " " " " "
WN0009	10'	" "	" "	0.01	0.08	" " " " " " " " " " "
WN0010	10'	" "	" "	0.03	10.32	" " " " " " " " " " "
WN0011	10'	" "	" "	0.03	1.08	" " " " " " " " " " "
WN0012	10'	" "	" "	0.04	7.20	" " " " " " " " " " "
WN0013	10'	" "	" "	0.03	0.86	" " " " " " " " " " "
WN0014	10'	" "	" "	0.01	0.19	" " " " " " " " " " "
WN0015	10'	" "	" "	0.01	0.03	" " " " " " " " " " "
WN0024A	22'	Channel	J.G.	0.05	3.90	" " " " " " " " " " "
WN0025A	13'	Channel	" "	0.01	0.50	" " " " " " " " " " "
WN0026A	8'	Channel	" "	0.01	3.18	" " " " " " " " " " "
WN0027A	12'	Channel	" "	Tr	1.10	" " " " " " " " " " "
WN0028A	5'	Channel	" "	0.01	13.13	" " " " " " " " " " "

Diamond Drilling - CAB No. 1 Zone

Diamond drill hole CAB #3 was drilled on the CAB No. 1 Zone during the period September 3 to September 4, 1974. A description of the hole and the results of the drilling are tabulated and discussed below and illustrated on the accompanying Figure No. 4 and 7. The drill logs with complete assay returns are appended to the report.

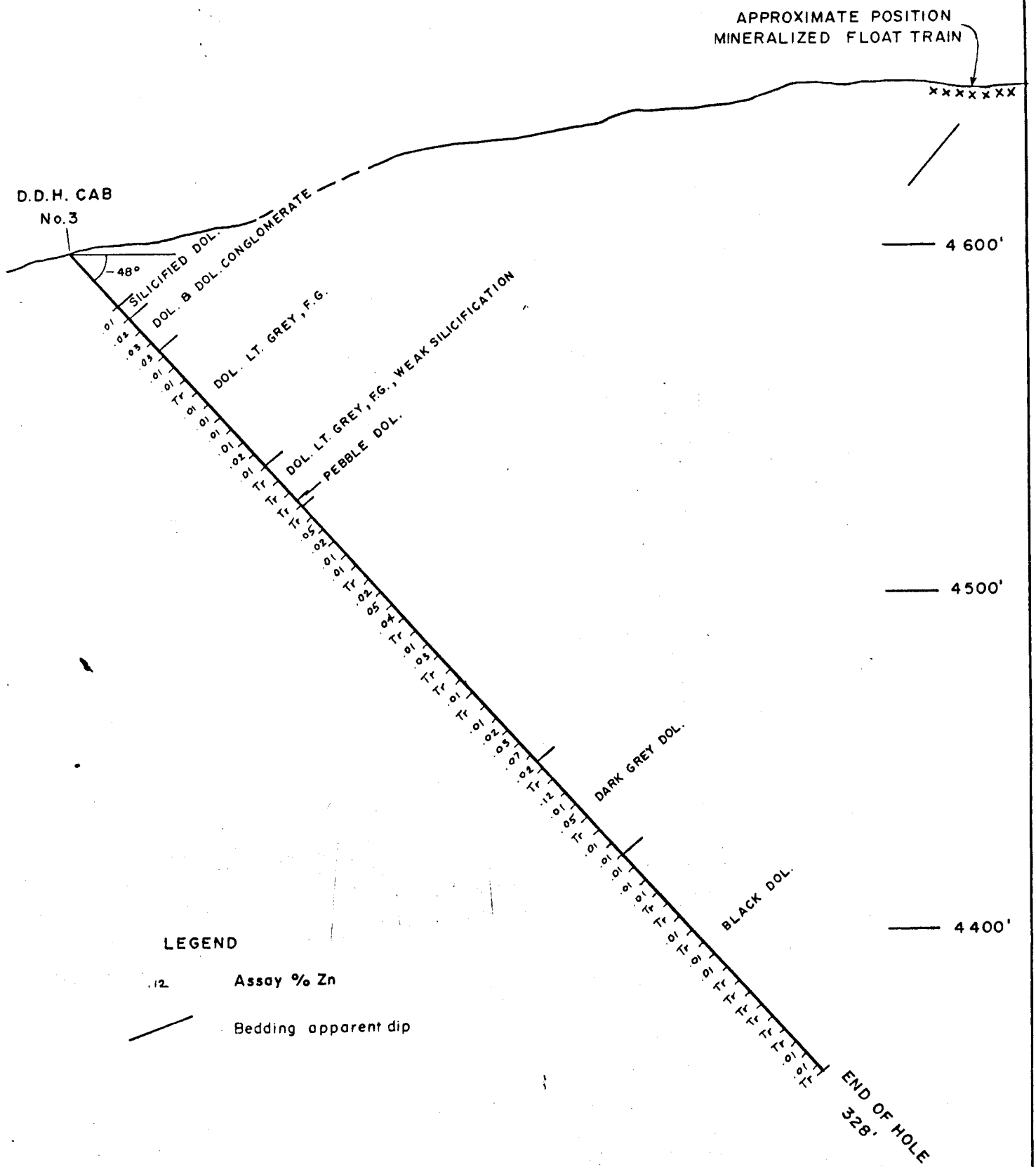
Diamond Drill Hole Location:

Hole No.	Length	Lat.	Long.	Brg.	Dip	Elev. Arbitrary	Location From C.P. #1 CAB #10 M.C.
CAB #3	328'	64°58'	132°27'	030°	-48°	460	120' Brg. 121°

Diamond drill hole CAB #3 failed to intersect significant zinc values. Satisfactory correlation of lithologic units between the core and surface is complicated by the presence of talus which masks all bedrock in the vicinity of the drill hole.

The hole was collared normal to and was sufficiently long to intersect a projection of the float indicated mineralized beds. As no zinc rich beds were intersected, it is concluded that the mineral occurrence, rather than being continuous along the strike of the sedimentary beds, is rather confined to runs ro pods elongate in the dip dimension of those beds. Further discussion of these conjectural conclusions are contained within the "CAB No. 2 Drill Results" section of this report.

More detailed surface mapping in conjunction with extensive trenching is recommended for the CAB No. 1 Zone in 1975.



LEGEND

.12 Assay % Zn

Bedding apparent dip

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

CAB PROJECT AREA

CAB No.1 ZONE

VERTICAL CROSS SECTION

D.D.H. CAB No.3

(BEARING 030°)

CAB No. 2 Zone

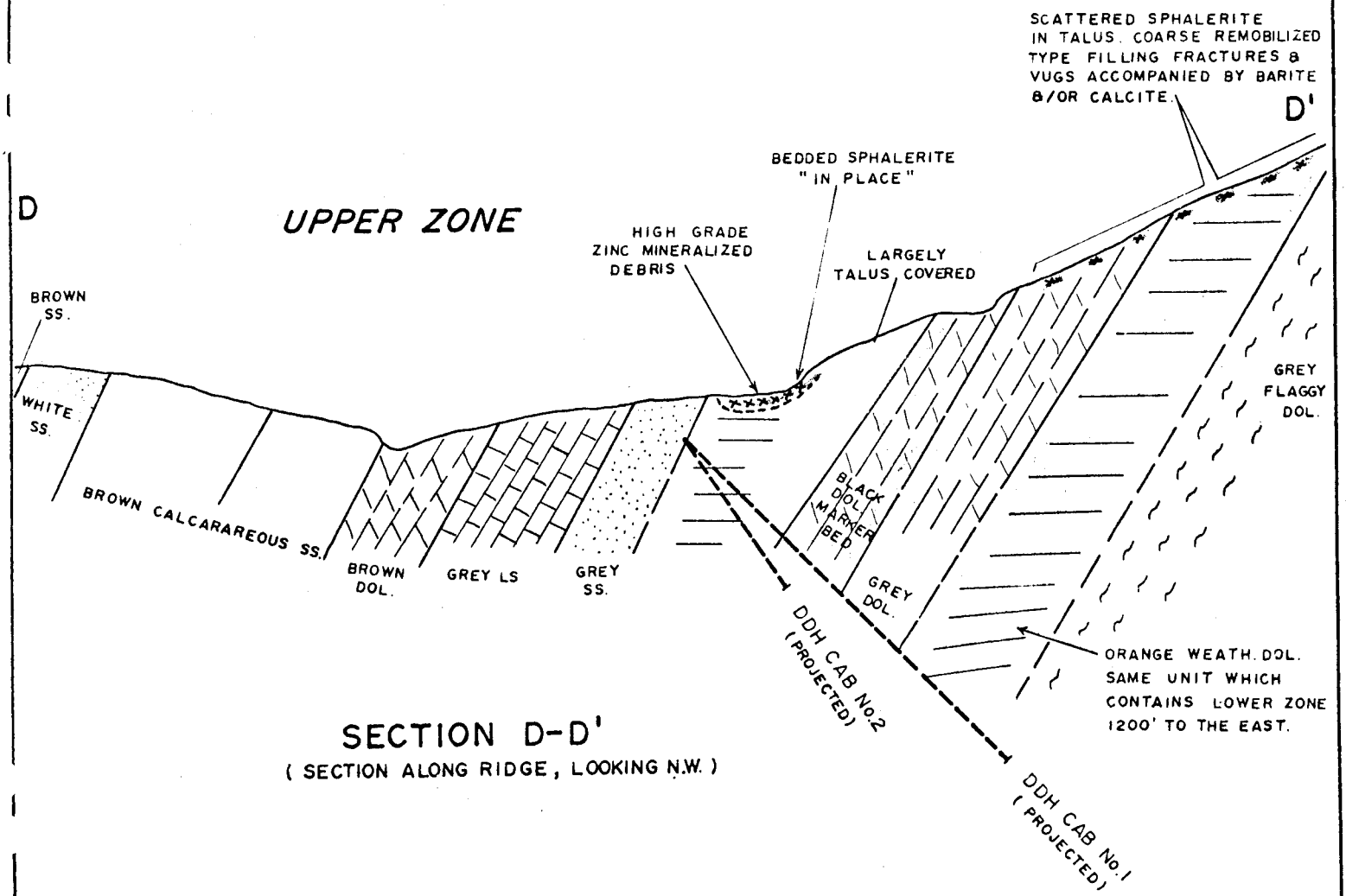
The CAB No. 2 Zone was discovered in the course of prospecting along the strike of the hostrock for CAB No. 1 Zone. The CAB No. 2 lies 13,000 feet to the west of CAB No. 1, and is believed to be contained within a lithologic unit which broadly correlates with said host rock (Plate 2).

For purposes of discussion, the CAB No. 2 Zone is sub-divided into an upper and a lower zone (Plate 3).

(A) CAB No. 2 Upper Zone

The CAB No. 2 Upper Zone lies in the hanging wall of a distinctive 75 foot thick resistant black dolomitic bed which locally serves as a marker horizon (Section DD' Fig. 8). Exposure of outcrop in the area of mineralization is restricted to approximately 5%. The mineral zone, which measures some 100 feet east-west and 300 feet up slope, consists mainly of loose zinc-rich rubble in talus and felsenmere. The latter appears near in-place. The rock in this rubble section is composed of about one-half mineralized material and one-half foreign talus from a higher elevation.

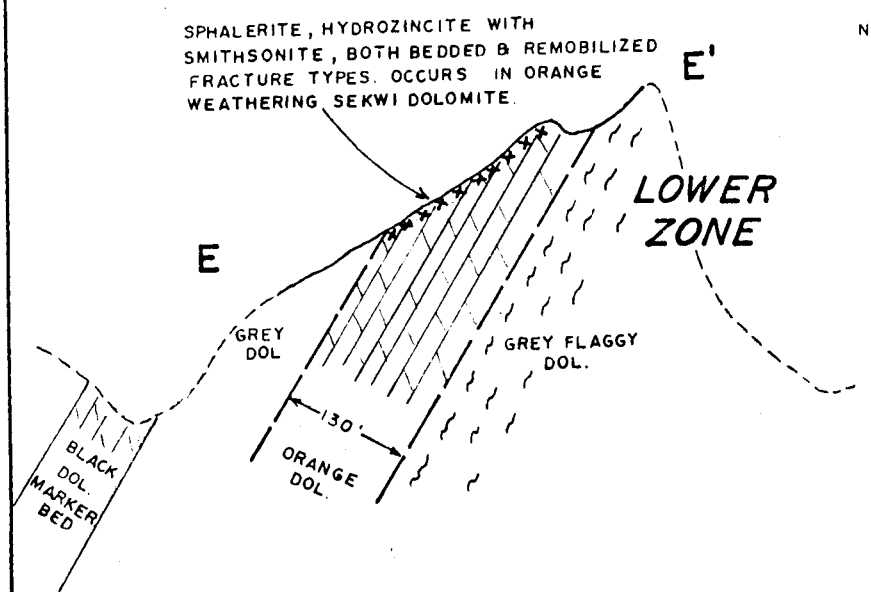
The main type of mineralization consists of fine inter-bands or beds of fine grained clear, near transparent sphalerite with barren medium crystalline dolomite. Typical specimens of this material assay in excess of 50% zinc. More coarsely crystalline greenish coloured remobilized sphalerite which co-habits fractures and vugs with calcite and/or barite is also an important mode of occurrence. Whitish hydrozincite forms stains and crusts on most of the rock fragments which contain zinc. Similar mineralization, although of lower



SECTION D-D'

(SECTION ALONG RIDGE, LOOKING N.W.)

NOTE : MODIFIED AFTER GEOLOGY BY G. CARGILL.



SECTION E-E'

(LOOKING N.W.)

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

CAB MINERAL CLAIMS

CAB No. 2 ZONE

SECTION D-D', E-E'

SCALE 1" = 200' JAN 7, 1975

FIG. 8

grade, can be found in only one small outcrop. Possible strike extensions to the zone are masked by talus cover both to the east and the west.

The following samples which were taken on the CAB No. 2 Upper Zone are illustrated (Plate 3):

Sample Number	Sample Designation	Sample Length	Pb %	Zn %	Comments
0052	A	38'	Tr	0.79	Bedrock chip.
0053	B	20'	0.10	1.60	Bedrock chip.
0054	C	150'	0.01	8.40	Rubble chip (includes foreign talus)
0061	D	Specimen	0.03	52.70	Character specimen.
0062	E	Specimen	0.03	54.50	Character specimen.
0055	F	15'	Tr	5.76	Bedrock chip.
-	G	-	-	3.97	Chip - G. Cargill.
0056	H	Grab	0.04	1.04	Random grab.
0051	I	25'	0.01	1.36	Bedrock chip.

As this zone is composed mainly of loose material, meaningful samples can only be obtained after the trenching program recommended herein is accomplished.

Diamond Drilling - CAB No. 2 Upper Zone

During the period August 28th to September 2nd, 1974, 806 feet of BQ diamond drilling in two holes was conducted on the CAB No. 2 Upper Zone. A description of the holes and the results of this drilling are tabulated below and illustrated on the accompanying drawings (Figure No's 9 and 10 and Plate No. 3). The drill logs with complete assay information are appended hereto.

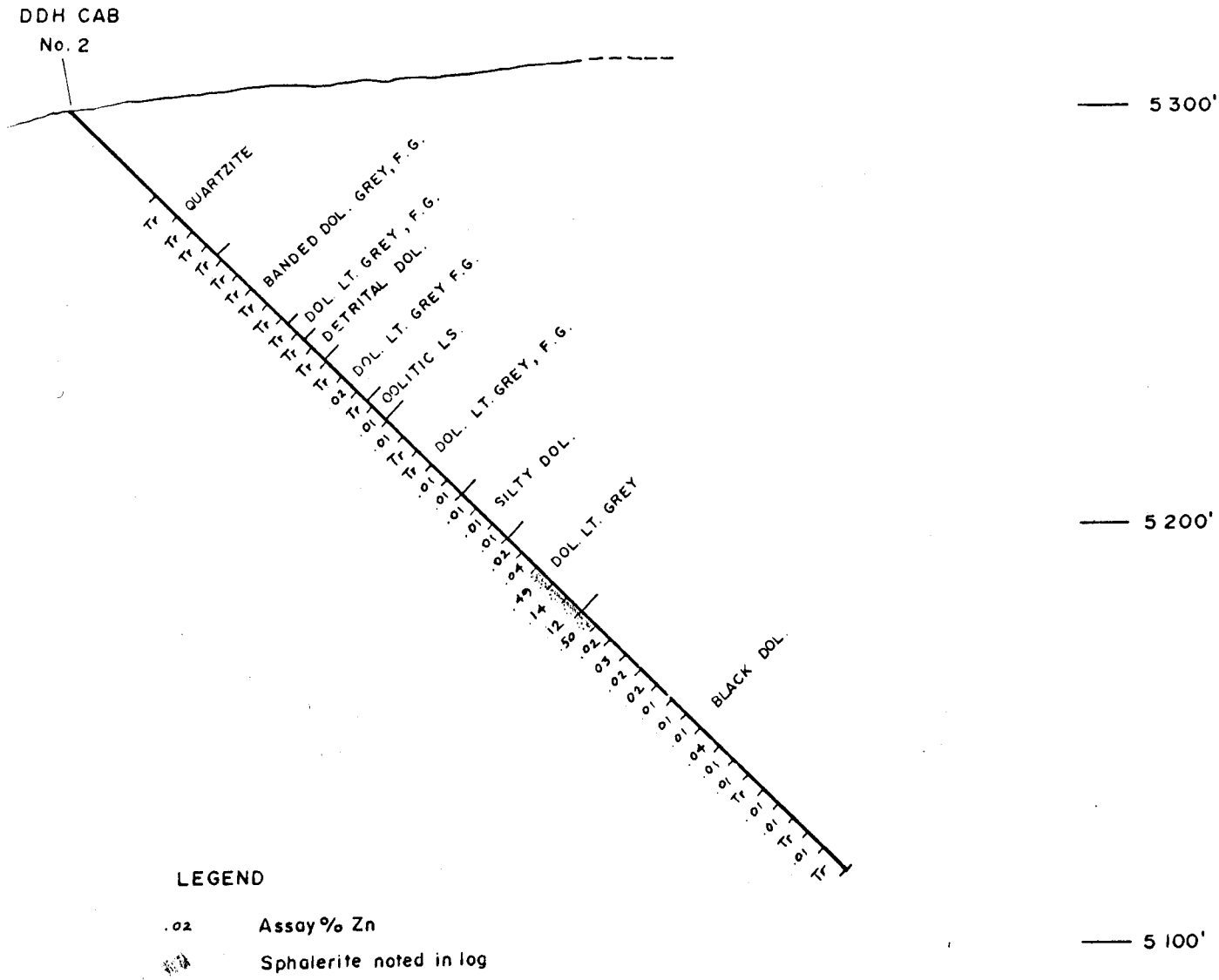
Diamond Drill Hole Descriptions

Hole No.	Length	Lat.	Long.	Brg.	Dip	Elev. Arbitrary	Location From C.P. #1 CAB #146 M.C.
CAB #1	548'	64°59'40"	132°31'	017°	-45°	5,300'	106' Brg. 275°
CAB #2	258'	64°59'40"	132°31'	331°	-45°	5,300'	107' Brg. 274°

Significant Diamond Drill Hole Assays

Hole No.	From	To	Interval	Av. Assay % Zinc
CAB #1	105'	115'	10'	0.63
	180'	225'	45'	1.02
CAB #2	155'	175'	20'	0.31

Neither of the holes drilled on the CAB No. 2 Upper Zone intersected zinc sections which appear to correlate with overlying, relatively high grade mineralization seen at surface.



LEGEND

.02 Assay % Zn

Sphalerite noted in log

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

CAB PROJECT AREA

CAB No. 2 ZONE

VERTICAL CROSS SECTION

DDH CAB No. 2

(BEARING 331°)

SCALE 1" = 40' JAN '75 FIGURE 10

Hole CAB #1 collared normal to the bedding, was drilled sufficiently deep to penetrate the underlying grey and orange weathering beds which host the CAB No. 2 Lower Zone. The 45 foot section assaying 1.02% zinc, noted above, appears to correlate closely with the mineralization seen at the surface up dip from the drill intersection.

Hole CAB #2, in addition to missing the upper zone, was too short to intersect the underlying host rock for the lower zone.

Lack of exposure at the surface prohibits any detailed correlation of rock units between the drill core and surface.

It is concluded that the CAB No. 1 "Upper Zone" is limited in strike extent at least to the east of the surface showing. Conclusions regarding the westward strike and/or possible dip extensions cannot be confidently drawn from drill evidence.

It is postulated by the authors that the zinc mineralization of the CAB No. 2 Upper Zone, rather than forming a discrete laterally continuous layer in the sediments, actually is controlled by palaeo-topographic "runs" in the host rock. These "runs" which may form meandering or raking shoots in the sedimentary beds are further suggested by the surface configuration of the CAB No. 2 "Lower occurrence".

It is recommended that a program of trenching and survey controlled, detailed geological mapping be conducted on the CAB No. 2 Upper Zone prior to any future diamond drilling. In addition, any such drilling should consist initially of relatively short and closely spaced holes relative to known mineralized outcrop.

(B) CAB No. 2 Lower Zone

The most intense mineralization found in the CAB No.2 Lower Zone is contained within an orange weathering dolomite band some 130 feet in thickness. Less intense but similar mineralization occurs also in the grey weathering dolomite band which forms the hanging wall of the latter. The two bands appear locally to grade and interfinger one with the other (Plate 3).

The mineralization is exposed on a slope the angle of which very nearly coincides with the dip of bedding. The true thickness of particular beds and of the accompanying mineralization is, therefore, difficult to ascertain. Sections of stronger mineralization appear, however, to be contained within a segment of the orange weathering bed at least 50 feet in thickness. These sections form irregular and gradational outlines elongate in the dip dimension and more restricted along strike. The largest of these mineralized sections measures from 100 feet to 200 feet along strike but is exposed for a 'dip' length in excess of 400 feet. The dip dimension is limited at the top by erosion and at the bottom masked by the overlying relatively barren grey weathering bed, and is, therefore, open to additional projections. There is a suggestion that the zone may rake steeply to the east. The similar smaller zones of mineral concentration, depicted on Plate No. 3, are somewhat sketchy, as the complete exposed surface in this area contains varying degrees of zinc mineralization. The zones are, therefore, quite arbitrarily defined.

Zinc mineralization in the CAB No. 2 Lower Zone is mainly in the form of fine grained clear sphalerite "eyes" which are aligned and concentrated in bands parallel to the

bedding in the host rock. Approximately 40% of the zinc noted, however, is in the form of remobilized sphalerite which fills irregular fractures and voids in the host rock. This sphalerite is often coarsely crystalline or colloform, greenish in colour and associated with barite or calcite. Hydrozincite is ubiquitous throughout and smithsonite has developed locally.

Much of the exposed mineralized material is visually estimated to contain greater than 10% zinc. As the zone is exposed on a dip slope, surface sampling across the beds is difficult to impossible. The following surface samples were taken on the Lower Zone. Sample locations are indicated on accompany plan (Plate 3).

Sample Number	Sample Designation	Sample Length	Pb %	Zn %	Comments
	J	25'(4'T.T.*)	-	0.52	Chip, G. Cargill.
	K	20'(4'T.T.)	-	1.68	Chip, G. Cargill.
	L	10'(3'T.T.)	-	1.83	Chip, G. Cargill.
	M	15'(3'T.T.)	-	7.16	Chip, G. Cargill.
	N	22'(4'T.T.)	-	3.58	Chip, G. Cargill.
0057	O	30' T.T.	0.01	6.72	Bedrock chip.
	P	25'(5'T.T.)	-	3.58	Chip, G. Cargill.
0063	Q	Specimen	0.03	17.78	Character specimen.
0064	R	Specimen	0.01	7.68	Character specimen.
	S	8' T.T.	-	1.77	Chip, G. Cargill
	T	10' T.T.	-	0.24	Chip, G. Cargill.
	U	10' T.T.	-	5.22	Chip, G. Cargill.
	V	8' T.T.	-	2.03	Chip, G. Cargill.
	W	10' T.T.	-	0.45	Chip, G. Cargill.
	X	5' T.T.	-	2.70	Chip, G. Cargill

* T.T. - True thickness.

Zinc mineralization in the Upper and Lower CAB No. 2 Zones is very similar in physical character, although the former is higher grade. The Lower Zone appears larger although this impression may only be attributable to the greater exposure. Assuming the dimensions that are apparent on surface, i.e., 500' x 200' x 50', the Lower Zone could readily contain one-half million tons.

It has been suggested by visiting government geologists and others that the mineral zones that make up the CAB No.'s 1 and 2 Showings may represent the selective mineralization of palaeo-geomorphological features such as deltaic or river channels. This would explain the irregular zone outlines which trend in "runs" across the sedimentary layering rather than as tabular sheets parallel to beds.

Due to the difficulty of drill access, the Lower CAB No. 2 Zone was not diamond drilled in 1974. It is recommended that the zone be geologically mapped in detail with survey control, and that possible extensions be further prospected both locally and regionally. A small portable drill could be profitably utilized to sample the exposed zone and to test for further dip extensions.

OTHER MINERAL OCCURRENCES IN CAB PROJECT AREA

Other mineral occurrences within the CAB Project Area can be broadly grouped into those similar to the CAB No. 1 and No. 2 Zones within Sekwi Formation and those that occur in younger sediments.

In many cases the occurrences have received only brief and cursory examinations and in other only the initial prospectors descriptions are available. The following descriptions are extracts from field notes compiled to tabulate a part of the total 130 surface showings discovered during the 1974 field season. The showing locations are illustrated on the accompanying CAB Project Area - Geology (Plate 2) under names designated by sequential N.T.S. showing numbers or by local names.

Most if not all of the occurrences hereinafter described are worthy of more detailed examination and evaluation, especially in the context of any property-wide geological mapping and geochemical surveys which may in the future be undertaken.

(A) MINERAL OCCURRENCES WITHIN SEKWI FORMATION

The following mineral occurrences are those known within the project area, which occur within Sekwi Formation. Many have geological characteristics similar to the CAB No. 1 and No. 2 Zones and indeed in some cases they may represent extensions of the same broad mineral horizons. Since the Sekwi Formation is repeated by the regional fault set which traverses the property, mineral zones which lie to the north of the CAB 1 - 2 Zone trend may represent fault displaced segments of mineralization within the same stratigraphic horizons as those containing CAB 1 and 2 Zones. (See Section AA', Figure 3.)

106-F-2 #3

Large chunks of galena rich siliceous material, appears close to in-place and probably in creek bed, conformable to local bedding direction. Traceable for approximately 1,000 feet. Appears to occur within a Sekwi band which broadly correlates with the CAB No. 2 host rock.

Assays and specimens - none.

Interesting type of mineralization - fully warrants follow-up.

Note: This showing is located beyond the western limits of Plate No. 2 but is shown on Map 106-F-2 in Part I of this report.

106-F-2 #6 (Esau's Showing)

Located west side, 200 feet above main creek, traceable on ridge running normal to creek. Pete Risby comments, "Sphalerite in red to brown weathering Sekwi - float plentiful in main creek. In place - strike 120°, dip 50°S. Zinc bedded. Traceable length 300 feet - width 50 feet. Identical to CAB occurrences only much more limited in extent. Limits of shoot can be clearly seen."

Interbands of clear sphalerite following bedding planes, barren interbands, possibly 6% zinc across 50 feet. Appears to fringe out on either end. (faulted ?).

Assay - typical of lower grade material

#WN 42	0.03% Pb	3.24% Zn

Specimen - filed Vancouver Office.

Band should be followed along strike, good chance of possibly larger pods!

106-F-2 #15

Extension of 106-F-2 #6 which was originally thought to stop on its upper end, i.e. where Sekwi changes from orange red to grey. Art John followed E. Dick's showing (#6) beyond where it appeared to terminate and found another 1,000 feet of mineralization - low grade.

Assays and specimens - none.

Worth following further on strike.

106-F-2 #14

Exposed in small stream coming from cirque. Pyrite and pink sphalerite in dark grey coarse grained dolomite (sugary). Shattered and brecciated with pyrite-sphalerite-calcite healing. Best zone 200' x 15' thick. Talus covered, appears to be confined to beds dipping very gently to south. Containing-bed 100 feet thick, whole thing may be mineralized. Overlain by quartzite, hard grey weathering, interlain with maroon and black shales with minor oolitic L.S.

Zone appears related to a steep thrust fault which cuts approximately 200 feet to north.

Assay No.	Pb %	Zn %	Comments
WN 55	0.07	20.3	Specimen
1443	0.03	0.32	Chip 20' across mineralized bed.
1444	0.04	0.02	Specimen-pyrite no sphalerite.
1445	0.04	2.58	Specimen-pyrite with red sphalerite.

Specimen - filed Vancouver Office.

Difficult to follow up due to talus cover - probably not worth while.

106-F-2 #19

Pyrite and sphalerite in grey carbonate - found as float in creek. Breccia wall rock healed with pyrite and sphalerite. On strike of favourable band. Should be followed up.

Sample No.	Pb %	Zn %	Comments
WN 59	0.05	14.14	Brecciated dolomite with pyrite and sphalerite matrix.

Specimen - filed Vancouver Office.

Never examined - worthy of examination.

106-F-2 #20

White calcite, associated amber sphalerite, minor tetrahedrite in orange to red weathering Sekwi dolomite. Three Sekwi bands with interbedded cherts. Located in flat plateau above creek. In place - length 300 feet into talus - width 100 feet.

Selected specimen ran 0.01 Pb, 9.36% Zn.

Examined by J. Guild and G. Cargill on August 11, 1974. Both clear and dark brown sphalerite as disseminated flecks (like CAB No. 1) and in association with calcite and quartz eyes, vug fillings and fractures. Clear type sphalerite is vaguely oriented parallel to bedding. Mineralization extends some 300 feet on strike and is contained within a bed 75-100' thick. The best mineralization is locallized in an area some 10 feet in thickness and extending 50 feet on strike. Away from this area the zinc is very low grade and erratic.

Assay No.	Pb %	Zn %	Comments
1446	0.01	0.39	Chip over 35 feet.
1447	0.01	9.60	chip over 8 feet.

Specimen - filed Vancouver Office

Showing may represent mineralization in a fault displaced segment of Sekwi which correlates stratigraphically to the beds containing the CAB No. 2 Zone (Section AA'). Therefore worth prospecting both to east and west where the bed crops out higher on valley sides.

106-F-2 #21

Black and reddish sphalerite associated with calcite open space fillings but also parallel to bedding in orange weathering, "wavy" banded Sekwi dolomite host rock. In place - dips 70°S. - length 400 feet traced into talus, bed continues but not examined. Examined by P. Risby on July 22, 1974. Less well mineralized (at least where it cuts creek) than 106-F-2 (#20) to which this showing is very similar, except that it contains darker sphalerite.

Assay No.	Pb %	Zn %	Comments
WN 53	0.01	2.22	Specimen.
1448	0.01	1.22	Chip - 4 feet.

Specimen - filed Vancouver Office.

Worth prospecting further on strike, as per 106-F-2 #2.

106-F-2 #22

Showing occurs at peak of a small knob, host-bed forms resistant cap.

Examined by J. Guild and G. Cargil on August 11, 1974.

Mineralization is contained in a bed which is exposed for several thousand feet in strike, 8-12 feet in thickness, flat-lying, composed of grey dolomite. Both underlying and overlying beds appear barren although the underlying dolomites locally produce weakly mineralized float. Mineralized bed itself is exposed in outcrop, 8-12 feet thick; sphalerite, in most locations along bed, is concentrated in a 2-foot sheared bed which may assay locally 10% zinc; same bed further along strike is very spottily mineralized with quartz vug filling or fractures. Mineral is not continuous along trace of bed. Does not appear worthy of follow up.

Art John's specimen assayed 0.09% Pb, 9.24% Zn
(brecciated dolomite quartz and sphalerite healing)

Specimen - filed Vancouver Office.

106-F-2 #23

Galena and secondary Pb/Zn float found in creek. Source not located.

Assay No.	Pb %	Zn %	Comments
WN 58	26.6	34.1	Highly oxidized specimen.

Specimen - filed Vancouver Office.

Showing not examined, attempt should be made to trace source of float.

Note: Location is beyond western limits of Plate 2; shown on Regional Geology, N.T.S. 106-F-2 in Part I of this report.

106-C-15 #12

Located in rock banks of river between CAB No. 1 and CAB No. 2 showings. Sphalerite in dolomite; associated with calcite and barite veining - pervasive through bed. Examined by J. Guild on July 18, 1974. Better mineralization confined to bed approximately 60 feet thick, although scattered zinc appears in parallel beds. Difficult to correlate rock type with showings to east and west. Showing not examined in detail - on first impression does not appear to be as well mineralized as either CAB No. 1 or CAB No. 2 Zones. Strike 120°; dip 50°S.

Sample No.	Pb %	Zn %	Comments
0060	0.01	2.46	Character specimen from east bank.

River cuts should be geologically mapped and the rocks correlated with those which host the main CAB Zones.

(B) MINERAL OCCURRENCES WITHIN ORDOVICIAN TO SILURIAN SEDIMENTS

The following mineral occurrences are those known within the project area which occur within Ordovician to Silurian sediments (Plate No. 2).

Robert's Silica Band (Includes Showing No's (106-F-2 #1, #2, #13, #16, #17)

Robert's Silica Band is contained within a carbonate shale and chert sequence broadly mapped by the Geological Survey of Canada as OSc. This unit, which directly overlies the Sekwi Formation, is believed to correlate and to occupy the same stratigraphic position as the host rock to the BB-type mineralization (see BB-DAB Project Area Geological Report).

The mineralization occurs in a very dense, fine grained, light cream coloured silica band or bands some 50-300 feet in width and known to extend at least five miles in strike along the southern border, and locally outside, the CAB Project Area. The resistant band, which has a regional strike and dips at 50° to 80° to the south, forms the southern face of a local mountain chain. It can most easily be examined in stream cuts or in the talus at the base of the cliff-forming structure.

Minerals of economic interest include red finely crystalline sphalerite and brown to yellow crusty smithsonite. Galena has been noted only locally. Smithsonite is the most common zinc mineral throughout the band. It occurs as very fine interstitial films around silica grains and on incipient fracture planes and locally as breccia healing or fracture filling.

RECOMMENDED EXPLORATION - 1975

Further exploration of the property should involve an estimated one month program of geochemical surveys, trenching and mapping. This would require an exploration crew consisting of:

1 - Party Chief/Geologist
1 - Assistant.
1 - Blaster/Labourer.
1 - Labourer.
1 - Cook.

A camp would be established in the vicinity of Guildersleeve Lake; logistical support could be by helicopter from the outside exploration (prospecting) camp, but some consideration may have to be given to temporarily basing a second helicopter at the property to aid in daily crew movements. This will depend on the availability of such a machine on a casual charter basis.

Details concerning the emphasis to be given specific target areas will be decided by the Venturers, however recommended priorities are:

(1) Detailed geological mapping with plane table survey base control is recommended for CAB zones 1 and 2 in 1975. Trenching by conventional or ground sluice methods to increase exposure is also considered important to an understanding of the deposits. In addition, a program of geologically controlled

prospecting, geological mapping and silt and soil geochemistry is recommended for the CAB Project Area. Possible future drilling should await the completion of this program, and should consist initially of relatively short and closely spaced holes relative to known mineralized outcrop.

(2) Due to the difficulty of drill access, the Lower CAB No. 2 Zone was not diamond drilled in 1974. It is recommended that the zone be geologically mapped in detail with survey control, and that possible extensions be further prospected both locally and regionally. A small portable drill could be profitably utilized to sample the exposed zone and to test for further dip extensions.

(3) Geochemical and geological follow-up is also recommended for showings

106-F-2 #3 (Ref. Mineral Inventory Map 106-F-2),
106-F-2 #6, 106-F-2 #15, 106-F-2 #19,
106-F-2 #20, 106-F-2 #21, 106-F-2 #23,
106-C-15 #12, and "Robert's Silica Band".

(4) Expansion of the geochemical grid over 106-C-16 #5 is also recommended.

PROPOSED BUDGET - CAB MINERAL CLAIMS

(See overall Arctic Red '75 Budget for details)

Period: 1 Month - June 15 to July 15, 1975

Geology		
Property Geologist - Wages	$ 1,296	
Field Supplies	100	
Maps/Prints/Drafting	200	
Assays	200	$ 1,796.00
Geochemistry		
Field Assistant - Wages	$ 1,080	
Maps/Prints/Drafting	200	
Assays/Analysis, say 2,000 samples	3,200	$ 4,480.00
Trenching		
1 month	$ 5,320	$ 5,320.00
Drilling (Contingent on Results)		
Say, 10 short holes, or 500 feet	$ 8,800	$ 8,800.00
Freight & Transportation		
Assume 20% of overall budget	$ 5,000	$ 5,000.00
Camp Operation		
5 men x 30 days @ $27/day	$ 4,050	$ 4,050.00
	Sub-Total	$ 29,446.00
Administration		
@ 5%		1,473.00
	Total	$ 30,919.00
	Say,	$ 31,000.00

Respectfully submitted,

John S. Brock
Vice-President Exploration

J.D. Guild, P.Eng.,
Geologist

RILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No. 1

operty ARCTIC RED JOINT VENTURE	Hole No. Cab #1	Bearing	N17°E	Elevation	5300 ?	Logged by	J. Bellany
trict Mayo Mining District	Length 548 feet	Dip	-45°	Overburden	22 feet	Date	Sept. 2, 1974
nenced August 28, 1974	Latitude 64°59'40"	Location	106' on 275°	Recovery	100%		
mpleted August 30, 1974	Longitude 132°31'	bearing from #1 post, CAB 146		Purpose	Test Cab extension showings		

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz. Au	Oz. Ag		% RECOV
0-22' Overburden				0	22	O.B.	-	-				
22'-33') Very fine grained crypto crystalline quartzite - finely laminated at 80° to core axis				22	25	1451	Tr	.02				100
- fine diss.pyrite and pyrite on bedding planes - 31' ½" quartz vein sub-parallel to core axis				25	30	1452	Tr	Tr				100
33'-49') Banded fine grained medium grey dolomite with bands and partings of sandstone and siltstone				30	35	1453	Tr	Tr				100
- finely laminated silty partings weathered light brown 38'-39' - laminated fine-medium grained sandstone				35	40	1454	Tr	Tr				100
39'-49' - Gray detrital dolomite with silty laminae at 40', 42' and from 48'-49' - fine silica disseminated in the dolomite		FeO		40	45	1455	.01	.01				100
'-52') Gray Dolomite - fairly massive - fine grained				45	50	1456	Tr	Tr				100
dolomite and silica with dark pyro-bitumen and clays on stylatic structures coincident with bedding planes				50	55	1457	.01	Tr				100
(52'-57') Dark gray algal detrital dolomite with colon shaped detritus replaced by silica - grades down section into massive grey dolomite				55	60	1458	Tr	Tr				100
(57'-66') Light grey dolomite with weak intraformational sedimentary brecciation visible - pyrite blebs at 60' - blebs of silica at 61' 64'-66' - sand grains - frosted		FeO at 64'		60	65	1459	Tr	.02				100
(65'-70') Limestone pebbles in a dirty black dolomite matrix. Upsection pebbles become finer grained [illegible] oolitic [illegible] oolites [illegible] indicated				65	70	1460	.01	.01				[illegible]
70'-93') [illegible] dark dolomite [illegible]				70	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]

BETHLEHEM COPPER CORPORATION LTD.

Hole No. Cab #1 Logged by J. Bellamy Date Sept. 2, 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz. Au.	Oz. Ag.		% RECO
ity finely laminated dolomite ark muddy dolomite ecks of silica and pyrite in weakly flow	78' blebs of py.			75	80	1462	.01	Tr				100
omite gray calc-arenites with light brown ent bedding planes				80	85	1463	.01	Tr				100
atey dolomite with heavy disseminated e stringers on bedding planes				85	90	1464	.01	Tr				100
				90	95	1465	Tr	.02				100
im-grained grey dolomite with occasional s throughout	Heavy FeS_2			95	100	1466	.01	.01				100
ine quartz veins running parallel to core ite veins at 107 contain				100	105	1467	.01	.01				100
of reddish green sphalerite ing increases as does dolo	ZnS			105	110	1468	Tr	.56				100
110 t grey dolomite heavily fractured	ZnS			110	115	1469	Tr	.69				100
barite. Moderately heavy (8%) coarsely alerite along barite-dolomite contact inated outwards from the barite	FeS_2			115	120	1470	Tr	.12				100
ive dark gray wavy banded dolomite - blebs along black wavy flow bands -				120	125	1471	Tr	.05				100
nal fragment rounding and some pebble				125	130	1472	Tr	.01				100
				130	135	1473	Tr	.01				100
along a plane 40° to core axis A. - pyrite along slickensides				135	140	1474	Tr	.01				100

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No. 3

Property ARCTIC RED Hole No. Cab #1 Logged by J. Bellamy Date Sept. 2, 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz. Au.	Oz. Ag.		% REC.
(93' - 182') dark gray dolomite				140	145	1475	.01	Tr				
- no stylolites				145	150	1476	.01	.01				
				150	155	1477	.03	.02				
	157 FeS_2			155	160	1478	.01	.01				
				160	165	1479	.03	.02				
				165	170	1480	.01	.01				
				170	175	1481	.01	Tr				
(179' - 182') Finer grained weakly laminated grey dolomite - 6% pyrite along laminae	FeS_2			175	180	14001A	.01 (TAG CHANGE)	Tr				
80 - 182' rounded intraformational sedimentary breccia grading downsection into wavy banded dolomite	FeS_2			180	185	14002A	.03	.60				
(182' - 186') Medium grained gray dolomite												
182 - 185' Massive gray dolomite that has been brecciated and healed by white dolomite and pyrite - minor sphalerite occurs in the dolomite				185	190	14003A	Tr	1.56				
- heavy pyrite rims the dolomite veins	ZnS											
185 - 186' A pebbly sedimentary breccia further brecciated and healed with dolomite with rims of pyrite and some pale green crystalline sphalerite. The pyrite is also disseminated throughout matrix of syngenetic agglomerate				190	195	14004A	Tr	.54				
- pebbly dolomite has a sharp contact with massive light grey fractured dolomite				195	200	14005A	Tr	.14				
(186' -)				200	205	14006A	Tr	.60				

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No. 4

Property ARCTIC RED Hole No. Cab #1 Logged by J. Bellamy Date Sept. 2, 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		
(185' - 191') Heavy fracturing of pale gray dolomite - crystalline barite and dolo calcite healing most fractures and weakly	FeS_2 ZnS			205	210	14007A	Tr	.35				1
brecciated sections. Thin rims of sphalerite on vein margins and fractures - minor diss. sphalerite throughout dolomite	ZnS			210	215	14008A	Tr	2.52				1
- Iron carbonates form along fractures and stain barite crystals	ZnS			215	220	14009A	Tr	1.98				1
(191' - 205') Same as above except there is less brecciation - more stylolitic structures and larger concentration of barite	ZnS			220	225	14010A	Tr	.87				1
(205' - 210') less sphalerite-barite replaces portions of the matrix - especially rims rounded fragments and small vugs - weak sphalerite with barite	ZnS			225	230	14011A	Tr	.38				1
- fracturing - parallel to core axis (210' - 226') Heavily brecciated and mineralized section Large coarsely crystalline black sphalerite and finer grained green sphalerite rim and occur as blebs in the barite - Zn	Zns minor FeS_2			230	235	14012A	Tr	.22				1
rims sed. structures (215') - 2" massive quartz vein (226' - 240') Massive gray dol. The minor barite that heals	ZnS			235	240	14013A	Tr	.17				1
fractures and follows sedimentary flow banding and pene-contemporaneous slump structures carries minor pale green sphalerite along the barite margins 227' - minor mountain leather and calcite on slickenside surface	ZnS			240	245	14014A	Tr	.24				1
(240' - 250') Massive light gray dolomite. Only relict sed. structures visible - patchy barite along sedimentary bands contains some zinc - Dol. may be weakly silicified as		Hydrozincite		245	250	14015A	Tr	.07				1
stylolites are partially obscured. 245' - minor hydrozincite on one fracture face (250'-286') Massive gray wavy banded dolomite				250	255	14016A	Tr	.11				1
- weak fracturing - moderate stylolitic banding 260' - 263' - heavy stylolitic banding 267' - 270' - section shattered and calcite healed - brown to stained carbonate disseminated outward from fractures				255	260	14017A	Tr	Tr				1
- Iron carbonate on rims of pyro-bitumen healed stylolites minor fracturing cuts sedimentary structures and stylolites - no visible zinc				260	265	14018A	Tr	.04				1
- lens of barite (3-8mm) cut through sed. structures 270-286' texture obscured by weak silicification	Minor ZnS			265	270	14019	Tr.	.05				

DRILL HOLE LOG — BETHLEHEM COPPER CORPORATION LTD. — SHEET No. 5

Property ARCTIC RED — Hole No. Cab #1 — Logged by J. Bellamy — Date Sept. 2, 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz. Au.	Oz Ag.		% RECOV.
288' - 293') Heavy silicified dolomite with crystalline quartz healing of sedimentary breccia fragments - segments of banding and stylolitic structures still visible in core				270	275	14020A	Tr	.32				100
288' - 1 foot massive quartz with vugs lined with silicified calcite crystals				275	280	14021A	Tr	.04				100
- fine brown iron staining along fractures 293' - 299.5') - weakly silicified grey dolomite. Fractures barite and quartz healed - both				280	285	14022A	Tr	.10				100
occur together and are crypto crystalline - 297' - blebs of pyrite occur with the barite. - stylolites occur around rounded				285	290	14023A	Tr	Tr				100
sedimentary slump fractures 299' - 4" dolomite heavily cut by stylolitic structures which are healed by pyro-bitumen	ZnS FeS_2			290	295	14024A	Tr	Tr				100
- pyrite blebs and heavy fine grained disseminated gray green sphalerite occur around the stylolites	ZnS FeS_2			295	300	14025A	Tr	.01				100
299.5' - 303') Heavily brecciated dolomite healed by quartz and a hard silicified dolomite - quartz predominates in the vein filling				300	305	14026A	Tr	Tr				100
303' - 326') Gray silicified dolomite which has wavy banding, sedimentary brecciation and a later brecciation which has been quartz healed				305	310	14027A	.01	.02				100
308.5 - 309' Strong shattering and quartz healing - quartz veins 20° to CA 309' - 326' The weak fractures healed by calcite	FeS_2			310	315	14028A	.01	.01				100
Brown stained calcite often accompanied by pyrite and some manganite				315	320	14029A	.01	.01				100
326' - 348') Dark gray limestone 326' - 328' A coarse grained oolitic limestone with some larger oolites replaced by fine grained brown	strong			320	325	14030A	.01	Tr				100
sphalerite. Colliform banding of the brown sphalerite occurs in bands along sedimentary flow bands 328' - 333' Oolitic structures get compressed	ZnS FeS_2			325	330	14031A	.01	.01				100
with depth. Oolites are coarse grained calcite and [illegible] limestone in a fine grained gray matrix Pyrite is disseminated in patchy fine grained	FeS_2			330	335	14032A	Tr.	Tr				100

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

Property ARCTIC RED | Hole No. Cab #1 | Logged by J. Bellamy | Date Sept. 2, 1974 | SHEET No. 4

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		% RECO
ESTONE												
(333' - 345') Dark grey limestone - wavy banded with coarse bands of calcite-limestone along sedimentary flow bands	ZnS FeS_2			335	340	14033A	Tr	Tr				100
- patchy pyrite in blebs throughout - patchy bands of fine grained brown sphalerite along wavy bedding laminae and in thicker bands (<1")	ZnS FeS_2			340	345	14034A	.01	Tr				100
in the more massive limestones - Sphalerite band - 438', 439', 440', 443' (1") 448'	FeS_2			345	350	14035A	.01	Tr				100
(348' - 360') Massive fine grained gray dolomite - fine brown stained calcite coats the 5° to core axis fractures in this section												
353' rounded dolomite breccia fragments, calcite cemented				350	355	14036A	Tr	.01				100
- fractures calcite healed												
355' - 358' - Fine grained brown band adjoining brown calcite healed fractures - sphalerite ?				355	360	14037A	.01	.11				100
(360' - 397') Fine gray limestone - partially dolomitized in sections				360	365	14038A	Tr	.01				100
360' - 373' - weakly banded wavy nodular limestone - some crystalline limestone fragments				365	370	14039A	Tr	Tr				100
		FeO		370	375	14040A	.01	Tr				100
373' - 376' - Large slightly compressed oolitic limestone				375	380	14041A	.01	.01				100
- fine detrital material cementing oolites - brown weathering adjacent some of the few fractures				380	385	14042A	Tr	Tr				100
				385	390	14043A	Tr	.01				100
(397' - 405') Fine dark gray dolomite												
404' - 407' weak interlaminating of limestone and dolomite				390	395	14044A	Tr	Tr				100
				395	400	14045A	Tr	Tr				100

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No. 7

Property ARCTIC RED | Hole No. Cab #1 | Logged by J. Bellamy | Date Sept. 2, 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz. Au.	Oz. Ag.		FEC
(405' - 421') Thick (<1") wavy bands of fine grained grey limestone interbanded with layers of dark grey dolomite and small sections of crystalline limestone detritus				400	405	14046A	.01	Tr				
- minor disseminated pyrite throughout				405	410	14047A	.01	Tr				
(421' - 426') large limestone oolites cemented by fine grained oolites and detrital				410	415	14048A	.01	.01				
limestone. Calcite replacing some detrital fragments. - occasional stylolites through oolitic section				415	420	14049A	.01	Tr				
425' ½" band of platey black limey dolomite - band 87° to core axis				420	425	14050A	Tr	Tr				
(426' - 490') Gray weakly dolomitic limestone - fairly massive with fine laminated sections throughout				425	430	14051A	.01	Tr				
- heavy FeO on 0° - C.A. fracture		FeO		430	435	14052A	Tr	Tr				
		FeO		435	440	14053A	Tr	Tr				
				440	445	14054A	Tr	Tr				
-interbanded limestones and dolomites -no fracturing -core parts on bedding planes at 87° to core axis				445	450	14055A	Tr	Tr				
-minor blebs of pyrite throughout				450	455	14056A	Tr	.01				
				455	460	14057A	Tr	Tr				
				460	465	14058A	Tr	Tr				

DRILL HOLE LOG — BETHLEHEM COPPER CORPORATION LTD. — SHEET No. 3

Property ARCTIC RED — Hole No. Cab #2 — Logged by J. Bellamy — Date Sept. 2, 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz. Au.	Oz. Ag.		% REC.
460' - 505') Gray banded dolomites with limestone bands 80% gray very finely banded dolomites				465	470	14059A	.01	.01				100
				470	475	14060A	Tr	Tr				100
Rust on fractures and bedding planes		FeO on Fractures		475	480	14061A	Tr	Tr				100
				480	485	14062A	Tr	.01				100
		FeO on Fractures		485	490	14063A	Tr	.01				100
				490	495	14064A	Tr	Tr				100
505' - 513') Interbanded dark dolomites and paler dolomitic limestones	FeS_2			500	505	14065A	Tr	Tr				100
	FeS_2			505	510	14066A	Tr	Tr				100
513' - 546') Dark interbanded dark and medium gray dolomites	FeS_2			510	515	14067A	Tr	Tr				100
	FeS_2			515	520	14068A	Tr	Tr				100
	FeS_2			520	525	14069A	Tr	Tr				100
	FeS_2	FeO		525	530	14070A	Tr	Tr				100
	FeS_2			530	535	14071A	Tr	Tr				100

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No.

Property ARCTIC RED Hole No. Cab #1 Logged by J. Bellamy Date Sept. 2, 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.
(535' - 548') Limestone partings in dark dolomitic wavy formational flow breccia	FeS_2			535	540	14072A	Tr	Tr		
- fine pyrite and pyrite in blebs throughout - core appears to cut beds normal	FeS_2			540	545	14073A	Tr	Tr		
to strike and dip	FeS_2			545	548	14074A	Tr	Tr		
					E.O.H.					

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No. 1

Property	CAB EXTENSION-ARCTIC RED JOINT VENTURE	Hole No.	CAB #2	Bearing	331°	Elevation	approximately 5300'
District	Mayo, Y.T.	Length	258'	Dip	-45°	Overburden	28, feet
Commenced	1 Sept. 1974	Latitude	64°59'40"N	Location:	107' on 274°	Recovery	
Completed	2 Sept. 1974	Longitude	132°31'W	bearing from #1 post, CAB 146		Purpose	angled offset to DDH CAB #1

Logged by D. A. Lyman

Date 3 Sept. 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No	% Pb.	% Zn.	Oz. Au	Oz. Ag	% RECOV
Overburden (0-28')		very minor oxidation visible to 95'		0	28	NS					0
Quartzite - (28'-48') Light-medium grey, very fine grain.	very weak py. along bedding			28	35	14076	Tr	Tr			100
weak very thin laminations, 50° to core axis, some pyrite on fractures	fractures and minor very fine disseminated spotty py.			35	40	14077	Tr	Tr			100
				40	45	14078	Tr	Tr			100
				45	50	14079	Tr	Tr			100
Banded Dolomite (48'-72') Medium grey, fine grain, frequent				50	55	14080	Tr	Tr			100
silty and silicified zones, few 3" to 1' silty and sandy zones, also siltstone partings along banding				55	60	14081	.01	Tr			100
				60	65	14082	.01	Tr			100
below 60' - increased darker dolomite fragment content,				65	70	14083	.01	Tr			100
continued silicification common, some very hard zones				70	75	14084	.01	Tr			100
Dolomite (72'-77') Light-medium grey, very fine-fine grain, no				75	80	14085	Tr	Tr			100
fragments, irregular hairline stylitized bedding trace with carbon (pyrobitumen), some silicified zones otherwise featureless				80	85	14086	Tr	Tr			100
Algal Dolomite (77'-84') Medium-dark grey, very fine grain; colliform											

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

Property CAB EXTENSION - ARCTIC RED JOINT VENTURE Hole No. CAB #2 Logged by D. A. LYMAN Date 3 Sept. 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		% RECO
Light Grey Dolomite (84'-98') Light grey, fine grain, massive featureless bedding, 3" to 1' zones of brecciation filled with slightly darker dolomite, very minor quartz and trace pyrite filling of vugs, no open vugs	weak spotty py. in vugs			85	90	14087	Tr	Tr				100
				90	95	14088	Tr	.02				100
				95	100	14089	Tr	Tr				100
Oolitic Limestone (98'-104') Medium-dark grey, muddy, grading from ¼" at base to rice size at top, some flattening of larger oolites, surplus muddy black dolomite matrix, 48° approximate bedding				100	105	14090	Tr	.01				100
				105	110	14091	.01	.01				100
Dolomite (104'-130') Medium grey, very fine grain, no bedding features, occasional 6" to 2' silty and muddy zones with very thin laminations, less siliceous on the whole than above formations				110	115	14092	Tr	Tr				100
				115	120	14093	Tr	Tr				100
				120	125	14094	Tr	.01				100
	very weak fine grain	some oxidation along fracs.		125	130	14095	Tr	.01				100
Silty Dolomite (130'-145') Light grey, very fine grain, weak laminations, 50°, some very fine grain pyrite disseminated with oxidation along fractures	disseminated py.			130	135	14096	Tr	.01				100
137' and 142' - 6" zones of shaly parting in dolomite with locally weak-moderate very fine grain pyrite along laminations	weak-mod. py. in shaly parting zones			135	140	14097	Tr	.01				100
				140	145	14098	Tr	.01				100
Light Grey Dolomite (145'-170') Light grey, fine grain, weak				145	150	14099	Tr	.02				100

DRILL HOLE LOG — BETHLEHEM COPPER CORPORATION LTD. — SHEET No. 3

Property CAB EXTENSION - ARCTIC RED JOINT VENTURE — Hole No. CAB #2 — Logged by D. A. LYMAN — Date 3 Sept. 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		% REC.
Light Grey Dolomite (145'-170') as above, locally weak-moderate fracturing at high angle to bedding, light grey to white dolomite filled with lesser quartz, increased reddish				150	155	14100	Tr	.04				100
sphalerite in fractures with depth, some barite may be present in fracture fillings	locally weak-mod. sphalerite			155	160	14101	Tr	.49				100
159' - locally some coarse oatmeal-like sphalerite disseminations adjacent veinlets	in fracs. separate very weak py. blebs			160	165	14102	Tr	.14				100
				165	170	14103	Tr	.12				100
Black Dolomite (170'-258'EOH Dark grey to black, very fine-fine grain, wavy very thin to thin banding, few white dolomite and barite(?) blebs along bedding and in very weak cross fractures.	very weak sphalerite in bed fracs. and cross			170	175	14104	Tr	.50				100
Also, above 175' more fractured with white dolomite filling common, trace sphalerite	fracs. very weak pyrite			175	180	14105	Tr	.02				100
				180	185	14106	.01	.03				100
below 176' - very weak spotty pyrite, little dolomite	very weak spotty py. blebs along			185	190	14107	Tr	.02				100
fracture filling	bedding			190	195	14108	Tr	.02				100
1½' formational breccia with sub-angular to angular fragments of banded dolomite, black dolomite matrix	weak pyrite in breccia vugs			195	200	14109	Tr	.01				100
				200	205	14110	Tr	.01				100
				205	210	14111	.01	.01				100
				210	215	14112	Tr	.04				100

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

Property CAB EXTENSION - ARCTIC RED JOINT VENTURE Hole No. CAB #2 Logged by D. A. LYMAN Date 3 Sept. 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		FEET
Black Dolomite (170'-258' EOH) as above, very weak pyrite along banding	spotty py. along bed-			215	220	14113	Tr	.01				10
	ding fracs. as elongate blebs, also			220	225	14114	Tr	.01				10
	in slump rolls, no sphalerite			225	230	14115	Tr	Tr				10
				230	235	14116	.01	.01				10
				235	240	14117	Tr	.01				10
				240	245	14118	Tr	Tr				10
248' - white dolomote, very fine grain pyrite and barite(?) healing 8' brecciated interval	very weak, py. in			245	250	14119	Tr	.01				10
	breccia vugs			250	258	14120	Tr	Tr				10
					EOH							

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No. 1

Property CAB GROUP-ARCTIC RED J.V	Hole No. CAB #3	Bearing 030°	Elevation approx. 4600'	Logged by D. A. LYMAN	
District MACKENZIE, N.W.T.	Length 328'	Dip -48°	Overburden 21'	Date 4 Sept. 1974	
Commenced 3 Sept. 1974	Latitude 64°58'N	Location: 120' on bearing	Recovery		
Completed 4 Sept. 1974	Longitude 132°27'W	121° from #1 post Cab #10	Purpose Arctic Red River Joint Venture		

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag	% REC
Overburden to 21'		light limonite on fractures		0	21	NS					0
Silicified Dolomite (21-23') Light grey, very fine grain, heavily silicified		common to 118		21	25	14121	.01	.01			8
Banded Silicified Dolomite (23'-25') Light-dark grey, very fine grain, hairline carbon (bitumen?) traces on margins of 1/16" white quartz and dolomite veinlets and along banding. Banding is 90° to core axis with trace very fine grain pyrite				25	30	14122		.02			8
Dolomite and Dolomite Conglomerate (25-38') Light grey, fine grain, with sparse 1/16" or smaller vugs, inter-crystalline carbon and very fine grain pyrite throughout	1 to 3% very fine			30	35	14123		.03			10
(32'-35') - mottled pebble breccia texture (34') - short 1/16" white dolomite-filled gash fractures, 20° (36'-38') - carbon trace in micro fractures subparallel core	gr. Py.			35	40	14124		.03			10
Dolomite (38-84') Light grey, very fine to fine grain, erratic stylitized bedding emphasized by thin darker dolomite and carbon trace, sparse very fine grain pyrite in vugs to 1/16",	locally 5% Py.			40	45	14125		.01			10
weak hairline fractures healed by white dolomite, 0 to 20° (41-45') - locally >5% pyrite filling irregular vugs	trace-very weak pyrite in vugs			45	50	14126		.01			10
subparallel bedding, white dolomite centers to vugs and few white dolomite fracture fillings cutting pyrite				50	55	14127		Tr			10
(58-68') - weak fracturing with limonite coatings, 20°-50°				55	60	14128		.01			10
				60	65	14129		.01			10
				65	70	14130		.01			93
(71-74') - locally 1/16" to ½" stylitized bedding with carbon trace and minor pyrite	very weak pyrite in vugs paral-lel bedding			70	75	14131		.01			10

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

Property CAB GROUP Hole No. CAB #3 Logged by D. A. LYMAN Date 4 Sept. 1974

ARCTIC RED J.V.

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		% FEET
Dolomite (38'-84') with limonite staining along bedding fractures below 73'		light limonite on low angle fracs. 0 to 20°		75	80	14132		.02				9
(78-84') - strong to moderate fracture with limonite coatings, 20 to 40°		common to 180' 78-80' -		80	85	14133		.01				10
Dolomite (84-99') - light grey, very fine grain, some weak silicification, some erratic stylitized bedding 80-90° to core axis above 90'		locally heavy to weak limonite after Py. in shatter		85	90	14134		Tr				10
				90	95	14135		Tr				10
				95	100	14136		Tr				10
Pebble Dolomite (99'-100') Dark grey, flattened and rounded pebbles 1/8" and smaller, white to light grey dolomite matrix with some pyrite	< 1% very fine grain Py. dissem.			100	105	14137		Tr				10
Dolomite (100' -) Light grey, very fine grain, erratic stylitized bedding, irregular oblong vugs subparallel bedding filled with occasional fine grain pyrite and later white	scattered coarse Py. in vugs to 1"			105	110	14138		.05				10
crystalline dolomite; pyrite tends to occupy the stratigraphic ...tom of the vug. Weak white-dolomite healed fractures 20° to 40° to core axis, possible barite	trace Sph.			110	115	14139		.02				10
(108-111') -- locally 25% fine grain pyrite in irregular vugs with white dolomite centers				115	120	14140		.01				10
				120	125	14141		.01				10
				125	130	14142		Tr				10
(130-135') - moderate low angle fracturing 0-15°				130	135	14143		.02				100
(134')- 2' breccia interval, white dolomite filling openings				135	140	14144		.05				10

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No. 3

Property CAB GROUP ARCTIC RED J.V. Hole No. CAB #3 Logged by D. A. LYMAN Date 4 Sept. 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		FE
Dolomite (100'-203') Light grey, as above, increasing but erratic silica (silt?) content with depth, irregular 1' to ½" laminae defined by hairline dark dolomite stylitized trace	some medium gr. dissem. Py., most	light limonite on low angle fracs.		140	145	14145		.04				10
	Py. is conc in large vugs along	0-20° to 180'		145	150	14146		Tr				10
	bedding (90°)			150	155	14147		.01				10
				155	160	14148		.03				10
				160	165	14149		Tr				10
				165	170	14150		Tr				10
				170	175	14151		.01				10
				175	180	14152		Tr				10
188-203' - concentrations of pyrite in ½" to 4" vug systems increasingly vuggy and broken with depth, weak spotty straw-				180	185	14153		.01				10
colored sphalerite in white dolomite fillings below 195'				185	190	14154		.02				10
				190	195	14155		.03				10
	weak straw-colored Sph in white			195	200	14156		.07				10
	dolo. filled vugs			200	205	14157		.02				10

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

Property CAB GROUP ARCTIC RED J.V. Hole No. CAB #3 Logged by D. A. LYMAN Date 6 Sept. 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		% RE
Dark Grey Dolomite (203'-240') Medium-dark grey, fine grain, heavily broken by low angle irregular fracturing which is filled by white fine grain dolomite, many brecciated intervals with sub-angular to angular fragments	scattered Py. rimming fragments and in vugs	205-215' weak Fe.Ox. on 20° fracs.		205	210	14158		Tr				10
				210	215	14159		.12				10
				215	220	14160		.01				10
		221-223' weak Fe.Ox. on 5° frac.		220	225	14161		.05				10
(225'-230') Brecciated interval healed with white quartz and medium grey fine grain matrix, irregular rounded flattened fragments				225	230	14162		Tr				10
(235') - locally with moderate medium grain disseminated pyrite				230	235	14163		.01				10
				235	240	14164		.01				10
Dark Dolomite (240'-328') Dark grey-black, very fine grain, weak erratic banding above 262', platey weakly discernible 1/32" or less banding below 262' to 285', below 285' erratic wavy. colliform banding 1/16"				240	245	14165		.01				10
				245	250	14166		.01				10
252' - thin fine grain pyrite rimming oolitic nodules along bedding				250	255	14167		.01				10
258' - 1/3" clear calcite filled fracture, 10°, scattered pyrite, blue-colored clear calcite rims along wall-rock	weak Py. in fracs., very weak fine-med. gr. euhedral dissem. Py.			255	260	14168		Tr				10
				260	265	14169		Tr				100
				265	270	14170		.01				1

DRILL HOLE LOG

BETHLEHEM COPPER CORPORATION LTD.

SHEET No. 5

Property CAB GROUP ARCTIC RED J.V. Hole No. CAB #3 Logged by D. A. LYMAN Date 6 Sept. 1974

DESCRIPTION	SULPHIDES	OXIDES	OTHERS	FROM	TO	SAMPLE No.	% Pb.	% Zn.	Oz Au.	Oz Ag.		FE
Black Dolomite (240'-338') as above				270	275	14171		Tr				10
				275	280	14172		.01				10
				280	285	14173		.01				10
				285	290	14174		Tr				10
				290	295	14175		Tr				10
				295	300	14176		Tr				10
				300	305	14177		Tr				10
				305	310	14178		Tr				10
				310	315	14179		Tr				10
				315	320	14180		.01				10
320' - scattered pyrite on hairline fracture parallel core				320	325	14181		.01				10
				325	328	14182		Tr				10
					EOH							

APPENDIX II

APPLICATION FOR CERTIFICATES OF WORK - MAYO MINING DISTRICT

In accordance with the provisions of the Quartz Mining Act in the Yukon Territory, we the recorded owners of the mineral claims listed below, hereby apply for the following certificates of work, as per Appendix IV of this report, "Statement of Costs" attached hereto:

TOTAL REPRESENTATION WORK - As per Appendix IV	$58,404.90	$58,404.90

ALLOCATION OF REPRESENTATION WORK

CAB CLAIM GROUP

CAB 5- 8	Y89133-Y89136		
CAB 11- 14	Y88992-Y88995		
CAB 15- 18	Y89137-Y89140		
CAB 50-223	Y95029-Y95202		
CAB 224-279	Y96315-Y96370		
CAB 324-351	Y96415-Y96442		
270 claims - 2 years each		$54,000.00	
CAB 280-323	Y96371-Y96414		
44 claims - 1 year each		$ 4,400.00	$58,400.00

Balance Unapplied $ 4.90

APPENDIX III

CAB MINERAL CLAIMS

PERSONNEL AND DATES WORKED

The following pages tabulate the personnel and dates worked on the CAB Mineral Claims.

Please note that Camp Operations and Expediting wages have been pro-rated and are included in the costs for individual claim groups under "Camp Costs" and "Expediting Costs" (see Appendix IV, "STATEMENT OF COSTS, attached hereto).

Also, the OEX costs have been pro-rated to individual claims groups, as shown in APPENDIX IV, attached hereto.

CAB GROUP

PERSONNEL AND DATES WORKED

1974 FIELD SEASON

C.L. (Pete) Risby, Ross River, Y.T. Chief Prospector, $1200/month	Aug. 26, 28, 31. Sept. 1, 2.
Arthur John, Ross River, Y.T. Prospector, $1100/month	Aug. 30, 31. Sept. 1, 2.
Robert Etzel, Ross River, Y.T. Prospector, $1100/month	June 4, 13. Aug. 12.
Easu Dick, Ross River, Y.T. Prospector, $800/month	July 22, 23. Aug. 23-25, 26-31, 12.
Walter Etzel, Ross River, Y.T. Prospector, $800/month	July 22-23. Aug. 12.
Harold Barker, c/o General Delivery, Whitehorse, Y.T. Field Assistant $800/month	June 9, 10. July 17, 18-21. Aug. 2, 4, 12, 23-25, 26-30, 31. Sept. 1-4.

APPENDIX III

CAB GROUP

PERSONNEL AND DATES WORKED

1974 FIELD SEASON

Richard F. McLoughlin, c/o #1010, 2055 St. Matthew St., Montreal, PQ. Geologist, $1200/month	June 7, 9, 15-18, 21. July 17, 21-22. Aug. 1-3, 6-7, 14, 16, 20.
John D. Guild, 13291 Woodcrest Drive, White Rock, B.C. Party Chief, $65/day	June 6, 7, 16, 17. July 12, 18. Aug. 1-2, 7, 9, 11, 12, 16, 17. Sept. 1. Dec. 31.
John S. Brock, 3029 Procter Avenue, West Vancouver, B.C. Field Supervisor $71/day	June 6-7. July 26. Aug. 7, 15, 16, 28. Sept. 11. Oct. 10.
Joan Stickney, c/o General Delivery, Whitehorse, Y.T. Cook, $900/month	Duration of Program. Wages pro-rated to all projects - under camp costs.

CAMP OPERATION

PERSONNEL AND DATES WORKED

1974 FIELD SEASON

Joan Stickney, c/o General Delivery, Whitehorse, Y.T. Cook $900/month	May 13-31. June 1-16, 21-30. July 1-19, 25-31. Aug. 1-6, 13-31. Sept. 1.
C.L. (Pete) Risby, Ross River, Y.T. $1200/month	May 19, 29. July 27.
Arthur John, Ross River, Y.T. $1100/month	July 26, 27.
Robert Etzel, Ross River, Y.T. $1100/month	July 1, 26, 27.
Esau Dick, Ross River, Y.T. $800/month	July 1, 26, 27.
Walter Etzel, Ross River, Y.T. $800/month	July 1, 26, 27.
Harold Barker, c/o General Delivery, Whitehorse, Y.T. $800/month	June 2-8, 11-23. July 1, 4, 13, 16, 22-25,31. Aug. 1, 3, 5-7, 13-20, 22.
Richard McLoughlin, c/o #1010, 2055 St. Matthew St., Montreal, PQ. $1200/month	July 26, 27.

N.B. Wages pro-rated to all projects worked under 1974 program - under camp costs.

EXPEDITING

PERSONNEL AND DATES WORKED

1974 FIELD SEASON

C.L. (Pete) Risby, Ross River, Y.T.	Aug. 20-24. Sept. 7-8.

$1200/month

N.B. Wages prorated to projects worked.

OEX

PERSONNEL AND DATES WORKED

1974 FIELD SEASON

C.L. (Pete) Risby, Ross River, Y.T. Chief Prospector, $1200/month	May 1-8, 20-28, 30-31. June 1, 3-12, 25-30, July 1-19, 21-26, 28-31. Aug. 1-4, 12-19, 25, 27, 30. Sept. 3-6, 9-13.
Arthur John, Ross River, Y.T. Prospector, $1100/month	May 16-31. June 1-16, 25-30. July 1-25, 31. Aug. 1-29, Sept. 3-8.
Robert Etzel, Ross River, Y.T. Prospector, $1100/month	May 16-31. June 1-3, 5-12, 14-25, 30. July 2-25, 31. Aug. 1-11, 13-31. Sept. 1.
Esau Dick, Ross River, Y.T. Prospector $800/month	May 16-31. June 1-11, 13-16, 30. July 2-21, 24, 25. Aug. 1-11, 13-22. Sept. 1.
Walter Etzel, Ross River, Y.T. Prospector, $800/month	May 15-31. June 1-25, 30. July 2-21, 24, 25, 31. Aug. 1-11, 13-20.
Joan Stickney, General Delivery, Whitehorse, Y.T. Cook $900/month	Duration of Program - salary pro-rated over all projects.- under camp costs.

OEX

PERSONNEL AND DATES WORKED

1974 FIELD SEASON

Harold Barker, c/o General Delivery, Whitehorse, Y.T. Field Assistant $800/month	May 15-26. June 25, 30.
Richard F. McLoughlin, c/o #1010, 2055 St. Matthew St., Montreal, PQ. Geologist $1200/month	May 15-26. June 2-4, 10, 14, 22, 25, 30. July 1, 19, 20, 24, 31. Aug. 22, 31. Sept. 3, 23-27, 30. Oct. 1-4.
John D. Guild, 13291 Woodcrest Dr., White Rock, B.C. Party Chief, $65/day	March 26-29. April 1-5, 8-12. May 7-10, 13-17, 20-26. June 3, 5, 9-11, 19, 20, 22-30. July 1-4, 8, 10-11, 14-15, 19-21, 23-36, 30, 31. Aug. 6, 8, 10, 14-15, 18, 20, 23, 30-31. Sept. 3, 4, 5, 7, 10-17. Dec. 10, 11, 13.
John S. Brock, 3029 Procter Ave., West Vancouver, B.C. Field Supervisor, $71/day	Jan. 3-5, 16-18, 21-22. Feb. 18, 21, 25-28. March 14-16, 21-22, 25-26, 29-30. April 1-5, 22-26. May 6-10, 13, 29, 31. June 3-4, 9-12, 25, 31, 22. Aug. 1-2, 8, 13-14, 17-18, 20-21. Sept. 3-4, 10, 13, 16, 23, 24-25. Oct. 1, 3, 4, 13, 16, 23, 27, 28, 29, 31.

APPENDIX IV

CAB MINERAL CLAIMS
STATEMENT OF COSTS

The following pages show a distribution of the total costs incurred by Welcome North Mines Ltd. (N.P.L.) on behalf of the Arctic Red Venture in carrying out exploration work on the CAB mineral claims during the 1974 field season. These costs can be invoice supported or in the case of internal costs documented.

The costs can be summarized as follows:

Claims	Direct Property Costs	Outside Exploration Related to Property	Total
CAB 314 Yukon Claims	$25,554.22	$ 32,850.68	$ 58,404.90

Plus: $26,025.82 (Diamond Drilling Costs to be Applied at a later date - portion applicable to Y.T.)

The allocation of the above noted $58,404.90 for purposes of of representation work, as shown in Appendix II of this report is as follows:

CAB 5-8	Y89133-Y89136	- 2 years each	
CAB 11-14	Y88992-Y88995	- 2 years each	
CAB 15-18	Y89137-Y89140	- 2 years each	
CAB 50-223	Y95029-Y95202	- 2 years each	
CAB 224-279	Y96315-Y96370	- 2 years each	
CAB 324-351	Y96415-Y96442	- 2 years each	
= 270 claims at 2 years each			$ 54,000.00
CAB 280-323	Y96371-Y96414	- 1 year each	
= 44 claims at 1 year each			$ 4,400.00
APPLICATION FOR TOTAL REPRESENTATION WORK			$ 58,400.00
BALANCE TO BE APPLIED AT LATER DATE (DRILLING)			$ 26,025.82

AFFIDAVIT SUPPORTING SUMMARY OF COSTS

I, John S. Brock, Vice-President Exploration, Welcome North Mines Ltd. (N.P.L.), of Vancouver, British Columbia, do hereby state that, to the best of my knowledge and belief, the Statement of Costs presented in this report (Geological, Geochemical, Diamond Drilling Report on the CAB Mineral Claims) is both true and correct.

John S. Brock,
Vice-President Exploration
February 24, 1975

APPENDIX IV

ARCTIC RED PROJECT - 1974

GROUP: CAB

EXPENDITURES - CAB GROUP

	GEOLOGY/ GEOCHEM $	PROSPECTING $	DRILLING $	STAKING & ACQ. $	PROPERTY MAINT. $	CAMP OP. $	EXPEDI-TING $	ADMIN $	SUB-TOTAL $	GRAND TOTAL $
SALARIES										
Wages	2,489.99	803.70	388.00	843.32	-	940.39	35.98	-	5,501.38	
Finder Fees	-	-	-	3,000.00	-	-	-	-	3,000.00	8,501.38
CONTRACT PAYMENTS	-	-	19,347.96	27,115.00	-	-	278.81	1,197.48		47,939.25
FIELD & MISC. EXP.	-	-	-	312.00	-	1,929.16	209.16	86.88		2,537.20
MAPS/PRINTS/ DRAFTING	117.50	-	-	-	-	-	-	-		117.50
ASSAYS/ ANALYSES	1,384.96	-	1,624.40	-	-	-	-	-		3,009.36
FREIGHT/ TRANSPORT										
Helicopter	20,966.55	-	6,629.22	-	-	-	-	-	27,595.77	
Fixed Wing	660.00	-	8,627.40	-	-	591.78	-	-	9,879.18	
Major Transp.	-	-	-	-	-	228.59	-	-	228.59	
Misc.Freight	-	-	-	-	-	207.54	-	-	207.54	37,911.08
TOTAL $	25,619.00	803.70	36,616.98	31,270.32	-	3,897.46	523.95	1,284.36		100,015.77

CAB CLAIMS in Y.T. 314
CAB CLAIMS in N.W.T. 65
Total CAB Claims 379

Less: Total Costs not allowed (Staking/Acq. & Admin)	$32,554.68	
Drilling Costs to be applied at later date $26,025.82 Y.T. and $10,591.16 N.W.T.	36,616.98	69,171.66
BALANCE OF APPLICABLE DIRECT COSTS		30,844.11
Portion Applicable to Yukon Claims - Y.T.		
= 314/379 x $30,844.11		= 25,554.22
Plus: Pro-rated Portion of OEX Costs (Summary attached) - Y.T.		32,850.68
TOTAL TO BE APPLIED AS REPRESENTATION WORK		$ 58,404.90

APPENDIX IV

Costs related to properties - distrbuted among 400 Yukon Claims as follows:

AXE-NEST	CLAIMS	= 46 Claims	x $104.62	$ 4,812.52
CAB	CLAIMS	= 314 "	x $104.62	$ 32,850.68
AB	CLAIMS	= 40 "	x $104.62	$ 4,184.80
				$ 41,848.00

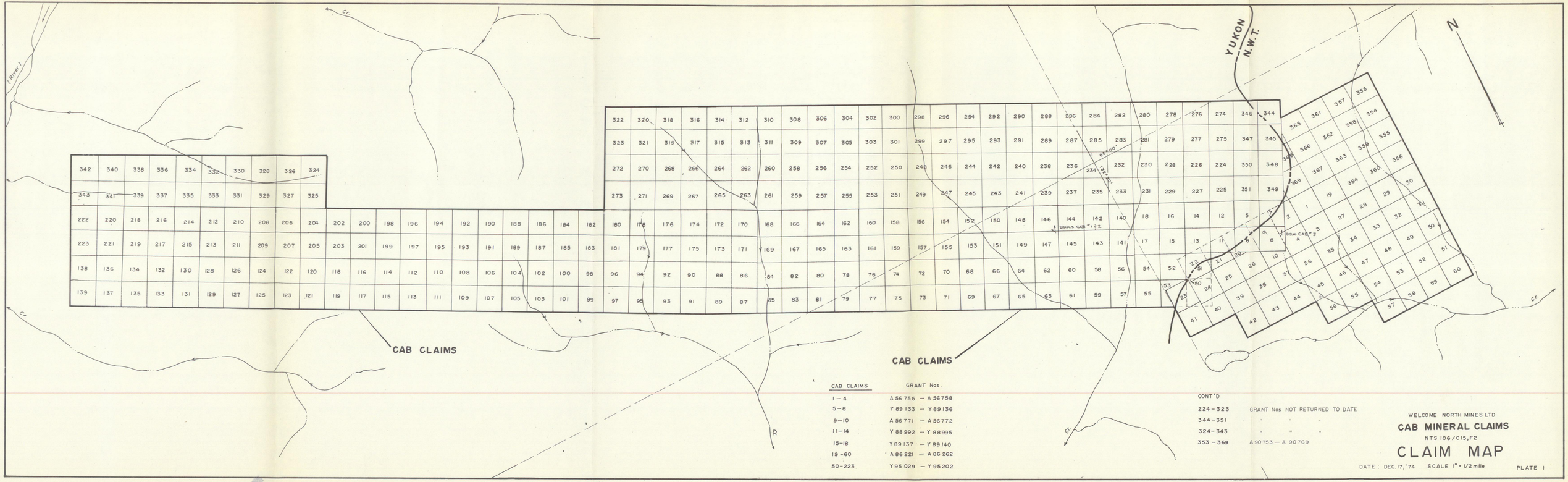
ARCTIC RED PROJECT - 1974

EXPENDITURES - OEX

GROUP: OEX

	GEOLOGY/ GEOCHEM $	PROSPECTING $	DRILLING $	STAKING & ACQ. $	PROPERTY MAINT. $	CAMP OP. $	EXPEDI-TING $	ADMIN $	SUB-TOTAL $	GRAND TOTAL $
ARIES										
ges	14,027.52	19,615.39	-	-	-	6,721.34	257.11	-	40,621.36	
der Fees	-	-	-	-	-	-	-	-	-	40,621.36
TRACT MENTS	-	-	-	-	-	-	1,992.81	8,558.80		10,551.61
LD & C. EXP.	-	-	-	-	-	13,789.15	1,495.01	621.02		15,905.18
S/PRINTS/ TING	3,487.29	-	-	-	-	-	-	-		3,487.29
YS/ LYSES	595.81	-	-	-	-	-	-	-		595.81
GHT/ SPORT										
licopter	30,971.30	-	-	-	-	-	-	-	30,971.30	
ed Wing	4,948.59	-	-	-	-	4,229.70	-	-	9,178.29	
jor Transp.	-	-	-	-	-	1,633.86	-	-	1,633.86	
sc.Freight	-	-	-	-	-	1,483.37	-	-	1,483.37	43,266.82
TOTAL $	54,030.51	19,615.39	-	-	-	27,857.42	3,744.93	9,179.82		114,428.07
Less: Total Costs not allowed (Admin Costs)										- 9,179.82
BALANCE APPLICABLE AS REPRESENTATION WORK										$ 105,248.25

Note: Costs related to properties distributed on pro-rata basis among 400 Yukon Mineral Claims and 606 N.W.T. claims = $\frac{\$105,248.25}{1006 \text{ claims}}$ = $104.62052 per claim



CAB CLAIMS	GRANT Nos.
1 – 4	A 56755 — A 56758
5 – 8	Y 89133 — Y 89136
9 – 10	A 56771 — A 56772
11 – 14	Y 88992 — Y 88995
15 – 18	Y 89137 — Y 89140
19 – 60	A 86221 — A 86262
50 – 223	Y 95029 — Y 95202

CONT'D	
224 – 323	GRANT Nos NOT RETURNED TO DATE
344 – 351	" " "
324 – 343	" " "
353 – 369	A 90753 — A 90769

WELCOME NORTH MINES LTD

CAB MINERAL CLAIMS

NTS 106/C15,F2

CLAIM MAP

DATE : DEC. 17, '74 SCALE 1" = 1/2 mile

PLATE 1


LEGEND
OSDr
ORD.–SIL.–ROAD RIVER SHALE
OSC
ORD.–SIL.–CARBONATES (IN PART O.S.K.)
Dol — DOLOMITE
Bl Sh BLACK SHALE
G Dol. GREY DOLOMITE
Єs
CAMBRIAN – SEKWI DOLOMITE
MLs — MUDDY LIMESTONE
G.Dol – GREY DOLOMITE
Bsh BLACK SHALE
C CARBONATE
Ls LIMESTONE
Rd Dol – RED DOLOMITE
O Dol – ORANGE DOLOMITE
s.s. SANDSTONE
q QUARTZITE
Єq
CAMBRIAN – QUARTZITE
GEOLOGICAL MAPPING BY J. GUILD, J. BELLAMY, F. Mc LONGHLIN, G. CARGILL
DATA COMPILATION TO DECEMBER, 1974
SYMBOLS
GEOLOGICAL CONTACT, DEFINED FROM GS
AND NORRIS, GSC 1969, BONNET PLUME
GEOLOGICAL CROSS SECTION
J.B.
H.g. HIGH GRADE
Fl FLOAT
F-2-9 MINERAL OCCURRENCE
DISSOMINATED MINOR MINERALIZATION
MINERALIZED FLOAT
Pb>90 ppm
Zn>1000 ppm
GEOCHEMICAL ANOMALIES
SOIL SURVEY GRID
CLAIM POST LOCATED
HELICOPTER PAD
ASSAY No. Pb % Zn %
S - SPECIMAN
TT - TRUE THICKNES
ASSAY SUMMARY
YUKON TERRITORY
N.W.T. DISTRICT OF MACKENZIE
OSDr
OSC
Єs
Єq
CAB 2 ZONE
CAB 1 ZONE
FOR DETAILS SEE GEOLOGY CAB No. 1 ZONE
FOR DETAILS SEE PLATES
FOR DETAILS SEE GEOLOGY CAB No. 2 ZONE
ROBERT'S SILICA BAND
"CAB" PROJECT BOUNDARY
"CAB" CLAIMS
ESSAU CREEK
CAMP
WELCOME NORTH MINES LTD.
ARCTIC RED PROJECT
NTS 106 C15,16, F1,2
CAB PROJECT AREA
GEOLOGY
FEET
1000 0 1000 2000
PLATE 2
PDT DRAFTING SERVICES
AUGUST 26, 1974
06-1282

N

LEGEND

- CREEK
- CLIFF
- GEOLOGICAL CONTACT
- OUTCROP
- MINERALIZATION (STRONG/WEAK)
- SAMPLE LOCATION
- DDH 2 — DIAMOND DRILL HOLE
- MINERALIZED ZONE

ORANGE & GREY WEATHERING DOLOMITES (No zinc noted)

BLACK DOLOMITE

TALUS

SANDSTONE

WEAK MINERALIZATION

CAB No. 146

CAB No. 147

CAB No. 144

CAB No. 145

UPPER ZONE

Stratiform sphalerite in outcrop

DDH CAB No.1

DDH CAB No.2

Appears near "in place"

HIGH GRADE ZINC RUBBLE

Mineralized fragments in talus

Rubble minor mineralization

RESISTANT BLACK DOLOMITE

Barite with hydrozincite

Barite sphal. & hydrozincite

GREY WEATHERING DOLOMITE

LIGHT GREY WEATHERING CARBONATES

GREY SANDSTONE

GREY LIMESTONE

BROWN DOLOMITE

BROWN CALCAREOUS SS.

WHITE SANDSTONE

FLAGGY DK. BRN. WEATH. SS.

WHITE SANDSTONE

ORANGE WEATHERING DOLOMITES

Prospected in part only

Sparse zinc throughout the orange and to a lesser degree the grey weathering beds

ORANGE WEATHERING DOLOMITE

INACCESSIBLE CLIFFS

132° 31' W

64° 59' N

Contacts gradational

Local concentrations remobilizite zinc

Mineralization mainly in outcrop

ZINC MINERALIZED DOLOMITE EXPOSED ON DIP SLOPE

(Stratiform & remobilizite sphalerite fracture filling sphalerite plus hydrozincite & smithsonite)

LOWER ZONE

Zones of zinc concetration within area of sparse but pervasive zinc mineralization

GREY WEATH. DOL

GREY WEATHERING FLAGGY DOLOMITE

Rock Pinnacle

Tin Can Creek

TALUS

ASSAY DATA

SAMPLE DESIGNATION	SAMPLE LENGTH	% LEAD	% ZINC	COMMENT
A	38'T.T.	Tr	0.79	BEDROCK CHIP
B	20'T.T.	.10	1.60	" "
C	150'T.T.	.01	8.40	RUBBLE CHIP
D	SPECIMEN	.03	52.70	CHARACTER SPECIMEN
E	"	.03	54.50	" "
F	15'T.T.	Tr	5.76	BEDROCK CHIP
G	5'T.T.	—	3.97	CHIP G.CARGILL
H	GRAB	.04	1.04	
I	25'T.T.	.01	1.36	BEDROCK CHIP
J	25'(4'T.T.)		0.52	CHIP G. CARGILL
K	20'(4'T.T.)		1.68	" "
L	10'(3'T.T.)		1.83	" "
M	15'(3'T.T.)		7.16	" "
N	22'(4'T.T.)		3.58	" "
O	30 T.T.	.01	6.72	BEDROCK CHIP
P	25'(5'T.T.)		3.58	CHIP G.CARGILL
Q	SPECIMEN	.03	17.78	CHARACTER SPECIMEN
R	"	.01	7.68	" "
S	8'T.T.		1.77	CHIP G.CARGILL
T	10'T.T.		.24	" "
U	10'T.T.		5.22	" "
V	8'T.T.		2.03	" "
W	10'T.T.		0.45	" "
X	5'T.T.		2.70	" "

NOTE : T.T. — TRUE THICKNESS

NOTE : TOPOGRAPHY APPROXIMATE. ENLARGEMENT OF 1:50,000 MAP, RELATIVE POSITIONS OF DRILL HOLES & MINERAL OCCURRENCES BASED ON COMPASS & CHAIN OR PACE SURVEYS.
GEOLOGY MODIFIED AFTER MAPPING BY G. CARGILL.

FEET 0 100 200

WELCOME NORTH MINES LTD.

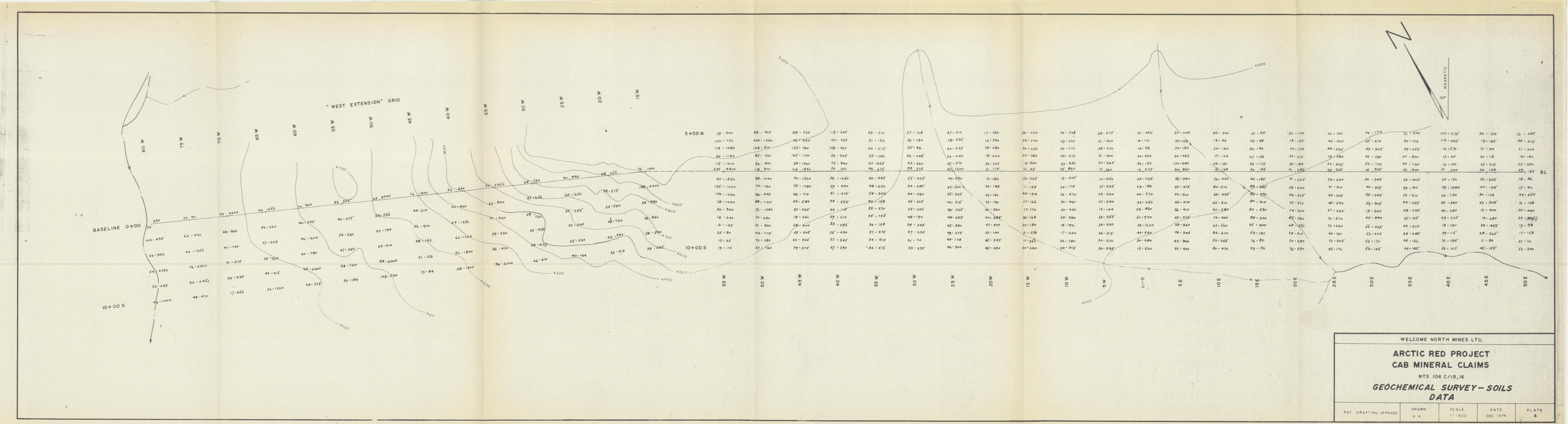
ARCTIC RED PROJECT
CAB MINERAL CLAIMS

NTS 106/C15
YUKON TERRITORY

CAB No. 2 ZONE
GEOLOGY

061282

PDT DRAFTING SERVICES	SCALE 1" = 100'	DATE JAN. 1975	REVISED	PLATE 3



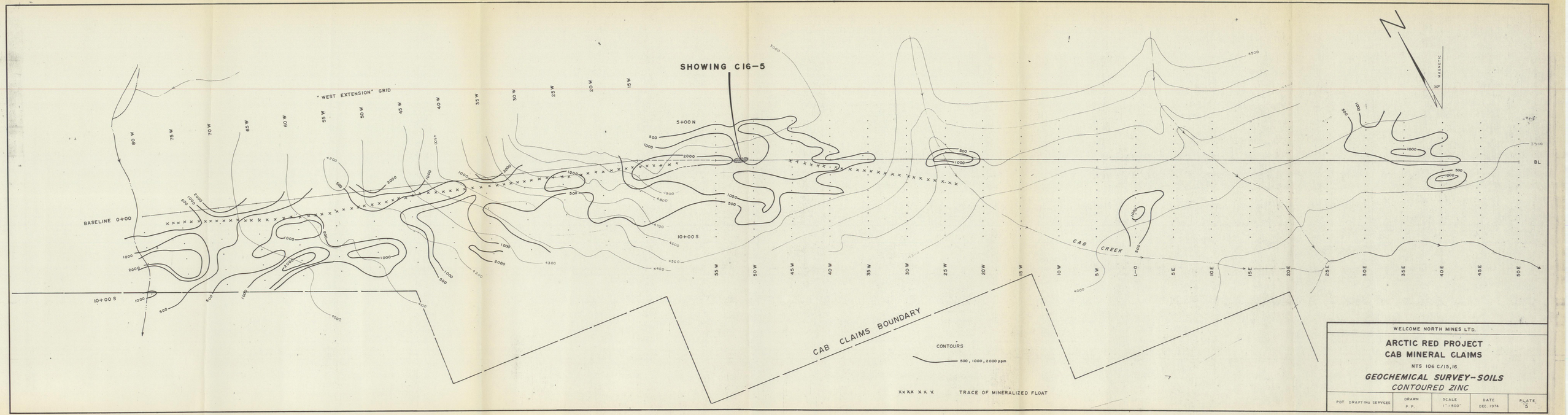
WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT
CAB MINERAL CLAIMS

NTS 106 C/15,16

GEOCHEMICAL SURVEY - SOILS DATA

PDT DRAFTING SERVICES	DRAWN	SCALE	DATE	PLATE
	P. P.	1" = 500'	DEC 1974	4



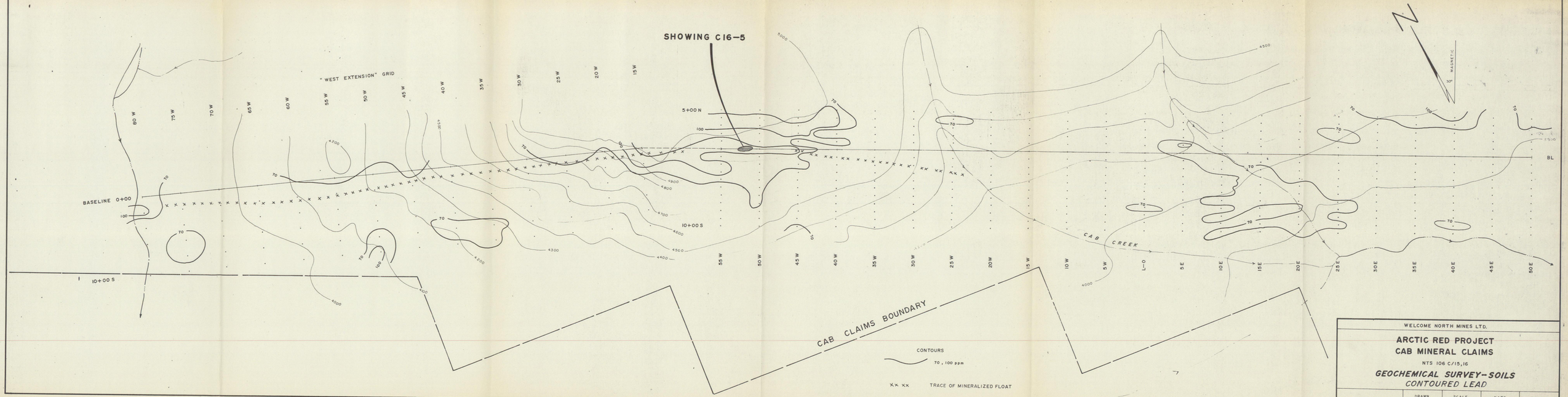
WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT
CAB MINERAL CLAIMS

NTS 106 C/15,16

GEOCHEMICAL SURVEY-SOILS
CONTOURED ZINC

PDT. DRAFTING SERVICES	DRAWN	SCALE	DATE	PLATE
	P. P.	1" = 500'	DEC. 1974	5



WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT
CAB MINERAL CLAIMS

NTS 106 C/15,16

GEOCHEMICAL SURVEY-SOILS
CONTOURED LEAD

PDT DRAFTING SERVICES	DRAWN	SCALE	DATE	PLATE
	P. P.	1" = 500'	DEC. 1974	6