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1974 SUMMARY AND PROGRESS REPORT NO. 1

on the

NATLA RIVER JOINT VENTURE

GODLIN LAKES AREA

NORTHWEST TERRITORIES

NAHANNI MINING DISTRICT

N.T.S. Sheet Nos. 95M and 105P

D. C. Miller, P. Eng. January 1975

BETHLEHEM COPPER CORPORATION

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SUMMARY

In 1972 and 1973, intensive prospecting was conducted by various mining companies for lead, zinc and copper mineralization in the Godlin Lakes Area, N.W.T. During this period, much of the effort was directed towards areas north of Godlin Lakes and southward as far as the Keele River. During the same period, prospecting activity was also in progress from base camps located at O'Grady Lake and Natla Lake, both located some 55 miles southward of Godlin Lakes.

An area, geologically favourable for lead-zinc mineralization, bounded by the Keele River on the north and the Natla River on the south, was relatively lightly prospected during the 1972-73 period and was selected as an area for prospecting during 1974.

A second area centered near the headwaters of the North Redstone River, comprising an arcuate belt extending southeasterly from the Keele River to a point some 16 miles northwestward of Dal Lake, was selected for prospecting for copper mineralization. Earlier prospecting activity in this area was also relatively light.

Aerial reconnaissance was conducted over both areas during 1973 and 1974 and major structure, gossans and discoloration were plotted on 1:250,000 scale maps.

Godlin Lakes was selected as a base camp for operations for the following reasons:

1. Both float equipped and wheeled aircraft could operate out of Godlin Lakes.

2. A Bell 206 B helicopter was scheduled to be based at Godlin Lakes during the summer months.

3. Tariffs for freight and supplies could be shared with other mining companies operating out of Godlin Lakes.

Prospecting commenced in the Natla River area in mid-June and continued in this area until the latter part of August. Prospecting in the North Redstone River area commenced in late July and continued until late August. Field crews, at maximum strength, comprised two geologists and three prospectors.

In the Natla area, a number of occurrences of lead-zinc mineralization were found and two occurrences, comprising low-grade lead-zinc and copper mineralization, were staked. In the North Redstone River area, several copper mineralization occurrences were found but none were considered to be worth staking.

The weather was poor during much of the summer and heavier than normal rainfall was experienced. One to two feet of snow fell on July 1 and remained until about July 4.

No major mechanical problems developed with the helicopter and availability was good, considering it was used by several companies.

PREPARATORY WORK

Preparations for field work included the following elements:

1. Areas for prospecting were selected on the basis of favourable geology, low degree of previous exploration coverage and good accessibility from an existing helicopter base.

2. Aerial reconnaissance was conducted over selected areas and structural features, gossans and discoloration were noted on 1:250,000 scale maps.

3. Published topographic and geological maps were purchased for the selected areas and surrounding areas and air photos were ordered for the Natla River area. Geological publications pertinent

to the areas were reviewed and data concerning the extent of previous exploration were extracted from other exploration firms and from persons familiar with the area.

4. Supplies, including field equipment and helicopter fuel, were purchased. Helicopter fuel was purchased in Norman Wells and delivered to the Godlin Lakes base camp in early April by ski-equipped Twin Otter aircraft.

5. Supplies and personnel were moved from a staging point at Ross River, Yukon, via Single Otter aircraft to Godlin Lakes and the base camp was set up.

FIELD METHODS

Field personnel included two two-man prospecting parties and one senior geologist. Each crew, together with camp equipment and about one week's supply of food, was moved in one load with a Bell 206B helicopter to a pre-selected campsite. The camp supplies were unloaded and the helicopter was utilized for a brief reconnaissance of the area near camp. The crew was then placed some distance from camp and the helicopter returned to base at Godlin Lakes. The crew completed a one-way traverse to the campsite and set up camp. On the following days, the crew worked out of camp until all drainages and areas of interest within a three-mile radius of camp were prospected. Silt samples were taken at the forks of all drainages to supplement prospecting. In practice, it was found that mineralized float was a more direct guide to showings than silt samples. Normally, two men worked together for safety considerations, however, in easy country, they were allowed to split up. Traverses and silt sample locations were plotted on 4-mile topographic maps or aerial photographs, if

available. They were later transferred to transparent overlay maps along with other pertinent information to form a permanent record.

Daily radio communication was normally maintained with the Godlin Lakes base camp and food was ordered by means of a number code. When the crew was ready for a move, usually about every four days, the helicopter was dispatched with food and supplies and the crew was moved to another pre-selected area. On the return trip, silt samples and rock samples were returned to base camp. Approximately every three cycles or 12 days, the crew returned to base camp to clean their gear, discuss the results to date and plan future work.

The senior geologist's duties included directing and co-ordinating the programme, selecting areas for prospecting, examining showings, up-dating plans and assay results and assisting in claim staking and prospecting.

SILT SAMPLING PROGRAMME

In both areas prospected this season, outcrop exposures were abundant and more emphasis was placed on prospecting and tracing float occurrences to their source than on high density silt sampling. The purpose of silt sampling was to supplement prospecting and acquire relatively inexpensive information during the prospecting process.

Silt samples were collected in kraft envelopes from the active portion of drainages above all stream forks traversed. Most of the streams drain areas containing several rock units and hence, silt samples generally comprised material derived from several rock units.

In the Natla area, the majority of silts analysed contained 20 to 60 ppm zinc and 5 to 25 ppm copper. Generally silts containing

more than 100 ppm zinc or 40 ppm copper were considered anomalous. For silt derived entirely from Unit 14, Sekwi Formation, the average zinc content was higher than normal and was in the order of 100 ppm.

In the North Redstone area, silts from streams draining the Rapitan Unit contained more copper and zinc than silts from streams draining other units. The majority of silts analysed contained 5 to 80 ppm copper and 15 to 90 ppm zinc with the highest frequency of samples in the 5 to 40 ppm copper interval and the 20 to 60 ppm zinc interval. Samples containing more than 100 ppm copper or zinc were considered anomalous.

Natla River Area

Location and Access

The area investigated lies between latitudes 63°10'N to 35'N and longitudes 128°W to 129°W. Access is by helicopter or float plane. The abandoned Canol Road and Godlin Lakes lies some 30 miles north of the centre of the area. Godlin Lakes base camp is located 125 air-miles southwest of Norman Wells and 180 air-miles northeast of Ross River. Food, fuel and other supplies can be obtained from either centre and delivered to Godlin Lakes by either float or wheeled aircraft.

Physical and General Features

The Natla area lies in mountainous terrain including fairly broad, wooded valleys and meadows along major drainages, and moss-covered to rocky uplands. Rugged topography is evident in some parts with the development of cliff-walled cirques, ridges and canyons. Higher peaks attain elevations of about 7,500 feet. Timberline is at approximately 4,500 feet and valley bottoms average about 3,500 feet.

Caribou and sheep are plentiful and moose, grizzly bear, wolf, beaver and muskrat were seen with less frequency.

A number of very old tree stumps and remains of wooden structures indicate Indians hunted the area in the past.

Geology

The Natla area is underlain by complexly faulted and folded sedimentary strata ranging in age from Early Cambrian to Upper Devonian. With reference to G.S.C. Map 1333A, Sekwi Mountains, Units 10b to 26 outcrop in the area prospected. The beds strike nearly due north and dip at various angles to the east or west and are locally nearly flat lying. The folded beds are cut by a number of sub-parallel branching north to northwesterly trending faults which may have large displacements. In one area, Unit 12, Lower Cambrian orthoquartzite, is faulted into contact with Unit 23, Middle Devonian limestone. Initially, the Sekwi Formation, Unit 14 was considered the most promising unit for hosting lead-zinc mineralization, as this was the case near Godlin Lakes and further northward. Other carbonate and shale units also were considered potential mineral host rocks as mineral occurrences in various units were known near Godlin Lakes. Prospecting, however, showed that Unit 11, a buff-colored thick bedded dolomite of limited extent, was the most prolific host rock for lead-zinc occurrences in the area.

Unit 11 has a total strike length of some 18 miles and a maximum thickness of about 500 feet. It is underlain by Unit 10b: dark grey laminated siltstone and shale, and overlain by Unit 12: light grey orthoquartzite. Lead-zinc-copper occurrences comprising pale colored sphalerite, coarse galena, and minor tetrahedrite were found over a 6-mile strike length of Unit 11 centered near Natla

River. Mineralization occurs chiefly in various fracture sets which cut the bedding planes nearly at right angles. Where fractures are close-spaced, mineralization approaches ore grade.

A number of sphalerite-hydrozincite occurrences were also found in Unit 23, Landry Formation, comprising light grey weathering limestone. These occurrences were of restricted size or low-tenor.

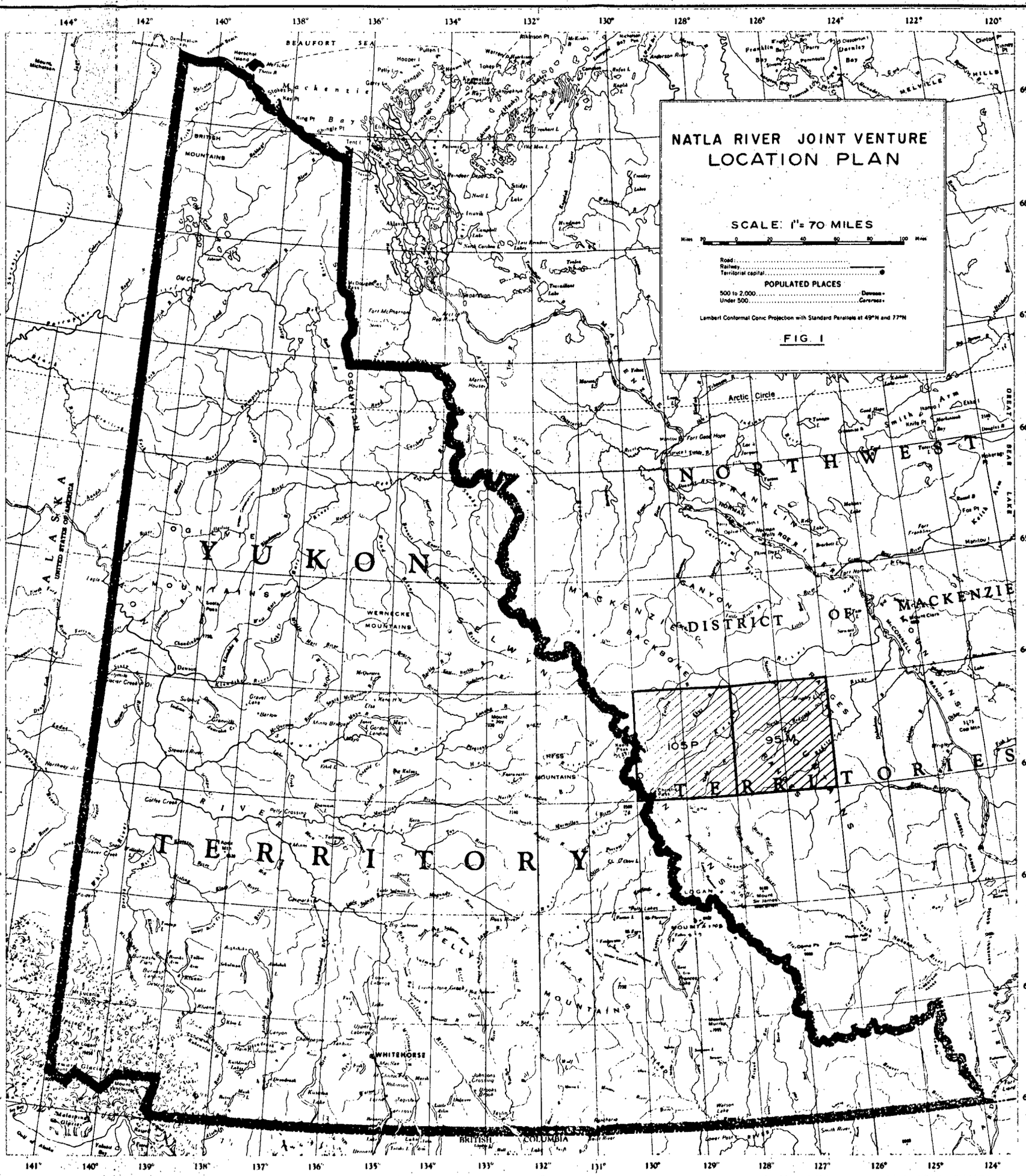
No occurrences were found in the Sekwi Formation, Unit 14, although silts from streams draining this unit commonly contained relatively high quantities of zinc.

Mineral Occurrences

Mineral occurrences are described in order of their relative importance and are designated in numerical order in the following descriptions and accompanying map figures. Occurrences which were staked are also designated by their claim group name.

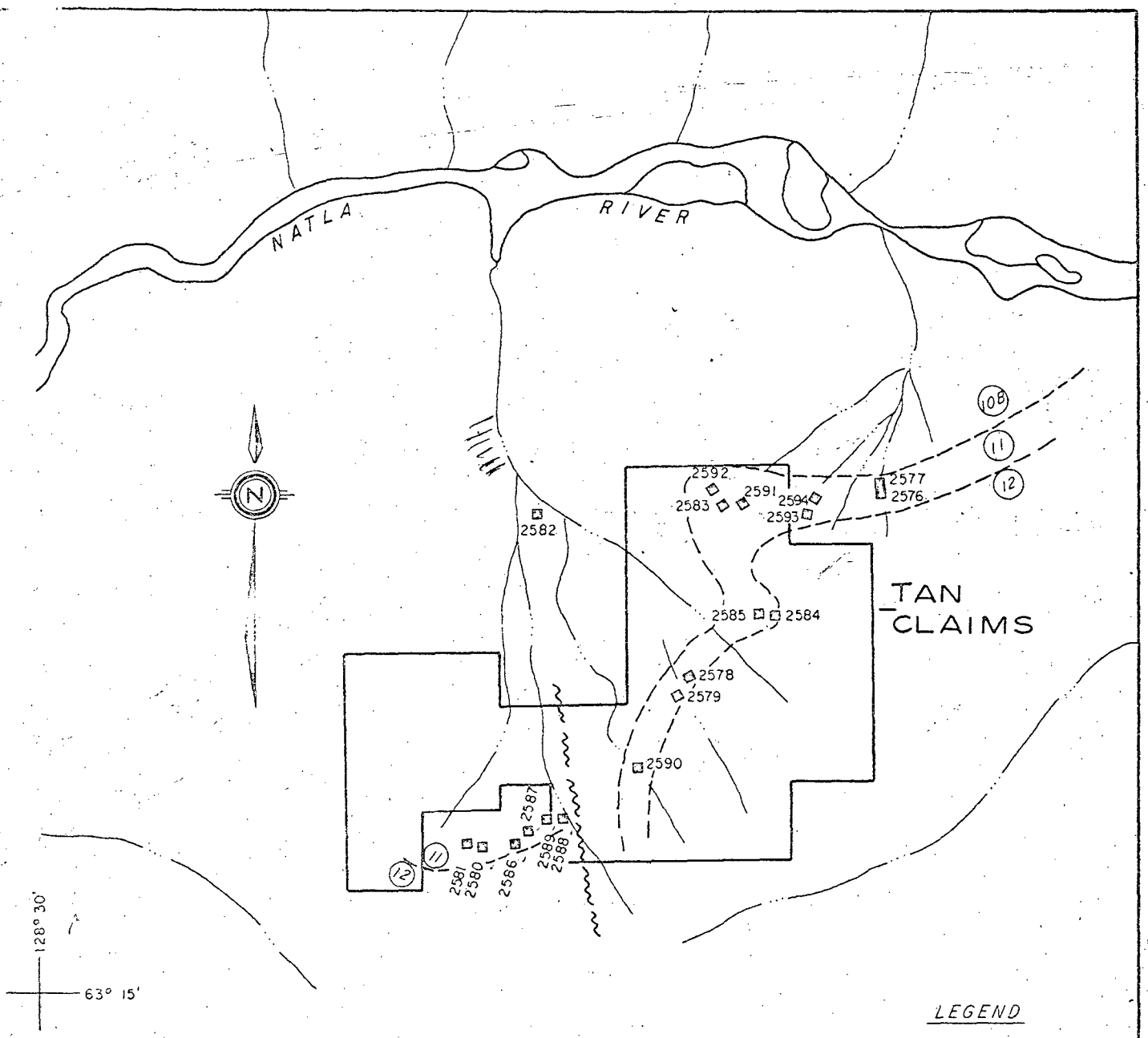
(a) Occurrence 1 - Tan Claims: Figure 2; N.T.S. 105P/8

The Tan claims are located one mile south of the Nat claims on the south side of the Natla River. The showings, comprising low grade galena, sphalerite and tetrahedrite mineralization, were found by prospecting southward from the Nat claims along the strike of Unit 11: thick bedded, buff-colored dolomite. South of Natla River, this bed is exposed over an apparent dip length of 5,000 feet. The eastern, down-dip part of the bed, near the river, is unmineralized. Mineralization commences at about the 5,000-foot elevation at a point about one mile south of Natla River and continues about one-half mile westward up-dip and about one mile southward along strike. A further 1,000-foot dip length of mineralization is exposed in a down-faulted block west of the main showings.



MCR 47 SECOND EDITION

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa



SAMPLE No	Ag oz	Pb %	Zn %	Cu %	WIDTH FEET
2576		.01	.13		80
2577		.03	.49		60
2578	.29	.60	.34		50
2579	.09	.03	.04		100
2580	.29	1.85	1.04	.03	60
2581	1.94	19.90	1.36	.29	61 - Grab
2582	.15	1.08	1.28	.23	3 -
2583	.29	.63	2.46		80
2584	.47	.93	.78		25
2585	7.94	8.40	2.22	.68	35
2586	.18	1.03	.42		50
2587	Tr	.03	.01		50
2588	.15	.53	2.40	.04	100
2589	.27	1.70	3.36		100
2590	1.03	1.75	1.80		45
2591	.15	.15	.35		40
2592	.12	.28	2.88		50
2593	.12	.09	.10		60
2594	.59	1.43	.46		60

LEGEND

(12) Orthoquartzite

(11) Dolomite

(108) Siltstone & Shale

Map Units derived from

G.S.C. "SEKWI MOUNTAIN"

Sheet - Map No. 1333A

Paper No. 71-22

	DEPT. - EXPLORATION	Bethlehem Copper VANCOUVER BRITISH COLUMBIA
	DRAWN BY - Altoir/m.k.	
	CHECKED - E.A.	
	APPROVED -	
	DATE - JAN. 1975	
	SCALE - 1" = 1/2 mile	

TITLE - NATLA RIVER JOINT VENTURE
NATLA AREA - OCCURRENCE NO. 1

FILE NUMBER - N.T.S. 105P/8

DRAWING NUMBER - FIG. 2

BCIL - 3937a-bc

In the vicinity of the main showings, the host bed is about 300 feet thick, strikes N20E and dips about 25°SE. Mineralication occurs in fractures normal to bedding and is associated with quartz and calcite. True outcrops, to a large extent, are masked by talus slides and, in particular, the footwall part of the dolomite bed is covered. The best mineralization is found in the upper one-third of the bed.

A number of chip samples were obtained from the bed where outcrops were exposed, primarily in stream cuts and ridges. The locations of these samples are shown on the accompanying Fig. 2 . Assay results from these samples are as follows:

(A) North Area, samples taken along dip:

Sample No.	Width Feet	Oz. Ag.	% Pb	% Zn	
2577	60	-	0.03	0.49	East
2594	60	0.59	1.43	0.46	West
Average	60	*0.35	0.73	0.48	

*Estimated

The above samples represent a dip-length segment of about 1,500 feet with decreasing values down-dip.

(B) Main Area

Sample No.	Width Feet	Oz. Ag	% Pb	% Zn
2592) 2583)	130	0.23	0.35	2.62
2584) 2585)	25	4.44	4.67	1.50
2578	50	0.29	0.60	0.34
2579	100	0.09	0.03	0.04
2590	45	1.03	1.75	1.80
Average	70	0.60	0.78	1.37

The above samples represent a strike-length of about 5,000 feet.

(C) Down-Faulted Block

Sample No.	Width Feet	Oz. Ag	% Pb	% Zn
2588	100	0.15	0.53	2.40
2589	100	0.27	1.70	3.36
2586) 2587)	100	0.09	0.53	0.22
2580	60	0.29	1.85	1.04
Average	90	0.19	1.07	1.83

The above samples represent a dip-length of about 1,500 feet.

(D) Average of (A) and (B) preceding:

	Length	Width	Factor	Oz. Ag	% Pb	% Zn
A	1,500	60	9	0.30	0.73	0.48
B	5,000	70	35	0.60	0.78	1.37
				0.54	0.77	1.19

For the main block, an inferred tonnage of mineralization is estimated as follows:

$$\frac{\text{(Strike-length) } 5{,}000' \times \text{(Dip-length) } 1{,}500' \times \text{(Width) } 70'}{\text{TONNAGE FACTOR } 12 \text{ Cu.Ft./Ton}}$$

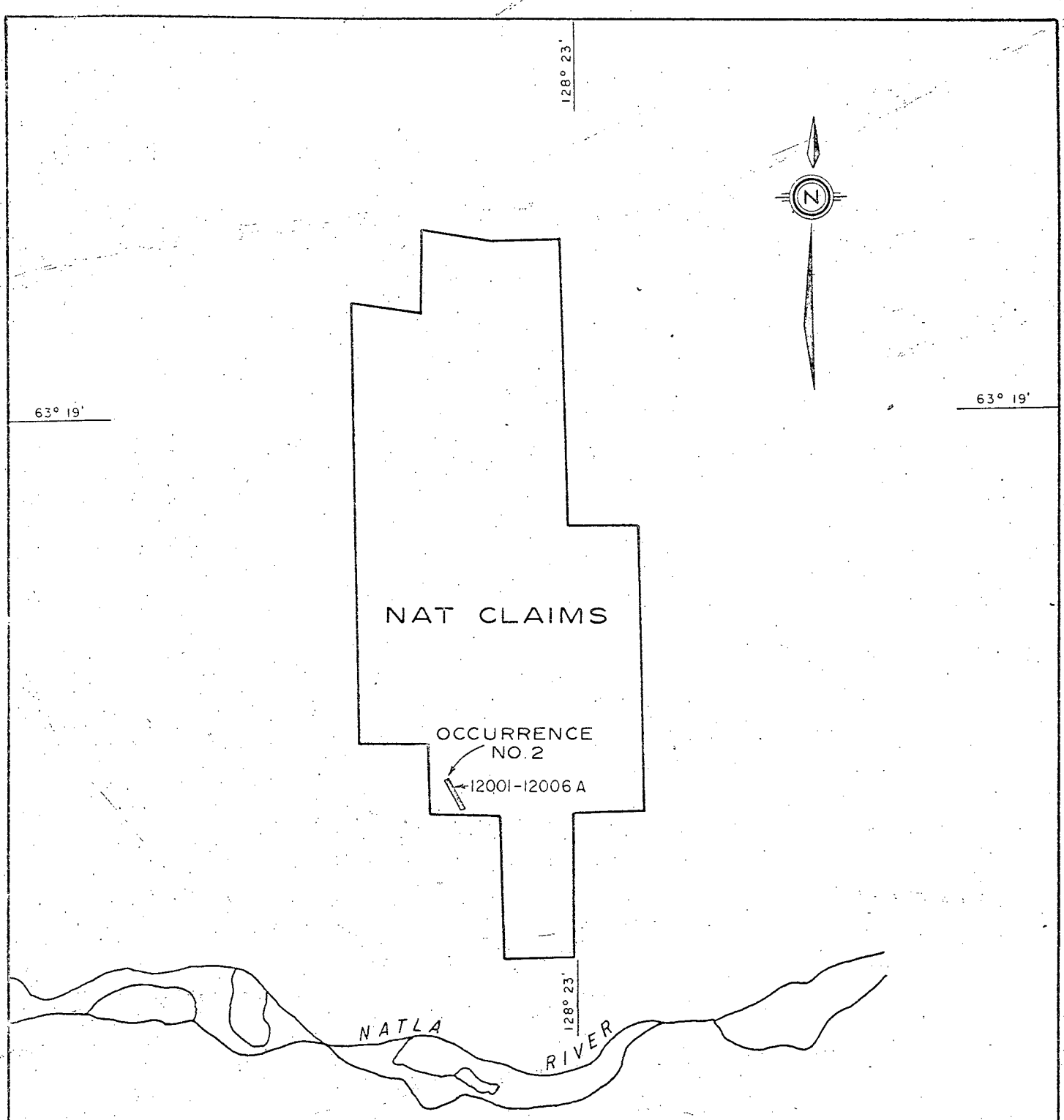
$$= 43{,}750{,}000 \text{ TONS}$$

at grade of approximately 0.54 Oz/Ton Ag, 0.77% Pb and 1.19% Zn

At current prices, this material would have a gross value of about $14.50/ton with a recoverable value of about $11.60/ton.

(b) Occurrence 2 - Nat Claims: Figure 3; N.T.S. 105P/8

This occurrence was found by tracing float from a small stream to its source some 1.5 miles upstream. Subsequent silt analysis also showed a high but only from a sample within 0.5 miles of the occurrence. The lower part of this particular stream cut through about 1.5 miles of shale and siltstone and this weak material, subject to rapid erosion, progressively diluted sediment from upstream mineralized rock.



Sample No	Cu%	Pb%	Zn%
12001 A	0.01	0.18	0.04
12002 A	0.01	0.34	0.38
12003 A	0.01	0.09	0.14
12004 A	0.01	0.17	0.05
12005 A	0.03	0.71	0.82
12006 A	0.03	1.98	0.46

DATE REVISED	BY	DEPT. – EXPLORATION
		DRAWN BY – Altair /m.kj
		CHECKED – E.A.
		APPROVED –
		DATE – JAN. 1974
		SCALE – 1" = 1/2 mile

Bethlehem Copper
VANCOUVER BRITISH COLUMBIA

TITLE –
NATLA RIVER JOINT VENTURE
NATLA AREA – OCCURRENCE NO. 2

FILE NUMBER – N.T.S. 105P/8

DRAWING NUMBER – FIG. 3

SCIL - 3937a-bc

The best showings occur on the Nat 24 claim and comprise pale colored sphalerite, galena and minor tetrahedrite mineralization filling steeply dipping fractures which cut across bedding planes in thick-bedded buff colored dolomite (Unit 11). The dolomite bed strikes due north and dips 35 - 25°E. Mineralized fractures have attitudes of approximately 310°/80°S.W., 270°/80°S and 350°/80°/S.W. The footwall of the dolomite bed is covered by talus and the upper part of the bed grades into sandy dolomite. The maximum thickness of the dolomite bed is 500 feet and the best mineralization occurs toward the footwall of the bed, although locally, some mineralization is found throughout. The dolomite bed is underlain by siltstone and shale and overlain by orthoquartzite. The footwall contact is covered by talus along the mineralized portion of the bed and the upper part of the bed forms prominent cliffs. Sporadic mineralized fractures occur along the bed over a total length of six miles. Closely spaced mineralized fractures occur in one area (Nat 24 claim) over a length of 800 feet. Five large chip samples were taken from this area and averaged 0.57% Pb and 0.32% Zn over an approximate 50 foot width of beds.

(c) Occurrence 3 - N.T.S. 105P/8

This occurrence comprises low-grade tetrahedrite, sphalerite and galena mineralization associated with quartz healed fractures in dolomite. Mineralization occurs over a 400 foot strike length and averages 20 feet in width. The host rock is thought to be a faulted block of Unit 11, buff dolomite. It strikes north and dips about 30° eastward.

(d) Occurrence 4 - N.T.S. 105P/8

Galena and sphalerite occur in a talus slide over a

300 foot length. The mineralization fills fractures cutting bedding and the host rock is Unit 11, buff dolomite. A character sample of talus assayed 0.09% Pb and 0.14% Zn. A single small outcrop above the slide contains minor mineralization.

(e) Occurrence 5 - Figure 4; N.T.S. 105P/1

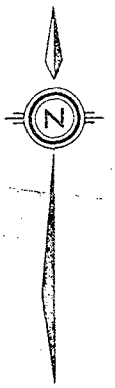
A small dome-shaped hill between the forks of a small stream contains a 10 foot long, 7 inch thick band of high grade galena and sphalerite with some pyrite. The mineralization is flat lying. Small barren outcrops are exposed near the mineralization but no large outcrops are exposed along strike or up slope from the showing. Fourteen soil samples were taken over an area of 200 x 200 feet near the showing and averaged 327 ppm Zn against a background of 40 ppm Zn. The showing occurs in Unit 11, buff dolomite.

(f) Occurrence 6 - N.T.S. 105P/2

Smithsonite-hydrozincite mineralization occurs as fine matrix seams in a brecciated limestone bed. The mineralization extends over a northerly trending strike length of 1,200 feet and over a 20 foot width and dips easterly. Three character samples were taken over the zone and averaged 0.06% Pb and 0.08% Zn. The host rock is limestone of Unit 23, Landry Formation.

(g) Occurrence 7 - N.T.S. 105P/8

Smithsonite, hydrozincite and sphalerite heal fractures in limestone of Unit 23, Landry Formation. The mineralization occurs in a small pod some 100 feet long and 20 feet thick. Much outcrop is present and the limits of the zone are easily recognized.



15 ∘ 27/390

14 ∘ 20/380

13 ∘ 24/250

5 ∘ 25/240

12 ∘ 26/285

4 ∘ 22/250

11 ∘ 29/360

3 ∘ 28/415

6 ∘ 22/485

2 ∘ 7/310

7 ∘ 25/440

FLOAT LYING
10' LONG, 8" THICK
SURROUNDING ROCK — HG, Pb, Zn Mineralization
BARREN MINOR O/C

1 ∘ 240/32,000

8 ∘ 23/210

9 ∘ 26/280

10 ∘ 26/280

DATE REVISED	BY	DEPT. — EXPLORATION
		DRAWN BY —
		CHECKED — E.A.
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 50'

Bethlehem Copper
VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE
NATLA AREA - OCCURRENCE NO. 5

FILE NUMBER — N.T.S. 105 P/1

DRAWING NUMBER — FIG. 4

3CIL - 3937a-bs

North Redstone River Area

Location and Access

The area prospected comprises an arcuate belt extending from Lat. 63°15'N to 63°50'N and Long. 126°50'W to 127°55'W. Access is by helicopter. The abandoned Canol Road and Godlin Lakes lie some 50 miles northwestward of the centre of the area. Norman Wells lies 112 air-miles to the north.

Physical and General Features

The area lies along a topographic boundary with mountainous terrain to the west and generally more open and less mountainous terrain eastward. Major tributaries of the North Redstone River form broad wooded valleys dissecting grass and moss covered uplands. Prominent cliffs and canyons have developed along the base of the Rapitan Group. Maximum elevations exceed 7,000 feet and valley bottoms average about 3,000 to 3,500 feet. There are a number of small lakes up to 2 miles in length along the eastern margin of the area.

Caribou abound in the area and herds of up to 50 were seen on a single day's traverse.

Geology

The area is mainly underlain by Precambrian sedimentary strata considered to be of Helikian to Hydrynian age. With reference to Geological Survey of Canada Map 1315A, Wrigley Lake, the strata investigated included the Little Dal Formation, chiefly dolomite and limestone; the Redstone River Formation, chiefly siltstone; the Copper Cap Formation, chiefly limestone and siltstone; and lower members of the Rapitan Group, chiefly siltstone, mudstone and conglomerate. Ordovician to Devonian Age strata lie to the east in fault contact with the Precambrian strata.

Strata strike north to northwest and dip 5° to 45° westward in the area prospected. The prominent structural feature is the Plateau Fault which thrusts Precambrian strata to the west over Precambrian and Paleozoic strata to the east. Apparent dip-slip displacement on this fault is in the order of 4 to 7 miles.

Several copper prospects, including the Tet-Rap, Nite and Redstone River occur north and south of the area prospected. These showings occur in the Redstone River Formation, the Little Dal Formation and the Rapitan Group.

The source of some of the copper mineralization is thought to be the Redstone River Formation which locally contains stratiform copper mineralization in the upper part of the formation. However, following deposition of the Redstone River Formation and the overlying Copper Cap Formation, the area was subjected to prolonged erosion and much of these two formations are preserved only in local areas.

Mineral Occurrences

During the current season, a number of mineral occurrences were found in various formations, however, none were considered large enough to stake. The locations of the following mineral occurrences are shown on the accompanying plans in Appendix 3.

(a) Occurrence 1 - N.T.S. 95M/6

This showing comprised bornite, chalcopyrite and malachite mineralization in fine seams parallel to bedding in white dolomite host rock. The white bed was exposed only as float and surface rubble and its distribution indicated the source bed was just below surface. The float was traced over a strike length of 500 feet. To the north, the zone pinched out or was eroded; to the south it was covered by thick talus

originating up-slope from the zone. From the quantity and distribution of float and rubble, it was judged the source bed was likely less than 5 feet thick. The mineralized bed was underlain by reddish siltstone, thought to be in the upper part of the Redstone River Formation. It was overlain by talus originating from Rapitan and presumably Copper Cap Formation beds. Bedding attitudes averaged about N20°W/20°S.W. A character sample of float assayed 1.32% Cu.

(b) Occurrence 2 - N.T.S. 95M/6

This showing is similar in stratigraphic setting to Occurrence 1 and is located some 2.5 miles southward. The showing consists of a mineralized pod of dolomite, some 30 feet long and about 10 feet thick, enclosed by maroon siltstones. Mineralization includes heavy malachite and disseminated bornite. To the north, no further mineralization is evident, to the south, minor float was found over a 400 foot length.

(c) Occurrence 3 - N.T.S. 95M/7

This occurrence consists of minor tetrahedrite associated with quartz-calcite healed fractures in Little Dal dolomite. Sparse mineralization is present in a narrow interval of beds over a strike length of approximately 2 miles. No material approaching economic grade was seen.

(d) Occurrence 4 - N.T.S. 95M/7

Low-grade lead-zinc mineralization was found in the Middle Devonian Landry Formation. Galena and sphalerite, associated with quartz healed fractures, were found sparingly over an area of some 400 by 50 feet in limestone.

(e) Occurrence 5 - N.T.S. 95M/7

Chalcopyrite and bornite veinlets, cutting bedding planes in Lower Rapitan iron formation, were found in very sparse quantity over an area of some 200 x 500 feet. The aggregate grade was estimated to be less than 0.05% Cu. The host rock comprised alternating thick bands of jasper and thin bands of hematite striking northerly and dipping about 40° westward.

(f) Occurrence 6 - N.T.S. 95M/13

This showing consists of an unusual occurrence of copper mineralization associated with gypsum. It is located in thin gypsum beds near the top of the Redstone River Formation. The beds strike northwest and dip about 10° southwest and consist of intercalated red siltstone and white gypsum over a 40 foot stratigraphic interval. Copper mineralization is present only with the gypsum and consists of malachite and minor fine-grained chalcopyrite and bornite in fine seams along bedding planes. A sample taken over a 3 foot wide gypsum bed assayed 0.25% Cu. Parts of the mineralized beds are exposed over a mile on strike and dip but are largely covered by talus generated by a thick layer of overlying Copper Cap and Rapitan beds.

CONCLUSIONS AND RECOMMENDATIONS

During the past three years, the Mackenzie Mountains, and adjacent ranges, have been prospected by several companies over a vast area extending northward from Lat. 62°N to Lat. 65°30'N. Particularly intensive prospecting was done in the vicinity of Summit Lake, Grizzly Bear Lake, O'Grady Lake, Natla Lake, Godlin Lakes,

MacMillan Pass, Palmer Lake, Bonnet Plume Lake, Arctic Lakes, Margaret Lake and a number of unnamed lakes. Earlier prospecting, in the 1960's, had been conducted in the Redstone River area, Palmer Lake, June Lake, MacMillan Pass, and other locations. During the early period, a number of copper occurrences were found in the Redstone River area; a lead-zinc deposit and a tungsten deposit were found in the MacMillan Pass area. During the later period, a large number of lead-zinc occurrences and some copper occurrences were found. The most important discoveries, which are still under development, include lead-zinc deposits at Summit Lake and the Barrier Reef deposit near Bonnet Plume Lake.

In retrospect, one can conclude that a large area of formerly largely unprospected terrain has now been covered by helicopter supported prospecting and stream sampling. A large number of mineral occurrences but few potentially economic deposits were found.

In addition to being remote and expensive to explore and develop, the area is also subject to restrictive land use ordinances which add further expense and inconvenience to exploration work.

With reference to prospecting activities conducted by the Natla River Joint Venture during 1974, this work was contingent on having a suitable helicopter base close to the areas of interest. Had this not been the case, exploration costs would have been considerably higher.

The most important discovery during the season was extensive low grade lead-zinc mineralization located near the Natla River. Two groups of claims, the Nat and Tan claims, were staked by Bethlehem personnel to cover these showings. The best mineralization was found

on the Tan claims and surface showings indicate an inferred reserve of some 40 million tons of 0.54 oz/ton Ag, 0.77% Pb and 1.19% Zn. There are indications that this tonnage could be expanded with further work; however, there are no indications that the grade would improve. Under current conditions, this deposit is obviously sub-economic. It is recommended that an attempt should be made to option this property along with the Nat claims.

Adjacent areas to the Nat and Tan claims were well prospected and several small occurrences of lead-zinc mineralization were found. None were deemed worth further work.

In the remainder of the Natla River area, no significant showings were found and no further work in this area is recommended.

In the Redstone River area, a number of copper occurrences were found associated with a narrow band of strata including the Redstone River Formation, the Little Dal Formation, and the Lower Rapitan Group. Two of these occurrences, located in the Redstone River Formation, appear to be of syngenetic origin, comprising fine mineralization along bedding planes. The other occurrences are epigenetic and consist of fracture fillings normal to bedding planes. None of the showings found were judged to be worth staking.

In the past, extensive prospecting was done north and south of the area covered this season and some indications of prospecting, old ribbons, were found at two locations within the area covered. It is concluded that the most favourable stratigraphy has been prospected

and that further grass roots-type exploration in the area would be unwarranted.

Respectfully submitted,

D. C. MILLER

January 15, 1975

DCM/cb

APPENDIX 1

SUMMARY OF 1974 EXPENDITURES

BETHLEHEM COPPER CORPORATION

NATLA RIVER JOINT VENTURE

SUMMARY OF 1974 EXPENDITURES

	To December 31, 1974
Salaries and employee benefits	$ 17,796.18
Consultants	3,363.17
Contracted services	20,192.29
Supplies	4,109.73
General expenses	9,004.68
Claim expenses	110.00
Claim - registration	245.00
Administration	5,482.09
TOTAL DISBURSEMENTS	$ 60,303.14

Disbursements Allocated

International Mogul Mines Limited	25%	$ 15,075.78
Bethlehem Copper Corporation	75%	45,227.36
TOTAL DISBURSEMENTS		$ 60,303.14

APPENDIX 2

SCHEDULE OF MINERAL CLAIMS

BETHLEHEM COPPER CORPORATION

MINERAL CLAIMS

Property: NATLA RIVER JOINT VENTURE

Mining Division: Nahanni (N.W.T.)

Name of Claim	Record Number and Metal Tag Number	Date Recorded	Expiry Date
NAT 1	A 75501	Aug. 19, 1974	Aug. 19, 1975
NAT 2	A 75502	"	"
NAT 3	A 75503	"	"
NAT 4	A 75504	"	"
NAT 5	A 75505	"	"
NAT 6	A 75506	"	"
NAT 7	A 75507	"	"
NAT 8	A 75508	"	"
NAT 9	A 75509	"	"
NAT 10	A 75510	"	"
NAT 11	A 75511	"	"
NAT 12	A 75512	"	"
NAT 13	A 75513	"	"
NAT 14	A 75514	"	"
NAT 15	A 75515	"	"
NAT 16	A 75516	"	"
NAT 17	A 75517	"	"
NAT 18	A 75518	"	"
NAT 19	A 75519	"	"
NAT 20	A 75520	"	"
NAT 21	A 75521	"	"
NAT 22	A 75522	"	"
NAT 23	A 75523	"	"
NAT 24	A 75524	"	"
NAT 25	A 75525	"	"
NAT 26	A 75526	"	"
NAT 27	A 75527	"	"
NAT 28	A 75528	"	"

BETHLEHEM COPPER CORPORATION

MINERAL CLAIMS

Property: NATLA RIVER JOINT VENTURE

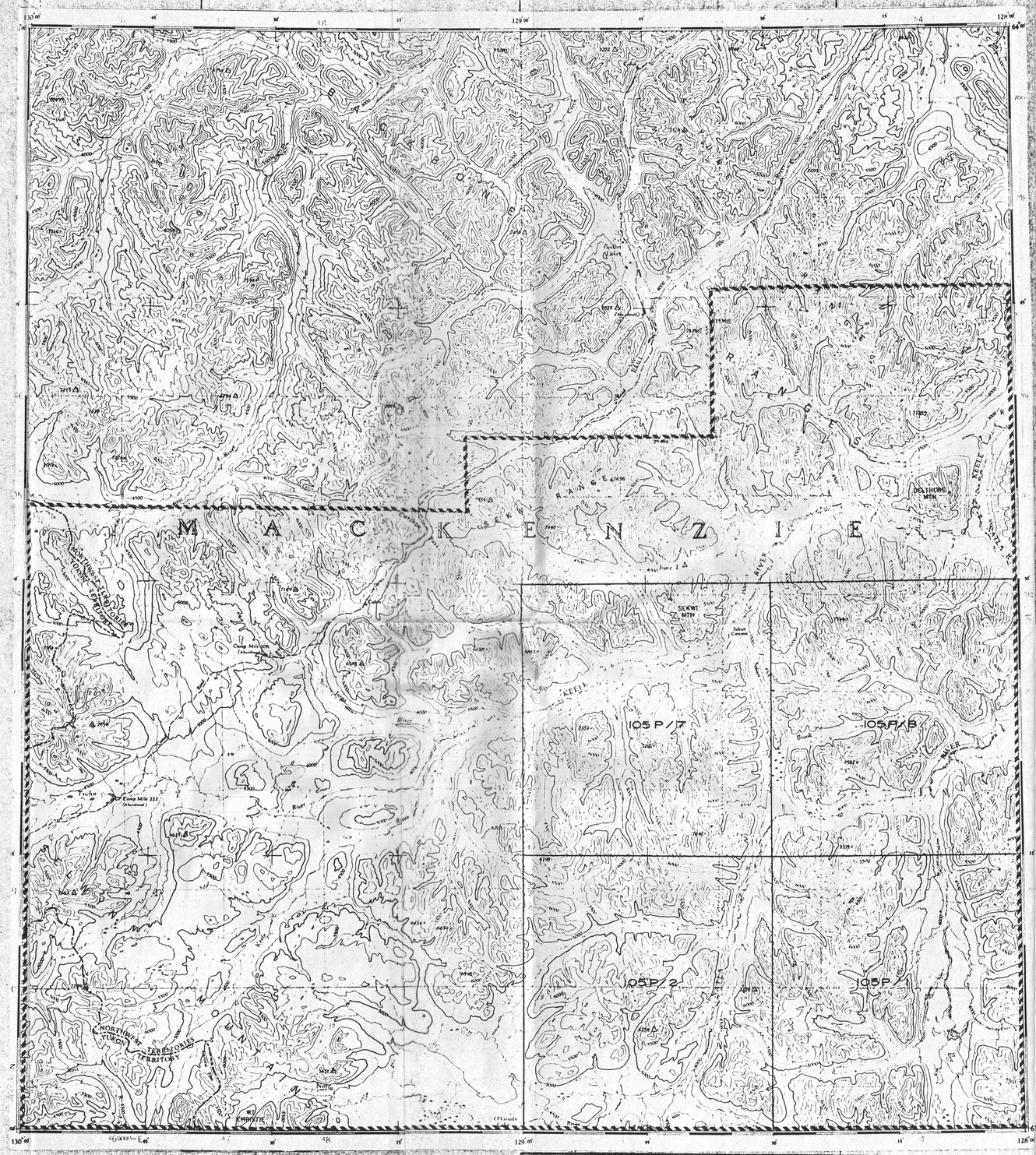
Mining Division: NAHANNI (N.W.T.)

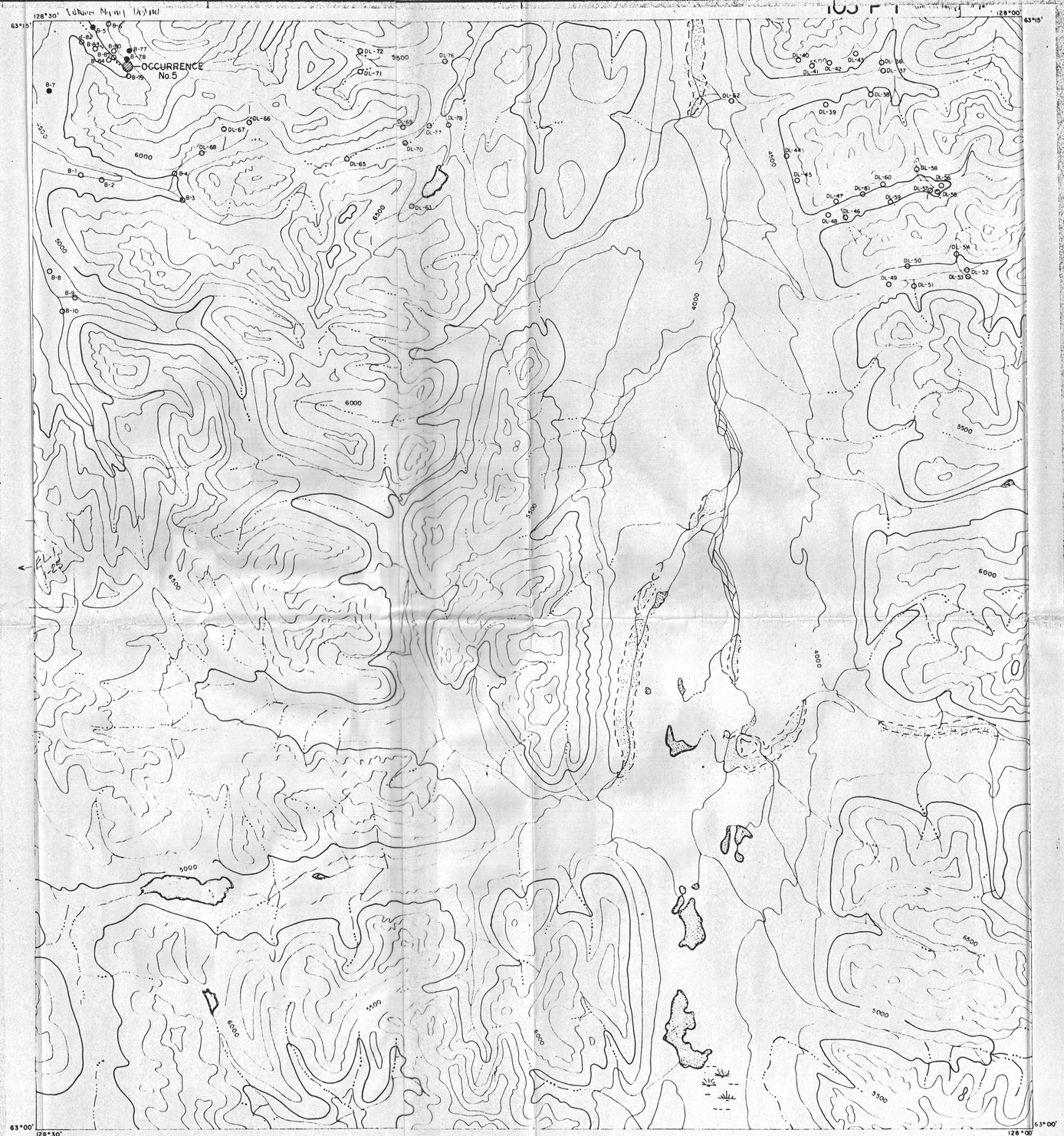
Name of Claim	Record Number and Metal Tag Number	Date Recorded	Expiry Date
TAN 1	A 75571	Aug. 19, 1974	Aug. 19, 1975
TAN 2	A 75572	"	"
TAN 3	A 75573	"	"
TAN 4	A 75574	"	"
TAN 5	A 75575	"	"
TAN 6	A 75576	"	"
TAN 7	A 75577	"	"
TAN 8	A 75578	"	"
TAN 9	A 75579	"	"
TAN 10	A 75580	"	"
TAN 11	A 75581	"	"
TAN 12	A 75582	"	"
TAN 13	A 75583	"	"
TAN 14	A 75584	"	"
TAN 15	A 75585	"	"
TAN 16	A 75586	"	"
TAN 17	A 75587	"	"
TAN 18	A 75592	"	"
TAN 19	A 75589	"	"
TAN 20	A 75590	"	"
TAN 21	A 75591	"	"



MCR 47 SECOND EDITION

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ott


MACKENZIE
RANGE
RANGE
RANGE
RIVER
RIVER
RIVER



LEGEND

8-77 O - Sample No. & Location

FINAL COPY
JAN 31 1975
DATE:- PER:-

DATE REVISED	BY	
		DEPT. — EXPLORATION
		DRAWN BY — Altair/m.k.
		CHECKED — E.A.
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 1mile approx.

Bethlehem Copper
CORPORATION LTD
VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE SAMPLE LOCATION PLAN

FILE NUMBER —	DRAWING NUMBER —
N.T.S. 105 P/1	1-01-S



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APPROVED —
DATE — JAN 1975
SCALE — 1" = 1mile approx

Bethlehem Copper CORPORATION LTD
VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE ASSAY PLAN

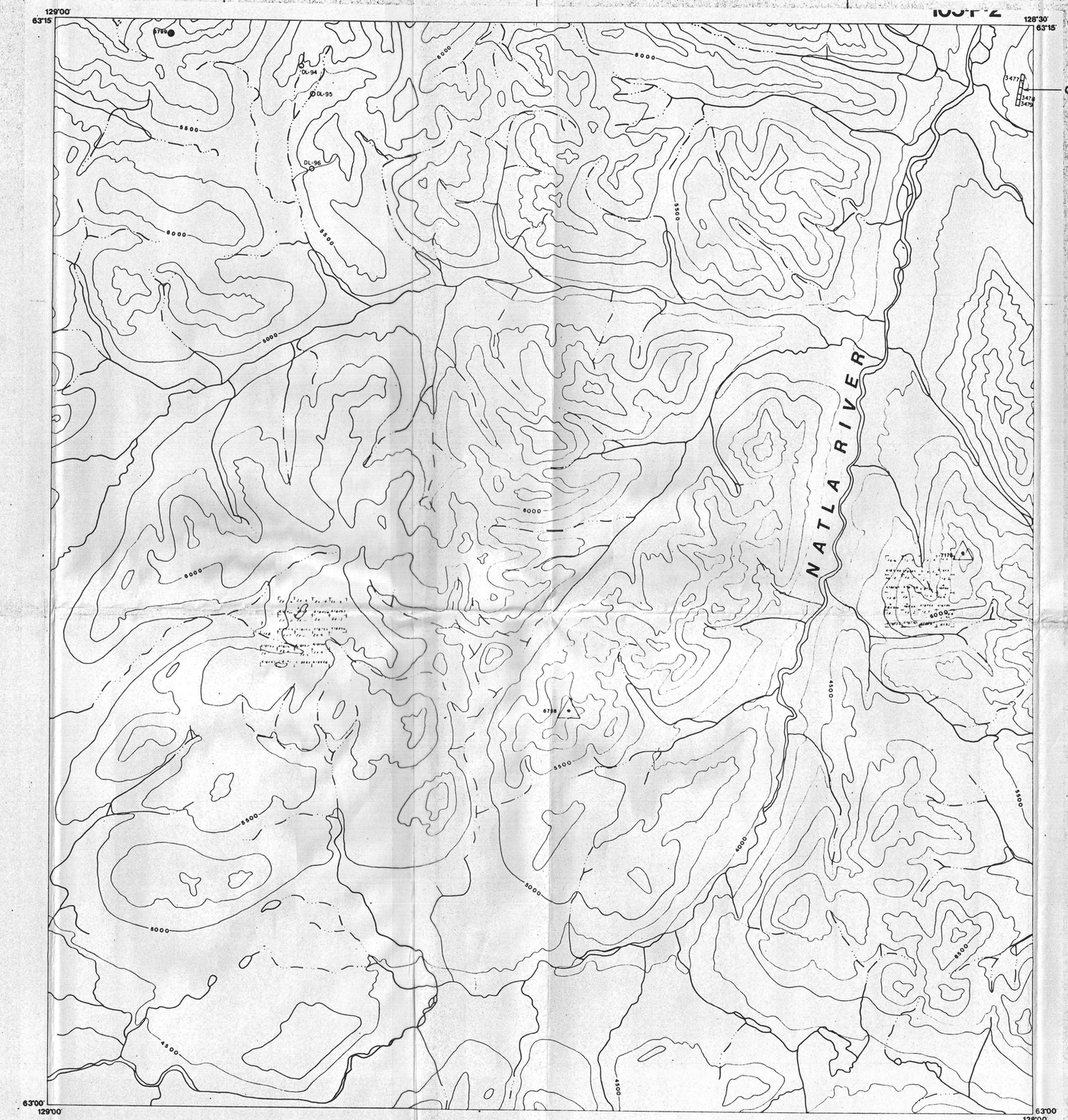
FILE NUMBER — N.T.S. 105P/1

DRAWING NUMBER — 1-01-A

TITLE

FILE No.

DRAWING No.



LEGEND

DL-96 ○ - Sample No. 8 Location

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		CHECKED — E.A.
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 1 mile approx.

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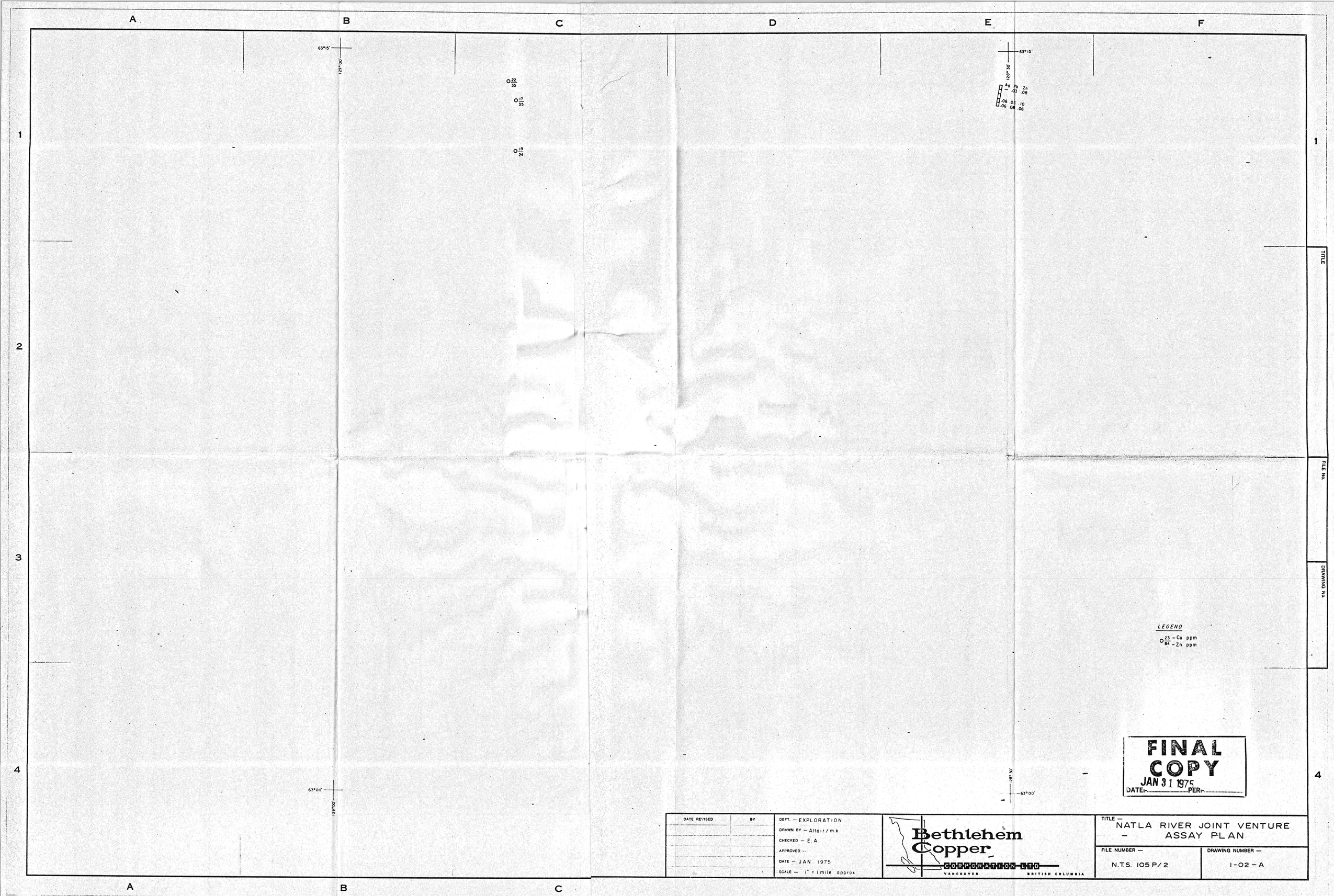
TITLE — NATLA RIVER JOINT VENTURE SAMPLE LOCATION PLAN

FILE NUMBER — N.T.S. 105 P/2

DRAWING NUMBER — 1-02-S

TITLE | FILE No. | DRAWING No.



A
B
C
D
E
F
1
2
3
4
63°15'
129°00'
128°30'
63°00'
22/35
17/35
19/24
Ag Pb Zn
1 .03 .08
.06 .03 .10
.06 .08 .06
LEGEND
23/84 - Cu ppm
- Zn ppm
FINAL COPY
JAN 31 1975
DATE:- PER:-
TITLE
FILE No.
DRAWING No.
DATE REVISED
BY
DEPT. — EXPLORATION
DRAWN BY — Altair / mk
CHECKED — E. A
APPROVED —
DATE — JAN 1975
SCALE — 1" = 1 mile approx
Bethlehem Copper
CORPORATION LTD
VANCOUVER BRITISH COLUMBIA
TITLE —
NATLA RIVER JOINT VENTURE
ASSAY PLAN
FILE NUMBER —
N.T.S. 105 P/2
DRAWING NUMBER —
1-02-A



LEGEND

B-33 O - Sample No. & Location

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		CHECKED — E. A.
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 1 mile approx.

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TITLE — NATLA RIVER JOINT VENTURE SAMPLE LOCATION PLAN

FILE NUMBER — N.T.S. 105 P/7

DRAWING NUMBER — 1-07-S

TITLE

FILE No.

DRAWING No.

A
B
C
D
E
F
1
2
3
4
63° 30'
129° 00'
63° 30'
128° 30'
14/155
26/74
26/140
14/45
13/45
9/34
9/41
28/115
23/84
36/130
18/33
15/40
18/44
18/41
63° 15'
129° 00'
63° 15'
128° 30'
LEGEND
23/84 - Cu ppm
Zn ppm
TITLE
FILE No.
DRAWING No.
FINAL COPY
JAN 31 1975
DATE:- PER:-
DATE REVISED
BY
DEPT. — EXPLORATION
DRAWN BY — Altair / mk
CHECKED — E.A
APPROVED —
DATE — JAN. 1975
SCALE — 1" = 1mile approx.
Bethlehem Copper
CORPORATION LTD
VANCOUVER BRITISH COLUMBIA
TITLE —
NATLA RIVER JOINT VENTURE
ASSAY PLAN
FILE NUMBER —
N.T.S. 105P/7
DRAWING NUMBER —
1-07-A

105-P-8

128°30'
63°30'

128°00'
63°30'



63°15'
128°30'

63°15'
128°00'

LEGEND

B-660 - Sample No. & Location

FINAL COPY
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		DEPT. — EXPLORATION
		DRAWN BY — Altair / m.k.
		CHECKED — E. A.
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 1 mile approx.

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VANCOUVER BRITISH COLUMBIA

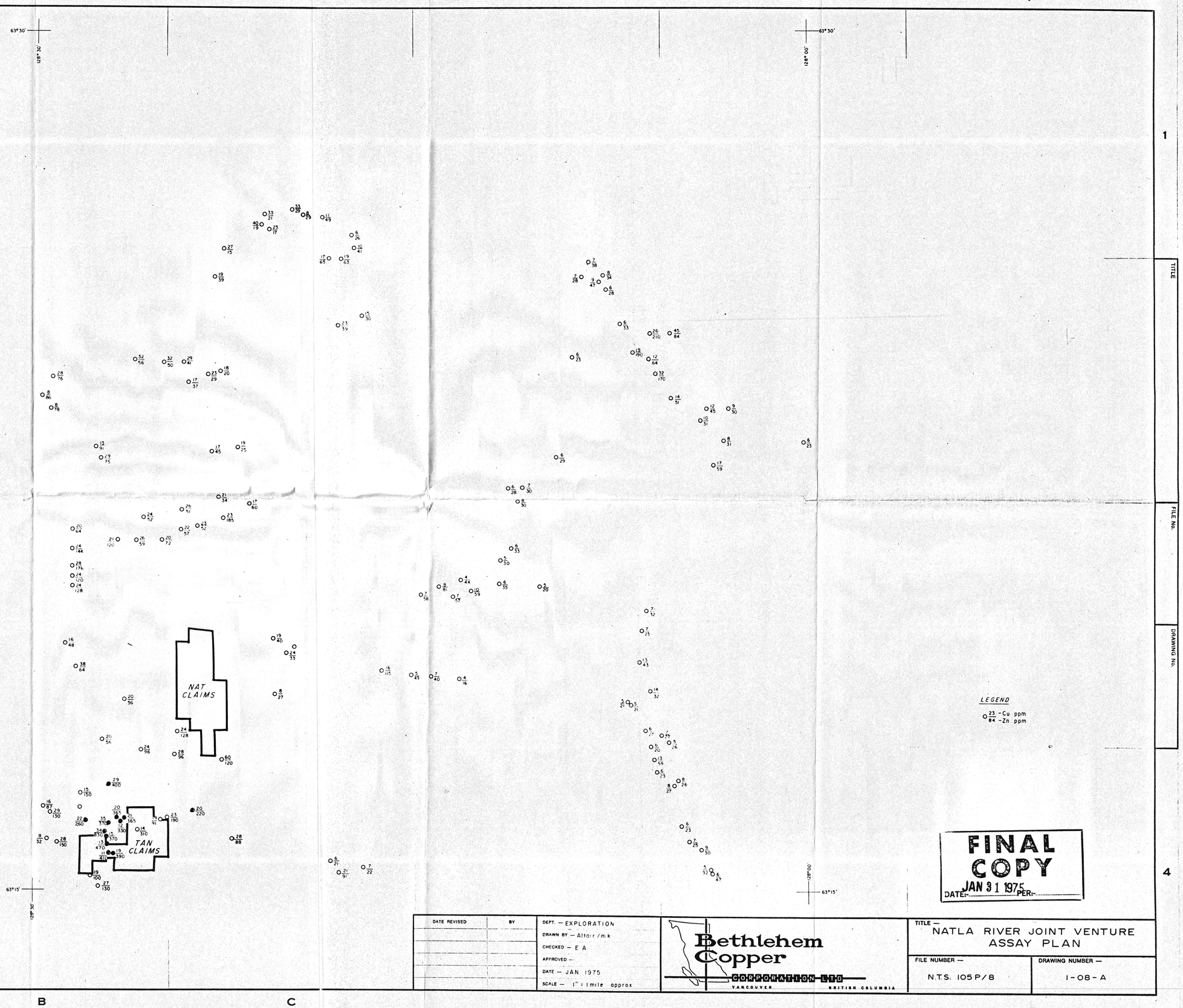
TITLE — NATLA RIVER JOINT VENTURE SAMPLE LOCATION PLAN

FILE NUMBER — N.T.S. 105 P/8

DRAWING NUMBER — 1-08-S

TITLE | FILE No. | DRAWING No.

BCIL - 3170 - B.C.



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DATE: JAN 31 1975 PER:

TITLE

FILE No.

DRAWING No.

DATE REVISED	BY

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DRAWN BY — Altair/m.k
CHECKED — E.A.
APPROVED —
DATE — JAN. 1975
SCALE — 1" = 1 mile approx

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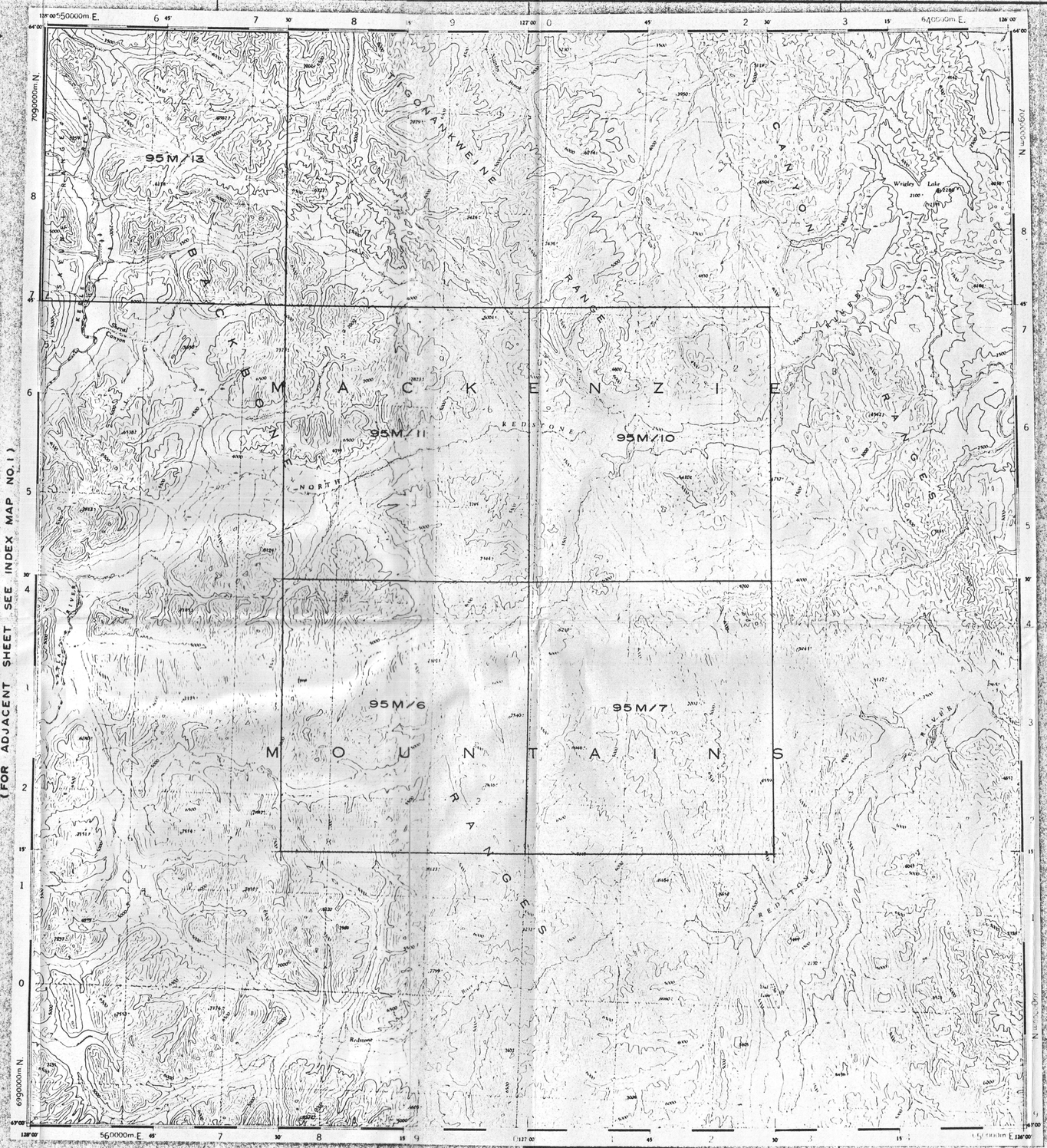
VANCOUVER BRITISH COLUMBIA

TITLE —
NATLA RIVER JOINT VENTURE
ASSAY PLAN

FILE NUMBER — N.T.S. 105 P/8

DRAWING NUMBER — 1-08-A

(FOR ADJACENT SHEET SEE INDEX MAP NO. 1)



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		CHECKED — E.A.
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 4 miles approx.

Bethlehem Copper
VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE INDEX MAP NO.2

FILE NUMBER — N.T.S. 95 M

DRAWING NUMBER — 2-00

TITLE

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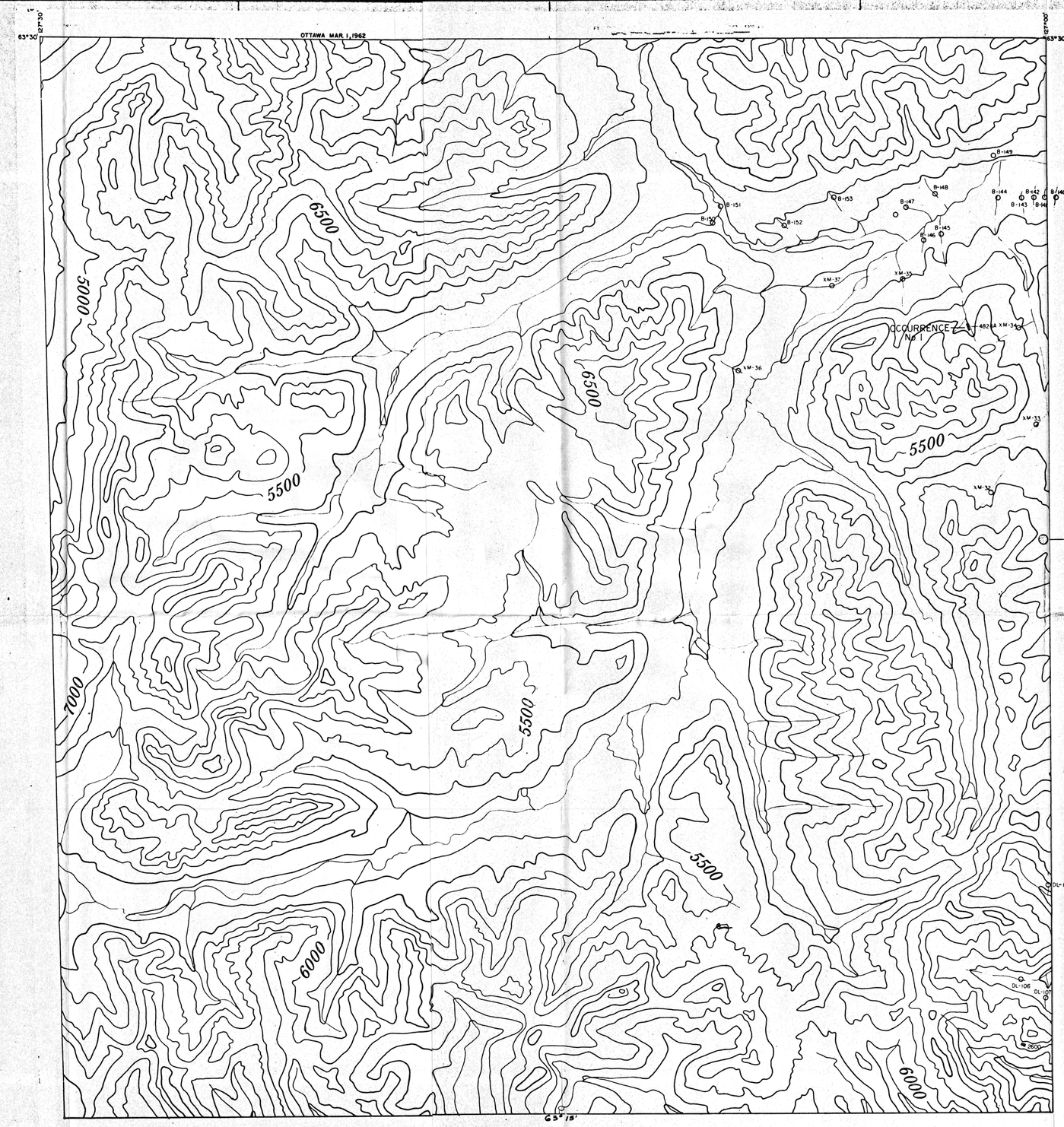

LEGEND

B-144 O - Sample No. & Location

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		DEPT. — EXPLORATION
		DRAWN BY — Altair/m.k.
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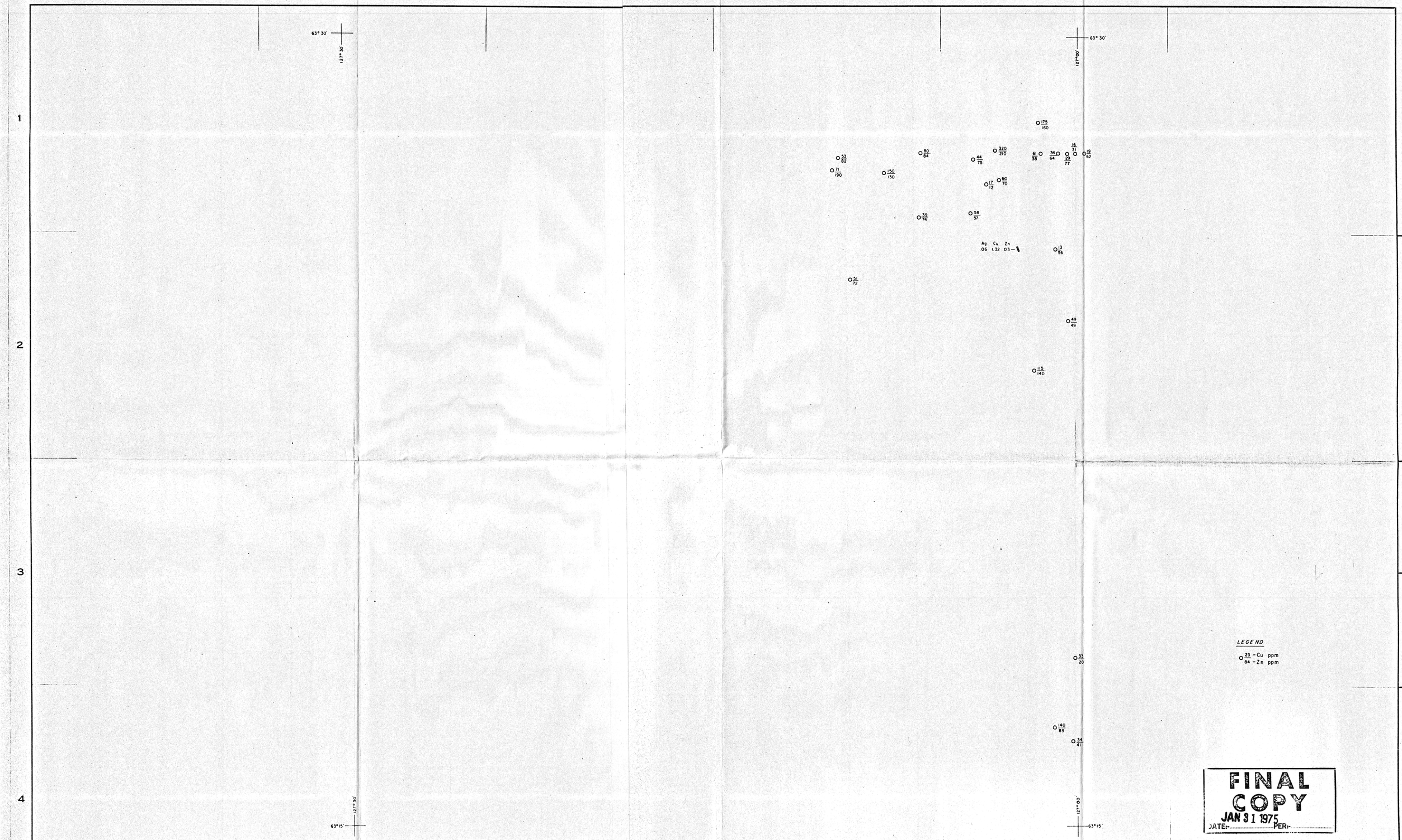
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 1 mile approx.

Bethlehem Copper CORPORATION LTD. VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE SAMPLE LOCATION PLAN

FILE NUMBER —	DRAWING NUMBER —
N.T.S. 95M/6	2-06-S



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JAN 31 1975
DATE:- PER:-

DATE REVISED	BY

DEPT. — EXPLORATION
DRAWN BY — Altair/mk
CHECKED — E A
APPROVED —
DATE — JAN 1975
SCALE — 1" = 1 mile approx

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TITLE — NATLA RIVER JOINT VENTURE ASSAY PLAN

FILE NUMBER — N.T.S. 95M/6

DRAWING NUMBER — 2-06-A

TITLE

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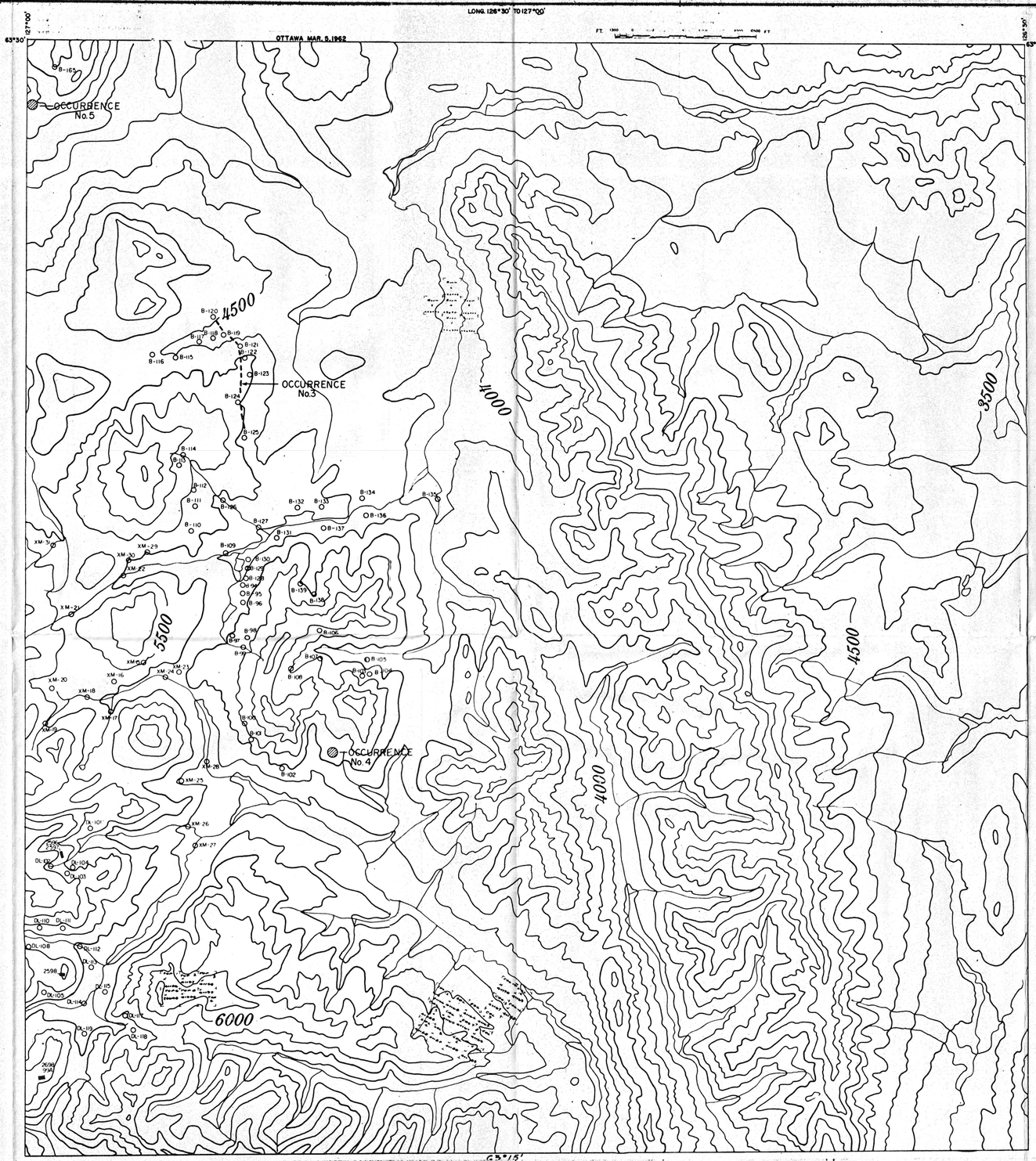

LEGEND

B-131 O - Sample No. & Location

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		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 1 mile approx

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TITLE — NATLA RIVER JOINT VENTURE SAMPLE LOCATION PLAN

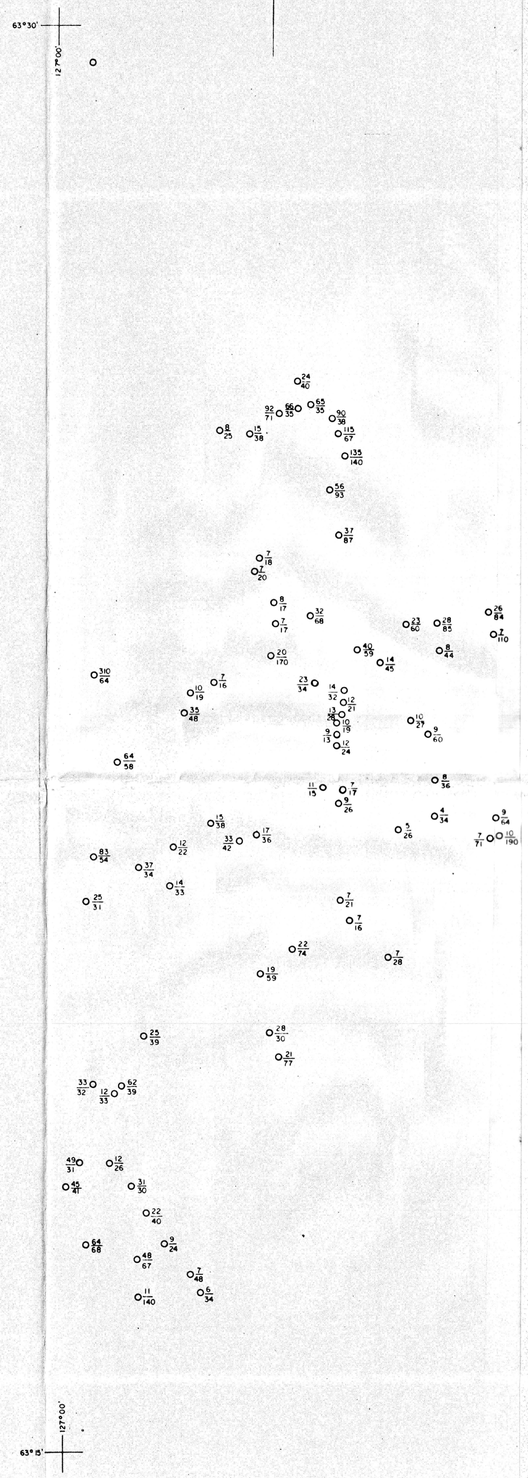
FILE NUMBER — N.T.S. 95 M/7

DRAWING NUMBER — 2-07-S

TITLE

FILE No.

DRAWING No.







LEGEND

23/84 - Cu ppm / Zn ppm

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JAN 31 1975
DATE:- PER:-

DATE REVISED	BY

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DRAWN BY — Altair/mk
CHECKED — E.A.
APPROVED —
DATE — JAN. 1975
SCALE — 1" = 1 mile approx.

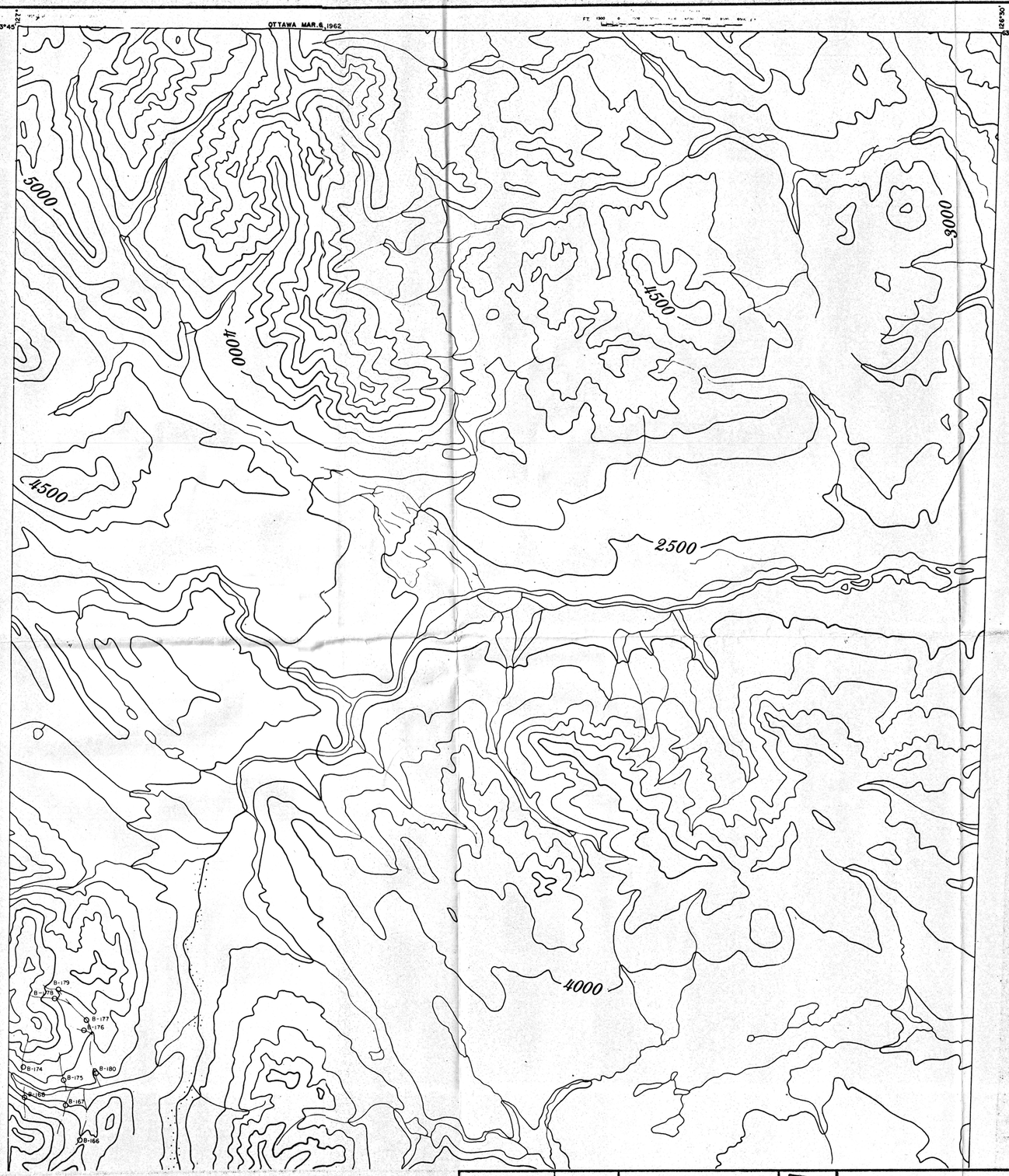
Bethlehem Copper CORPORATION LTD
VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE ASSAY PLAN

FILE NUMBER — N.T.S. 95 M/7

DRAWING NUMBER — 2-07-A

TITLE
FILE No.
DRAWING No.



LEGEND

B-179 O - Sample No. & Location

FINAL COPY

DATE JAN 31 1975 PER:-

DATE REVISED	BY	
		DEPT. — EXPLORATION
		DRAWN BY — Altair / m.k.
		CHECKED — E.A.
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 1 mile approx

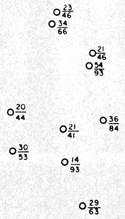
Bethlehem Copper CORPORATION LTD
VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE SAMPLE LOCATION PLAN

FILE NUMBER —	DRAWING NUMBER —
N.T.S. 95M/10	2-10-S

63° 45'
127° 00'

63° 45'
126° 30'



LEGEND

23/84 - Cu ppm / Zn ppm

FINAL COPY
JAN 31 1975
DATE: PER:

DATE REVISED	BY

DEPT. — EXPLORATION
DRAWN BY — Altair/mk
CHECKED — E A
APPROVED —
DATE — JAN 1975
SCALE — 1" = 1 mile approx

Bethlehem Copper CORPORATION LTD
VANCOUVER BRITISH COLUMBIA

TITLE —
NATLA RIVER JOINT VENTURE
ASSAY PLAN

FILE NUMBER — N.T.S. 95M/10

DRAWING NUMBER — 2-10-A

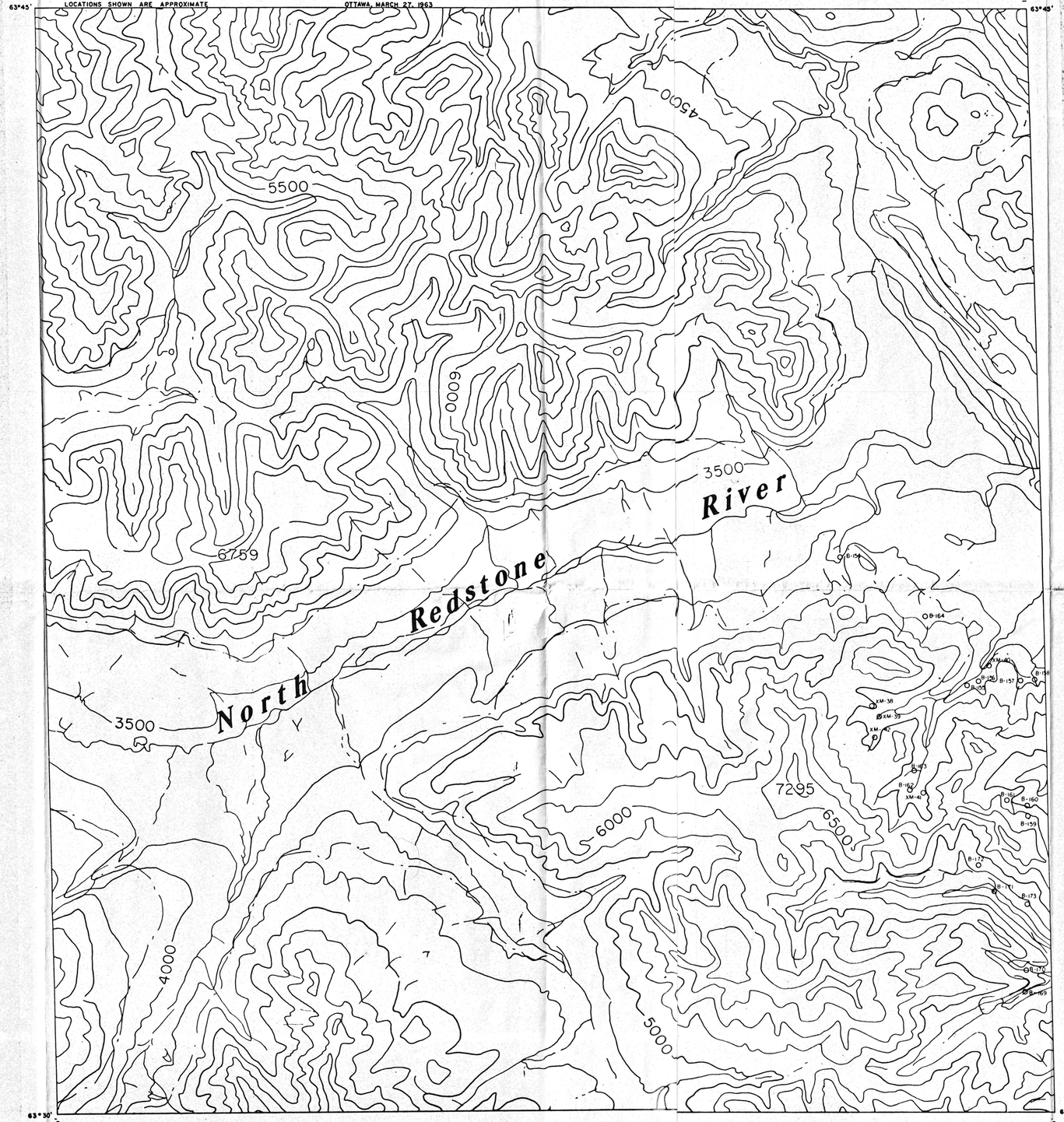
TITLE
FILE No.
DRAWING No.

LAT. 63° 30' TO 63° 45'
LONG. 127° 00' TO 127° 30'

LOCATIONS SHOWN ARE APPROXIMATE

OTTAWA, MARCH 27, 1963

127°30'
63°45'
127°00'
63°45'



63°30'
127°30'
63°30'

LEGEND

B-171 ○ – Sample No. & Location

FINAL COPY
DATE: JAN 31 1975 PER:

DATE REVISED	BY

DEPT. – EXPLORATION
DRAWN BY – Altair / m.k.
CHECKED – E.A.
APPROVED –
DATE – JAN. 1975
SCALE – 1" = 1 mile approx.

Bethlehem Copper CORPORATION LTD.
VANCOUVER BRITISH COLUMBIA

TITLE –
NATLA RIVER JOINT VENTURE
SAMPLE LOCATION PLAN

FILE NUMBER – N.T.S. 95M/11

DRAWING NUMBER – 2-11-S

TITLE

FILE No.

DRAWING No.

BCIL - 3170 - B.C.

A B C D E F

1 2 3 4

63°45' 127°30'

63°45' 127°00'

63°30' 127°30'

63°30' 127°00'

69/78
57/57
100/81
80/65 87/67 63/77 68/71
72/79
89/88
105/88
100/85
165/110 120/86
45/46 46/47
40/48
50/50
64/68
75/44
83/88
79/86

LEGEND

23/84 - Cu ppm / Zn ppm

TITLE

FILE No.

DRAWING No.

FINAL COPY
DATE: JAN 31 1975 PER:

DATE REVISED	BY

DEPT. -- EXPLORATION
DRAWN BY — Altair/mk
CHECKED — E A
APPROVED —
DATE — JAN 1975
SCALE — 1" = 1 mile approx

Bethlehem Copper CORPORATION LTD
VANCOUVER BRITISH COLUMBIA

TITLE —
NATLA RIVER JOINT VENTURE
ASSAY PLAN

FILE NUMBER — N.T.S. 95M/11

DRAWING NUMBER — 2-11-A



LEGEND

B-181 O - Sample No. & Location

FINAL COPY
DATE:- JAN 31 1975 PER:-

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		DEPT. — EXPLORATION
		DRAWN BY — Altair / m.k.
		CHECKED — E. A.
		APPROVED —
		DATE — JAN. 1975
		SCALE — 1" = 1 mile approx.

Bethlehem Copper CORPORATION LTD.
VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE SAMPLE LOCATION PLAN

FILE NUMBER — N.T.S. 95 M/13

DRAWING NUMBER — 2-13-S

TITLE

FILE No.

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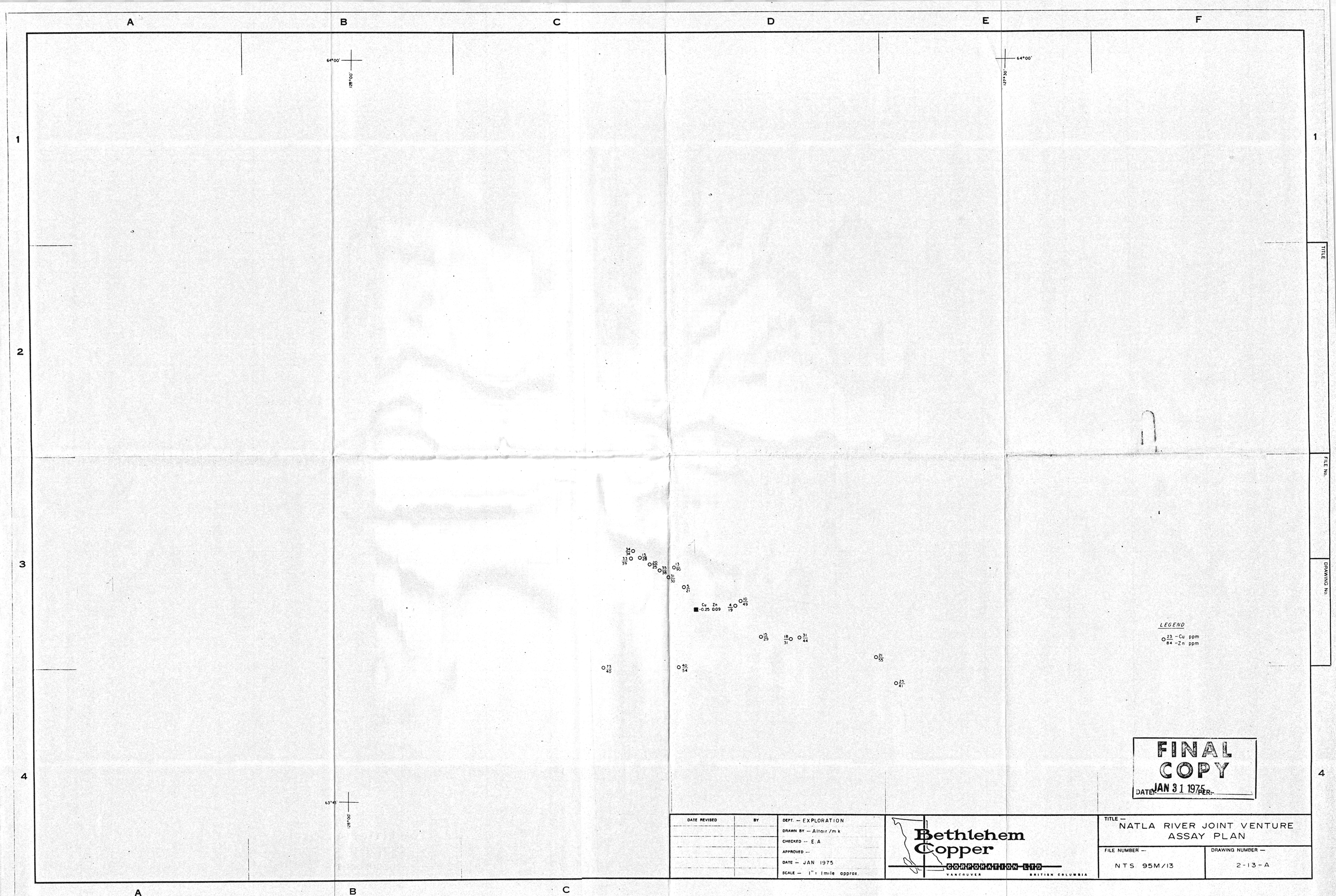

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DATE REVISED	BY

DEPT. — EXPLORATION
DRAWN BY — Altair/mk
CHECKED — E.A
APPROVED —
DATE — JAN 1975
SCALE — 1" = 1 mile approx.

Bethlehem Copper CORPORATION LTD
VANCOUVER BRITISH COLUMBIA

TITLE — NATLA RIVER JOINT VENTURE ASSAY PLAN

FILE NUMBER — NTS 95M/13

DRAWING NUMBER — 2-13-A