

GEOCHEMICAL AND PETROGRAPHIC REPORT

On the Aztec, Squaw, Tlingits Groups of Claims
And a portion of the New Group of Claims
Situated immediately Southeast the confluence
Of Coffee Creek and the Yukon River,
Whitehorse Mining Division,
Yukon Territory

N.T.S. 115-J-10, 11, 14 and 15

Latitude 62° 45'N, Longitude 138° 55'W

During June 24 - August 31, 1970

On behalf of

TRANS-COLUMBIA EXPLORATIONS LTD. (NPL)

by

Geo-X Surveys Ltd.

Vancouver, B.C.

September 23, 1970

Report by

D.R. Cochrane, P. Eng.

Petrographic Report by:

A. J. Sinclair, P. Eng.



GEO-X SURVEYS LTD. 627 HORNBY STREET, VANCOUVER I, B. C.

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SUMMARY AND RECOMMENDATIONS

During the months of June, July and August, a Geo-X Surveys field crew completed a total of approximately 276 line miles of reconnaissance and detailed geochemical soil sampling surveys on a 241 mineral claim block owned by Trans-Columbia Explorations Limited. The claims are situated immediately SE of the confluence of Coffee Creek and the Yukon River, in the Yukon Territory (Lat. 62°45'N; long. 138°55'W).

A very brief and preliminary rock sampling-geological investigation was also completed, and several specimens were examined in thin sections by Dr. A.J. Sinclair. His report is appended. Geochemical data processing was conducted by D.R. Cochrane and maps were prepared by Geo-X Surveys Ltd. Geochemical analysis was conducted by Chemex Labs of Vancouver, B.C.

This report describes the field, analytical and data processing procedures, and discusses the results obtained. It also includes recommendations for additional work, a cost estimate of the recommended program.

SUMMARY

1. Geochemical soil sampling was conducted in residual soil (non-glaciated) and analysis was by hot acid extraction.

2. The average copper content is 21 p.p.m. and the average molybdenum content 1.9 p.p.m.
3. Anomalous molybdenum results are those above 10 p.p.m. and anomalous copper results are those above 40 p.p.m.
4. A total of five molybdenum soil anomalies and five copper soil anomalies are discussed. They cover large areas, and some overlapping of anomalous metal values was found to exist.
5. Samples of bedrock have been identified as
 - (a) a hydrothermally altered quartz-sericite - pyrite rock
 - (b) a subporphyritic biotite-hornblende quartz monzoniteDisseminated chalcopyrite and quartz microveinlets containing molybdenite have been identified in the monzonite.
6. Dr. Sinclair reports that these rock types have different magnetic susceptibilities and it appears as if the K-40 content has reasonable contrast. Aeromagnetic relief on the Trans-Columbia property (G.S.C. papers 4318 and 4304) is considerable (540 gammas), and a small magnetic high is reportedly coincident with the Casino porphyry-type deposit (adjacent to the east).
7. The alteration and mode of mineralization is suggestive of a porphyry type deposit.

RECOMMENDATIONS

The exploration results to date are most encouraging, and a program to determine the extent and grade of the copper-molybdenum mineralization is recommended. Details of the recommended two phase program are given below. A cost estimate of the work follows.

Phase One.

1. A detailed aeromagnetic survey over the entire property in order to outline major structure and to outline the position and extent of the monzonite.
2. A detailed geological examination of the property, especially in anomalous soil and high magnetic relief areas. Emphasis should be placed on type and extent of alteration; mineral zoning and rock type.
3. An induced polarization survey to outline sulphide mineralization and possible alteration zones.
4. Ground magnetometer follow-up to check amplitude and position of airborne magnetics.
5. Correlation of phase one data to provide the basis for spotting drill holes and trenches if the phase one results are sufficiently encouraging.

Phase Two

Phase two is contingent on the success of phase one, and is tentative only. Re-designing by the engineer in charge is anticipated.

6. Trenching by bulldozer in coincident anomalous zones, and the preparation of roads and drill sites.

7. Diamond drilling of geochemical, geological and geophysical targets.

Cost Estimate

The estimated cost of the program outlined above is as follows:

Phase One

1. Approximately 250 line miles of an airborne magnetometer survey at 500 foot "between line" spacing. 250 mi. @ \$20.00 per line mile	\$ 5,000.00
2. Geological mapping, geologist and helper including supplies and servicing 2 months @ \$3,000.00 per month	6,000.00
3. Estimate 50 line miles of induced polarization survey at "large" electrode separation. 50 mi. @ \$500.00 per line mile	25,000.00
4. A ground magnetometer survey; estimate of 50 line miles @ \$125.00 per line mile	6,250.00
5. Correlation of phase one data and contingencies	<u>7,750.00</u>
TOTAL Phase One	<u>\$50,000.00</u>

Phase Two

6. Reserve for 400 hours of cat time @ \$40.00 per hour	\$16,000.00
7. Reserve for 5,000 feet of diamond drilling @ \$15.00 per foot	75,000.00
8. Engineering services, contingencies, etc. phase two	<u>9,000.00</u>
TOTAL Phase Two	<u>\$100,000.00</u>

Respectfully submitted,



D.R. Cochran P. Eng.
Vancouver B.C.

Sept. 28, 1970

INTRODUCTION

During the period June 24 to August 15, 1970 Messrs. Bellamy, Dobson, Cross, Ganderton and Klinosky of Geo-X Surveys Ltd. completed some 223.3 line miles of 400' x 400' grid controlled reconnaissance soil sampling on 225 mineral claims located immediately to the west and northwest of Casino Silver Mines in the Dawson Range Area of the Yukon Territory. The work was conducted on behalf of Trans-Columbia Explorations Ltd. (NPL) of Vancouver, B.C. The survey covered a block of 225 claims (New 5,6, 103 - 150 inclusive, Aztec 1 - 151 incl., Squaw 1 - 12 incl., and Tlingits 1 - 12 incl. owned by Trans-Columbia Explorations.

During the initial soil sampling program claim posts were located and tags placed respectively thereon. The soil samples were analyzed for molybdenum and copper in parts per million by Chemex Laboratories in North Vancouver. An atomic absorption, hot-acid extraction technique was employed. Sixteen (16) additional claims were staked to fill in a gap found to exist within the western sector of the Aztec Claims.

The purpose of this survey was to assess the potential value of the claimed area in relation to the possible existence of Cu-Mo porphyry type deposits. This

report describes the geochemical survey procedure and discusses the results obtained. Results obtained from analysis of samples taken during the reconnaissance survey indicated four (4) anomalous areas. One area showed interesting copper (Cu) values, while one area showed very interesting Molybdenum (Mo) values. Two large areas, adjoining in the southern portion showed interesting Cu-Mo values. Detail gridding and soil sampling of each of these four areas was carried out between August 15 and August 31 by Messrs. Bellamy, Dobson, Rene, Klinosky and Cudworth of Geo-X Surveys Ltd. Detail work at 200' x 200' grid spacing extended 23.6 line miles. One area of anomalous interest covered by 400' x 200' grid entailed 28.9 line miles.

Analysis for Cu and Mo were completed for the detailed areas using exactly the same method as used for the reconnaissance samples.

The purpose of the detail work was to better define the anomalous areas.

LOCATION AND ACCESS

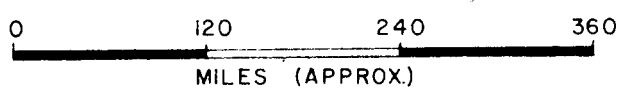
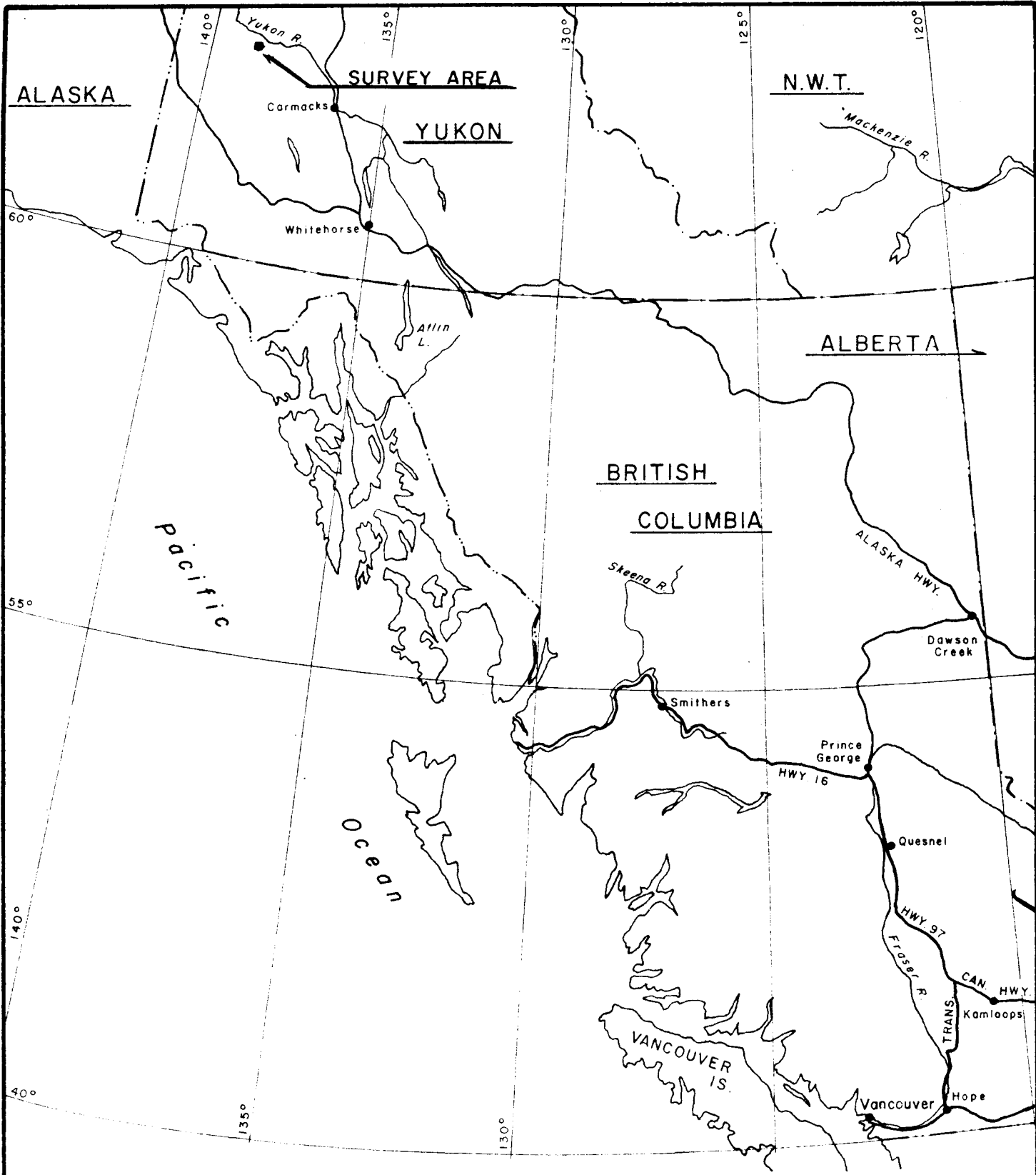
The groups of claims covered by this report is centered at latitude 62° 45'N and longitude 138° 55'W, immediately southeast of the confluence of Coffee Creek and the Yukon River in the Whitehorse Mining Division, Yukon Territory and are some 185 air miles northwest of Whitehorse. Access to the claims can be gained by fixed wing air flight from Whitehorse to the Casino airstrip, thence by helicopter to the property approximately 6 miles to the west.

PROPERTY

The property consists of some 241 contiguous claims and recorded in the Whitehorse Mining Division, and listed as follows:

<u>CLAIM NAMES</u>	<u>RECORD NUMBER</u>
Aztec 1 - 151 incl.	Y37004 - Y37154
Squaw 1 - 12 incl.	Y36980 - Y36991
Tlingits 1 - 12 incl.	Y36992 - Y37003
New 5,6	Y35950 - Y35951
New 103 - 150 incl.	Y36048 - Y36095
Additional 1-16 inclusive	Gap Group

The claims are owned by Trans-Columbia Explorations Ltd. (NPL) registered office at 211 - 717 W. Pender St., Vancouver, B.C.



TRANS - COLUMBIA EXPLORATIONS LTD.
DAWSON RANGE AREA - WHITEHORSE M.D., YUKON

LOCATION MAP

g GEO - X SURVEYS LTD.

Drawn A.N.S.	Dated SEPT. 23, 1970	Fig. No.
Checked	Job No. 1149	1

GENERAL SETTING

The property is situated in the Dawson Range Mountains approximately 185 air miles northwest of Whitehorse. Elevation of the claims lies between 3,000 and 5,000 feet above sea level. Topography ranges from gentle rounded rolling terrain to steep V-shaped valleys with streams and occasional sharp rock outcropping ridges. The area lies within Yukon plateau, unglaciated since Pleistocene times.

Vegetation consisting of thick moss and scrub bush making walking difficult. Much of the area is above treeline. Coffee Creek drainage basin forms most of the central western and northwestern portion of the claim area. Casino Creek drains the southern flank of the area.

FIELD PROCEDURE

The initial survey base line was established along the top of the northeast Aztec claims in an east-west direction. Ground control was established by located claim posts. Soil samples were collected at 400 foot intervals along crosslines spaced 400 feet apart. The samples were taken by excavating a small pit

with a shovel to the appropriate depth, to reach the B Horizon. The soil sample was placed in a geochemical sample bag (marked with line number and station number) and on standard field notes together with a description of the color, composition and depth of soil sample. The sample depth varied slightly and averaged 8 inches below the vegetation base or A zone.

DATA PROCESSING

A sample of the copper and molybdenum geochemical results, (those along lines 32E and 124W) were keyed into a Programma 101 computer and the arithmetic mean and standard deviation was automatically calculated. On the basis of these statistics the following categories have been defined.

These are:

- (a) anomalous - arithmetic mean plus two standard deviations
- (b) possibly anomalous - the arithmetic mean plus one standard deviation
- (c) above average - above the arithmetic mean
- (d) below average - below the arithmetic mean

DISCUSSION OF RESULTS

A. Molybdenum

The content of molybdenum in the soils ranged from a low of zero (below detection limit) to a high of 210 p.p.m. The arithmetic mean of a sample of 133 of the results (along lines 32E and 124W) is 1.89 p.p.m. and the standard deviation 3.55 p.p.m. The following categories are based on these statistics:

<u>Class (p.p.m.)</u>	<u>Description</u>
less than 2	below average
2 to 4.9	above average
5.0 to 9.9	possibly anomalous
10.0 and greater	anomalous

The areal extent of these classes of molybdenum values are shown graphically in Figures 3 and 4.

In contrast to the distribution of copper, the molybdenum distribution shows a fairly strong northwesterly regional bias.

A total of five rather indefinite areas exhibit abnormality with respect to content of Mo and these areas have the following characteristics:

<u>Anomaly</u>	<u>Center At</u>	<u>Extent</u>	<u>High (p.p.m.)</u>
Mo-1 Detail Area A	12W;24S	irregular	23
Mo-2 Detail Area C	112S;4W	4000 x 1600 ft.	210
Mo-3 Detail Area C	160S;24W	8800 x 3200 ft.	63
Mo-4 Detail Area B	64S;96W	4000 x 2400 ft.	32
Mo-5 Detail Area C	156S;44E	irregular	60

Detailed "fill in" sampling was conducted in Area A, (Mo No. 1 anomaly, Cu No. 1 anomaly) Area B, (Mo No.4 anomaly and Cu No. 4 anomaly) Area C, (Mo No. 2,3 and 5 anomalies, Cu No. 3 anomaly). The results in general confirmed, but more accurately define the extent of Cu and Mo abnormality.

B. Copper

The copper content of the soils ranged from a low of 1 part per million (p.p.m.) to a high of 540 p.p.m. The arithmetic mean (of a sample of 134 results) is 21.2 p.p.m. and the standard deviation 10.6 p.p.m. Interpretation is based on the following classifications:

<u>Category</u>	<u>Description</u>
greater than 40 p.p.m.	anomalous
30 to 40	possibly anomalous
20 to 30	above average
less than 20	below average

Hawkes and Webb (Geochemistry in Mineral Exploration, Harper & Row, New York, 1962) report that the average copper content of soils (in general) is 20 p.p.m., and thus the Trans-Columbia property soil may be considered as approximately average in overall copper content. However, there are several areas of anomalous copper content (above 40 p.p.m.) which are quite extensive. Figures 5 and 6 display the areal extent of these anomalous zones.

The 1":800' copper geochemical plan (Figure 5) shows that above average soil copper content has very little regional directional bias. A faint northwest trend (A-A') is discernible but quite indefinite. The anomalously high copper zones appear to be almost randomly distributed with very little overall regional correlations. At least five rather indistinct centers of high copper are present and these are designated Cu-1 to 5 inclusive. Their characteristics are tabulated below:

<u>Anomaly</u>	<u>Center</u>	<u>Approx. Extent of +40 p.p.m.</u>	<u>High (p.p.m.)</u>
Cu-1	8W;4N	4800 x 3200 feet	340
Cu-2	20S;68E	6400 x ? feet	310
Cu-3	136S;8E	Arcuate, 4800 ft. dia.	218
Cu-4	86S;96W	widespread-irregular	252
Cu-5	64N;144W	6400 x 3000 feet	122

Three of these copper anomalies were sampled in detail and results are shown in a 1":400' geochemical plan (Figure 6) located in the map pocket. The detailed sampling was conducted on anomalies Cu-1,3 and 4 and, in general, confirmed the presence of copper abnormality and more accurately defined their extent.

CORRELATION/CONCLUSIONS

Recent geochemical soil sampling on a large mineral claim block owned by Trans-Columbia Explorations Ltd. has proved the existence of several widespread copper and molybdenum anomalies. The highest priority target area appears to be anomaly Cu-3 which is partly coincident with, and partly enclosed by molybdenum anomalies Mo-1, 3 and 5. A second high priority area is copper anomaly Cu-4 which lies on the south flank of soil anomaly Mo-4. These two targets lie fairly close together and along a line trending Northwest by west through the south sector of the grid area.

The extent and amplitude of the geochemical soil sampling anomalies is most impressive. However, definite targets (stripping and/or drilling points) may have to be selected by reference to other information.

For example, priority rating the anomalous zones may be conducted by geological mapping (if sufficient outcrop exists), or an indirect geophysical method (such as an induced polarization survey).

A third dimension may be added to the geochemical data by vertical profile sampling at various points within the anomalous zones. The variation of metal content with depth may also help to pin-point target areas.

Respectfully submitted,

D.R. Cochrane, P. Eng.



APPENDIX II

PERSONNEL AND DATES WORKED

The following Geo-X Surveys Ltd. personnel were employed on the Trans-Columbia Explorations Ltd. Yukon Project.

<u>Name</u>	<u>Work</u>	<u>Date</u>
N.W. Bellamy	Sample Collection	Jun. 24 - Aug. 21, 1970
L. Dobson	Sample Collection	Jun. 24 - Aug. 30
V. Rene	Helper	Aug. 22 - Aug. 30
F. Ganderton	Helper	Jun. 24 - Aug. 21
B. Cross	Helper	Jun. 24 - Aug. 12
A. Cudworth	Helper	Aug. 22 - Aug. 30
K. Klinosky	Helper	Aug. 13 - Aug. 30
D.R. Cochrane	Report Preparation	Sept. 21, 22
R. Key	Drafting	Aug. 18-20, 24, 26, 27, 31 Sept. 2, 3, 8-10, 14, 17, 18, 21-23, 28, 29
T. Malesku	Drafting	July 31, Aug. 19-24, 26-28, 31 Sept. 1, 2, 3, 4, 8, 9, 22, 23, 28, 29

PETROGRAPHY OF SEVEN SPECIMENS
AND
THEIR GEOPHYSICAL IMPLICATIONS
WEST GROUP OF TRANS-COLUMBIA EXPLORATION LTD.
FOR GEO-X SURVEYS LTD.

SUMMARY

1. Seven rock specimens from the West Group of claims of Trans-Columbia Exploration Ltd. were examined in thin section with a purpose of describing their petrography and indicating how bodies of such rocks might respond to airborne magnetometer and K40 surveys.

2. The specimens can be grouped into two categories as follows:

- (a) Quartz-sericite-pyrite rock formed by extensive hydrothermal alteration of acidic to intermediate plutonic rocks (and perhaps other rock types).
- (b) Very fresh, subporphyritic, biotite-hornblende quartz monzonite containing a few percent magnetite and about 10 percent K-feldspar. Several hand specimens not examined in thin section contain abundant medium-grained molybdenite.

3. Assuming that moderately large bodies of these two units exist it appears likely that they would respond differently to aeromagnetic and airborne K40 surveys. The quartz-sericite-pyrite rock would be expected to have a relatively low total field magnetic response and a relatively high K40 response. On the other hand the biotite-hornblende quartz monzonite would have a significantly higher total field magnetic response and probably a lower response to a K40 survey.

INTRODUCTION

Seven rock specimens collected by Geo-X Surveys Ltd. personnel from the Western group of claims of Trans-Columbia Exploration Ltd. were submitted to the writer by Geo-X Surveys Ltd. for petrographic study with the request that some consideration be given to the relative types of response of different rock types present to airborne magnetic and K40 surveys.

The Western claims block, including 241 claims, is immediately west of the Casino Silver property, and is 185 air miles northwest of Whitehorse, Yukon, on the headwaters of Coffee Creek, in the Whitehorse mining division. Approximate latitude is 62° 45'N and the longitude is 138° 55'W.

TABLE I
LOCATIONS OF SPECIMENS

Specimen	Location
12W 24S	Float from 1200 W, 2400 S on grid
12W 30S	Float from 1200 W, 3000 S on grid
164 W (2 specimens)	Float from 16400 W, 6800 N on grid
L-60	Float in creek from Line 60, approximately 600 feet north of base line at 0+00
40 E	Bedrock from 4000 E, 6000 S on grid
32 E	Rubble (close to bedrock) from 3200 E, 5200 S on grid

The seven specimens represent both float and outcrop. Field locations are indicated in Table 1 relative to a grid covering the claims group.

GENERAL PETROGRAPHIC RESULTS

A detailed petrographic description of each specimen is appended. In general, however, the 7 specimens examined can be grouped in 2 categories. Six of the specimens are quartz-sericite-pyrite rocks, with or without small amounts of feldspar. These rocks have formed as a result of extensive hydrothermal alteration of what appears to have been acid to intermediate plutonic rocks, but whose origin cannot be ascertained definitely. Virtually no evidence of mafic minerals remains. All these specimens lacked any obvious response to a hand magnet. However, they have a high K content because of the generally high (but somewhat erratic) sericite content.

The seventh specimen is grossly different from the foregoing and forms the second category. The rock is a subporphyritic, medium-grained, biotite-hornblende quartz monzonite with rare phenocrysts of hornblende as thick prisms up to about 1 cm. long. The rock is extremely fresh, lacking any obvious signs of alteration with the exception of minor chloritization of biotite apparent only in thin

section. Magnetite is present in very appreciable amounts and several hand specimens were all strongly attracted to a hand magnet. Some of the specimens not examined in thin section contain appreciable coarse-grained molybdenite, in one case in a 1/2" wide quartz vein, in a second specimen as small rosettes along incipient fracture planes without quartz.

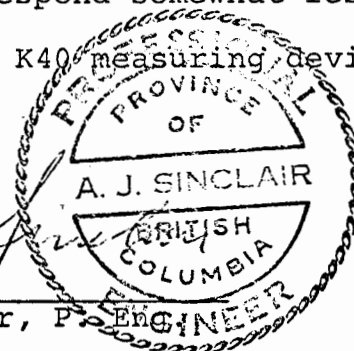
GEOPHYSICAL IMPLICATIONS

(1) The quartz-sericite-pyrite rocks lack mafic minerals and magnetite. Consequently, they can be expected to have relatively low total field magnetic intensities and to show up as magnetic lows. On the other hand, the erratic but generally high sericite content, and by implication a high K content, suggest this rock unit might show up as K40 highs.

(2) The biotite-hornblende quartz monzonite contains abundant magnetite and thus should be represented as relative magnetic highs. The combined biotite and K-feldspar content would appear to give a K content somewhat short of that for the quartz-sericite-pyrite rock. Hence, the quartz monzonite would be expected to respond somewhat less than the quartz-sericite-pyrite rock to K40 measuring devices.



A. J. Sinclair, P.



APPENDIX

DETAILED PETROGRAPHY OF SPECIMENS

SPECIMEN 40E

Hand Specimen: Medium-grained quartz monzonite with about 35% quartz, 45% feldspar and about 10% each of hornblende and biotite. The rock is weakly magnetic. The texture is granitic with quartz and feldspar mostly anhedral, rounded grains 2 to 3 mm. diameter. Biotite books are about the same size. Hornblende occurs as thick prisms which rarely are as long as 1 cm. The rock is very fresh in appearance.

Thin Section: Mineralogy and approximate mode are as follows:

Quartz (35%) commonly occurs as anhedral grains up to 2 mm. in diameter. Mostly as rounded anhedral grains but in part as irregular patches interstitial to plagioclase and mafic minerals. All grains are slightly strained.

Plagioclase (30%) Generally occurs as anhedral to subhedral grains, equidimensional, and up to 2 to 3 mm. diameter. Some combination twinning is present. Primary normal growth zoning is common to all grains. Twinning according to albite and pericline laws is abundant. Plagioclase is very fresh.

K-feldspar (15%) occurs entirely interstitial to quartz, plagioclase and mafic minerals. Grid twinning is apparent. Replaces hornblende where the two are in contact.

Biotite (10%) occurs as fresh-appearing, dark brown books. Unaltered except for rare, minor, irregular patches of chlorite. Some biotite is interstitial to plagioclase. In a few cases cleavage planes are curved.

Hornblende (10%) thick prisms generally 3 to 4 mm. long and rarely up to 1 cm. long. Generally fresh in appearance but replaced by K-feldspar where the two are in contact.

Poikilitic, with minute inclusions of plagioclase, opaques, apatite and biotite.

Chlorite (Tr) - Local, rare, irregular alteration patches in biotite.

Epidote (Tr) - a few small anhedral grains in biotite and plagioclase.

Apatite (Tr) - a few small crystals as inclusions in hornblende.

Opaque Minerals (Tr) - small rounded grains, mainly as inclusions in hornblende. Largely magnetite.

The rock is a medium-grained biotite-hornblende quartz monzonite of igneous origin. It contains rare larger crystals of hornblende but probably not enough to be considered porphyritic.

Alteration has been very slight. Biotite is very slightly chloritized. The last phase of consolidation of the rock prior to alteration was precipitation of K-feldspar which produced metasomatic effects (replacement of hornblende). The chloritization noted appears to have been deuteric.

SPECIMEN 164W:

Hand Specimen: A small platy rock specimen with crude layering. Layers are alternate grey layers and pale buff layers. Very minor amounts of pyrite are evident in the pale buff seams. Original nature of the rock is not obvious megascopically.

Thin Section: Mineralogy and approximate mode follows:

Quartz (50%) occurs as anhedral grains with mosaic texture. Forms the grey layers noted in the hand specimen. Grain size from 0.1 to 0.5 mm. diameter. Quartz is strained.

Feldspar (40%) Both K-feldspar and plagioclase are present with K-feldspar being the much more abundant of the two. Accurate proportions are impossible to determine because the plagioclase is albite. Grain size is generally 0.2 to 0.5 mm. diameter. Occurs with quartz in the grey layers noted in the hand specimen.

Sericite (7%) Interstitial patches of mostly very fine-grained felted masses. A few crystals are relatively coarse-grained - up to 0.5 mm. long. Sericite makes up the buff coloured seams seen in the hand specimen.

Biotite (less than 1%) a few minute anhedral fresh appearing grains in several small clusters. Might be hydrothermal?

Opaque Minerals (trace) a few minute grains of pyrite occur in sericite seams. Grains are anhedral.

Epidote (1%) mainly as anhedral masses in sericite patches.

Zircon (trace) one minute euhedral crystal was observed.

There is a definite layering in the hand specimen which is much more obscure in thin section. Layering is due to thin sericite seams cutting through mosaic masses of quartz and feldspar. Grain size is generally fine-grained. Quartz is strained indicating deformation of the rock. The rock is a fine-grained quartz monzonite that has been recrystallized, altered, and subjected to slight penetrative deformation. Pyrite appears to be spatially related to sericite alteration.

SPECIMEN L-60:

Hand Specimen: The specimen is a quartz-sericite rock containing 2 to 3 percent small pyrite grains. The rock is cut by several very thin quartz-pyrite seams. It is pale grey to white on a

fresh surface and yellow to brown (limonite) on weathered surfaces.

Thin Section: Mineralogy and approximate mode follows:

Sericite (60%) Occurs as large patches of very fine-grained, felted masses surrounding and separating quartz clumps and patches. May include some very fine-grained, interstitial relict feldspar but this is difficult to ascertain.

Quartz (38%) Occurs as irregular grains commonly 2 to 3 mm. in diameter. In a few cases smooth faces are present that appear to be crystal faces. These suggest that much of the quartz has been recrystallized. Some masses of quartz are composite grains with mosaic texture. Individual grains are commonly in the range 1 to 3 mm. diameter. All quartz grains are extensively strained. A few thin veinlets of fibrous quartz cut the section.

Pyrite (2%) Occurs as rounded to irregular grains mainly in patches of sericite. A few pyrite grains protrude into quartz grains.

The rock is entirely the product of alteration, recrystallization and introduction of material. Certainly sulphur and some quartz have been introduced (in addition to water). Original nature of the rock is uncertain. It is presently a sericite-quartz rock. The rock has been affected by penetrative deformation subsequent to alteration.

SPECIMEN 12S:

Hand Specimen: A pale, buff-coloured, medium-grained, granitic rock with recognizable quartz and altered feldspar. Surface is stained locally with limonite. The rock is cut

by thin quartz seams containing pyrite. A small amount of pyrite is disseminated through the specimen.

Thin Section: Mineralogy and approximate mode follow:

Quartz (45%) Occurs as irregular grains 1-2 mm. diameter with mosaic texture. Some grains are rounded. All are intensely strained. One quartz vein cuts the specimen and consists of a mosaic of finer grained material than is present in the rock.

K-feldspar (40%) anhedral crystals, 1 to 2 mm. in diameter and variably sericitized and marked by a "dusty" appearance in thin section. No twinning is apparent.

Sericite (15%) an open network of matted crystals mainly in K-feldspar. In places massive sericite separates crystals of quartz and feldspar. In a few cases there appears to be vague relict twinning in some masses of sericite suggesting that much of the sericite present may have formed by replacement of plagioclase.

Pyrite (Tr) - a few anhedral blebs almost entirely in quartz patches.

Epidote (Tr) - one rounded grain observed.

Sphene (Tr) - several small rounded grains in highly sericitized feldspar.

Myrmekite (Tr) - a few small patches of vermicular intergrowths of K-feldspar and quartz.

Limonite (Tr) - Stain concentrated along one major fracture that cuts the rock. Also occurs sporadically as small, irregular patches of stain elsewhere in the section.

The rock is probably a quartz monzonite that has been sericitized extensively. The quartz is probably mostly primary but has been subjected to penetrative deformation. Plagioclase is not recognizable as such but appears to have been replaced by felted masses of sericite. Alteration has been extensive, mainly sericitization with introduction of some quartz. No evidence of mafic minerals remains.

SPECIMEN 12W 24S:

The specimen is extremely similar to specimen 12S and will therefore not be described in detail. Principal minerals are quartz, sericite and K-feldspar in that order of decreasing abundance. Limonite is present locally but is not as abundant as in specimen 12S. The sericite in this specimen is somewhat coarser-grained than in 12S and some grains could be considered muscovite. Small anhedral, disseminated pyrite grains are perhaps somewhat more abundant than in 12S and are closely associated with quartz.

The rock is essentially a quartz-sericite rock with some K-feldspar all formed as a product of hydrothermal

alteration. No other minerals were recognized apart from pyrite and limonite.

SPECIMEN 164W (second specimen with this number);

Hand Specimen: Quartz-sericite rock with abundant pyrite disseminated throughout. Abundant limonite on weathered surface, with some copper stain. Fresh surface has a grey to white mottled appearance. Specimen is very heavy, probably due to abundance of disseminated pyrite as small anhedral masses.

Thin Section: Mineralogy and approximate mode follows:

Sericite (60%) mainly as felted masses occurring interstitially to quartz masses. Entirely as very fine-grained flakes with apparent random orientation in most cases. A few masses are obviously pseudomorphic after biotite in which case there is associated chlorite.

Quartz (30%) mainly as composite masses of anhedral grains with mosaic texture. Grain size is from 0.1 to 2.0 mm. in diameter. All grains are strained. A small amount of quartz occurs in thin veinlets with very fine-grained mosaic texture and with associated pyrite.

Pyrite (8%) Occurs mainly as small anhedral and rarer subhedral equidimensional grains, commonly with diameters of about 0.1 to 0.2 mm. Almost entirely associated with sericite masses in disseminated form. A very small proportion occurs in thin quartz seams.

Chlorite (2%) Occurs as fibrous shreds up to 0.5 mm. long, intergrown with sericite and apparently pseudomorphic after biotite that originally occurred in flakes up to 2 mm. long.

The rock was originally a medium-grained plutonic rock that has been altered extensively by sericitization and the introduction of sulphur and some quartz. The specimen has undergone slight penetrative deformation subsequent to alteration. At present the rock is basically a sericite-quartz-pyrite alteration product.

SPECIMEN 32E:

Hand Specimen: The specimen is a dark green rock on the weathered surface, generally nondescript in appearance. On a fresh surface the rock has a mottled green appearance with dark green patches up to 2 mm. in diameter set in a pale green matrix. The dark green colour resembles chlorite. A few grains of quartz are recognizable.

Thin Section: Mineralogy and approximate mode follows:

Quartz (30%) Occurs mainly as isolated grains surrounded by sericite and as composite grains with mosaic texture. All

grains are strained. Grains are mostly 1 to 2 mm. in diameter.

Sericite (30%) Occurs mainly as pseudomorphs after plagioclase with original crystal shapes still clearly visible. Also pseudomorphic after biotite in which case it is intimately intergrown with chlorite. Some grains have bent cleavages.

Carbonate (10%) Occurs as irregular patches intergrown with and surrounded by sericite. Numerous minute grains of opaque material occur dotted through the carbonate. The mineral is calcite (reacts with dilute HCl).

Feldspar (10%) either albite and/or K-feldspar. Exact nature unknown because mineral occurs as extremely fine-grained intergrowths with sericite.

Chlorite (15%) fibrous mattes intergrown with sericite, both of which are pseudomorphic after biotite.

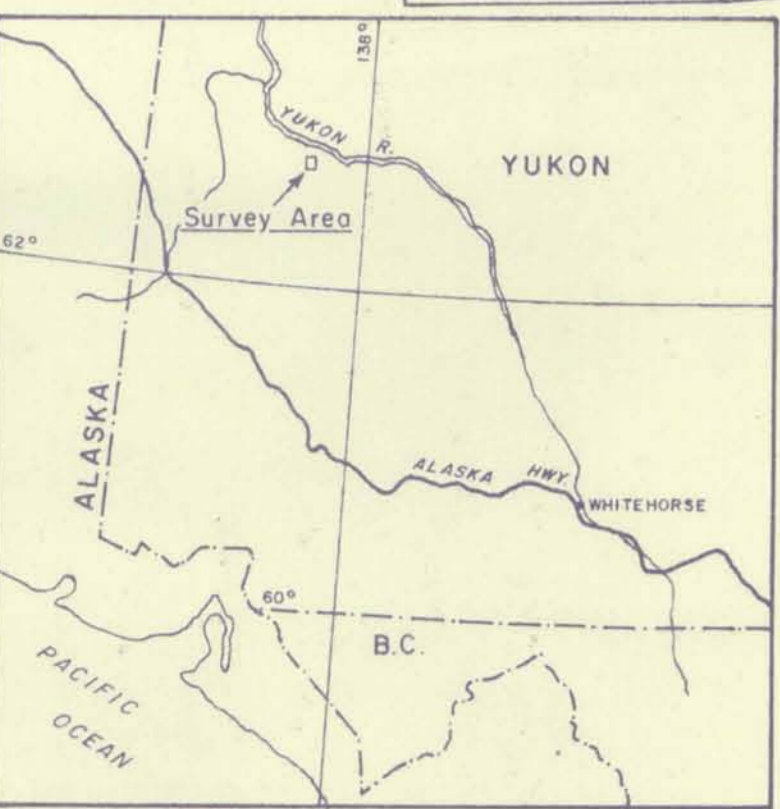
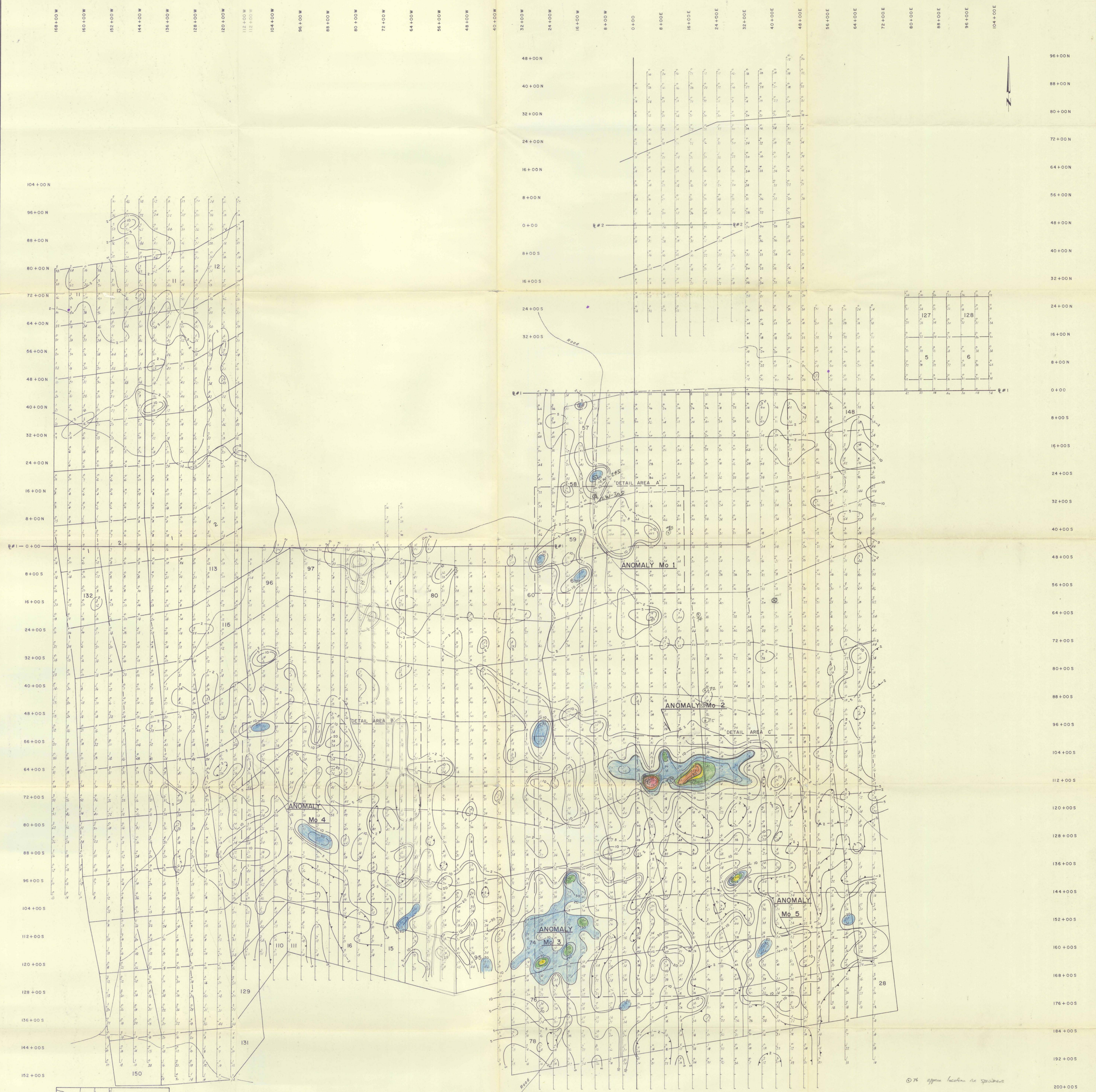
Opaque Minerals (3%) Occurs as very small grains mostly associated with chlorite. Not magnetic. A few minute grains of pyrite were observed in the hand specimen.

Biotite (2%) Small irregular patches as relicts of much larger grains now almost entirely replaced by sericite and chlorite. Much has a "shredded" appearance.

Limonite (Tr) Occurs as small irregular patches of stain here and there in the thin section.

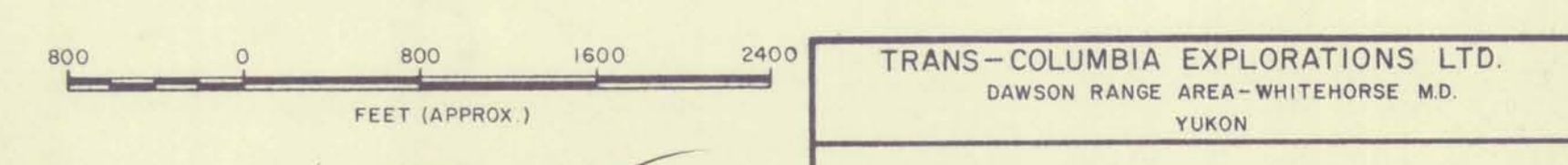
The rock at present is almost completely the product of alteration processes. It appears to have been a medium-grained quartz monzonite that has undergone extensive sericitization, carbonatization and chloritization perhaps with

the introduction of silica. The fairly mafic nature of the rock may point to a parent somewhat more basic than a quartz monzonite although this cannot be ascertained.



LEGEND

Greater than 100ppm.	Anomalous	0 MOLY
5.0 to 99 ppm	Possibly Anomalous	31 COPPER
2 to 4.9 ppm.	Above Average	
Less than 2ppm.	Below Average	



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YUKON

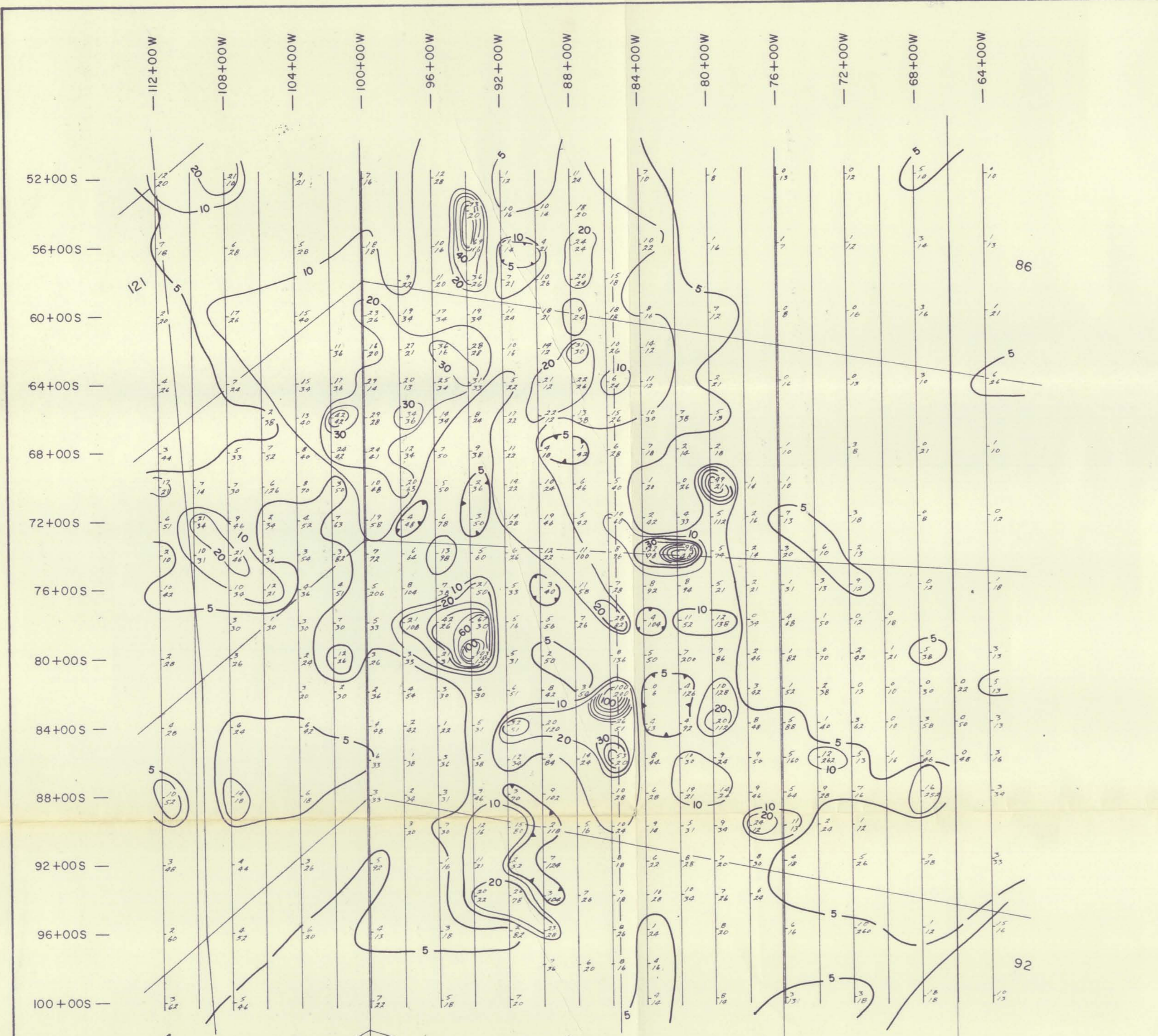
MOLYBDENUM GEOCHEMICAL
P.P.M.

CONT. INT. 2,5,10,20,30,40,50,60,80,100,200

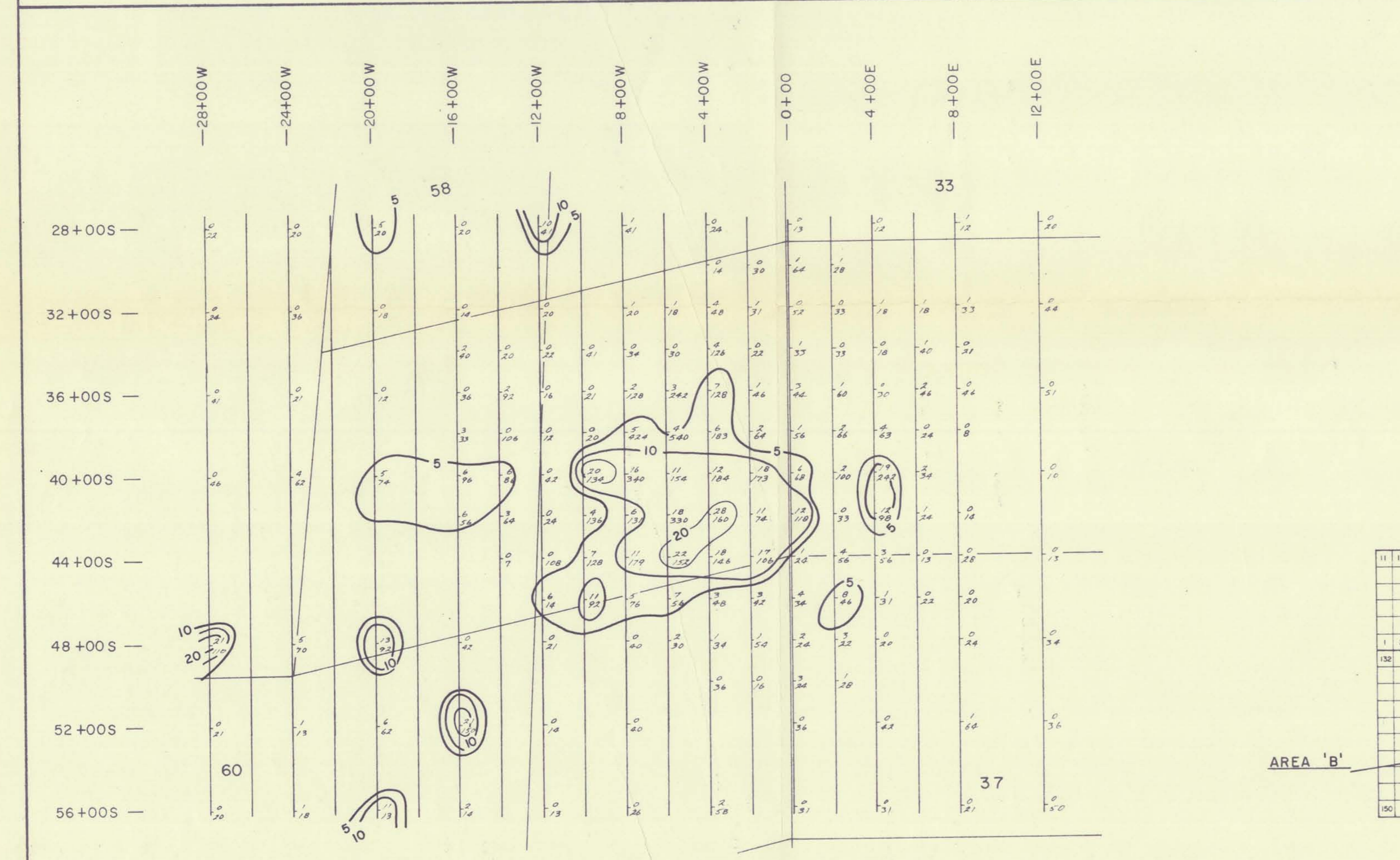
DRAWN	1M	JOB NO.	FIG. NO.
DATED	SEPT 23, 1970	1149	3
CHECKED			

TO ACCOMPANY THE GEOCHEMICAL REPORT ON THE TUNGSTEN, SQUAW
AZTEC & A PORTION OF NEW GROUP OF CLAIMS OWNED BY TRANS-COLUMBIA EXPL. LTD.
IN THE WHITEHORSE M.D. - YUKON TERRITORY
BY D. B. COCHRAN, P. ENG.
VANCOUVER, B.C.

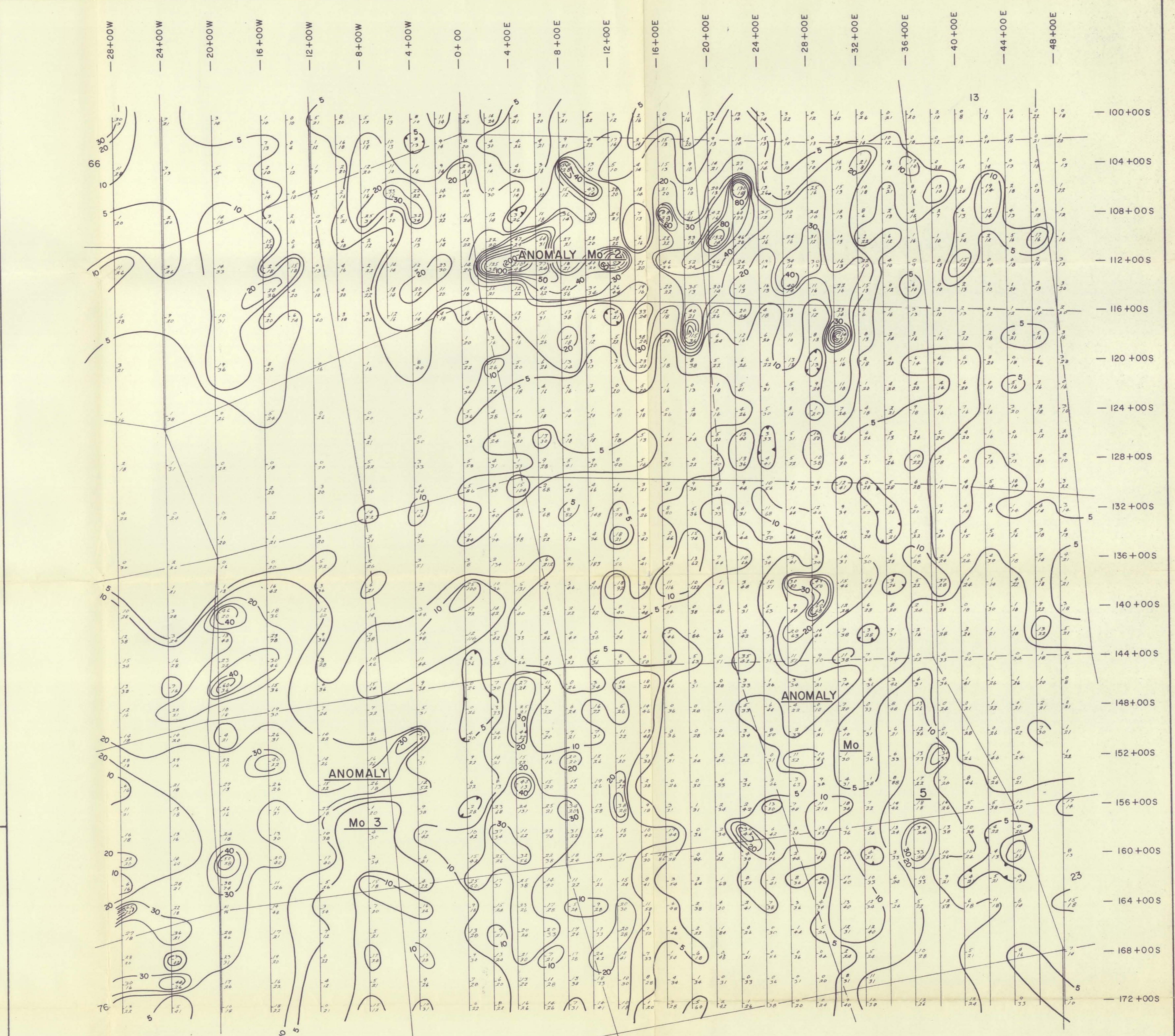




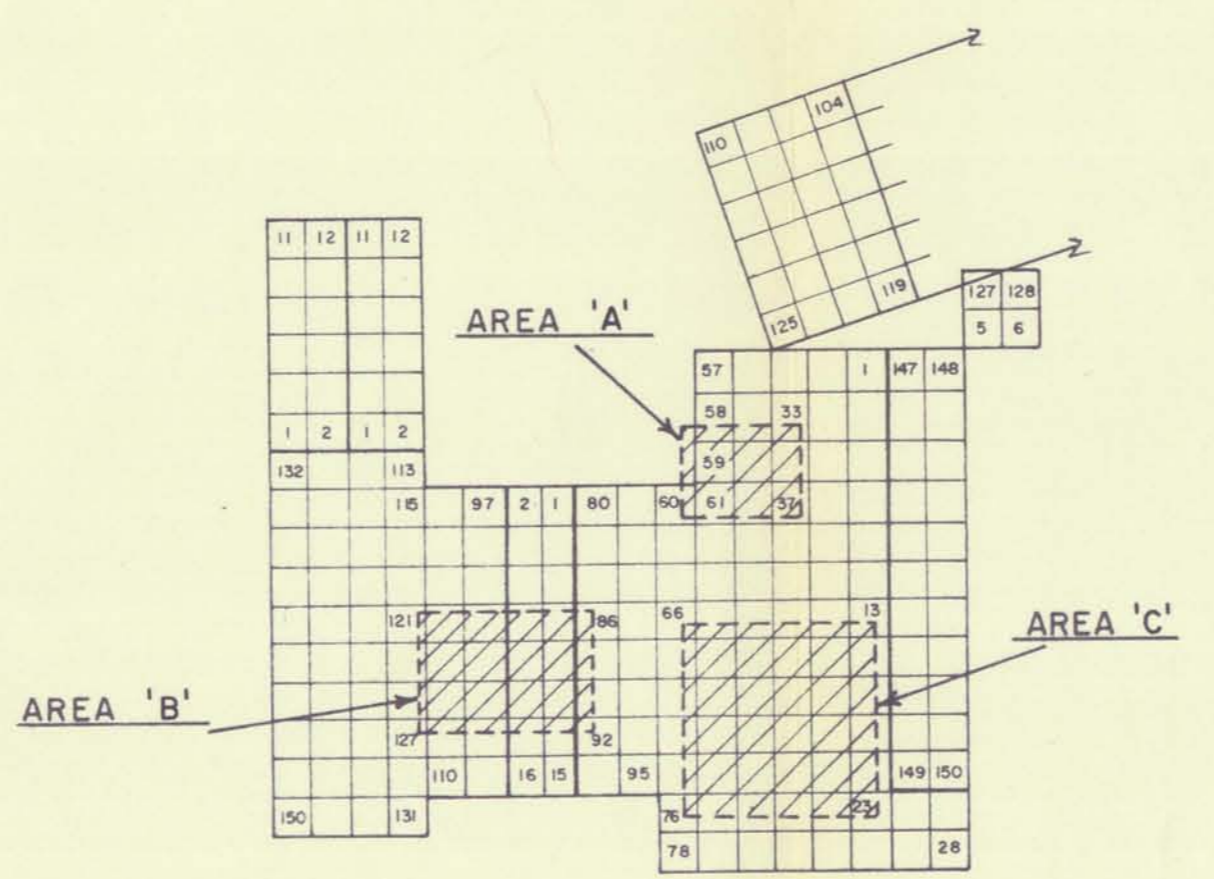
AREA B
ANOMALY No 4



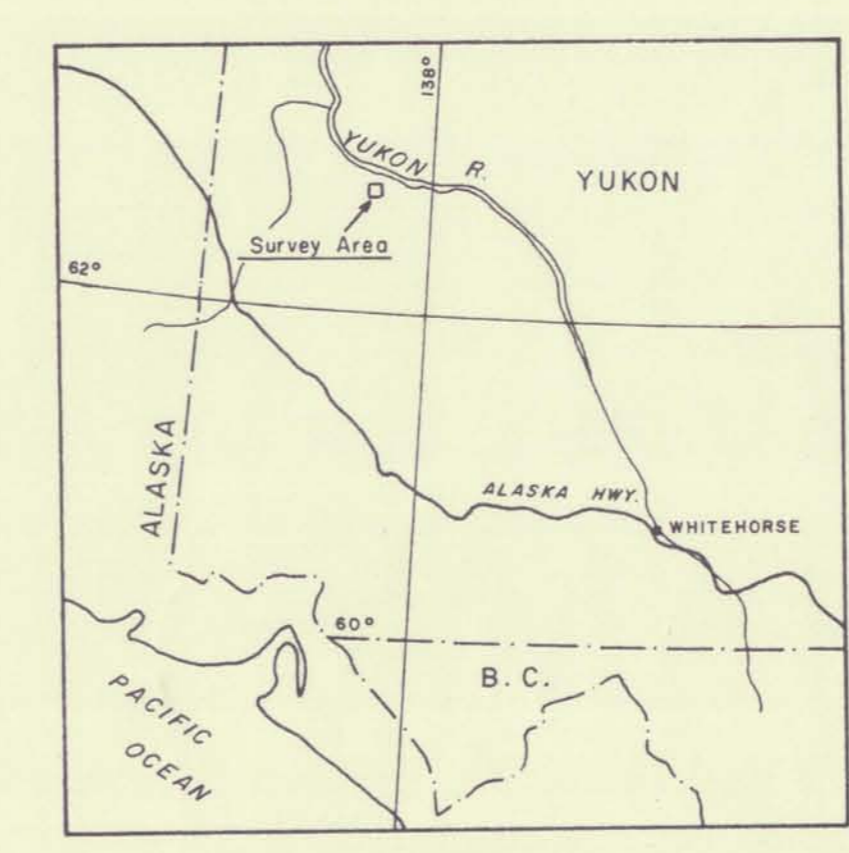
AREA A
ANOMALY No 1



AREA C
ANOMALIES No 2, Mo 3 & Mo 5



LOCATION OF
DETAILED AREAS

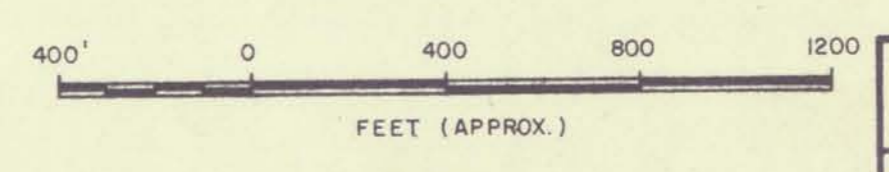


INDEX MAP
SCALE 1" = 80 MILES

LEGEND

Greater than 10.0ppm. Anomalous
5.0 to 9.9 ppm. Possibly Anomalous

0 MOLY
13 COPPER



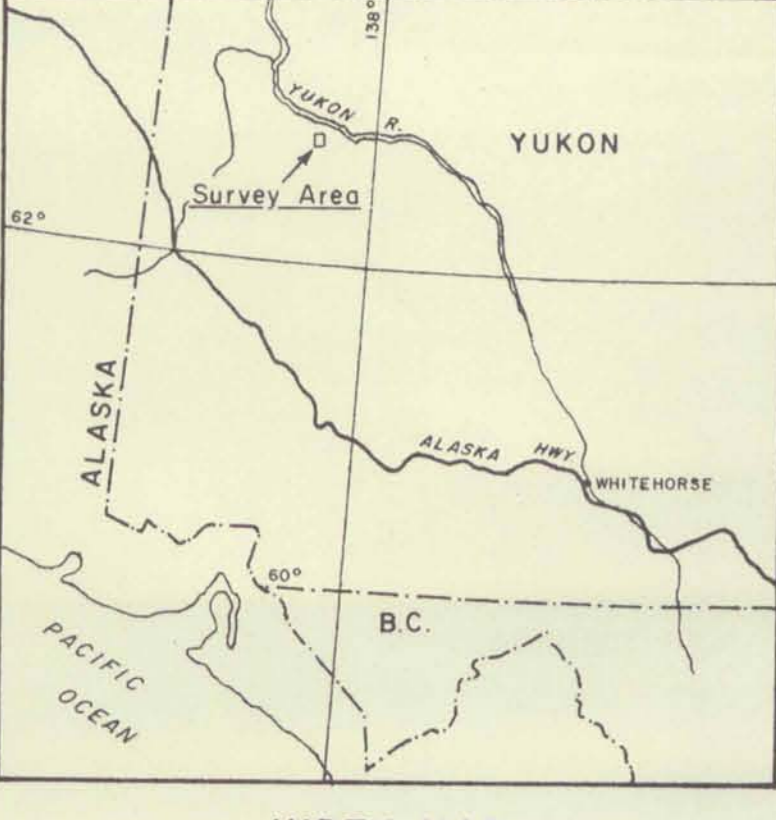
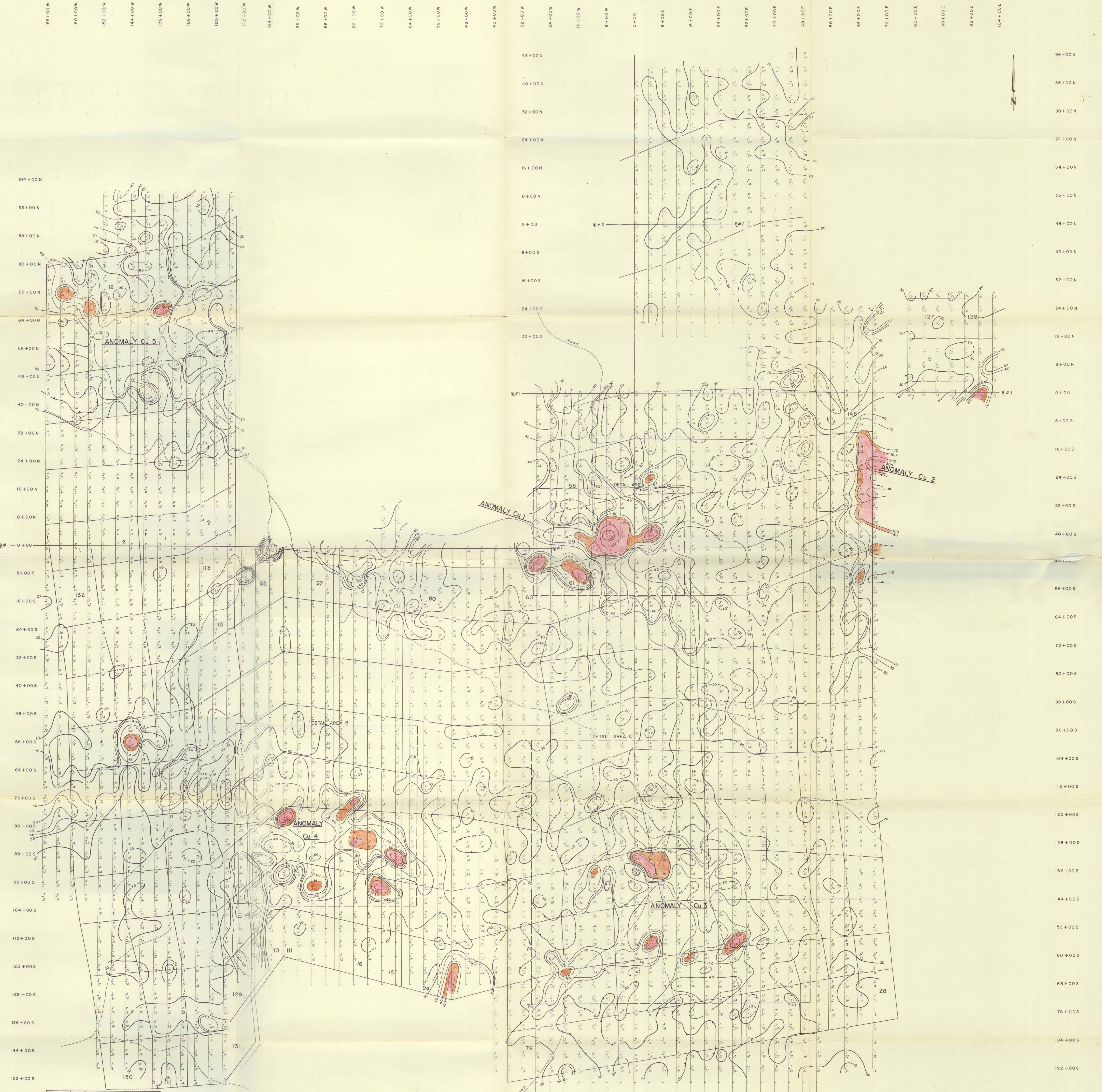
TRANS - COLUMBIA EXPLORATIONS LTD.
DAWSON RANGE AREA - WHITEHORSE M.D.
YUKON

DETAILED AREAS
MOLYBDENUM GEOCHEMICAL
P.P.M.
CONTOUR INT. 5,10,20,30,40,50,60,80,100,200

DRAWN	R.K.	JOB NO	FIG NO
CHECKED	SEPT 23, 1970	1149	4

GEO - X SURVEYS LTD.

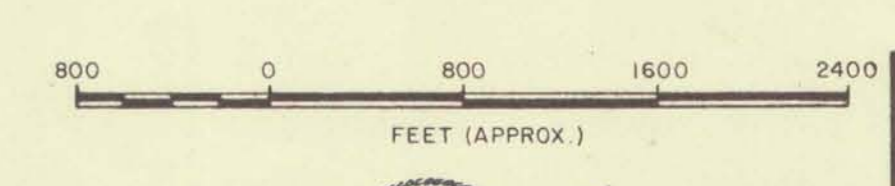
TO ACCOMPANY THE GEOCHEMICAL REPORT ON THE TLINGITS, SQUAW,
AZTEC & A PORTION OF THE NEW GROUP OF CLAIMS OWNED BY
TRANS-COLUMBIA EXPL. LTD., IN THE WHITEHORSE M.D. - YUKON TERRITORY.
BY: D.R. COCHRANE, P. ENG., VANCOUVER, B.C.



INDEX MAP
SCALE: 1" = 80 MILES

LEGEND

Greater than 40ppm.	Anomalous	0 MOLY
30 to 40 ppm.	Possibly Anomalous	31 COPPER
20 to 30 "	Above Average	
Less than 20ppm.	Below Average	

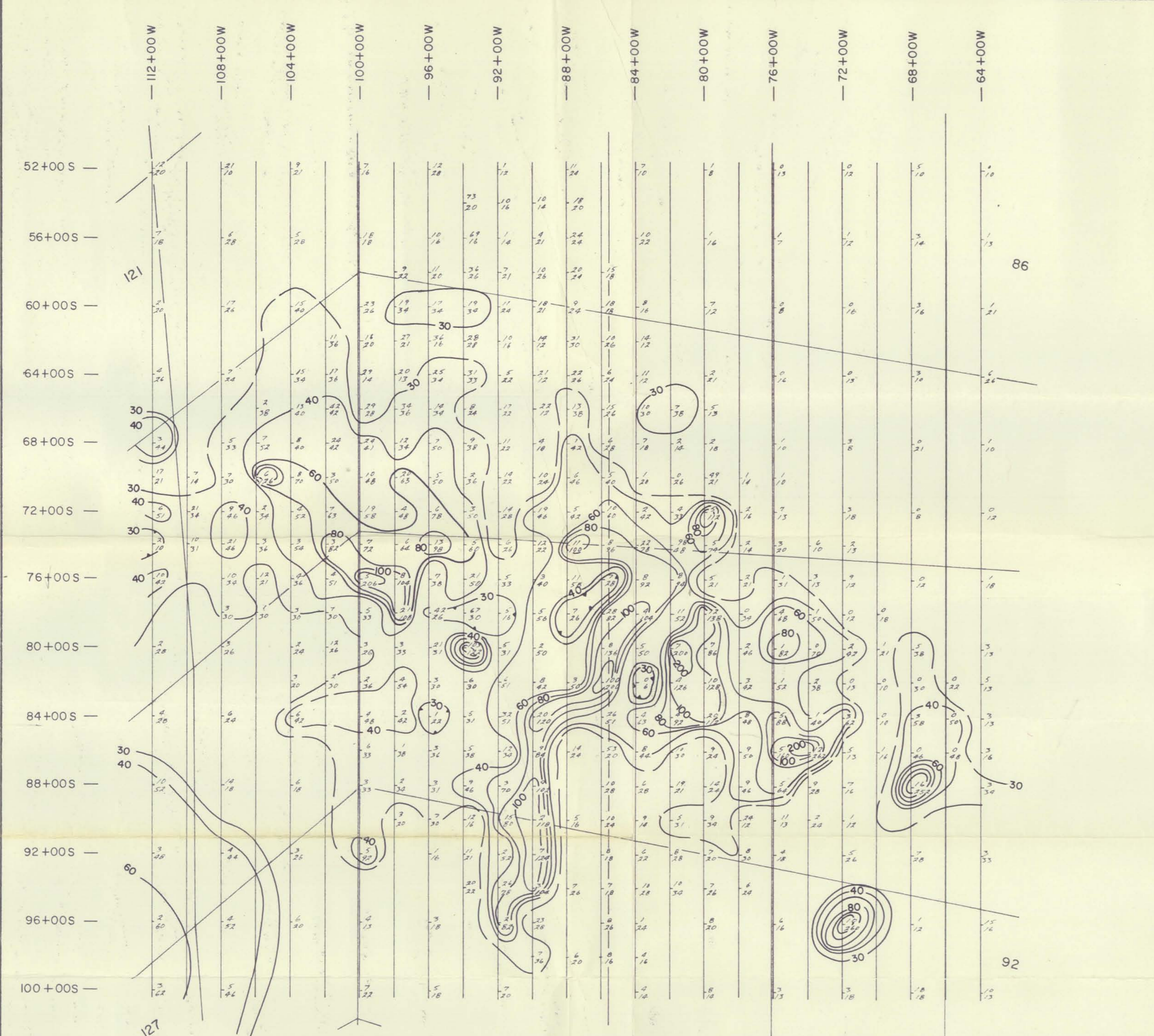


TRANS-COLUMBIA EXPLORATIONS LTD.
DAWSON RANGE AREA-WHITEHORSE M.D.
YUKON

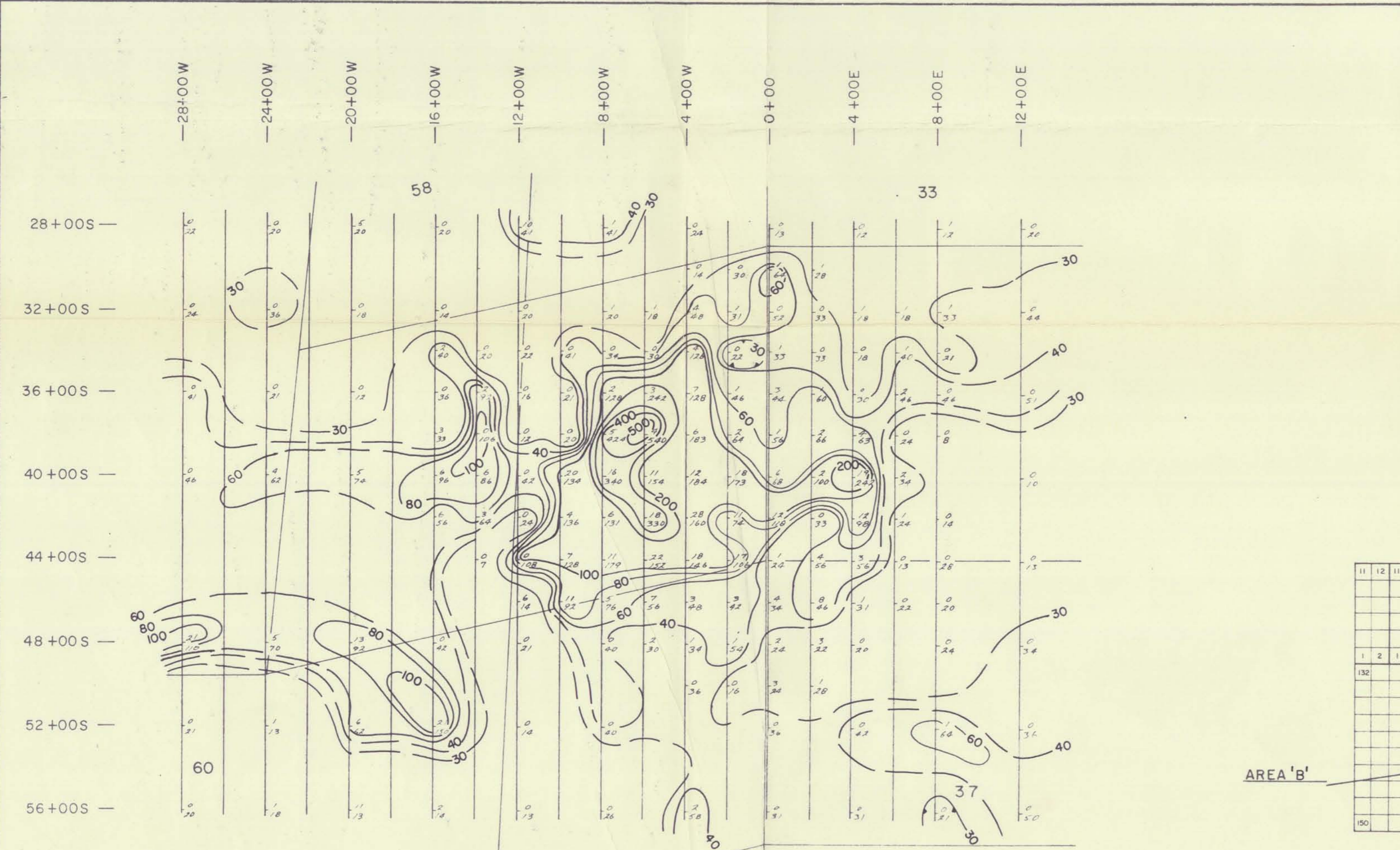
COPPER GEOCHEMICAL
P.P.M.
CONT. INT. 20, 30, 40, 60, 80, 100, 200, 300

G GEO - X SURVEYS LTD.	DRAWN	T.M.	JOB NO.	FIG. NO.
	DATED	SEPT. 25, 1970	1149	5
	CHECKED			

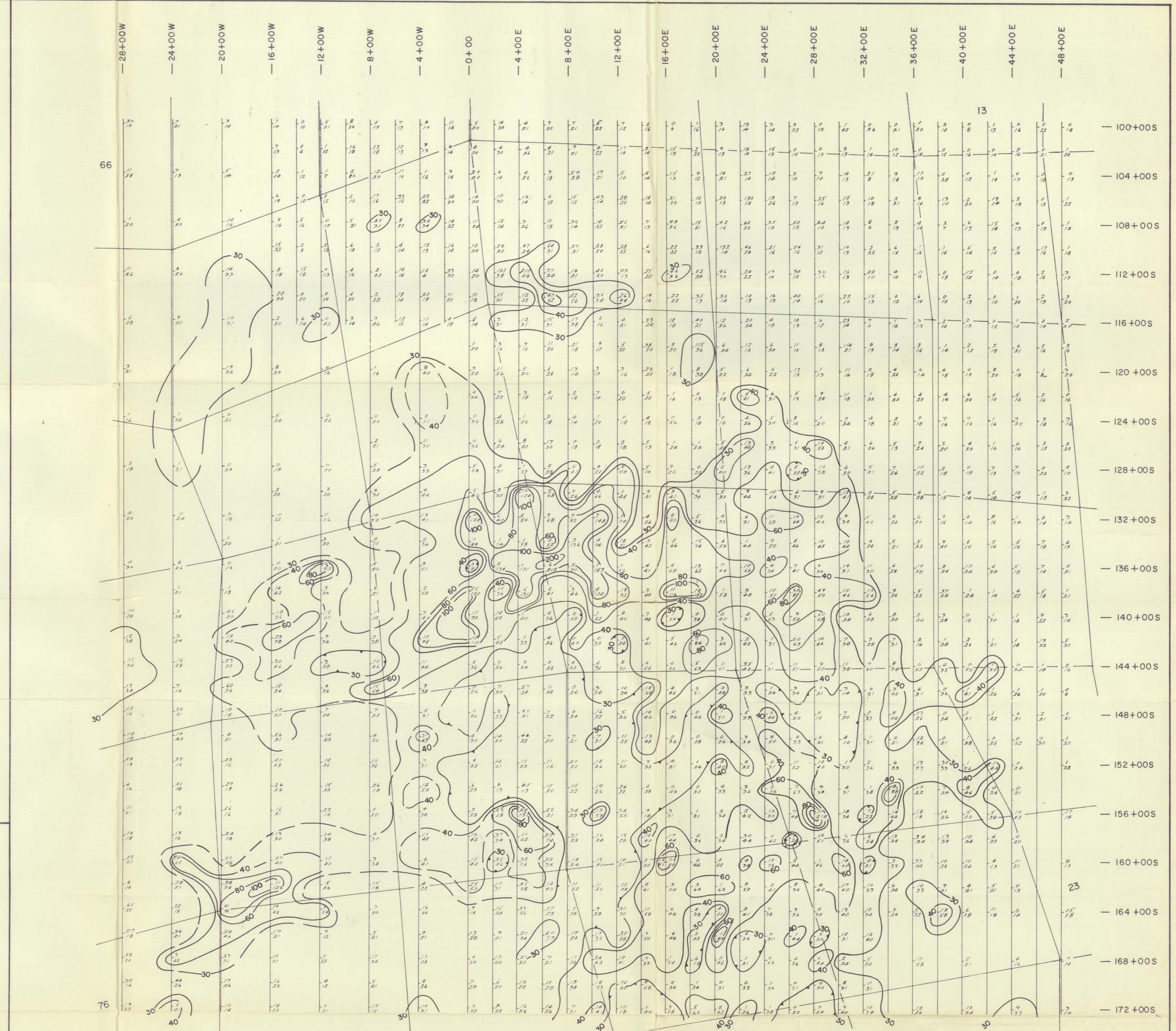
TO ACCOMPANY THE GEOCHEMICAL REPORT ON THE 'LINGSIT SQUAM,
AZTEC IS A PORTION OF NEW GROUP OF CLAIMS OWNED BY TRANS-COLUMBIA EXPL. LTD.
IN THE WHITEHORSE M.D.-YUKON TERRITORY
BY D. R. COCHRANE, P. ENG.
VICTORIA, B.C.



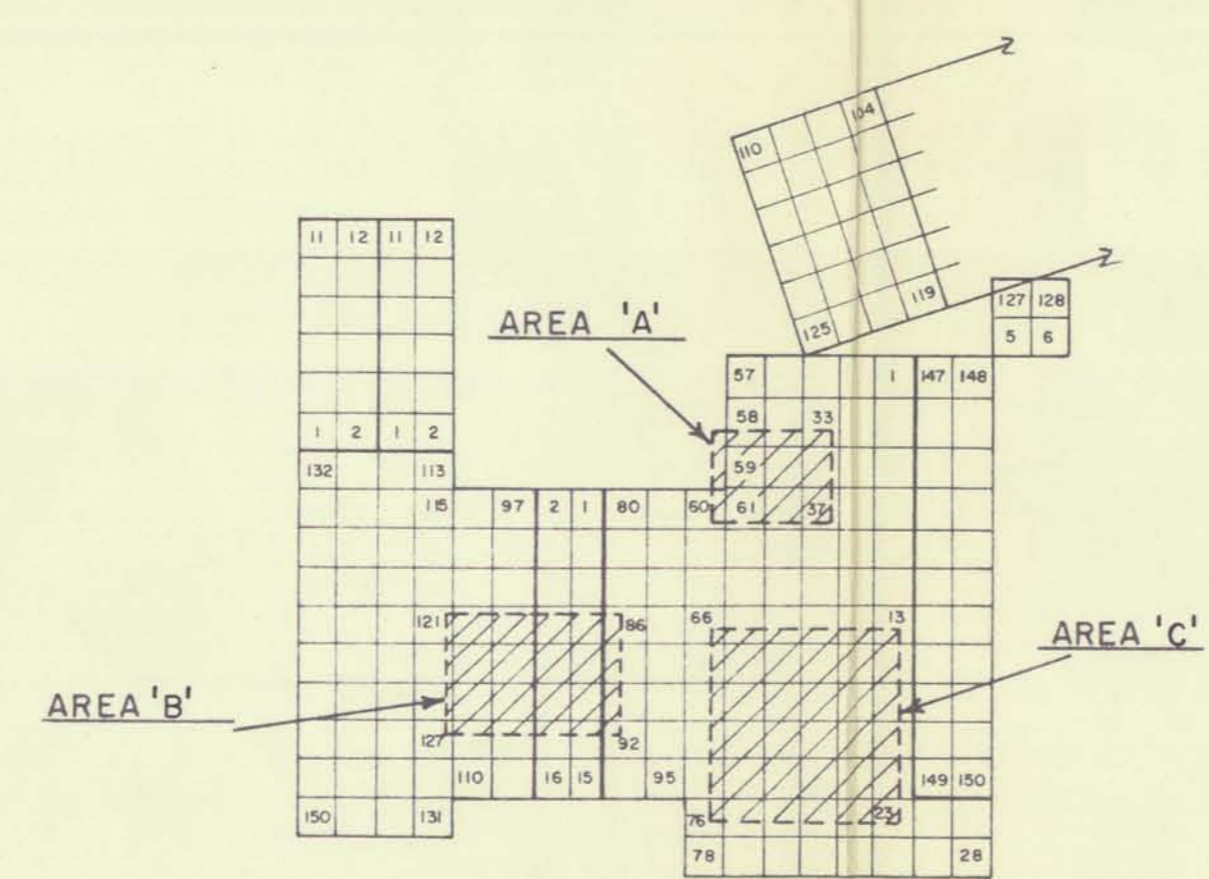
**AREA B
ANOMALY Cu 4**



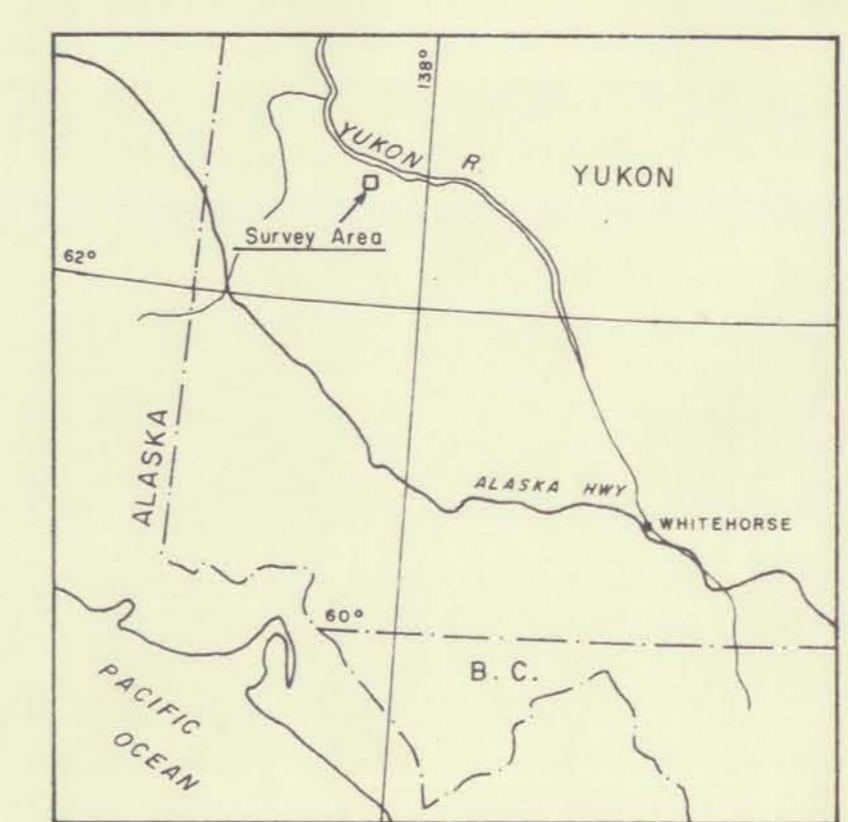
**AREA A
ANOMALY Cu 1**



**AREA C
ANOMALY Cu 3**



**LOCATION OF
DETAILED AREAS**



**INDEX MAP
SCALE 1" = 80 MILES**

LEGEND

Greater than 40 ppm. - Anomalous
30 to 40 ppm. - Possibly Anomalous
0 MOLY
13 COPPER

400' 0 400 800 1200
FEET (APPROX.)

TRANS - COLUMBIA EXPLORATIONS LTD.
DAWSON RANGE AREA - WHITEHORSE M.D.
YUKON

**DETAILED AREAS
COPPER GEOCHEMICAL
P.P.M.**

CONTOUR INT. 30, 40, 60, 80, 100, 200, 300, 400

DRAWN	R.K.	JOB NO.	FIG NO.
DATED	SEPT. 23, 1970	1149	6
CHECKED			

GEO - X SURVEYS LTD.

TO ACCOMPANY THE GEOCHEMICAL REPORT ON THE TLINGITS, SQWAG,
AZTEC & A PORTION OF THE NEW GROUP OF CLAIMS OWNED BY
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BY D. R. COCHRANE, P. ENG., VANCOUVER, B.C.



164W, 66N

12W, 24S

12W, 30S

60W, 6N

40E, 60S

LEGEND

○ 12W, 24S. Location of Rock Samples as per Table 1.

TRANS-COLUMBIA EXPLORATIONS LTD.

JOB No. 1149 SEPT. 23, 1970

SCALE 1" = 800' APPROX.

