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REPORT ON  
SOIL GEOCHEMISTRY, GAMMA RAY  
SPECTROMETRY AND GEOLOGY

MST 1-40 MINERAL CLAIMS

Mayo Mining Division  
Yukon Territory

Latitude: 65°09'

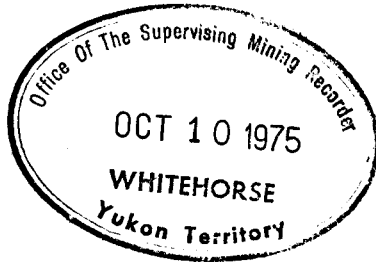
Longitude: 135°04'

Claim Sheet 106E/3

15 September, 1975

Alan R. Archer

Consulting Engineer



REPORT ON SOIL GEOCHEMISTRY, GAMMA RAY SPECTROMETRY AND GEOLOGY

MST 1-40 MINERAL CLAIMS

Mayo Mining Division, Y.T.

Lat. 65°09'

Long. 135°04'

Claim Sheet 106E/3

15 September, 1975

Alan R. Archer

Consulting Engineer



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

\$4,900.00

*[Signature]*  
Resident Geologist or  
Resident Mining Engineer

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

*[Signature]*  
S.E. BAXTER  
Supervising Mining Recorder  
Commissioner of Yukon Territory

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## INTRODUCTION

The MST zinc-lead showing was found in June, 1974 by Ogilvie Joint Venture (Chevron Standard Limited, Aquitaine Co. of Canada Ltd, Marietta Resources International Ltd, and L & H Clay) managed by Archer, Cathro and Associates Ltd. The claim area was explored by reconnaissance geological mapping and soil sampling in 1974. The 1975 work, described in this report, consists of grid soil sampling, detailed geology and a radiometric survey over the area of outcropping mineralization. This work was performed by geologists J. Slater and T. Bremner assisted by field men R. Dennett, J. Dickinson, and D. Eaton under supervision of M.P. Phillips and the writer.

## PROPERTY, LOCATION AND ACCESS

The MST property consists of 40 contiguous mineral claims recorded in the Mayo Mining District as follows:

<u>Claim Name</u>	<u>Grant Number</u>	<u>Expiry Dates</u>
MST 1	Y88865	10 March, 1978
MST 2	Y88866	10 March, 1976
MST 3	Y88867	10 March, 1978
MST 4-8	Y88868-Y88872	10 March, 1976
MST 9-12	Y88873-Y88876	10 March, 1978
MST 13-16	Y88877-Y88880	10 March, 1976
MST 17-40	Y97000-Y97023	10 March, 1975

The property is located between the Wind River and Illyd Creek on claim sheet 106E/3 at approximately Latitude 65°09' North and Longitude 135°04' West. Access was by helicopter from a camp situated at Kiwi Lake some 14 miles to the northeast. The Kiwi Lake camp was supplied by float plane from Mayo which is 120 airmiles to the south.

### GEOLOGY

The geology of the grid area is illustrated on Figure M9. The general setting is a sequence of Cambrian carbonates, shales and clastics lying unconformably on Proterozoic quartzites, shales and cherty dolomites. The Cambrian units strike easterly and dip gently ( $30^{\circ}$  or less) to the south. More specifically, the sediments in the grid area consist of a lower Cambrian grit unit about 400 feet thick overlain by middle Cambrian dolomite and underlain by lower Cambrian fine grit and shale which becomes increasingly calcareous downwards. The grit unit is medium to coarse grained, dolomitic, thin bedded (1/4 inch to 6 inches) with ripple marks common. A thin conglomerate unit develops to the northwest suggesting that the source of the grits was in that direction. Conglomerate cobbles are predominantly quartzites and argillites.

Minor mineralization consisting of galena, sphalerite and marcasite is found replacing the matrix in intermediate size grit horizons. There is little outcrop in the grid area and the mineralized zones shown on Figure M9 are defined by float. Most mineralized float is estimated to assay less than 2 per cent combined lead and zinc.

### GEOCHEMISTRY

Two 4000 foot long baselines, approximately 2000 feet apart, were established and marked by three foot lath pickets at 100 foot intervals. Three tie lines were chained between the baselines and marked with three foot pickets at 400 foot intervals. The northeastern line of MST claims was located relative to the baseline system. Soil samples were taken at 200 foot intervals on lines 400 feet apart at right angles to the baselines. Sample points were located by pace and compass. Sample pits were marked by red flagging and the sample

pit coordinates relative to the baseline being worked from and sample bag number printed on the flagging with a black felt pen. Every second sample point was similarly marked with an 18 inch lath picket. These numbers will remain legible for a minimum of 4 years. Soil samples were obtained from a B + C horizon by digging a shallow hole with a grab hoe. Soil samples were collected in prenumbered kraft sample bags and shipped to Chemex Labs Ltd., North Vancouver, B.C. Here, they were dried, screened to minus 80 mesh, digested in nitric perchloric acid and analysed for lead, zinc, copper, molybdenum and vanadium by atomic absorption spectrometry. Each sample was also assayed for uranium using a fluorometric technique.

The lead and zinc geochemistry was done to establish the extent and intensity of the galena and sphalerite mineralization in the grit unit. Figures M2 and M3 illustrate contoured lead and zinc soil values in parts-per-million (ppm) using thresholds of 80 and 200 ppm respectively. The above-threshold values define coincident area of interest about 2400 feet long and 800 feet wide over the grit formation on the northwest end of the survey area. A second area, 1600 feet long and 800 feet wide, with above threshold lead values is located over the lower siltstone unit on the southeast side of the survey area. The coincident area of interest has two small centres of strongly anomalous response. The first, on line 14N from baseline B at 22 West, has four zinc values ranging from 2000 to greater than 4000 ppm and five lead values ranging from 566 ppm to greater than 4000 ppm. The second area, on line 2N from baseline B at 26 West, has six zinc values ranging from 1400 ppm to greater than 4000 ppm and six lead values ranging from 887 ppm to greater than 4000 ppm .

The uranium geochemistry (see Figure M7) was obtained to explore for possible "roll type" concentrations in the grit unit. The copper, molybdenum and vanadium analysis (see Figures M4 to M6) was obtained as secondary indicators for the uranium. No significant response was obtained from the grits. However, an area 1200 feet by 600 feet, open to the southwest, of anomalous uranium response was obtained from a weakly brecciated area of middle Cambrian dolomite. Here, uranium values range from 2.0 to 21.5 ppm as compared to background of 0.5 ppm or less. The uranium anomaly has no associated response in vanadium or copper but does have a strongly anomalous associated molybdenum response with values ranging from 20 to 100 ppm over a background of 1 ppm or less. The vanadium geochemistry shows no anomalous response while the copper has a narrow anomalous zone (values 100 to 270 ppm over a background of 25 ppm) more or less coincident with the conglomerate.

#### GAMMA-RAY SPECTROMETRY

A beta-gamma ray survey was conducted using Scintrex BGS-1S broadband scintillation counters. Two instruments, Serial No. 501303 and 501323, were employed. This instrument model is equipped with a 1 inch by 1 inch thallium activated sodium iodide crystal detector. Readings were recorded in counts per second (cps) at 50 foot intervals on the grid cross lines and were taken at waste level or about 3 feet above the ground.

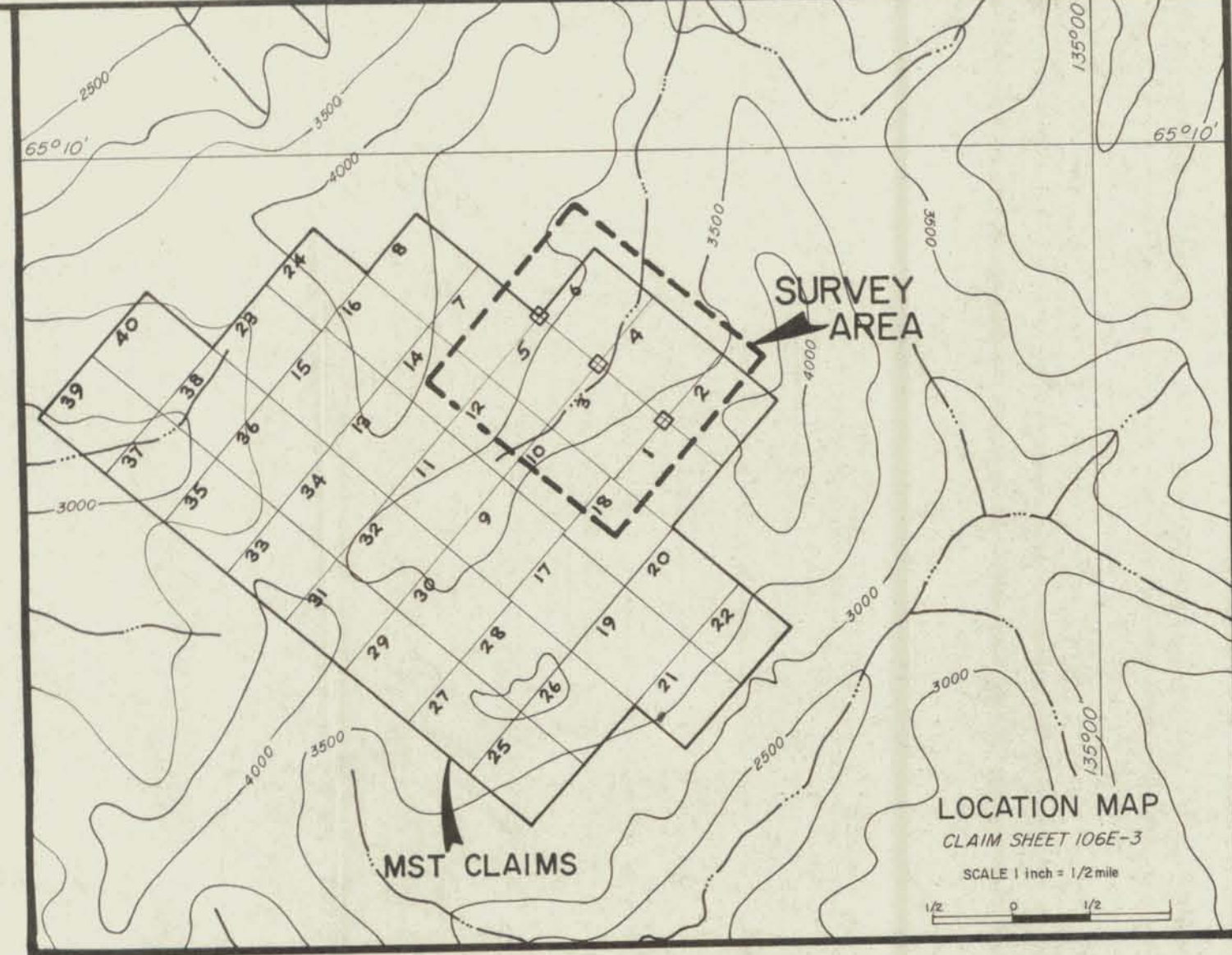
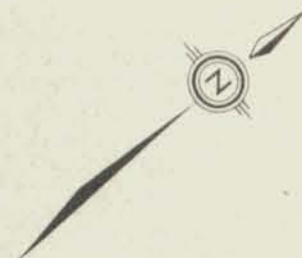
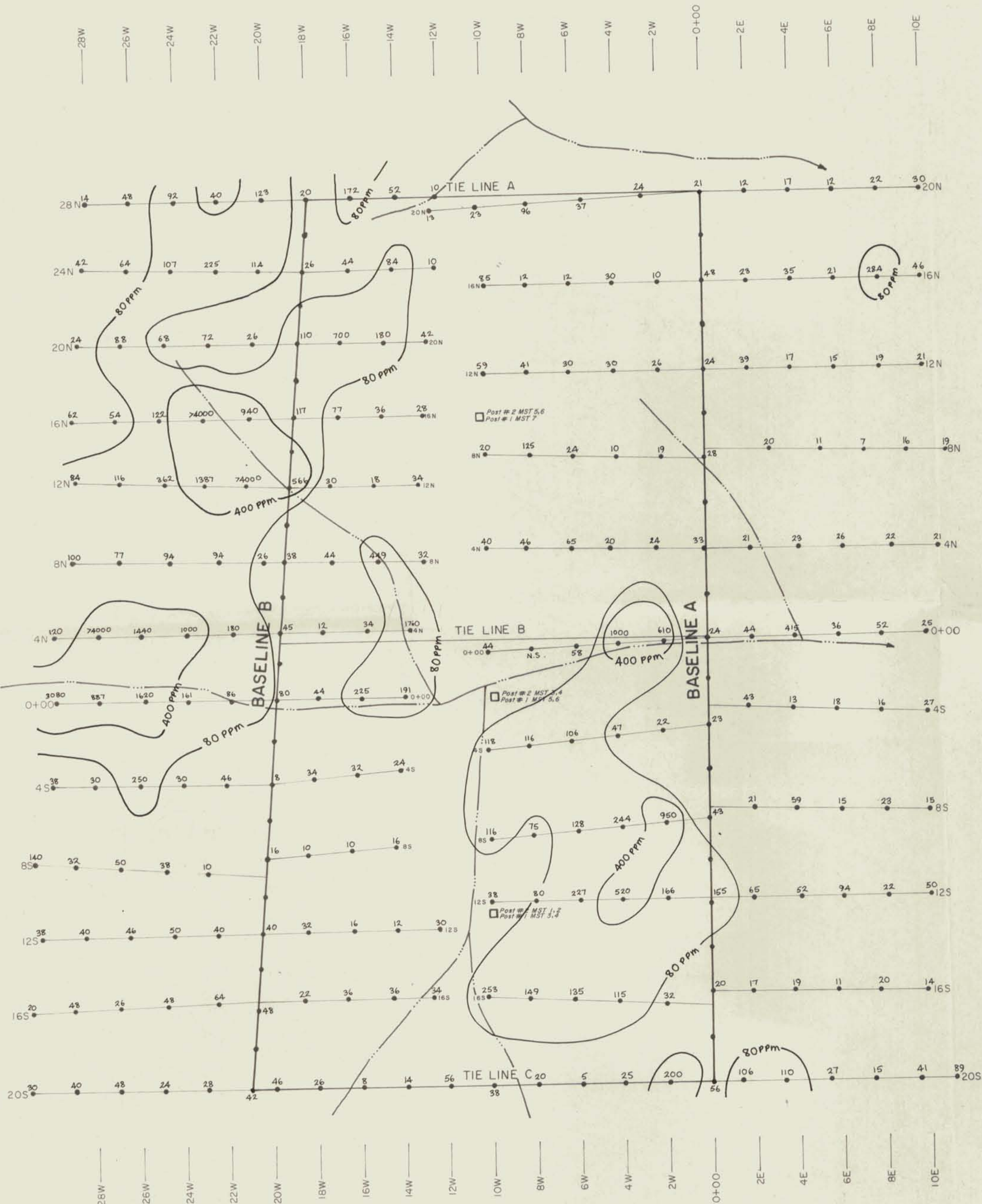
A weakly radioactive area was located at the southwest end of the grid. Here, readings of up to 200 cps were obtained from float fragments of brecciated dolomite. No other specific area of interest was located.

CONCLUSIONS AND RECOMMENDATIONS

The lead and zinc geochemistry confirms that the areas of sphalerite and galena mineralization are of limited extent and grade as is indicated by prospecting. The uranium geochemistry has located an area of interest that is open to the southwest and warrants further work to define its limits.

Respectfully submitted,  
A. P. ARCHER, P. CATHRO & ASSOCIATES LTD.  
GEOLOGICAL  
Archer, B.A.Sc. P.Eng.  
ENGINEER  
+  
Association of Professional Engineers of the Yukon Territory

ARA:st



●25 Soil value in parts per million

Chemical analysis by Chemex Labs Ltd, North Van., B.C.

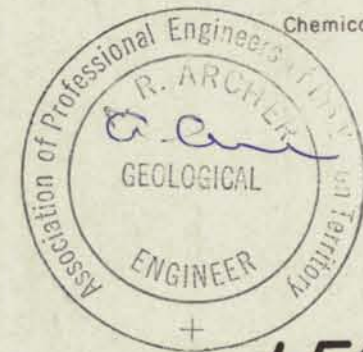
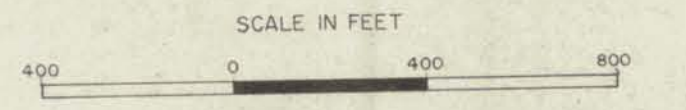
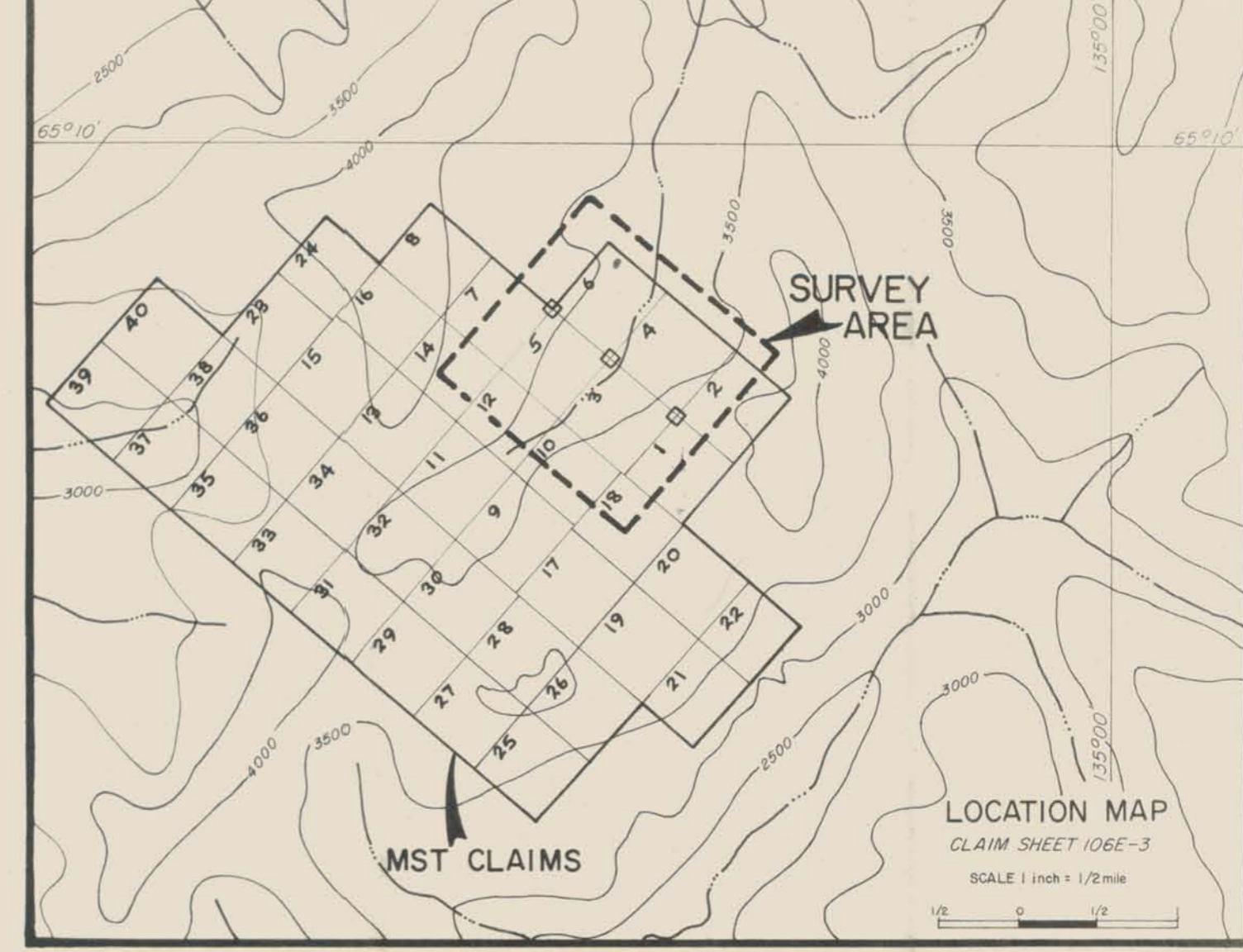
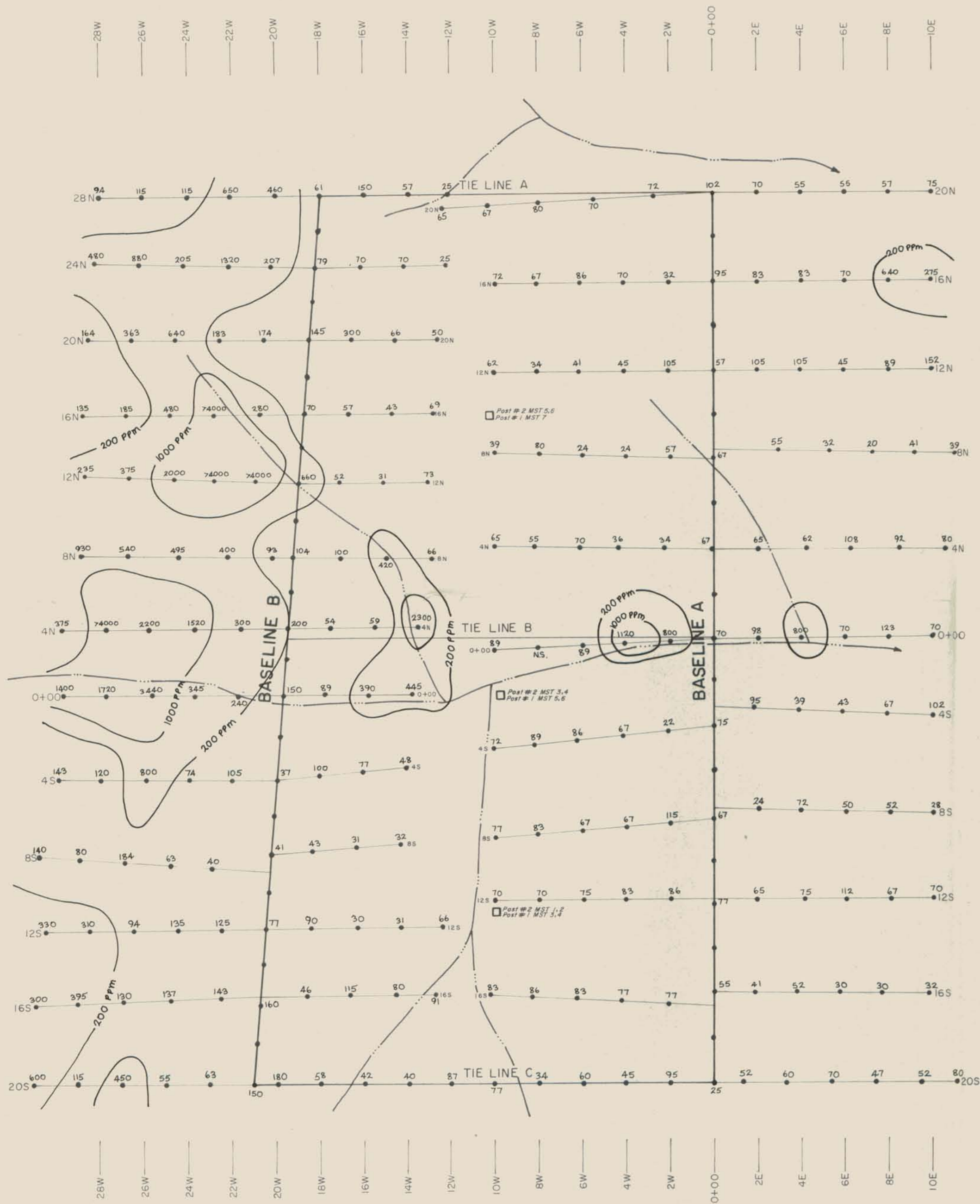


FIG. M2  
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**LEAD GEOCHEMISTRY**  
MST I-40 CLAIMS  
OGILVIE JOINT VENTURE



**NOTE**  
CROSS LINES ON BASELINE 'A' ARE SLOPE CORRECTED AND ARE APPROXIMATELY 400 FEET APART. CROSS LINES ON BASELINE 'B' ARE NOT SLOPE CORRECTED AND THE CO-ORDINATE DESIGNATION IS A LINE REFERENCE NUMBER RATHER THAN A TRUE HORIZONTAL DISTANCE



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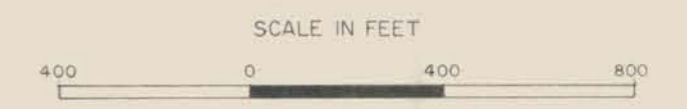
Chemical analysis by Chemex Labs Ltd, North Van., B.C.

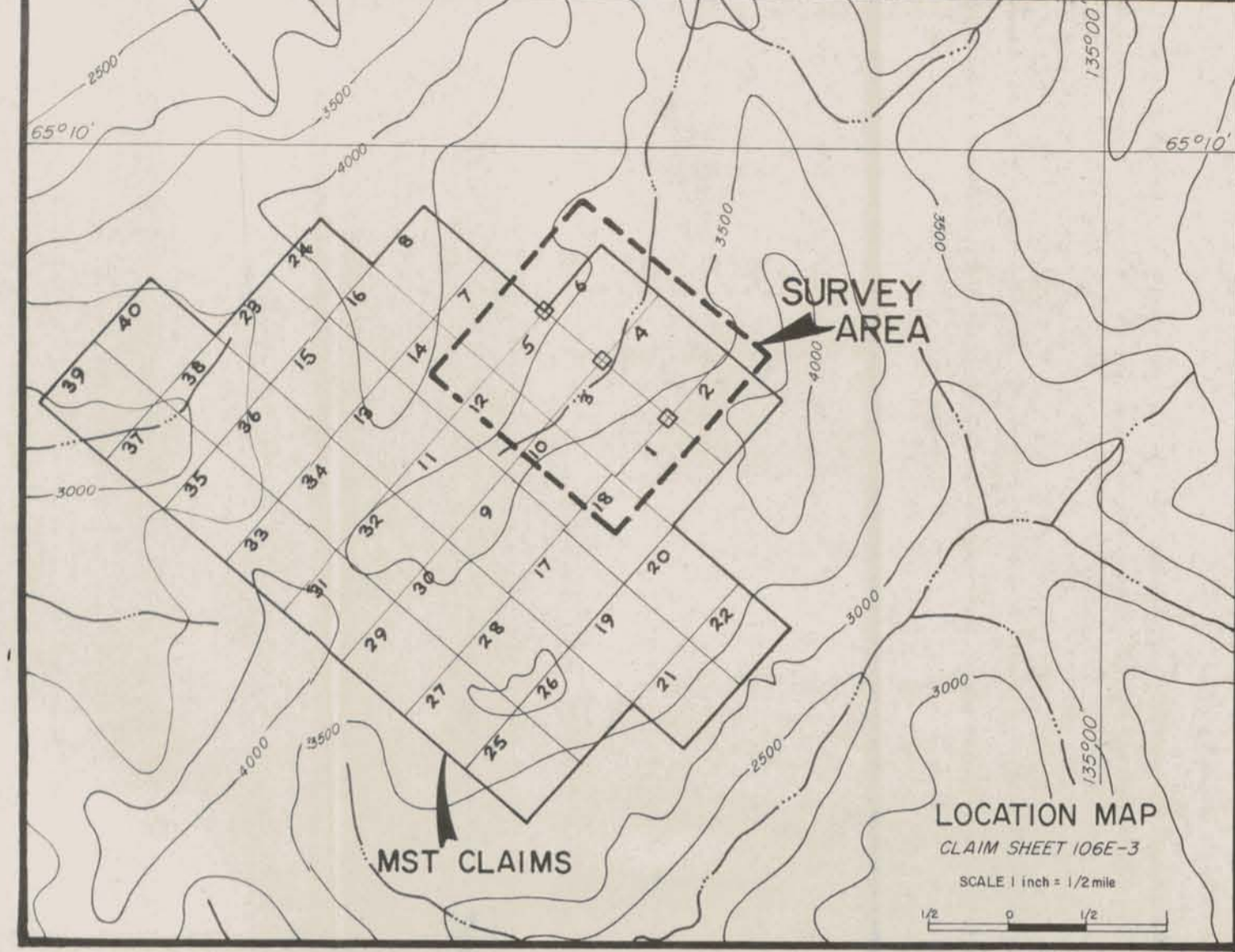
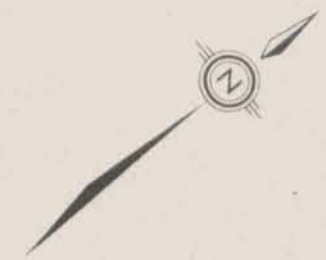
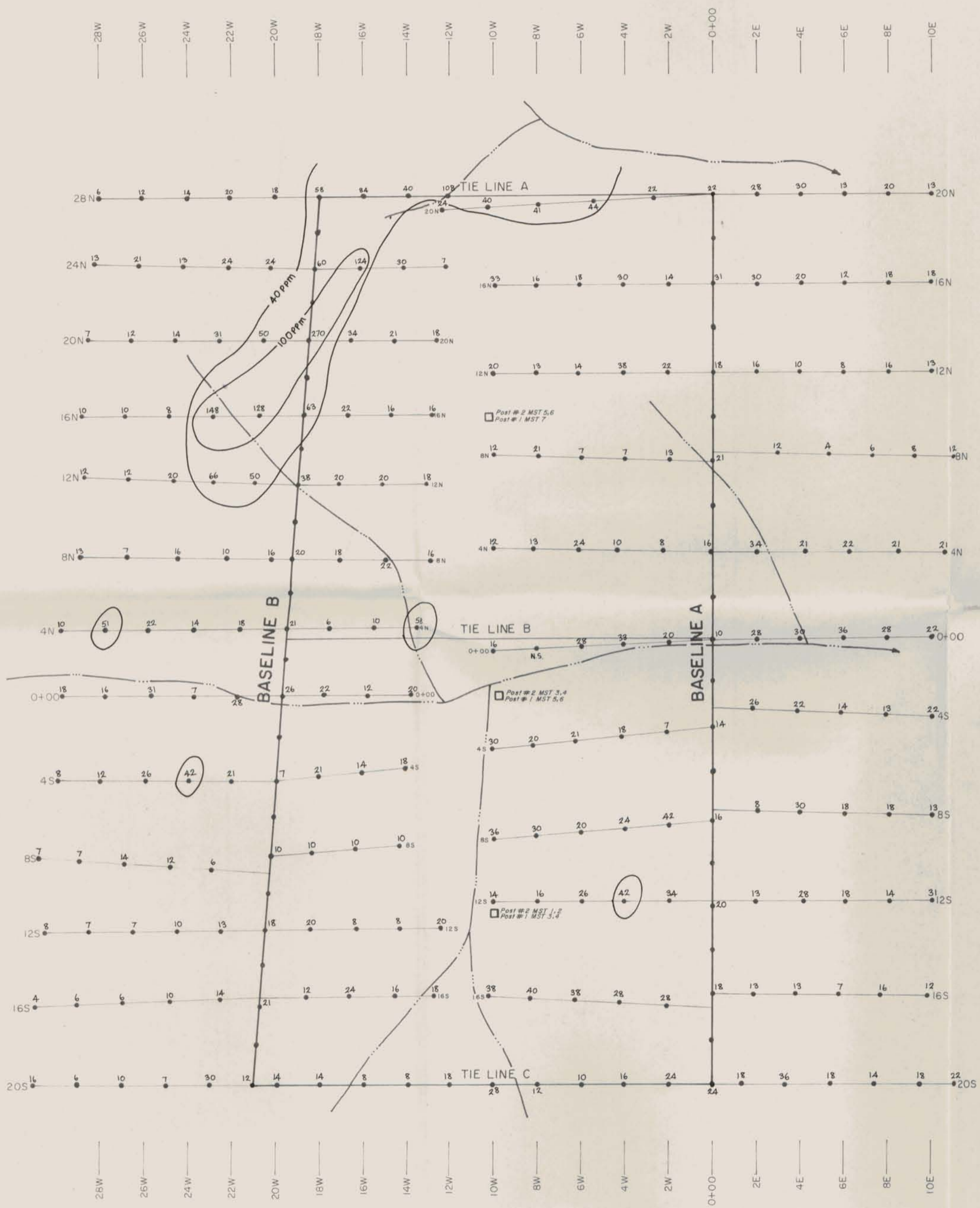
**Association of Professional Engineers of the Yukon Territory**  
**A. R. ARCHER**  
**GEOLOGICAL**  
**ENGINEER**

**FIG. M3**  
 ARCHER, CATHRO & ASSOCIATES LTD.

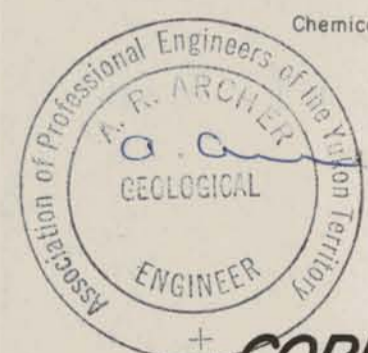
**ZINC GEOCHEMISTRY**

**MST I-40 CLAIMS**  
**OGILVIE JOINT VENTURE**





●22, Soil value in parts per million

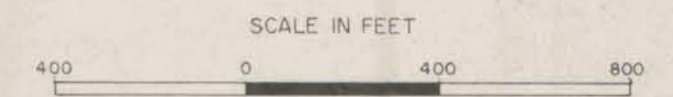


Chemical analysis by Chemex Labs Ltd, North Van., B.C.

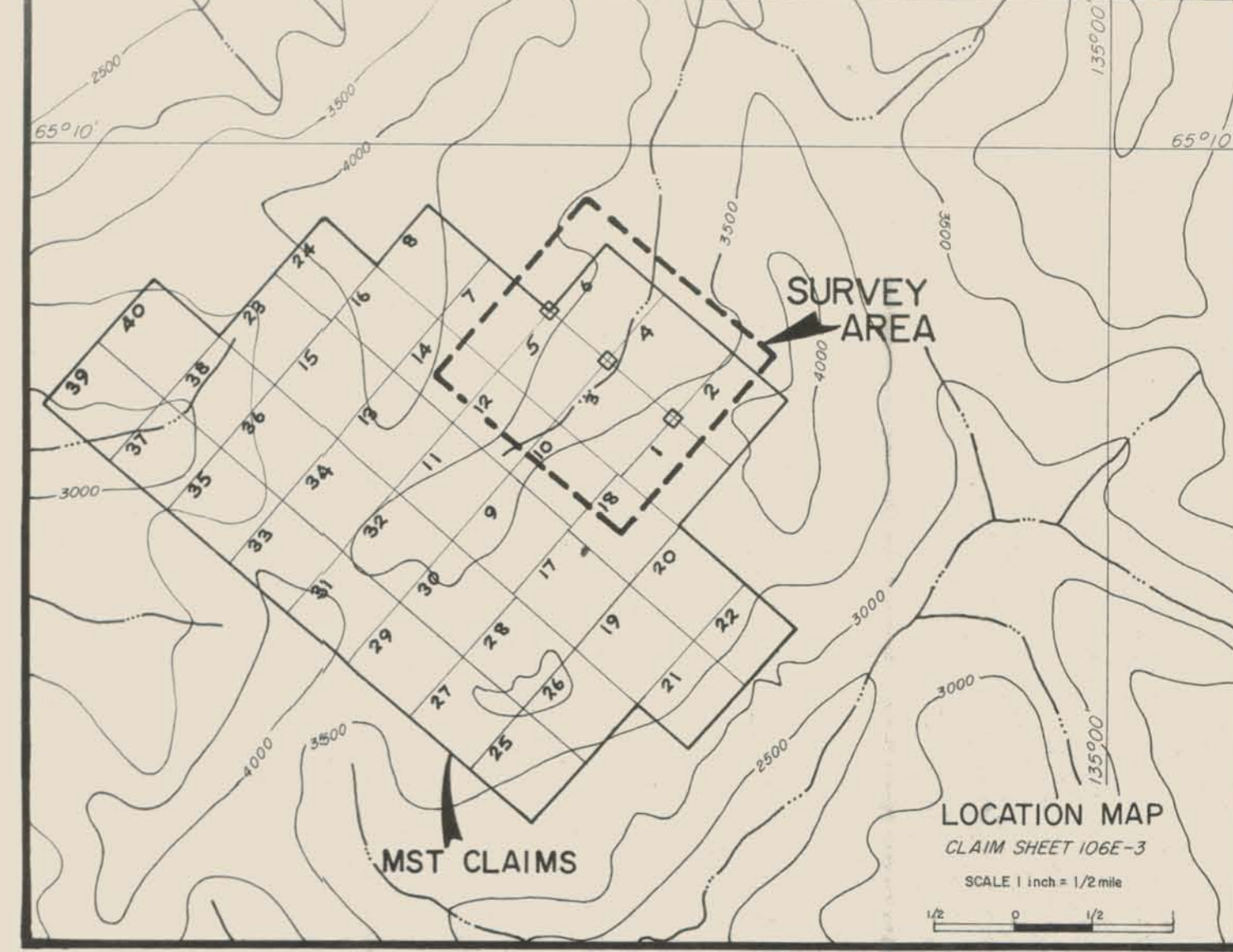
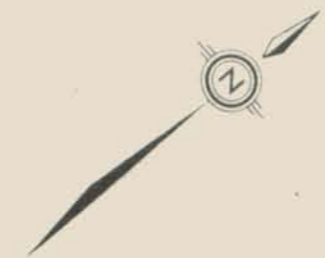
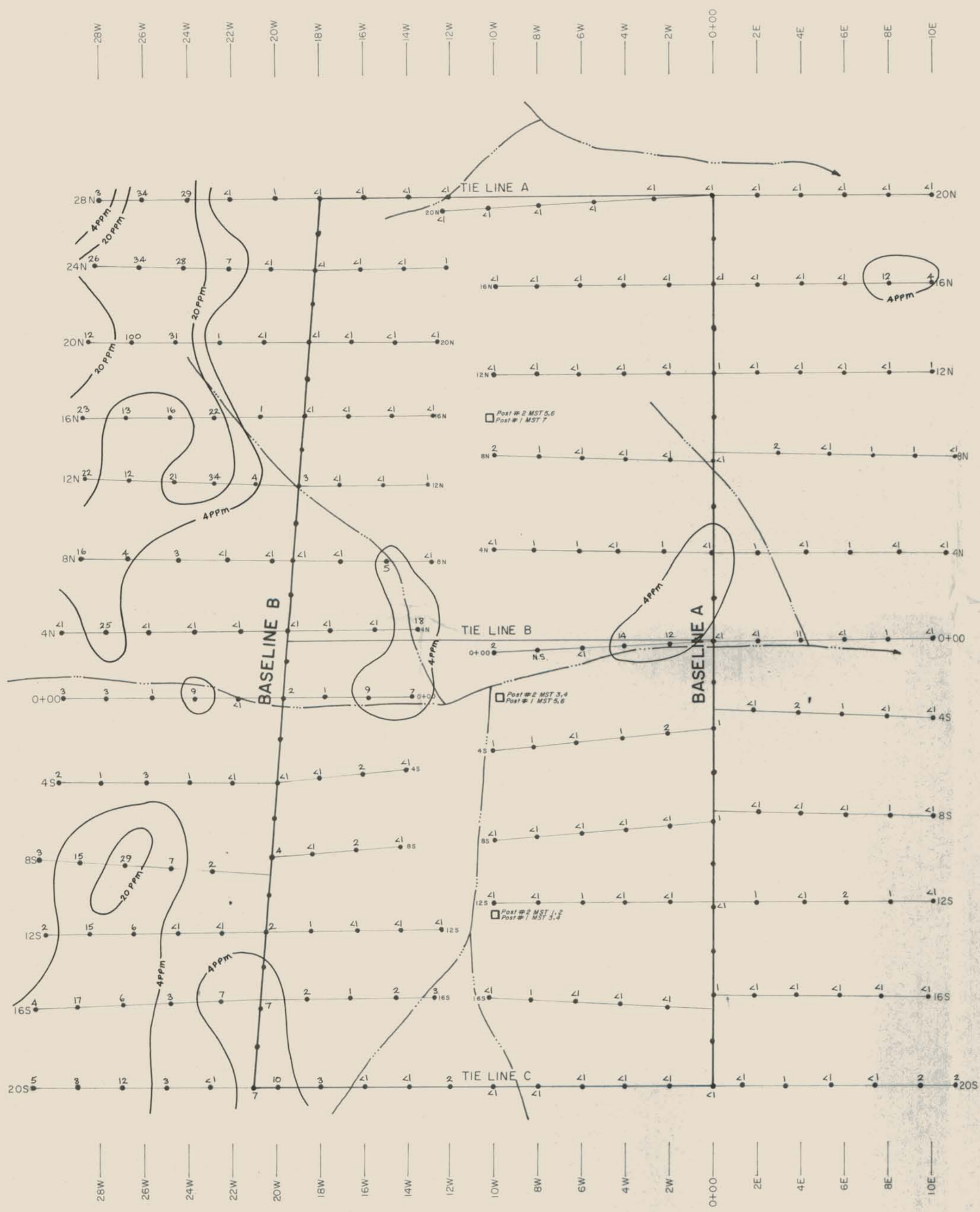
FIG. M4  
ARCHER, CATHRO & ASSOCIATES LTD.

**COPPER GEOCHEMISTRY**

**MST 1-40 CLAIMS  
OGILVIE JOINT VENTURE**



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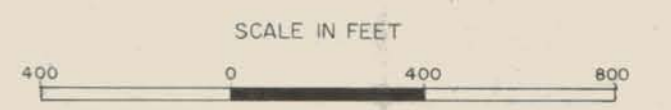
• 2 Soil value in parts per million



Chemical analysis by Chemex Labs Ltd, North Van., B.C.

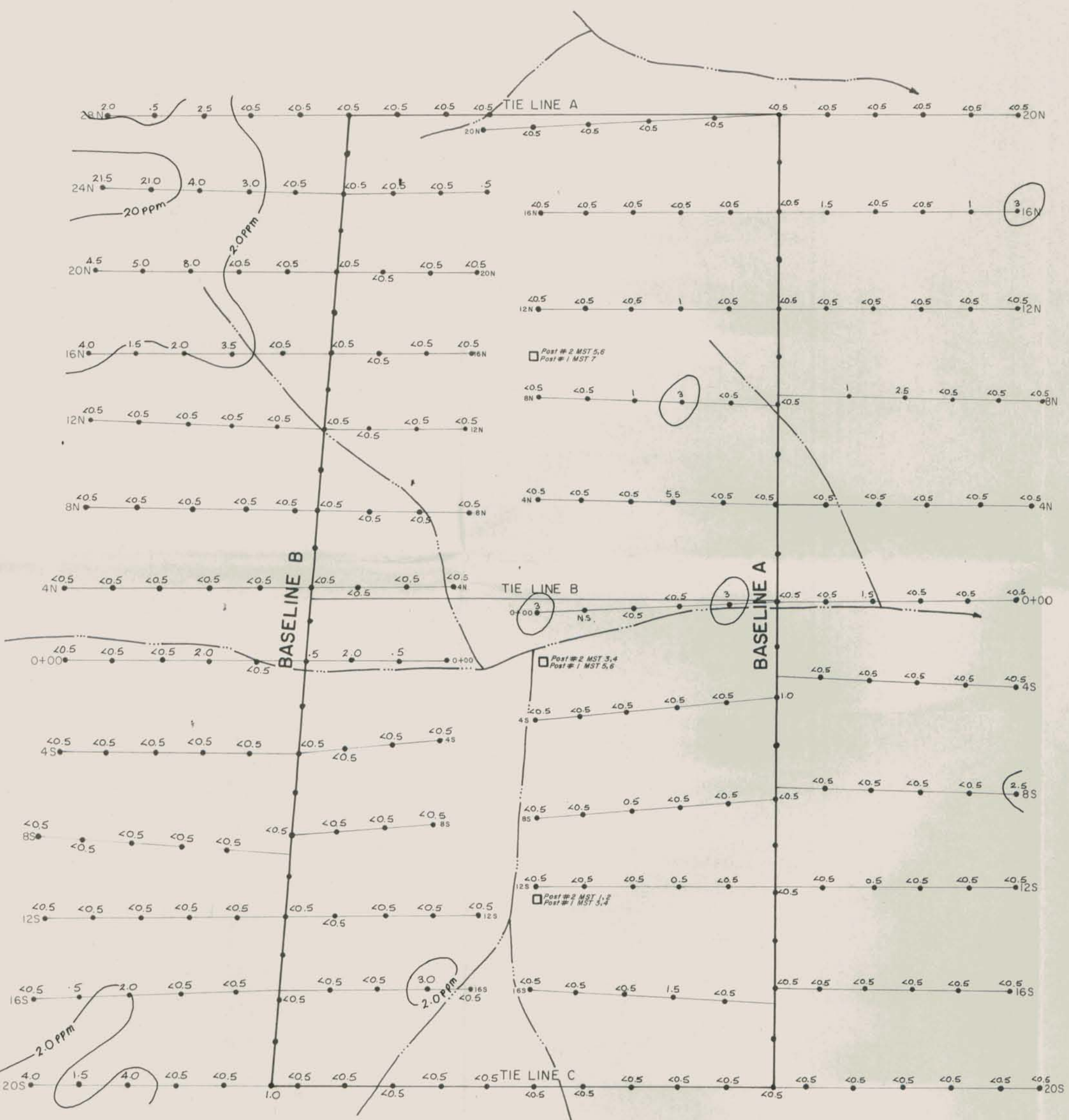
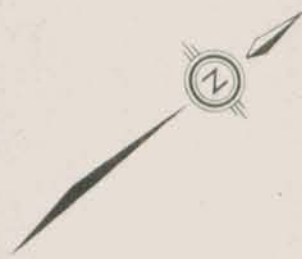
**MOLYBDENUM GEOCHEMISTRY**

**MST I-40 CLAIMS  
 OGILVIE JOINT VENTURE**



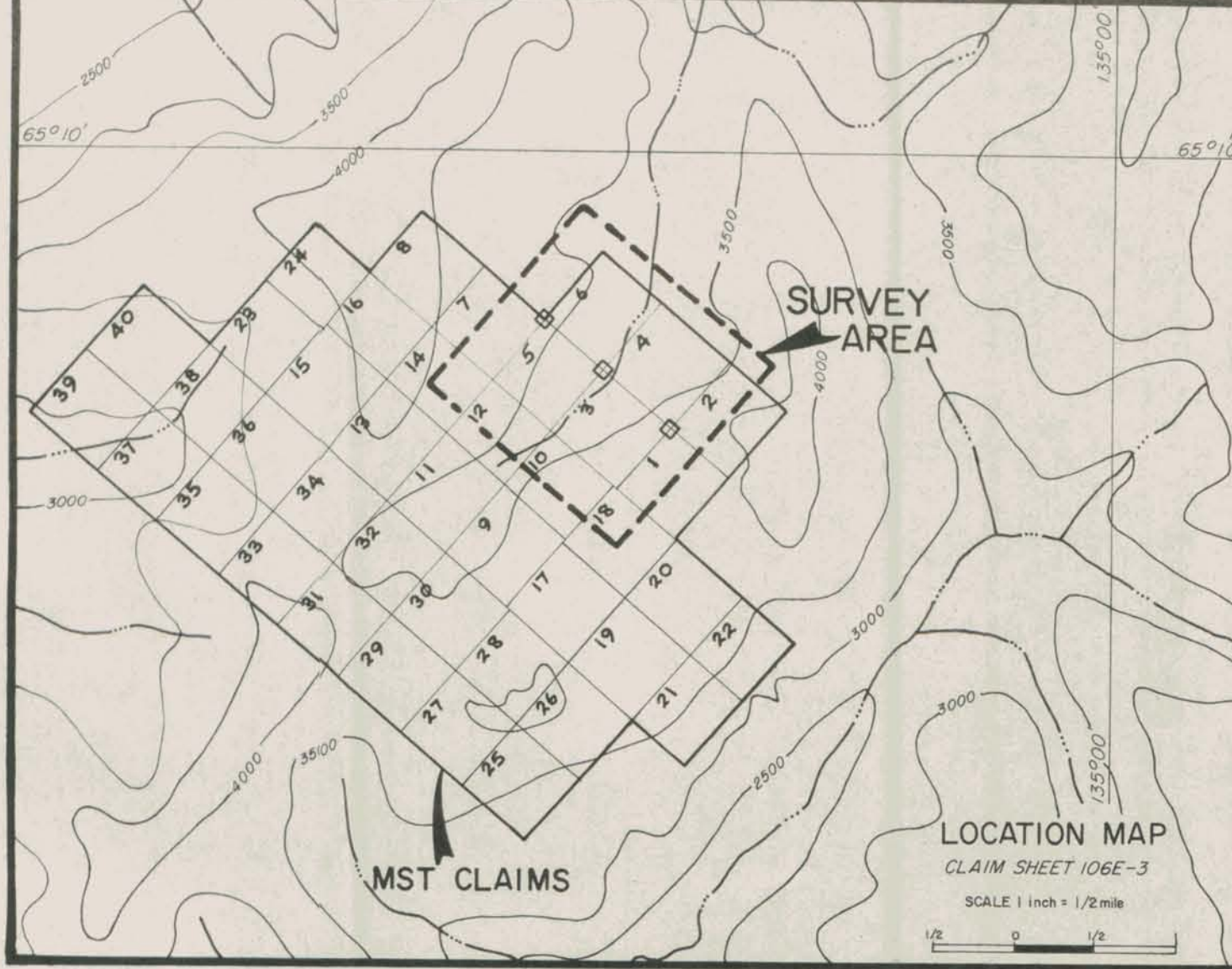


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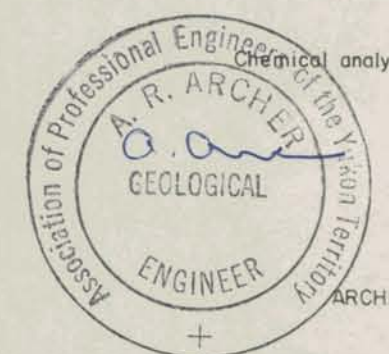


28W 26W 24W 22W 20W 18W 16W 14W 12W 10W 8W 6W 4W 2W 0+00 2E 4E 6E 8E 10E

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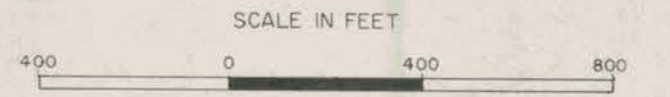
3 Soil value in parts per million

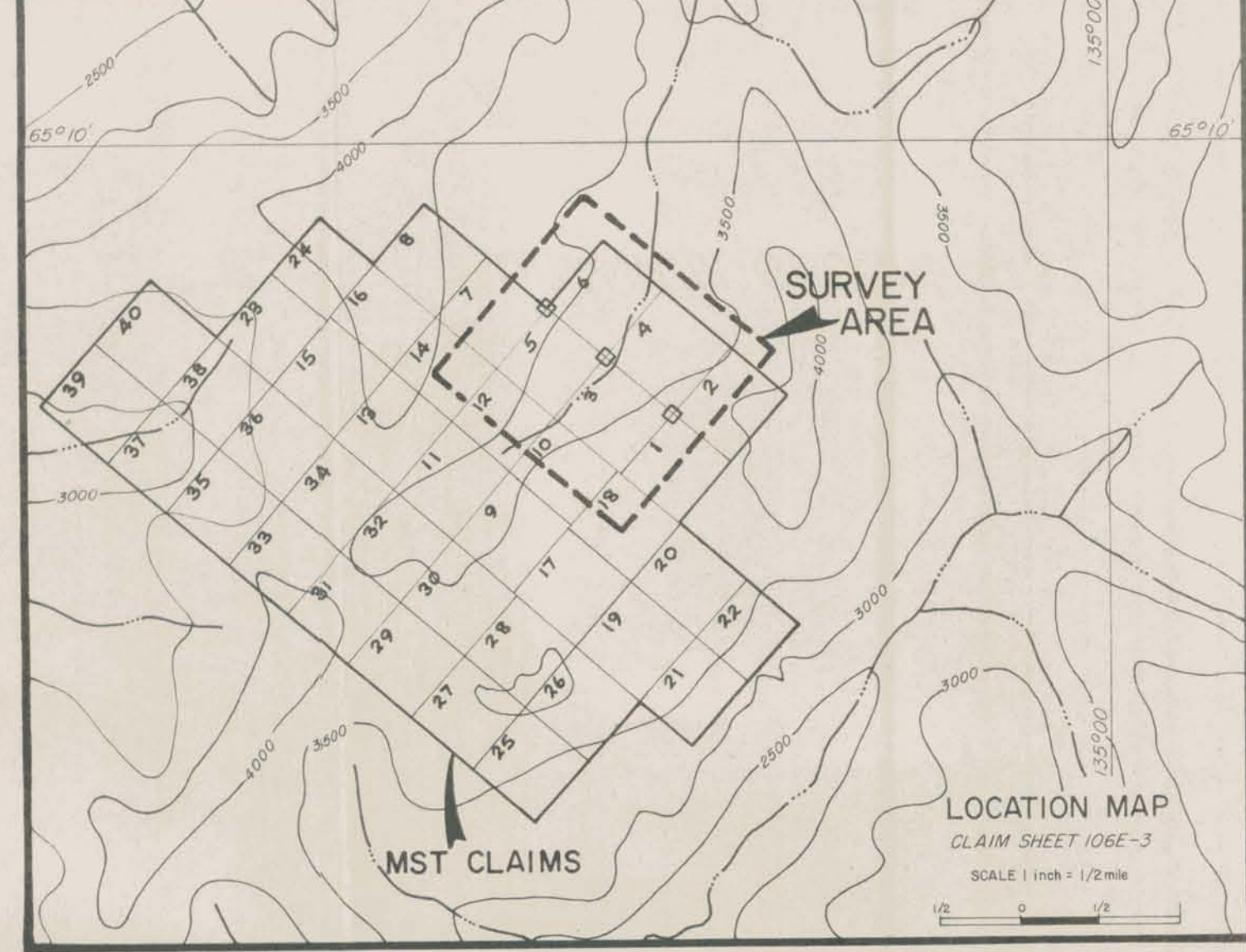
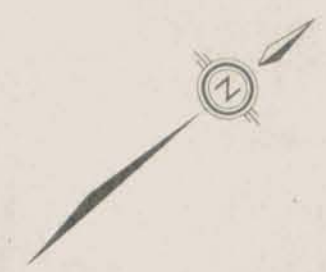
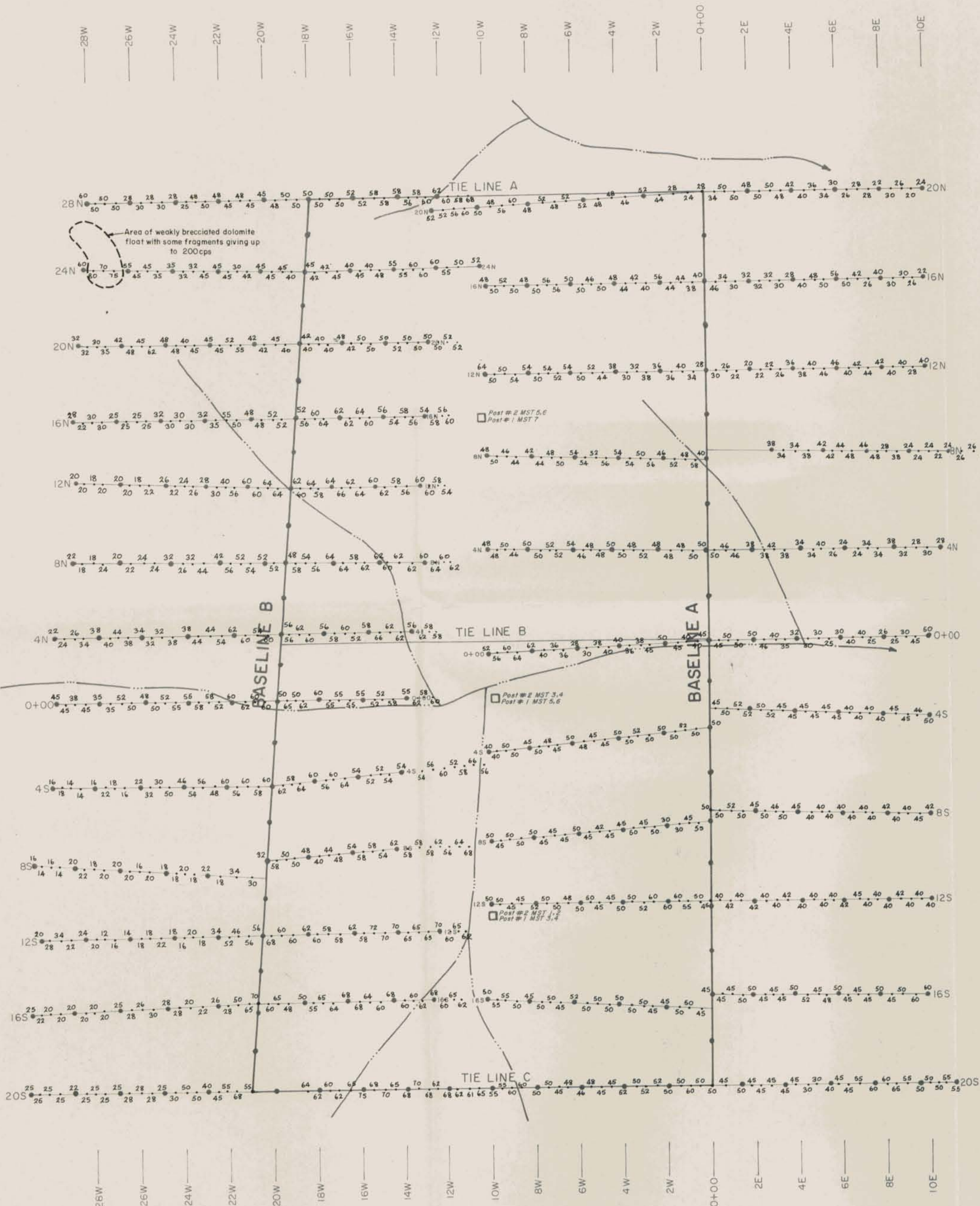


Chemical analysis by Chemex Labs Ltd, North Van., B. C.

FIG. M7  
 ARCHER, CATHRO & ASSOCIATES LTD.  
**URANIUM GEOCHEMISTRY**

MST I-40 CLAIMS  
 OGILVIE JOINT VENTURE





• 60 Counts per second with a Scintrex BGS-IS broadband beta-gamma ray scintillation counter (1" by 1" thallium activated sodium iodide crystal)

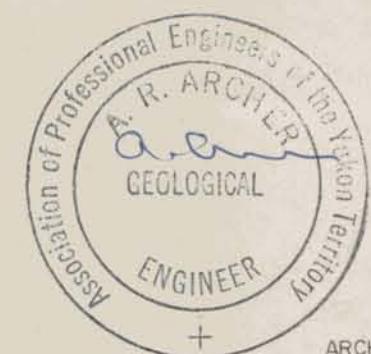
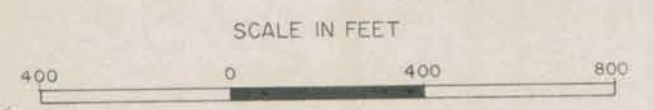
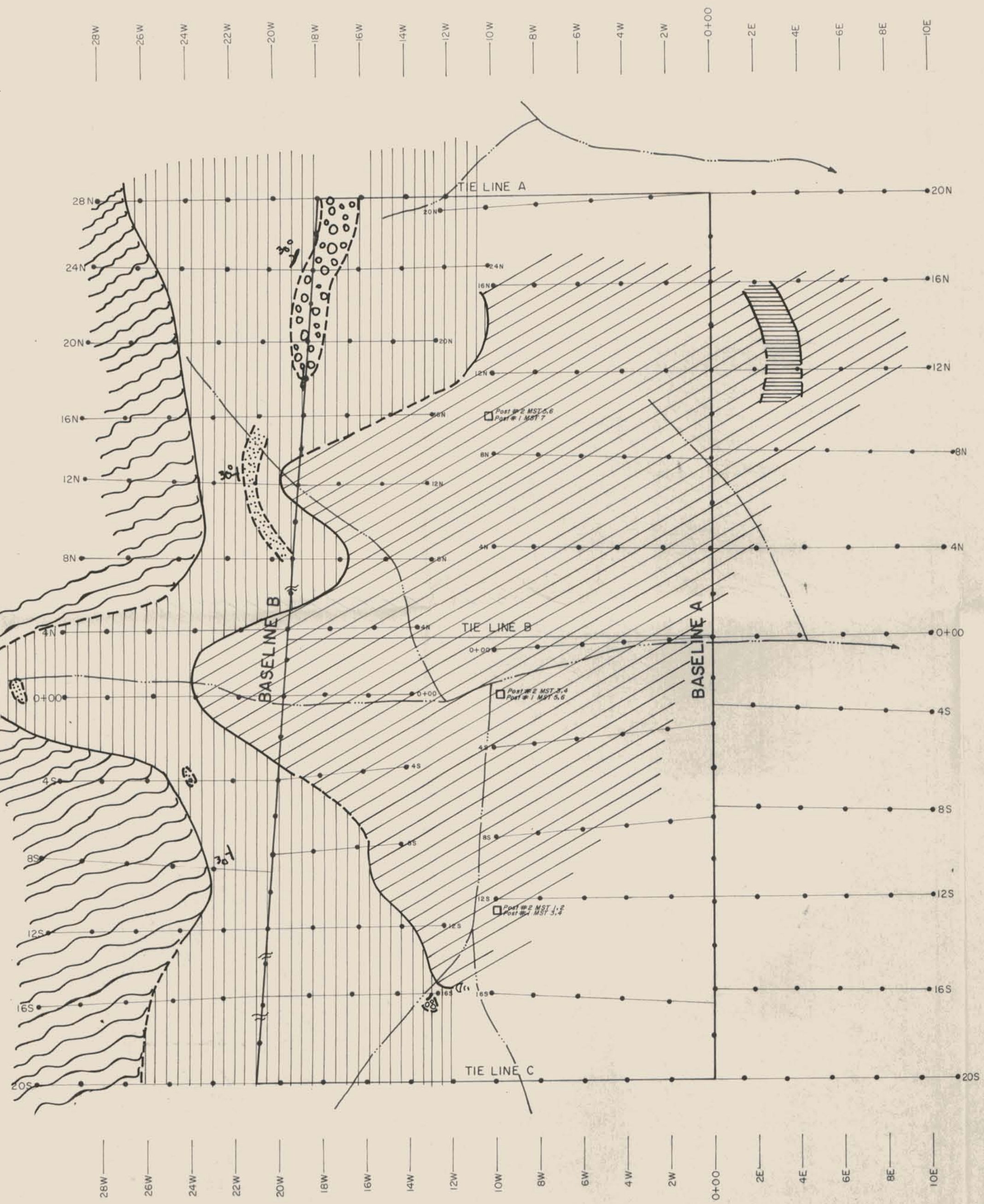


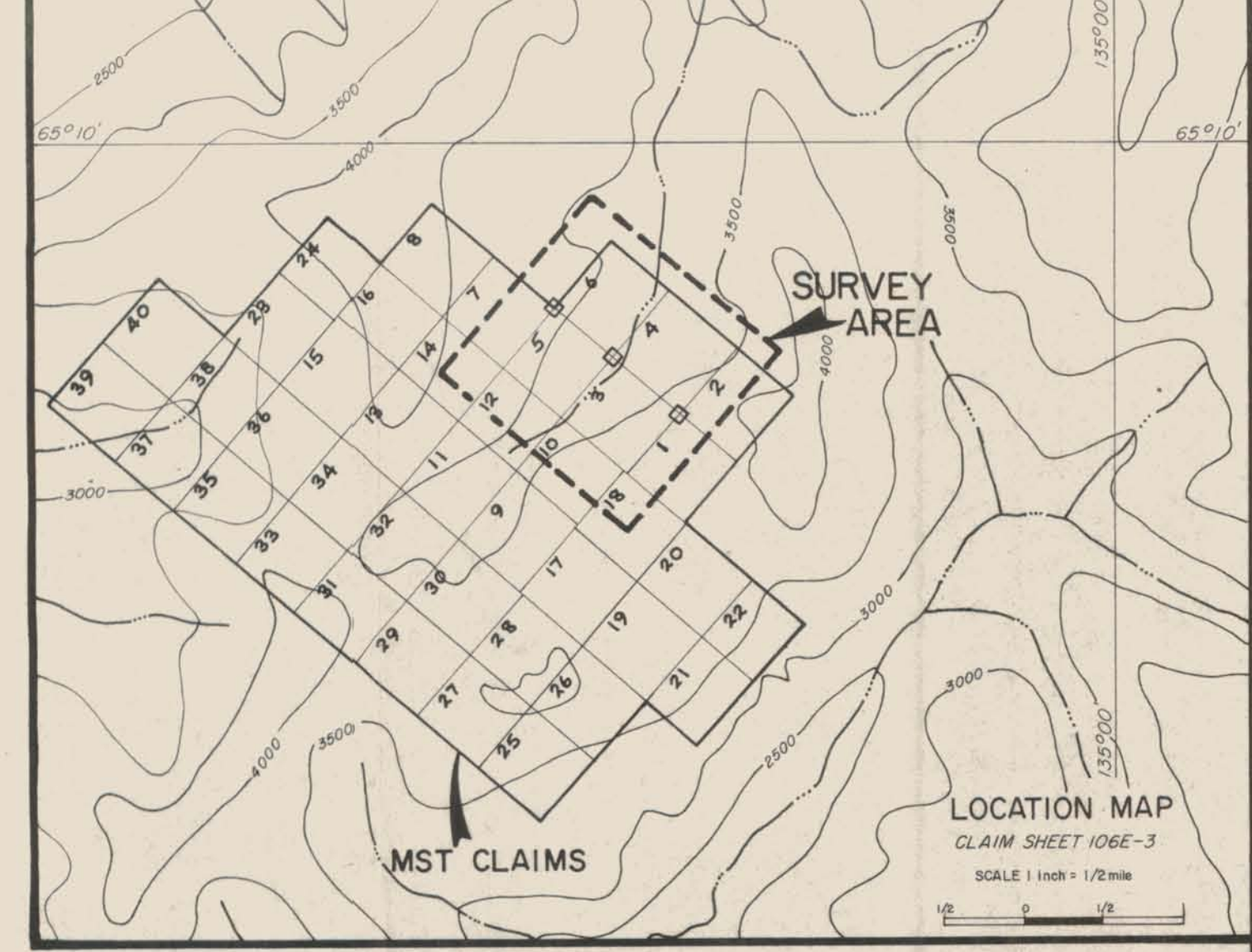
FIG. M8  
 ARCHER, CATHRO & ASSOCIATES LTD.  
**BETA - GAMMA  
 RAY SPECTROMETRY**  
 MST 1-40 CLAIMS  
 OGILVIE JOINT VENTURE

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**GEOLOGY**

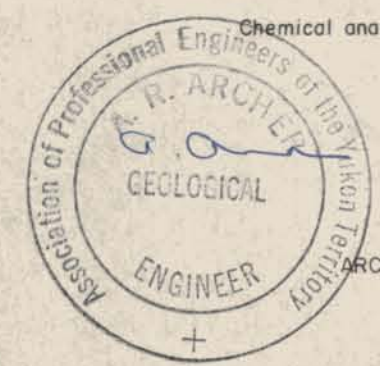
**MIDDLE CAMBRIAN**

- Dolomite, massive, grey, white weathering
- Sandstone, medium to coarse grained
- Conglomerate, coarse grit to six inch cobbles
- Mineralized areas, galena and/or sphalerite surrounding individual grains in the sandstone
- Siltstone, thin bedded, dark grey, dolomite
- Limestone, light grey

**LOWER CAMBRIAN**

**LEGEND**

- Contact, defined
- Contact, approximate
- Ripple Marks
- Trilobite fragments



Chemical analysis by Chemex Labs Ltd, North Van., B. C.

**FIG. M9**  
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**GEOLOGY**  
**MST 1-40 CLAIMS**  
**OGILVIE JOINT VENTURE**

