



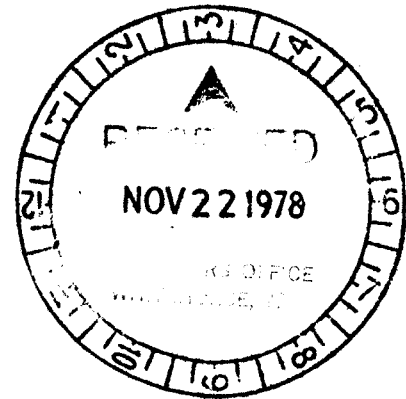
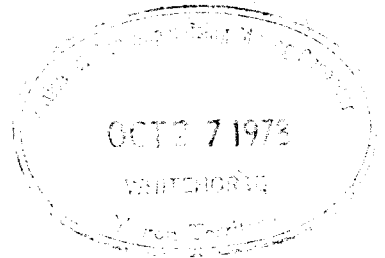
COMBINED GEOLOGICAL, GEOCHEMICAL & GEOPHYSICAL REPORT

LAP CLAIM GROUP

61°39'N 133°10'W

WHITHORSE MINING DIVISION

NTS 105F/11



By

G. Norman, J. Vyselaar

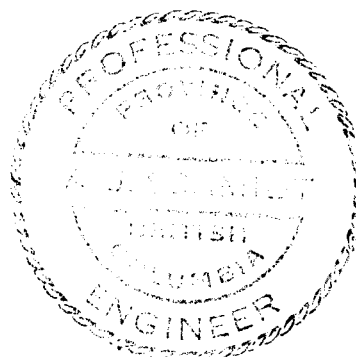
UTAH MINES LTD.

EXPLORATION DEPARTMENT

090399


(1978)

Oct. 4, 1978




A. Deloit
Oct 26/78

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 \$8,400.00



Assistant Geologist or
Professional Mining Engineer

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


A. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

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GEOLOGY	Rear Pocket
Scale 1:5000	
ELECTROMAGNETIC SURVEY	" "
Scale 1:5000	
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Scale 1:5000	
Geochemistry - Zinc	" "
Geochemistry - Lead	" "
Geochemistry - Copper	" "
Geochemistry - Copper, Lead, Zinc, Silver, Tungsten	" "

SUMMARY

Utah Mines Ltd. continued exploration work on the LAP claims during July 1978. The claim block is located 53 kilometers southwest of the town of Ross River, Yukon Territory. The field work was performed by a crew that varied from four (4) to two(2) men. The 1978 work program included geological mapping, prospecting, geochemical soil sampling and an electromagnetic survey.

The LAP claims are underlain by Upper Proterozoic to Lower Cambrian metasediments that strike northerly and dip at shallow angles to the east.

The Western part of the claims are underlain by biotite and quartz biotite schists with thin interbeds of skarn, marble and quartzite of probable Proterozoic age. Granitoid material, usually concordant with the schists, is locally abundant. A dolomitic limestone of Lower Cambrian age in the central part of the claims appears to be separated from the schists by a thrust fault. The eastern part of the claims is underlain by calcareous phyllitic siltstones of Lower Cambrian age.

Mineralization within the LAP claim area is of five types:

- 1) Quartz, pyrite - galena - sphalerite possibly associated with a quartz vein.
- 2) Galena - boulangierite - pyrite associated with quartz veins.
- 3) Fracture fillings of galena - pyrite calcite - quartz.
- 4) Scheelite mineralization associated with calc-silicate beds.
- 5) Chalcopyrite - Pyrrhotite associated with calc-silicate beds.

Most geochemical anomalies have been explained by at least one of the above associations.

The electromagnetic survey indicates two poorly defined conductors.

INTRODUCTION

From the 2nd of July to the 28th of July 1978, geological, geochemical and geophysical work was done on the LAP Groups 1 and 2. The claims specifically covered in this work, include LAP Nos. 1-13 inclusive, 15, 17, 19, 21 and 23. The field work was undertaken by G. Norman, Geologist, P. Burt, Prospector, P. Cary, Geophysicist and K. McClements, Geophysicist's Assistant.

LOCATION AND ACCESS

The LAP claim group is located in the Pelly Mountains, Yukon Territory, approximately 53 kilometres southwest of the town of Ross River. The claim group lies within the Quiet Lake map sheet, NTS 105 F/11, at latitude 61°39'N and longitude 133°10'W.

Access to the claims is by helicopter from Ross River or the South Canol Road which passes 5.5 kilometers to the east of the property at Lapie Lakes.

HISTORY

On August 17, 1977 Utah crews staked the LAP claims. On August 23, 1977 twenty-four (24) LAP claims were registered at the Mining Recorder's office in Whitehorse. During the 1977 field season geological mapping and prospecting were completed as well as geochemical and magnetic surveys. Although several geochemical anomalous zones were defined, no mineralization was located to explain the Pb-Zn anomalies.

PHYSIOGRAPHY

The claims area, which comprises a rectangular block of ground four(4) claims wide and six(6) claims long, lies within the St. Cyr Range of the Pelly Mountains. It is characterized by moderate to strong relief with elevations ranging from 4,500 feet to 6,500 feet. The majority of the property is above tree line with a large percentage of rock exposure on the ridges but relatively minor outcrop in valley floors. Stunted spruce and "buckbrush" below 5,000 feet elevation is replaced by short grass at higher elevations.

Although some snow is usually present year round in the main cirque, snow free months are typically June, July and August.

LAP CLAIMS

<u>Claim</u>	<u>Record (Claim Tag) Nos.</u>
LAP #1	YA 19678
LAP #2	19679
LAP #3	19680
LAP #4	19681
LAP #5	19682
LAP #6	19683
LAP #7	19684
LAP #8	19685
LAP #9	19686
LAP #10	19687
LAP #11	19688
LAP #12	19689
LAP #13	19690
LAP #14	19691

<u>Claim</u>	<u>Record (Claim Tag) Nos.</u>
LAP #15	YA 19692
LAP #16	19693
LAP #17	19694
LAP #18	19695
LAP #19	19696
LAP #20	19697
LAP #21	19698
LAP #22	19699
LAP #23	19700
LAP #24	19701

WORK PROGRAM

The 1978 field work by Utah Mines Ltd. on the LAP claims consisted of geological mapping, prospecting and electromagnetic and geochemical soil surveys.

The 1977 grid was extended to include the following areas:

- 1) 89+00N - 93+00N & 88+00E - 83+00E (100m line spacing)
- 2) 83+00N - 77+00N & 100+00E - 90+00E (200m line spacing)
- 3) 101+00N - 102+00N & 100+00E - 95+00E (100m line spacing)

The above portion of the grid was established by using picket lines as the presence of magnetic pyrrhotite within biotite schists and skarn units deviates compass lines significantly in some areas. The grid was established with either 100 or 200 meter line spacing, as indicated above, and 50 meter station intervals.

Prospecting of the Pb-Zn geochemical anomalies was undertaken before geological mapping was initiated. Prospecting of the

various skarn units involved three nights of lamping with a MSL-47 ultraviolet lamp. Geological remapping at a scale of 1:5000 was done with more emphasis on calc-silicate units.

Geochemical soil sampling, which was accomplished coincident with the establishment of the survey control grid, has now been completed over all the grid. A total of 173 soil samples were collected during the 1978 program. The electromagnetic survey was concentrated on geochemical anomalous areas with 22 line kilometers completed over the area between L103+00N and L86+00N; 100+00E and 83+00E.

GEOLOGICAL SURVEY

Regional Geology

The regional setting of the Pelly Mountains area has been summarized by Templeman-Kluit (1976, 1977). The core of the Pelly Mountains is underlain by a miogeoclinal assemblage of clastic sediments platform carbonates and volcanics ranging in age from Upper Proterozoic to Triassic. These rocks are part of the Pelly-Cassiar Platform. A belt of time-equivalent shales and associated classic sediments, lying to the northeast of the platform, are facies equivalents of rocks found within the Selwyn Basin. Southwest of the platform are metamorphosed shales, quartzites and volcanic rocks of the Yukon-Omineca Crystalline Terrain which are believed to be of Paleozoic age. The metamorphic rocks are locally covered by an overthrust assembly of late Paleozoic basalts, serpentinitised peridotite and chert which are part of the Anvil-Campbell Allochthon.

In southern Quiet Lake map area (NTS 105F) the metamorphic rocks and overlying basic and ultrabasic assemblage have been thrust northeastwards over Upper Triassic rocks of the Pelly-Cassiar Platform. The Platform assemblage has also been affected by complex internal folding and faulting of post Triassic age. The entire region has been extensively invaded by mid-Cretaceous granodiorite intrusions.

The LAP claim group is located within the southwestern part of the Pelly-Cassiar Platform.

Local Geology

Regional stratigraphic relationships indicate that rocks underlying the LAP claim group are of Upper Proterozoic to Lower Cambrian age. Local strikes are north-westerly except for the northern part of the claim group, where the units strike north-northeasterly. The strata dips to the east at 20-45°, although a series of south easterly plunging antiformal-synform-structures complicate the calc-silicate units in the southern part of the property. A carbonate unit, centrally located within the claim block, divides the lithologic package into an upper and lower assemblage.

The upper assemblage consists of grey-green, dark weathering, weakly calcareous phyllites of probable Lower Cambrian age. A penetrative phyllitic foliation has strongly transposed primary compositional banding.

The central carbonate unit is a massive bedded, orange weathering, grey dolomitic limestone, about 100 meters thick. The limestone is rusty weathering due to the presence of disseminated pyrite and locally a mixture of iron-manganese oxides and hydrozincite produces a dark reddish brown to black staining. In the vicinity of 92+00N, 97+00E the limestone is strongly brecciated with calcite infilling.

The dominant joint pattern, trending 150° azimuth, and steeply dipping to the northeast, locally hosts small pods of pyrite and quartz-pyrite-graphite mineralization. The contact between the carbonate unit and the lower assemblage is not exposed and is assumed to be a thrust fault due to the abrupt change in metamorphic grade across this contact.

The lower assemblage consists of biotite, biotite-muscovite and quartz biotite schists with thin interbeds of marble, quartzite and calc-silicate. These rocks have been metamorphosed to amphibolite facies. Compositional banding in this package parallels the metamorphic foliation.

A variable porportion of leucocratic granitoid rock is also present in the lower strata assemblage. This component is primarily present as concordant sills up to 1.5 meters in width, although crosscutting relationships have been observed. These granitoid rocks have been described as tonalite and are whitish weathering coarse to medium grained units, compositionally containing on the average 80% feldspar, less than 10% quartz, 5% muscovite (less often biotite) with accessory almandite garnet and/or tourmaline. Pegmatitic, thin, coarse grained, tourmaline-bearing dykes and sills appear to be generated from larger units. In some circumstances, the granitoid material displays a weak foliation and it is probable that part of the component was generated by in situ anatexis.

Porphyritic granodiorite sills, occurring on the western margin of the property, attain a thickness up to 100 meters. They are a grey-green weathering, moderately foliated

granodioritic rock, with approximately 20% large feldspar phenocrysts varying from 2-7 centimeters in length, set in a medium grained matrix of quartz-feldspar and biotite.

Calc-silicate beds, varying in thickness from 8 meters to less than 1 meter, are typically quartz-diopside-garnet or quartz-tremolite-garnet bearing skarns. Tremolite is more prevalent in the northern area, whereas, units occurring in the southern part are garnet deficient and are generally quartz-diopside bearing. Most calc-silicate beds contain at least trace amounts of scheelite mineralization with northerly beds containing a higher concentration.

Phyllitic siltstones of the upper assemblage are intruded at two localities by porphyritic biotite granodiorite dikes. The granodiorite contains coarse phenocrysts of biotite, quartz and feldspar set in a fine grained leucocratic matrix. The dikes have steeply dipping contacts which strike 070° azimuth.

MINERALIZATION

Mineralization found within the LAP claim area can be divided into 5 types:

- 1) Quartz-Pyrite-Galena +Sphalerite Mineralization - with probable quartz vein association
- 2) Galena-Boulangerite-Pyrite Mineralization - associated with quartz veins
- 3) Fracture Galena - Pyrite Calcite Quartz Mineralization
- 4) Scheelite Mineralization - associated with calc-silicates
- 5) Pyrrhotite-Chalcopyrite Mineralization - associated with calc-silicates

1) Quartz-Pyrite-Galena [±] Sphalerite Mineralization

The above mineral assemblage has been found as boulders in the main creek at elevations 4800' and 5150'. In both circumstances a quartz vein association is apparent.

2) Quartz Vein Mineralization

Galena-boulangerite-pyrite mineralization, associated with quartz veins ([±] muscovite) having dimensions up to 25cm in thickness, occurs as fracture plane infillings and blebs or massive concentrations. The veins commonly parallel a major joint direction of 40 - 50° NE and dip 70° NW.

The "B-C" Pb-Zn geochemical soil anomaly has been adequately explained by the above mineral assemblage.

3) Fracture Galena-Pyrite-Calcite-Quartz Mineralization

Fracture galena-pyrite with associated calcite and/or quartz within brecciated dolomitic limestone was located in talus north of station 92+00N, 98+00E and also 20 metres southwest of 92+00N, 97+00E. A dark reddish brown to black staining thought to be caused by a Fe-Manganese-hydrozincite mixture is also conspicuous in the two areas. Mineralized talus trains are small (5 - 10 meters wide) and die out under talus upslope, indicating small point sources.

The presence of the preceding mineralization adequately explains Pb-Zn geochemical soil anomaly "A".

4) Scheelite Mineralization

Scheelite mineralization is intimately associated with the calc-silicate units found throughout the property. Interest was first initiated when massive scheelite mineralization

(12 cm thick band) was found in talus near station 92+00N, 95+00E. Follow-up work indicates that this mineralization originates near a quartz vein found within a quartz, garnet, diopside skarn.

Other scheelite mineralization is located in the north part of the property associated with quartz-garnet-diopside-pyrrhotite skarns.

5) Pyrrhotite-Chalcopyrite Mineralization

Small pods of massive pyrrhotite up to 20cm in thickness occur at two localities in the western part of the claim block, in association with quartz-chlorite-actinolite skarn. Chalcopyrite is present in amounts up to 0.5% Cu in these pyrrhotite pods.

GEOCHEMICAL SURVEY

During the early part of July 1978, 8.5 kilometers of survey control grid were established as fill-in or extensions to the 1977 grid. The north-south baseline was extended 400 meters to the south, with 200 meter spacing on eastwest survey lines. In addition, lines between 90+00N and 88+00N were extended an extra 500 meters to the west.

Soil samples were collected from locations on the survey lines spaced at 50 meter intervals and where possible taken from the "B" soil horizon. Fine grained talus material was taken where a soil horizon was not present. The samples were stored in Kraft paper envelopes, marked with station location and sent to Bondar Clegg and Co. Ltd., 136 B Industrial Road, Whitehorse, Yukon for analysis. After drying and screening, the minus 80 mesh fraction was analyzed

for silver, copper, lead and zinc, using standard A.A. methods.

The 1977 statistical results indicated threshold values of 160 ppm Zn, 75 ppm Pb and 55 ppm Cu. Using this criteria soil anomalies, A to H have been defined; most of these anomalies have now been adequately explained.

Anomalous Zone A, with coincident anomalous Pb, Zn, Cu, Ag values, has dimensions 200 meters E-W and 300 meters N-S. Values range up to 2150 ppm Zn, 2080 ppm Pb, 215 ppm Cu and 15 ppm Ag.

Fracture galena-pyrite-quartz-calcite within brecciated dolomite has been located in talus up slope from anomalous stations. The presence of minor amounts of hydrozincite is confirmed by a weak positive zinc "zap" reaction. Other mineralization in the immediate vicinity is found in small pod-like veins or dykes within the dolomitic limestone. They contain small amounts of boulangerite, galena and hydrozincite.

Anomalous Zone B, which now links with Zone C, covers the north and east slopes of the main ridge on the property. The anomaly has been closed off to the west giving the zone dimensions of 1000 meters NE-SW and 300-500 meters NW-SE. A series of quartz veins measuring up to 20-30cm thick contain varying amounts of galena-boulangerite are the apparent cause of the anomaly.

Anomalies F and H are considered to be caused by similar vein type mineralization. A small boulder containing

quartz-boulangerite was located within the vicinity of anomaly F.

Weak copper anomalies, D, E and F, are caused by pyrrhotite-chalcopyrite mineralization associated with quartz-actinolite-chlorite skarns located in the western and southern part of the claim group. The anomalous zones are small (300 meters NW-SE and 150 meters NE-SW) and have an elongation parallel to the strike of the skarn units. Anomalous values range up to 400 ppm Cu.

ELECTROMAGNETIC SURVEY

During the period of July 9 to 16 a shootback EM survey was completed over the LAP claims. The shootback method was chosen due to the steep topography and poor line control. In the shootback method, two identical coils transmit and receive alternately. In the absence of conductors, the dip angles of the EM field at each coil are equal in magnitude but of opposite sign so that their sum is zero.

The shootback equipment used for the survey was built by Crone Geophysics Limited of Toronto and is called the CEM unit. A vertical transmitter with a 100 meter coil separation was used. Readings were taken every 50 meters at frequencies of 1830 and 390 HZ. The readings are plotted midway between the two coils. A total of 22.10 kilometers was surveyed.

Results

Possible vertical conductors are present on line 103N at 93+00E, L99N at 93+50E, line 98N at 99+50E, line 97N at 99+00E and line 87N at 97+00E. However these anomalies are indicated as being quite deep on the interpretive curves while the anomaly shape suggests they are very near surface. These anomalies are therefore not considered very significant. A horizontal conductor is indicated on lines 98N from 90+50E to 92+50E, 97N from 91+00E to 94+00E, 95N from 91+00E to 95+50E and line 94N from 90+50E to 96+00E. It is not encountered on line 96N. This conductor has poor conductivity-width and is most likely due to surficial conductivity.

No other conductors are present on the property. Due to the poor definition of these conductors they should be checked with I.P. before any trenching or drilling is considered.

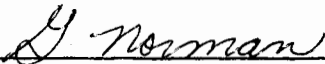
CONCLUSIONS AND RECOMMENDATIONS

The 1978 geological mapping and prospecting program has located boulangerite-galena mineralization in association with quartz veins and also scheelite mineralization related to calc-silicates. Fracture galena-pyrite within brecciated dolomite talus is thought to be remobilized material from vein mineralization. Minor chalcopyrite is related to small massive pyrrhotite pods in a quartz-actinolite-chlorite skarn located in the western part of the property.

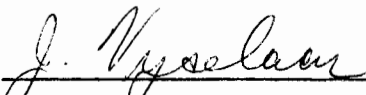
The geochemical soil sampling survey has revealed eight anomalous zones. The reason for the presence of most of these anomalies can be explained by at least one of the above mineralization assemblages.

The EM survey has outlined the presence of two weak poorly defined conductors.

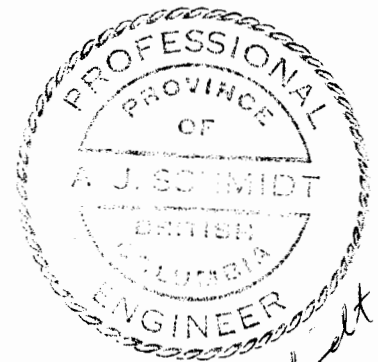
It is recommended that more work be scheduled to follow up scheelite skarn mineralization utilizing, hand trenching, sampling and prospecting to delineate drill targets.



G. Norman
Geologist

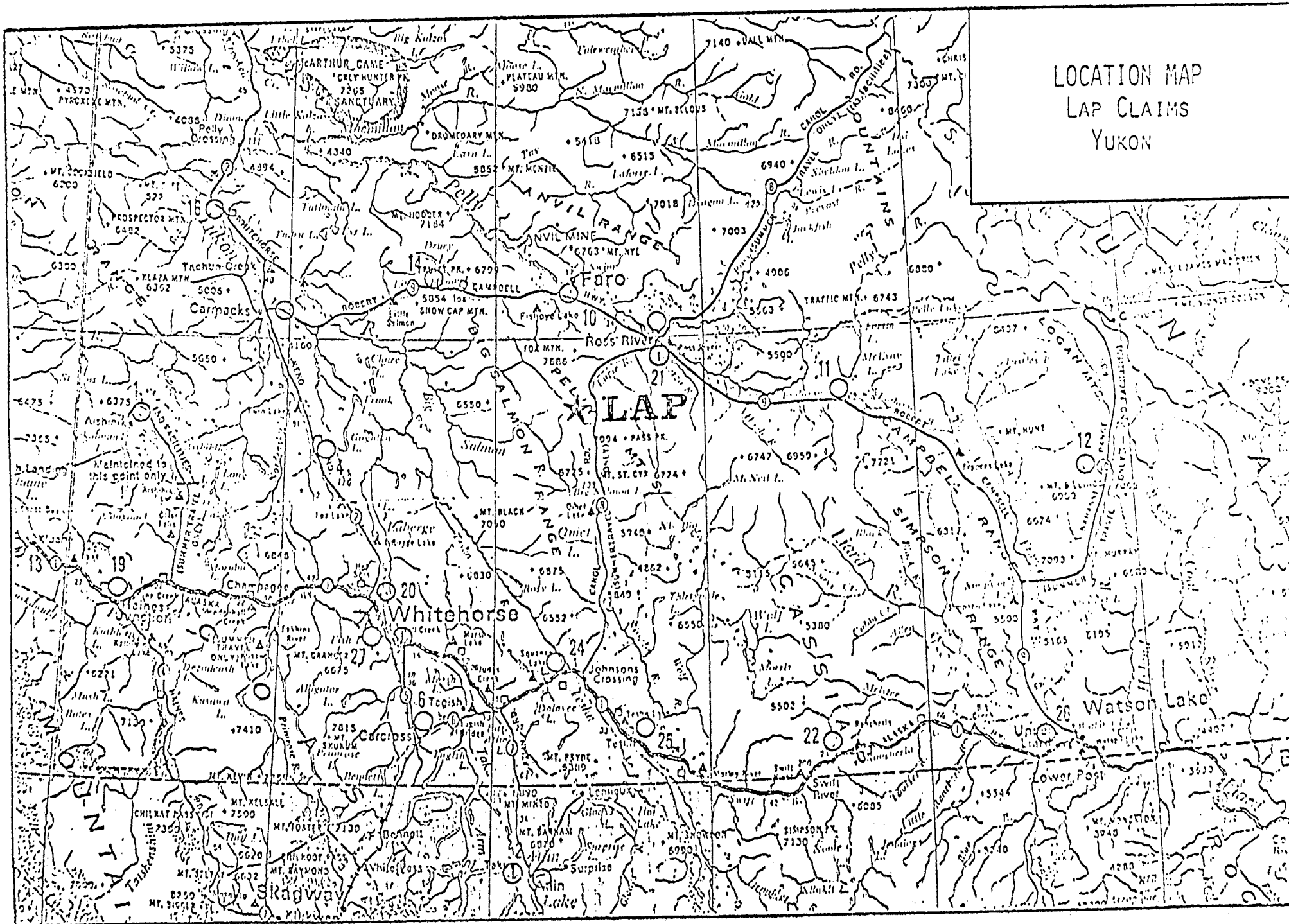


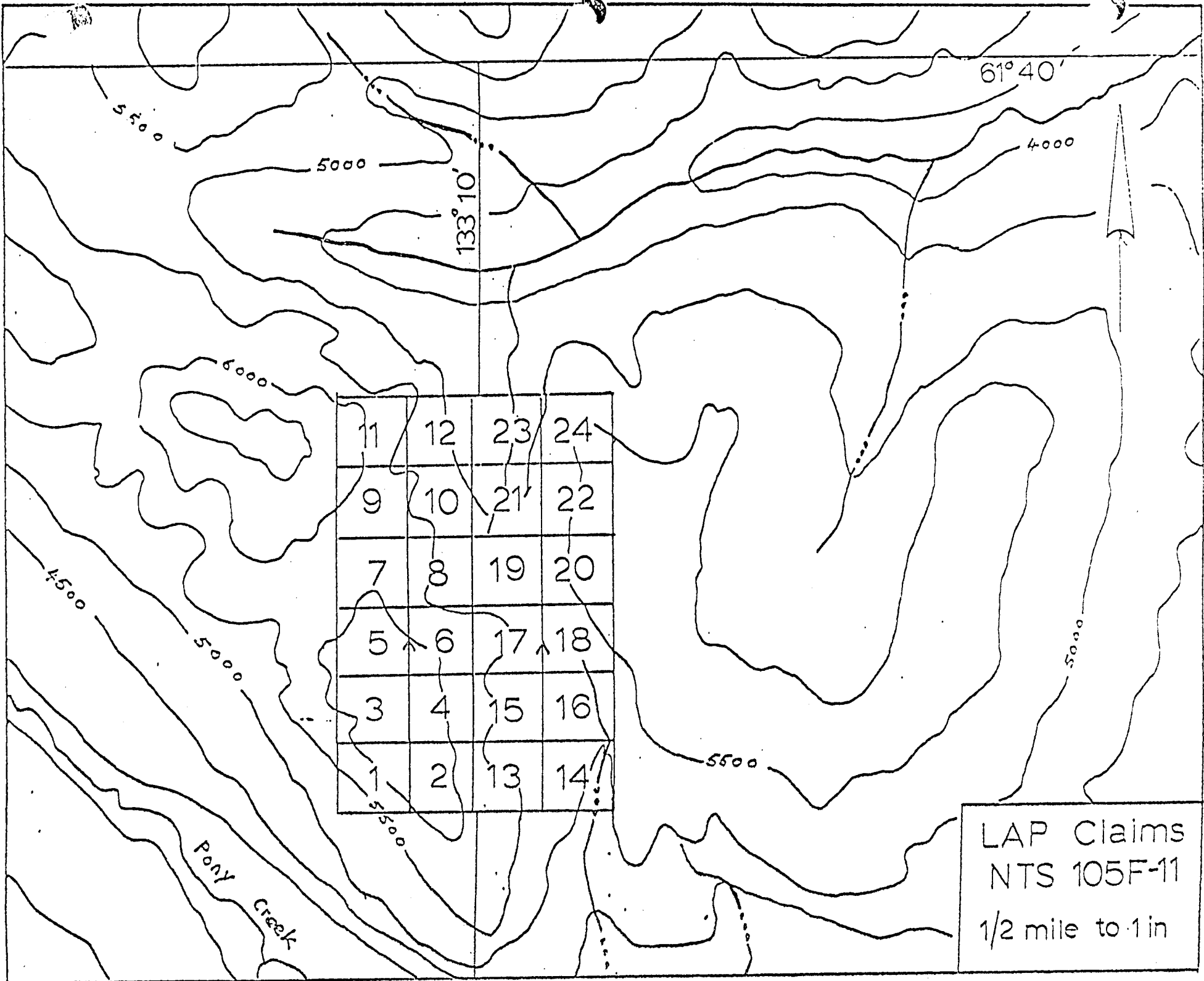
J. Vyselaar
Geophysicist



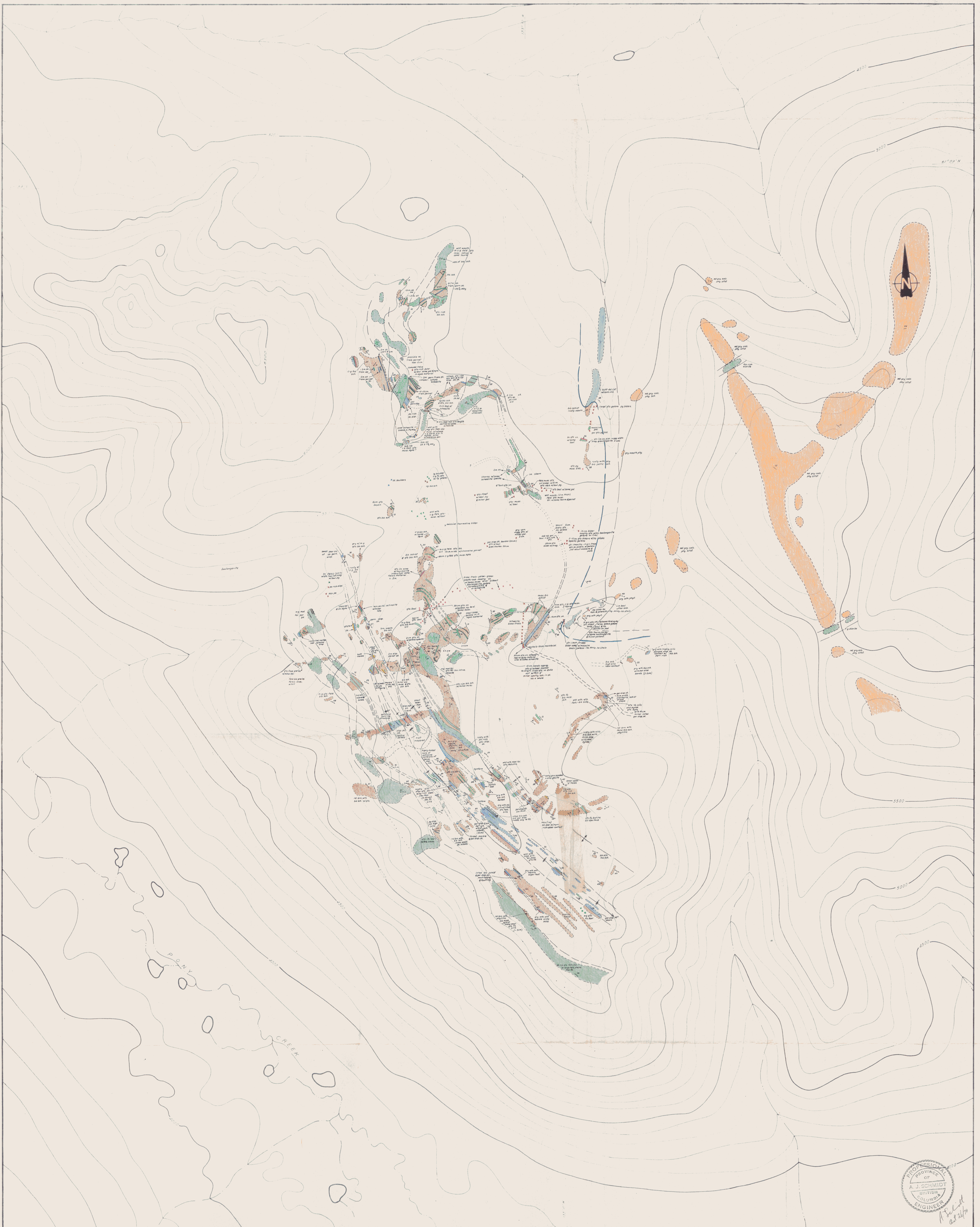
A. Schmidt
Oct 26/78

LOCATION MAP
LAP CLAIMS
YUKON





LAP Claims
NTS 105F-11
1/2 mile to 1 in



- LEGEND**
- | | |
|---------------------------------------|--|
| Age ? Dykes, Sills | Geological Boundary (Defined, Assumed) |
| Paraphytic Granodiorite | Bedding (inclined) |
| Tonalite Pegmatite | Jointing (inclined) |
| Cambrian | Schistosity (inclined) |
| Calcareous Phyllite | Plunge direction of fold |
| Limestone | Syncline |
| Proterozoic | Anticline |
| Shale, Marble | Fault (inclined) |
| Quartzite | Mineral occurrence |
| Biotite schist, Quartz Biotite schist | Quartz vein |
| Biotite-Muscovite Schist | Outcrop |



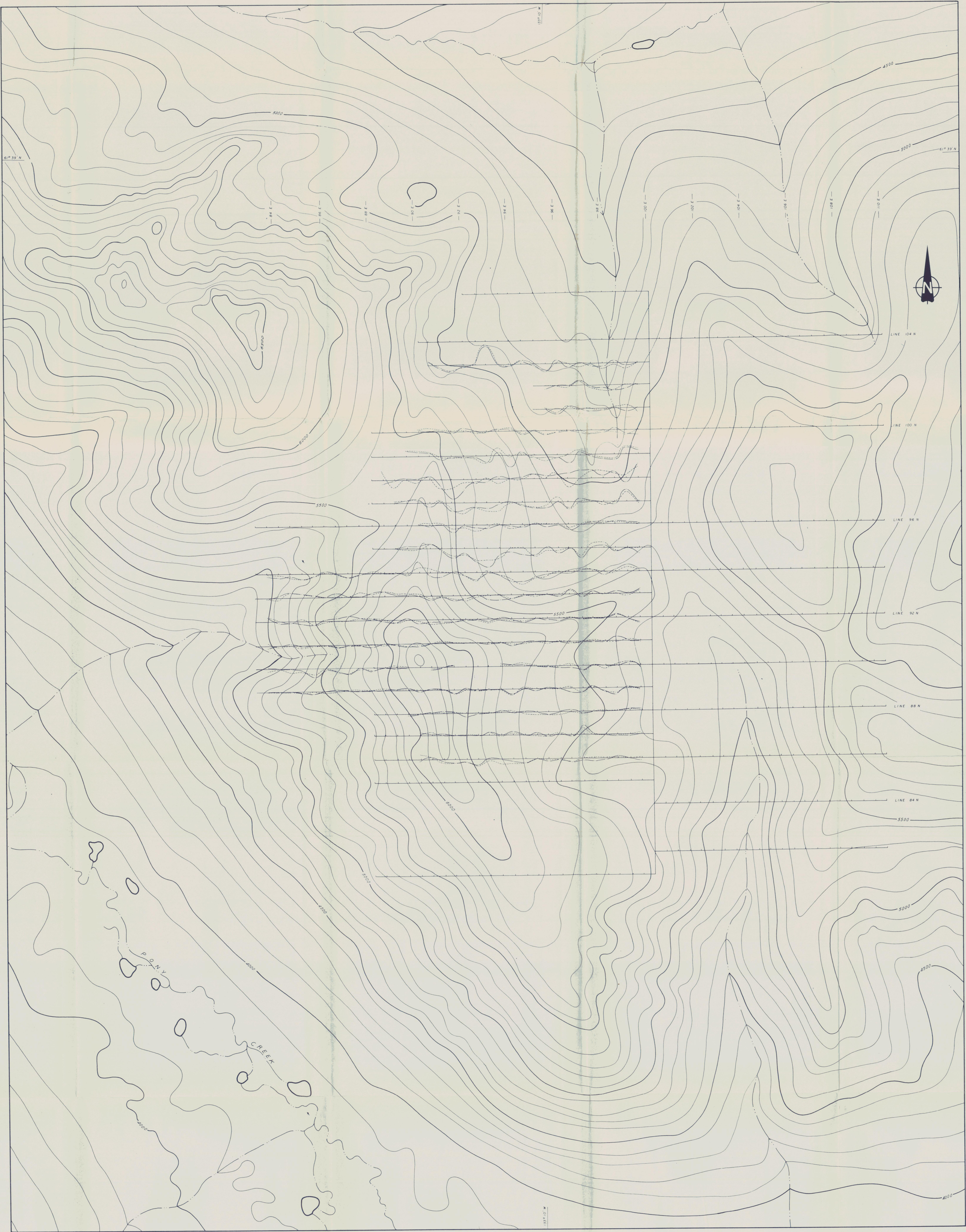
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EXPLORATION DEPARTMENT
VANCOUVER - BRITISH COLUMBIA

**PELLY MOUNTAINS, YUKON
LAP CLAIMS
GEOLOGY**

Drawn by G.T. SEN Date October 1978 N.T.S. Ref. 105 P/11
Revised

Scale 1:5000

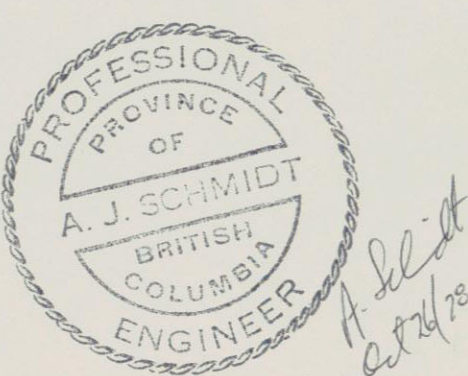
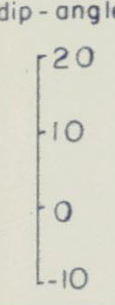
0 100 200 300 400 Meters



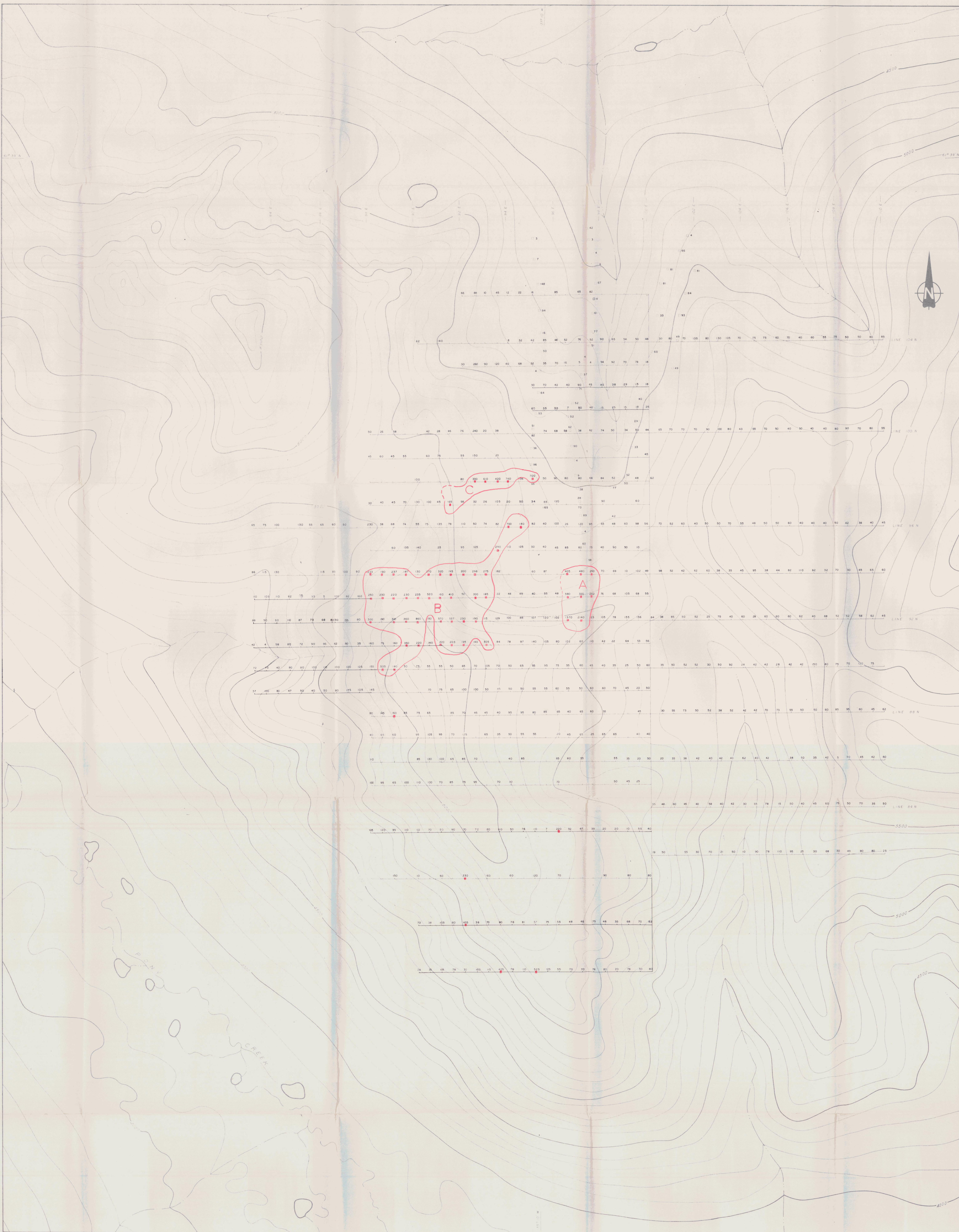
LEGEND

CEM SHOOTBACK - Vertical Transmitter

- 1850 Hz
- 310 Hz
- Coil Separation - 100 meters
- EM Scale - Resultant dip-angle in degrees
- Scale: 1 cm = 10*



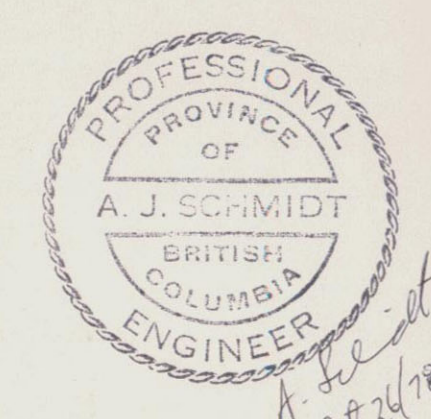
UTAH MINES LTD. EXPLORATION DEPARTMENT VANCOUVER BRITISH COLUMBIA			
PELLY MOUNTAINS YUKON			
LAP CLAIMS ELECTROMAGNETIC SURVEY			
Work by: P.C. J.V.	Date: January 1978	NTS Ref: 105 P/11	
Drawn by: M.D.	Revised: G.L. 1978	Scale: 1:5000	



LEGEND

- 76' Triangulation Station (Geodetic Survey Grid)
- 76' Bench Station (Metre/Statute Survey)

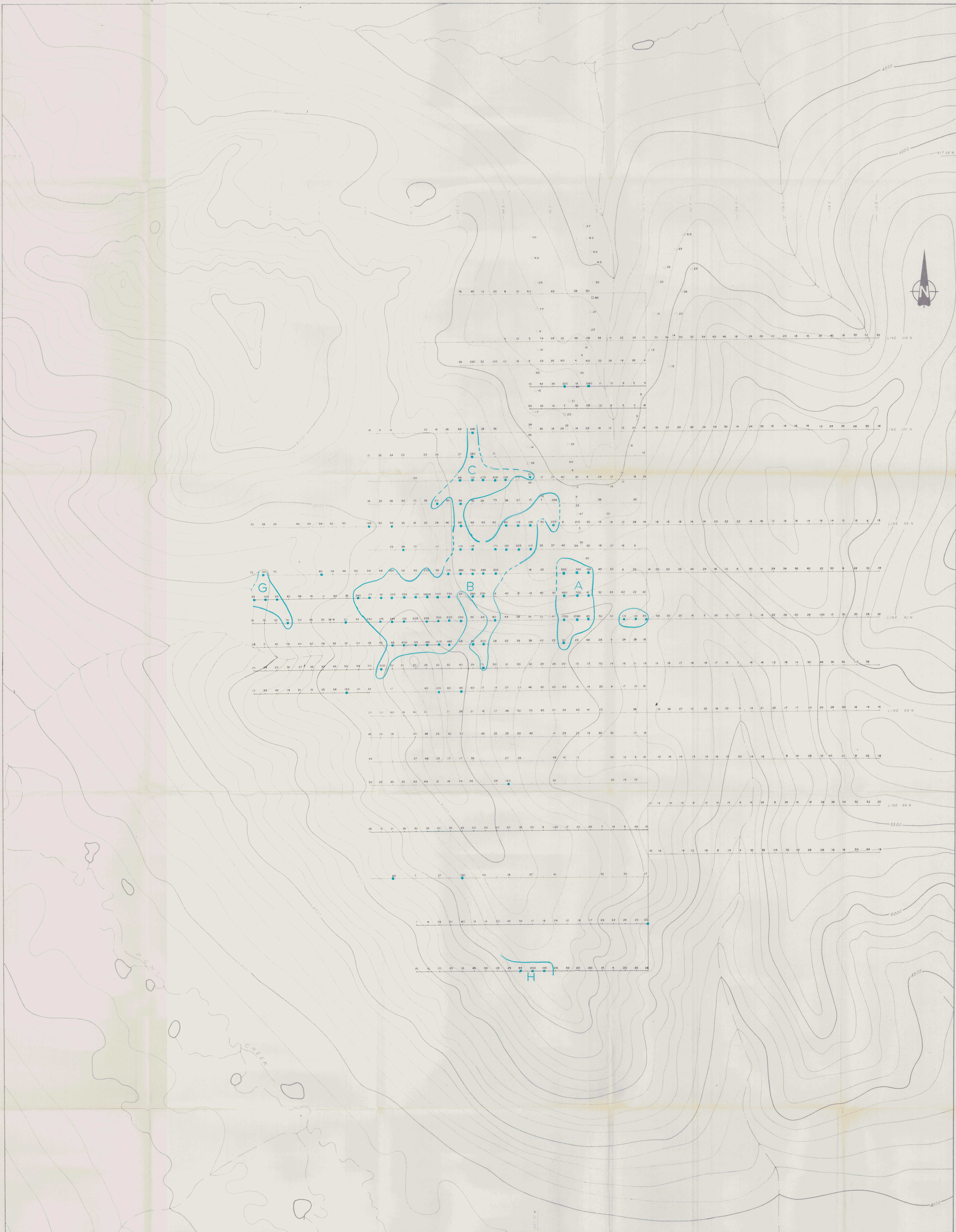
NOTE: Zinc Assays in ppm



UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER BRITISH COLUMBIA

PELLY MOUNTAINS, YUKON
LAP CLAIMS
GEOCHEMISTRY - ZINC

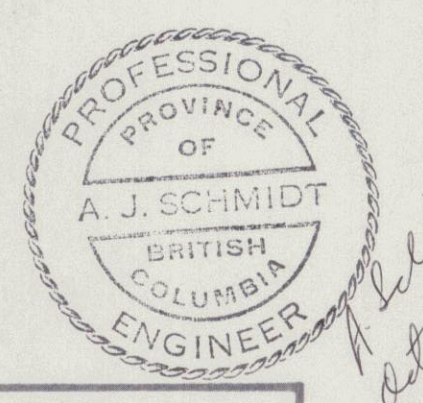
Work By	Date	NTS Ref
Drawn by T. Dixon	Revised September 1978	Scale - 1:5000



LEGEND

- Sample location (Geological Survey Grid)
- Sample location (Photogrammetric Survey)

NOTE: Lead Assays in ppm

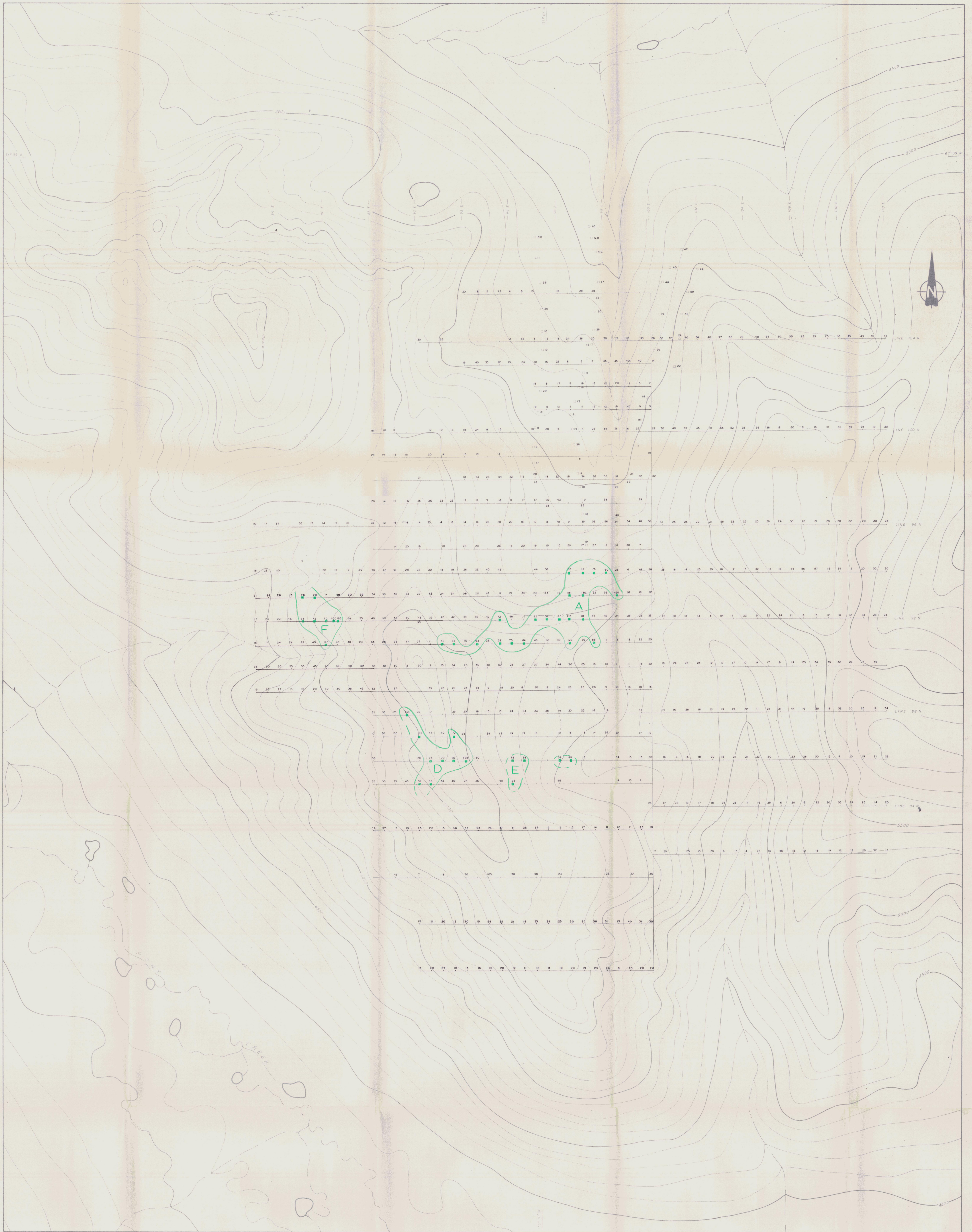


UTAH MINES LTD.
 EXPLORATION DEPARTMENT
 VANCOUVER BRITISH COLUMBIA

PELLY MOUNTAINS, YUKON
LAP CLAIMS
GEOCHEMISTRY — LEAD

Work by	Date	Drawn by	Scale
T. Drees	January 1978	T. Drees	1:5000

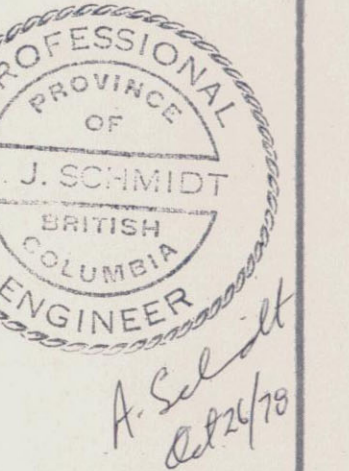
NTS Ref 105-F/11
 0 100 200 300 400 500 meters



LEGEND

- (dashed line) — Sample Location (Geophysical Survey Grid)
- (solid line) — Sample Location (Reconnaissance Survey)

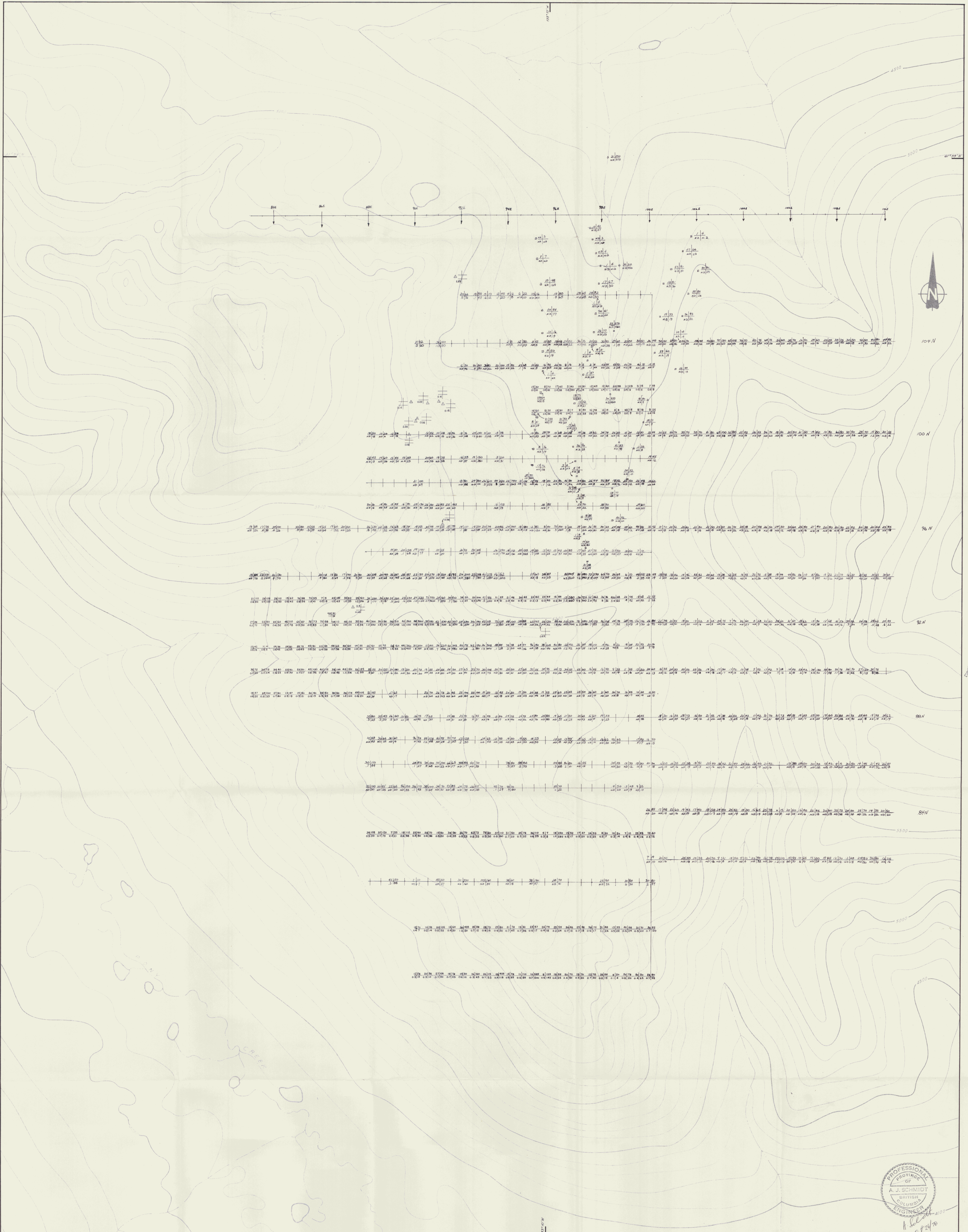
NOTE: Copper Assays in ppm



UTAH MINES LTD.
 EXPLORATION DEPARTMENT
 VANCOUVER BRITISH COLUMBIA

PELLY MOUNTAINS, YUKON
LAP CLAIMS
GEOCHEMISTRY — COPPER

Work by	Date	NTS Ref.
Drawn by: T. Davis	Revised September 1978	105 #111
Scale: 1:5000		



LEGEND

SOIL GEOCHEMISTRY
ppm

Cu	Zn
Ag	Pb

ROCK ASSAY
%

Cu	Zn
Ag	Pb
WO ₃	

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER BRITISH COLUMBIA

LAP CLAIMS
PELLY MOUNTAINS, YUKON
GEOCHEMISTRY

Work by: _____ Date: _____ NTS Ref.: 105 F/11
Drawn by: *MD* Revised: *October 1978*

SCALE: 1:5000

