



1977 GEOLOGICAL and GEOCHEMICAL REPORT

on the

JD 1 to 24 MINERAL CLAIMS

SEAGULL CREEK AREA

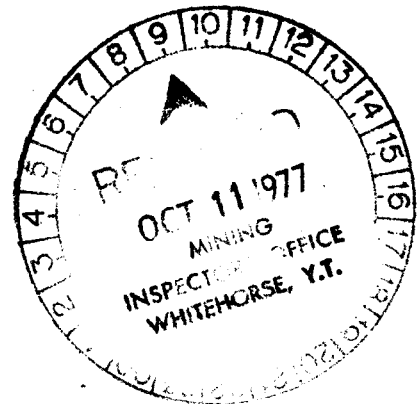
WATSON LAKE MINING DISTRICT

by

J. McFaul1

and

H. F. Keats,  
United Keno Hill Mines Limited,  
405 main Street,  
Whitehorse, yukon, Y1A 2B6



DATED: September 14 th 1977

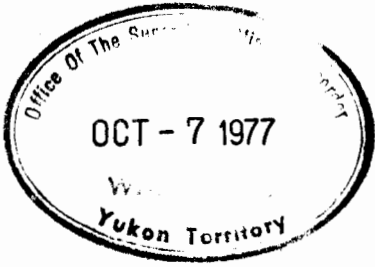
N.T.S. Sheet 105F-10

Latitude 61° 32'

Longitude 132° 35'

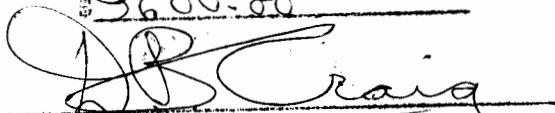
Dates: May 25th to Aug. 23rd 1977

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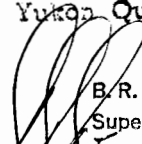


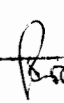
This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

\$9600.00

  
Resident Geologist or  
~~Resident Mining Engineer~~

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

  
B.R. BAXTER  
Supervising Mining Registrar

  
Commissioner of Yukon Territory

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~~APPENDIX A PROJECT COSTS~~

FIGURES:-

Fig. 1	Location Map	
Fig. 2	Property Map	
Fig. 3	Histograms of geochem results.	1 inch to 1/2 mile

MAPS in POCKETS:-

Surface Plan			1 inch = 400 feet
General Geology			1 inch = 400 feet
Lead Geochemical Plot			1 inch = 400 feet
Zinc	"	"	1 inch = 400 feet
Silver	"	"	1 inch = 400 feet
Copper	"	"	1 inch = 400 feet

INTRODUCTION:-

The JD 1 to 24 Mineral Claims were acquired through staking by Mr. Marvin Sherman in August and December of 1976, following the discovery of sphalerite and galena mineralization in Mississippian felsic volcanic rocks.

United Keno Hill Mines Limited optioned the property from Mr. Sherman on May 15th, 1977. A two man geological crew was placed on the property on June 2nd but were hampered by heavy snow conditions. Prospecting to the south and north of the claim block located several occurrences of galena, sphalerite float and resulted in the staking of 160 additional claims. (JD 25 to 184 inclusive)

A two man geological crew and a two man geochemical crew worked the JD 1 to 24 claim block intermittently from June 2nd to August 23rd, 1977.

A total of 777 soil and stream geochemical samples were taken and analyzed for Cu, Pb, Zn and Ag.

Several small Pb, Zn, Ag occurrences were discovered and one very small high grade copper occurrence.

Supply and access to the property was by Hiller 12E, Hughes 500 and Bell Jet Ranger 206A helicopters, all based at Ross River.

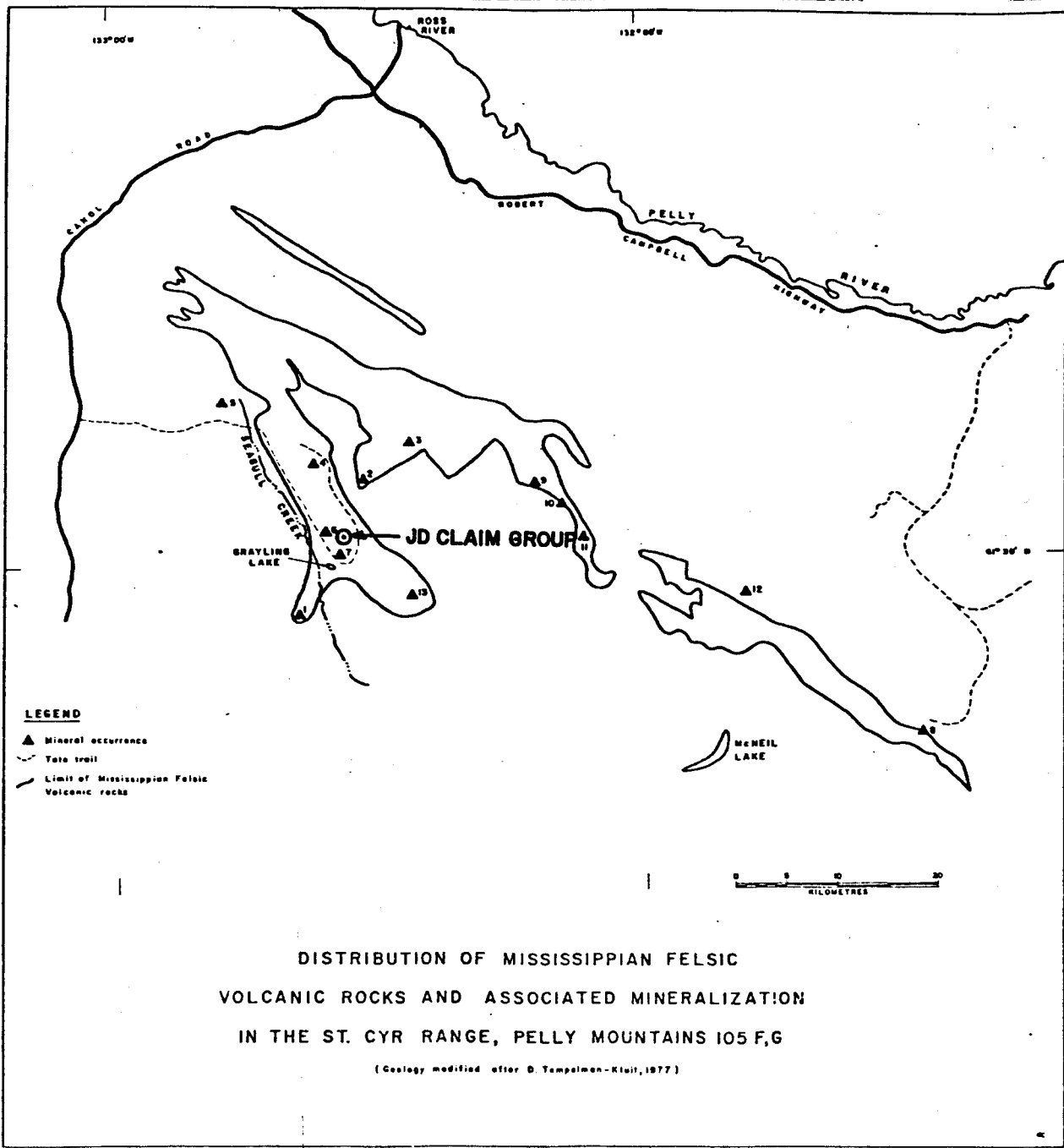
LOCATION and ACCESS:-

The JD 1 to 24 Mineral Claims are located on N.T.S. Sheet 105F-10 between Seagull Creek and the McConnell River at latitude 61° 32'N and longitude 132° 35'W (Figure 1).

The claims lie 30 miles southwest of Ross River and 17 miles east of the South Canal Road.

A tote trail from the South Canal Road along Groundhog and Seagull Creeks goes within one mile of the western claim boundary. This trail was upgraded by Dupont Exploration and Cyprus Anvil in mid 1977 and is accessible by 4 wheel drive vehicles in dry conditions.

Access to the JD property was by helicopters based at Ross River.



**DISTRIBUTION OF MISSISSIPPIAN FELSIC  
 VOLCANIC ROCKS AND ASSOCIATED MINERALIZATION  
 IN THE ST. CYR RANGE, PELLY MOUNTAINS 105 F, G**  
(Geology modified after D. Tappalmen-Kluit, 1977)

<b>UNITED KENO HILL MINES LTD.</b> EXPLORATION DEPARTMENT WHITEHORSE — YUKON	
<h2 style="margin: 0;">JD CLAIM GROUP</h2>	
<i>Mining District</i>	<i>Watson Lake</i>
<i>N.T.S. Sheet No.</i>	<i>105 F-8</i>
<i>Scale</i>	
<i>Drawn by</i>	<i>Date</i>
<i>r. o. v.</i>	<i>31 / 8 / 77</i>

PROPERTY:-

The JD Claim Group (Figure 2) consists of 24 contiguous full claims as follows:

<u>CLAIM NAME</u>	<u>GRANT NOS.</u>	<u>RECORDING DATE</u>	<u>EXPIRY DATE</u>
JD 1 - 12	YA00703-YA00714	24 Aug, 1976	24 Aug, 1977
JD 13 - 24	YA12305-YA12316	12 Jan, 1977	12 Jan, 1978

The claims were staked by Mr. Marvin Sherman and optioned by United Keno Hill Mines Limited on May 15th, 1977.

HISTORY:-

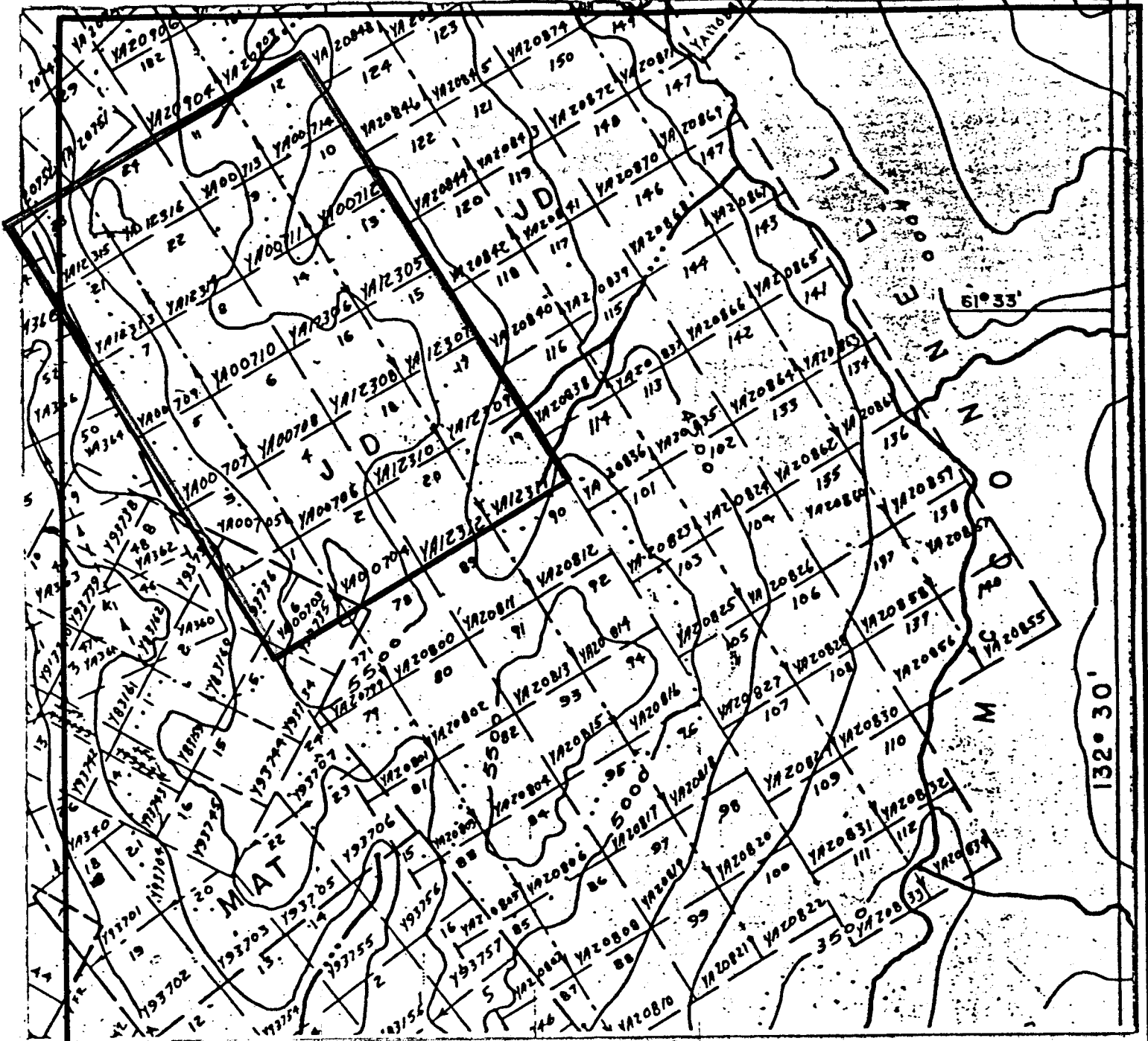
The area was prospected in the 1950's and 1960's for vein type silver-lead mineralization and in the 1960's for copper-zinc massive sulphides. Many vein showings were found in the general area but the silver content and the silver to lead ratios were too low and the deposits too small to support a mining operation. The exploration for copper-zinc massive sulphide mineralization was largely carried out using qualitative copper and total metal geochemistry. No copper-zinc deposits were found.

Since 1973 Cyprus Anvil Corporation has been working on a reported stratiform, volcanogenic lead-zinc-silver massive sulphide deposit on the MM Property, six miles southwest of the JD Claims. This discovery has created interest in the Mississippian felsic volcanics for similar massive sulphide deposits.

The Quiet Lake Map Sheet (105-F) was mapped by Wheeler et al, of the Geological Survey of Canada, in the late 1950's. A 1" = 4 mile preliminary geological map, with marginal notes, was published in 1960 (G.S.C. Map 7-1960). Between 1973 and 1976 D. J. Templemann-Kluit of the Geological Survey of Canada re-mapped the area on a scale of 1:250,000. A preliminary map with marginal notes is due for publication in late 1977.

PHYSIOGRAPHY:-

The property lies in the St. Cyr Range of the Pelly Mountains. Elevations range from 3,700' in Seagull Creek and McConnell River to over 6,000' in the southwest corner of the JD Claim Block. Most of the claim block lies above treeline which is at approximately 5,000'. Outcrop is pretty well confined to sharp ridge tops and steep north-facing slopes. Continental glaciation is absent in the area and geological contacts, in the non outcrop areas of the gentler slopes, can be located approximately by falsemer mapping. Large talus slopes sometimes give a false impression of the rock type distribution.



UNITED KENO HILL MINES LTD.  
EXPLORATION DEPARTMENT  
WHITEHORSE — YUKON

PROPERTY MAP  
JD CLAIMS 1-24

Mining District      WATSON LAKE  
N.T.S. Sheet No.      105 - F - 10  
Scale                      1 inch = 1/2 Mile

Drawn by      J.H.P.      Date      Sept. 18th 1977

## GENERAL GEOLOGY:-

The JD Claim Group lies in a Mississippian felsic volcanic pile consisting of volcanoclastics, graphitic shales, lava flows, pyritic chert, pyritic iron formation and barite horizons. Associated with the volcanic pile are syenitic sub-volcanic intrusions. The area is complexly folded by at least two periods of deformation. The only evidence of the first period of deformation is a well developed cleavage ( $S_1$ ) parallel to bedding in black clastic units and a crude schistosity ( $S_1$ ) in the more competent volcanoclastics, flows and cherts. The major deformation in the area is expressed by fairly open, similar folds ( $F_2$ ) in the black clastics and a well developed axial plane cleavage ( $S_2$ ) in the black clastics and some fine grained tuffs. In the more competent volcanic units  $S_2$  is only crudely developed and major  $F_2$  folds are difficult to map<sup>2</sup> because of lack of exposure and the complete absence of minor fold development. Bedding/cleavage intersections can be used to predict fold closures and fold orientations.

## DETAILED GEOLOGY:-

### Volcanoclastics -

These rocks include tuffs, tuff breccias, quartz-feldspar fragmental tuffs and phyllitic to schistose tuffs. They are fine grained (- 1MM) to aphanitic textured and their color ranges from white to pale grey to greenish-grey to dark grey and black. Breccia fragments of trachyte, white quartz and chert(?) range in size from less than 2MM to 65MM. Most of the tuffs are poorly banded massive units but a few exposures of well banded tuffs were observed. The degree of schistosity within these rocks is extremely variable - some completely lacking it and others ranging from mildly to extremely schistose.

Alterations of these rocks appears limited to a slight sericitization of the feldspars.

Mineralization within this unit consists of traces of very fine grained disseminated pyrite and marcasite(?) in some of the rocks. Also cutting through these rocks are rusty weathering buff colored siderite-calcite-white quartz veins carrying sphalerite, galena, chalcopryite, and pyrite in varying amounts. Some of the veins carry up to 15% sulphide while others are totally barren. The vein zones are 10 to 30 feet wide and often penetrate along schistosity.

The tuffs are trachytic in composition with the exception of the quartz-feldspar fragmental tuff which possesses greater than 10% quartz in some grab samples.

### Flows -

This unit is similar in composition to the volcaniclastics and consists of fine grained ( $\pm 1$ MM) trachytic rocks. The flows range in color from buff to dark grey to dark green to black with some of the rocks having alternating bands of light and dark colored material indicating flow banding (compositional layering). These rocks are mostly aphanitic textured with some porphyritic feldspar ( $\pm 2$ MM) and a few calcite amygdales within the massive groundmass. Units with evidence of flow banding are sparse and most of the flows are massive. A small number of the flows are also moderately schistose. Some of the flows are mineralized with traces of disseminated pyrite and marcasite(?) which form gossans on the weathered surface (e.g. the gossan on JD 7, 8, 21 & 22). A few of the flows are brecciated with fragments to 60 MM and some of the brecciation is accompanied by the penetration of siderite and quartz veins.

### Sub-Volcanic Syenite Intrusive -

This unit is a whitish, medium grained (1-5 MM), equigranular rock. In hand specimen its composition appears to be mostly feldspar with 15% biotite and no visible free quartz. Black colored mafic rich zones occur within the intrusive where biotite exceeds 25%. These zones vary from small clots a few millimeters in diameter to large zones many feet across. The contacts of the intrusive are sharp to gradational and irregular to smooth. A few roof pendant type xenoliths of tuff were noted in the intrusive. Alteration is limited to slight chloritization of the biotite but most of the syenite is unaltered.

Most of the syenite is barren but some traces of disseminated pyrite were observed. Chalcopyrite and chalcocite(?) with malachite and azurite occur on scattered fracture surfaces in a few small zones. A very limonitic rock with chalcopyrite, malachite and azurite was also found as float within the syenite. This rock assayed 20% copper but was collected from one small vein(?) zone. Traces of galena and pyrrhotite were also noted.

Minor buff colored siderite veins also cut the syenite with traces of galena, sphalerite, chalcopyrite and pyrite.

### Shales -

These rocks are black, aphanitic, metamorphosed sediments which possess a well developed slaty cleavage. They are very thinly bedded. Within the JD 1-24 Claim Block they are found only in one very small outcrop on JD 8 which is apparently faulted into a tuff unit. They are not mineralized.

STRUCTURE:-

The volcanoclastic units of the JD 1-24 Claims are structurally deformed as evidenced by folding visible in outcrop and by the presence of cleavage in the black clastics and a crude schistosity in the more competent units of the volcanoclastics. More than one phase of deformation is evident in outcrop as axial plane schistosity in the tuffs has been subsequently folded gently. Structural interpretation within the claim area is very difficult due to a lack of outcrop exposure possessing bedded units from which attitudes could be obtained.

ALTERATION:-

Most of the rocks on the JD 1-24 Claims are relatively unaltered. Where alteration has taken place it has involved very minor chloritization of biotite or sericitization of feldspar.

MINERALIZATION:-

Mineralization on the JD 1-24 claims consists of traces of disseminated pyrite and pyrrhotite in syenite and in the volcanics. Sphalerite, galena, chalcopyrite and pyrite also occur in rusty weathering buff colored siderite veins. Two rock samples were collected for assay with the following results:

<u>Assay No.</u>	<u>Au oz/ton</u>	<u>Ag oz/ton</u>	<u>Pb%</u>	<u>Zn%</u>	<u>Cu%</u>
4888	Trace	0.04	Tr	0.02	0.18
4889	Trace	2.32	0.07	0.12	20.90

GEOCHEMISTRY:-

General:-

A reconnaissance type soil sample survey was conducted by a two and/or three man crew. Claims JD 1 and 2 were sampled using picketed claim location lines as baselines. Samples were collected at 100 foot intervals along lines spaced 300 feet apart. The sample lines were run using topefil chain and compass. Claims JD 3 to 24 were sampled using ridge top and bottom sample lines instead of grids due to the steep nature of the topography.

A total of 752 soil and 25 stream sediment samples were collected and analysed for copper, lead, zinc, and silver. The soil samples were taken from the brown colored B residual soil horizon below the organic - humus layer at depths from 1 to 8 inches.

### Analytical Procedures -

All samples were analysed by Bondar - Clegg and Company Limited, 1363 Industrial Road, Whitehorse, using a hot acid extraction. A description follows:-

#### Hot Acid Extraction:

To a test tube containing a previously weighed sample, add 1.5 mls. conc.  $\text{HNO}_3$  and digest for  $\frac{1}{2}$  hour on the hot water bath. Add  $\frac{1}{2}$  ml conc.  $\text{HCl}$  and digest for a further  $1\frac{1}{2}$  hours.

Watch for excessive frothing of organic samples and carbonates.

After digestion remove test tubes and make up to volume by adding D. I. water (8 mls)\* from an automatic dispenser. Mini-shake and allow to settle.

#### Sample Weight:

In most case 0.2 gm sample is adequate, however for analysis of elements such as Ag and Pb a 0.5 gm sample should be weighed for extra sensitivity.

\*Under laboratory operating conditions it has been found that losses up to 0.4 ml of the acid digesting solution can take place during digestion and on subsequent dilution and standing. Losses are due to effervescence of the sample in acid solution, evaporation losses while sample is digesting, and evaporation losses after acid digesting solution has been diluted to volume. Therefore better results have resulted from diluting with 8.4 mls of D. I. water.

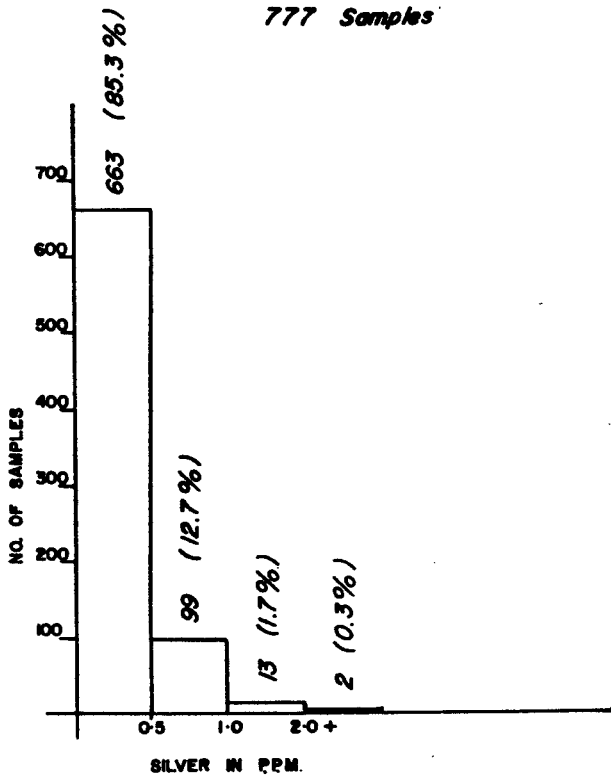
### Interpretation of Results -

Several small anomalous zones were located on the JD 1 to 24 Claims (see geochem plots in pocket). These anomalies are scattered and are characterized by high values dropping rapidly to background levels. Histograms for zinc, lead, copper and silver results are given in Figure 3. Most of the anomalies are correlative with sulphide mineralization in rusty weathering buff colored siderite veins or sulphides on fracture surfaces.

The most significant anomalous zone lies in the southwest corner of the claim block and shows coincident zinc, lead, and copper anomalies. Peak values of 4800 and 2150 ppm zinc were returned. A peak value of 510 ppm was returned for both lead and copper.

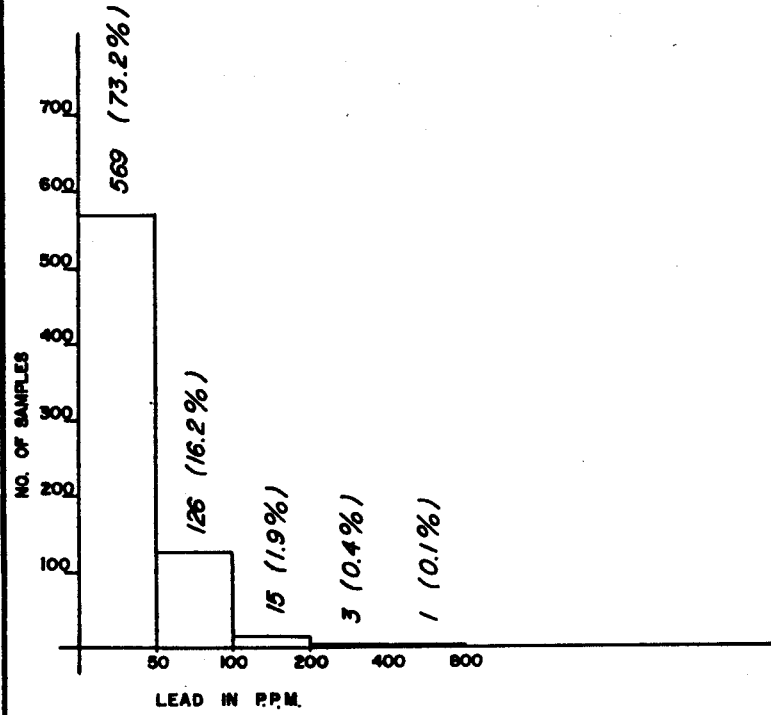
**HISTOGRAM OF SILVER VALUES**

777 Samples



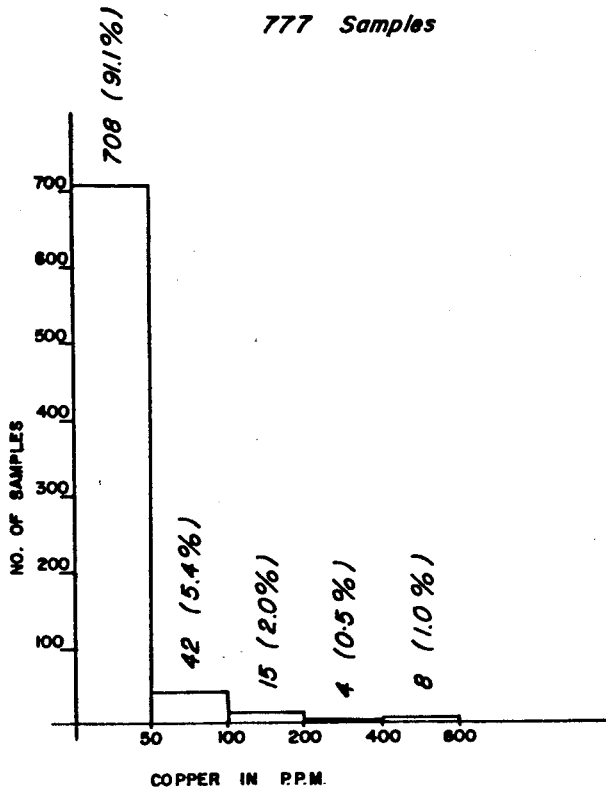
**HISTOGRAM OF LEAD VALUES**

777 Samples



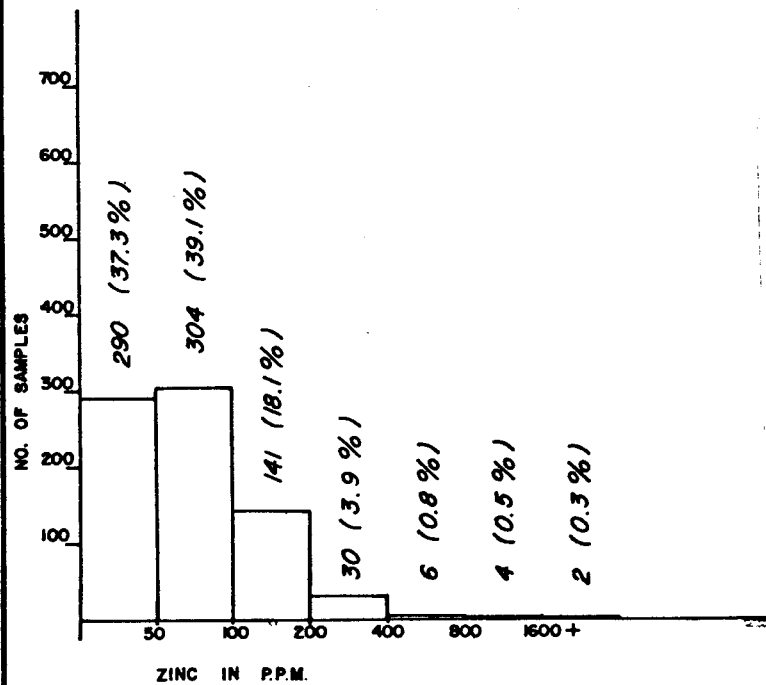
**HISTOGRAM OF COPPER VALUES**

777 Samples



**HISTOGRAM OF ZINC VALUES**

777 Samples



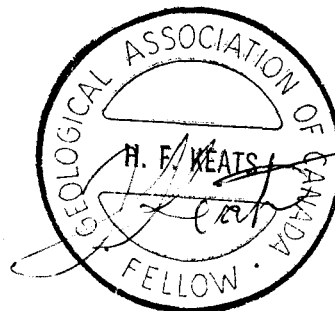
The other anomalies are small and scattered. These generally have coincident anomalous lead and zinc values, and, in a few cases, anomalous copper values also.

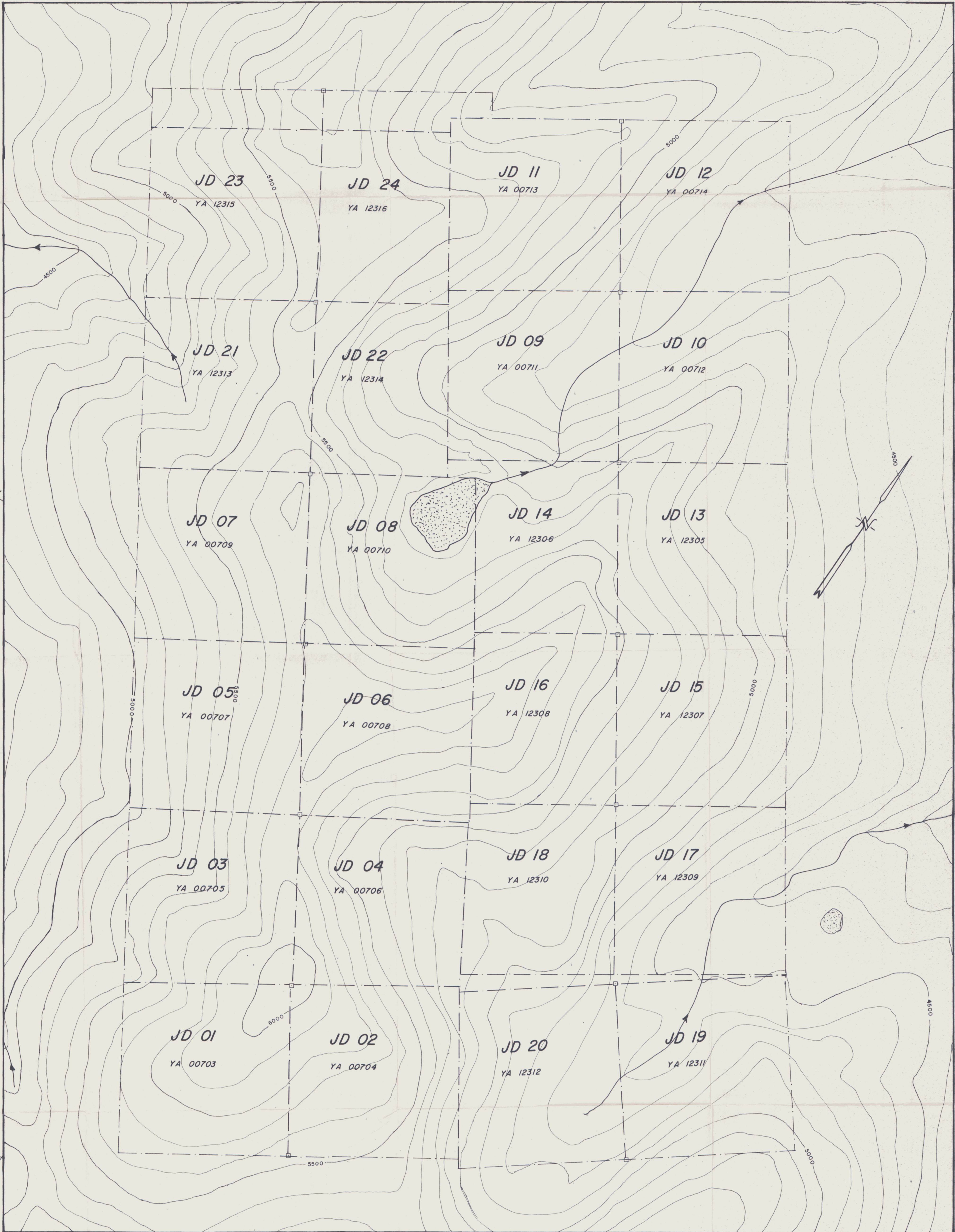
Generally, there is moderate to good correlation between anomalous silver values and weakly anomalous lead and/or zinc values. However, there is no strong correlation between peak silver values and peak values for the other elements. Peak silver values of 2.8 ppm and 2.4 ppm coincide with values of 225 ppm and 130 ppm zinc, and 60 ppm and 105 ppm lead, respectively.




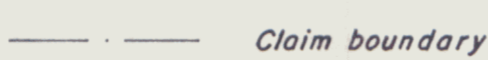
SUMMARY and CONCLUSIONS:-

The JD 1-24 Claims were geologically mapped and geochemically sampled by two two-man crews during the season. Several small Pb, Zn, Cu, Ag showings and one very small high grade Cu showing were discovered with a Mississippian volcanoclastic sequence which is intruded by a sub-volcanic syenite stock.

Both geological and geochemical interpretations indicate that the mineralization present on these claims is restricted to narrow veins.





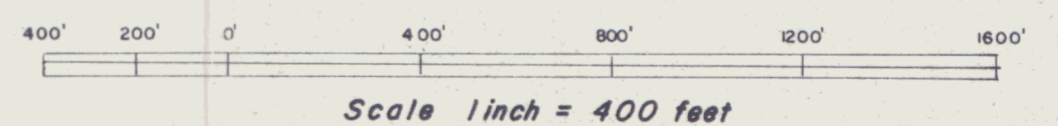
-  Creek with flow direction indicated
-  Ponds, Lakes & Sloughs
-  Claim post location
-  Claim boundary

UNITED KENO HILL MINES LTD.  
EXPLORATION DEPARTMENT WHITEHORSE, Y. T.

### JD CLAIMS 1-24

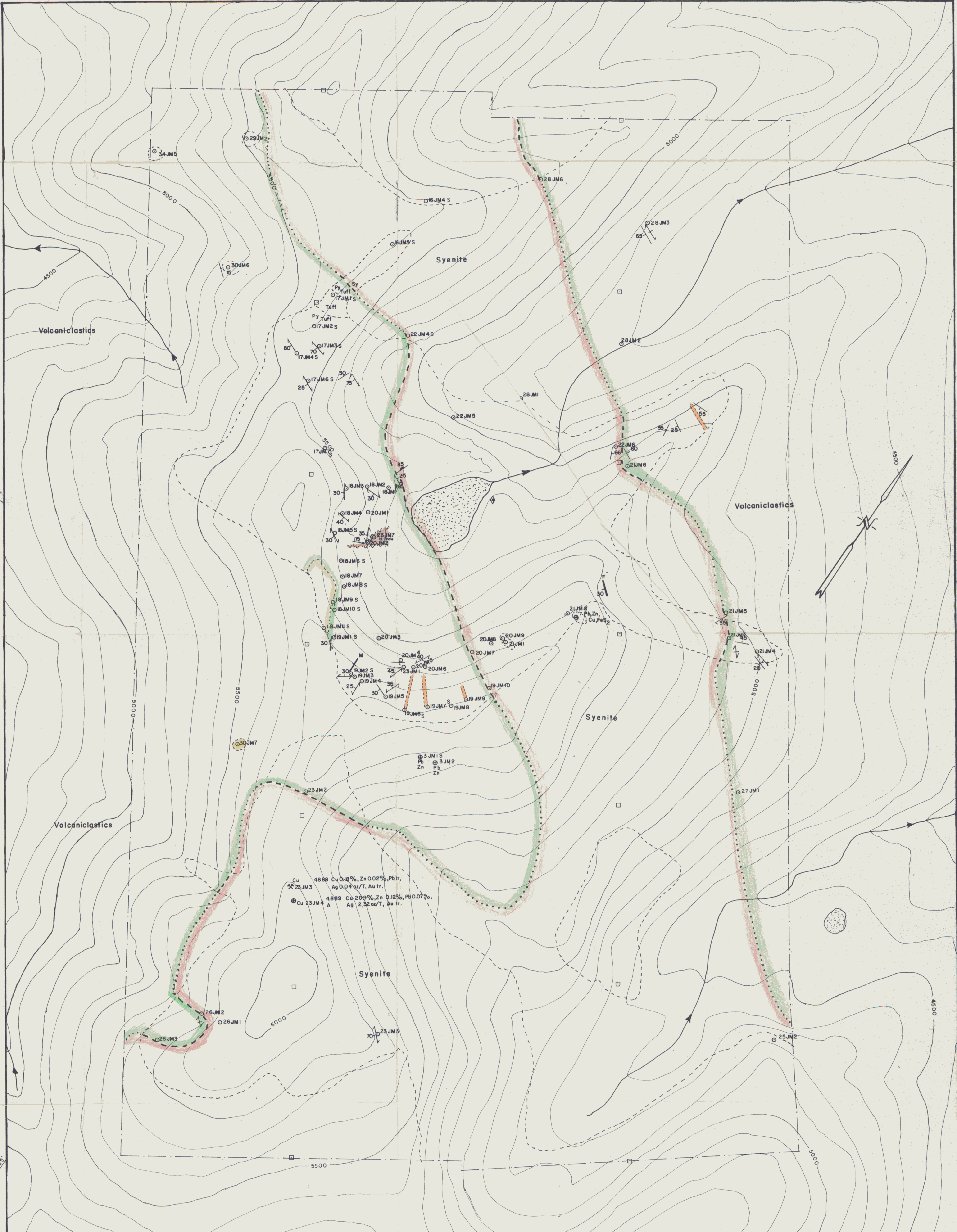
N.T.S. SHEET 105-F-10



















## SURFACE PLAN



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Drawn by: J.H.P. DWG.  
Date: Sept. 1/77

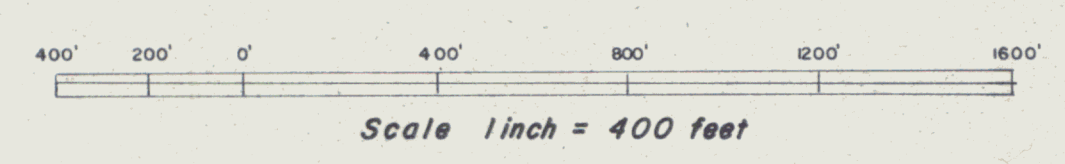


-  Syenite
-  Volcaniclastics (Tuffs, Tuff Breccia)
-  Flows (Flow Breccia)
-  Metasediments (black Shale)
-  Outcrop & Talus Pattern (approximate)
-  Contact (defined, assumed)
-  Siderite veining
-  Dyke (mafic, felsic)
-  Schistosity
-  Bedding
-  Joints
-  Creek with flow direction indicated
-  Ponds, Lakes & Sloughs
-  Claim post location
-  Claim boundary
-  Mineral occurrence
-  Float with Cu ect.
-  Geology point (Rock sample)

UNITED KENO HILL MINES LTD.  
EXPLORATION DEPARTMENT WHITEHORSE, Y. T.

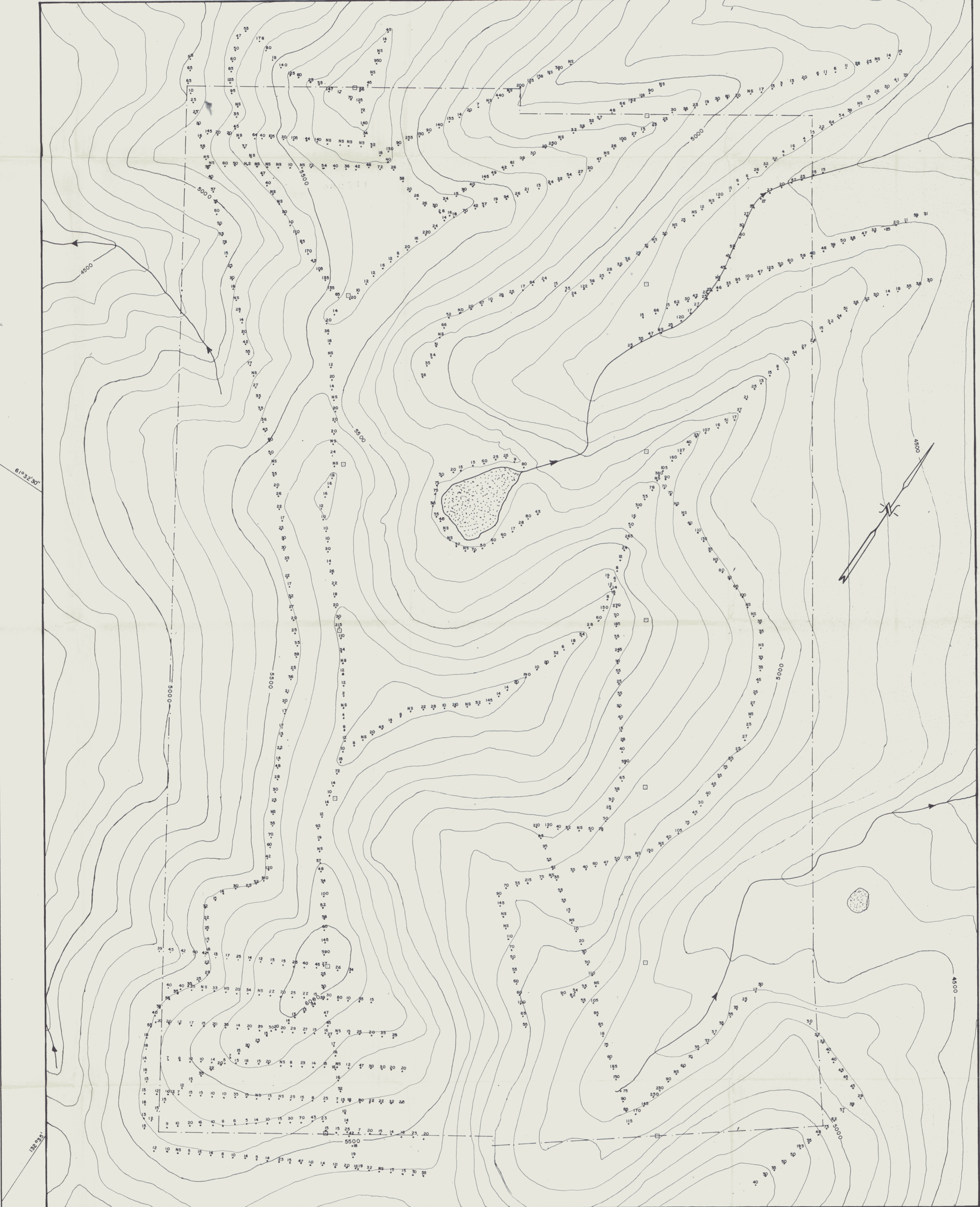
**JD CLAIMS 1-24**  
N.T.S. SHEET 105-F-10

**GENERAL GEOLOGY**






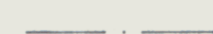

NO.	Revision	Date	by	NO.	Revision	Date	by
1		Sept. 18/77	J.H.P.				

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Date: Sept. 1/77



6133230'

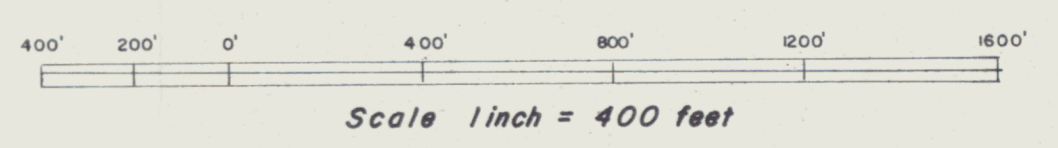
132 915'

-  Creek with flow direction indicated
-  Ponds, Lakes & Sloughs
-  Claim post location
-  Claim boundary
-  Soil Sample location with results in ppm

UNITED KENO HILL MINES LTD.  
EXPLORATION DEPARTMENT WHITEHORSE, Y. T.

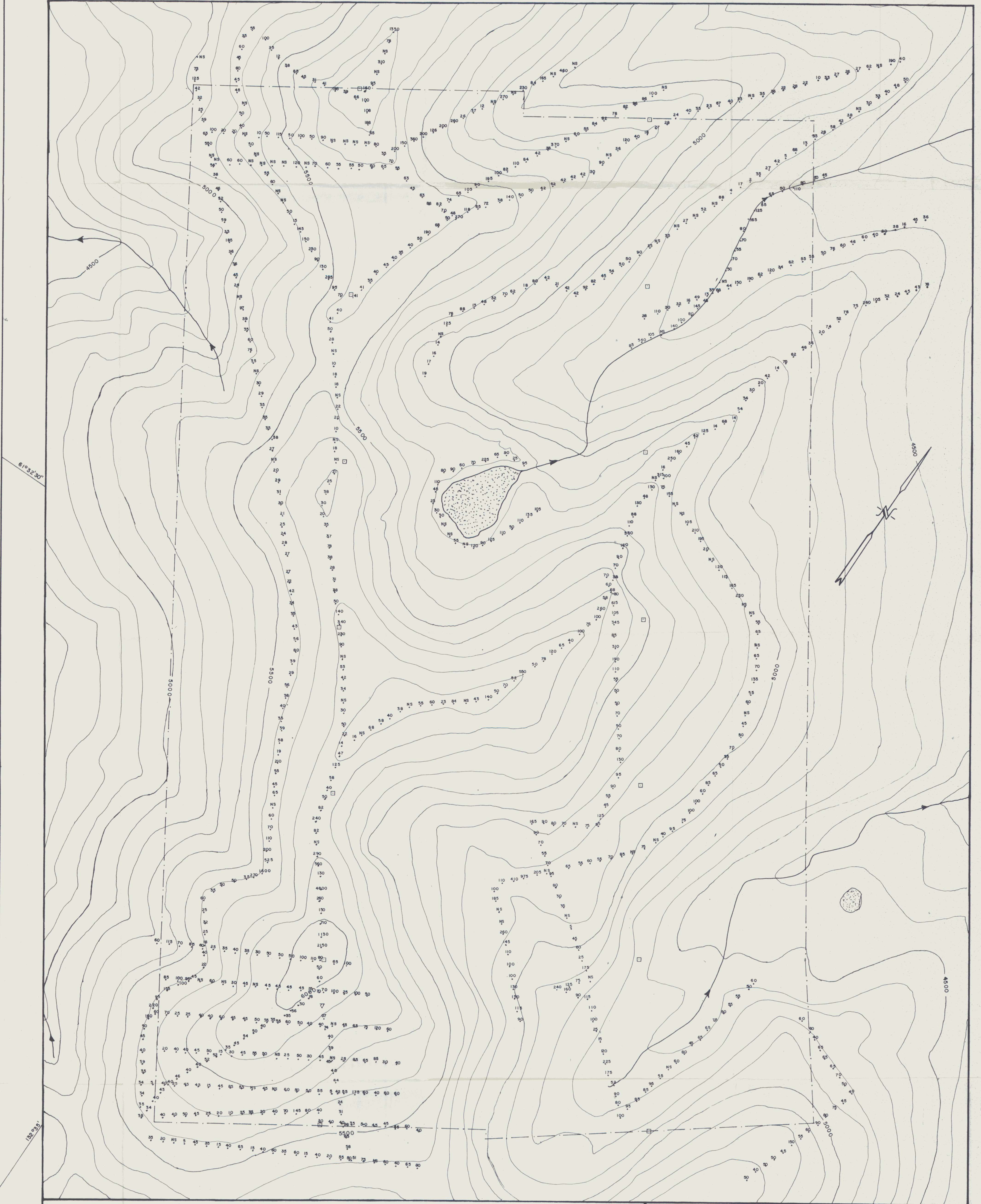
**JD CLAIMS 1-24**  
N.T.S. SHEET 105-F-10






**LEAD PLOT**



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Date: Sept. 1, 1977

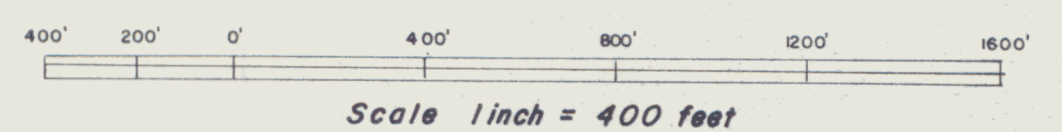


-  Creek with flow direction indicated
-  Ponds, Lakes & Sloughs
-  Claim post location
-  Claim boundary
-  Soil Sample location with results in ppm

UNITED KENO HILL MINES LTD.  
EXPLORATION DEPARTMENT WHITEHORSE, Y. T.

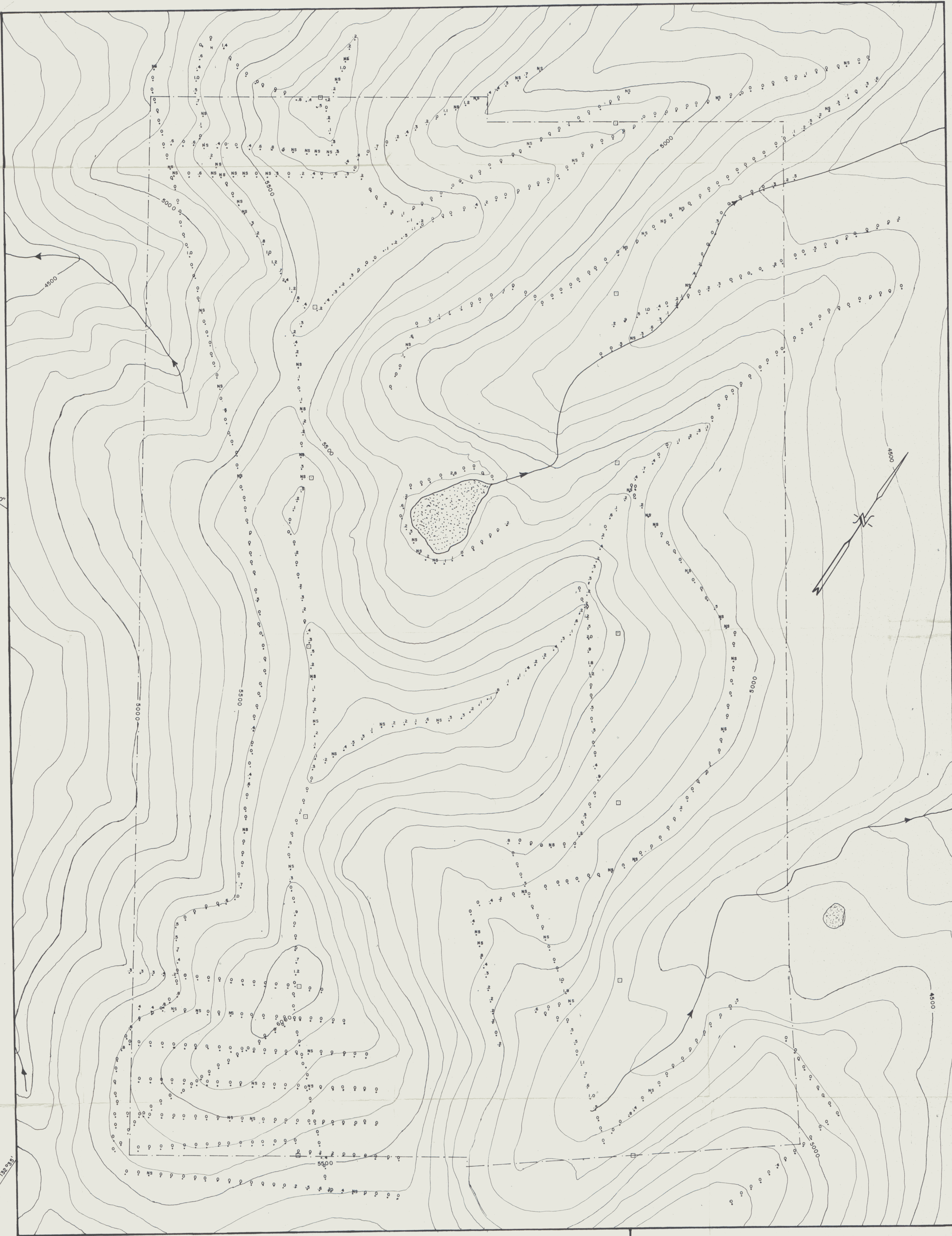
**JD CLAIMS 1-24**  
N.T.S. SHEET 105-F-10

**ZINC PLOT**



NO.	Revision	Date	by	NO.	Revision	Date	by

Drawn by: J.H.P. DWG.  
 Date: Sept. 1/77



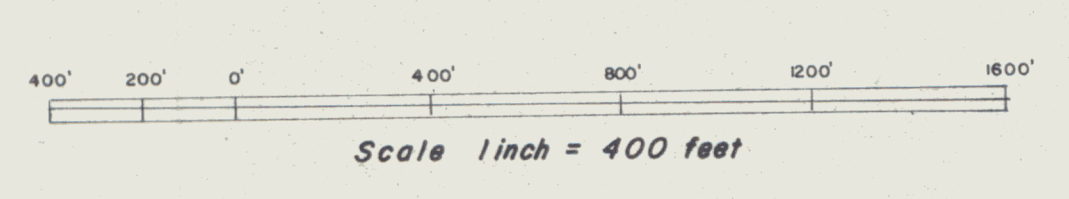
61°32'30"

132°38'

UNITED KENO HILL MINES LTD.  
EXPLORATION DEPARTMENT WHITEHORSE, Y. T.

**JD CLAIMS 1-24**  
N.T.S. SHEET 105-F-10

**SILVER PLOT**




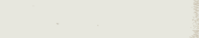



- Creek with flow direction indicated
- Ponds, Lakes & Sloughs
- Claim post location
- Claim boundary
- Soil Sample location with results in ppm  
O denotes = not detectable

NO.	Revision	Date	by	NO.	Revision	Date	by

Drawn by: J.H.P. DWG.  
Date: Sept. 1/77



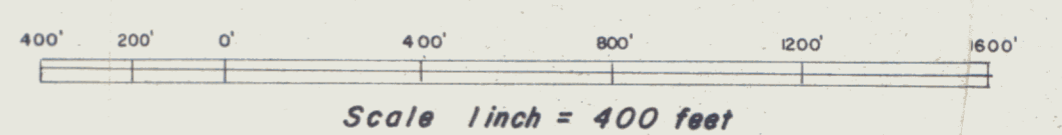
-  Creek with flow direction indicated
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-  Claim post location
-  Claim boundary
-  Soil Sample location with results in ppm

UNITED KENO HILL MINES LTD.  
EXPLORATION DEPARTMENT WHITEHORSE, Y. T.

**JD CLAIMS 1-24**

N.T.S. SHEET 105-F-10

**COPPER PLOT**



NO.	Revision	Date	by	NO.	Revision	Date	by

Drawn by: J.H.P. DVG.  
Date: Sept. 1/77