

896116

92H/9W

92H/NE - 24/176

PROPERTY FILE

REPORT ON THE JURA COPPER PROPERTY  
7 MILES NORTH OF PRINCETON, B.C.  
120°26'W., 49°33'N. N.T.S. 92-H-9  
FOR  
COP-EX MINING CORPORATION LIMITED  
by  
G.E.A. von Rosen, P. Eng.

L. J. Manning & Associates Ltd.,  
310 - 890 West Pender St.,  
Vancouver 1, B.C.

Sept. 2, 1971.

CERTIFICATE

I, G. E. A. von Rosen, of 2149 Vanness Avenue, in the City of Vancouver, Province of British Columbia, do hereby certify:

1. That I am a geological engineer.
2. That I graduated from the University of British Columbia with a B.Sc. Geology degree in 1962 and M.Sc. in 1966.
3. That I am a registered professional engineer in British Columbia.
4. That I have been employed in geological exploration in British Columbia, Washington, and the Northwest Territories.
5. That I have been employed in geophysical exploration in British Columbia, Alberta, and the Northwest Territories.
6. That the report on the Ashnola River claims is based on a personal examination of the property, and knowledge gained from a study of reports on the area and examination of the records of the Mining Recorder.
7. That I do not hold any vendor shares or capital stock in Cop-Ex Mining Corporation Limited or any of its affiliates, nor do I expect to do so in the future.

Dated at Vancouver, British Columbia this 27th day of July  
19 71

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Certificate:- G. E. A. von Rosen

MAPS

Fig.

1. Location Map
2. Princeton Area Claim Map
3. Claims
4. Aeromagnetic Contour Plan
5. Property & Grid Outlines
6. Geology
7. I.P. and Mag. Interpretation
8. Previous Diamond Drilling



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## 1.0 SUMMARY

Cop-Ex Mining Corporation Limited owns 67 mineral claims in the Princeton, B.C. copper area. The property includes 36 newly acquired mineral claims which cover the extension of your company's copper-molybdenum soil anomalies established by previous field work.

Recent surface work by a major mining company discovered important geochemical-geophysical anomalies open at the edge of the survey grid. This grid covered chalcopyrite-bornite mineralization exposed in surface workings, and extensive malachite staining uncovered by cuts of access roads; but does not cover the newly acquired peripheral claims.

In advance of depth probing these drillable targets, it is recommended that systematic exploration coverage be extended over the total area of claims in order to delineate existing anomalies and detect any others.

Once the anomalies are outlined in this manner, priorities may be established and limited test drilling can then be designed to determine areas requiring more detailed drilling.

The foregoing Phase I program is estimated to cost \$47,500. It consists of a claim survey, extension of existing anomalies, and surface exploration of the remainder of the claims. This is to be followed by a limited percussion drilling program to test those targets showing maximum potential.

## 2.0 GENERAL PROPERTY DESCRIPTION, LOCATION, ACCESS

### 2.1 General Description

Cop-Ex's Jura copper-molybdenum property consists of 67 contiguous Elk, Sleeper and ND mineral claims.

### 2.2 Location

Co-ordinates: 120°26' West, 49°33' North. N.T.S.:92-H-9-d

Located 7 miles northerly of Princeton, B.C. about 1 mile north of Jura station of C.P.R.'s Kettle Valley Line.

### 2.3 Access

The property can be reached via the Osprey Lake road north from Princeton. Turning north at the school house on the mutual southern corner of Lots 1514 (E) and 1507 (W), a road leads to the northwest corner of Lot 2422. The road to the east from here runs to the northern portion of this property.

The southern extensions are traversed by the Osprey Lake road northeast from Jura and by a gravel road north of Jura railroad crossing.

Access on the property is by numerous gravel roads.

### 3.0 CLAIMS

#### 3.1 Claim Information

<u>Claims</u>	<u>Record Number</u>	<u>Expiry Date</u>	<u>Recorded Owner</u>
Elk 1-6 Incl.	12698-12703 Incl.	Oct. 6, 1971	Cop-Ex Mining Corp.
Elk 11-14 Incl.	12708-12711 Incl.	Oct. 6, 1971	"
Sleeper 1-2,8	12680-12681,12687	Oct. 6, 1971	"
Sleeper 10	12689	Oct. 6, 1971.	"
Sleeper 13-18 Incl.	12692-12697 Incl.	Oct. 6, 1971	"
Elk 15-16	10715-10716	April 25, 1972	"
Sleeper 3-5 Fr. Incl.	19986-19988 Incl.	April 25, 1972	"
Sleeper 7, 9 Fr.	19989, 19990	April 25, 1972	"
Sleeper 11 Fr.	19991	April 25, 1972	"
Sleeper 12	19992	April 25, 1972	"
Sleeper 19-20	19993-19994	April 25, 1972	"
ND 4-29	27667-27702 Incl.	June 29, 1972	J. P. Wishart

#### 3.2 Adverse Claims

Joy Mining owns 3 claims lying within the southeastern extent of the Sleeper claims.

### 4.0 PHYSIOGRAPHY

#### 4.1 Land Forms: - Regional

Regionally the Princeton area falls within the Thompson Plateau Physiographic Sub-division. Locally, the Plateau,



generally at 5,000 + feet a.s.l. is incised by two valleys, containing Summers Creek to the west and Hayes Creek to the east of the property. The valley floors here are generally 2,000 feet below the plateau area.

The direction of glacial scouring is west of north. Glacial and fluvio-glacial deposits mantle bedrock to varying depths.

#### 4.2 Land Forms: - Local

The claims area has a relief from about 4,000 feet a.s.l., a smooth upland surface, to 3,100 feet a.s.l. an undulating till covered plain marked by Kettle holes. The slopes of this hill are marked by generally parallel arcuate contour-hugging gravel ridges which are remains of ice marginal melt water channels.

#### 4.3 Climate

The Princeton area at the property altitude is hot and arid in the summer and cold with several feet of snow in winter.

#### 4.4 Vegetation

Lower elevations typically sustain grassland wooded with Ponderosa pine. Higher elevations have stands of spruce and fir. Poplar groves are common.

The lower reaches of the property are grassland; the upper openly forested by pine. The northern portion of the property is more densely covered by regrowth after logging.

#### 4.5 Water

Spring runoff collects in various gullies and in some kettles. Enough water for exploration purposes should be available, but agreement with water-right owners should first be obtained.

### 5.0 HISTORY . DEPOSITS

#### 5.1 Similkameen District

The Similkameen district was active early in the century through the copper finds at Copper Mountain and gold-platinum placers near Tulameen. Since then many showings have been



tested in the area. Among the best known are the Dillard Creek showing at Missezula Lake; Axe and OK groups optioned by Amax on Summers Creek; Cop-Ex's Lucky Strike Jura property at the Summers-Hayes Creek divide; Regal property of Joy Mining; -northeast of Princeton; and Ingerbelle (in production) of Newmont with Cumont and Copper Mountain holdings in the vicinity and Friday Creek Copper, all south of Princeton.

Regionally this "copper belt" can be extended north from Missezula Lake to include various showings in the Aspen Grove camp.

The main factors common to most of these copper deposits are

- a) that they occur in Nicola Volcanics,
- b) that they are on parallel fault structural belts and
- c) are somehow associated with alteration related to satellite intrusions.

## 5.2 Jura District

Early exploration around Jura was guided by the necessity of finding high grade copper leads. Extensive malachite focused exploration on the Lucky Strike, Burr and Regal Copper showings. Present economics of low-grade, high-tonnage further revive interest in these old showings, e.g. Cop-Ex, Amax, and Joy.

## 5.3 Early Work:-Lucky Strike etc.

- 5.3.1 The Lucky Strike group described in Minister of Mines Report 1927 and 1928, centered on rusty outcrops with malachite stain near the southeastern border of the present Elk, Sleeper claims. Several test pits and three adits constitute the work done at the time.
- 5.3.2 An adit was driven into a rusty zone below and east of the Kettle Valley railroad line in the Valley of Christian Creek.
- 5.3.3 An adit and some trenching was blasted on a copper showing at the head of one of the bedrock fullies near the north-western sector of the claims. (It is in this area of copper showings that present interest is centered.)

## 5.4 Kennco Exploration (Western) Ltd., 1959

In 1959 Hunting, on contract to Kennco, performed an airborne magnetometer survey in the Princeton area. Anomalies reminiscent of those over Copper Mountain prompted Kennco to stake 103 mineral claims (F.H.) covering the area presently held by Cop-Ex.

Follow-up work consisted of geological mapping, bulldozer trenching, a ground magnetometer survey, a copper geochemical survey, and induced polarization survey and 744 feet of AX diamond drilling in 4 holes. Work was filed on 6 claims until June 1967. Three of these claims lie within Cop-Ex's property but apparently belong to Joy Mining through location by staking.

Assays are not available on this drilling but it is understood that intersections of the order of 0.2% Cu were encountered.

#### 5.5 Elk, Sleeper Claims, 1960-1969

In 1969 Amax re-surveyed the Princeton area aeromagnetically. The "Copper Mountain" type anomaly over Cop-Ex's ground led Amax to obtain permission to explore Cop-Ex's claims. Amax's work included geological mapping, geochemical and magnetometer surveys, followed by an I.P. survey over two copper geochemical anomalies.

Subsequent negotiations for a further option by Amax on this property resulted in their standing offer which has not been taken up by Cop-Ex.

### 6.0 GEOLOGY

#### 6.1 References

Geological and property information has been available on the Princeton area for many years. Presently much detail data, possibly applicable on a regional basis, has been obtained in the process of proving up copper deposits like the Ingerbelle. The most authoritative reference for the Princeton area is H.M.A. Rice's Memoir 243 entitled "Geology and Deposits of the Princeton Map-area, British Columbia", dated 1960.

#### 6.2 Regional Geology

Reference is made to H.M.A Rice's map 888A, Princeton for detailed relations. On a regional scale, folded Nicola Group volcanics (Upper Triassic) are intruded by granitic Coast Intrusions (Upper Jurassic). Princeton Group sediments and volcanics (Miocene) cap the older rocks.

Several fault systems radiate northerly from Princeton. Bornite, chalcopyrite and pyrite replace Nicola Volcanic rocks in zones of considerable shearing and alteration.



### 6.3 Local Geology

The contact between Coast Intrusions and Nicola Volcanics skirts the eastern and northern edge of the property. A zoned diorite monzonite stock and an outcrop area of dacite occur within the Nicolas.

Bornite-chalcopyrite associated with magnetite occurs replacing altered Nicola Volcanics around the adit zone in the northwestern part of the Elk claims.

## 7.0 PROPERTY EXPLORATION

### 7.1 General

The writer visited the Jura property on May 11, 1971. Additional property information was obtained from reports by Kennco and Amax.

The paucity of outcrop (about 1%) and the overburden, variable as to type and depth, have direct bearing on all types of exploration tried on this property.

### 7.2 Geology--Surficial Deposits

Overburden thickness ranges from scant on scree slopes, through thin soil with locally derived angular boulders to clay, silt, and gravel deposits of glacial and fluvioglacial origin.

Careful consideration must be given to thickness of overburden as it affects the interpretation of survey results, for example geological mapping is affected directly by lack of outcrop; ground magnetometer and I.P. survey readouts are attenuated by increasing depth of overburden; anomalous chargeability and resistance effects can be expected in clay-till terrain with variable moisture content; geochemical soil, silt and water surveys are strongly affected by overburden changes.

A reasonably close estimate of cover thickness can be gathered through airphoto interpretation, which suggest that several contour hugging gravel ridges, levels of ice-marginal streams, skirt the Elk and Sleeper claims to the northwest. These ridges could have "backbones" of bedrock but comprise fluvioglacial material having little local derivation. The gullies between the hill slope and the ridges represent less overburden. Christian Creek valley



is an example. The inter-ridge areas have angular float intermixed in gravel which would be locally derived from scree slopes at higher elevations.

### 7.3 Geology--Rock Types

Amax Explorations' geological plan of the property includes the area mapped by Kennco. Appended Figure 6 is a compilation of all available data. A description of the property geology is here quoted from page 8.9, F. A. Christofferson's report (1970) to Amax.

"Nicola Volcanics, comprising andesite, basalt, dacite, breccia and their altered equivalents underlie a large part of the property. A zoned stock, 4,000 feet in diameter and grading from melanodiorite at the periphery to a core of mesocratic monzonite, has intruded volcanic rocks near the eastern border of the property. A second stock of diorite-syenodiorite composition but of unknown dimensions occurs near the adit. An irregular body of dacite, possibly an intrusive rock, outcrops near the southeast corner of the claims. Porphyritic quartz monzonite of the Okanagan batholith has intruded Nicola rocks along the eastern border of the property and a narrow westerly trending salient of the batholith extends along the northern border of the claims. This tongue of granitic rock is magnetically distinguishable from high magnetic rocks to the north and south. The source of the magnetic anomaly to the north is concealed by glacial overburden."

### 7.4 Geology--Structures

Summer's and Hayes Creek valleys represent regional structural breaks. A zone of satellite intrusive stocks can be followed WNW from Cop-Ex's property past Amax's property. Ground magnetometer interpretation places an ENE fault at Christian Creek valley at the southern sector of the property.

### 7.5 Geology--Zoning

Sulfides and alteration minerals occur in a zoned pattern on the property. The chalcopyrite:pyrite ratio increases between the dacite body at the Lucky Strike near the southeast, and the altered Nicola Volcanic, "Adit or North Zone" to the northwest. Brown outcrops typify the dacite area while little discoloration is evident over the adit zone. Malachite occurs in both areas.

Chlorite alteration is scarce, while pink K-spar alteration of Nicola Volcanics appears to be associated with copper mineralization on the Adit Zone. Carbonates occur at the Lucky Strike. Epidote is common to both areas.

7.6 Geology--Economic

7.6.0 Three areas of workings occur on the property.

1. an adit and prospect pits to the northwest, presently called the Adit Zone, North Zone or "North Anomaly".
2. the Lucky Strike showing to the southeast with 3 stub adits and some surface pits.
3. an adit in Christian Creek valley below the railroad.

7.6.1 The adit or north showing consists of chalcopyrite (minor bornite) and magnetite, grading at the adit about 0.5% Cu or more over 5 feet. The host rock is strongly altered by K-spar and epidote. Mineralization occurs as fracture filling with magnetite, K-spar and epidote. Increase in fracture density and halo alteration emanating from the fractures results in a complete remaking of the rock near the adit.

7.6.2 The Lucky Strike zone (dacite) must be considered a secondary target because it has been well explored by Kennco in 1960.

7.6.3 The adit below the railroad near the zoned stock received little mention in the literature.

7.7 Assays

The following quotation refers to the North Zone: -  
 "Chip sample (11202) taken across 5' of the portal of the Lucky Strike main tunnel yielded:

Gold	Trace
Silver	Trace
Copper	0.67%
Molybdenite	0.017% .....

(ref. Weymark Engineering Ltd. "Report on Elk, Sleeper Claim Group, Princeton area" 15 June 1967, Page 16, Section 8.2(V).

Trenches to the southeast of the adit zone exposed several hundred feet of bedrock; channel samples from one trench over 170' assayed.

Copper	0.17%
Silver	0.10 oz/ton



## 7.8 Geochemistry

The inhomogeneity of soils on these properties was mentioned in the section Superficial Deposits.

Results of Kennco's and Amax's geochemical surveys are available. Both sets were treated statistically with the log-normal approach. Using Amax's 222 samples a threshold of 50 ppm Copper was obtained. Using Kennco's (Lucky Strike) 683 soil samples from areas mapped as overburden, 350 soil samples over Nicolas, and a combined population of 1250 soil samples over the complete grid, the resulting threshold ranges from 90 ppm Cu (combined) to 120 ppm (Nicola and overburden). Dacite was found to have a higher copper content and a threshold of 300 ppm Cu is obtained from 215 samples.

Interpretation of these statistical results suggest that the soils taken by Amax were not of homogeneous Nicola derivation as a result of admixture of fluvioglacial gravels. Hence the low threshold.

However, two copper geochemical anomalies (North and South) were outlined by the Amax survey, the north being the stronger anomaly. Both anomalies have definite outlines but are apparently cut off to the southwest by extensive outwash gravels.

Field checks of these anomalies indicate:

- (a) that the North Anomaly extends downhill southwestward from the large mineralized outcrop adit area
- (b) that the South Anomaly is largely over burden covered and no reason for its origin is evident, other than it may be the southern extension of the North Anomaly.

Downhill creep could be partially responsible for the southward extent of the North Anomaly.

An area of anomalous silt molybdenum values (Moly Zone) occurs at the north end of the Elk claims. No follow-up is on record for this anomaly.

High molybdenum content of water in Christian Creek was noted in several samples taken by Amax between the north end of the claims and the workings below the railroad. The source of molybdenum has yet to be explained, as copper and molybdenum soil anomalies are spatially widely separated.



### 7.9 Geophysics--Ground Magnetometer

Ground magnetometer surveys were carried out by Kennco and Amax. Results of the Amax survey point out three features.

The first is a "high-low" relationship (fall off to the west) which includes the above mentioned anomalous areas.

The second is a small "high" over the immediate adit area.

The third is a "low" to the west in an area of deep till and outwash gravels.

Various interpretations are possible with this magnetic area. Firstly, this "high-low" relation may indicate a reduction of magnetism due to alteration of the rock causing breakdown of magnetite. However, it can also be the result of a combination of topographic control and horizontal volcanic flow layering containing differing amounts of magnetite. Thirdly, "high" could be expected over mineralized areas because the chalcopyrite is associated with magnetite. Lastly, with increasing overburden the measured magnetic intensity can be expected to be attenuated.

Interpretation of magnetometer data over the Lucky Strike portion to the southeast points to:

1. a circular feature near the SE corner of Amax's grid,
2. a high-low relationship similar to that on the Amex survey
3. a possible fault zone along Christian Creek, and
4. elongated lows that tend to follow creek beds.

The dacite body has no distinctive magnetic signature.

### 7.10 Geophysics--Induced Polarization

7.10.0 Induced polarization coverage exists over the Kennco and Amax grids. Both surveys used a frequency method and provided resistivity data. Three miles of pulse--I.P. survey was done by D. W. Smellie over the adit of the North Zone.

7.10.1 Several areas of higher-than-average per cent frequency effect were outlined on the Kennco grid. (Some of these

were diamond drilled where they coincided with copper geochemical anomalies). Resistivity data indicates a gradient (ENE), decreasing to the south-west, passing diagonally through the Kennco I.P. grid.

- 7.10.2 Higher-than-average per cent frequency effect readings were obtained on two portions of the Amax I.P. survey. There is good correlation between the chargeability and copper geochemical anomalies. A resistivity fall-off occurs on the west portion of the North Zone and coincides well with Christian Creek Valley. It could be extended to continue along the gradient observed on the Kennco survey.
- 7.10.3 The pulse type I.P. survey centered over the adit on the North Zone shows an extensive area of high rock chargeability (at 200 foot electrode spacing) which is strong on two E-W lines 400 feet apart and weaker 400 feet to the north.

#### 7.11 Diamond Drilling

- 7.11.0 Lucky Strike--Kennco drilled a total of 744 feet in four diamond drill holes. It is understood that grades up to 0.2% Copper were encountered. No estimates for molybdenum assays are available.
- 7.11.1 North Zone--the owners drilled about eight small diameter packsack type holes for assessment purposes. The deepest hole being 109 feet. Two other holes were drilled with BQWL equipment to 39 feet and 143 feet. Positioning of these holes was guided by visible mineralization (e.g. near the North Adit), I.P. anomalies (D. W. Smellie's I.P.) and facility in setting up the drill. Recovery with A size core is generally poor. The author did not inspect the core, however, the company reports assays 0.25% Copper. The limited nature of past drilling both relative to depth and horizontal coverage, precludes basing decisions on its results.

#### 8.0 SUMMATION

Choice of exploratory targets in the Princeton area was through the use of aeromagnetic surveys by Kennco (1959) and Amax (1969) which prompted both majors to perform "grass-roots" explorations on the Jura area, based to some extent on the similarity of aeromagnetic data derived from surveys over Copper Mountain and Jura and on the extensive copper mineralization found in the several workings.



Coincidence of exploration results delineated drillable targets on the separate Kennco (1959) and Amax (1969) grid areas. The Kennco targets have been drilled and bear little interest at this time. Attention is presently focused on three anomalous areas on the Amax grid, based on the following assets:

### 8.1 North Zone

1. Geological setting similar to Ingerbelle copper deposit.
2. Surface assays ranging from 5 feet of 0.67% Copper, 0.01% molybdenite to 170 feet of 0.17% Copper, 0.10oz/ton silver. Very little pyrite is evident with the chalcopyrite, bornite, magnetite mineralization.
3. Soil geochemical anomaly measuring 1600 feet by 2400 feet.
4. Induced polarization anomaly, open to edge of grid, overlapping the above mentioned indications of copper mineralization.
5. Thirty-six new claims recently acquired as protection of both North and South Zones, as well as securing any available ground that may cover the copper favourable intrusive-Nicola Volcanics contact.

### 8.2 South Zone

This copper geochemical zone measuring about 1700 feet by 1400 feet lies about 400 feet south of the North Zone and may be found, on detailed study, to be connected to it. The induced polarization anomaly is also open westerly to the survey grid.

### 8.3 Moly Zone

This molybdenum geochemical zone near the north end of the property lies off the main geological-geophysical grid and little follow-up work has been done on this drift covered area.

### 9.0 CONCLUSIONS

The necessity for subsurface testing of these copper-molybdenum anomalies is evident, however, before the drilling



program is commenced it is important to extend the present survey coverage to the new property boundary. In doing so, the hitherto open induced polarization anomalies can be expanded toward the south west while obtaining a fair assessment of the remainder of the property. When this work is completed as recommended, a staged program consisting of percussion and diamond drilling can be proposed to probe all favourable areas on the property.

## 10.0 RECOMMENDATIONS

### 10.1 Statement

Present information indicates three anomalous zones that are open near western edges of the Amax grid. It is recommended that the extent of these anomalies be outlined by continuing the full exploration coverage over the remainder of the claims before testing their source at depth.

### 10.2 Work Program

#### Phase I:

- (1) Perform a claim survey on all claims held by Cop-Ex at Jura.
- (2) Extend the present 400' x 400' grid to the claim perimeter by flagging E-W lines at 400' separation having 100 foot stations.
- (3) Obtain seismic profiles to obtain depth of overburden information to aid interpretation of results and planning of subsurface programs as follows:
  - (a) North Zone - E-W - allow 3,500'
  - (b) South Zone - NNE-SSW - allow 2,500'
  - (c) ND claims to the northwest - allow 2,500'
- (4) Geologically map new grid.
- (5) Perform magnetometer survey over new grid on 100' stations.
- (6) Expand copper-moly soil samples over new grid.

- (7) Extend I.P. survey to delimit previously encountered anomalies.
- (8) Organize and carry out a limited percussion drill hole program covering all target area.

Phase II - Depending on results from Phase I

- (1) Set up a major program of pattern percussion drilling to obtain grade information supported by diamond drilling for both grade and geology.

11.0 COSTS

11.1 Statement

Costs of further exploration depend on the exact area covered by the ND claims. As these ND claims have been staked on the fringe of the Elk, Sleeper claims, it is possible they overlap some of the neighbouring but apparently non-adjacent claims. An allowance of about 50% on these ND claims is made in calculating cost, i.e. 20/37 claims.

11.2 Program Costs

Phase I:

- |     |   |             |
|-----|---|-------------|
| (1) | Survey ND group: 20 claims<br>(transit & chain) allow                                 | \$ 2,800.00 |
| (2) | Grid extension: (20, but 3<br>already covered by Amax) 17<br>claims, ca 20 mi. @ \$80 | 1,100.00    |
| (3) | Seismic survey, 8500' say 1½ mi.<br>@ \$400   | 600.00      |
| (4) | Geology, 20 claims & Report   | 4,500.00    |
| (5) | Magnetometer survey, 25 line mi.<br>@ \$80/line miles & Report                        | 2,500.00    |
| (6) | Soil survey, Cu-Mo 20 claims<br>@ 400' centers, ca samples @<br>\$5.00 & report       | 2,300.00    |



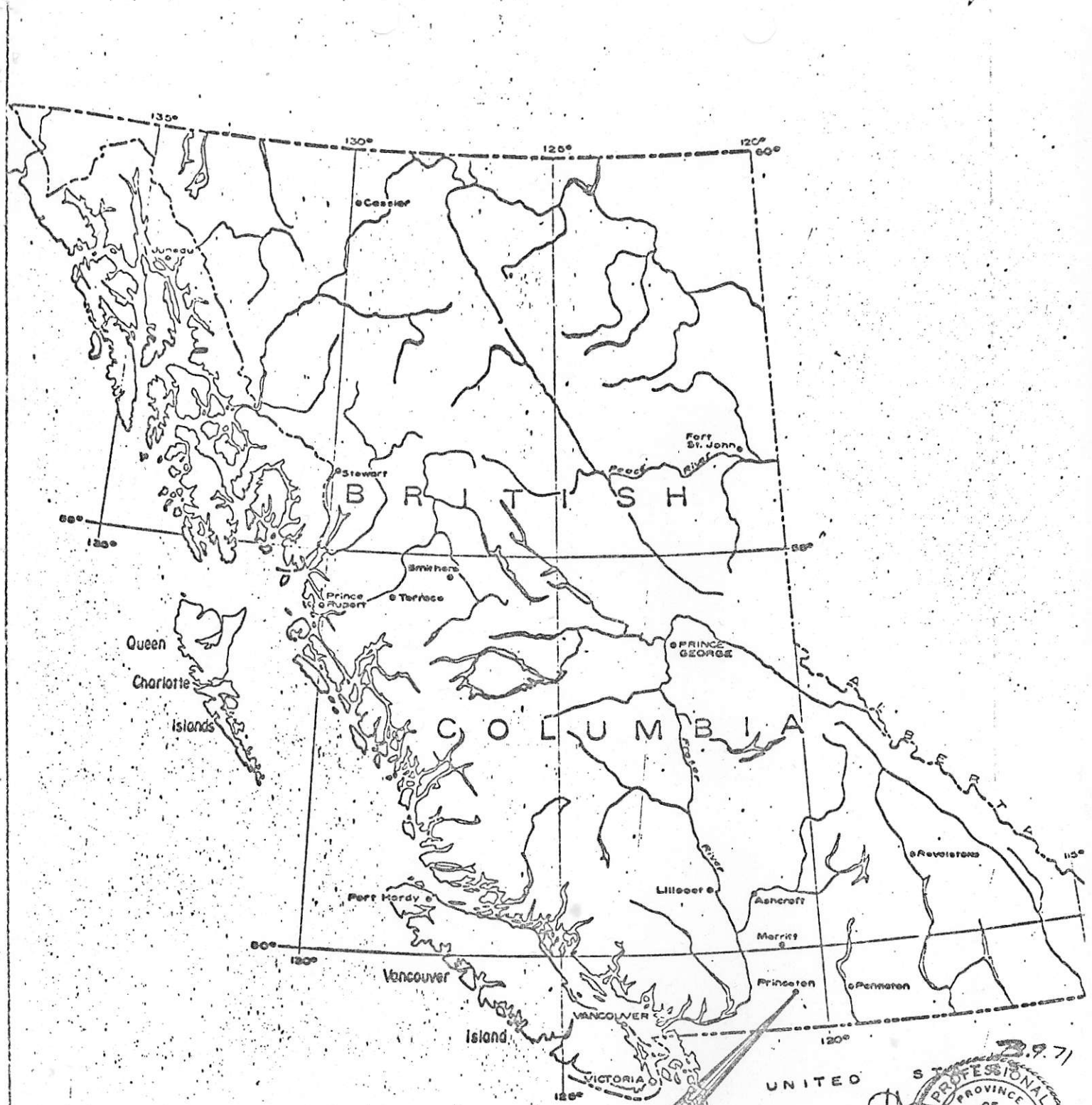
(7) Extending I.P. Survey, allow 4 claims ca 5 mi. @ \$500	<u>2,500.00</u>	
		\$ 18,480.00
(8) Percussion drilling		
15 holes @ 300' @ \$5.00	22,500.00	
- layout, supervision, report	<u>3,750.00</u>	
		43,050.00
Contingencies	<u>4,450.00</u>	
Total Phase I		\$ <u>47,500.00</u>

Respectfully submitted,

L. J. MANNING & ASSOCIATES LTD.

G.E.A. von Rosen, P. Eng.

GEAvR:d1

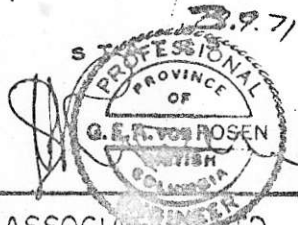


**JURA COPPER PROPERTY**

L.J. MANNING & ASSOCIATES LTD.  
CONSULTING ENGINEERS  
VANCOUVER, B.C.

**COP-EX MINING CORP. L.T.D.**

*LOCATION MAP*

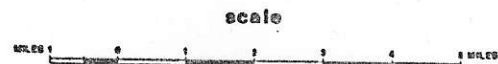


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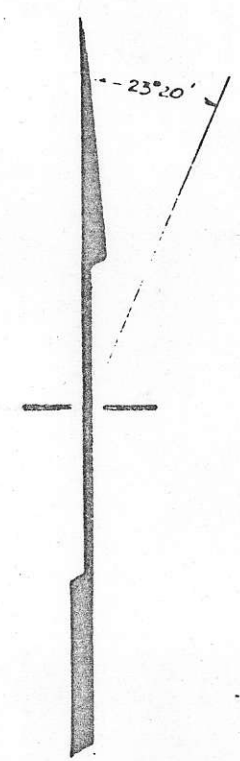
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JURA, B.C. ELKSLEEPER-ND GROUPS  
LOCATION

Date: *Sept 9 1971*



92-H-9-d

NOTE — Aeromagnetic Survey by Hunting Survey Corp. Ltd.  
 for Kennco Explorations (Western) Limited — Mar-Apr 1960  
 Terrain Clearance  $\pm 500'$  Lines at  $060^\circ$  at  $1/4$  mile



L. J. MANNING & ASSOC. LTD  
 COP-EX MINING CORP. LTD.  
 JURA, B.C. ELK-SLEEPER-ND GROUPS  
 AEROMAGNETIC CONTOUR PLAN

Date: *Sept 3*

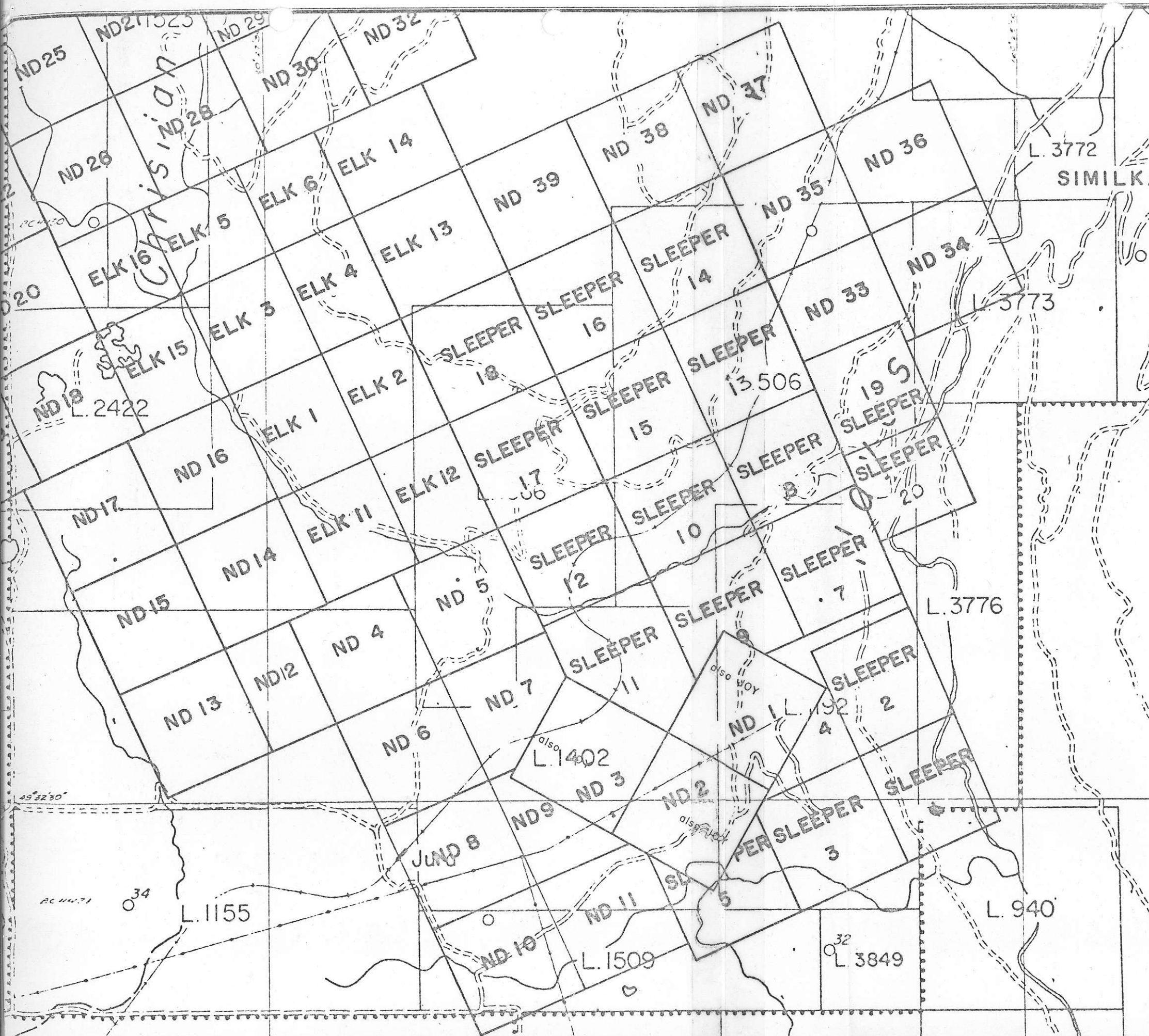
1 in. = 1320 feet

PROFESSIONAL  
 PROVINCE  
 OF  
 G. E. A. SWAN ROSE  
 BRITISH  
 COLUMBIA  
 ENGINEER

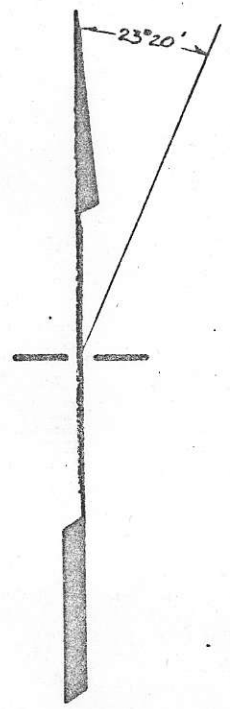
*[Signature]*

92-H-9-d





SIMILKAMEEN MINING DIVISION



L.J. MANNING & ASSOC. LTD  
 COP-EX MINING CORP. LTD.  
 JURA, B.C. ELK-SLEEPER-ND GROUPS

**CLAIMS**

(approximate locations)

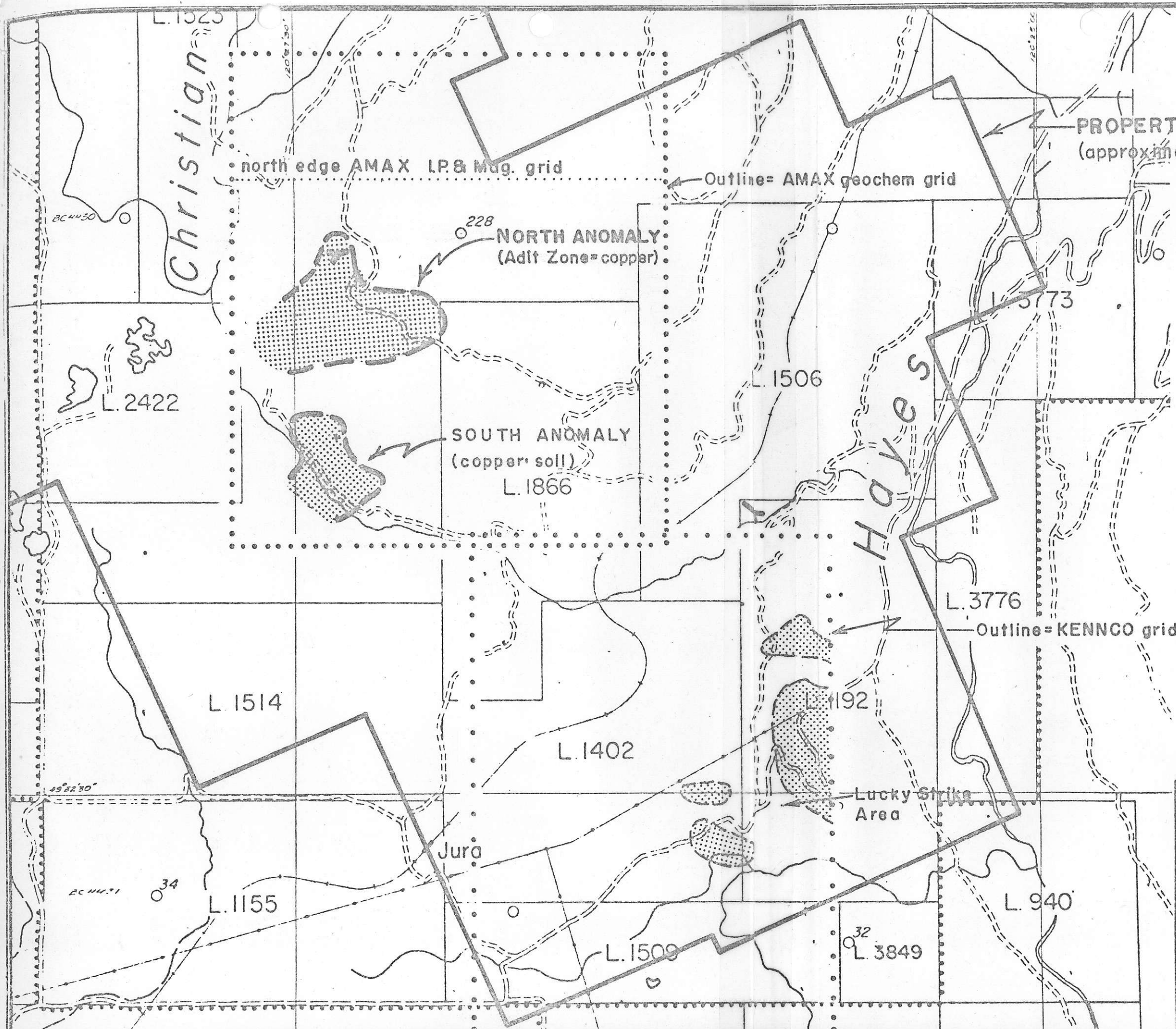
Date: Sept 37



1 in. = 1320 feet

92-H-9-d





PROPERTY OUTLINE  
(approximate only)

north edge AMAX I.P. & Mag. grid

Outline= AMAX geochem grid

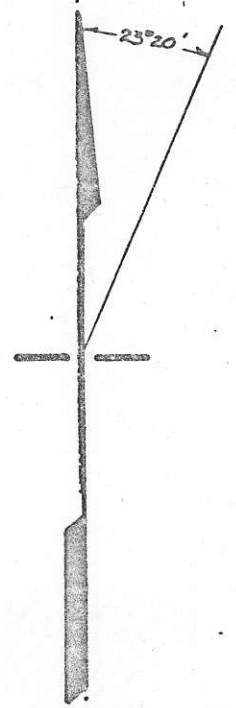
228  
NORTH ANOMALY  
(Adit Zone=copper)

SOUTH ANOMALY  
(copper soil)  
L. 1866

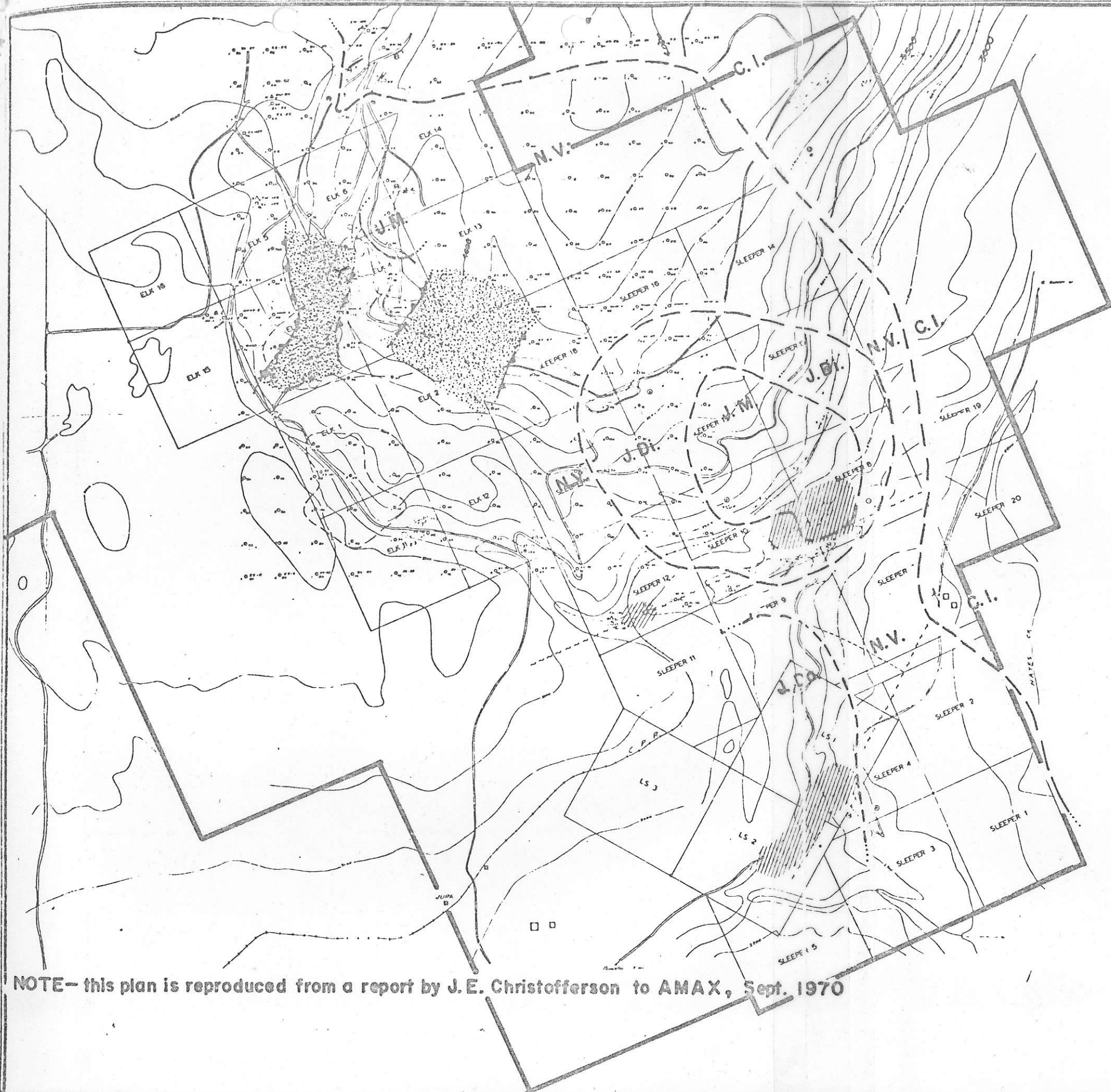
L. 3776  
Outline=KENCO grid

Lucky Strike  
Area

**L.J. MANNING & ASSOC. LTD**  
**COP-EX MINING CORP. LTD.**  
 JURA, B.C. ELKSLEEPER-ND GROUPS  
 PROPERTY & GRID OUTLINES  
 (showing copper geochem anomalies)  
 Date: Sept 3, 1992  
 1 in. = 1320 feet  
 NTS: 92-H-9d

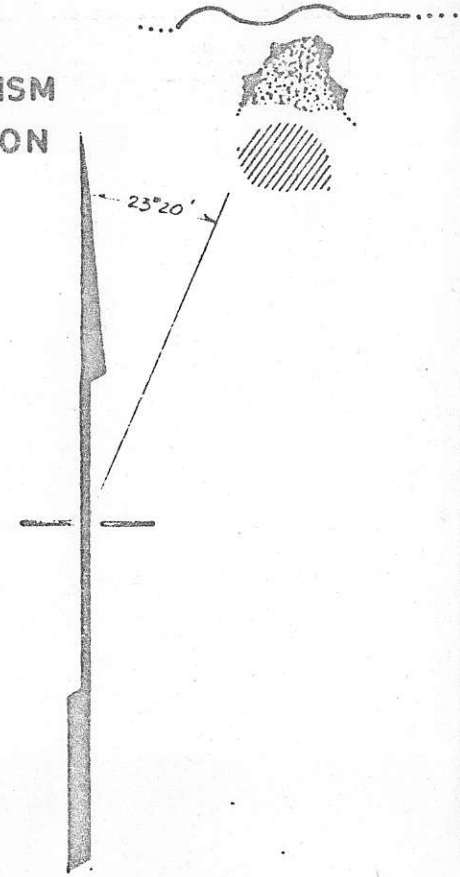






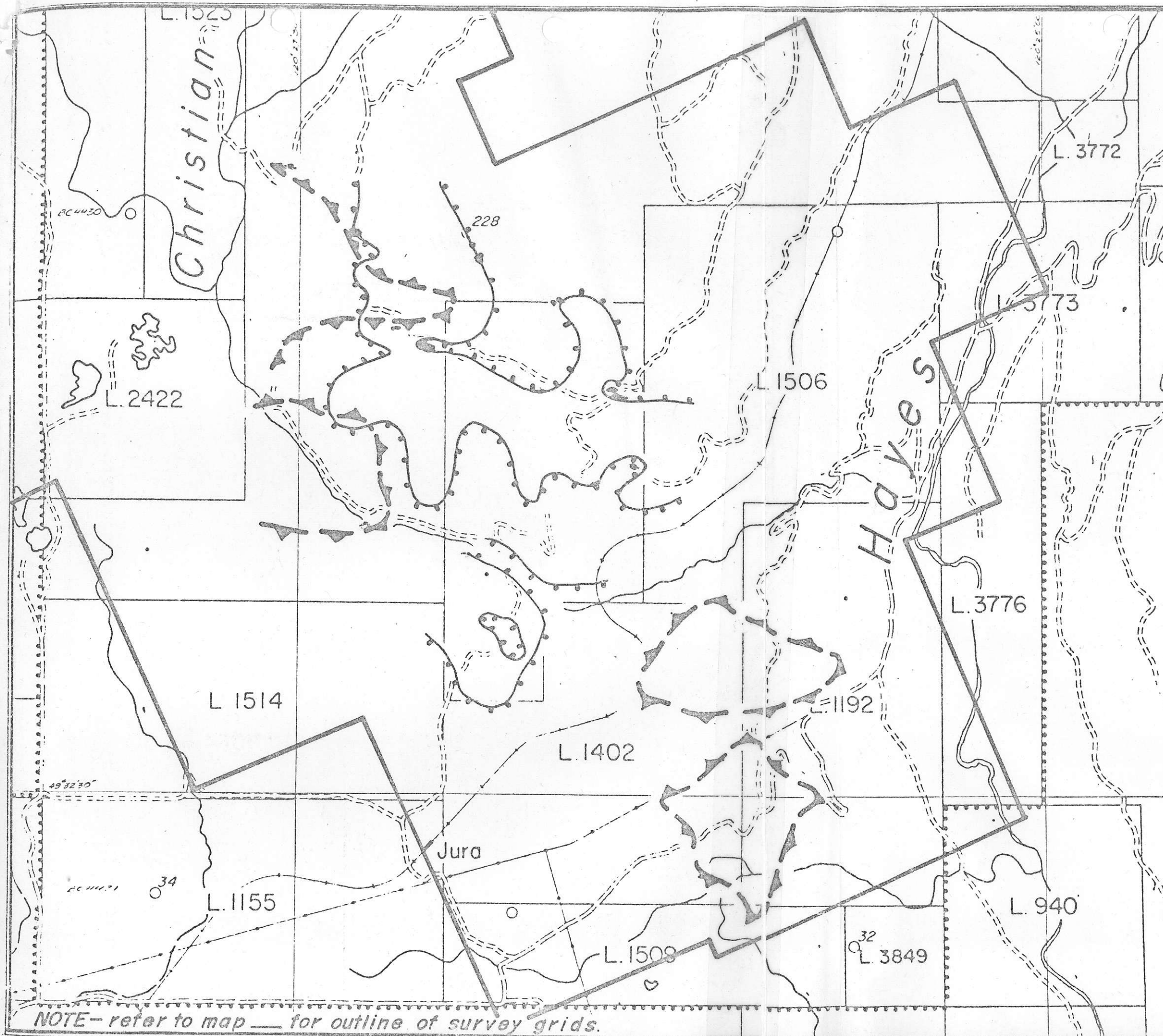
**LEGEND**

- COAST INTRUSION C.I.
- NICOLA VOLCANICS N.V.
- JURA VOLCANIC COMPLEX
  - DIORITE, MONZONITE J.Di J.M.
  - DACITE J.Da.
- CONTACTS
  - ZONE OF METASOMATISM
  - ZONE OF PYRITIZATION





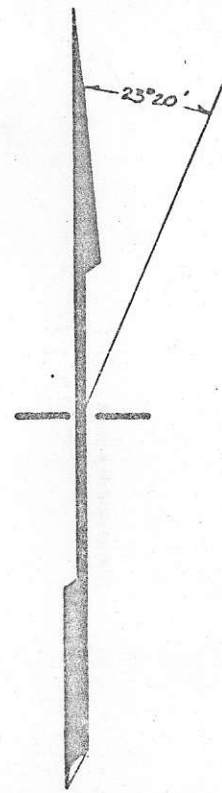
NOTE— this plan is reproduced from a report by J.E. Christofferson to AMAX, Sept. 1970

L.J. MANNING & ASSOC. LTD  
 COP-EX MINING CORP. LTD.  
 JURA, B.C. ELK-SLEEPER-ND GROUPS  
**GEOLOGY**  
 (GENERAL ENGINEER)  
 Date: Sept 37  
 1 in. = 1320 feet  
 92-H-9-d



**LEGEND**

Induced Polarization Results =  
 =anomalous=   
 Ground Magnetometer Results =  
 =highs: 3800 γ±= 



**L.J. MANNING & ASSOC. LTD**  
**COP-EX MINING CORP. LTD.**  
 JURA, B.C. ELKSLEEPER-ND GROUPS  
**I.P. & MAG. INTERP.**

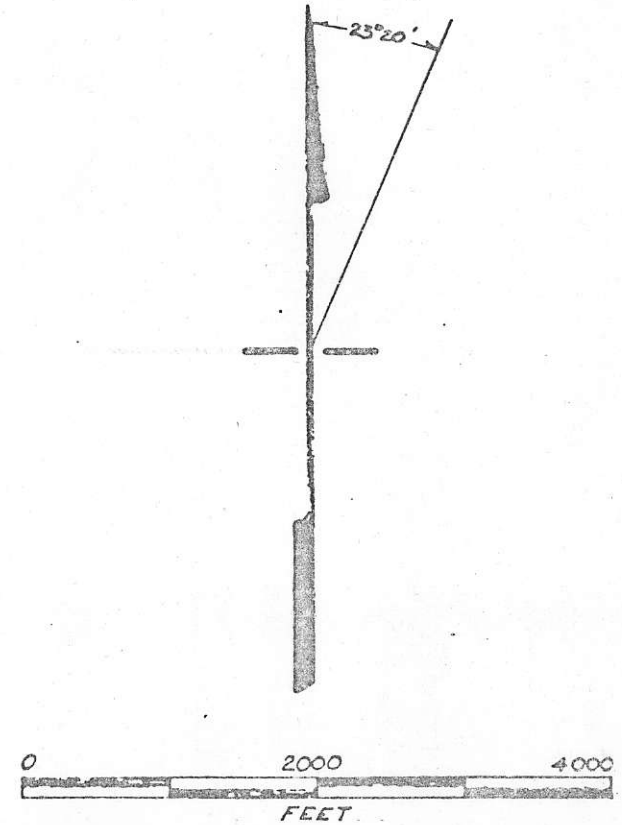
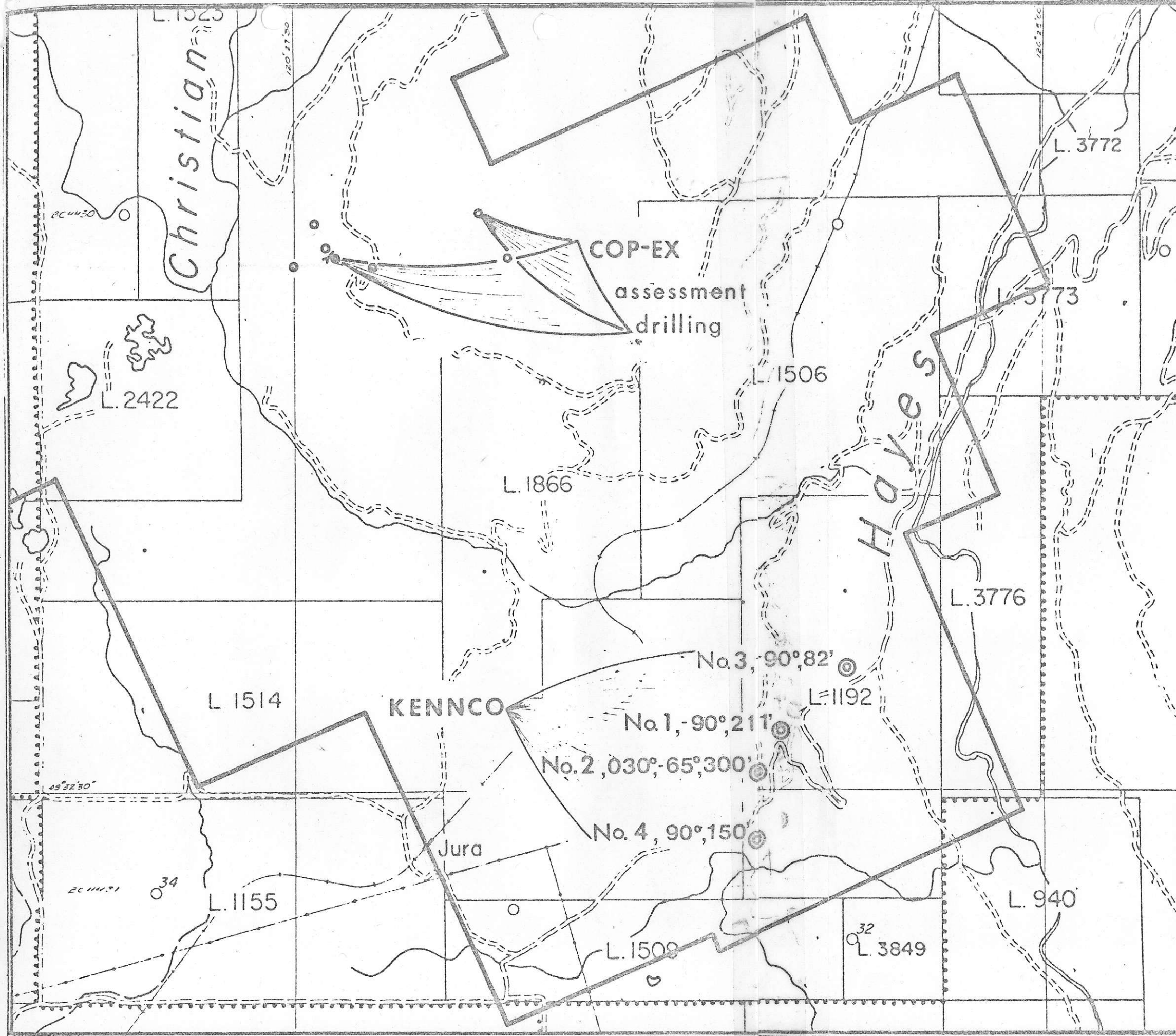
Date: *Sept 3 77*  
 1 in. = 1320 feet



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NOTE— refer to map — for outline of survey grids.





**L.J. MANNING & ASSOC. LTD.**  
**COP-EX MINING CORP. LTD.**  
 JURA, B.C. ELKSLEEPER-ND GROUPS  
 PREVIOUS DIAMOND DRILLING

Date: *Sept 3, 1992*  
 1 in. = 1320 feet  
 NTS: 92-H9d

