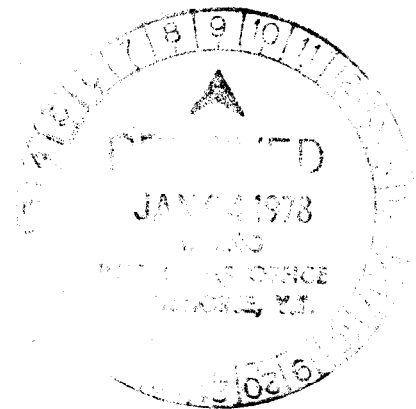
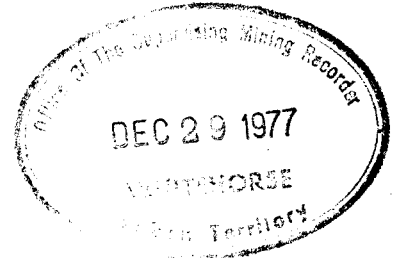


COMBINED GEOLOGICAL AND GEOPHYSICAL  
REPORT ON THE  
TAH 1 - 42 CLAIMS  
115H/15

61°46'      136°46'

NORANDA EXPLORATION COMPANY, LIMITED  
(NO PERSONAL LIABILITY)



B. Fairbank  
L. Bradish  
G. Fenton

September 21 - 29, 1977

090265

This report has been examined by the  
Geological Exploration Unit and is  
returned to the applicant to be  
used as a guide in the future.

150,150.00

*[Handwritten signature]*

Department of the Interior  
Bureau of Land Management  
Washington, D.C.

*[Handwritten signature]*

B. R. BAXTER  
Supervising Mining Recorder

Department of the Interior  
Territory

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COMBINED GEOLOGICAL AND GEOPHYSICAL REPORT

on the

TAH 1 - 42 CLAIMS

INTRODUCTION

The claims referred to in this report are registered in the name of Noranda Exploration Company, Limited (No Personal Liability). The group consists of 42 TAH claims as follows:

<u>CLAIM NAME</u>	<u>GRANT NUMBER</u>
TAH 1 - 42	YA19437 - YA19478

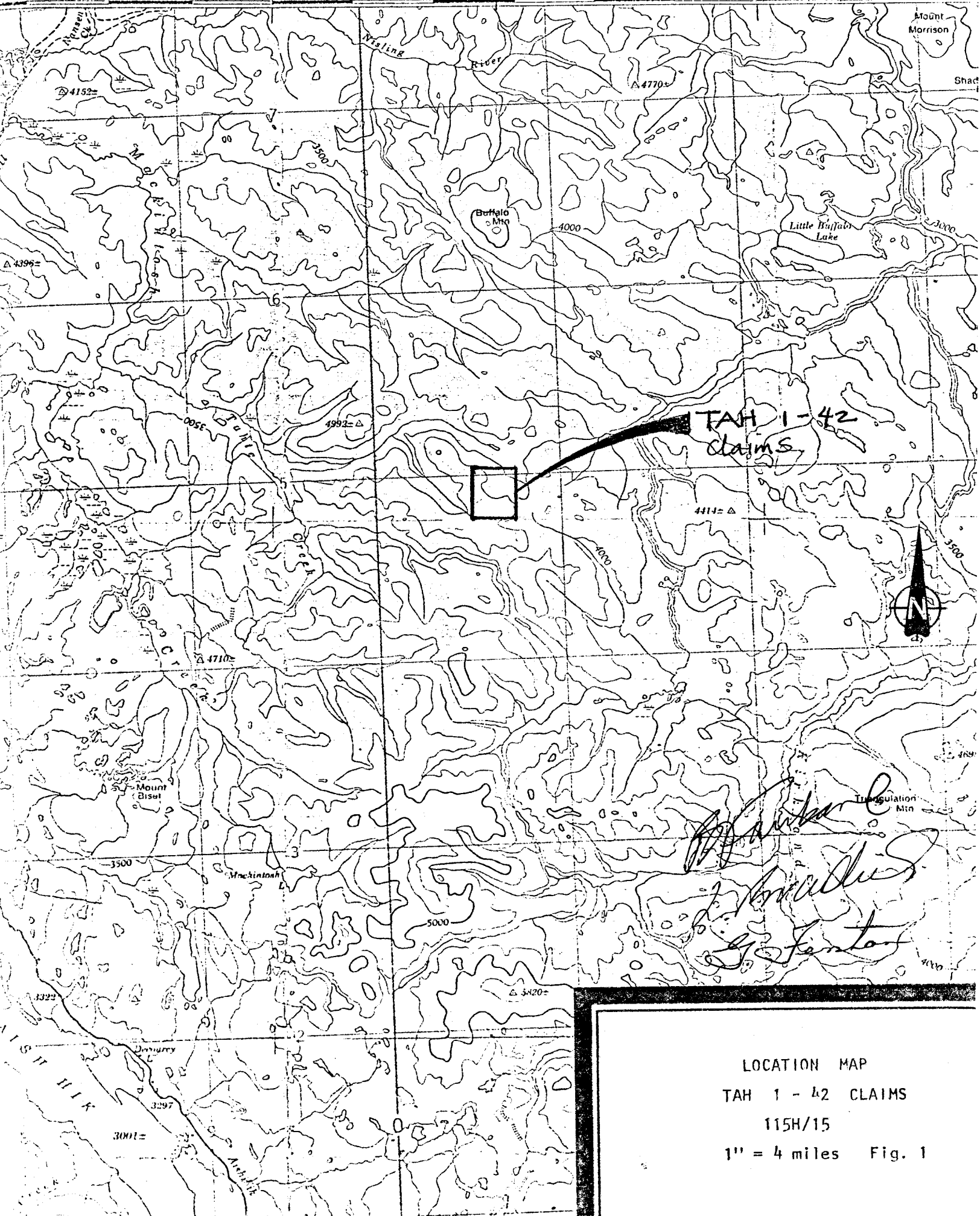
The TAH property is located in the headwaters of Tahte Creek on claim sheet 115H/15 approximately 26 miles SW of Carmacks, Yukon. Access is by helicopter from Carmacks.

During the period Sept. 21 - 29, 1977 13.94 miles of line-cutting, 12.76 line-miles of IP, 22.68 miles of mag and a geological survey were completed by Noranda Exploration Company, Limited. Results of this and earlier work are included in this report although only costs incurred during September are applied for assessment credit.

Mapping and survey control is provided by chained and compassed E-W lines 500 and 1000 feet apart tied to a N-S baseline at 100E and N-S tie-lines at 30E and 70E. Lines have picketed stations at 200 foot intervals forming a grid pattern. Survey results are presented on grid map at a scale of 1 inch = 400 feet.

TABLE 1: Summary of Work Applicable for Assessment

<u>Line</u>	<u>Line Cutting</u>	<u>IP</u>	<u>Mag</u>	<u>Geology</u>
BL 100E	190 - 220N	-	-	
TL 70E	185 - 220N	-	-	
TL 130E	140 - 220N	-	-	
100N	-	-	80 - 120E	
110N	-	-	80 - 116E	
120N	-	-	76 - 116E	
130N	-	-	76 - 116E	
140N	118 - 150E	118 - 146E	76 - 150E	
150N	110 - 150E	110 - 146E	76 - 150E	
155N	70 - 130E	78 - 126E	76 - 130E	
160N	130 - 150E	130 - 146E	76 - 150E	
165N	70 - 130E	80 - 126E	76 - 130E	
170N	130 - 150E	130 - 146E	76 - 150E	
175N	70 - 130E	78 - 126E	76 - 130E	
180N	130 - 150E	-	76 - 130E	
185N	70 - 130E	54 - 126E	70 - 130E	
190N	50 - 74E	54 - 74E	50 - 150E	
	130 - 150E	130 - 146E		
195N	70 - 130E	74 - 126E	70 - 130E	
200N	50 - 150E	54 - 146E	50 - 150E	
210N	50 - 150E	54 - 146E	50 - 150E	
220N	50 - 150E	54 - 146E	50 - 150E	



TAH 1-42  
claims



*Handwritten signatures and initials, including 'J. Brubaker' and 'G. J. ...'*

LOCATION MAP  
TAH 1 - 42 CLAIMS  
115H/15  
1" = 4 miles Fig. 1

## GEOLOGICAL SURVEY

Geological mapping of a preliminary nature was done by B. Fairbank, geologist for Noranda Exploration Company, Limited. Geology of the claims is presented on Drawing 2 of this report.

### Rock Types

The TAH 1 - 42 claims are underlain entirely by intrusive rocks. Three lithologies are distinguished as summarized in the following table:

Table 2: Intrusive Rock Types

PPY	FELDSPAR PORPHYRY: feldspar +/- hornblende phenocrysts to 3mm in medium to dark green fine-grained ground mass.
QM:	QUARTZ MONZONITE: deeply weathered, coarse-grained, leucocratic quartz monzonite.
GD	HORNBLLENDE GRANODIORITE: coarse-grained, foliated biotite hornblende granodiorite.

Triassic biotite hornblende granodiorite (GD) is genetically equivalent to the Klotassin Batholith granodiorite suite (1151,J) and is the oldest rock unit in the area. The granodiorite is regionally homogeneous and typically fresh appearing with minor chloritization of biotite and hornblende. Foliation with regional trend NW is defined by rough alignment of coarse biotite and hornblende crystals. Local mafic-rich composition layering is conformable to foliation. Sulphides and hydrothermal alteration are notably absent.

Coarse-grained, leucocratic quartz monzonite (QM) invades the granodiorite unit with minimal contact effect. Rocks are deeply weathered and composed mainly of quartz and partly-decomposed feldspar. Limonite and jarosite weathering products are widespread. Iron oxide on surface suggests that pyrite may be present beneath the oxidation zone.

Hydrothermal alteration of quartz monzonite is difficult to identify because of the pervasive weathering overprint. Kaolinite, sericite and silica alteration are noted between L170N and 180N near 80E. The limits and significance of this zone are unknown.

The age of the quartz monzonite is thought to be Triassic because of its spacial relationship to Triassic hornblende granodiorite. In the Aishihik area quartz monzonite invades the granodiorite unit exclusively and contacts are generally gradational.

Feldspar porphyry and hornblende feldspar porphyry (PPY) intrude both quartz monzonite and hornblende granodiorite. Porphyry forms a plug approximately 3600 feet by 6000 (?) feet in the Southern half of the claim group and occurs as dykes up to 400 feet thick trending NW to the north of the plug. Feldspar porphyry typically has a medium-green fine-grained to aphanitic groundmass with crowded feldspar phenocrysts to 3mm. in length.

Hornblende feldspar porphyry has a similar appearance and has not been differentiated in preliminary mapping. Composition and texture is variable. Rocks are weakly to strongly magnetic and locally contain pyrite and minor hematite.

Alteration of porphyritic rocks has not been studied in detail and the following observations are of a general nature. Weak to moderate propylitic alteration (chlorite, epidote, carbonate) has been mapped at several locations in the NW quadrant of the grid (150N; 94E; 170N; 90E; 170N; 76E; 195N; 96E; 210N; 84E). Appreciable silica and pyrite in angular float is noted at 206N, 78E.

The porphyry unit is younger than quartz monzonite and hornblende granodiorite as evidenced by contact relations. It is considered to be Tertiary (Eocene?) because of its similar lithology to other Tertiary porphyries in the region (Casino, 115J; Cash 115I).

## GEOPHYSICAL SURVEY

### I.P. SURVEY

#### Introduction

The Induced Polarization and Resistivity Surveys were carried out by Noranda Exploration Company, Limited between the dates September 24 to September 27, 1977. The survey crew members were L. Bradish, G. Fenton, Geophysicists, M. Vetterli and B. Fairbank all under the supervision of L. Bradish. All personnel are Noranda employees.

Frequency domain equipment, manufactured by Sabre Electronic Instruments Ltd., was utilized for the survey. A "dipole - dipole array" was employed through out the survey with dipole lengths of 400 feet and frequencies of 0.3Hz. and 5.0Hz. Readings were recorded at intervals of 400 feet for the first (n=1) separation. A total of 12.76 miles of readings were obtained.

#### Method

The transmitter generates an alternating current flow between the two current electrodes (C1 and C2). The resulting induced voltage is measured across the receiver dipole, employing two porous pots (P1 and P2).

A four man crew, one man at each electrode, carried out the survey moving electrodes, wires and instruments every 400 feet along the survey line.

At each set-up, the following is recorded:

- 1) Station location of electrodes (C1, C2, P1, P2).
- 2) Transmitter current in milliamps at 5.0 Hz.
- 3) Voltage as measured by the receiver in millivolts.

The frequency of the transmitter is then changed to 0.3Hz and the current amplitude is adjusted to be the same as in step 2.

- 4) The receiver then measures the voltage at 0.3Hz and is recorded as a percent deviation, caused only by the change in the frequency of the current.

Percent Frequency Effect (P.F.E.) is defined as the percent change in the measured resistivity caused by a change in the frequency of current. Since the transmitted current amplitude is the same at both frequencies, and resistivity is directly proportional to voltage, it follows that percent change in resistivity (P.F.E.) is equal to the percent change in voltage (percent deviation).

The apparent resistivity value at 5.0Hz is calculated from the following equation.

$$\rho_a / 2\pi = \frac{V}{I} G x$$

where:  $\rho_a$  = apparent resistivity  
V = millivolts  
I = milliamps  
G = geometric factor for array used  
x = dipole separation in feet

### Presentation of Results

The results of the survey are presented on two plan maps at a scale of 1" = 400'.

Drawing G.1 shows the Percent Frequency Effect contoured at intervals of 3.0, 5.0, 7.5, 10, 12.5, 15 and 20 percent. Drawing G.2 shows the calculated apparent resistivity values in ohm-feet. Contour interval is 200 ohm-feet.

### MAGNETOMETER SURVEY

#### Introduction

The magnetometer survey was carried out by L. Bradish, G. Fenton and B. Fairbank (all employees of Noranda Exploration Company, Limited) between September 22 - 27, 1977, under the supervision of L. Bradish.

Two magnetometers were used:

- 1) McPhar model M700 manufactured by McPhar Geophysics of Don Mills, Ontario.
- 2) Scintrex model MF2 manufactured by Scintrex of Concord, Ontario.

The relative, vertical component of the magnetic field (in gammas) was recorded at 100 foot intervals on a regular grid for a total of 22.7 miles.

### Field Procedure

The magnetometer was adjusted on the property such that most readings or the "background" values would fall within the lowest positive range in order to attain the highest accuracy. This adjustment, once made is not changed for the duration of the survey.

Diurnal corrections were not applied to the raw data. Instead, the two instruments were initially calibrated to a common reading at station 180N - 100E. Checks made throughout the day indicated the instrument and diurnal drifts were minimal.

### Presentation of Results

The results are plotted on a grid plan map (drawing G3) at a scale of 1 inch equals 400 feet and contoured at an interval of 200 gammas.

### Discussion of Results

The I.P. plan maps show the results recorded at two different periods. An initial grid with line spacing of 1000 feet was surveyed prior to staking. The data recorded during September 1977 consists of 12.76 miles of intermediate lines and extensions to the North and East. The initial I.P. survey data is included for completeness only.

Frequency Effect values range from 0% to 20.75% with a background of 1.5% to 2.0%. A large number of readings were unobtainable due to poor ground conditions. The P.F.E. anomaly is well defined to the North East, East and South but open to the West. A high P.F.E. "ridge" striking NW/SE, is the most prominent feature of the P.F.E. data. It is flanked on the East by low background values, and to the West, by intermediate values. A distinct resistivity low (less than 100  $\Omega$  ft.) is coincident with this P.F.E. "ridge" whereas in areas of low P.F.E. the values are typically much greater (300  $\Omega$  ft. to 2220  $\Omega$  ft.) Intermediate resistivity values flank the West side of this low and higher values flank the East side.

The relative vertical magnetic field map (G3) indicates the area possesses considerable magnetic relief with values ranging from a low of -470 to a high of 2110 gammas. The background is about 300 gammas. Several notable features in the magnetic pattern are:

- 1) A dominant magnetic high about 130N/95E is coincident with the feldspar porphyry.

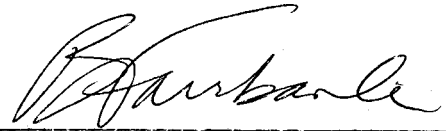
- 2) A generally subdued response over the main valley (165N/100E to 200N/100E) with a slight increase of 600 gammas in the core over the main I.P. anomaly at 180N/105E.
- 3) A low relief area in the northeast sector of the grid associated with the granodiorite.
- 4) Isolated magnetic highs on the margin of the main valley, particularly to the west and southeast, are coincident with rock outcrops on topographic highs.

CONCLUSIONS AND RECOMMENDATIONS

The I.P. and geology surveys indicate the potential for a porphyry type Cu-Mo occurrence associated with the feldspar porphyry unit.

Additional soil sampling, detailed mapping and alteration studies are recommended prior to drilling when economic conditions permit.

Submitted by




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B. Fairbank  
Geologist



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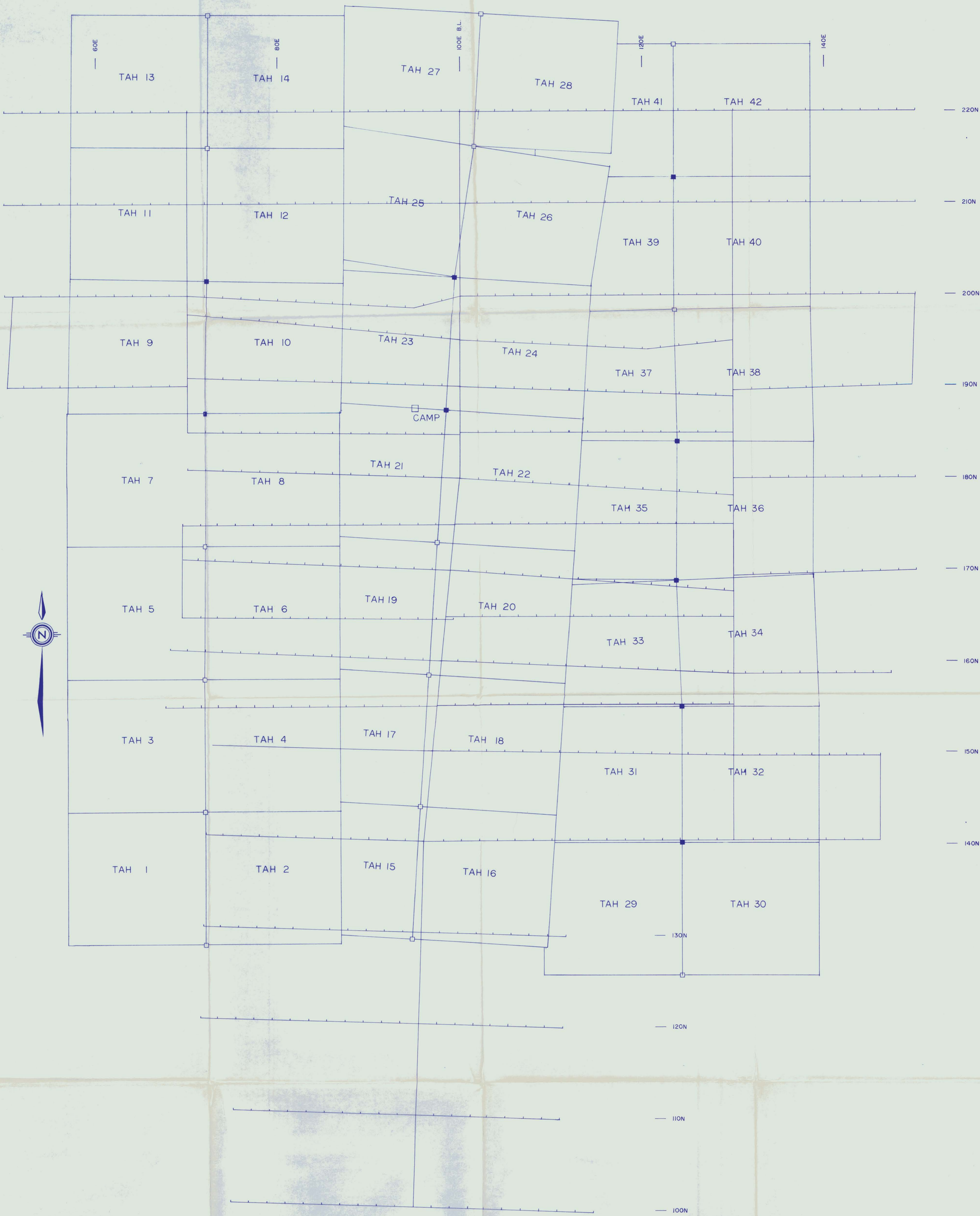
L. Bradish  
Geophysicist



---

G. Fenton  
Geophysicist

Dec 8, 1977



TO ACCOMPANY GEOLOGICAL AND GEOPHYSICAL ASSESSMENT REPORT ON  
 TAH 1-42 MINERAL CLAIMS BY B. FAIRBANK, L. BRADISH AND G. FENTON.  
 DATED: DECEMBER 5, 1977.

*B. Fairbank*  
*L. Bradish*  
*G. Fenton*

■ claim post, location defined  
 □ location approximate

TAHTE CREEK (EM 40-43)	
CLAIM MAP	
PROJ. No. 911	SURVEY BY: ..... DATE: NOV., 1977
N.T.S. 1:50,000	DRAWN BY: G.F., BDF. SCALE: 1" = 400'
DWG. No. 1	NORANDA EXPLORATION VANCOUVER



NOTE  
 TO ACCOMPANY GEOLOGICAL AND GEOPHYSICAL ASSESSMENT REPORT ON  
 TAHE 1-42 MINERAL CLAIMS BY B FAIRBANK, L BRADSHAW & G FENTON  
 DATED DECEMBER 8, 1977

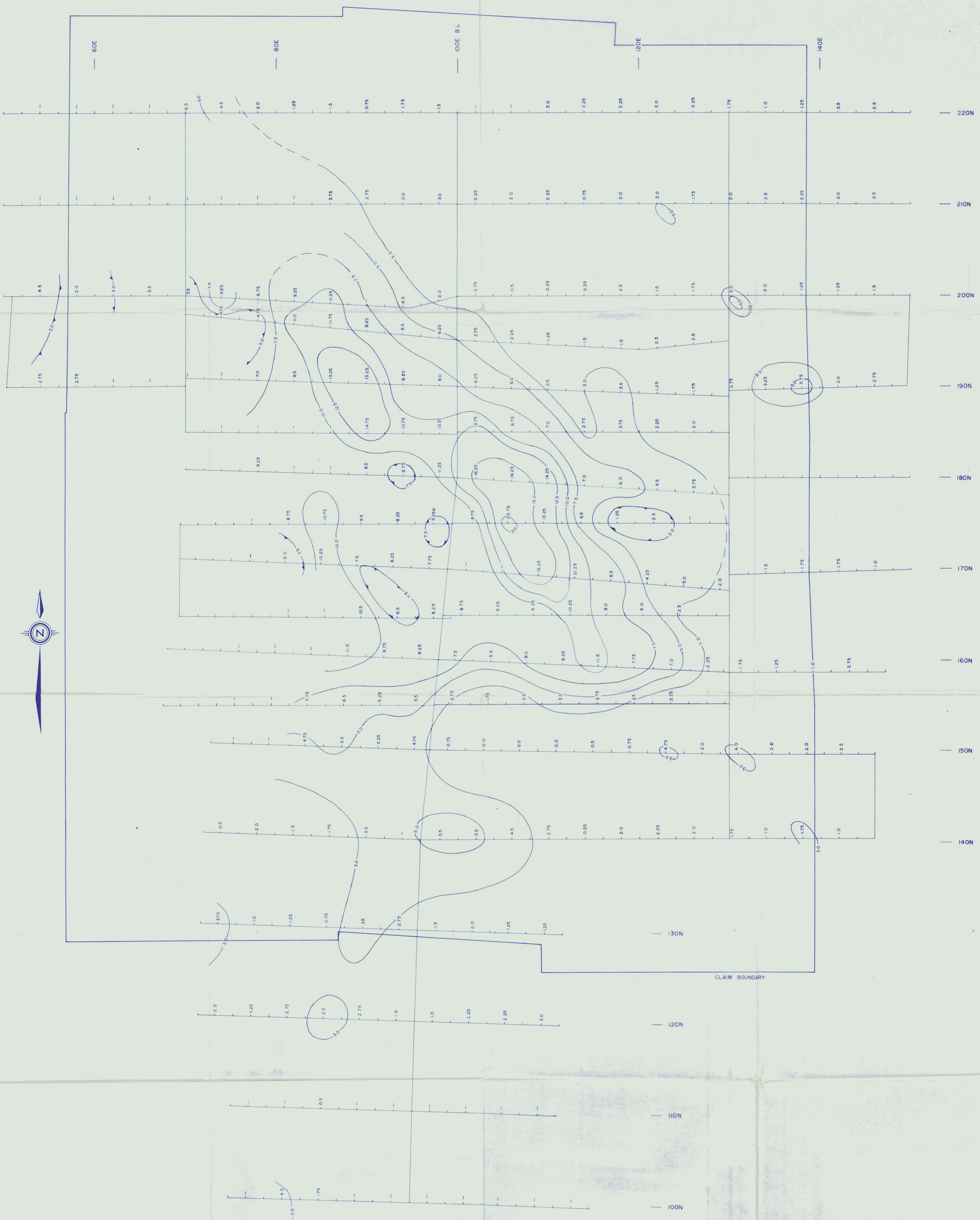
*B. Fairbank*  
*L. Bradshaw*  
*G. Fenton*

LEGEND

- SYMBOLS**
- CAMPSITE
  - ▲ HEIGHT OF LAND
  - AREA OF OUTCROP
  - x FROST BOIL; ANGULAR ROCK FRAGMENTS
  - 15 FOLIATION; STRIKE, DIP
  - - - CONTACT; DEFINED, INFERRD, ASSUMED

- ROCK TYPES**
- PPY FELDSPAR PORPHYRY: Medium-green magnetic feldspar porphyry and hornblende feldspar porphyry; texture and composition variable; feldspar and hornblende phenocrysts are up to 3 mm in length in a fine-grained to aphanitic groundmass.
  - QM QUARTZ MONZONITE: Deeply weathered, locally altered, leucocratic (mafics 0-2%) granite to quartz monzonite; locally quartz rich; jarosite and limonite weathering products
  - GD GRANODIORITE: Fresh foliated, medium to coarse grained biotite hornblende granodiorite; local mafic-rich composition layering; regionally homogeneous

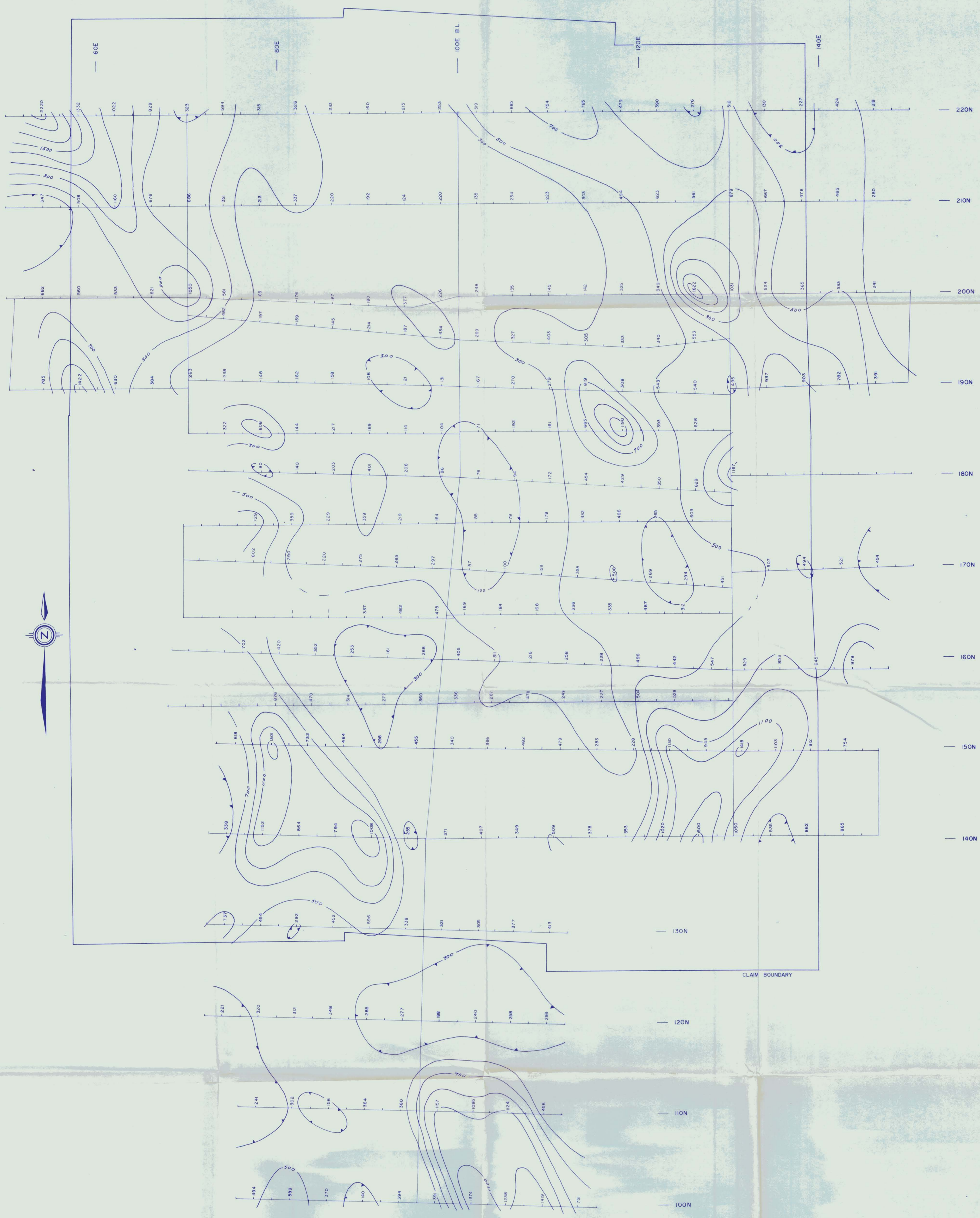
TAHE CREEK (EM 40-43)	
GEOLOGICAL PLAN	
PROJ. No. _____	SURVEY BY: B.F. _____ DATE: NOV 8 1977
N.T.S. 1:50,000	DRAWN BY: G.F., B.F. _____ SCALE: 1" = 400'
DWG. No. 2	NORANDA EXPLORATION
	VANCOUVER



TO ACCOMPANY GEOLOGICAL AND GEOPHYSICAL ASSESSMENT REPORT ON  
 TAH 1-42 MINERAL CLAIMS BY B. FAIRBANK, L. BRADISH AND G. FENTON.  
 DATED: DECEMBER 8, 1977

*B. Fairbank*  
*L. Bradish*  
*G. Fenton*

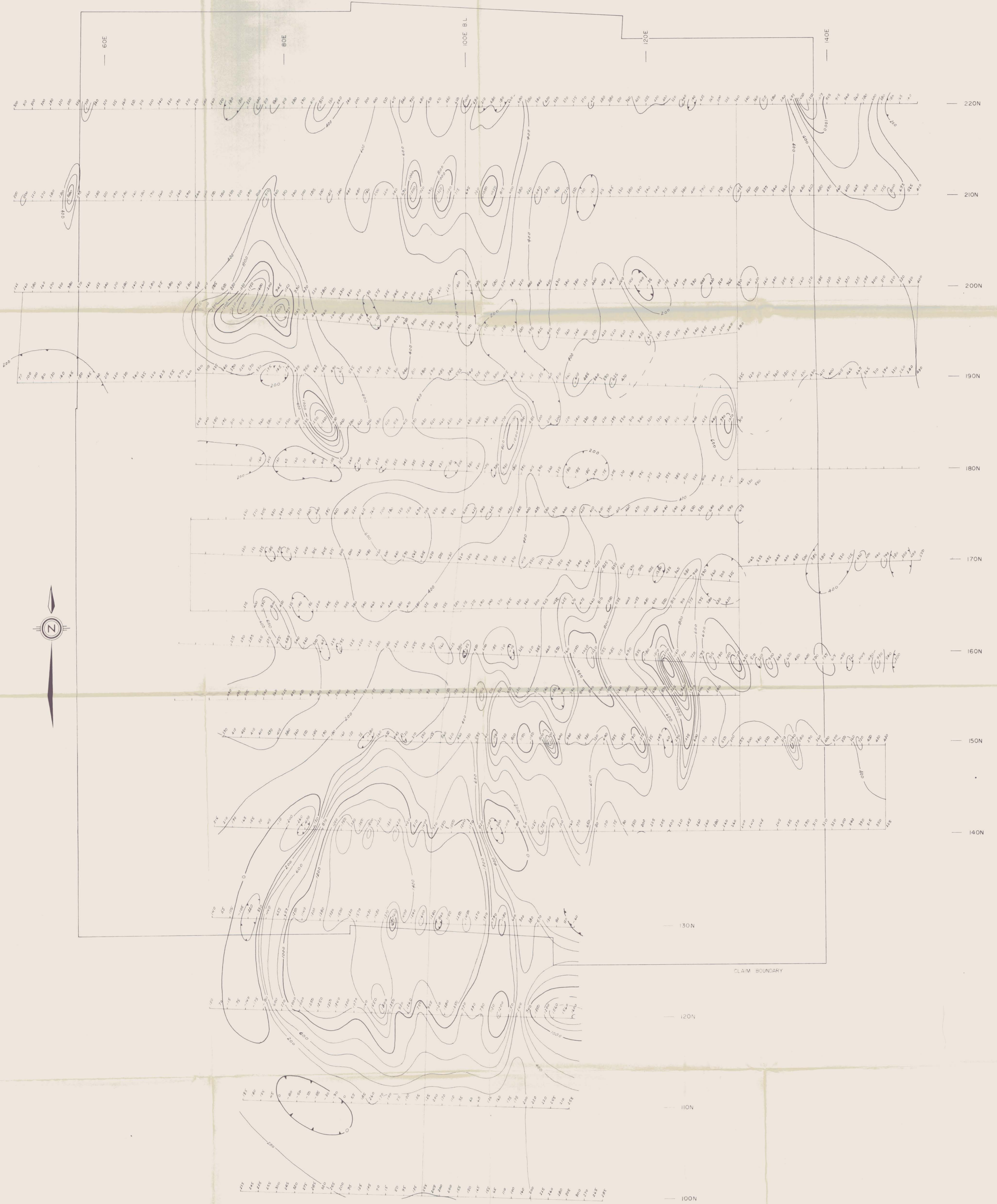
TAHTE CREEK (EM 40-43)	
I.P. SURVEY	
PERCENT FREQUENCY EFFECT	
n=1 FREQ 0.3 & 5.0 Hz	
θ = 40° ARRAY DIPOLE - DIPOLE	
CONTOUR INTERVAL 30, 50, 75, %	
PROJ No 911	SURVEY BY LCB, SF, MV. DATE: JULY - SEPT, 1977
N.T.S. 1:50,000	DRAWN BY: G.F. SCALE: 1" = 400'
DWG No	
GI	NORANDA EXPLORATION
	VANCOUVER



TO ACCOMPANY GEOLOGICAL AND GEOPHYSICAL ASSESSMENT REPORT ON  
 TAH 1-42 MINERAL CLAIMS BY B. FAIRBANK, L. BRADISH AND G. FENTON.  
 DATED: DECEMBER 21, 1977.

*B. Fairbank*  
*L. Bradish*  
*G. Fenton*

TAHTE CREEK (EM 40-43)	
I.P. SURVEY APPARENT RESISTIVITY, $\rho_a$ $n=1$ FREQ 0.3 & 5.0 Hz. $a=400'$ ARRAY: DIPOLE-DIPOLE CONTOUR INTERVAL 100, 300, 500, ... ohm-feet	
PROJ No. 911	SURVEY BY: LCB, GF, MV DATE: JULY - SEPT, 1977
N.T.S. 1:50,000	DRAWN BY: GP SCALE: 1" = 400'
DWG No.	NORANDA EXPLORATION
G2	VANCOUVER



TO ACCOMPANY GEOLOGICAL AND GEOPHYSICAL ASSESSMENT REPORT ON  
 TAH 1-42 MINERAL CLAIMS BY R. FAIRBANK, L. BRADISH AND G. FENTON  
 DATED DECEMBER 8, 1977

*R. Fairbank  
 L. Bradish  
 G. Fenton*

TAHTE CREEK (EM 40-43)	
MAGNETOMETER SURVEY RELATIVE VERTICAL FIELD	
CONTOUR INTERVAL = 200 $\gamma$	
PROJ No 911	SURVEY BY LCB,GF,BDF DATE SEPTEMBER 1977
1:7.5 SH/5	DRAWN BY GF SCALE 1:1,400
CWG No	<b>NORANDA EXPLORATION</b>
G 3	VANCOUVER