COMBINED GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT ON THE PEAK 1 - 16 CLAIMS

105F/10

61°37' 132°48'

NORANDA EXPLORATION COMPANY, LIMITED
(NO PERSONAL LIABILITY)

B. Fairbank

L. Bradish

September 20 - 21, 1976

August 5 - 12, 1977

090258

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 $5600.00

Resident Geologist or
~~Resident Mining Engineer~~

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

B. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

Office Of The Supervising Mining Recorder
NOV - 7. 1977
WHITEHORSE
Yukon Territory

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MAPS IN POCKET

COMBINED GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL

Report on the

PEAK 1 - 16 CLAIMS

INTRODUCTION

The claims referred to in this report are registered in the name of Noranda Exploration Company, Limited (No Personal Liability). The claim group consists of 16 PEAK claims as follows:

CLAIM NAME	GRANT NUMBER
PEAK 1	YA 00865
PEAK 2	YA 00866
PEAK 3	YA 00867
PEAK 4	YA 00868
PEAK 5	YA 00869
PEAK 6	YA 00870
PEAK 7	YA 00871
PEAK 8	YA 00872
PEAK 9	YA 20160
PEAK 10	YA 20161
PEAK 11	YA 20162
PEAK 12	YA 20163
PEAK 13	YA 20164
PEAK 14	YA 20165
PEAK 15	YA 20166
PEAK 16	YA 20167

The PEAK claims are located approximately 30 miles SSW of Ross River approximately 3 miles north of Pass Peak on claim sheet 105F/10. Access is currently by helicopter from Ross River. A tote road up Groundhog Creek from the South Canol Road passes one mile north of the property.

Line cutting, soil sampling, geological surveys and CEM surveys were conducted during the periods September 20 - 21, 1976 and August 5 - 12, 1977 by Noranda Exploration Company, Limited. Mapping and survey control is provided by chained and compassed lines 800 feet apart with picketted stations every 200 feet forming a grid pattern. Results are presented on grid maps at a scale of 1 inch = 400 feet. The grid is tied to topography contours on the Geological Map (Dwg. 2).

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LOCATION MAP
PEAK 1-16 Claims

105 F/10
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.

Stratigraphy

The PEAK 1 - 16 claims are underlain by Upper Cambrian to Mississippian carbonate, shale and phyllite stratigraphy forming part of the Pelly Cassiar Platform and flanking Selwyn Basin. In general, Mississippian shale and Silurian - Devonian carbonate and quartzite unconformably overlie Upper Cambrian - Ordivician (and Silurian?) shaley phyllite and micaceous choritic phyllite. Carbonate/shale facies changes in Ordivician to Silurian time are evident. Stratigraphic relations are complicated by folding and steep angle faulting.

The following table summarizes lithologies mapped:

TABLE 1: TABLE OF FORMATIONS

Mississippian	uDMs	"Black Clastic Unit": thin-bedded black slate and shale; minor chert pebble conglomerate and grit.
Silurian; Devonian	SDd	Reddish and buff-weathering, resistant, thick - bedded to massive, medium grey to buff dolomite.
	SDc	Medium and thin-bedded micritic, medium grey limestone.
	Sq	Medium - grained, light grey to buff quartzite, sandy quartzite and dolomitic quartzite.
	UNCONFORMITY	
Upper Cambrian, Ordivician Silurian	OSsl	Recessive, graptolitic, black slate, and shaley phyllite with subordinate intercalated lenses of andesite and sercite phyllite containing disseminated pyrite.
	uEOsl	Recessive, greenish - grey, chlorite muscovite quartz phyllite and undifferentiated greenstone lenses

The Mississippian Black Clastic Unit (uDMs) occurs at high elevations overlying Silurian-Devonian dolomites.

The Silurian - Devonian succession is comprised mainly of dolomite (SDd) with limestone (SDc) and quartzitic lithologies (Sq) occuring locally at or near

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the bottom of the section. East of "Anomaly Creek" the Silurian - Devonian section is up to 600 feet thick. West of the creek thickness varies but is generally less than 200 feet. Lateral facies changes to slate and shaley phyllite (OSs1, uEOs1v) are evident on the western half of the claim block.

Upper Cambrian - Ordivician - Silurian slate and pyritic sericite phyllite (OSs1) and chlorite mica phyllite (uEOS1v) have not been mapped as separate formations although individual outcrops are distinguished. The units are poorly exposed and foliation attitude varies locally making stratigraphic correlations difficult. In the SE portion of the grid (eg. 40 - 56N, 100 - 106E) dolomite is directly underlain by black shaley phyllite which grades down section into greenish-grey chlorite mica phyllite and interbanded siltstone with shaley partings. In the SW portion of the grid (eg 64 - 72N, 74 - 76E) the carbonate-quartzite sequence appears to be underlain by micaceous phyllite. On the ridge at the headwaters of Anomaly Creek stratigraphy and structure is complicated. At 110 - 118N, 76 - 78E biotite muscovite quartz phyllite is in fault contact with massive dolomite whereas at 110N, 60E shaley phyllite and pyritic pale-green andesite underlies the dolomite. From the above stratigraphic relations it appears that, where present, the shaley phyllite and slate (OSs1) is near the top of the Upper Cambrian - Ordivician - Silurian section.

Andesite and sericite phyllite with disseminated pyrite cubes up to 0.3 inches are included in the OSs1 unit. These volcanics and volcanic derivations are intercalated with slate and shaley phyllite on the ridge 1000 feet SW of 86N, 60E, at 110N, 62 - 66E and at 97N, 83E. Pyritic sericite phyllite float occurs in Anomaly Creek between lines 86N and 102N.

Distinctive porous buff coloured carbonate occurs as float along Anomaly Creek between lines 64N and 78N and outcrops at 58N, 87E. The rocks are thought represent a spring deposit because of their porous and frambiodal nature.

Structure

Devonian and older stratigraphy has responded to compressive stress according to competency. Internal deformation of competent Silurian - Devonian strata (SDd, SDc, Sq) is negligible and slippage has taken place along low angle faults or detachment planes. Incompetent shaley and phyllitic units (OSs1, uEOs1v) have deformed plastically resulting in transposed bedding, contorted foliation, and recumbant "S" folds. Although the dolomite - quartzite/ shale-phyllite contact is generally gently dipping and attitude of foliation is consistent on a large scale, local foliation attitude is highly variable.

Discordant steeply dipping foliation at 95N, 83E and 110N, 70E may be continuous and indicative of a major structure.

High angle faults with vertical displacements in the order of 200 feet complicate stratigraphy in the NW portion of the claim block.

Mineralization

Minor galena is disseminated in dolomite breccia at approximately 64-72N, 108E.

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An eight inch float boulder of massive galena was found in a small creek at 78N, 100E. No source has been found.

Several angular float boulders of arsenopyrite, pyrite and quartz are found in an area 50 feet by 150 feet on the east side of Anomaly Creek at approximately 70N.

GEOCHEMICAL SOIL SURVEY

All soils were analyzed for copper, lead, zinc, and molybdenum in the Noranda Exploration Company, Limited Laboratory, located at 1050 Davie Street, Vancouver, 5, B.C. Analyst was Evert VanLeeuwen.

Sampling Method

Samples were obtained by digging holes with a maddock, to a depth if feasible, where the visible B horizon or sub-outcrop was encountered. The B horizon was sampled whenever possible. The samples were placed in "Hi West Strength Kraft 3½ x 6 1/8" Open End" envelopes and the grid station was marked on the envelopes with indelible felt pen.

Laboratory Determination Method

The samples are first placed in a drying cabinet for a period of 24 to 48 hours. The sample material is then screened and sifted to obtain a -80 mesh fraction.

The determination procedure for total copper, lead, zinc, and molybdenum is as follows:

> 0.200 grams of the -80 mesh material is digested in 2ml. of $HClO_4$ and 0.5ml. of HNO_3 for approximately four hours. Following digestion, each sample is diluted to 5ml. with demineralized H_2O. A varian Techtron Model AA-5 Atomic Absorption Spectrophotometer was used to determine the parts per million copper, lead, zinc, and molybdenum content in each sample.

The Theory of Atomic Absorption Spectrophotometer is fully described in the literature and will not be described in this report.

Presentation of Results

Results of the soil survey are presented in Drawing Nos. 3 and 4 of this report; plan maps (scale 1 inch = 400 feet) showing copper - molybdenum and zinc-lead in parts per million.

Discussion of Results

Cu - Mo and Pb - Zn response is generally not coincident and will be discussed separately below.

In this report greater than 500ppm Zn and 200ppm Pb in soil are considered anomalous. Several areas of anomalous Zn results appear related to the Silurian - Devonian dolomite and possibly minor zinc mineralization. Maximum values of 1100ppm Zn and 1200ppm Zn are located at 110N, 84E and 110N, 88E. Pb soil anomalies are generally in close proximity to the carbonate - quartzite/shale - phyllite contact.

One large area of overlapping Zn - Pb soil response is located east of Anomaly Creek extending from Line 64N to Line 94N. Zn appears related to the dolomite. The anomalous Pb zone is also over dolomite with a southern "tail" roughly parallel and possibly related to the dolomite/shale - phyllite contact. Minor PbS mineralization occurs 800 - 1000 feet upslope from the anomaly.

Elevated Cu and Mo soil results appear to be due to bedrock geology rather than concentrations of sulphide mineralization. Coincident elevated Cu-Mo values are outlined over Mississippian Black Clastics in the northwest corner of the grid and over Ordivician - Silurian shaley phyllite on Lines 48N and 56N, east of 100E Tie Line. Elsewhere spotty threshold Mo values occur in shale - phyllite terrane.

GEOPHYSICAL SURVEY

Introduction

The C.E.M. Survey was carried out by M. Vetterli, D. Larson, and D. Anderson, under the supervision of J.T. Walker, all employees of Noranda Exploration Company, Limited. The survey was completed in the periods September 20 - 21, 1976 and August 5 - 12, 1977.

The C.E.M. equipment was manufactured by Crone Geophysics of Mississauga, Ontario.

The Horizontal Shootback Method was employed at a frequency of 5000Hz (detailed at 1830 Hz) with a coil separation of 200 feet. Readings were recorded every 100 feet, with a total of 52,200 feet surveyed.

Method

The two operators, traversing the same grid line, transmit and receive, in turn, at each station. The transmitting coil is held in the horizontal plane, while the receiving coil detects the null (dip angle) of the E.M. field. The two dip angles are then added together to give the Resultant Dip Angle, which is plotted mid-way between the two operator locations on the survey line.

Presentation of Results

The C.E.M. results are plotted on a grid plan map (dwg. 5) at a scale of 1" = 400'. The Resultant Dip Angles are shown as continuous profiles with a vertical scale of 1" = 40^{o}.

Discussion of Results

Two types of responses are evident:

1) strong, wide anomalies at the north end of the grid (L. 102N, 110N and 118N)

2) strong, narrow anomalies, striking approximately NNW with a strike length in excess of 5000 feet.

The anomalous responses occur within the phylites and shales which are known to contain graphitic material. Due to the large amplitudes of the dip angles, the presence of graphite provides a plausible cause of these responses. The medium frequency profiles on Lines 86N and 72N also indicate a highly conductive source. Decreasing conductivity on lines 48N and 56N is illustrated by the significant lack of response of the medium frequency profile in relation to the high frequency profile. Greater depth of burial may also be indicated due to the overall decrease in amplitude.

The broad responses on lines 102N, 110N and 118N occur within the same phylite and shale unit but is observed to be "ribboned" with a graphitic material which would give rise to such a response.

The responses exhibit a strong linear relationship suggesting the possibility of some structural feature.

Any sulphides occuring within this high response area would be masked by the response given by the graphitic material.

CONCLUSIONS AND RECOMMENDATIONS

The dolomite/shale - phyllite contact zone east of Anomaly Creek should be further evaluated between Lines 64N and 86N. Anomalous Pb (±Zn) values in soil are located at or near the contact adjacent to a linear C.E.M. anomaly.

Submitted by:

B. Fairbank
Geologist

L. Bradish
Geophysicist

October 6, 1977

PEAK 1

PEAK 2

PEAK 3

PEAK 4

PEAK 5

PEAK 6

PEAK 7

PEAK 8

PEAK 9

PEAK 10

PEAK 11

PEAK 12

PEAK 13

PEAK 14

PEAK 15

PEAK 16

PEAK 17

PEAK 18

PEAK 20

PEAK 22

PEAK 24

PEAK 26

PASS 1 Fr.

PASS 2 Fr.

TL 100 E

BL 80 E

TL 60 E

110 N

102 N

94 N

86 N

78 N

72 N

64 N

56 N

48 N

40 N

32 N

118 N

5000

5500

6000

TO ACCOMPANY GEOLOGICAL ,GEOCHEMICAL & GEOPHYSICAL ASSESSMENT REPORT ON PEAK 1-16 MINERAL CLAIMS BY B.FAIRBANK, & L.BRADISH.

DATED: Oct. 6 ,1977

B. Fairbank

L. Bradish

REVISED

PASS PEAK — PEAK CLAIMS

CLAIM MAP

PROJ. No.

N.T.S. 105 F/10

DWG. No. 1

SURVEY BY: B. FAIRBANK DATE: AUG. 77

DRAWN BY: J. VAN VOORST SCALE: 1" = 400'

NORANDA EXPLORATION

OFFICE:

N

5000

u€Oslv ?

uDMs

Andesite dyke
(pyrite disseminated)

6000

86 N

78 N

72 N

64 N

56 N

48 N

40 N

32 N

SDc

15

71

30

uDMs

SDd

Local minor disseminated PbS in dolomite breccia

u€Oslv

0.84% graphite

35

u€Oslv

OSsl

Graphitic Shaley Phyllite in soil

5500

TL 100 E

6000

102 N

94 N

110 N

Isolated +ve ZnO test

PbS

Sq

SDd

50'x50' Argent float 1977

0.20% Pb
0.003 oz/T Ag

M

buff coloured porous carbonate float

CREEK

u€Oslv

20

buff coloured porous carbonate (Spring deposit ?)

5000

ANOMALY

CAMPSITE

Limestone float

"S" folds

30

10

u€Oslv

contorted foliation Small scale folding

SDc, SDd, Sq

25

30

u€Oslv

32

BL 80 E

45

u€Oslv

35

limestone, siltstone float

80

OSsl

Sq, SDc

10

slightly limey silty quartzite

5500

u€Oslv

u€Oslv

distorted bedding

grey limestone siltstone float

D U

quartz veining breccia

silty dolomite and limestone

SDc

SDd

30

SDd

6000

Thinly laminated sooty siltstone and limestone Boudins common

1.60% graphite

25

OSsl

22

u€Oslv

75

Contorted foliation "S" folds

SDd

5500

D U

Includes sericitic andesite with disseminated pyrite cubes

OSsl

OSsl

20

uDMs

SDd

SDd

bedding contorted generally shallow dips

CLAIM BOUNDARY

TL 60 E

5500

6000

OSsl

u€Oslv

Shaley phyllite and light green volcanic with disseminated pyrite cubes OSsl

SDd

35

10

Contorted foliation "S" folds

38

45

TABLE OF FORMATIONS

UPPER DEVONIAN, MISSISSIPPIAN

uDMs — THIN-BEDDED, BLACK SLATE AND SHALE; MINOR CHERT PEBBLE CONGLOMERATE AND GRIT

SILURIAN, DEVONIAN

SDd — RESISTANT, THICK-BEDDED TO MASSIVE MEDIUM GREY TO BUFF DOLOMITE MAY INCLUDE SDc AND Sq

SDc / Sq — MEDIUM AND THIN-BEDDED MICRITIC GREY LIMESTONE (SDc); LIGHT GREY TO BUFF MEDIUM-GRAINED QUARTZITE, SANDY QUARTZITE AND DOLOMITIC QUARTZITE (Sq)

UPPER CAMBRIAN ORDIVICIAN AND SILURIAN

OSsl / u€Oslv — RECESSIVE BLACK GRAPTOLITIC SLATE, SHALEY PHYLLITE AND SUBORDINATE ANDESITE AND SERICITIC PHYLLITE WITH DISSEMINATED PYRITE CUBES (OSsl); RECESSIVE WEATHERING, GREENISH-GREY, CHLORITE MUSCORITE QUARTZ PHYLLITE AND UNDIFFERENTIATED GREENSTONE LENSES (u€Oslv).

LEGEND

- CAMPSITE
- LIMIT OF OUTCROP
- GEOLOGICAL CONTACT : DEFINED, APPROXIMATED ASSUMED
- BEDDING : STRIKE, DIP (10)
- FOLIATION : STRIKE, DIP (10)
- RECUMBANT FOLD AXIS; PLUNGE (10)
- FAULT : DEFINED, APPROXIMATED
- MINERALIZATION (FLOAT)
- 0.02 % Pb — ASSAY RESULT

TO ACCOMPANY GEOLOGICAL, GEOCHEMICAL & GEOPHYSICAL ASSESSMENT REPORT ON PEAK 1-16 MINERAL CLAIMS BY B.FAIRBANK, & L.BRADISH.

DATED: Oct. 6, 1977

B. Fairbank

L. Bradish

REVISED
SEPT. 77

PASS PEAK — PEAK CLAIMS

GEOLOGICAL MAP

PROJ. No. 911

N.T.S. 105 F/10

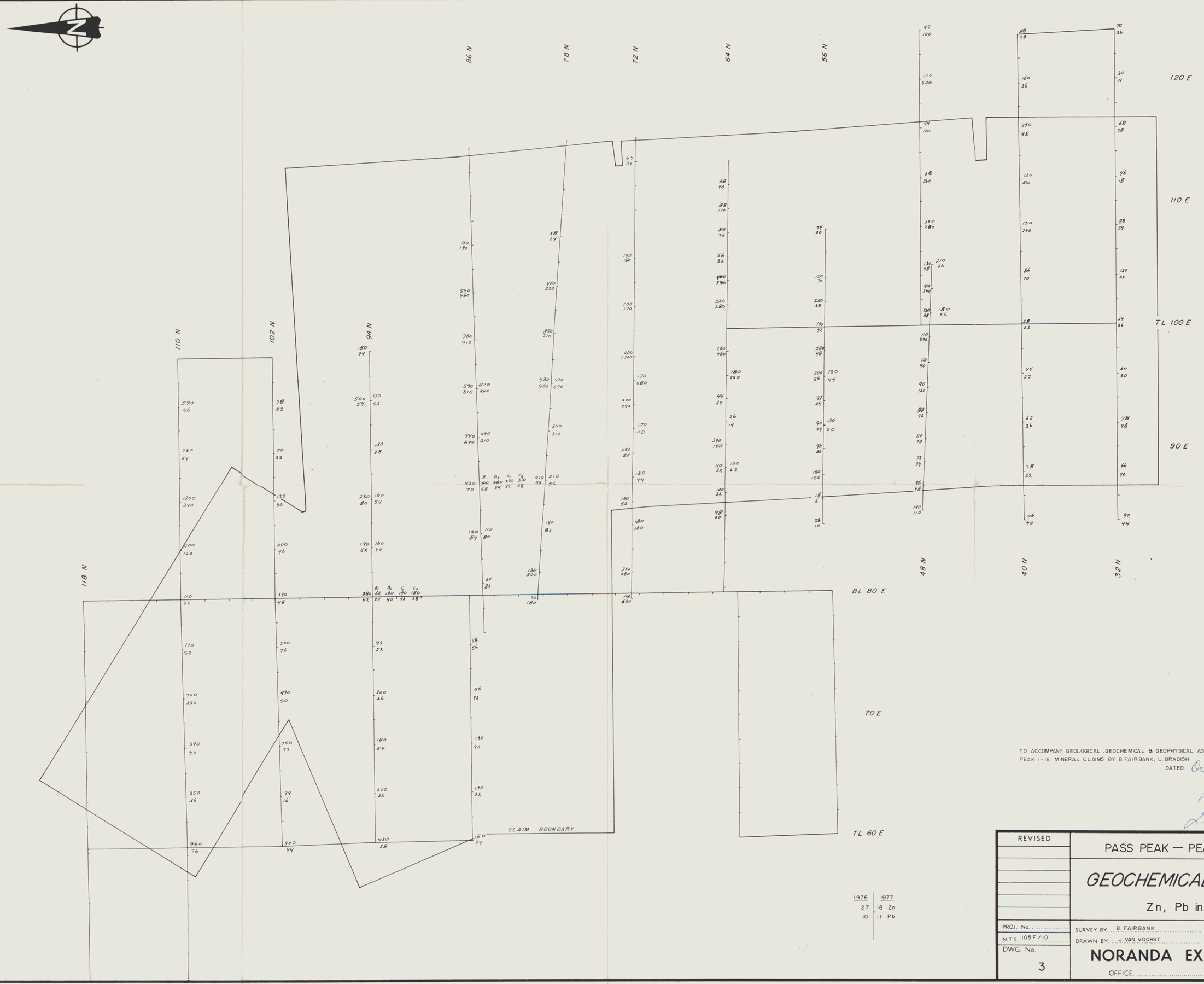
DWG. No 2

SURVEY BY: B. FAIRBANK DATE: AUG. 77

DRAWN BY: J. VAN VOORST, B.DF SCALE: 1" = 400'

NORANDA EXPLORATION

OFFICE



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DATED: Oct. 6, 1977

B. Fairbank

L. Bradish

1976	1977
27	18 Zn
10	11 Pb

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PASS PEAK — PEAK CLAIMS

GEOCHEMICAL SURVEY

Zn, Pb in P.P.M.

PROJ. No.

N.T.S. 105F/10

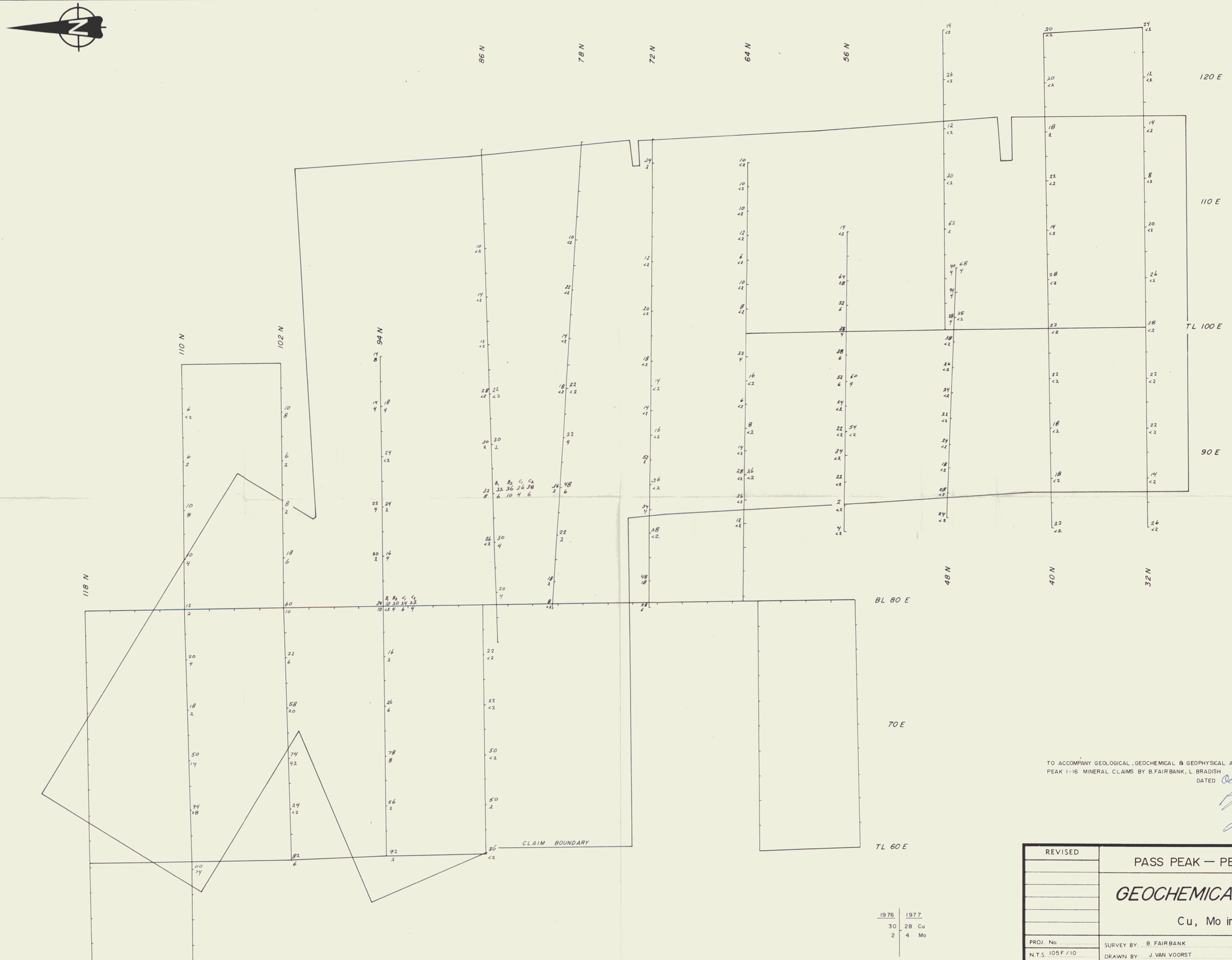
DWG. No. 3

SURVEY BY: B. FAIRBANK DATE: AUG. 77

DRAWN BY: J. VAN VOORST SCALE: 1" = 400'

NORANDA EXPLORATION

OFFICE:



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DATED Oct. 6, 1977

B. Fairbank
L. Bradish

1976	1977	
30	28	Cu
2	4	Mo

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PASS PEAK — PEAK CLAIMS

GEOCHEMICAL SURVEY

Cu, Mo in P.P.M.

PROJ. No.
N.T.S. 105F/10
DWG. No. 4

SURVEY BY: B. FAIRBANK DATE: AUG. 77
DRAWN BY: J. VAN VOORST SCALE: 1" = 400'

NORANDA EXPLORATION

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TO ACCOMPANY GEOLOGICAL, GEOCHEMICAL & GEOPHYSICAL ASSESSMENT REPORT ON PEAK 1-16 MINERAL CLAIMS BY B. FAIRBANK, L. BRADISH

DATED Oct. 6, 1977

B. Fairbank

L. Bradish

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PASS PEAK — PEAK CLAIMS

C. E. M. SURVEY

SEPARATION = 200' ——— 5000 Hz

SCALE 1" = 40' – – – – – 2000 Hz

PROJ. No. .....

N.T.S. 105F/10

DWG. No. 5

SURVEY BY: B. FAIRBANK DATE: AUG. 77

DRAWN BY: J. VAN VOORST SCALE: 1" = 400'

NORANDA EXPLORATION

OFFICE .....