

87-238-  
16038

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**16,038**

Geophysical Report

on the

TL 2 AND TL 3 CLAIMS

(Bodine Group)

Located at Coordinates: 55 deg. <sup>36.7'</sup>~~36.7'~~ min. N, 125 deg. ~~48.4'~~ min. W

Omineca Mining Division, B.C.

by: Gordon Maxwell & Lyndon Bradish

FILMED

Owner/Operator:

NORANDA EXPLORATION COMPANY, LIMITED  
(NO PERSONAL LIABILITY)

N.T.S. 93 N/12W

April, 1987

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**SUMMARY:**

The property is located approximately 20 kilometers north/northeast of Takla Landing and was staked to cover a previously known sulphide occurrence on the northeast flank of Mount Bodine. The property is underlain by intermediate and felsic volcanic stratigraphy of the Sitlika Assemblage. These Sitlika volcanics are similar in age and appearance to that of the Kutcho formation which hosts the Sumac Esso volcanogenic massive sulphide deposit in north central B.C.

In 1979, Shell Canada Resources outlined a large area of anomalous Cu-Zn soil geochem in the area of the showing. In June 1985, Aerodat Surveys was contracted by Noranda Explorations to fly a helicopter borne EM and Mag survey over the area. Subsequent ground follow-up EM failed to outline a conductive horizon associated with the favourable felsic volcanics. A total of 9.0 kilometres of grid was established to facilitate a soil geochem survey which outlined anomalous zones similar to the Shell survey.

In September of 1986, a magnetometer survey was completed over the entire grid and two test lines of dipole-dipole induced polarization survey over the Eureka showing. The mag survey outlined several prominent magnetic highs which appear to be associated with graphitic shales to the east of the grid. The I.P. survey outlined a high PFE response in the area of the Eureka showing, but is partially masked by the adjacent graphitic shales.

INTRODUCTION:

The TL 2 and TL 3 claims were staked by Noranda Exploration personnel to cover two previously known sulphide occurrences on Mount Bodine. During September and October of 1985, Norex crew established 9.0 kilometers of grid to facilitate a geochem survey in which 224 samples were taken. In addition, 0.60 kilometers of HLEM and Mag survey were performed. In 1986, a detailed mag survey was completed over the entire grid and two lines of dipole-dipole I.P. survey was conducted over the Eureka showing.

LOCATION AND ACCESS:

The Bodine Group (TL 2 and TL 3 claims) is located approximately 20 kilometers north/northeast of the village of Takla Landing in north central B.C. (see Figure 1). The claims are situated on the northeast flank of Mount Bodine (Figure 2). Access to the property is via helicopter out of Smithers or Fort St. James.

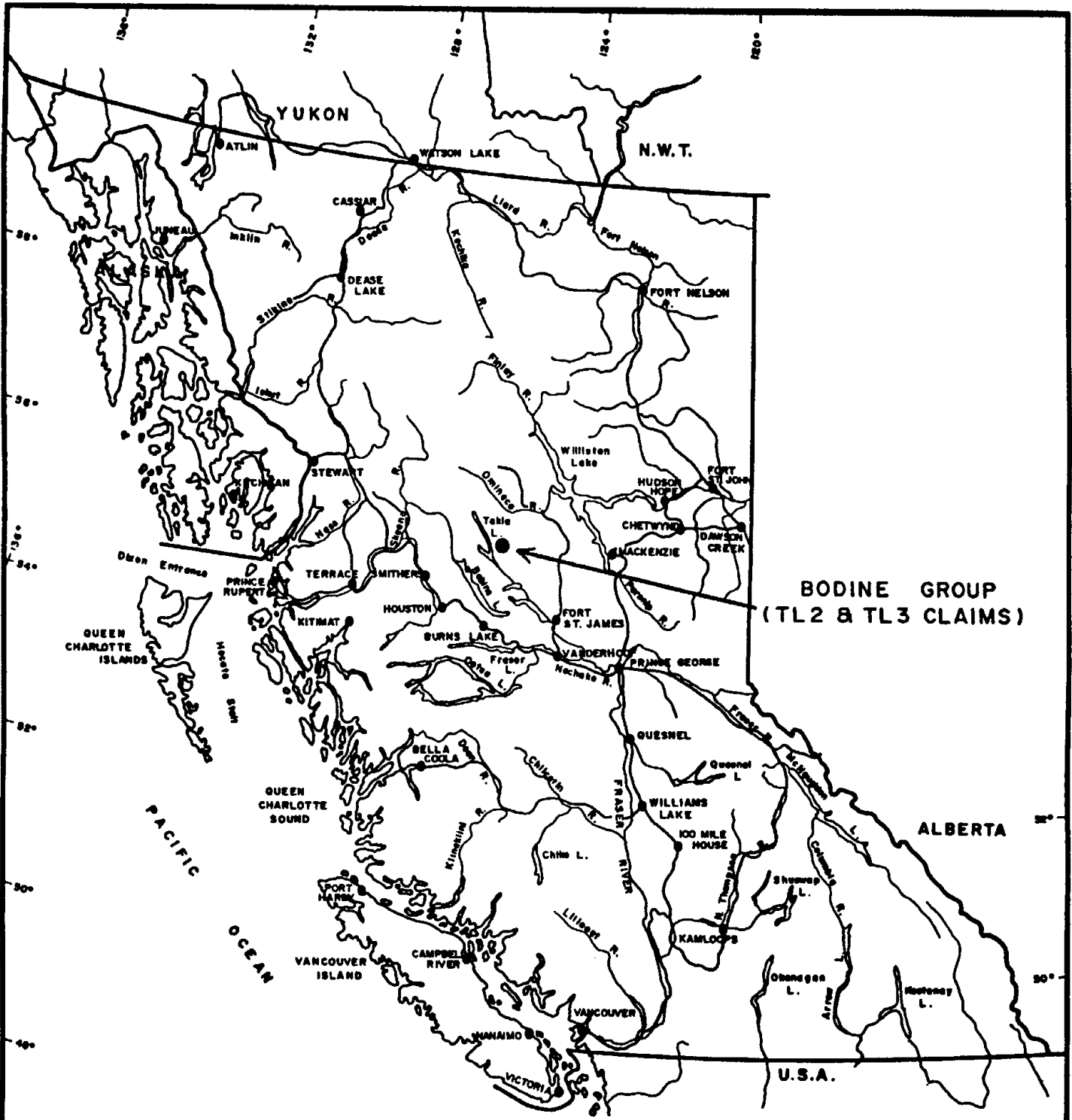
CLAIM STATISTICS:

The TL 2 and TL 3 claims were staked using the modified grid system. They are located in the Omineca Mining Division. The two claims have been grouped for the purpose of assessment.

<u>Claim Name</u>	<u># Units</u>	<u>Record #</u>	<u>Record Date</u>
TL 2	16	6837	Feb. 12/85
TL 3	9	7029	May 16/85

REGIONAL GEOLOGY:

The area is underlain by Upper Triassic to Lower Jurassic volcanic and sedimentary rocks of the Sitlika Assemblage which have been regionally metamorphosed to greenschist facies (Paterson, 1974). This assemblage is composed mainly of well foliated andesitic to rhyolitic pyroclastics and flows with lesser amounts of greywacke, siltstone and phyllite. The Sitlika volcanics are characterized by local development of sericite, quartz-sericite and chlorite schists. The Takla Fault separates the Sitlika rocks from the Tertiary Sustat Group to the west. The Permian Cache Creek rocks to the east are separated from the Sitlika by the Vital Fault and a serpentinite melange. The Cache Creek Group is bounded to the east by the Pinchi Fault and the Jurassic Hogem Batholith (Figure 3).

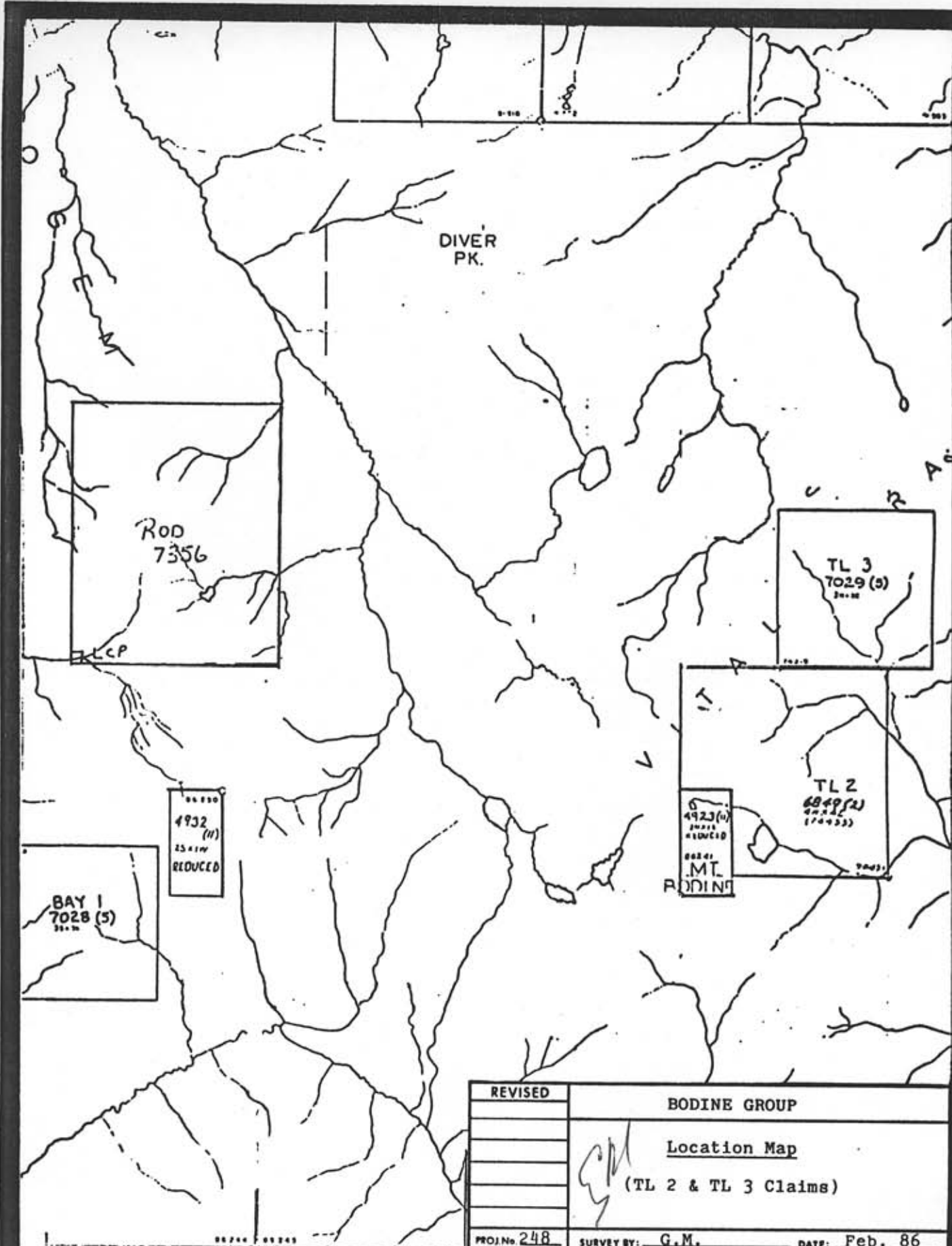


**BODINE GROUP  
(TL2 & TL3 CLAIMS)**

0 100 200 KILOMETRES  
SCALE: 1:6,000,000

REVISED	<b>BODINE GROUP</b>	
	<i>gjm</i> <u>Location Map</u>	
PROJ No. <u>248</u>	SURVEY BY: <u>G.M.</u>	DATE: <u>Feb. 86</u>
N.T.S. <u>93N/1</u>	DRAWN BY: <u>S.H.B.</u>	SCALE: <u>1:6,000,000</u>
DWG. No. <b>1</b>	<b>NORANDA EXPLORATION</b>	
	OFFICE: <u>PRINCE GEORGE, B.C.</u>	

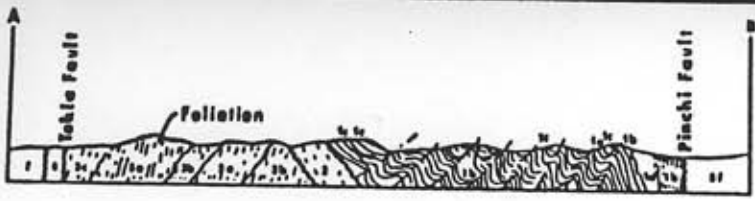
VAN/CAL 11827



4932  
(11)  
25' x 10'  
REDUCED

4923 (4)  
25' x 10'  
REDUCED  
M.T.  
BODINE

REVISED	BODINE GROUP	
	Location Map	
	(TL 2 & TL 3 Claims)	
PROJ. No. 248	SURVEY BY: G.M.	DATE: Feb. 86
N.T.S. 93N/12	DRAWN BY: G.M.	SCALE: 1:50,000
DWG. No. 2	<b>NORANDA EXPLORATION</b>	
	OFFICE: Prince George, B.C.	



**LEGEND**

**UPPER CRETACEOUS and PALEOCENE  
SUSIUT GROUP**

1 conglomerate, shale, greywacke

**JURASSIC**

**HAZELTON GROUP**

2 tuff, volcanic breccia

**UPPER TRIASSIC and JURASSIC**

**TAKLA GROUP (?)**

3 (4a) chert pebble conglomerate;  
(4b) greywacke, argillite

**UPPER TRIASSIC (?), JURASSIC (?)**

**SITLIKA ASSEMBLAGE**

4 (5a) tuff, volcanic breccia, rhyolite, feldspar porphyry  
(5b) greywacke, siltstone  
(5c) black phyllite or argillite

**UPPER PALEOZOIC**

**CACHE CREEK GROUP**

5 (1a) limestone; (1b) chert & phyllite;  
(1c) greenstone; (1d) greywacke, laminated siltstone

**INTRUSIVES**

**MESOZOIC or TERTIARY**

6 (5a) syenite; (5b) granite; (5c) biotite, hornblende feldspar porphyry; (5d) biotite, granodiorite; (5e) felsite

**JURASSIC (Mainly ?)**

7 granodiorite (Hogem Batholith)

**PERMO-TRIASSIC**

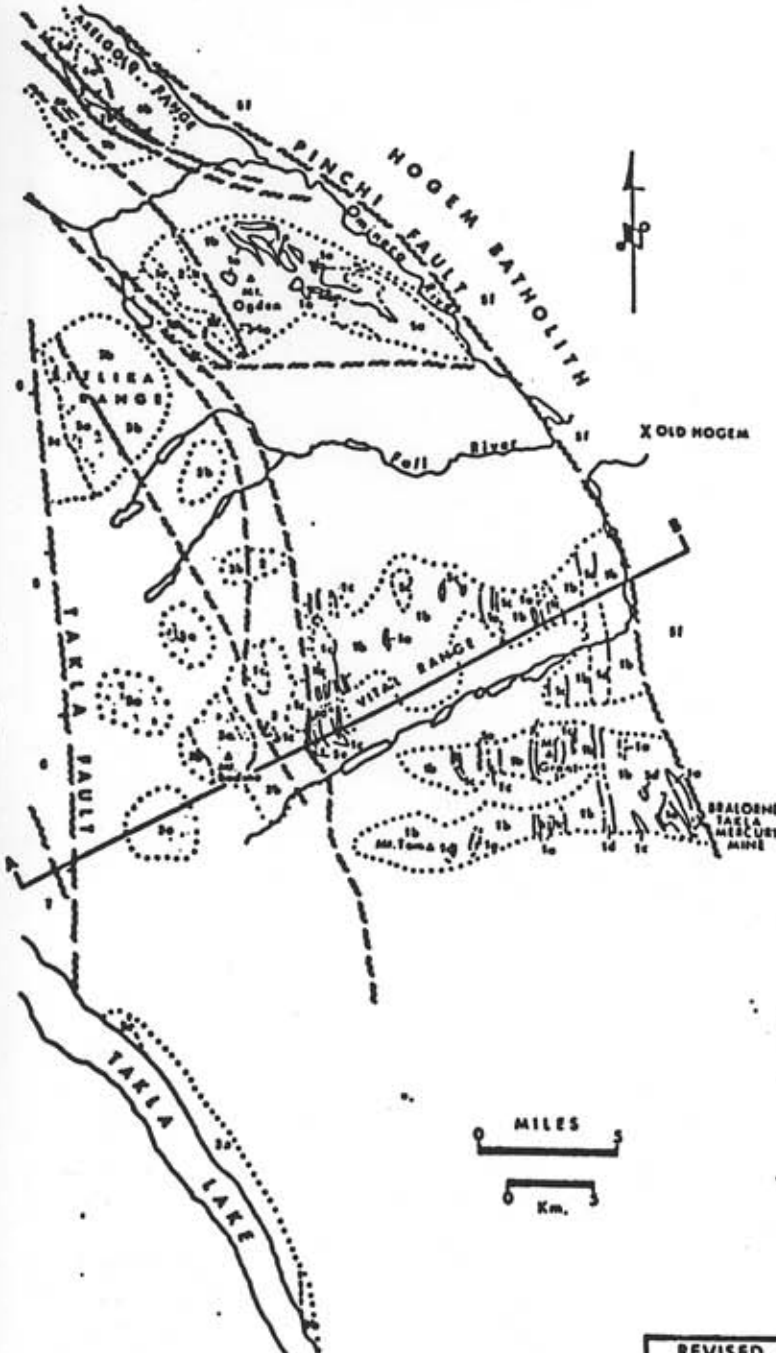
8 serpentinite, harzburgite

**FAULT** (defined, approximate, inferred).....

**THRUST or high angle REVERSE FAULT**.....

**CONTACT** (defined, approximate).....

**LIMIT of MAPPING**.....



REVISED	BODINE GROUP	
	 Regional Geology	
PROJ. No. 248	SURVEY BY: G.M.	DATE: Feb. 86
N.T.S. 93N/12	DRAWN BY: G.M.	SCALE: 1:500,000
DWG. No. 3	<b>NORANDA EXPLORATION</b> OFFICE: Prince George, B.C.	

### PREVIOUS WORK:

1974: Kennco Exploration Inc. -- regional silt sampling, JEM survey and geologic mapping in Mount Bodine area.

1975: McIntyre Mines Ltd. -- reconnaissance geology and regional silt geochem.

1977: McIntyre Mines Ltd. -- helicopter-borne EM and Mag survey and subsequent geophysical, geochemical and geologic follow-up. Staking Ruth claims on Mount Bodine. Discovery of Eureka and Crystal Showings.

1978: Shell Canada Resources Ltd. -- reconnaissance geology in Bodine area and staking Sykes 7 claim.

1979: Shell Canada Resources Ltd. -- soil geochemistry and geologic mapping on Sykes 7 claim.

1979: Canadian Superior Exploration Ltd. -- options Ruth claims from McIntyre.

1980: Canadian Superior Exploration Ltd. -- rock geochemistry, sampling and geologic mapping on Ruth claims.

1981: Shell Canada Resources Ltd. -- option Ruth claims from Canadian Superior, geologic mapping, soil geochemistry and CEM shootback survey.

1982: Chris Graf -- stake Sitlika 1-4 claims on Mount Bodine.

1984: Chris Graf -- geologic mapping and soil sampling on Sitlika 2 claim.

1985: Noranda Exploration Company, Limited -- airborne EM and Mag survey, ground HLEM and soil geochemistry.

### MINERALIZATION:

Two sulphide showings were examined on the TL 2 property, the Crystal and the Eureka. The Crystal showing was found to consist of finely disseminated pyrite within a narrow chert horizon. Although the sulphides appear to be barren, the surrounding felsic volcanics seem somewhat altered.

The Eureka showing occurs 200 meters east of the Crystal showing and is exposed in a ravine wall of a small creek. The mineralization consists of stringer type chalcopyrite and pyrite associated with what appears to be a quartz rich shear within a felsic volcanoclastic unit. Assays as high as 4.34% Cu, 0.05% Zn, 0.058 opt Au and 2.25 opt Ag have been reported.



GRID:

The grid was established to cover an area of anomalous Cu Zn Pb soil geochem reported in the area of the Crystal and Eureka showings and consists of 8.1 kilometers of line controlled by 800 meters of baseline. The grid was flagged with stations marked at 25 meter intervals along wing lines running at an azimuth of 050 degrees.

GEOPHYSICS:

INSTRUMENTATION

MP-3 Magnetometer System Magnetometers manufactured by Scintrex Ltd. of Concord, Ontario were employed for these surveys. The MP-3 Total Field Magnetometer System consists of one or more field units and a base station. Diurnal and day to day variations are automatically corrected at the end of the survey by the built in microprocessor giving the data a usable accuracy of 1 gamma.

I.P. SURVEY The I.P. survey employed a Frequency Domain system manufactured by Phoenix Geophysics of Toronto, Ontario. The transmitter and generator have a capacity of 1.2 Kilowatts although this amount of power is rarely used. The survey parameters employed for this survey were as follows :

Dipole array	: Dipole-Dipole
Dipole length	: 25 meter detail
	: 50 meter 'recon'
Separations	: n=4 on detail
	: n=3 on recon
Frequencies	: 0.25 and 4.0 Hertz
Parameters recorded	: Percent Frequency Effect (PFE) & Resistivity (ohm-meters)
I.P. transmitter	: Phoenix IPT-1 & MG-1
I.P. receiver	: Phoenix IPV-1

A fixed transmitter setup using up to four Tx dipoles on either side of the transmitter was used throughout the survey. The recorded resistivities indicate that EM coupling was negligible.

INTERPRETATION OF RESULTS:

MAGNETOMETER SURVEY

The magnetometer survey recorded a low amplitude Total Field response over the majority of the grid with the exception of two narrow and prominent magnetic highs located on the (grid) west and east sides of the grid. The strike direction of these two features is measured at approximately 140 degrees while an overall magnetic gradient direction is defined at 015 degrees.

### I.P. SURVEY

The Dipole-Dipole I.P. survey was completed on Lines 4500N and 4600N employing a 25 meter dipole length. High Percent Frequency Effect (PFE) backgrounds were recorded grid east of L.4500N/4437.5E and 4600N/4462.5E however, within this background there are several high valued 'cores' that can be identified and are as indicated on the two pseudo-sections. One zone is located at L.4500N/4562.5E-4487.5E and L.4600N/4600E-4650E and is associated with a minor decrease in the recorded resistivity. A second source whose signature differs substantially from the first and whose width is undefined due to the limited survey coverage is mapped at L.4500N/4700E-? and at L.4600N/4737.5E-?. This zone has a low resistivity signature significantly less than 100 ohm-meters and would appear to be a detectable EM target.

### CONCLUSIONS:

A brief geologic examination and descriptions in previous literature about the property conclude the property is underlain by favourable volcanic stratigraphy for hosting volcanogenic massive sulphide deposits. The grid area appears to be underlain by a thick sequence of porphyritic rhyolite flows and dacitic pyroclastics of the Upper Triassic-Lower Jurassic Sitlika Assemblage.

The linear high magnetic signature recorded on L4500N on the west side of the grid appears to be associated with a pyritic cherty rhyolite/quartzite horizon in the area of the Crystal Showing. The package of magnetic highs recorded on the extreme east of the grid is associated with pyrrhotite rich, graphitic shales.

The I.P. survey recorded high background PFE's in the area of the Eureka Showing and one of the high valued "cores" located at L4500N/4562.5E-4487.5E and L4600N/4600E-4650E coincide very well with the showing. The other "cores" to the east are related to the graphitic shales outlined by the mag and HLEM surveys.

### RECOMMENDATIONS:

The I.P. target should be drill tested on either line 4500 or 4600E and further sampling is required in the area of the Eureka Showing.

**REFERENCES:**

- Crosly, R.O. Airborne Geophysical Surveys, Ruth Mineral Claims, TAKLA LAKE Area, B.C., Assessment Report for McIntyre Mines Limited, 1977.
- Francoer, D. Geological, Geophysical and Geochemical Report on TAKLA Project for McIntyre Mines Limited, 1977.
- Graf, C., 1984: Assessment Report of Work Performed on Sitlika 2, 11 Claims. Report #12, 916.
- MacLeod, W.A., 1979: Assessment Report on Geological and Geochemical Surveys, Skye 1, 3 through 17, Mineral Claims, (July 1 - August 27, 1979), Omineca Mining District, B.C. Shell Resources Report. BCDM Sdd. Rpt. #7642.
- MacLeod, W.A., 1981 Report on Geological, Geochemical and Geophysical Surveys, Ruth 1-4, SKYE 7 Claims, BCDM Ass. Rpt. #9547.
- Monger, J.W.H. Lower Mesozoic Rocks in McConnell Creek Map Area, (94E), British Columbia. Geological Survey of Canada, Paper 76-1A.
- Paterson, I.A. Geology of Cache Creek Group and Mesozoic Rocks at the Northern end of the Stuart Lake Belt, Central B.C., Geol. Survey of Canada, Paper 74-1, Part B, 1974.
- Watkins, J., 1980: Geology of the Ruth Claims, Canadian Superior Company Report, BCDM Ass. Rpt. #8485.

APPENDIX I

STATEMENT OF COST

PROJECT: TAKLA-NAK - BODINE GROUP

REPORT TYPE: Geophysical

a) **WAGES:**

I.P. Survey	-- 8 mandays @ \$125.00/day	\$ 1,000.00
Mag Survey	-- 2 mandays @ \$125.00/day	\$ 250.00

b) **FOOD & ACCOMMODATION:**

10 mandays @ \$ 50.00/day	\$ 500.00
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c) **TRANSPORTATION:**

Bell 206 helicopter - 5.5 hrs @ \$500.00/hr	\$ 2,750.00
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d) **COST OF PREPARATION OF REPORT:**

Authors	\$ 200.00	
Drafting	\$ 200.00	
Typing	\$ 100.00	
		\$ 500.00
		-----

<b>TOTAL:</b>	<b>\$ 5,000.00</b>
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APPENDIX I

COST BREAKDOWN

a) I.P. SURVEY

Wages - 8 mandays:

Kevin Lillie - Oct 10, 11, 1986	\$ 250.00
Bill Kirby - Oct 10, 11, 1986	\$ 250.00
Gord Maxwell - Oct 10, 11, 1986	\$ 250.00
Bill Elasoff - Oct 10, 11, 1986	\$ 250.00

Food & Accommodations:

8 mandays @ \$50.00/day	\$ 400.00
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Transportation:	\$ 2,000.00
-----------------	-------------

Report Preparation:	\$ 300.00
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\$ 3,700.00

b) Mag Survey

Wages - 2 mandays:

Dave Rozek - Oct 10, 11, 1986	\$ 250.00
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Food & Accommodations:

2 mandays @ \$50.00/day	\$ 100.00
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Transportation:	\$ 750.00
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Report Preparation:	\$ 200.00
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\$ 1,300.00

APPENDIX II

STATEMENT OF QUALIFICATIONS

I, Gordon Maxwell of Prince George, Province of British Columbia, do hereby certify that:

1. I am a Geologist residing at 5905 Rideau Street, Prince George, British Columbia.
2. I am a graduate of the University of Manitoba with an Hons. B. Sc. (geology).
3. I am a member in good standing of the Canadian Institute of Mining and the Prospector's and Developer's Association.
4. I presently hold the position of Project Geologist with Noranda Exploration Company, Limited and have been in their employ since 1980.

-----  
G. Maxwell

APPENDIX II

STATEMENT OF QUALIFICATIONS

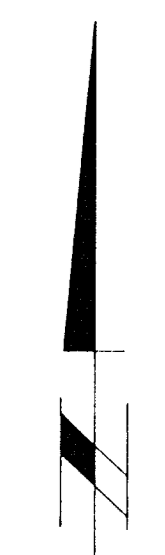
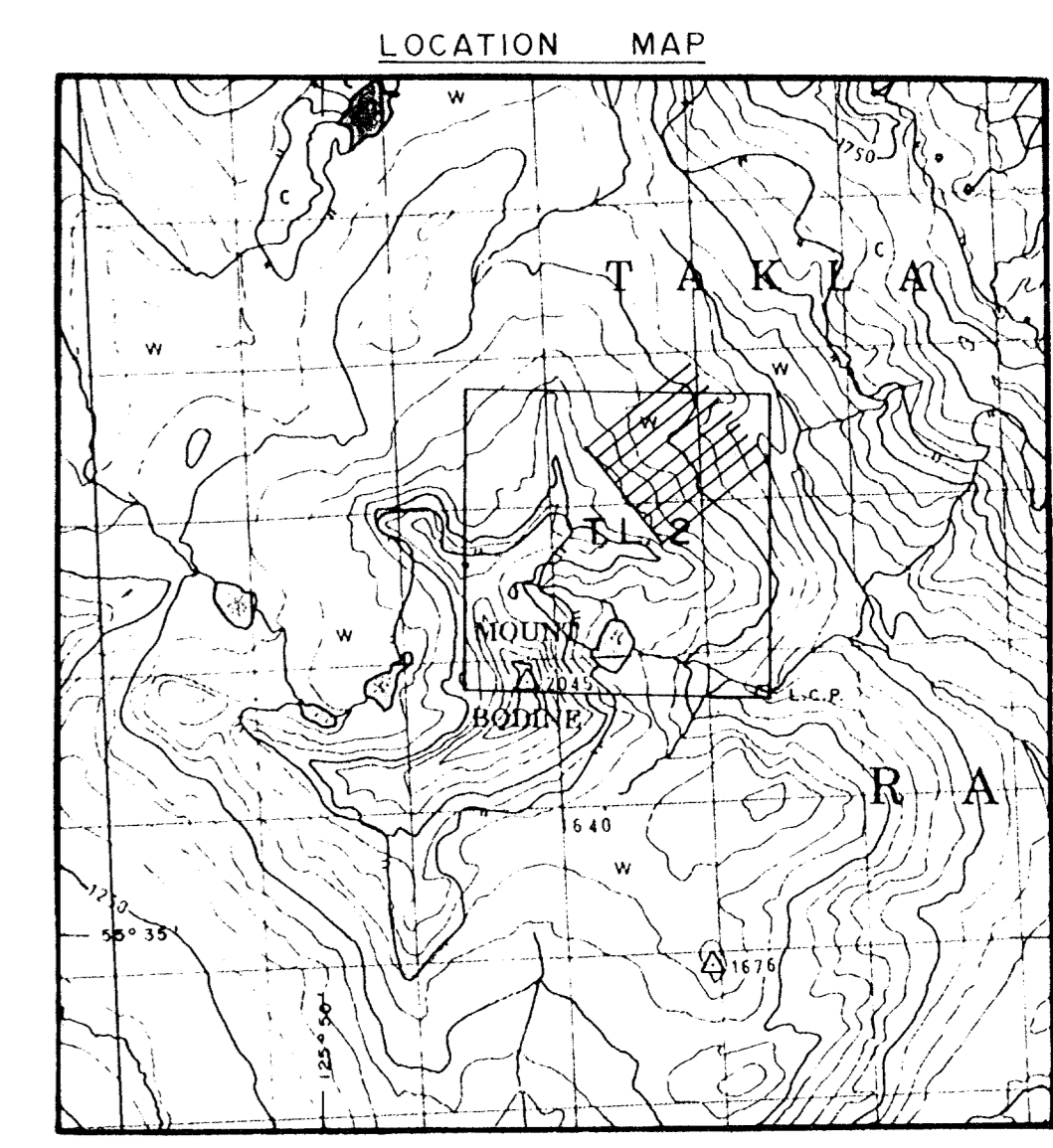
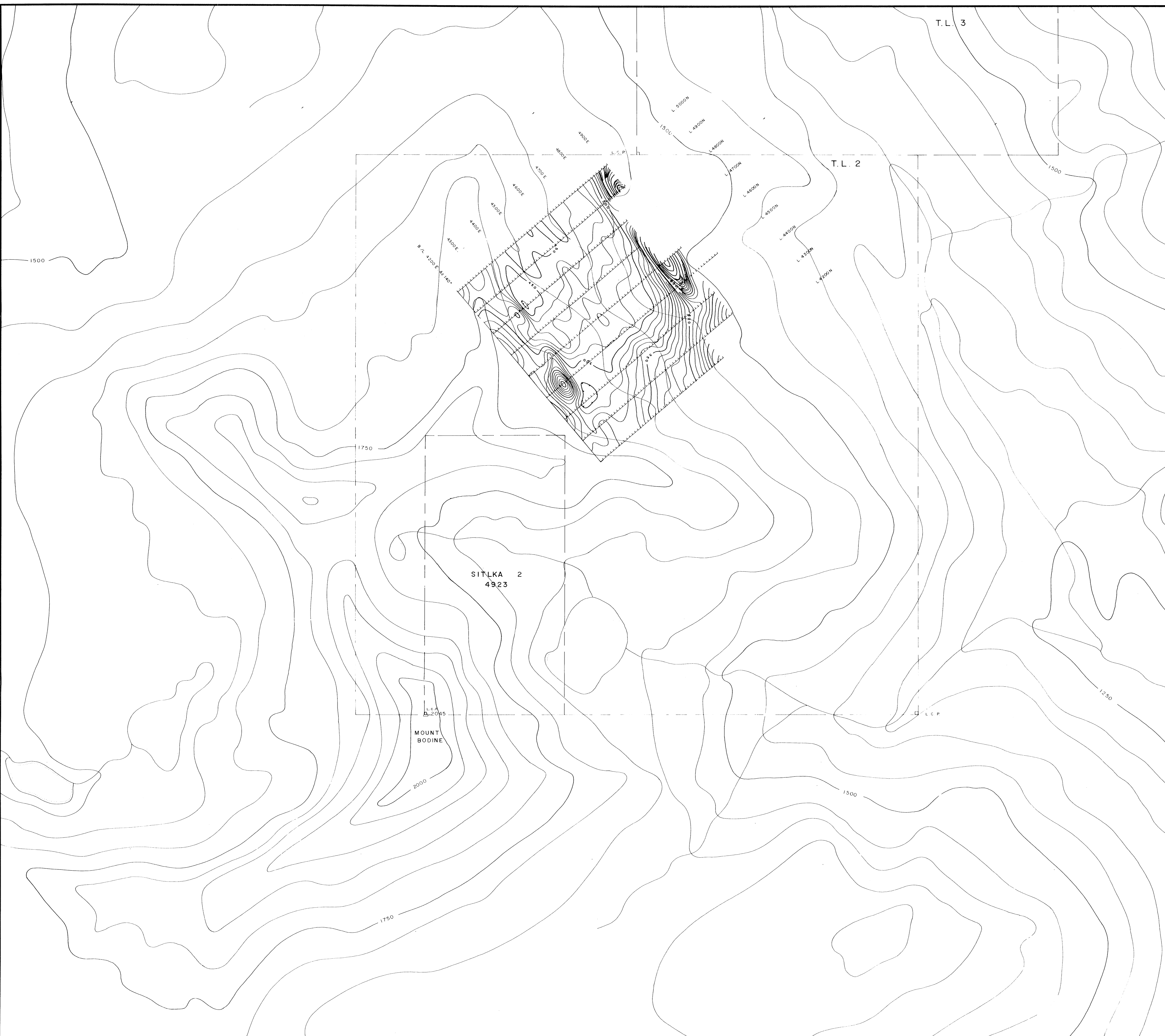
\*\*\*\*\*

I, Lyndon Bradish of Vancouver, Province of British Columbia, do hereby certify that:

1. I am a Geophysicist residing at 1826 Trutch Street, Vancouver British Columbia.
2. I am a graduate of the University of British Columbia with a B.Sc. (geophysics).
3. I am a member in good standing of the Society of Exploration Geophysicists, Canadian Institute of Mining and the Prospector's and Developer's Association.
4. I presently hold the position of Division Geophysicist with Noranda Exploration Company, Limited and have been in their employ since 1973.



-----  
L. Bradish.

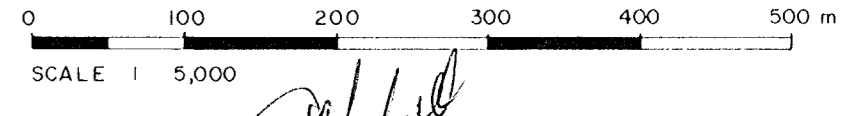


**LEGEND**

Instrument : 57500  
 Field : TOTAL  
 Datum : 57893.0mT  
 Contour Interval : 10m  
 (4 passes through a 9pt. Hanning Filter.)  
 (4 passes through a 3pt. Hanning Filter.)

**GEOLOGICAL BRANCH  
 ASSESSMENT REPORT**

**16,038**



REVISED	TAKLA NAK	
	TL 2 CLAIM	
	MAGNETOMETER SURVEY	
PROJ. No. 248	SURVEY BY: D.R.	DATE: 10/11/86
N.T.S. 93 N/12	DRAWN BY: S.K.R.	SCALE: 1:5000
DWG. No.	<b>NORANDA EXPLORATION</b>	
FIG. 4	OFFICE: PRINCE GEORGE, B.C.	



—4200E.

—4300E.

—4400E.

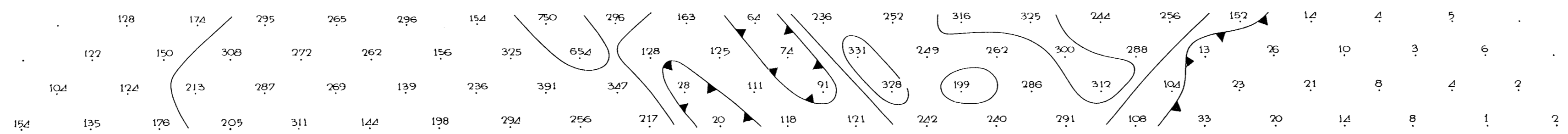
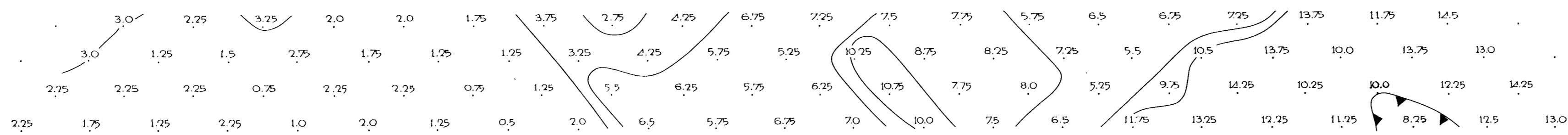
—4500E.

—4600E.

—4700E.

—4800E.

—4900E.



MAG

P.F.E.

pa

LEGEND

MAG  
 INSTRUMENT:  
 FIELD MEASUREMENT:  
 DATUM:  
 PROFILE SCALE:

I.P.  
 ARRAY: Dipole-Dipole  
 FREQUENCY: 4.0/0.25 Hz  
 a: 25m.  
 CONTOUR INTERVAL:  
 P.F.E.: 3.0, 5.0, 7.5, 10  
 Pa: 100, 300, 500, 1000,  
 1500, 2500

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**16,038**

*John J. Hall*

REVISED	<b>MT. BODINE TL2</b>	
	I.P. and MAG. SURVEY	
	Line: 4500N.	
PROJ. No. 248	SURVEY BY: P.J.A.	DATE: Oct./86
NTS	DRAWN BY: P.J.A.	SCALE: 1:1250
DWG. No.	NORANDA EXPLORATION	
FIG. 5	OFFICE: Vancouver	

—4200E.

—4300E.

—4400E.

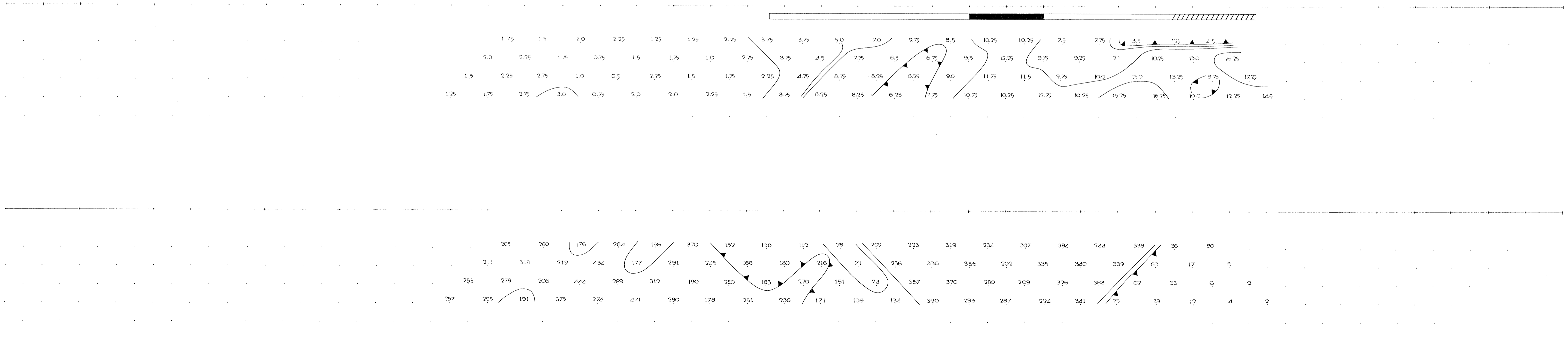
—4500E.

—4600E.

—4700E.

—4800E.

—4900E.



MAG

P.F.E.

Pa

LEGEND

MAG  
 INSTRUMENT  
 MEASUREMENT  
 DATUM  
 PROFILE SCALE

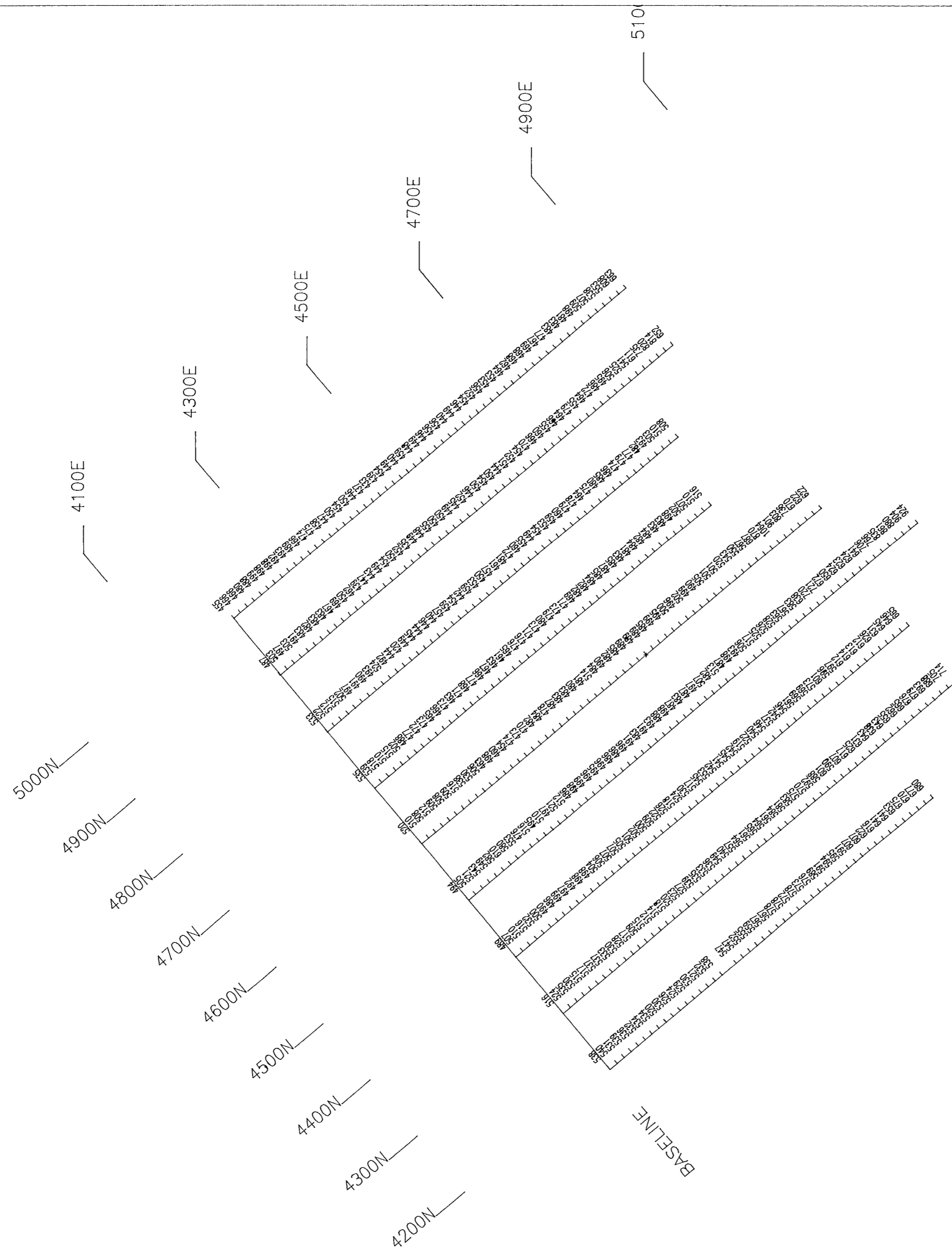
I.P.  
 ARRAY Dipole - Dipole  
 FREQUENCY 4 0/0 25 Hz  
 CONTOUR INTERVAL  
 P.F.E. 3 0, 5 0, 7 5, 10  
 Pa 100, 300, 500, 1000,  
 1500, 2500

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**16,038**

*John A. ...*

REVISED	<b>MT. BODINE TL2</b>
	<b>I.P. and MAG. SURVEY</b>
	<b>Line: 4600N.</b>
PROJ No. <b>2-48</b>	SURVEY BY: _____ DATE: <b>Oct./86</b>
N.T.S.	DRAWN BY: <b>P.J.A.</b> SCALE: <b>1:1250</b>
DWG No.	<b>NORANDA EXPLORATION</b>
<b>FIG. 6</b>	OFFICE: <b>Vancouver</b>



**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**16,038**

Instrument	: MP-3
Field	: TOTAL
Datum	: 57500 nT

*John J. [Signature]*

**TL2**

**MAGNETOMETER SURVEY**

PROJECT: TAKLA-NAK      PROJECT # : 248  
 BASELINE AZIMUTH : 140 Deg.

SCALE = 1: 5000      DATE : 10/11/86  
 SURVEY BY : DR      NTS :

FILE: M248TL2  
**NORANDA EXPLORATION**

