

MAP NO.: 105 G 6
ASSESSMENT REPORT X
PROSPECTUS
CONFIDENTIAL X
OPEN FILE

DOCUMENT NO: 092890
MINING DISTRICT: Watson Lake
TYPE OF WORK: Geology
Geophysics

REPORT FILED UNDER: COMINCO LIMITED

DATE PERFORMED: Aug. 14-15, 1990

DATE FILED: Nov 29, 1990

LOCATION: LAT.: 61°20'N

AREA: Hoole River

LONG.: 131°12'W

VALUE \$: 4,500

CLAIM NAME & NO.: VAL 1-10

WORK DONE BY: Paul MacRobbie

WORK DONE FOR: COMINCO LTD.

DATE TO GOOD STANDING:

REMARKS: The VAL claims were staked to cover ground previously staked by Cominco in 1977. Pb/Zn mineralization in fracture filling and replacement occurs within dolomitic quartz siltstone and graphitic shale. Mineralization is thought to be Cambrian. IILEM and magnetometer surveys were done over the geochem anomalies. IILEM identified several conductors. Mag was less revealing but could be used as a mapping tool. The mineralization on the property resembles mineralization on the HOOLE Property along strike.

COMINCO LTD.

EXPLORATION
NTS 105 G/6

WESTERN DISTRICT

ASSESSMENT REPORT
GEOPHYSICS, GEOLOGY
NOLE PROPERTY (VAL CLAIMS)
WATSON LAKE M.D., YUKON

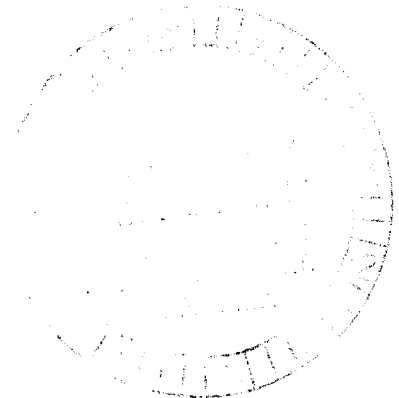
HOOLE RIVER AREA

LATITUDE: 61°20'N

LONGITUDE: 131°12'E

WORK PERIOD
AUG. 14-15, 1990

NOVEMBER 19, 1990



PAUL A. MACROBBIE

This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of \$ 4,500.

D. J. Beckett
for Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

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ATTACHMENTS

PLATE 90-1	CLAIM MAP
PLATE 90-2	GEOLOGY MAP, GEOPHYSICAL GRID LOCATION
PLATE 90-3	1990 HLEM SURVEY, 444Hz
PLATE 90-4	1990 HLEM SURVEY, 1777Hz
PLATE 90-5	1990 HLEM SURVEY, 3555Hz
PLATE 90-6	1990 MAG SURVEY, TOTAL FIELD
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APPENDIX 2	STATEMENT OF QUALIFICATIONS

Cominco Ltd.

Exploration
NTS: 105 G/6

Western Canada
November, 1990

ASSESSMENT REPORT

NOLE PROPERTY, YUKON TERRITORY

1. SUMMARY

The VAL claims were staked in 1989 to acquire Cominco's previously held but untested NOLE property. In August of 1990 a geophysical survey (HLEM and MAG) and recce mapping was carried out on the property to evaluate the Pb-Zn-Ag potential.

2. LOCATION AND ACCESS

The NOLE property is located south of the Hoole River at Lat. 62°20'N and Long. 131°12'E 100 km SE from Ross River, Yukon (Fig. 1). Access is by helicopter from Ross River with mobilization from an airstrip on the Robert Campbell Highway 45 km to the NE.

3. TOPOGRAPHY

The claim group covers a semi-mountainous zone on the northern edge of the Pelly Mountains. The elevation ranges from 1300 m to 2100 m in moderate to steeply sloping ground. Small scrub coniferous and deciduous vegetation ends at the 1400 m contour and the ground cover is alpine heather above 1400 m. Glaciation has played a major role in developing the current landform.

4. PROPERTY AND OWNERSHIP

The property consists of the following 10 claims (10 units) owned 100% by Cominco Ltd. (Plate 90-1):

<u>Claims</u>	<u>Units</u>	<u>Tag No.</u>	<u>Date Rec.</u>	<u>Due Date</u>
VAL 1	1	YB16497	Sept. 28/89	Mar. 28/95
VAL 2	1	YB16498	"	"
VAL 3	1	YB16499	"	"
VAL 4	1	YB16500	"	"
VAL 5	1	YB16501	"	"
VAL 6	1	YB16502	"	"
VAL 7	1	YB16503	"	"
VAL 8	1	YB16504	"	"
VAL 9	1	YB16505	"	"
VAL 10	1	YB16506	"	"

5. PREVIOUS WORK

The history of the property dates back to 1977 when Cominco's Pelly Mt. Recce program staked the Nole property to cover the drainage area of a stream silt anomaly which yielded 2,400 ppm Pb and 8,500 ppm Zn. Four days were spent on grid soil sampling, prospecting and geological mapping a 2,000 m by 250 m area. The grid soil sampling defined a 1000 x 100 m >100 ppm Pb (peak 26300 ppm) and >300 ppm Zn (peak 10400 ppm) anomaly open along strike to the southeast. Geological mapping located breccia and fracture filling sphalerite and galena mineralization in dolomitic quartz siltstone and graphitic shale. Prospecting noted the scarcity of outcrop within the geochem anomaly and the large areal extent of limonitic and ochreous material which probably indicates the presence of oxidizing Pb-Zn sulphides. No additional exploration work beyond the initial four days was performed on the property and the claims were allowed to lapse.

In 1989 the VAL claims were staked subsequent to the recognition that the stratigraphies hosting the Nole and Hoole mineralization, located 8 km along strike to the NW, are the same and that the Nole Pb-Zn mineralization itself shows similarities to portions of the Hoole mineralization. Recently obtained Pb isotope data on galena samples from the Hoole and Nole properties indicate a Cambrian age.

The 1990 work at the Nole property was based out of the Hoole property camp and consisted of a test geophysical survey (HLEM and MAG) over 3.0 km of flagged grid line. The purpose for the surveys was to test the viability of HLEM and mag as exploration tools in the search for massive Pb-Zn sulphides in this geologic environment. Limited recce mapping was also conducted.

6. REGIONAL GEOLOGY

The Pelly Mountains, between the Tintina and St. Cyr Faults, consist primarily of fine sediments deposited on the northeast flank of the Pelly-Cassiar Platform. The rocks consist of complexly folded and faulted carbonaceous and calcareous pelites and carbonates of upper Cambrian to Devonian age. A lateral transition between shelf and basin environments occurs to the southeast near the St. Cyr Fault resulting in the deposition of upper Cambrian to Ordovician quartzite, siltstone and shale facies and bioclastic Silurian carbonates. Low grade metamorphism is prevalent throughout the region resulting in fissile shales and phyllites in the pelitic units. Locally the carbonates are recrystallized to a low grade, fine-grained marble with dolomitized sections.

7. PROPERTY GEOLOGY

The Nole property is underlain by rocks of the Selwyn Basin from Cambrian to Devonian age as mapped by the Geological Survey of Canada. These Selwyn Basin rocks are fault contacted by the Tintina Fault to the NE and the St. Cyr Fault to the SW.

The stratigraphy in the area of Pb-Zn mineralization has been subdivided into 3 broad units. The oldest unit consists of Cambrian to Ordovician orange-brown weathering, interbedded phyllitic and calcareous siltstone and mudstone. The overlying Ordovician to Silurian unit is a heterogenous, thin to thick bedded succession of transitional shelf-basin clastic facies consisting of black carbonaceous, siliceous quartz siltstone and mudstone grading upwards (?) into more calcareous mudstone, quartz siltstone and minor limestone. This unit contains a distinctive tan to light grey weathering dolomitic siltstone which hosts fracture and breccia infill Pb-Zn mineralization. The youngest unit consists of Silurian black carbonaceous massive bedded silty limestone and bioclastic limestone.

The rocks generally strike 110° and are moderately to strongly foliated and complexly folded within numerous thrust slices. The stratigraphy as defined suggests the presence of a synclinal structure cored by Silurian carbonates and cut by axial planar faults or simply thrust fault repetition of the rock sequence.

8. GEOPHYSICAL SURVEYS (Horizontal Loop EM and Magnetics)

HLEM and magnetics (2.8 and 3.0 line kms respectively) were carried out on the Nole property on August 14 and 15, 1990. Surveying was performed by a Cominco crew under the supervision of geophysicists I. Jackisch and G.J. Parkinson. The purpose for the surveys was to test the viability of HLEM and mag as exploration tools in the search for massive sulphides in this geologic environment.

The HLEM survey used an Apex Max Min II instrument. The coil spacing was 50 metres (having an effective maximum depth of penetration of 25 to 30 metres), the station interval was 12.5 metres, and the frequencies used for surveying were 444 Hz, 1777 Hz, and 3555 Hz. Receiver and transmitter were tilted to parallel the surface topography and were positioned to be exactly 50 metres apart at the

specified tilt. This was accomplished by the operators measuring the tilt using an inclinometer and by pulling the 50 metre cable tight to determine the positioning.

The quality of the data, as shown on Plates 383-90-3 to 383-90-5 is good - the only exception is line 1700E from 725N to 825N where an occurrence of thick, bushy trees and buckbrush caused the transmitter/receiver distance to be less than 50 metres. This is apparent in the noisy in-phase data on this section of the line.

Several conductors ranging from good to poor were detected on this test grid. It is not possible to confidently connect the individual conductors from line to line. More definition requires line spacing of 50 metres in future programs to properly delineate conductors. The 50 metre coil spacing worked well both in the actual data collection phase in such steep terrain, and in interpreting the individual EM responses (which had a minimum amount of interference with each other).

The magnetics survey used an EDA Omni IV base station in conjunction with an EDA Omni Plus field magnetometer. The identical lines to the HLEM grid were surveyed, also at a 12.5 metre station interval. Both magnetometers were dumped onto a field computer after the field surveying, and the diurnal drift was removed by subtracting the base mag readings (averaging 58,450 gammas) from the field mag readings.

The magnetic data is plotted in profile form on Plate 383-90-6. The response is generally flat with a probable change in rock type causing a 10 to 60 gamma rise at the north end of the grid. There are no magnetic responses over any HLEM conductors.

9. CONCLUSIONS

HLEM identified several conductors; however, an inability to trace individual conductors between lines indicate that a closer line spacing is required.

The MAG response is generally flat with no magnetic responses over any HLEM conductors.

The poor rock exposure in the area of interest hinders any geophysical interpretation although results indicate that MAG may be a useful mapping tool.

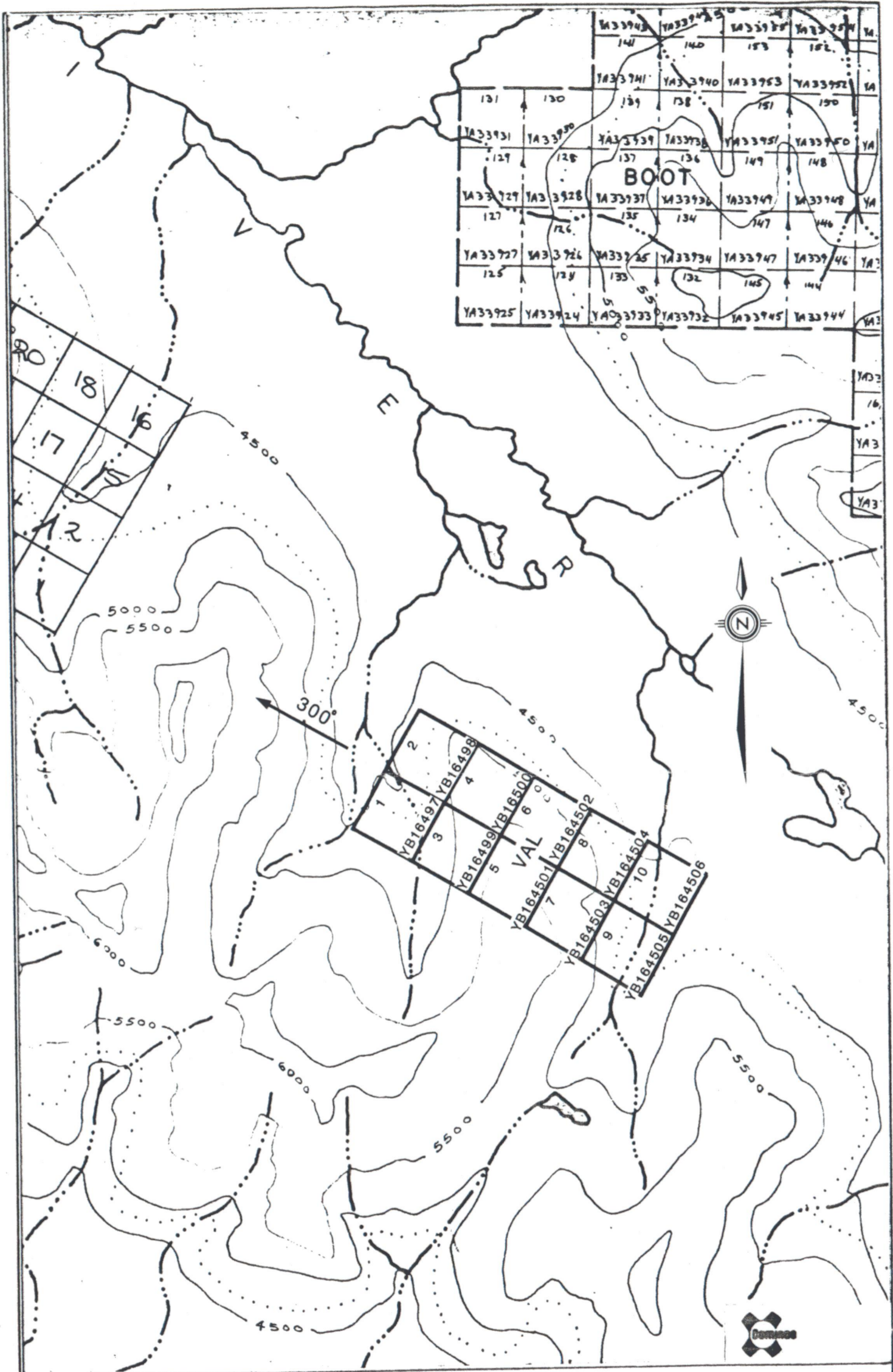
The exposed breccia- and fracture-fill Pb-Zn mineralization and the hosting stratigraphy is of similar age to the Hoole property mineralization.

Reported by:

Paul MacRobbie
Paul A. MacRobbie,
Geologist 1

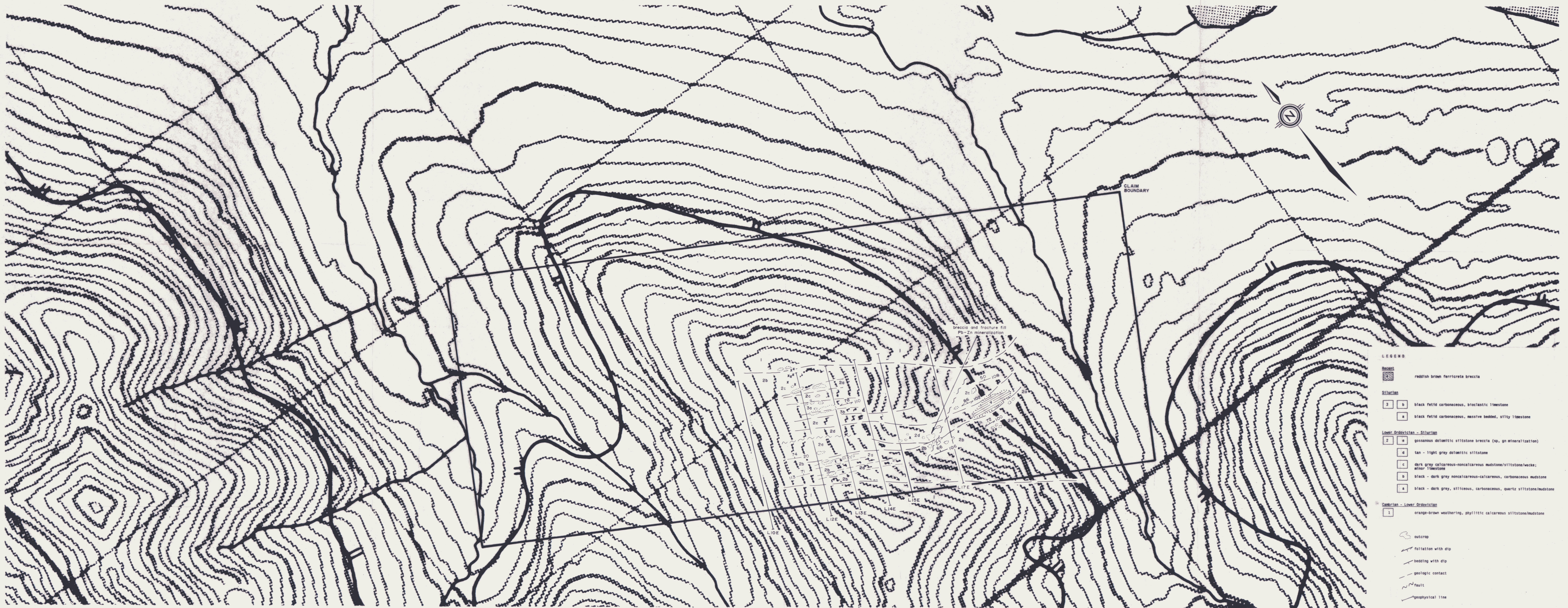
Approved for
release by:

W. J. Wolfe
W. J. Wolfe,
Exploration Manager
Western District

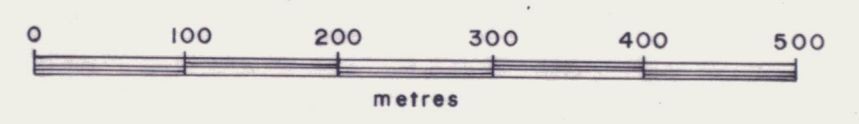


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Revised by	Date	Revised by	Date

NOLE PROPERTY VAL CLAIMS
092890
 WATSON LAKE M.D. N.T.S. 105 G/6
 Scale: 1:34360 Date: OCTOBER 1990 Plate: 90-1



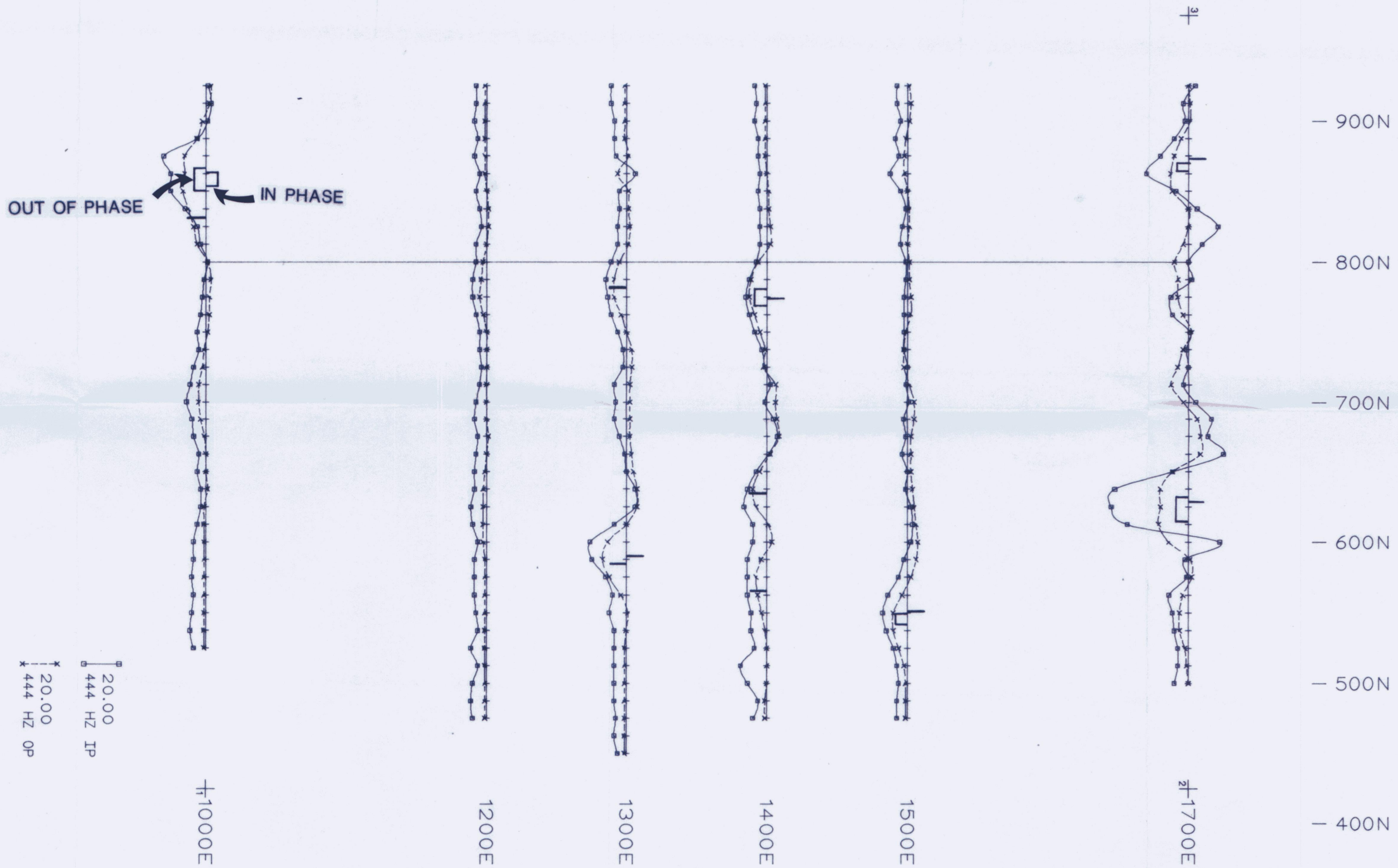
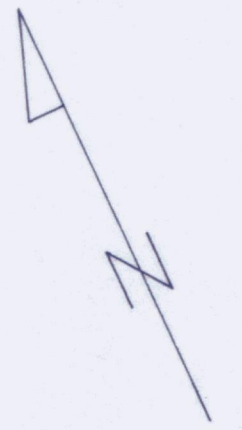
- LEGEND**
- Recent
reddish brown ferricrete breccia
 - Silurian**
 - 2a
black fetid carbonaceous, blocky limestone
 - 2b
black fetid carbonaceous, massive bedded, silty limestone
 - Lower Ordovician - Silurian**
 - 2c
gossanous dolomitic siltstone breccia (sp. gn mineralization)
 - 2d
tan - light gray dolomitic siltstone
 - 2e
dark gray calcareous-noncalcareous mudstone/siltstone/wacke;
minor limestone
 - 2f
black - dark gray noncalcareous-calcareous, carbonaceous mudstone
 - 2g
black - dark gray, siliceous, carbonaceous, quartz siltstone/mudstone
 - Cambrian - Lower Ordovician**
 - 1
orange-brown weathering, phyllitic calcareous siltstone/mudstone
 - outcrop
 - foliation with dip
 - bedding with dip
 - geologic contact
 - fault
 - geophysical line



NOLE PROPERTY		
Drawn by: P.A.M.	Traced by: G.K.G.	
Revised by: _____	Revised by: _____	GEOLOGY 092890
Scale: 1:5000		Date: OCTOBER 1990
		Plate: 90-2

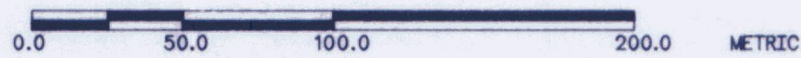
MAP#105 G/6 Doc#092890 390

NOLE



20.00
444 HZ Ip
20.00
444 HZ Op

INST: MAX-MIN II S/N 220



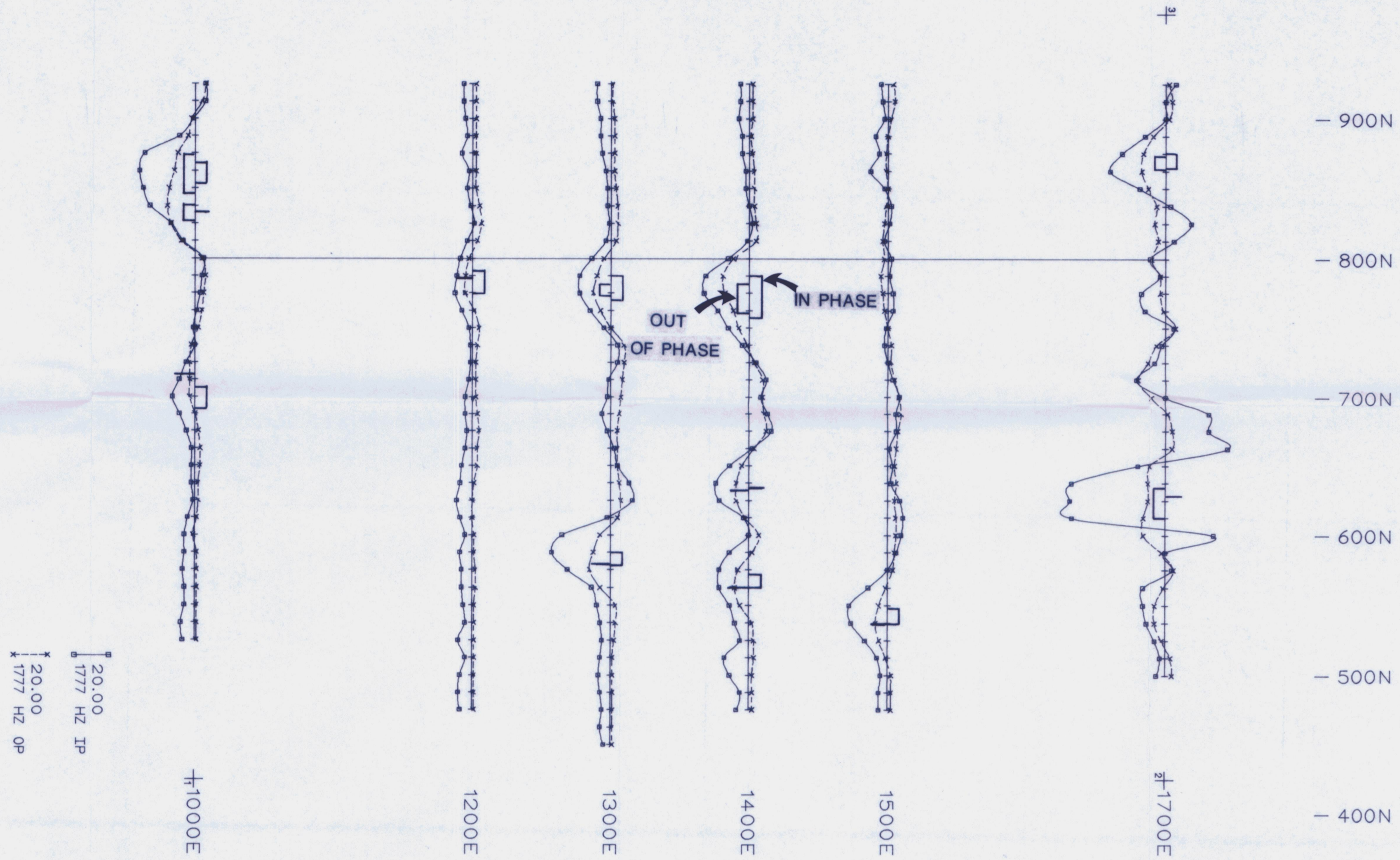
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NOLE PROPERTY 092890

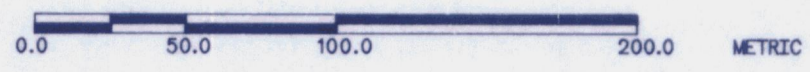
NTS 105G/6 291

DRAWN BY:		TRACED BY:		1990 HLEM SURVEY CS=50M 444 Hz WATSON LAKE M.D., YUKON	SCALE: 1:2500	DATE: AUG 1990	PLATE: 383-90-3
REVISION BY	DATE	REVISION BY	DATE				

NOLE



INST: MAX-MIN II S/N 220



MAP# 105G/6 Doc# 092890

292

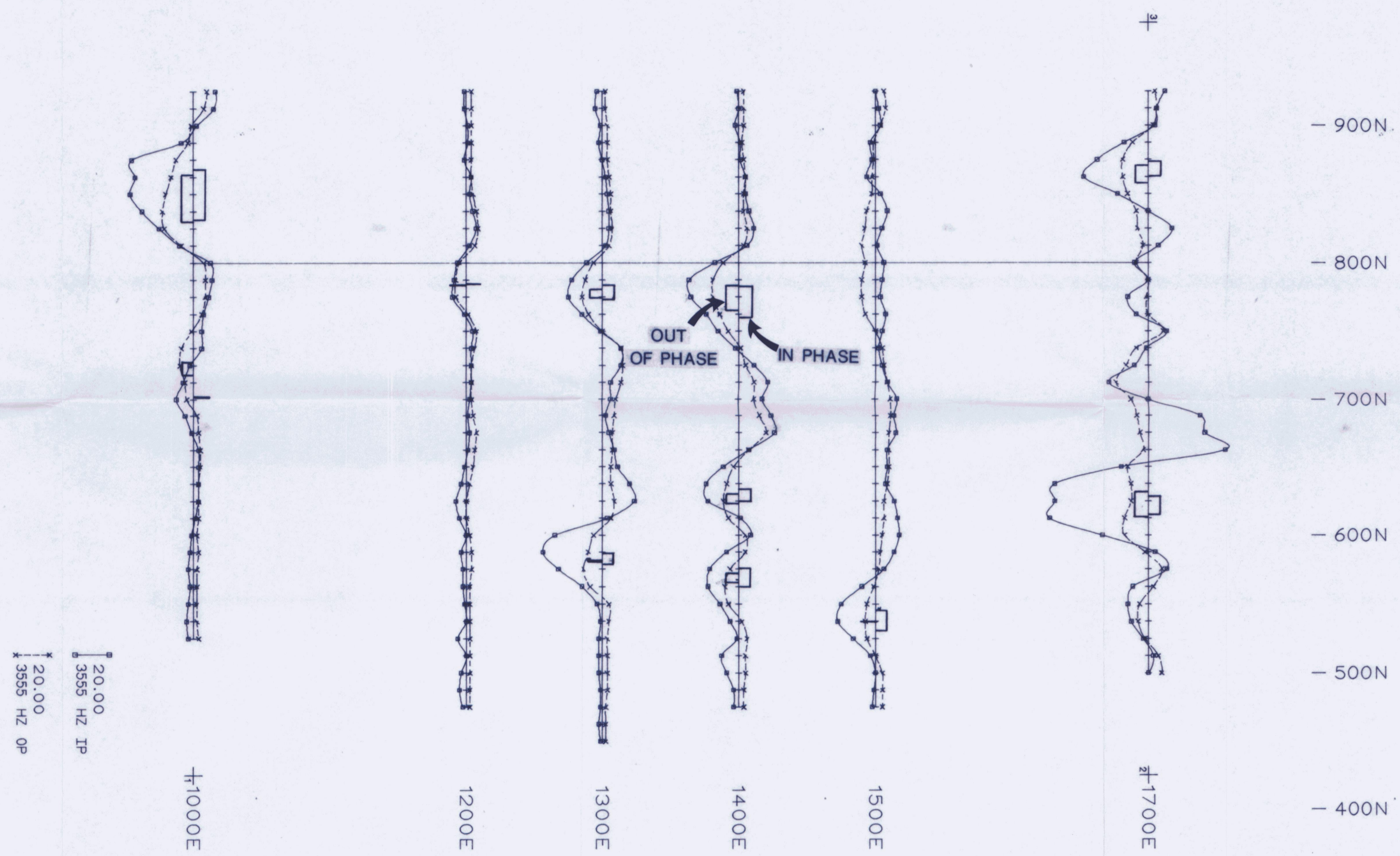
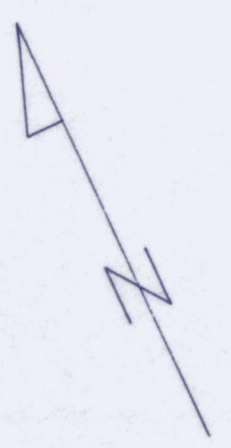
NOLE PROPERTY 092.890 NTS 105G/6

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REVISION BY	DATE	REVISION BY	DATE

1990 HLEM SURVEY
 CS=50M 1777 Hz
 WATSON LAKE M.D., YUKON

SCALE: 1:2500 DATE: AUG 1990 PLATE: 383-90-4

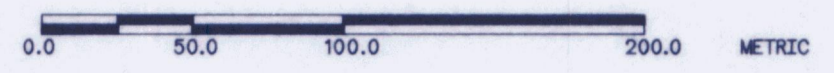
NOLE



20.00
3555 HZ IP

20.00
3555 HZ OP

INST: MAX-MIN II S/N 220



MAP#1059/6 Doc#092890

293

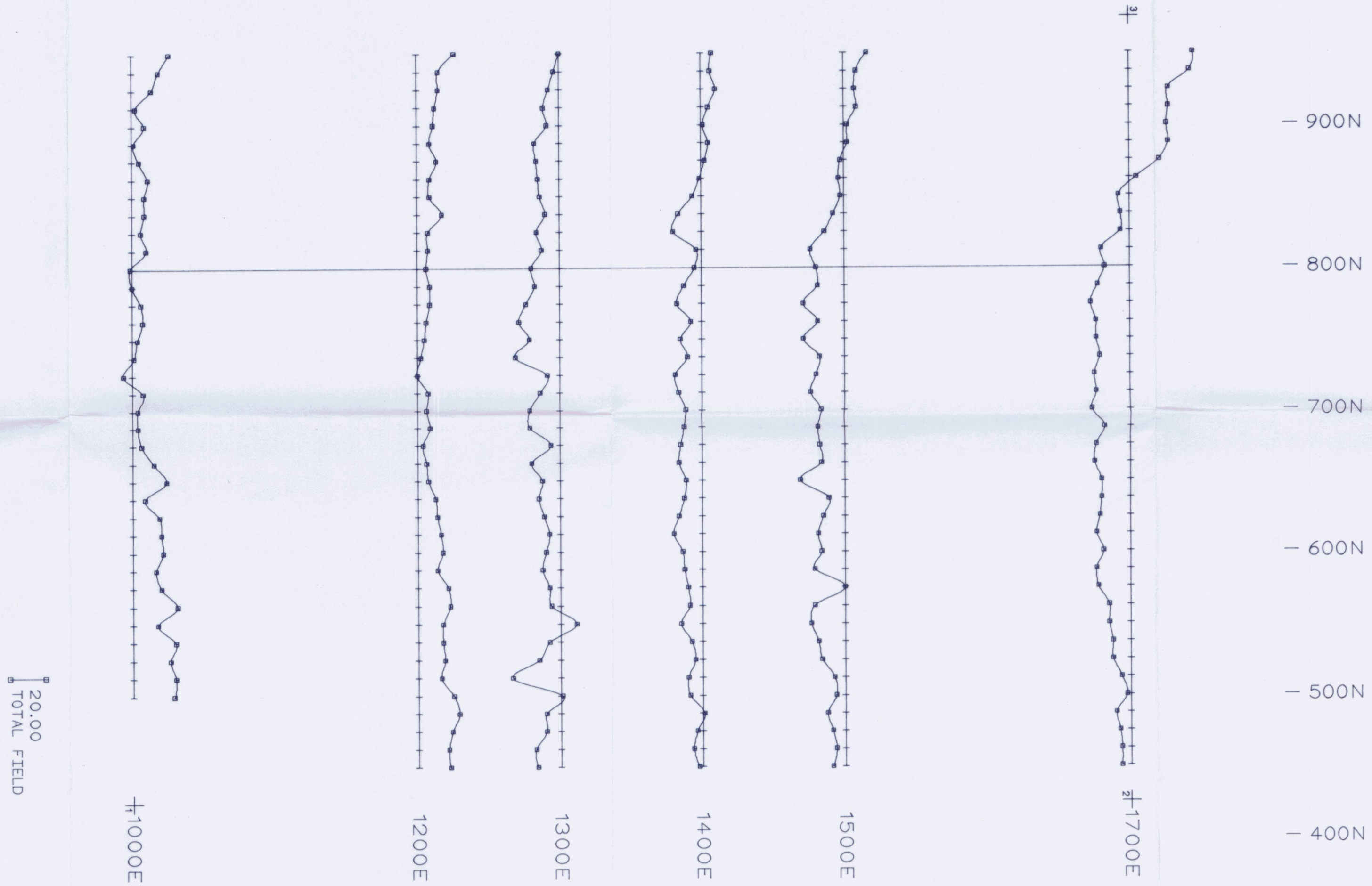
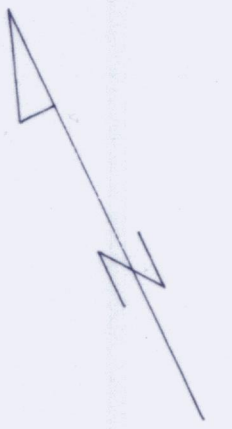
NOLE PROPERTY 092890 NTS 105G/6

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REVISED BY	DATE	REVISED BY	DATE

1990 HLEM SURVEY
CS=50M 3555 Hz
WATSON LAKE M.D., YUKON

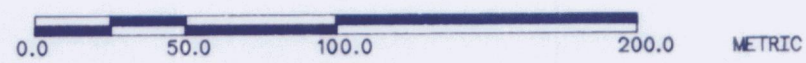
SCALE: 1:2500 DATE: AUG 1990 PLATE: 383-90-5

NOLE



INST: EDA S\N C100(BASE) A077(FIELD)

MAGNETIC BASE LEVEL = 58,450 GAMMAS



MAP#1059/6 Doc#092890

294

NOLE PROPERTY 092890



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REVISED BY	DATE	REVISED BY	DATE

1990 MAGNETICS SURVEY
TOTAL FIELD
WATSON LAKE M.D., YUKON

SCALE: 1:2500

DATE: AUG 1990

PLATE: 383-90-6

APPENDIX 1

STATEMENT OF EXPENDITURES

GEOPHYSICAL SURVEY

Staff costs

I. Jackish (geophysicist)	3 days ● \$340/day	\$1,020
J. Parkinson (geophysicist)	3 days ● \$220/day	\$ 660
T. Plommer (assistant)	3 days ● \$123/day	\$ 369
A. Robulack (assistant)	3 days ● \$103.5/day	\$ 310.50

\$2,359.50

Operating day charges

2 days ● \$390/day

\$ 780

Equipment rental

\$ 170

Expense accounts

\$ 751.46

Freight

\$ 502.89

\$4,368.85

GEOLOGICAL STAFF COSTS

P. MacRobbie (geologist 1) 12 days ● \$236/day

\$3,827

GEOLOGY (SUPPLIES, EQUIPMENT)

\$ 692.52

TRANSPORTATION

Helicopter

\$4,160.10

Freight

\$ 764.03

DOMICILE

\$4,617.19

DRAFTING/REPRODUCTION

\$ 157.20

TOTAL EXPENSES

\$18,586.89


APPENDIX 2

STATEMENT OF QUALIFICATIONS

I, Paul A. MacRobbie, of 312 - 1790 W 10 th. St., Vancouver, B.C. hereby declare that I:

1. Graduated from Carleton University, Ottawa, Ontario with a B.Sc. in Geology in May, 1986 and a M.Sc. in Geology in June, 1988.
2. Have been actively engaged in mineral exploration in Western Canada as a permanent geologist with Cominco Ltd. since June, 1988.

Date: Nov. 19, 1990


P. A. MacRobbie
Geologist 1