



42A11NE0180 2.13374 PROSSER

010

Magnetic and Electromagnetic Surveys

by

Geosearch Consultants Limited

for

Cominco Ltd.

on

War Property

Wark and Prosser Twp., Ontario

To Accompany Maps 90-60 (A,B,C), 61, 62, and 63

2.13374

April 26, 1990

INTRODUCTION

A total field and vertical gradient magnetic survey, and a horizontal loop electromagnetic survey were carried out for Cominco Ltd., on the War Property in February and March 1990.

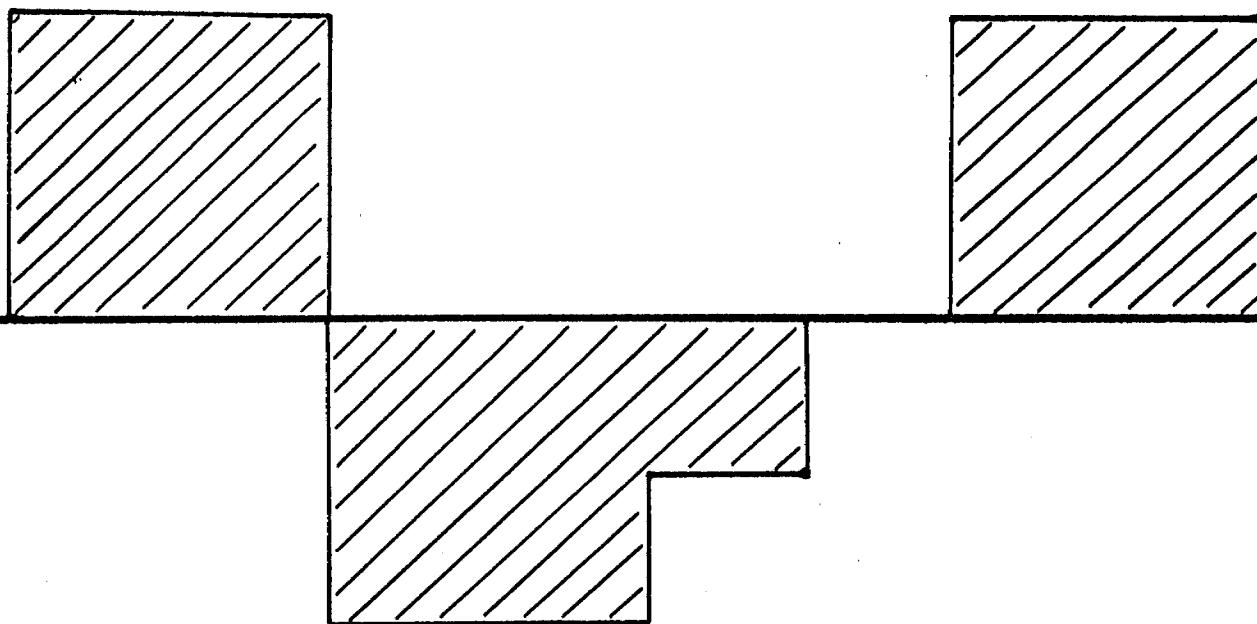
The property consists of thirteen (13) unpatented mining claims numbered P 1115469 to 1115478 and P 1114525 and P 1114526. The claim group is situated approximately twenty-five kilometers north/north-east from the City of Timmins, Ontario, located along the Wark and Prosser Townships boundary. Access to the property was made via snow machines along trails off of highway 655.

The purpose of the horizontal loop survey was to locate conductors previously located by airborne surveys. The purpose of the magnetic survey was to outline differing rock units and the boundaries between them.

The horizontal loop electromagnetic survey located four weakly conductive anomalies within a very conductive background. The magnetic survey outlined two distinct rock units. The vertical gradient of the magnetic survey yielded data with too much noise to be of value.

The accompanying maps show the area surveyed and the results obtained. A technical data sheet is appended to this report.

PROSSER TWP.



5

4

3

2

1

WARK TWP.

LOCATION SKETCH
WAR PROPERTY
WARK & PROSSER TWPS.
NTS: 42-A-11
SCALE: 1:20,000

METHOD

The horizontal loop electromagnetic survey (HLEM) was carried out using Apex Max Min II systems with a 200 metre coil interval. The three frequencies used here were 222, 888 and 3555 Hz. The inphase and quadrature values obtained for each frequency were posted and profiled on separate maps (Maps 90-60 A, B and C). The profile scale used was 1 cm to 40 %, except for the 3555 Hz map on which the scale of 1 cm to 80 % was used.

The magnetic survey was carried out using Gem Systems GSM-19 Total Field - Vertical Gradient Magnetometers. The diurnal drift was corrected for by means of a base station recorder: a Gem Systems GSM-18 Magnetometer, with readings taken at three second intervals. The two sensors were 56 cm apart, with the lower sensor two metres above ground level. The value obtained at the lower sensor was used for the total field measurement.

The corrected total field data and the vertical gradient data was posted on Map 90-61. Profiles of the total field and vertical gradient were plotted on Map 90-62. Contours of the total field data were plotted on Map 90-63.

Contouring and plotting of the data was completed using the Geosoft software package.

RESULTS

The HLEM survey results have a positive inphase background and a negative quadrature background. This is especially noticeable on the high frequency data. These elevated backgrounds indicate a very conductive overburden cover. Within this background four conductive horizons are observed. Their locations are as follow:

- 1) L20+00W, 6+50S
L19+00W, 6+10S
L18+00W, 5+68S
L17+00W, 5+10S
- 2) L19+00W, 3+60S
L18+00W, 3+06S
L17+00W, 2+60S
- 3) L31+00W, 1+58N
L30+00W, 2+05N
- 4) L29+00W, 2+10N
L28+00W, 3+40N

Conductor #1 was defined with all three frequencies. The shape of the profiles on lines 18+00W and 19+00W on the lower two frequencies appear inconsistent with the profiles on the adjoining lines and with the highest frequency. These should be re-checked. In spite of this, the conductor is thought to be due to a bedrock source. Although not entirely reliable due to the elevated background, depth estimates using thin ribbon models are approximately 38 metres with a conductivity thickness product of 8 mhos with the 3555 Hz.

Conductors #2, 3 and 4 are located solely with the 3555 Hz frequency. This indicates these horizons have a very low conductivity, suggesting their sources may be due to surficial overburden conductivity. These probably do not warrant further investigation.

The crossover pattern noted on L26+00W, 6+00N is likely due to a rapid change in the overburden thickness. The positive inphase profile at L22+00W at 2+00S, suggests there is a conductor north of the zero base line, however, this would place the conductor off of the claim group.

The magnetic survey outlines a magnetic unit within a relatively featureless magnetic background. This mafic volcanic unit is centred on a line extending from L17+00W, 8+00S to L5+00W, 1+00N. The HLEM conductor #1 is along the western flank of this unit. There is little to differentiate the remainder of the magnetic data.

The gradiometer survey data reveals a very noise ridden background within which no patterns are discernable.

RECOMMENDATIONS

The HLEM conductor #1 is worthy of drill testing. The remaining three conductive horizons, although parallel to the east/north-east geological strike, are not worthy of further investigations.

A number of conductors thought to exist south of the baseline between lines 24+00W to 18+00W were not located, with the exception of the one suggested north of L22+00W, 0+00. It is possible the airborne positioning of conductors is too far south. Similarly, the mafic volcanic unit outlined by the magnetics, appears further north than indicated on the proposal maps.

A close correlation of this data with the known geology from drill holes should precede further work.

Respectfully submitted,



Louis Racic
Geophysicist

METHOD AND INTERPRETATION OF RESULTS - ELECTROMAGNETIC SURVEY

Operating Principle: When an electrical conductor is subjected to a primary alternating field, a secondary current is induced in the conductor. This current produces a secondary alternating field which together with the primary field produces a resultant field of different amplitude and phase from the applied primary field. These differences may indicate the presence of a conductor.

Operation: The battery-powered transmitter sets up a primary field while the in-phase and out-of-phase (quadrature) components of the complex secondary vertical field are detected by a receiving coil and measured by means of a compensator-amplifier unit located a fixed distance from the transmitter unit. These parameters are expressed in percentage of the primary field.

Conductor Recognition: The typical curve over a steeply-dipping conductor shows a low (negative - greater than 5%) over the centre of the conductor, flanked by positive readings on both sides of the conductor. Both the in-phase and the out-of-phase components usually produce the same general shape of curve. An asymmetrical curve may indicate one or more of the following conditions: (1) more than one conductor (2) variable conductive overburden (3) a shallow dipping conductor.

Conductivity Determination: The ratio of the amplitudes of the two measured components, in-phase to out-of-phase, is directly proportional to the conductivity of the conductor, in areas of non-conductive overburden.

Conductor Location: For a single conductor, both component readings are normally zero when either the transmitting or receiving coil is directly above the conductor. The location of the conductor is calculated by adding one-half the distance between the transmitting coil and the receiving coil (coil interval) to the co-ordinate at which the readings are zero. A unique solution is generally not possible in the case of multiple conductors spaced less than one coil interval apart. This results in the possibility that an apparently wide conductor may actually consist of two or more narrow conductors.

Depth of Penetration: The maximum depth of penetration for detection of a steeply-dipping conductor in a geo-electrically neutral background is about 0.7 times the coil interval. Over horizontal or flatly-dipping conductors, penetration of up to 1.5 times the coil interval is possible.



Ministry of
Northern Development
and Mines

DOCUMENT NO
W 9006-6



42A11NE0180 2.13374 PROSSER

900

Report of Work
Mining Act (Geophysical, Geological and Geochemical Surveys)

Technical reports and maps in duplicate issued by the
Mining Lands Section, Mineral Development and Lands Branch

Type of Survey(s) Recorded Holder(s)	W9006-60345 Magnetic & Electromagnetic Cominco Ltd.	Mining Division Porcupine	Township or Area Wark Twp.
Address Survey Company	2200-120 Adelaide St. W., Toronto, Ont., M5H 1T1	2.13374	Prospector's Licence No. A-10043 Telephone No. 869-1850

Geosearch Consultants Limited

Name and Address of Author (of Geo-Technical Report)	Date of Survey (from & to)
Louis Racic, 360-111 Queen St. E., Toronto, Ont.	026 02 90 - 036 04 90

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic - Magnetometer	20 40
For each additional survey: using the same grid: Enter 20 days (for each)	- Other Geological	
Man Days Complete reverse side and enter totals here	Geophysical	Days per Claim
	- Electromagnetic - Magnetometer	
	RECEIVED	
	JUN 15 1990	
	Geological	
	MINING LANDS SECTION	
Airborne Credits	Electromagnetic	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys	- Magnetometer Other	
Total miles flown over claim(s).	Recorded Holder or Agent (Signature)	

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Mining Claim		Mining Claim	
Prefix	Number	Prefix	Number	Prefix	Number
P	1115469				
	1115470				
	1115471				
	1115472				
	1115473				
	1115474				
	1115475				
	1115476				
	1115477				
	1115478				
	1115479				
	1114525				
	1114526				

Total number of mining claims covered by this report of work.

13

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in this Report of Work, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying

Louis Racic, 360-111 Queen St. E., Toronto, Ont., M5C 1A7

Telephone No 365-3325	Date 26/04/90	Certified By (Signature) Louis Racic
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Received Stamp

RECORDED
MAY 28 1990

For Office Use Only

Total Days Cr. Recorded 100	Date Recorded MAY 28/90	Mining Records S. White
Date Approved as Recorded		Mining Records Provincial Manager, Mining Lands

See revised work statement



Ministry of Northern Development and Mines	Ministère du Développement du Nord et des Mines	Mining Lands Section 3rd Floor, 880 Bay Street TORONTO, Ontario M5S 1Z8
		Telephone: (416) 965-4888
		Your File: W9006-60345 Our File : 2.13374

July 26, 1990

Mining Recorder
Ministry of Northern Development and Mines
60 Wilson Avenue
TIMMINS, Ontario
P4N 2S7

Dear Sir:

RE: Notice of Intent dated June 26, 1990 for Geophysical
(Electromagnetic & Magnetometer) Survey submitted on
Mining Claim P 1115469 et al in Wark Township.

The assessment work credits, as listed with the above
mentioned Notice of Intent have been approved as of the above
date.

Please inform the recorded holder of these mining claims and
so indicate on your records.

Yours sincerely ..

W. R. Cowan

W. R. Cowan
Provincial Manager, Mining Lands
Mines and Minerals Division

DM/dvl
Enclosure

cc: Mr. W. D. Tieman
Mining and Lands Commissioner
Toronto, Ontario

Resident Geologist
Timmins, Ontario

Cominco Ltd.
Toronto, Ontario

Louis Racic
Toronto, Ontario



Ministry of
Northern Development
and Mines

Technical Assessment
Work Credits

File

2.13374

Date

June 26, 1990

Mining Recorder's Report of
Work No.
W9006-60345

Recorded Holder

Cominco Ltd.

Township or Area

Wark Twp.

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical Electromagnetic _____ 20 days Magnetometer _____ 40 days Radiometric _____ days Induced polarization _____ days Other _____ days	40 days Magnetometer P 1115469 to 479 incl. 1114525 - 526 20 days Electromagnetic P 1115469 to 472 incl. 1115477 to 479 incl. 1114525 - 526
Section 77 (19) See "Mining Claims Assessed" column Geological _____ days Geochemical _____ days Man days <input type="checkbox"/> Airborne <input type="checkbox"/> Special provision <input checked="" type="checkbox"/> Ground <input type="checkbox"/> <input type="checkbox"/> Credits have been reduced because of partial coverage of claims. <input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims
--

not sufficiently covered by the survey

insufficient technical data filed

Electromagnetic P 1115473 to 476 incl.



Ministry of
Northern Development
and Mines

Geophysical-Geological-Geochemical
Technical Data Statement

File _____

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Magnetic & Electromagnetic

Township or Area Wark & Prosser Twps., Ontario

Claim Holder(s) Cominco Ltd.

Survey Company Geosearch Consultants Ltd.

Author of Report Louis Racic

Address of Author 360-111 Queen St.E., Toronto, Ont.

Covering Dates of Survey 26/02/90 - 26/04/90

(linecutting to office)

Total Miles of Line Cut 31.6 kilometers

MINING CLAIMS TRAVESED
List numerically

.....(prefix)(number)

.....P...1115469.....1115479.....

P 1114525 - 1114526

SPECIAL PROVISIONS
CREDITS REQUESTED

ENTER 40 days (includes
line cutting) for first
survey.

ENTER 20 days for each
additional survey using
same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	20
--Magnetometer	40
--Radiometric	
--Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: 26/04/90

SIGNATURE: Louis Racic

Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No. Type Date Claim Holder

.....
.....
.....
.....
.....

TOTAL CLAIMS 13

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS — If more than one survey, specify data for each type of survey

Number of Stations 928 Number of Readings 1885 MAG 1885 VLF 480
Station interval 25 m (12.5 m MAG) Line spacing 100m
Profile scale HLEM 1 cm = 40%, 1 cm = 80%
Contour interval MAG 50 gammas

MAGNETIC

Instrument Gem Systems GSM-19 Magnetic Gradiometer
Accuracy — Scale constant 0.1 gamma
Diurnal correction method Base station recorder with readings taken
Base Station check-in interval (hours) at 3 second intervals
Base Station location and value _____

ELECTROMAGNETIC

Instrument Apex Max Min II
Coil configuration Co-planar
Coil separation 200 metres
Accuracy 1%
Method: Fixed transmitter Shoot back In line Parallel line
Frequency 222, 888, and 3555 Hz
(specify V.L.F. station)
Parameters measured In phase and quadrature components of the vertical secondary field.

GRAVITY

Instrument _____
Scale constant _____
Corrections made _____
Base station value and location _____
Elevation accuracy _____

INDUCED POLARIZATION

Instrument _____
Method Time Domain Frequency Domain
Parameters — On time _____ Frequency _____
— Off time _____ Range _____
— Delay time _____
— Integration time _____
Power _____
Electrode array _____
Electrode spacing _____
Type of electrode _____

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS — If more than one survey, specify data for each type of survey

Number of Stations	928	Number of Readings	MAG 1885	EM 480
Station interval	25 m (12.5 m MAG)	Line spacing	100m	
Profile scale	HLEM 1 cm = 40%, 1 cm = 80%			
Contour interval	MAG 50 gammas			

MAGNETIC

Instrument Gem Systems GSM-19 Magnetic Gradiometer
 Accuracy — Scale constant 0.1 gamma
 Diurnal correction method Base station recorder with readings taken
 Base Station check-in interval (hours) at 3 second intervals
 Base Station location and value _____

ELECTROMAGNETIC

Instrument Apex Max Min II
 Coil configuration Co-planar
 Coil separation 200 metres
 Accuracy 1%
 Method: Fixed transmitter Shoot back In line Parallel line
 Frequency 222, 888, and 3555 Hz
(specify V.L.F. station)
 Parameters measured In phase and quadrature components of the vertical secondary field.

GRAVITY

Instrument _____
 Scale constant _____
 Corrections made _____
 Base station value and location _____
 Elevation accuracy _____

INDUCED POLARIZATION

RESISTIVITY

Instrument _____
 Method Time Domain Frequency Domain
 Parameters — On time _____ Frequency _____
 — Off time _____ Range _____
 — Delay time _____
 — Integration time _____
 Power _____
 Electrode array _____
 Electrode spacing _____
 Type of electrode _____

LEGEND

HIGHWAY AND ROUTE No.	
OTHER ROADS	
TRAILS	
SURVEYED LINES:	
TOWNSHIPS, BASE LINES, ETC.	
LOTS, MINING CLAIMS, PARCELS, ETC.	
UNSURVEYED LINES:	
LOT LINES	
PARCEL BOUNDARY	
MINING CLAIMS ETC.	
RAIL WAY AND RIGHT OF WAY	
UTILITY LINES:	
PERENNIAL STREAM	
FLOODING OR FLOODING RIGHTS	
SUBDIVISION OR COMPOSITE PLAN	
RESERVATIONS:	
ORIGINAL SHORELINE	
MARSH OR MUSKEG	
MINES	
VERSE MONUMENT	

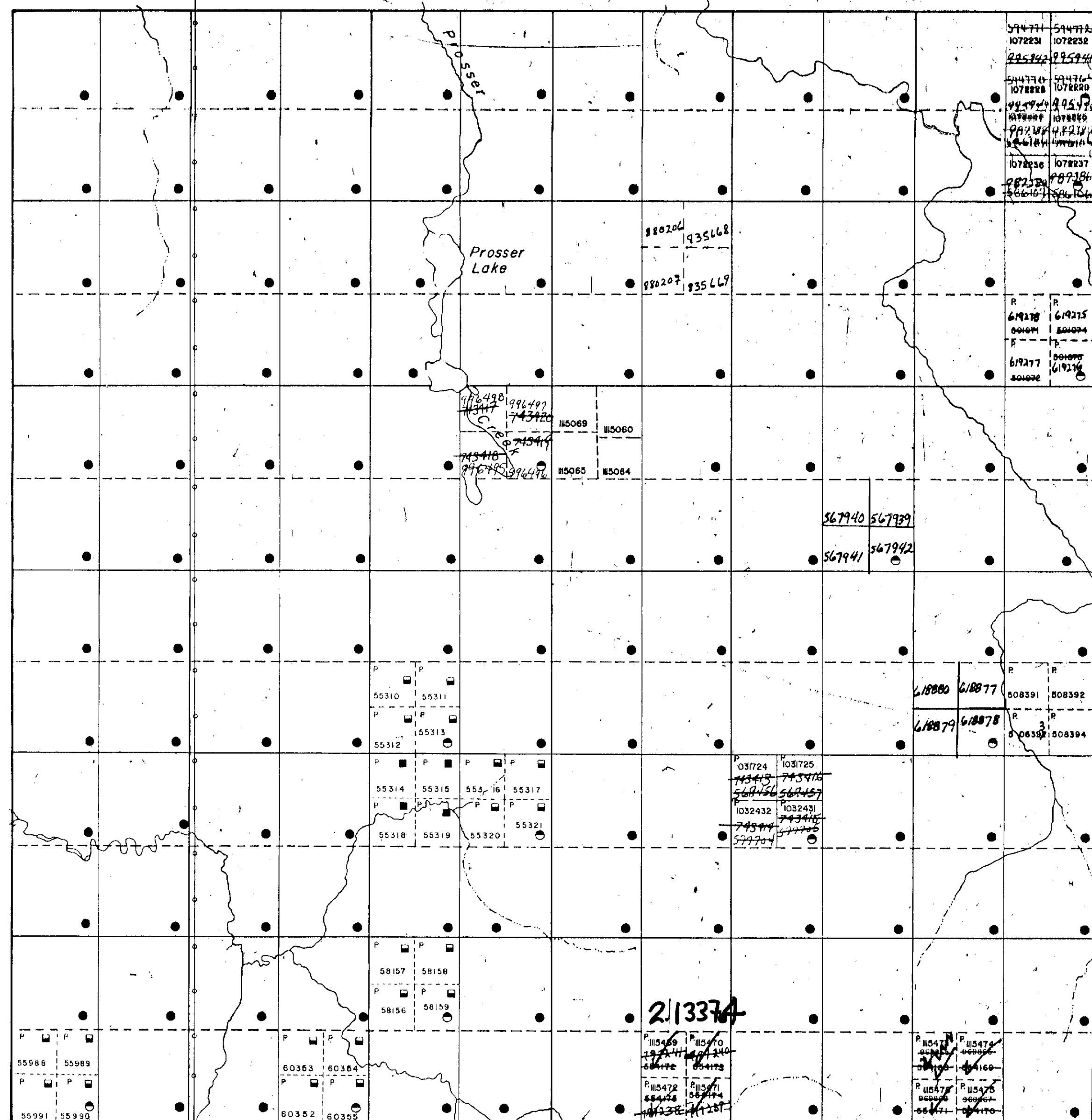
DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	○
" , MINING RIGHTS ONLY	○
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	□
" , MINING RIGHTS ONLY	□
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	①
CANCELLED	⊗
SAND & GRAVEL	②

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC 1.

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

LUCAS TWP.



12 11 10 9 8 7 6 5 4 3 2

ARK TWP



42A11NE0180 2.13374 PROSSER

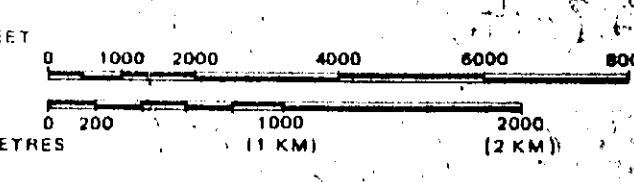
NOTES:

400' surface rights reservation along the shores of all lakes and rivers.

A rectangular stamp with a decorative border. The top line reads "PORCUPINE MINING DIVISION". The bottom line is "RECEIVED". Below the stamp, the date "MAY 22 1900" is stamped.

MAY 22 1990

SCALE: 1 INCH = 40 CHAINS



**TOWNSHIP OF
PROSSER
DISTRICT
COCHRANE
MINING DIVISION
PORCUPINE**

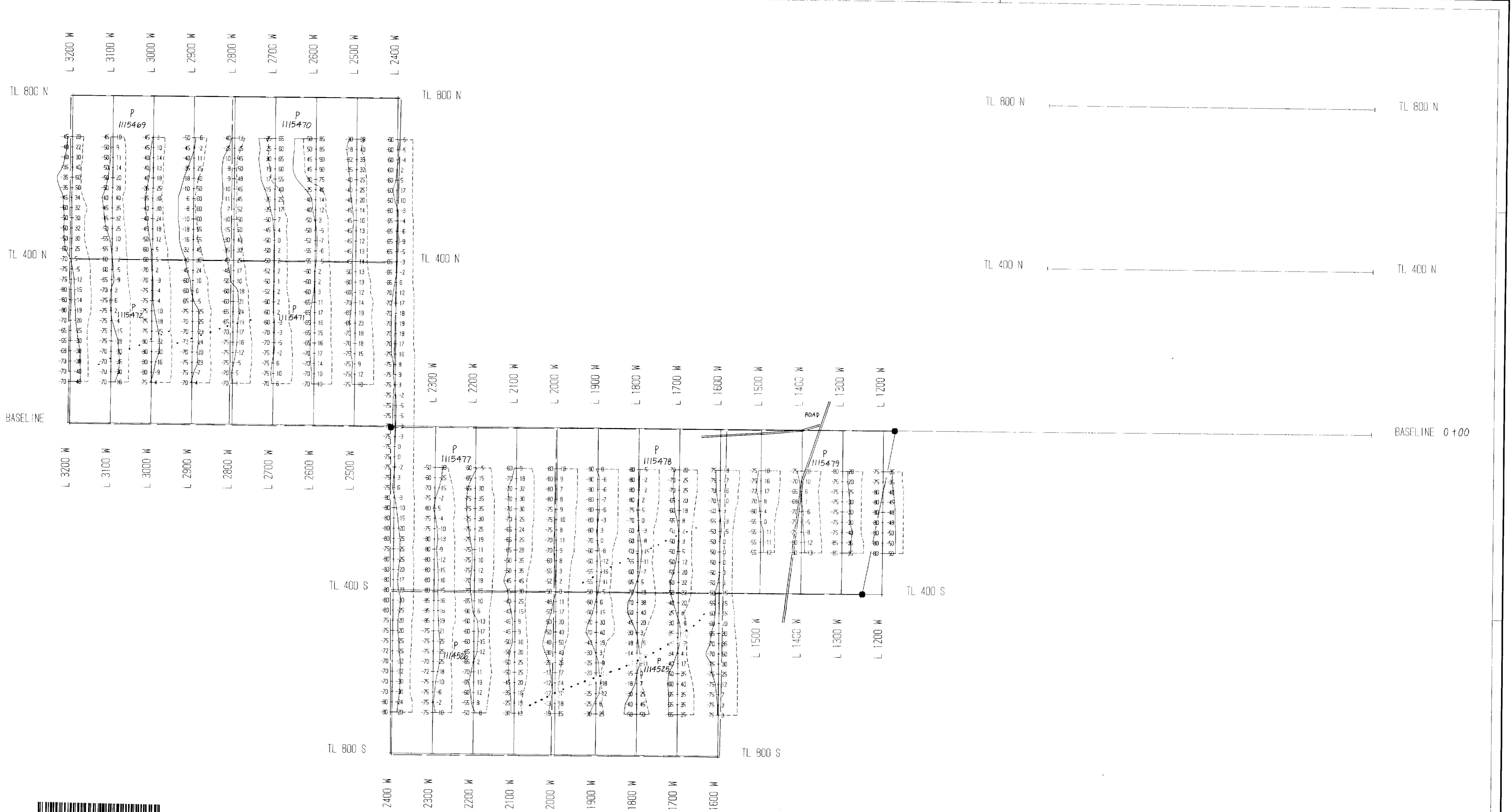


Ministry of Surveys and
Natural Mapping
Resources Branch

Plan No. _____

National Topographic Series

M-571



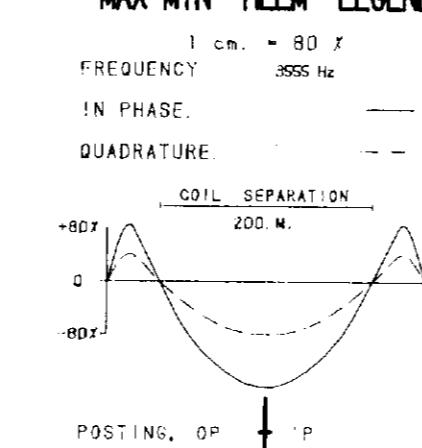
42A11NE0188 2.13374 PROSSER

220

TOPOGRAPHY

- CLAIM POST
- LAKE
- STREAM
- SWAMP
- ACCESS ROAD
- BUSH ROAD
- POWER LINE

MAX-MIN HLEM LEGEND

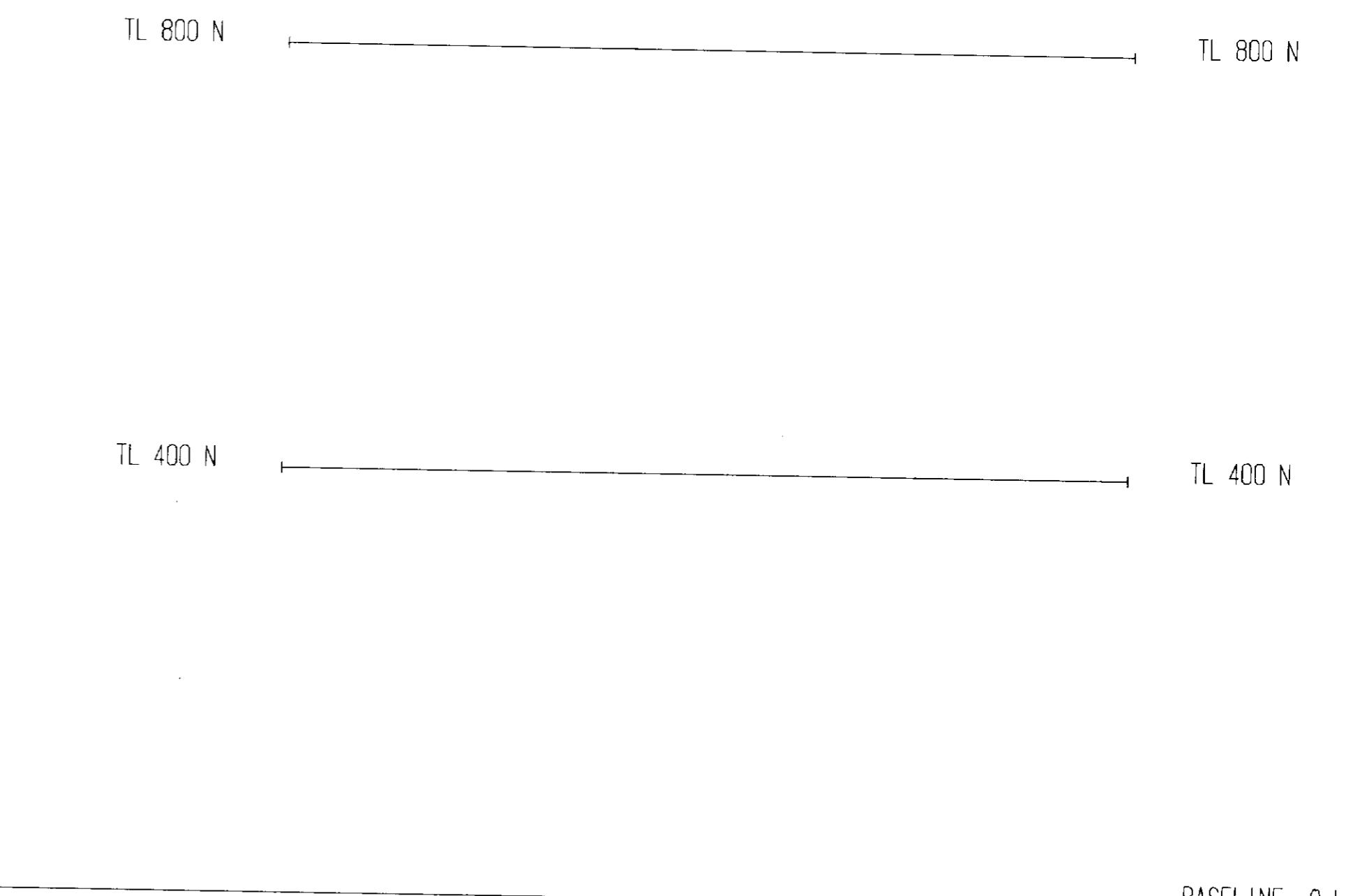
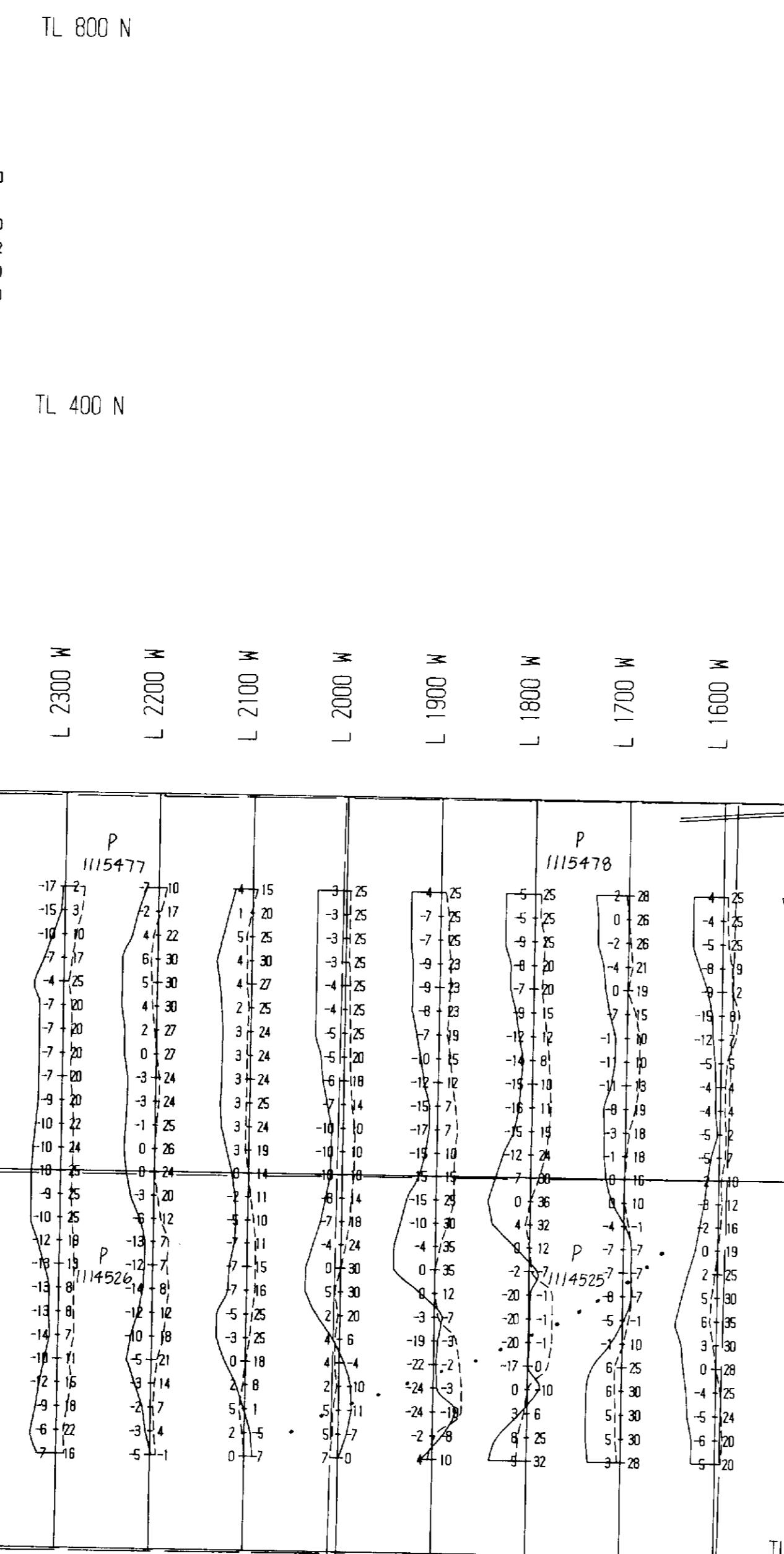
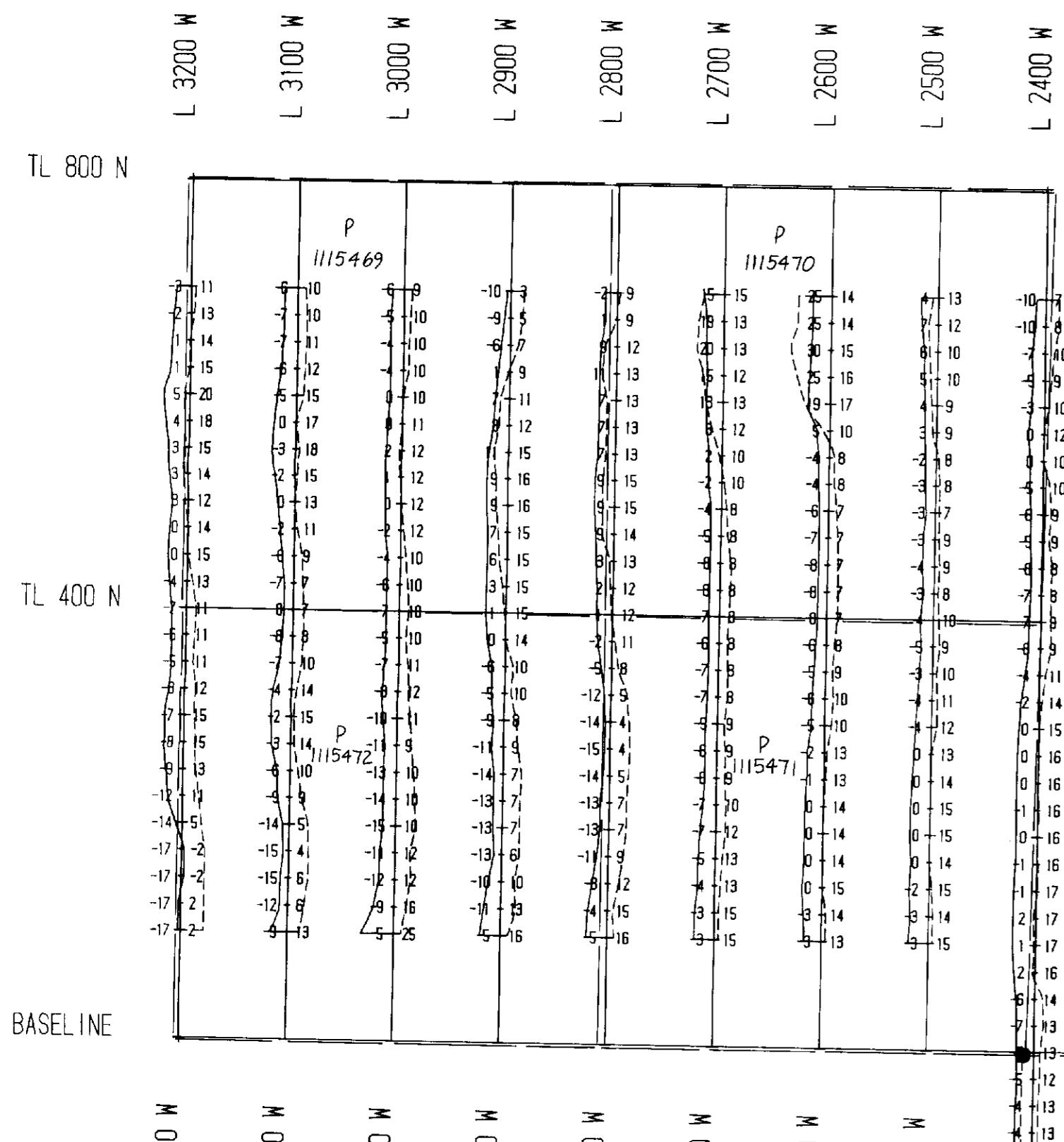


SCALE 1 : 5 000
100 3 100 (metres) 200 300 400

2.13374
3555 Hz. H.L.E.M. SURVEY
by
GEOSEARCH CONSULTANTS LTD.
for
COMINCO LTD.
WAR PROPERTY
MARK AND PROSSER TOWNSHIPS, ONTARIO

DATE : FEB. MAR. 1990
DRAWN : J.A.R.

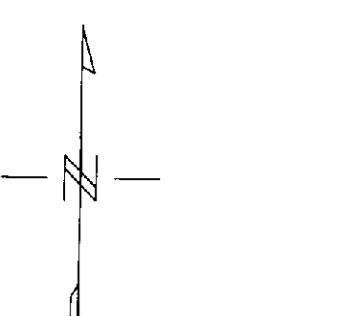
NTS : 42 A 11
90 - 60 A



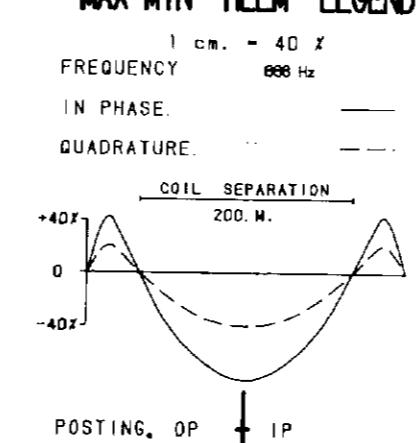
230

TOPOGRAPHY

- CLAIM POST
- LAKE
- STREAM
- SWAMP
- ACCESS ROAD
- BUSH ROAD
- POWER LINE



MAX-MIN HLEM LEGEND



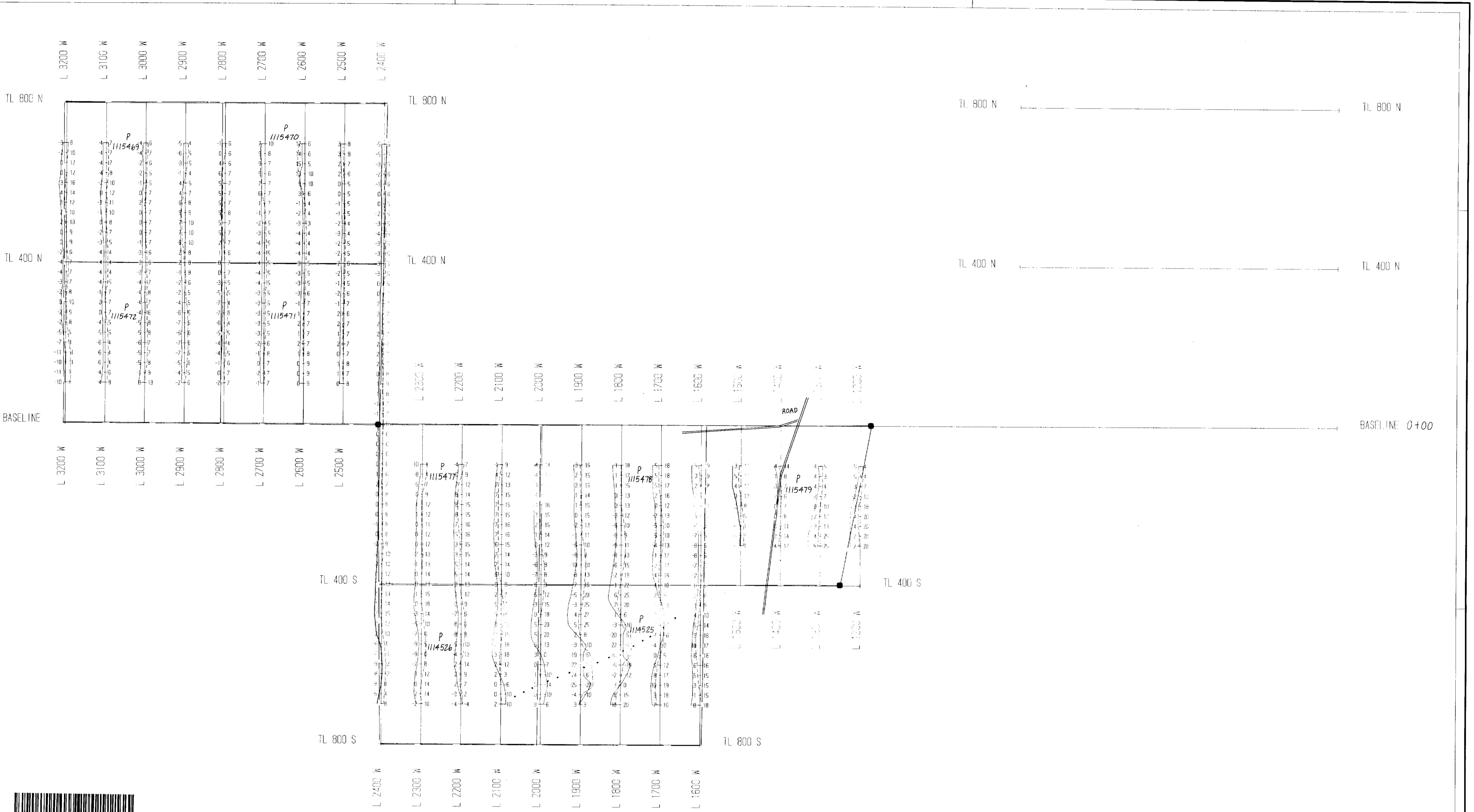
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2.13374

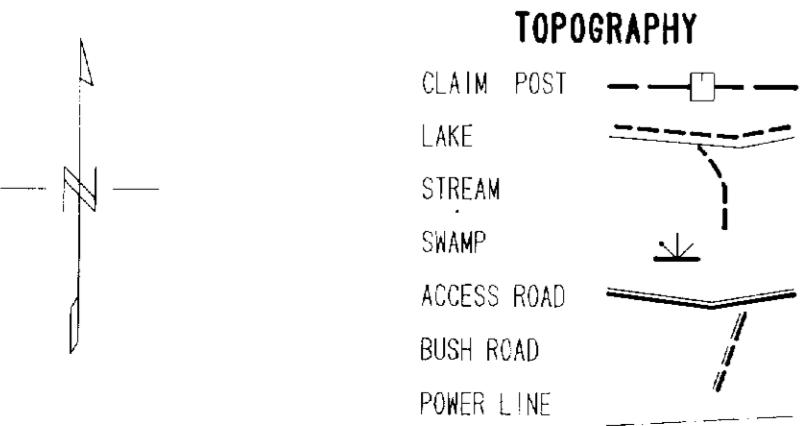
888 Hz. H.L.E.M. SURVEY
by
GEOSEARCH CONSULTANTS LTD.
for
COMINCO LTD.
WAR PROPERTY
MARK AND PROSSER TOWNSHIPS, ONTARIO

DATE : FEB. MAR. 1990
DRAWN : J.A.R.

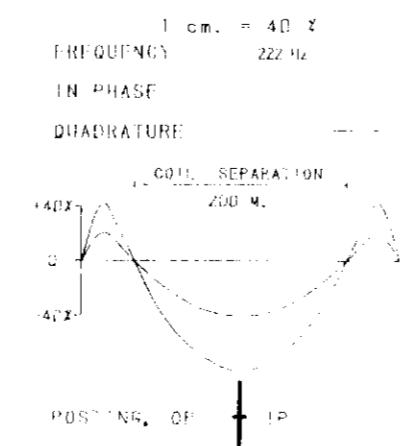
NTS : 42 A 11
90 - 60 B



240



MAX-MIN HLEM LEGEND



SCALE 1 : 5 000



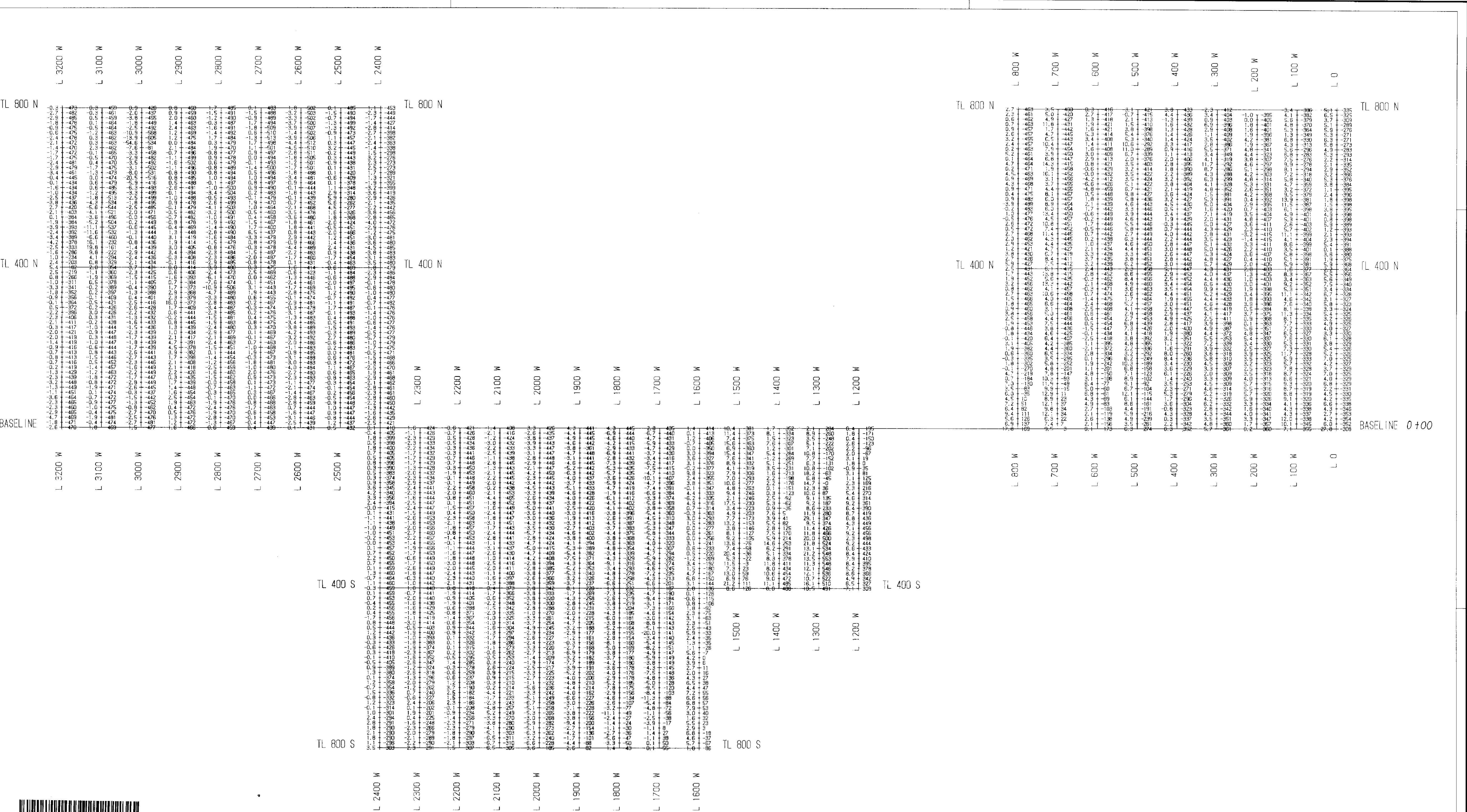
222 Hz. H.L.E.M. SURVEY

by
GEOSEARCH CONSULTANTS LTD.for
COMINCO LTD.

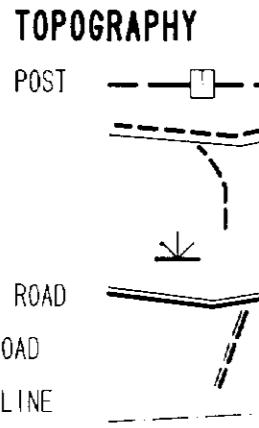
WAR PROPERTY
MARK AND PROSSER TOWNSHIPS, ONTARIO

DATE : FEB. 1982
CHAKN : J.A.R.

NTS : 47 A 11
SC : 60 60 6



250



TOTAL FIELD POSTED TO THE RIGHT OF THE LINE
BASE LEVEL 59,000 nT REMOVED
VERTICAL GRADIENT POSTED TO THE LEFT OF THE LINE
INSTRUMENT : GEM SYSTEMS GSM-19 MAGNETOMETER

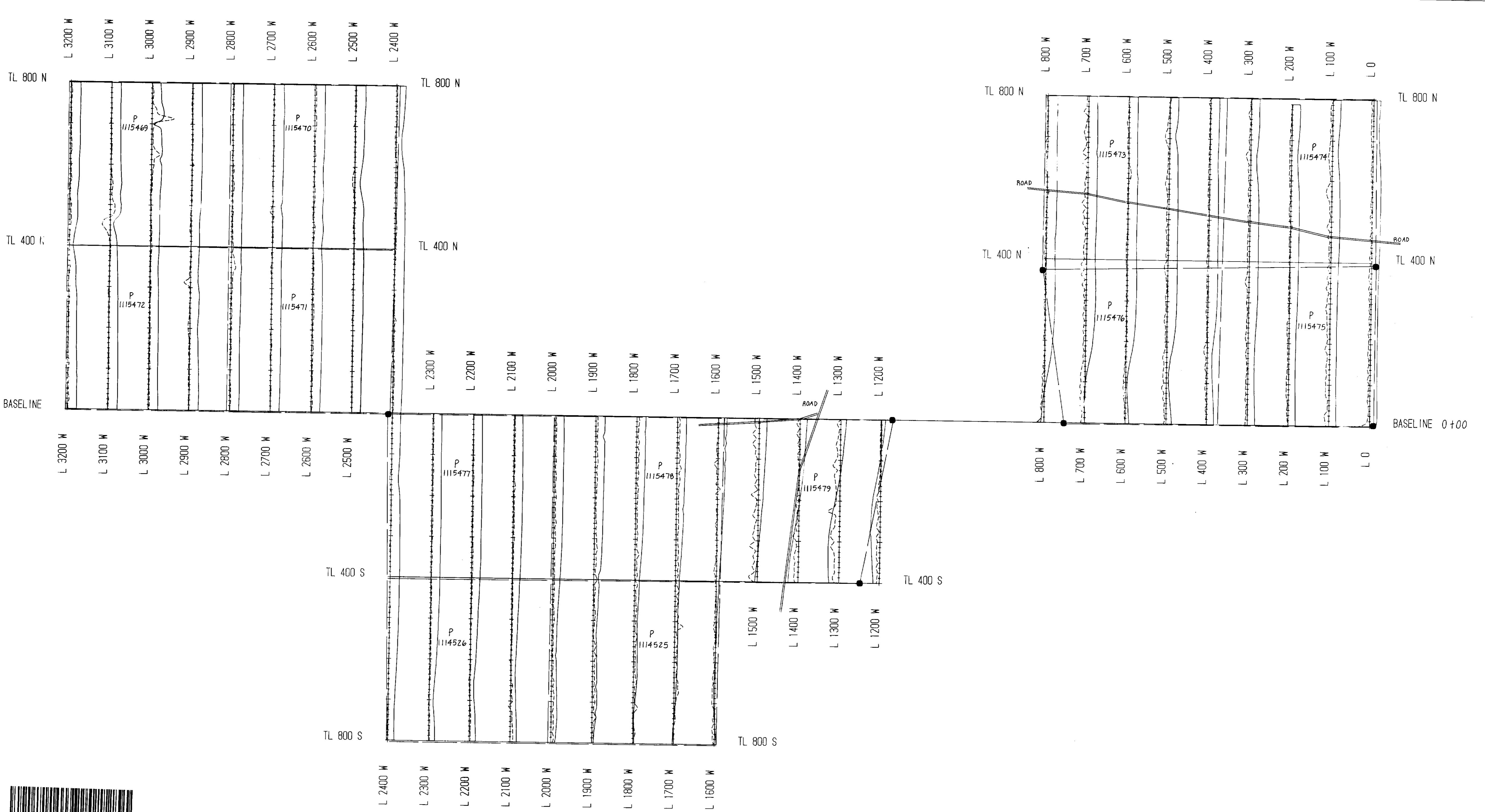
2.13374

TOTAL FIELD MAGNETIC POSTINGS
by
GEOSEARCH CONSULTANTS LTD.
for
COMINCO LTD.
WAR PROPERTY
WARK AND PROSSER TOWNSHIPS, ONTARIO

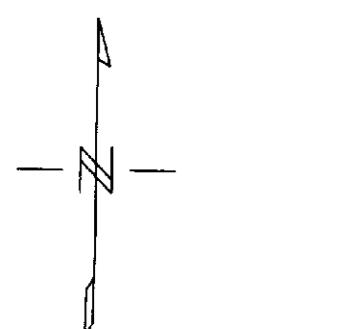
SCALE 1 : 5 000
100 0 100 (metres) 200 300 400

DATE : FEB. / MAR. 1990
DRAWN : J.A.R.

NTS : 42 A 11
90 - 61



260



TOPOGRAPHY

The legend includes the following entries:

- CLAIM POST**: A symbol consisting of a horizontal line with a small square box in the center.
- LAKE**: A symbol consisting of a dashed horizontal line with a wavy line underneath it.
- STREAM**: A symbol consisting of a dashed line that curves downwards.
- SWAMP**: A symbol consisting of a short dashed line ending in a triangular plant icon.
- ACCESS ROAD**: A symbol consisting of a thick, solid, V-shaped line.
- BUSH ROAD**: A symbol consisting of a thick, solid line with diagonal hatching.
- POWER LINE**: A symbol consisting of two parallel horizontal lines with vertical lines connecting them at both ends.

TOTAL FIELD MAGNETIC PROFILES - SOLID LINE
BASE LEVEL 59,000 nT
PROFILE SCALE 1:100,000

VERTICAL MAGNETIC GRADIENT PROFILES - DASHED LINE
PROFILE SCALE 1 cm = 50 nT/m

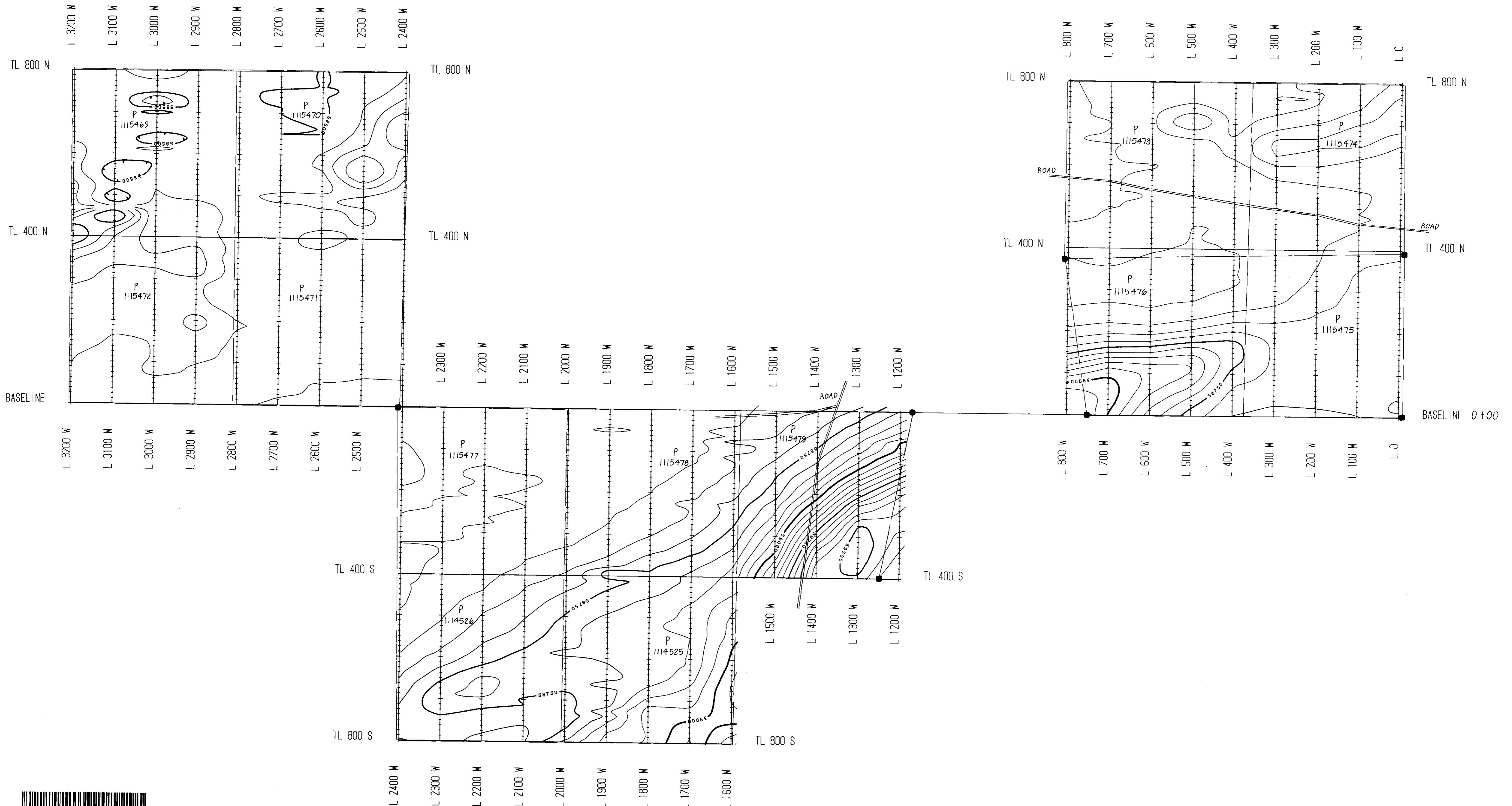
2.13374

MAGNETIC GRADIENT PROFILES
by
SEARCH CONSULTANTS LTD.
for
COMINCO LTD.

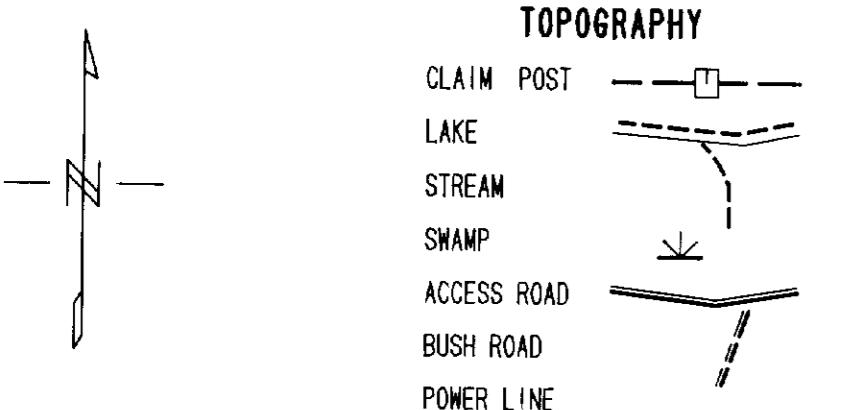
WAR PROPERTY
PROSSER TOWNSHIPS, ONTARIO

DATE : FEB.\MAR. 1990
DRAWN : J.A.B.

NTS : 42 A 11



270



MAGNETIC FIELD CONTOURS
 ————— 50
 ————— 250
 ————— 1000

INSTRUMENT : GEM SYSTEMS GSM - 19 MAGNETOMETER

SCALE 1 : 5 000
 100 0 100 (metres) 200 300 400

2.13374
 TOTAL FIELD MAGNETIC CONTOURS
 by
 GEOSEARCH CONSULTANTS LTD.
 for
 COMINCO LTD.
WAR PROPERTY
MARK AND PROSSER TOWNSHIPS, ONTARIO

DATE : FEB. WAR. 1990
 DRAWN : J.A.R.

NTS : 42 A 11
 90 - 63