



41P11NW0406 2.4178 CONNAUGHT

010

TEXASGULF CANADA LTD.

REPORT ON GEOPHYSICAL WORK

CONNAUGHT AND CHURCHILL TOWNSHIPS

N.T.S.: 41 P 11

CLAIMS: CHURCHILL 42: L - 576701 - 702

L - 577697 - 700

CHURCHILL 31: L - 576703 - 706

L - 619000 - 005

CONNAUGHT 16 EAST: L - 576715 - 718

CONNAUGHT 16 WEST: L - 576707 - 710

CONNAUGHT 26: L - 576711 - 714

RECEIVED

OCT - 5 1981

MINING LANDS SECTION

SEPTEMBER, 1981

W.A. GASTEIGER

TEXASGULF CANADA LTD.
REPORT ON GEOPHYSICAL WORK
CONNAUGHT AND CHURCHILL TOWNSHIPS
N.T.S.: 41 P 11

INTRODUCTION

Geophysical surveys consisting of proton precession magnetometer, horizontal loop electromagnetic and v.l.f. electromagnetic traverses were run over five groups of claims in Connaught and Churchill Townships. Three four claim groups are located in the south-east corner of Connaught Township. Churchill 42, a six claim group is situated immediately south of Okawakenda Lake and Churchill 31, a group of ten claims, is located approximately a half mile east of the Connaught and Churchill Township boundary.

Access to all of the properties is best handled by helicopter although Churchill 42 can be easily reached by landing a fixed wing aircraft on Okawakenda Lake.

PREVIOUS WORK:

No previous work has been filed for assessment on any of these claim groups. In Churchill Township, previous work has been concentrated on the southern edge of the Township while in Connaught Township most of the work has been in the northern half.

SURVEY DETAILS:

On all five properties, lines were cut east-west. On Churchill 42, all lines were established every 60 metres while on

Churchill 31, lines were cut at 60 metre intervals in the south and at 120 metre intervals in the north. One hundred metre lines was standard for all the Connaught properties. On all grids, stations were established every 20 metres.

Magnetic surveys and any v.l.f. surveys were run at 20 metre station intervals. The horizontal loop values were usually recorded every 40 metres.

SURVEY RESULTS:

CHURCHILL 42: This is the only property on which an electro-magnetic response was recorded that could possibly be associated with a sulphide conductor. Even though, on line 720 N, the conductivity-thickness of zone A is less than two mhos, this zone represents the best conductivity detected on any of the properties. Although massive sulphides usually indicate a much higher conductivity-thickness, there is a good possibility that stringer-type sulphides would cause this conductor. On line 660 N and 600 N, this zone appears to be flat-lying. Conductive zone B on line 360 N could be actually running east-west. This is suggested by the wide response on line 360 N and the positive in-phase responses on line 300 N. This zone is very poorly defined and definitely requires some further geophysical follow-up.

Numerous v.l.f. crossovers occur. Since few of these correspond with any horizontal loop anomalies, they probably represent poorly conductive bedrock structures or surficial conductors.

The magnetic results are fairly erratic, a reflection of the numerous outcroppings of high magnetic susceptibility. The major magnetic features appear to be running east-west which supports the fact that conductor B is oriented in a similar direction. The north-south trends at 400 W and at 200 E may be a

result of diabase dikes.

CHURCHILL 31: The horizontal loop work on this property is fairly uninteresting. Small in-phase movement on lines 660 N, 600 N, 420 N, and 240 N may be indications of some conductivity but the lack of any quadrature response suggests that the in-phase changes are due to coin misalignment.

The magnetic picture is dominated by narrow, high intensity magnetic high that more or less line up to form north-south trends. Again, these are due to diabase dikes.

CONNAUGHT TOWNSHIP CLAIMS: These three claim groups are all much the same in that the horizontal loop work shows no conductors and the magnetic results mainly show up north-south trending dikes.

CONCLUSIONS AND RECOMMENDATIONS:

Only the Churchill 42 property warrants further work. More detailed E.M. work should be done on both conductive zones A and B. Geologic mapping should be considered next and finally, depending on the geology and additional electromagnetic work, drilling of one or both of the conductive zones should be contemplated.



W.A. GASTEIGER



Ministry of Natu

GEOPHYSICAL - GEOLOGI
TECHNICAL DATA

41P11NW0406 2.4178 CONNAUGHT

900

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.

RECEIV

OCT - 5 1981

MINING LANDS SF

Type of Survey(s) Geophysical
 Township or Area Connaught
 Claim Holder(s) Texasgulf Canada Ltd.
P.O. Box 1140, 571 Moneta Ave., Timmins, Ontario P4N7H9
 Survey Company Texasgulf Canada Ltd.
 Author of Report W. A. Gasteiger
 Address of Author 571 Moneta Ave., Timmins, Ontario
 Covering Dates of Survey July/80 - Sept./81
 (linecutting to office)
20 Kilometers
 Total Miles of Line Cut _____

SPECIAL PROVISIONS	
CREDITS REQUESTED	
ENTER 40 days (includes line cutting) for first survey.	
ENTER 20 days for each additional survey using same grid.	
Geophysical	DAYS per claim 20
-Electromagnetic	
-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: Sept. 30, 1981 SIGNATURE: W. A. Gasteiger
Author of Report or AgentRes. Geol. Qualifications **Previous Surveys**

File No.	Type	Date	Claim Holder
.....
.....
.....
.....
.....

MINING CLAIMS TRAVERSED
List numerically

L 576707 ✓
 (prefix) (number)
 576708 ✓
 576709 ✓
 576710 ✓
 576711 ✓
 576712 ✓
 576713 ✓
 576714 ✓
 576715 ✓
 576716 ✓
 576717 ✓
 576718 ✓

If space insufficient, attach list

TOTAL CLAIMS 12

GEOPHYSICAL TECHNICAL DATA

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

MAG: Conn 26 391 Conn 16E 368 Conn 16W 389 HL: Conn 26 102 Conn 16E 85 Conn 16W 90 Number of Readings _____

Number of Stations _____ Station interval _____ Mag: 20 metres Line spacing _____ 100 metres

Profile scale _____ HL: 1cm = 10%

Contour interval _____ Mag: 500 gammas

MAGNETIC

Instrument Geometrics G-836 Proton Precession Magnetometer

Accuracy – Scale constant \pm 10 gammas

Diurnal correction method base line values corrected by looping at 100 metre intervals

Base Station check-in interval (hours) along base line. All cross lines corrected to base

Base Station location and value line values. Base station on each grid at 0 on line 0.

Connaught 26 60480

Connaught 16W 60640

Connaught 10E 38470

ELECTROMAGNETIC

Instrument Apex Parametrics Max-Min II

Coil configuration Coplanar

Coil separation 160 metres

Accuracy \pm 1%

Method: Fixed transmitter Shoot back In line Parallel line

Frequency 1777 Hz (specify V.L.F. station)

Parameters measured In-phase and quadrature component of secondary field as a percentage of primary field.

Instrument _____

Scale constant _____

Corrections made _____

Base station value and location _____

Elevation accuracy _____

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 _____

INDUCED POLARIZATION

RESISTIVITY



Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL
TECHNICAL DATA STATEMENT

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.

RECEIVED

OCT - 5 1981

MINING LANDS SECTION

Type of Survey(s) Geophysical
 Township or Area Churchill
 Claim Holder(s) Texasgulf Canada Ltd.
P.O. Box 1140, 571 Moneta Ave, Timmins, Ontario P4N7H9
 Survey Company Texasgulf Canada Ltd.
 Author of Report W.A. Gasteiger
 Address of Author 571 Moneta Ave., Timmins, Ontario
 Covering Dates of Survey July/80 - Sept./81
 (linecutting to office)
 Total Miles of Line Cut 25 Kilometers

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	20
-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: Sept. 30, 1981 SIGNATURE: W.A. Gasteiger
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder
.....
.....
.....
.....
.....

MINING CLAIMS TRAVESED
List numerically

L	576703
L	(prefix) (number)
L	576704
L	576705
L	576706
L	619000
L	619001
L	619002
L	619003
L	619004
L	619005

If space insufficient, attach list

TOTAL CLAIMS 10

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations	Mag: 1228 HL : 442	Number of Readings	Mag: 1228 HL : 442
Station interval	Mag: 20 metres H.L.: 40 metres	Line spacing	60 or 120 metres
Profile scale	H.L.: 1cm = 10%		
Contour interval	Mag: 200 gammas		

MAGNETIC

Instrument Geometrics G-816 Proton Precession Magnetometer
 Accuracy - Scale constant - 10 gammas
 Diurnal correction method Base line values corrected by looping at 60 metre
 Base Station check-in interval (hours) intervals along base line. All cross lines
 Base Station location and value corrected to base line values. Base stations
at 0 on line 0 = 59030.

ELECTROMAGNETIC

Instrument Apex Parametrics Max-Min II
 Coil configuration Coplanar
 Coil separation 160 metres
 Accuracy ± 1%
 Method: Fixed transmitter Shoot back In line Parallel line
 Frequency 1777Hz
(specify V.L.F. station)
 Parameters measured In-phase and quadrature components of secondary field as
a percentage of primary transmitted 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 _____



Ministry of Natural Resources

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL
TECHNICAL DATA STATEMENT

File _____

RECEIVED

OCT - 5 1981

MINING LANDS SECTION

Type of Survey(s) Geophysical

Township or Area Churchill

Claim Holder(s) Texasgulf Canada Ltd.

P.O. Box 1140, 571 Moneta Ave. Timmins, Ontario P4N7H9

Survey Company Texasgulf Canada Ltd.

Author of Report W. A. Gasteiger 267.1188

Address of Author 571 Moneta Ave., Timmins, Ontario

Covering Dates of Survey July/80 - Sept./81
(linecutting to office)

Total Miles of Line Cut 17 Kilometers

MINING CLAIMS TRAVESED
List numerically

L	576701
(prefix)	(number)
L	576702
L	577697
L	577698
L	577699
L	577700

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 40
-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: Sept. 30/81

SIGNATURE: *W. A. Gasteiger*
Author of Report or Agent

Res. Geol. Qualifications 2.1798

Previous Surveys

File No. Type Date Claim Holder

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

If space insufficient, attach list

TOTAL CLAIMS 6

GEOPHYSICAL TECHNICAL DATA

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

Mag: 769 H.E.M.: 543 VLF: 817	Mag: 769 H.E.M.: 543 VLF: 817
Number of Stations _____	Number of Readings _____
Station interval _____	Line spacing _____
H.E.M.: 1cm = 10 ⁸	60 metres
Profile scale _____	V.L.F.: 1cm = 20 ⁰
Contour interval _____	Mag: 200 gammas

MAGNETIC

Instrument Geometrics G-816 Proton Precession Magnetometer
 Accuracy — Scale constant ± 1 gamma
 Diurnal correction method Base line values corrected by looping at intervals of
 Base Station check-in interval (hours) 60 metres along base line.
 Base Station location and value All cross lines corrected to base line values.
 Base Station at 0 on line o = 59076.

ELECTROMAGNETIC

Instrument H.E.M., Apex Parametrics Max-Min II V.L.F., Crone Radem
 Coil configuration Coplanar Vertical Loop
 Coil separation 120 metres large
 Accuracy $\pm 1\%$
 Method: Fixed transmitter Shoot back In line Parallel line
 Frequency H.E.M.: 1777Hz V.L.F.: Annapolis Maryland
(specify V.L.F. station)
 Parameters measured In-phase and quadrature components Dip angle of total field.
 of secondary field as percentage of primary 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 _____

24178

Texas Gulf Canada Limited

EM Mag VLF

EM Mag VLF

	EM	Mag	VLF		EM	Mag	VLF
LS76701	✓	✓	✓	577697		✓	✓
2	Y4	Y4	Y4	98	✓	✓	✓
3	✓	✓	✓	99	✓	✓	✓
4	✓	✓	✓	700	✓	✓	✓
5	✓	✓	✓	619000	Y2	Y4	
6	✓	✓	✓	1	✓	✓	
7	Y4	✓	✓	2	✓	✓	
8	3/4	1/2	1/2	3	3/4	✓	
9	1/2	✓	✓	4	✓	✓	
10	Y4	✓	✓	5	✓	✓	
11	3/4	✓	✓		27/4	7/4	
12	3/4	✓	✓		6.75	1.75	
13	1/4	✓	✓		33.75		
14	Y4	✓	✓				
15	3/4	Y4	Y2				
16	0	Y4	0				
17	3/4	✓	✓				
18	✓	✓	✓				

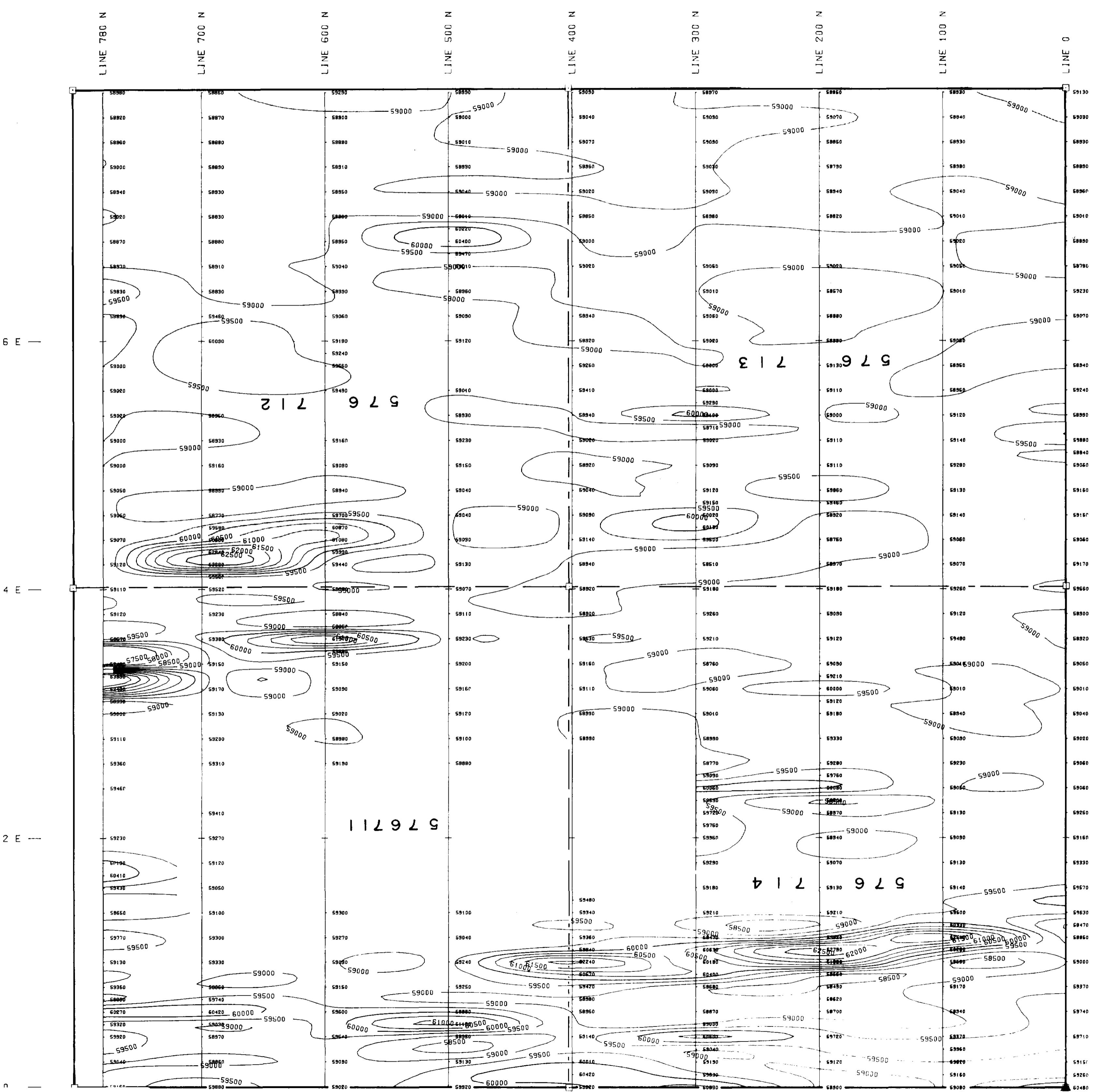
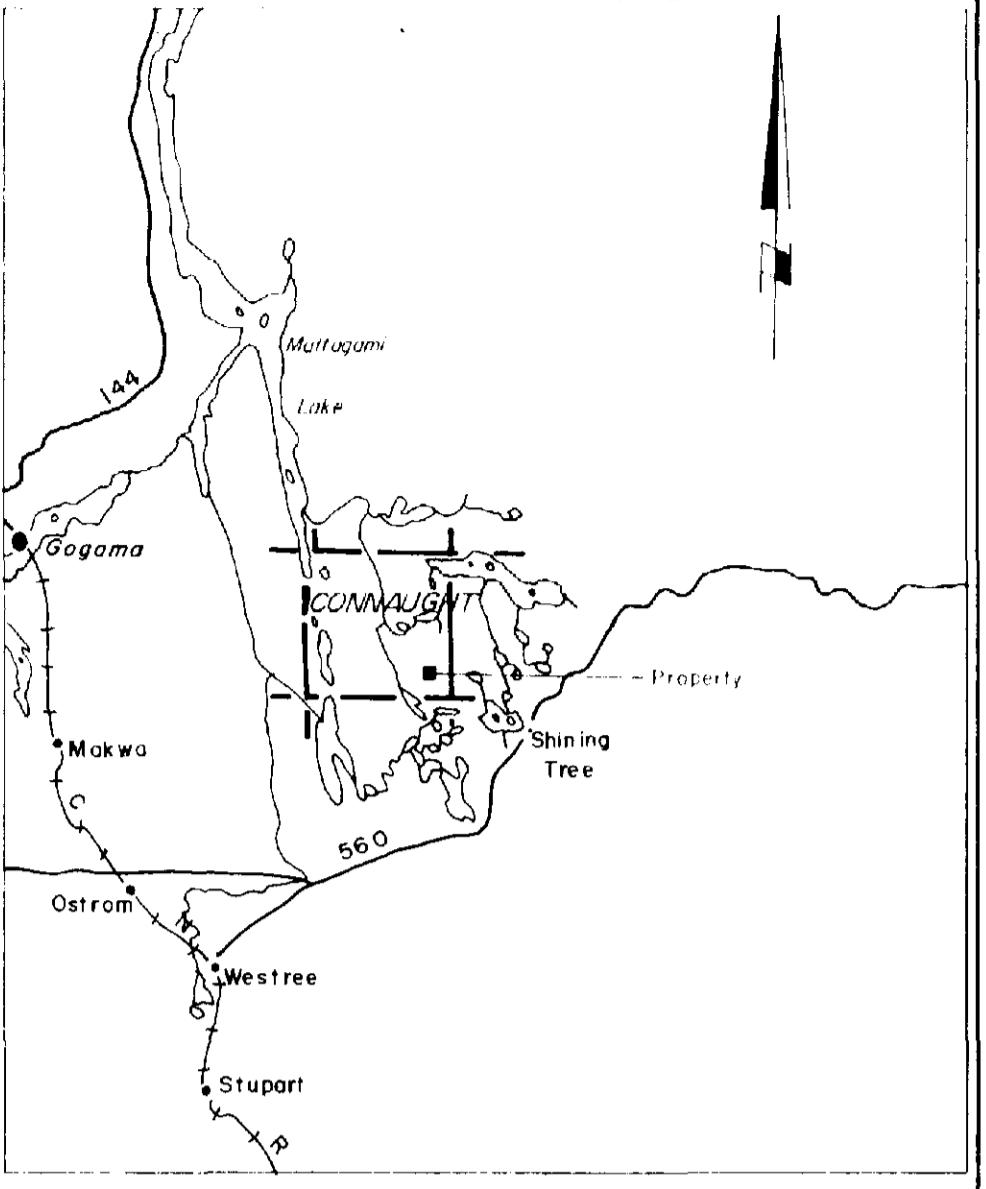
E.M.

$$27 \times 20 : 540 = 33.75 = 16 \text{ days.}$$

Mag

$$28 \times 40 = 1120 : 29.75 = 38 \text{ days.}$$

April 1st
Sept 2nd
Sept 15th Settlement
1800



LEGEND

INSTRUMENT : GEOMETRICS G836
TYPE : PROTON PRECESSION, TOTAL FIELD
READINGS IN GAMMAS
▲ MAGNETIC BASE STATION

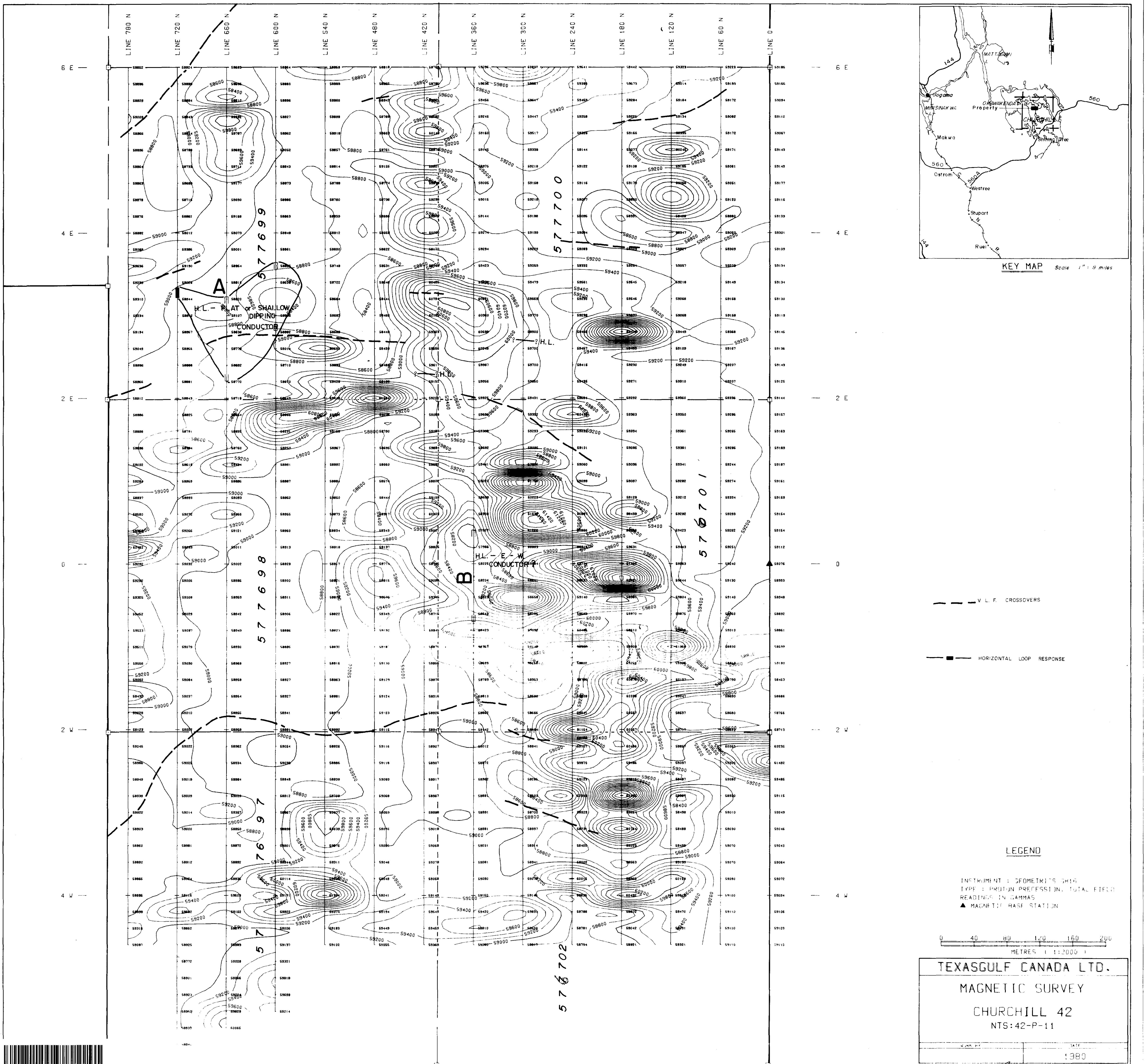
0 40 80 120 160 200
METRES (1:2000)

TEXASGULF CANADA LTD.	
MAGNETIC SURVEY	
CONNAUGHT 26	
NTS: 41-P-11	PROJ #988
WORK BY	DATE
1981	



41P11NW0406 2.4178 CONNAUGHT

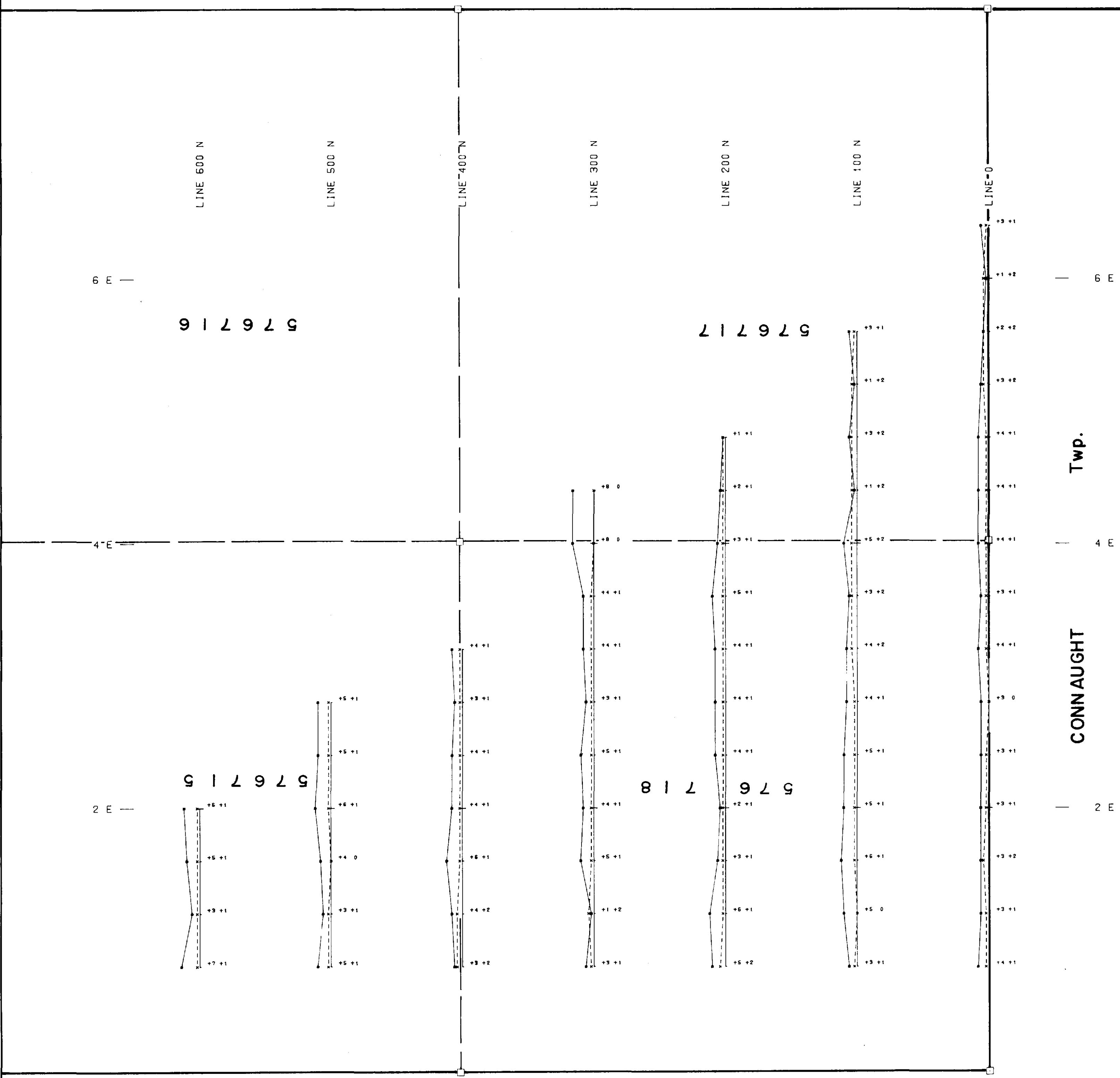
Neil Battaglia 2.4178



41P11NW0406 2.4178 CONNAUGHT

300

CHURCHILL Twp.



Twp.

CONNAGHT

MIRAMICHI

6 E

4 E

2 E

LINE 600 N

LINE 500 N

LINE 400 N

LINE 300 N

LINE 200 N

LINE 0

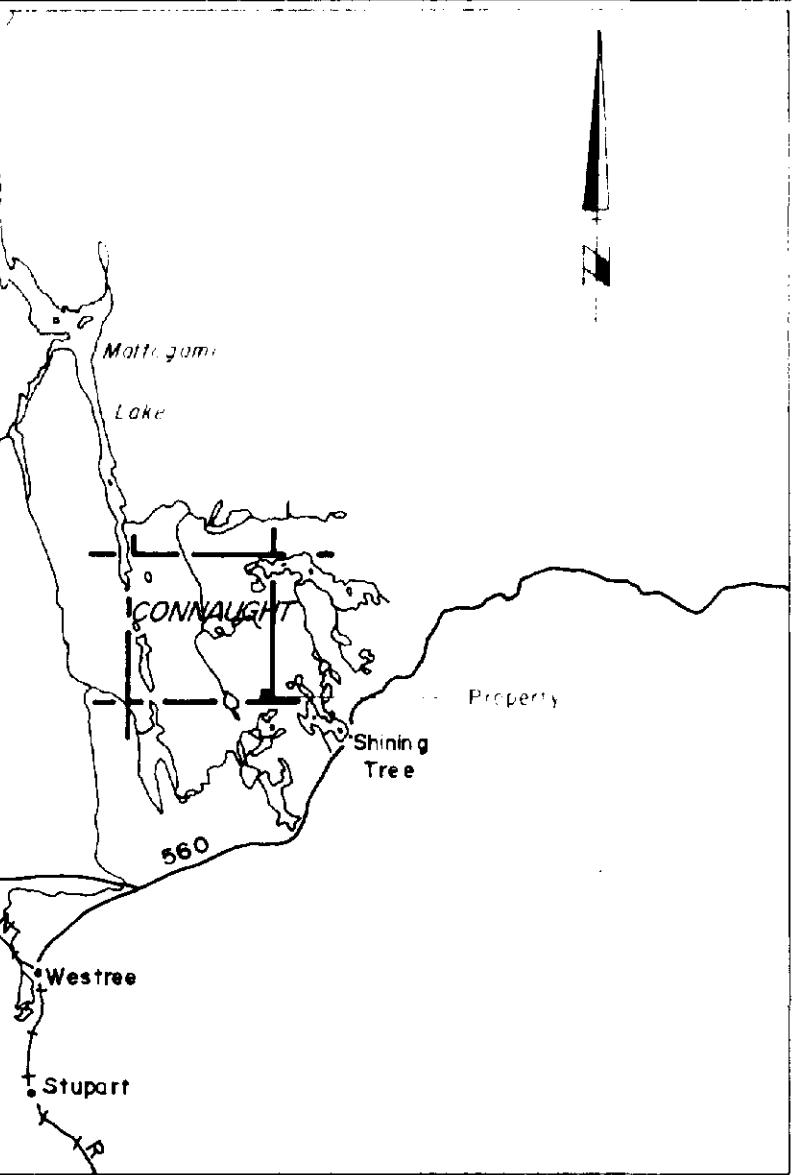
576716

576717

576718

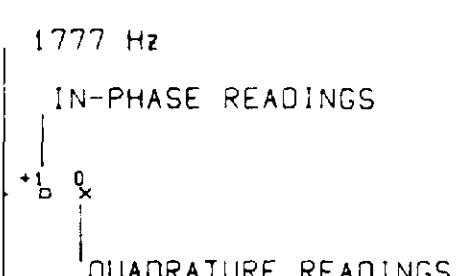
576719

KEY MAP SCALE : 1" = 8 miles



ASTRO

LEGEND



INSTRUMENT : APEX PARAMETRICS MAXMIN II
FREQUENCY : 1777 Hz
COIL SPACING : 160 METERS
PROFILE SCALE : 1 CM = 10%

← + READINGS → - READINGS

0 40 80 120 160 200
METRES (1:2000)

TEXASGULF CANADA LTD.

HORIZONTAL LOOP SURVEY

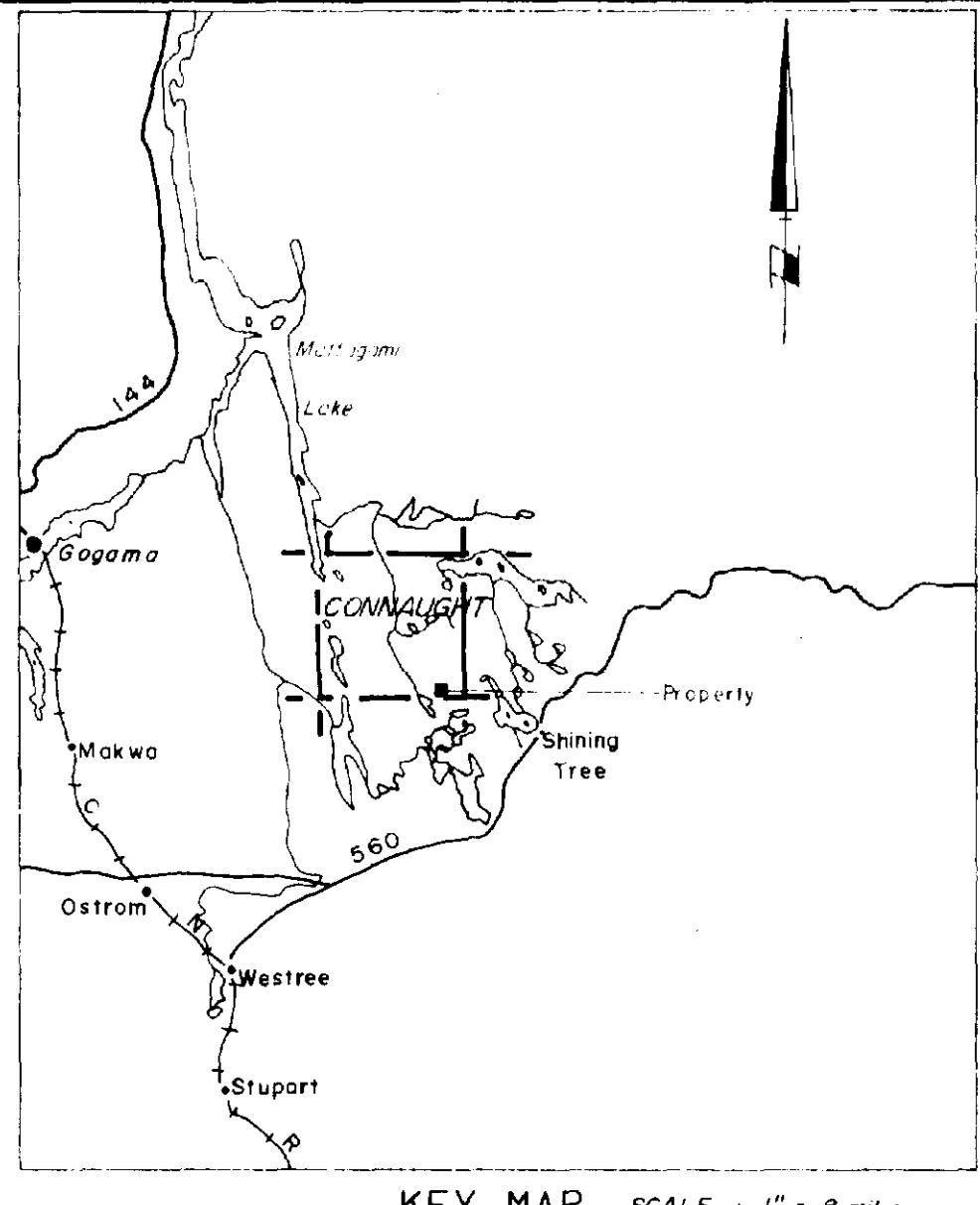
CONNAUGHT 16 EAST

NTS:41-P-11

PROJ #988

WORK BY	DATE
	1981 2/4/78





LEGEND

- 1777 Hz IN-PHASE READINGS
- QUADRATURE READINGS

INSTRUMENT : APEX PARAMETRICS MAXMIN II
FREQUENCY : 1777 Hz
COIL SPACING : 160 METERS
PROFILE SCALE : 1 CM = 10%

← + READINGS - READINGS →

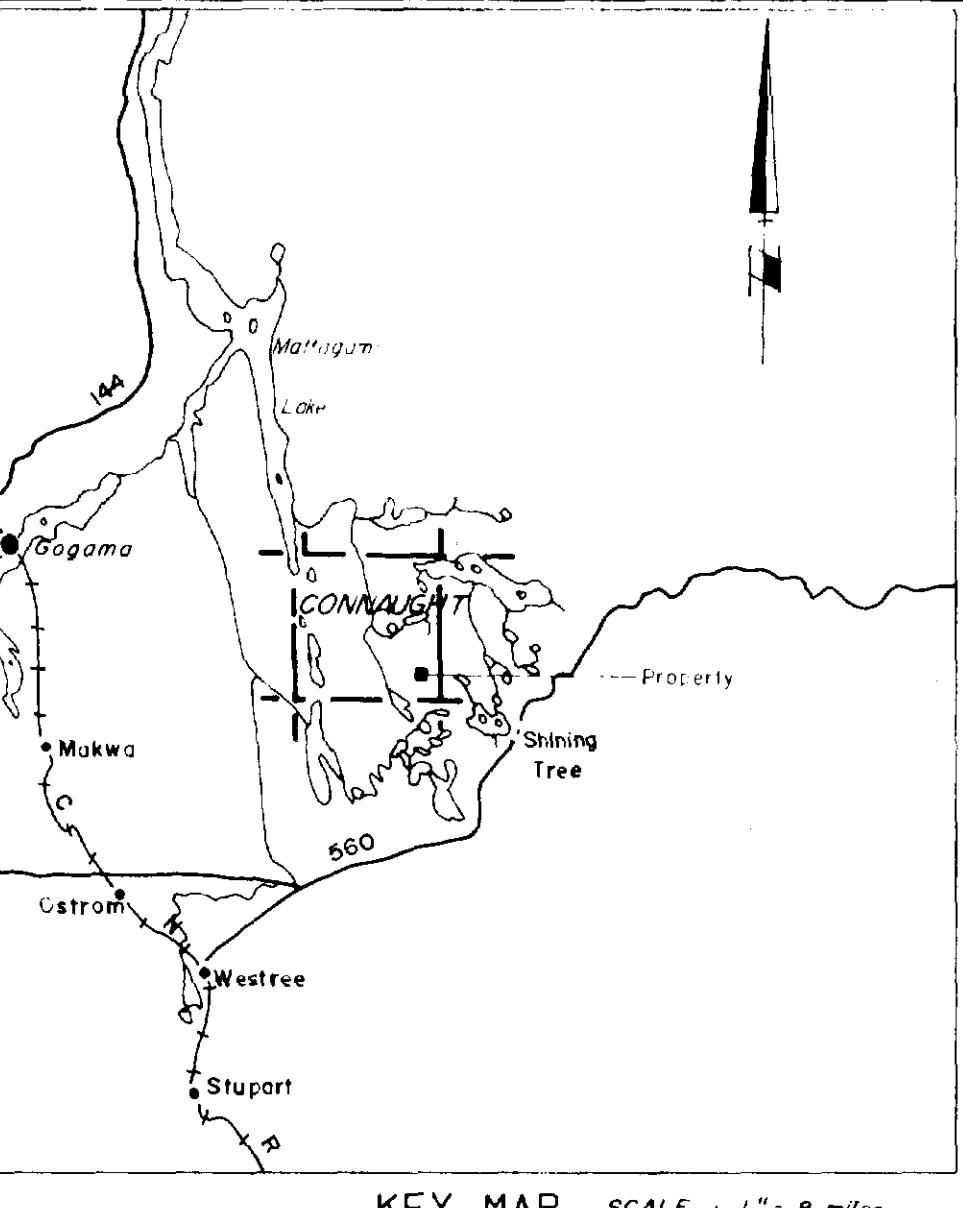
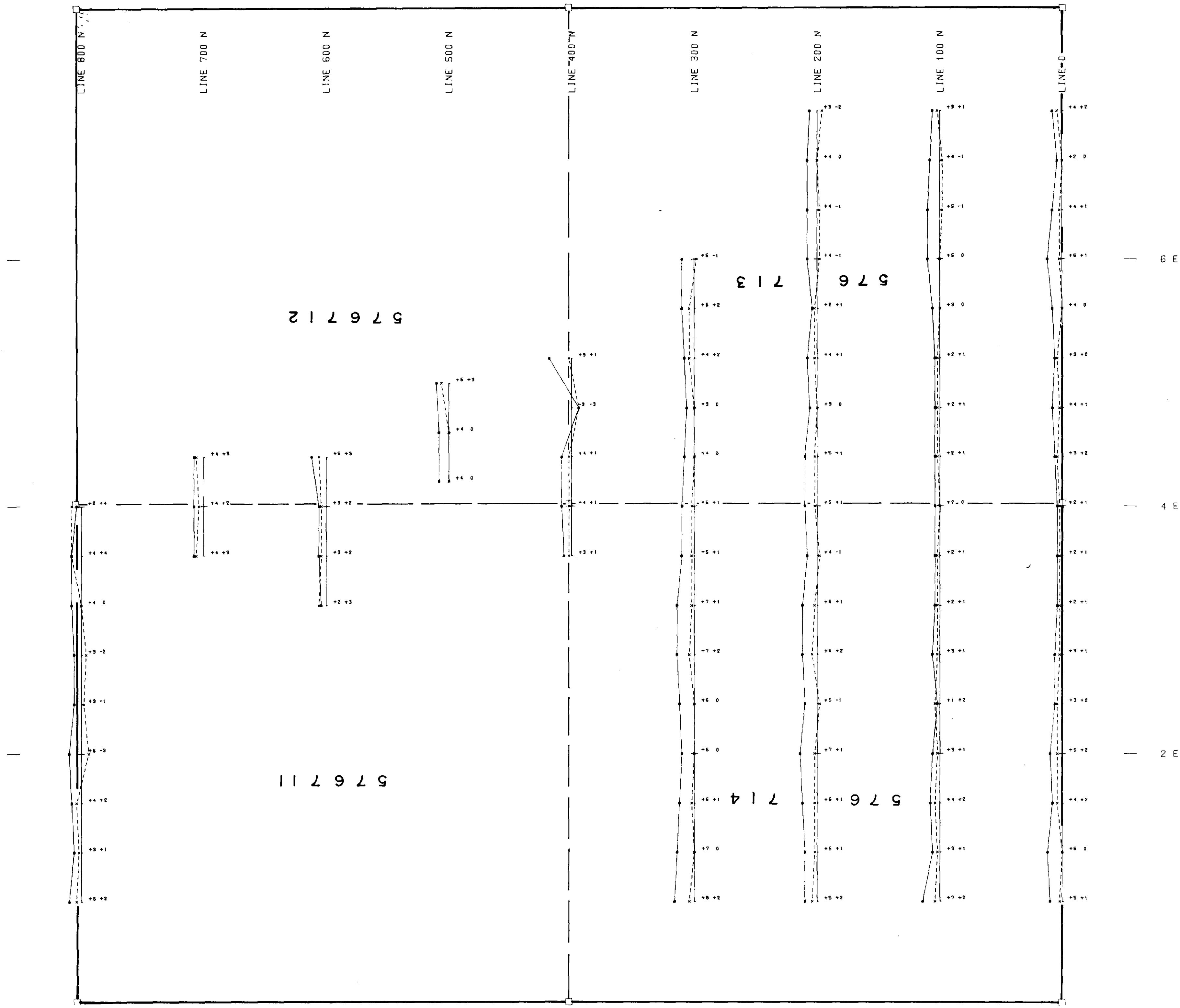
0 40 80 120 160 200
METRES (1:2000)

TEXASGULF CANADA LTD.
HORIZONTAL LOOP SURVEY
CONNAUGHT 16 WEST
NTS:41-P-11 PROJ #988

WORK BY	DATE
	1981



41P1NN0406 2.417B CONNAUGHT



LEGEND

1777 Hz
IN-PHASE READINGS
— X — QUADRATURE READINGS


INSTRUMENT : APEX PARAMETRICS MAXMIN II
FREQUENCY : 1777 Hz
COIL SPACING : 160 METERS
PROFILE SCALE : 1 CM = 10%

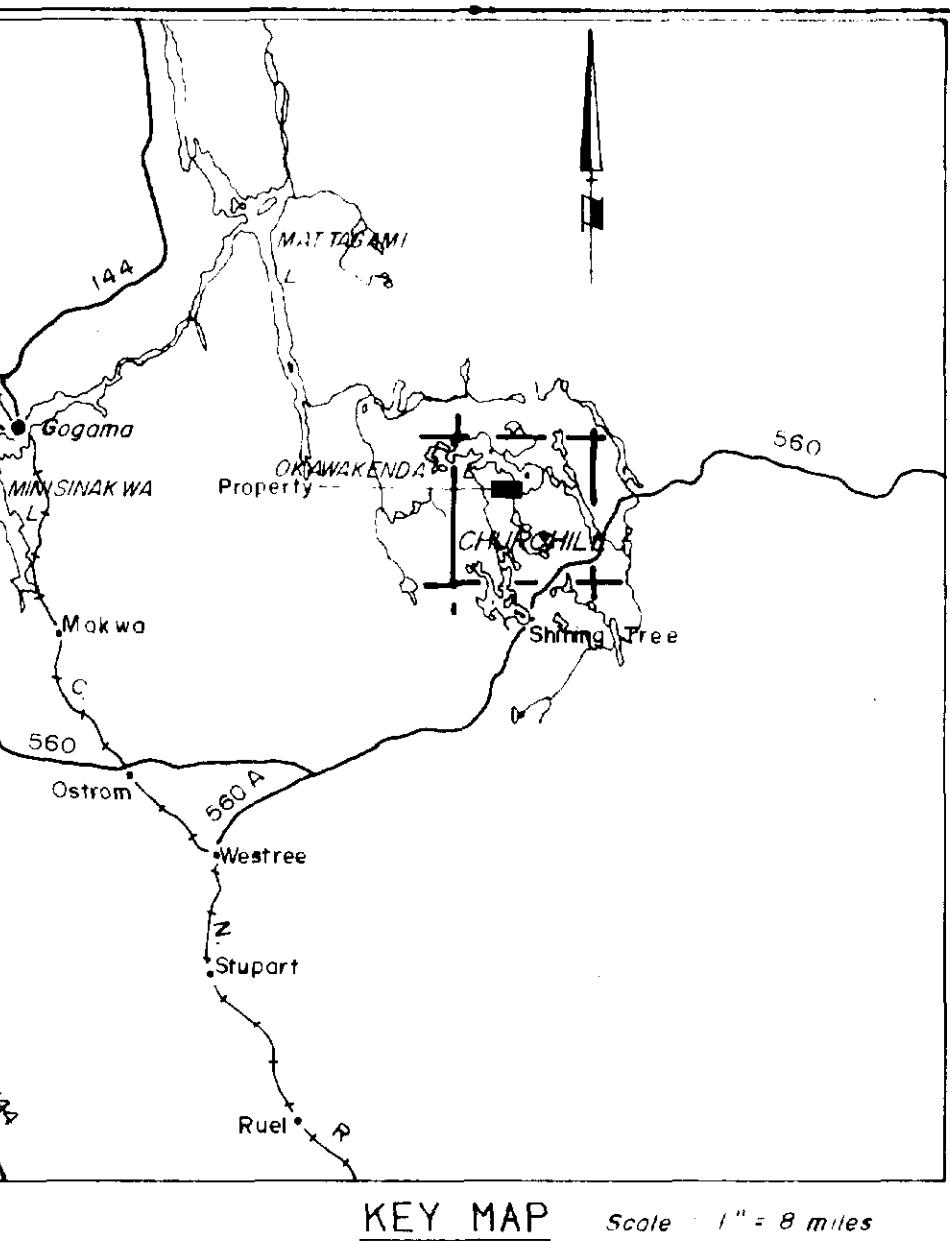
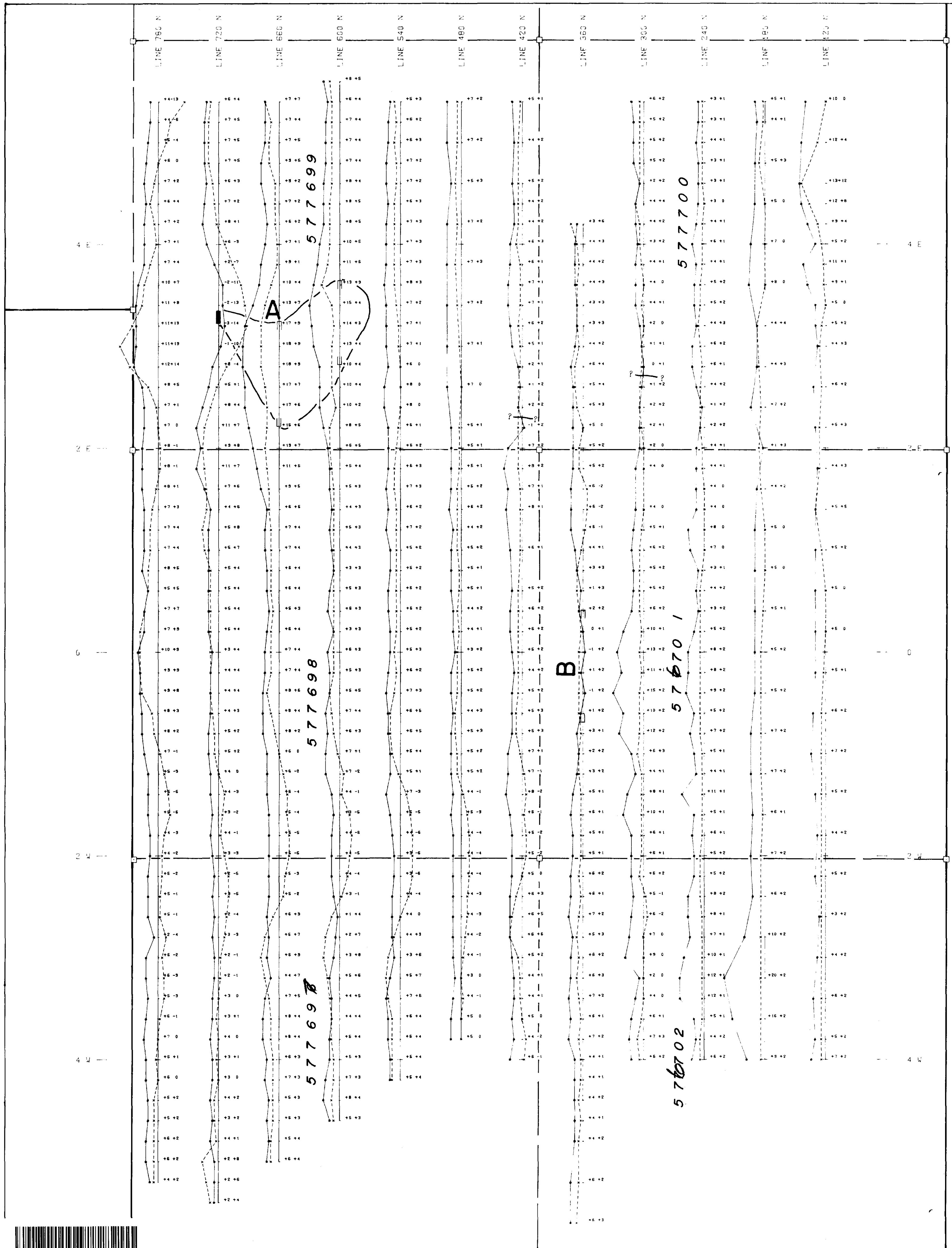
← + READINGS → - READINGS →

0 40 80 120 160 200
METRES (1:2000)

TEXASGULF CANADA LTD.	
HORIZONTAL LOOP SURVEY	
CONNAUGHT 26	
NTS: 41-P-11	PROJ #988
WORK BY	DATE
1981	







— HORIZONTAL LOOP RESPONSE

LEGEND

1777 Hz
IN-PHASE READINGS
— QUADRATURE READINGS

INSTRUMENT : APEX PARAMETRICS MAXMIN II
FREQUENCY : 1777 Hz
COIL SPACING : 120 METERS
PROFILE SCALE : 1 CM = 10%

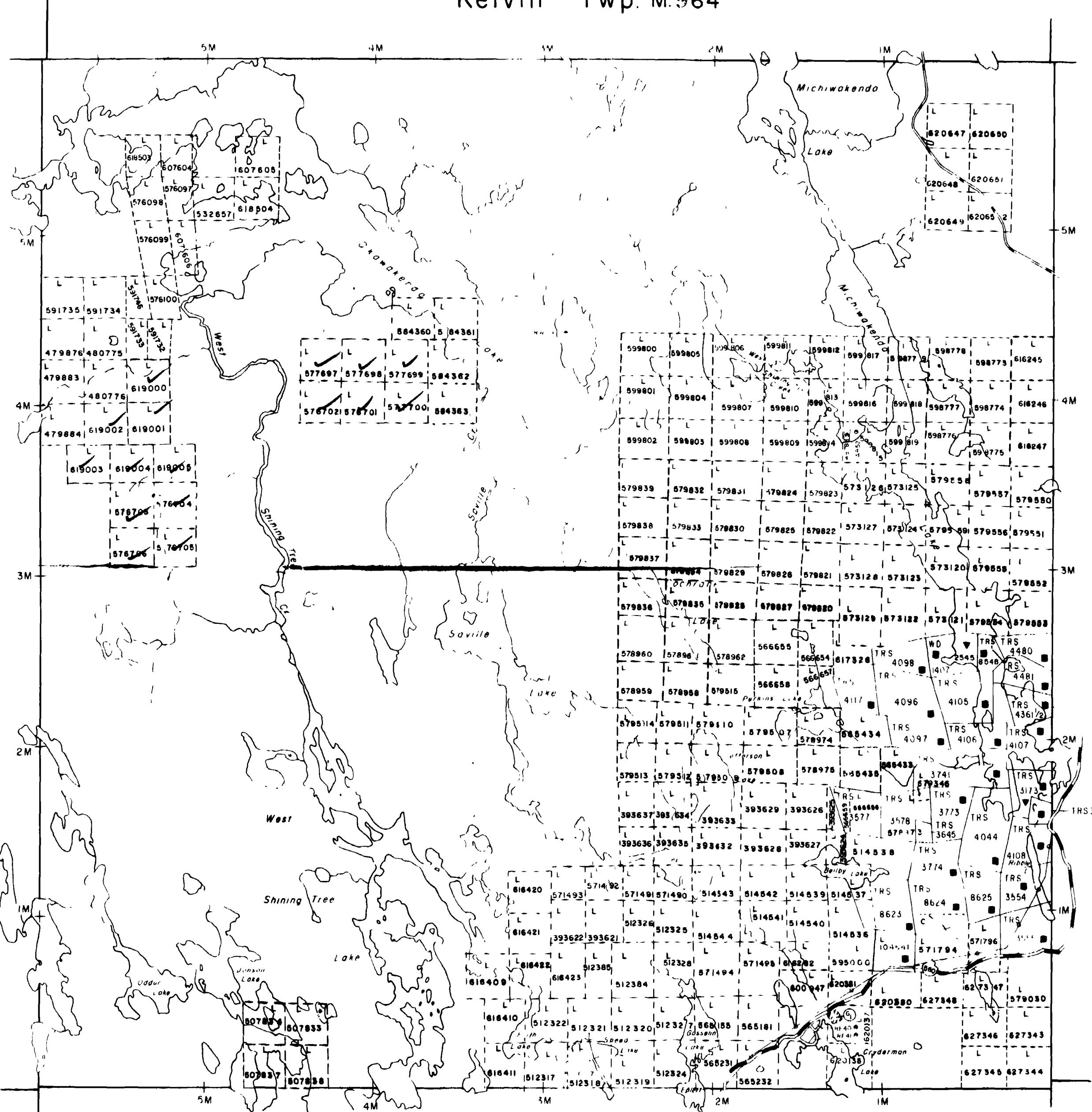
← + READINGS - READINGS →

0 40 80 120 160 200
METRES (1:2000)

TEXASGULF CANADA LTD.	
HORIZONTAL LOOP SURVEY	
CHURCHILL 42	
NTS:42-P-11	
WORK BY	DATE
1980	

Kelvin Twp. M.964

Connaught Twp. M. 730



Asquith Twp. M.637

THE TOWNSHIP
OF
CHURCHILL
DISTRICT OF
SUDBURY
LARDER LAKE
MINING DIVISION

SCALE 1-INCH=40 CHAINS

DISPOSITION OF CROWN LANDS

- PATENT, SURFACE AND MINING RIGHTS

" , SURFACE RIGHTS ONLY -----

" , MINING RIGHTS ONLY -----

LEASE, SURFACE AND MINING RIGHTS -----

" , SURFACE RIGHTS ONLY -----

" , MINING RIGHTS ONLY -----

LICENCE OF OCCUPATION -----

ROADS -----

IMPROVED ROADS -----

KING'S HIGHWAYS -----

RAILWAYS -----

POWER LINES -----

MARSH OR MUSKEG -----

MINES -----

CANCELLED -----

NOTES

400' Surface Rights Reservation along the shores of all lakes & rivers

SAND & GRAVEL

MTC PII No 1487

BBT 8 8 1991
Ministry of Natural Resources
TORONTO

REVIEW ARTICLE

PLAN NO - M.719

PLAN NO - M.719

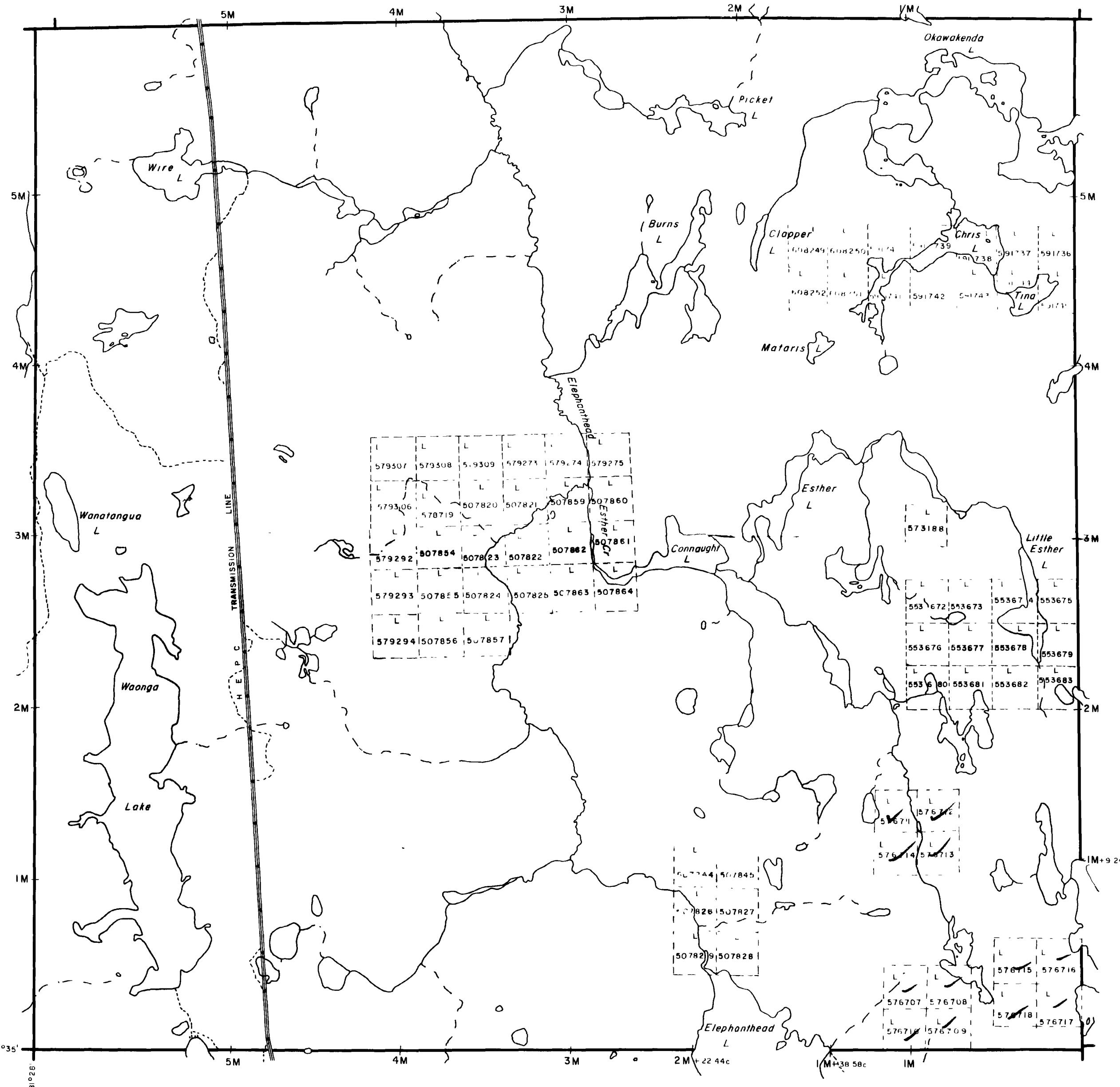
ONTARIO

MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH

CABOT TWP M. 695

BRUNSWICK TWP M. 684



MIRAMICHI TWP M. 865



41P11NW0406 2.417B CONNAUGHT

210

NOTES

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

DATE OF ISSUE

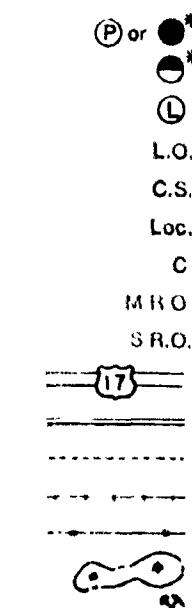
OCT 21 1981

Ministry of Natural Resources
TORONTO

24171

CHURCHILL TWP M. 719

LEGEND



CONNAUGHT

DISTRICT OF
SUDBURY

LARDER LAKE
MINING DIVISION

SCALE . 1 INCH 40 CHAINS (1/2 MILE)

DR	JBK
DATE	20-Jan-'71

PLAN NO.

M. 730

MINISTRY OF NATURAL RESOURCES

CHURCHILL
Twp.

LINE 600 N

LINE 500 N

LINE 300 N

LINE 100 N

6 E —

5 7 6 7 1 6

5 7 6 7 1 7

6 E

4 E —

5 1 0 7 6 7

5 7 6 7 1 8

2 E —

Twp.

CONNAUGHT
MIRAMICHI

LEGEND

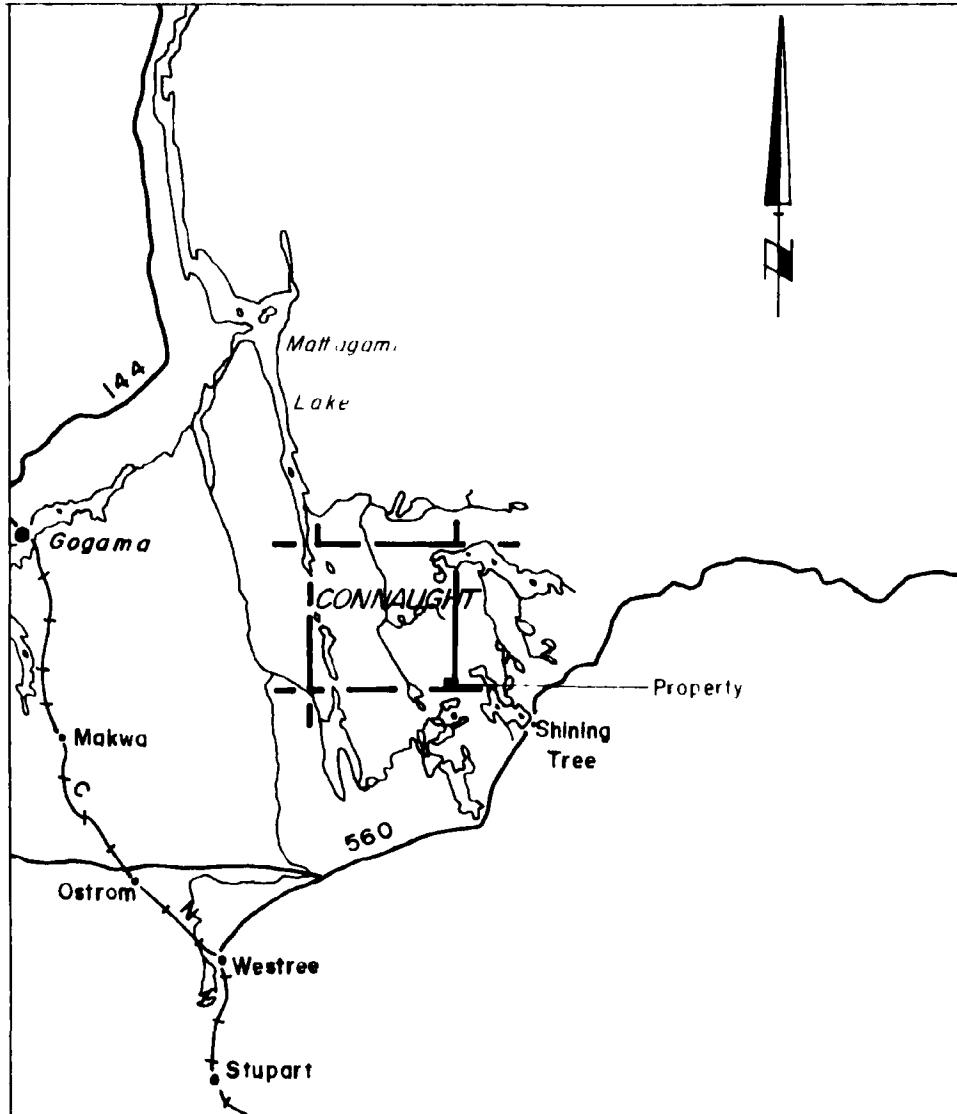
DIP ANGLE (DEGREES)

12 E

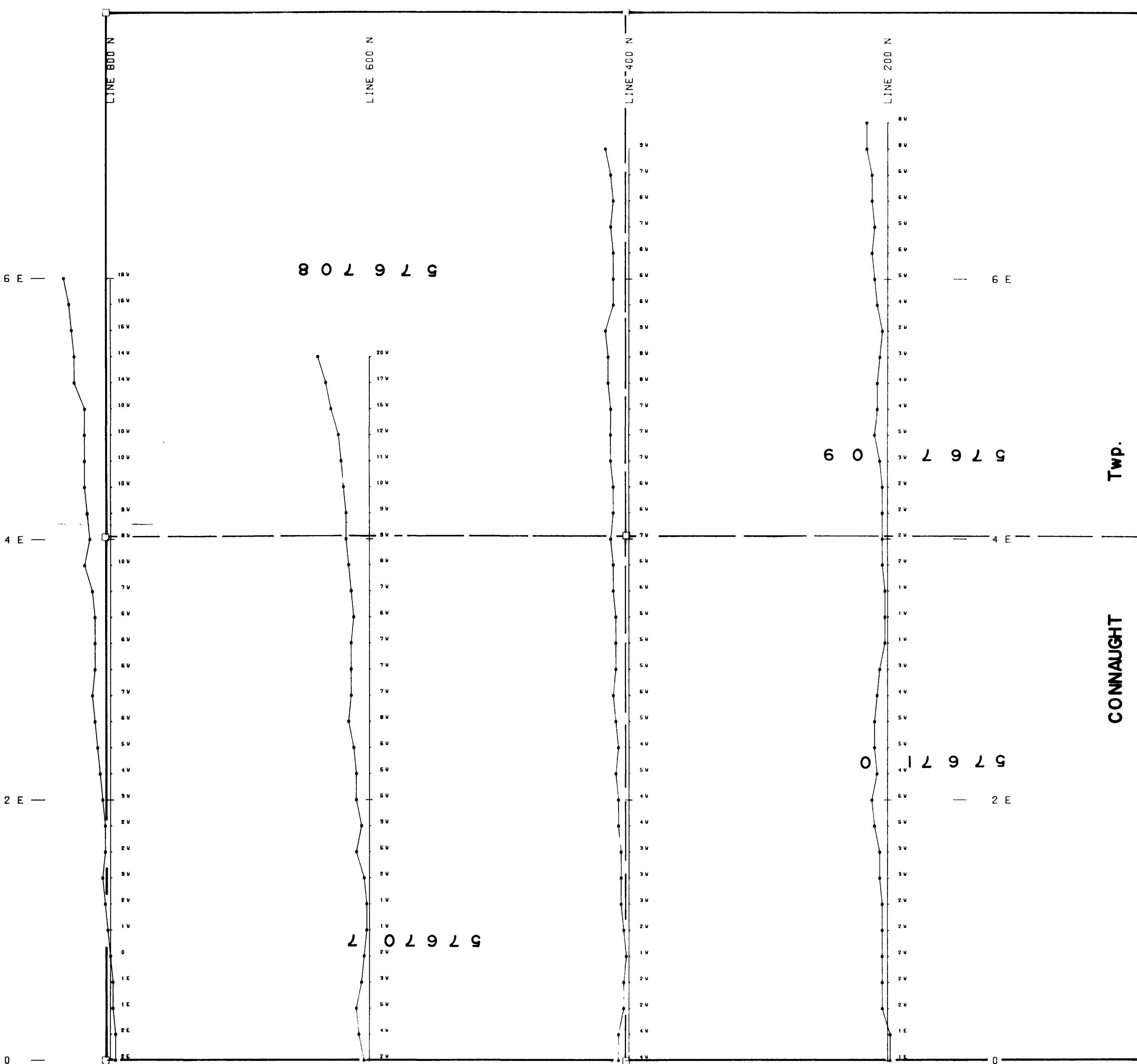
INSTRUMENT : CRONE RADEM
STATION : ANNAPOLIS, 21.4 KHz
PROFILE SCALE : DIP ANGLE 1 CM = 10°

← W DIPS → E DIPS →
0 40 80 120 160 200
METRES (1:2000)

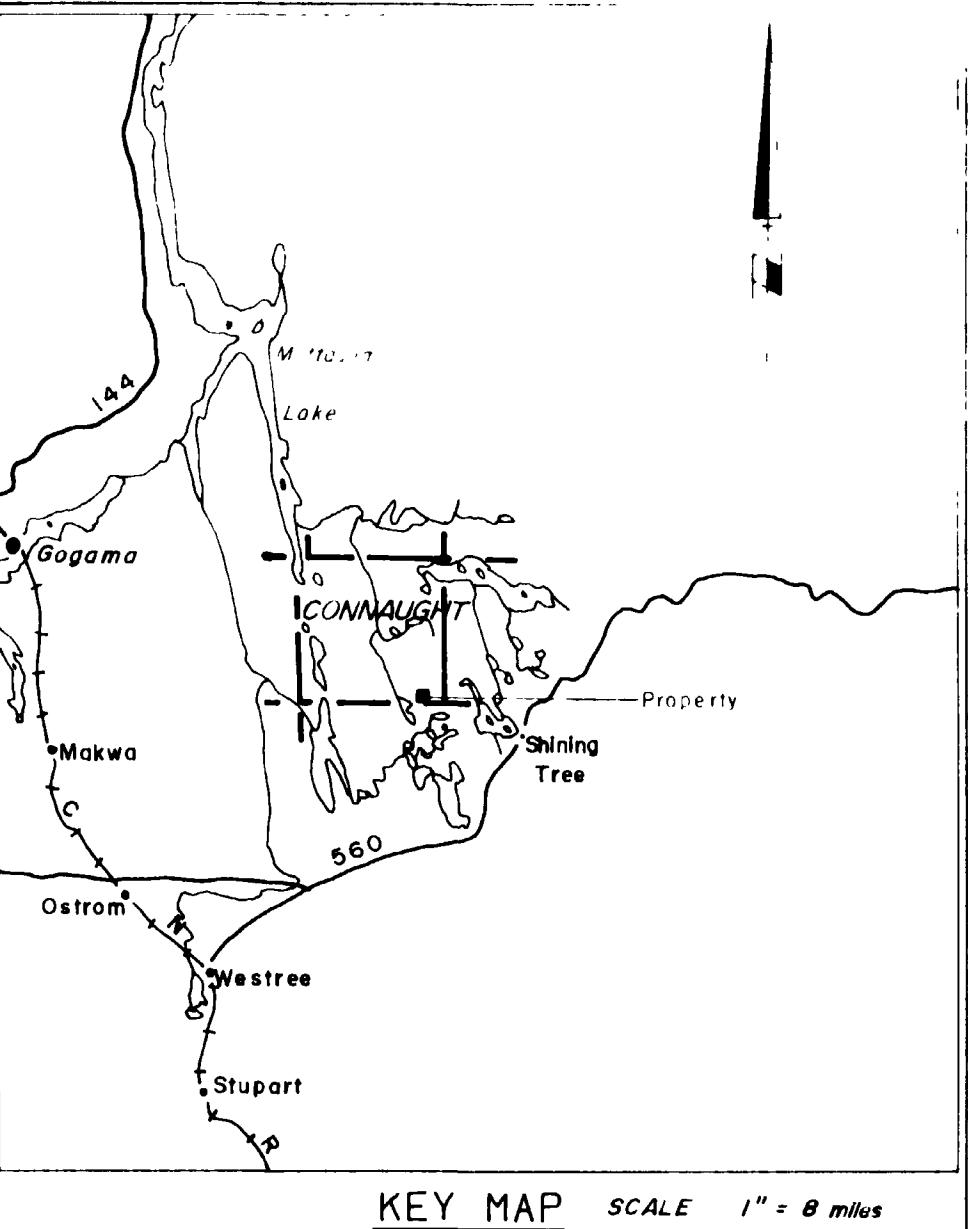
TEXASGULF INC.	
V L F SURVEY	
CONNAUGHT 16 EAST	
NTS:41-P-11 PROJ#988	
WORK BY	DATE
	1981 2.4/78



Will Gantlope



CONNAUGHT
MIRAMICHI
Twp.
Twp.



KEY MAP SCALE 1" = 8 miles

ASTRO

LEGEND

DIP ANGLE (DEGREES)

12° E

INSTRUMENT : CRONE RADEM
STATION : ANNAPOLIS, 21.4 KHz
PROFILE SCALE : DIP ANGLE 1 CM = 10°

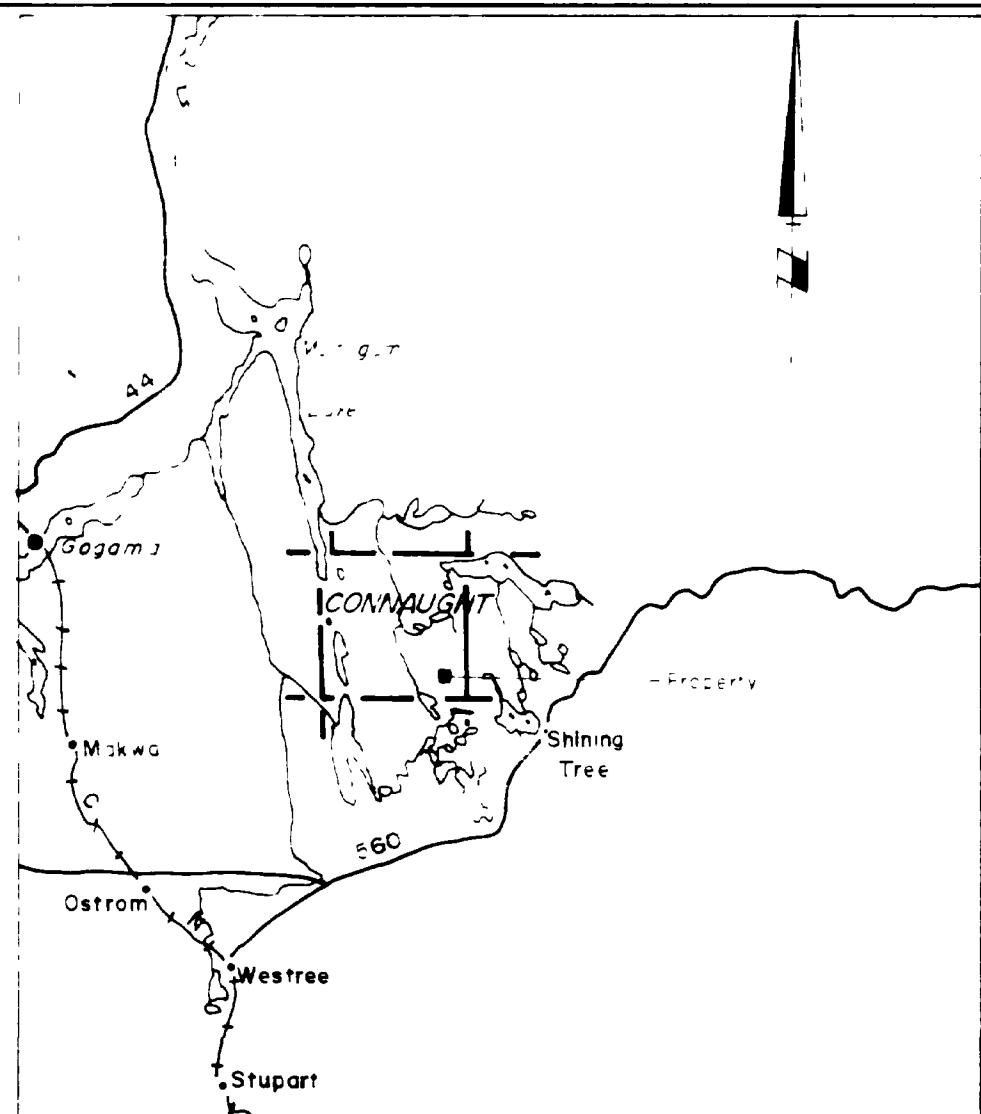
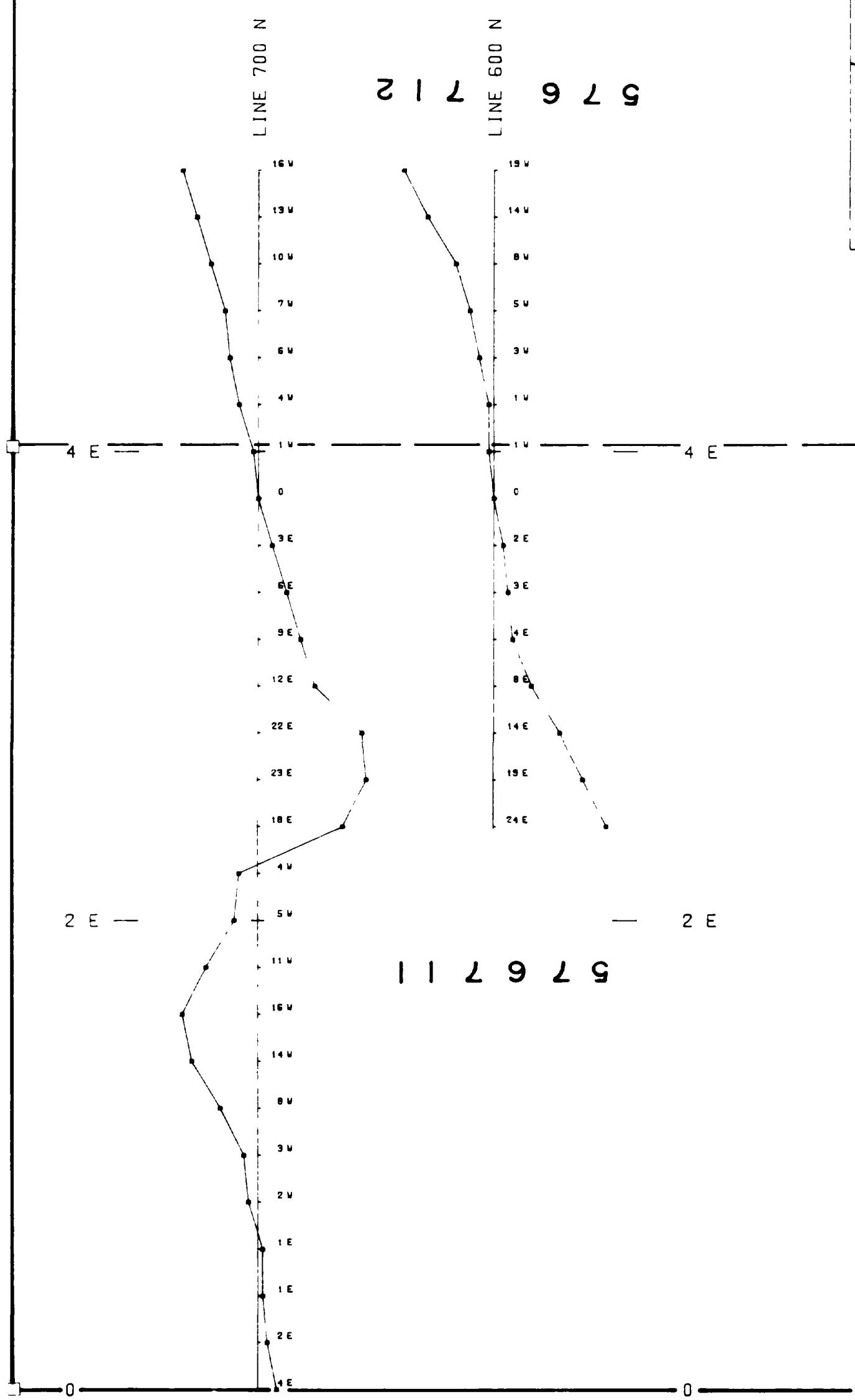
← W DIPS → E DIPS →
0 40 80 120 160 200
METRES (1:2000)

TEXASGULF INC.	
VLF SURVEY	
CONNAUGHT 16 WEST	
NTS: 41-P-11 PROJ#988	
WORK BY	DATE
1981	

Will Gartside 24/78



41P1INV0406 2 4178 CONNAUGHT

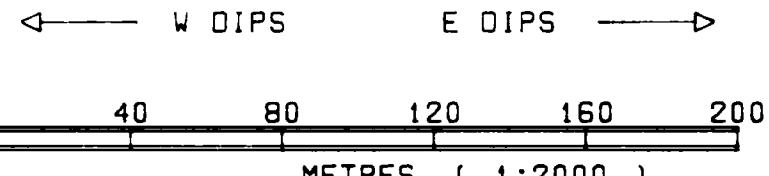


LEGEND

DIP ANGLE (DEGREES)

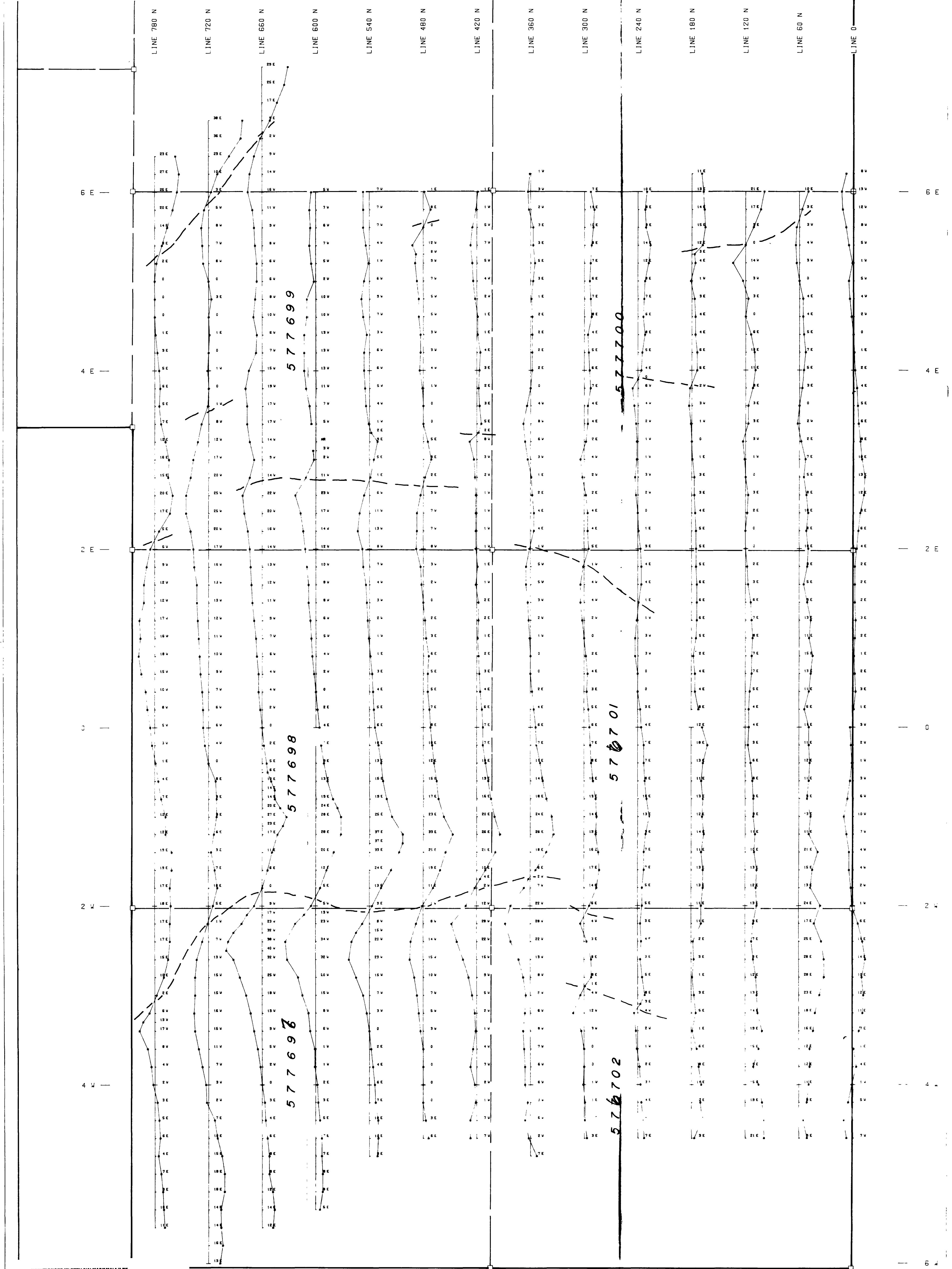
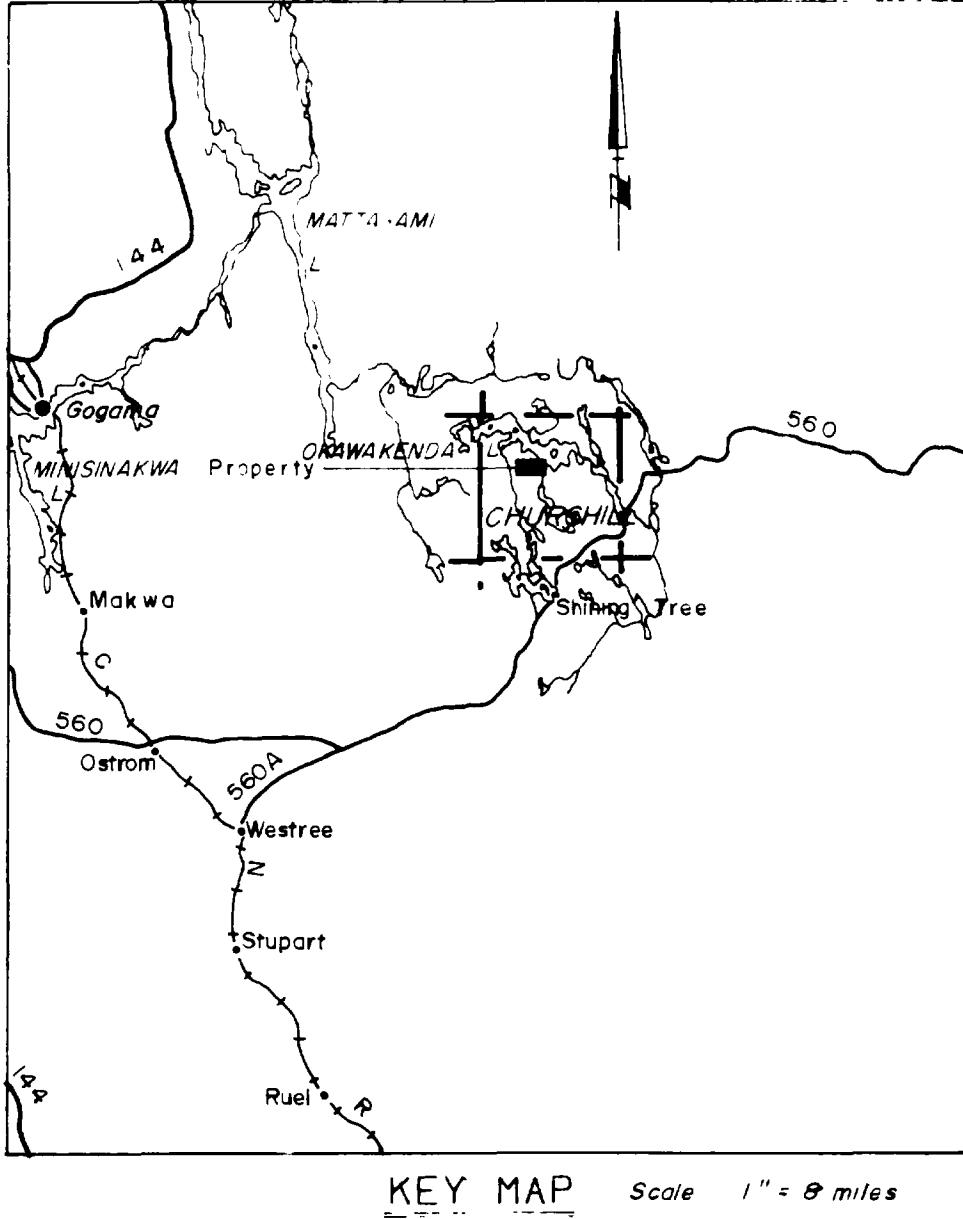
12 E

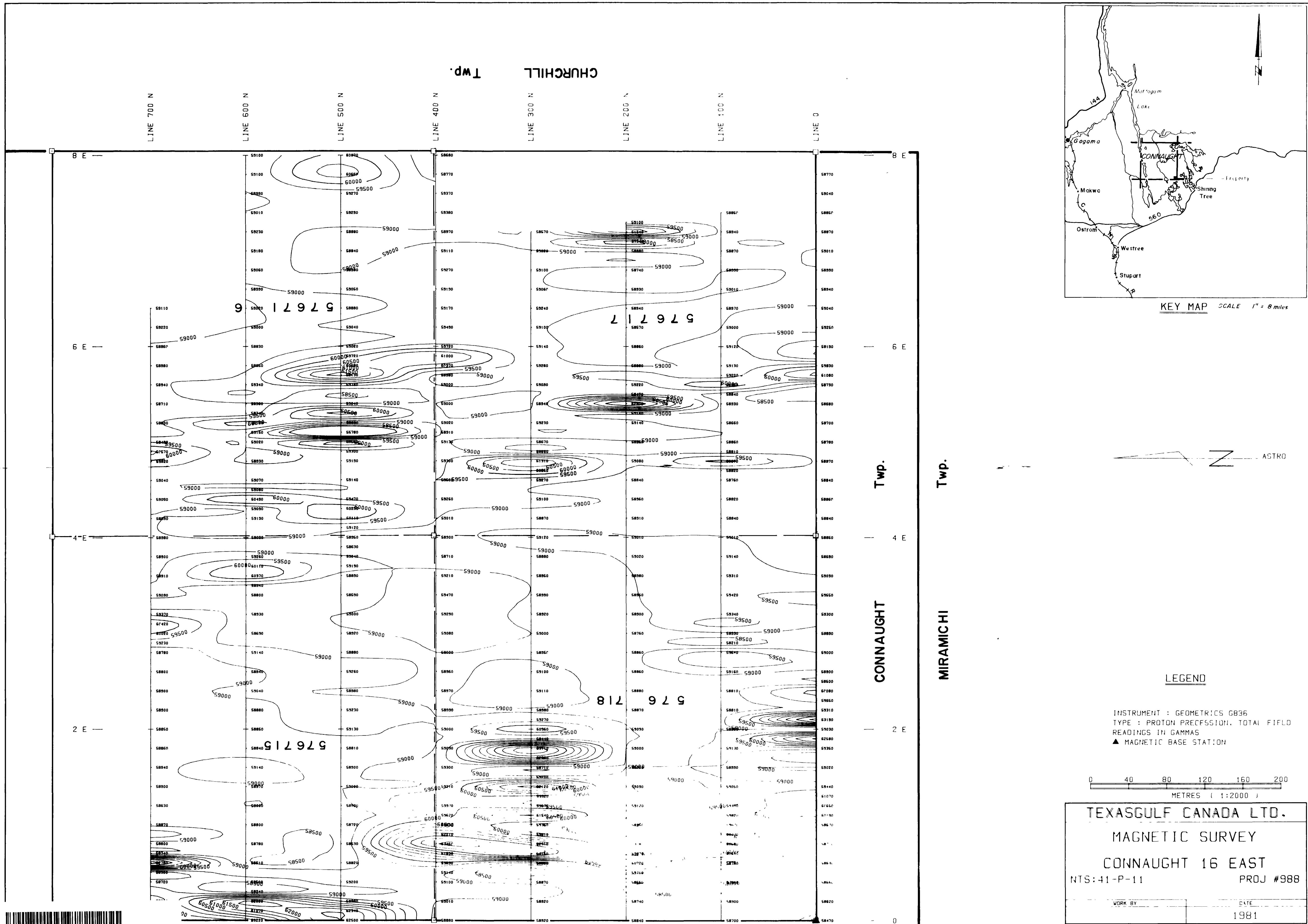
INSTRUMENT : CRONE RADEM
STATION : ANNAPOLIS, 21.4 KHz
PROFILE SCALE : DIP ANGLE 1 CM = 10°

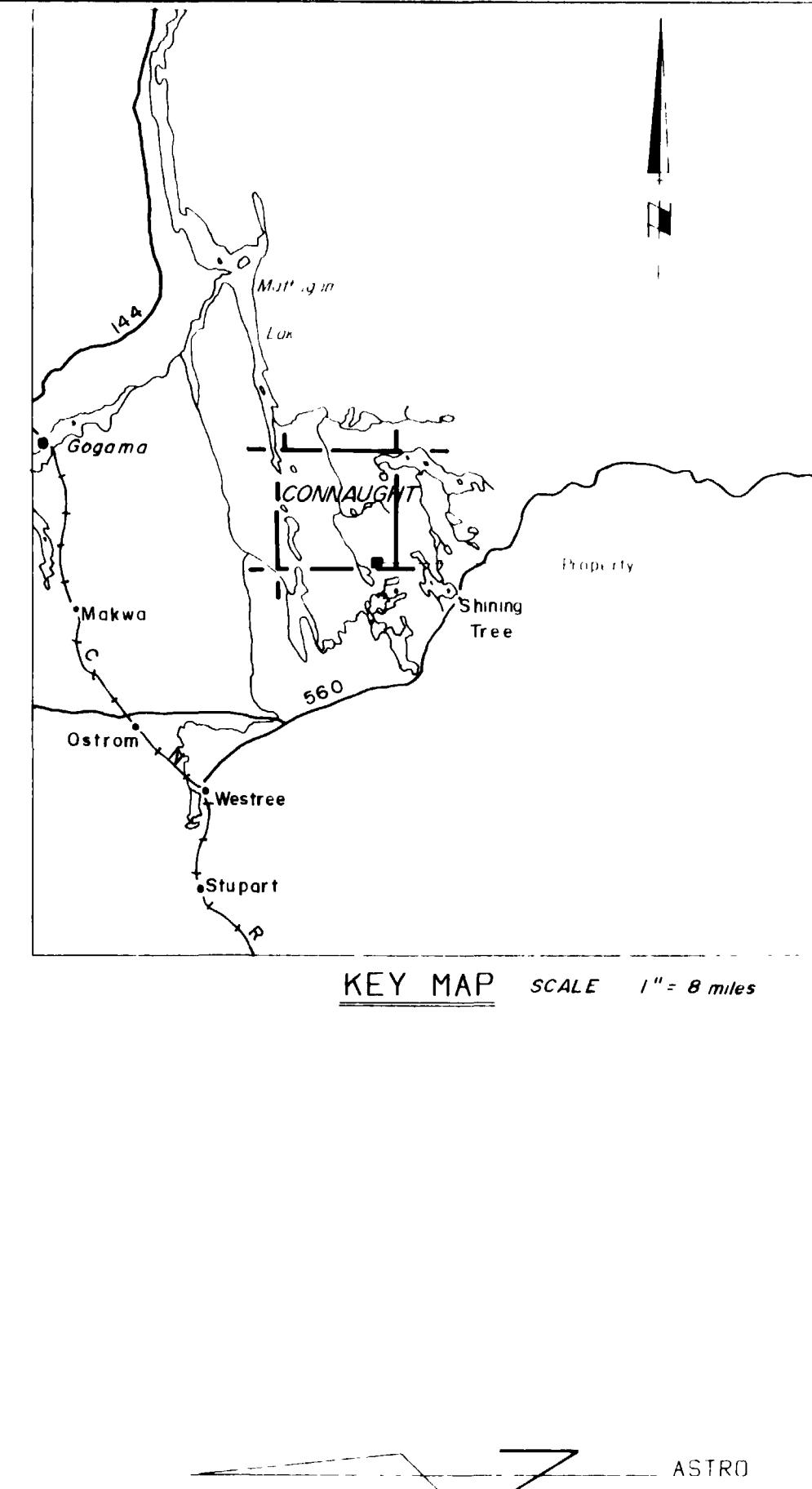
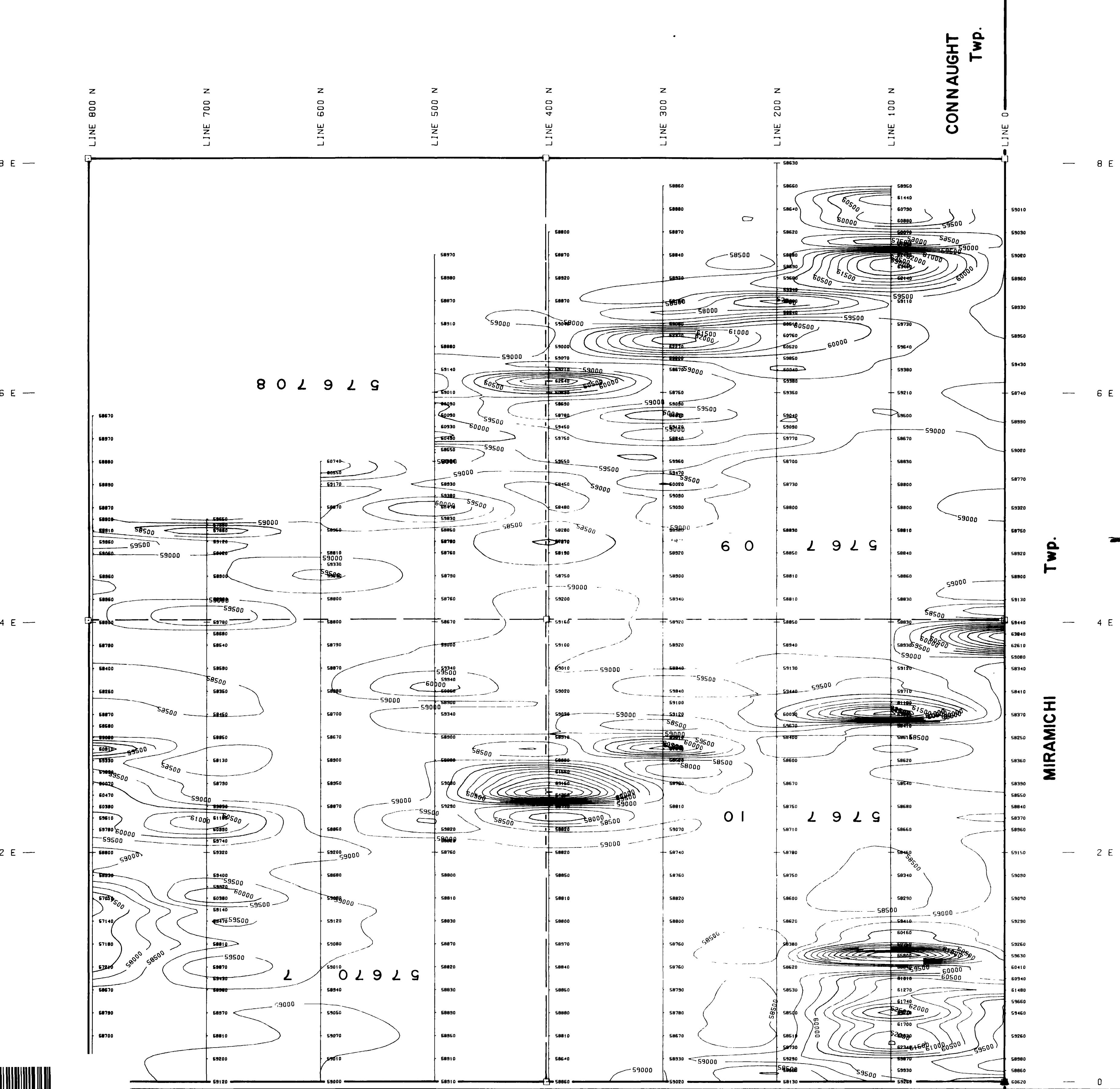


TEXASGULF INC.	
VLF SURVEY	
CONNAUGHT 26	
NTS: 41-P-11 PROJ#988	
WORK BY	DATE
1981	







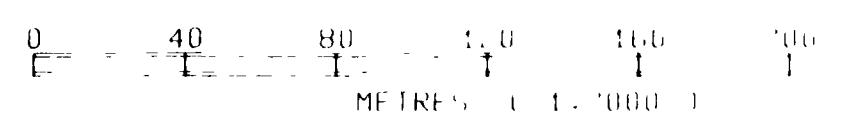


KEY MAP SCALE 1" = 8 miles

— — ASTRO

LEGEND

INSTRUMENT : GEOMATICS 1836
TYPE : PROTON PRECESSION, TOTAL FIELD
READINGS IN GAMMAS
▲ MAGNETIC BASE STATION



TEXASGULF CANADA LTD.
MAGNETIC SURVEY
CONNAUGHT 16 WEST
S:41-P-11 PROJ #988

WORK BY DATE
1981

Wil Enten 24175