

RELINQUISHMENT REPORT
EXPLORATION LICENCE 7642

22nd January, 1992
to
21st January, 1995

Licensee: Ashton Mining Limited

Operator: Ashton Mining Limited
BHP Minerals

Sheet Reference: 1:250,000 Wallhallow (SE 53-07)

Submitted to: Department of Mines & Energy
Northern Territory

Copies to: Ashton Mining Limited - Perth Office
Ashton Mining Library

Authors:

T.H. Reddicliffe
ASHTON MINING LIMITED
24 Outram Street
WEST PERTH WA 6005

Ian Brown
BHP MINERALS
3 Plain Street
EAST PERTH WA 6004

DME LIBRARY

27 DEC 1995

SCANNED

April, 1995
Report Number: 51106

CR 95/326

CONTENTS

	Page
SUMMARY	(i)
1.0 INTRODUCTION	1
2.0 DIAMOND EXPLORATION	1
2.1 Data Review	1
2.2 Reconnaissance Sampling	2
2.3 Laboratory Procedure	2
3.0 BASE METAL EXPLORATION	3
3.1 Geophysics	3
3.1.1 GEOTEM Survey	3
3.1.2 Moving Loop TEM	3
3.2 Geochemistry	4
3.2.1 Soil Sampling	4
4.0 EXPLORATION EXPENDITURE	4
5.0 CONCLUSIONS AND RECOMMENDATIONS	5
5.1 Diamond Exploration	5
5.2 Base Metal Exploration	5

FIGURES

- Figure 1. Tenement Location Plan showing Retained/Relinquished Areas
Figure 2. GEOTEM Flight Lines
Figure 3. Soil Sample Locations

CONTENTS (cont...)

TABLES

Table 1.	GEOTEM Specifications
Table 2.	Ground TEM Specifications

PLANS

Plan 1.	Sample Location Plan
---------	----------------------

APPENDICES

Appendix 1.	Sample Results - Diamond Exploration
Appendix 2.	GEOTEM Profiles
Appendix 3	Ground TEM Data
Appendix 4.	Analytical Results - Base Metal Exploration
Appendix 5.	Statement of Expenditure

SUMMARY

During the period 22nd January 1992 to 21st January 1995, Ashton Mining Limited, on behalf of the Australian Diamond Exploration Joint Venture (ADE JV), carried out an exploration programme over Exploration Licence 7642. On the 24th January, 1992, BHP Minerals Pty Ltd joint ventured into this ground in search of base metals. This joint venture is known as the McArthur River Joint Venture.

On the 21st January, 1995, the licence was reduced to 46 blocks. This report provides details of work undertaken by the ADEJV and BHPM in the relinquished portion of the tenement.

Ashton's diamond exploration programme consisted of reconnaissance sampling with nine stream and four loam samples being taken. One sample returned diamond positive, whilst the remaining samples returned negative. As results were discouraging, relinquishment was recommended for areas not requiring further investigation.

Base metal exploration involved an airborne EM survey being flown over the relinquished portion. One anomaly, K3, was selected for ground follow-up and identified a possible weak conductor in the Amelia Dolomite. No further work was recommended.

Exploration expenditure for the relinquished area amounted to \$ 23,993.

1.0 INTRODUCTION

Exploration licence 7642 was granted to Ashton Mining Limited on the 22nd January, 1992. The licence, originally covered an area of 184 blocks. In accordance with Section 26 of the Northern Territory Mining Act, the tenement was reduced to 92 blocks on the 21st January 1994. On the 21st January 1995, EL 7642 was further reduced to 46 blocks. The licence, located on the Wallhallow (SE 53-07) 1:250,000 map sheet, is shown in Figure 1.

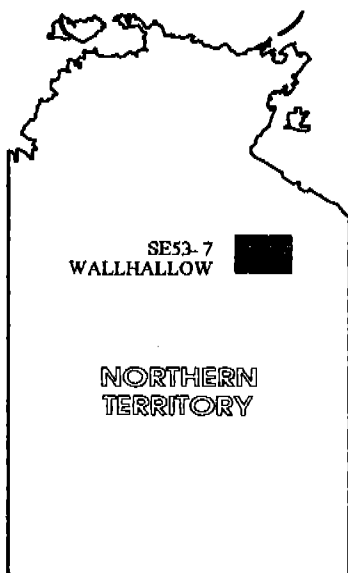
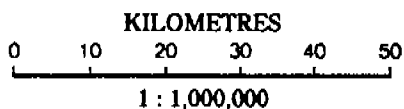
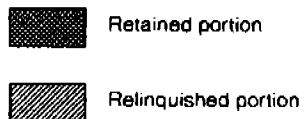
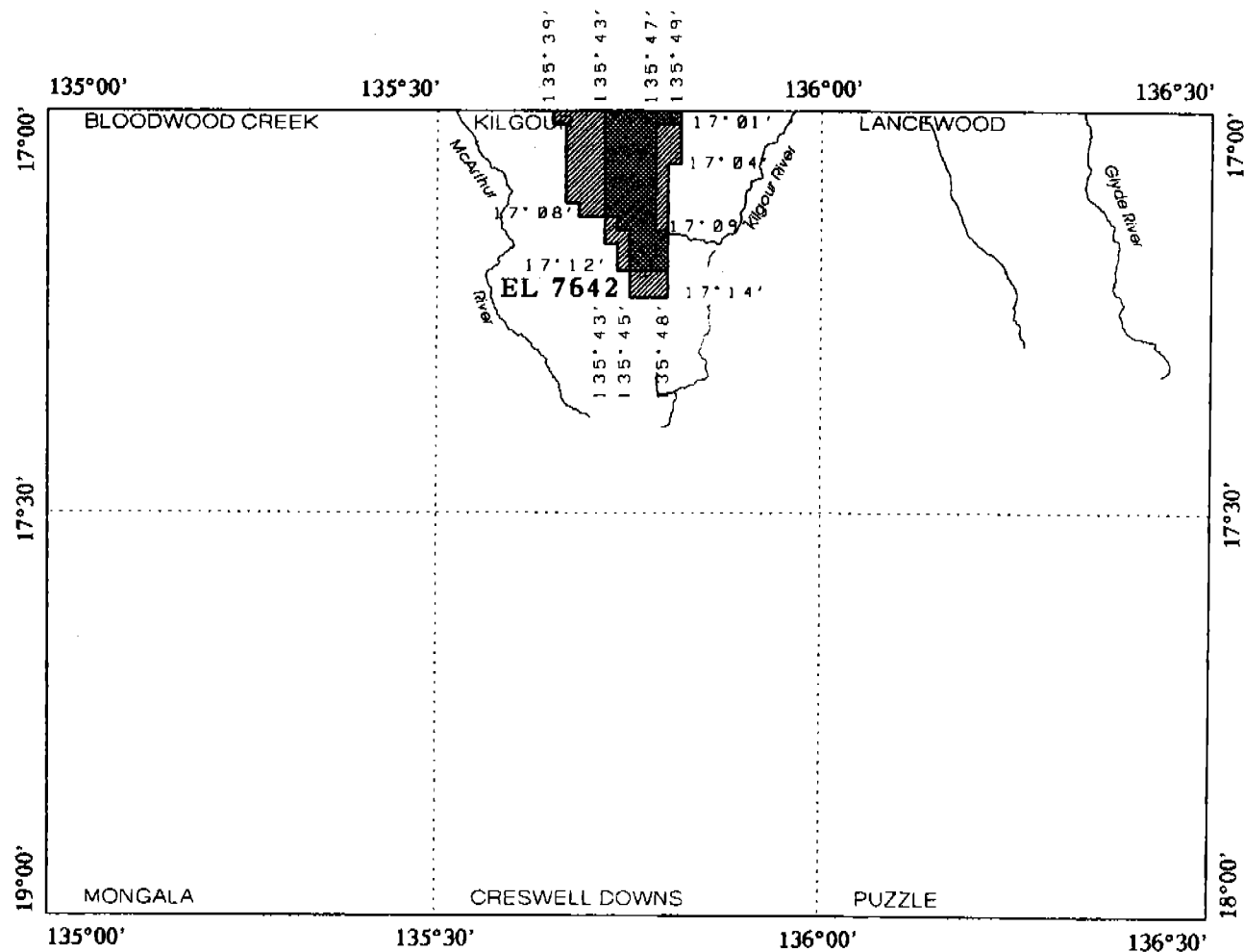
On the 24th January, 1992, Ashton Mining Limited, on behalf of the Australian Diamond Exploration Joint Venture (ADEJV), entered into an agreement with BHP Minerals Pty Ltd, which would allow BHP to earn up to 80% of the base metal rights to this tenement. This agreement is known as the McArthur River Joint Venture.

This report provides a summary of work undertaken by Ashton Mining and BHP Minerals on the relinquished portion of EL 7642 during the reporting period 22nd January 1992 to 21st January 1995. A statement of expenditure is included in this report.

2.0 DIAMOND EXPLORATION

2.1 Data Review

Prior to commencement of field work, a data review of previous exploration in this area, was carried out over the entire licence. Results revealed the presence of a significant



ASHTON MINING LIMITED
 ADE JOINT VENTURE

FIGURE 1
 EXPLORATION LICENCE 7642
 LOCATION MAP
 PARTIAL RELINQUISHMENT

microdiamond and chromite anomaly, which falls within the retained areas of the tenement. During the reporting period this anomaly was Ashton's main area of interest for exploration.

2.2 Reconnaissance Sampling

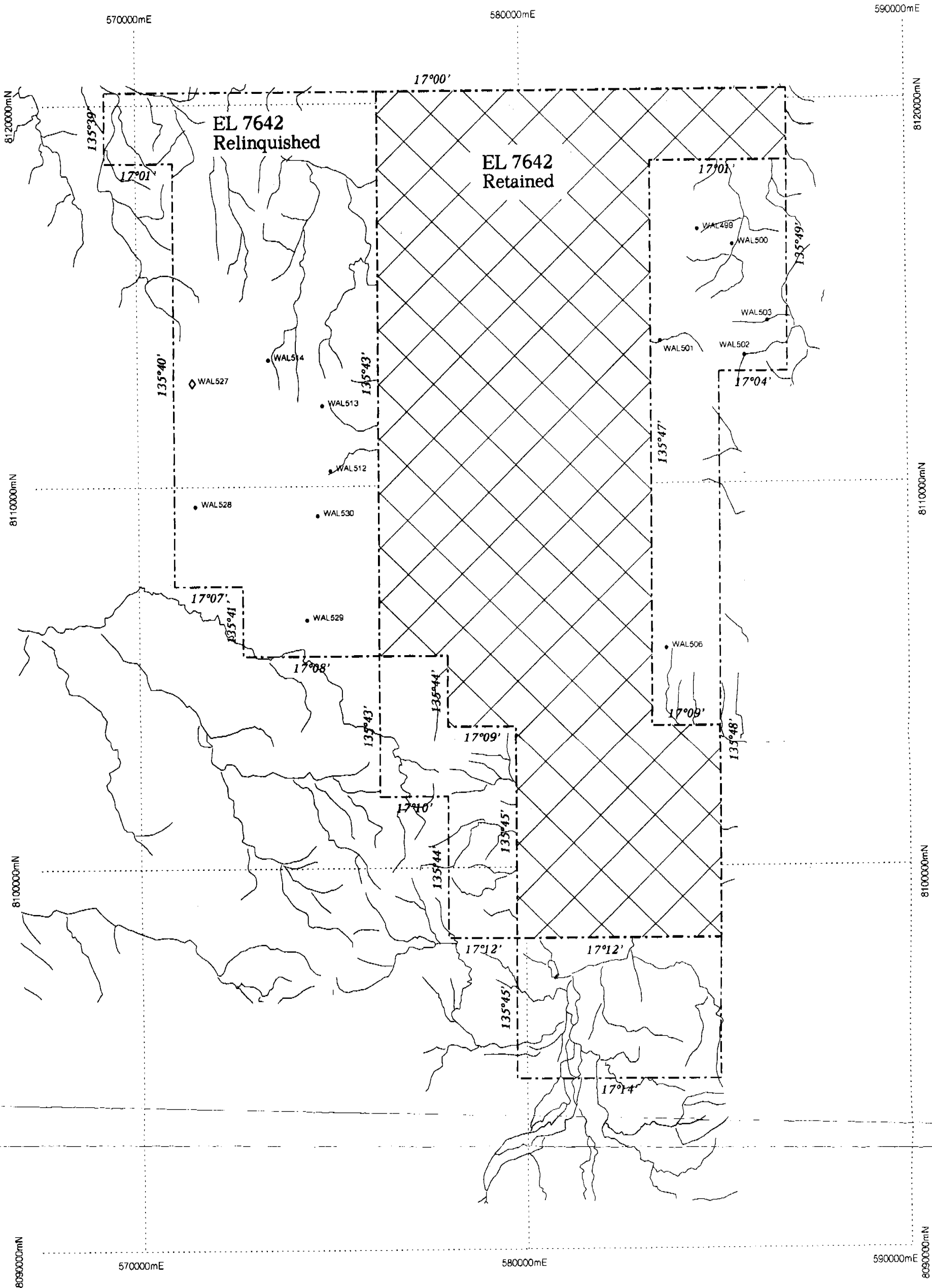
A reconnaissance stream sampling programme, undertaken in the first year of tenure, resulted in thirteen samples being collected in the relinquished area. A total of nine gravel and four loam samples were taken. The programme was helicopter supported, using a field team comprising two geologists and two field assistants.

Samples were transported to Ashton Mining's laboratory in Perth for analysis (see Section 2.3). One sample, WAL 527, returned a positive result for diamond, whilst the remaining samples returned negative results.

A full listing of results is given in Appendix 1. Sample locations are shown on Plan 1.

2.3 Laboratory Procedure

The samples were processed by the Ashton Mining Limited Laboratory in Perth, where they were concentrated by Wilfley Table and heavy liquid separation techniques.



- Sample - not yet processed
- Sample - negative
- ◆ Sample - chromite positive
- ◇ Sample - diamond positive
- Sample - other indicators

ASHTON MINING LIMITED		
A.D.E. JOINT VENTURE		
PARTIAL RELINQUISHMENT EXPLORATION LICENCE 7642 - KILGOUR SAMPLE LOCATIONS		
PLAN 1		
Geologist :	Date : APRIL, 1995	Report No :
Drafted :	Revised :	Drawing No :

The heavy liquid used was tetrabromethane with a specific gravity of 2.96. The concentrates were then screened into various size fractions, further concentrated by magnetic and electrostatic separation techniques and a comprehensive grain by grain examination carried out on the minus 1.0mm plus 0.425mm fractions.

3.0 BASE METAL EXPLORATION

3.1 Geophysics

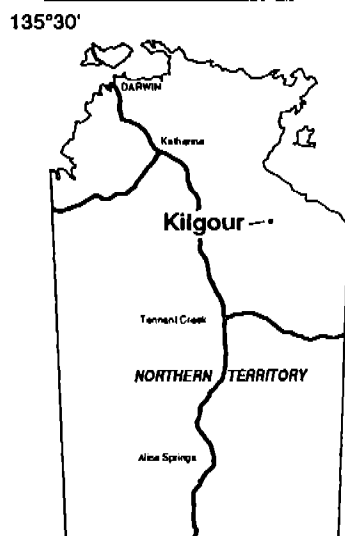
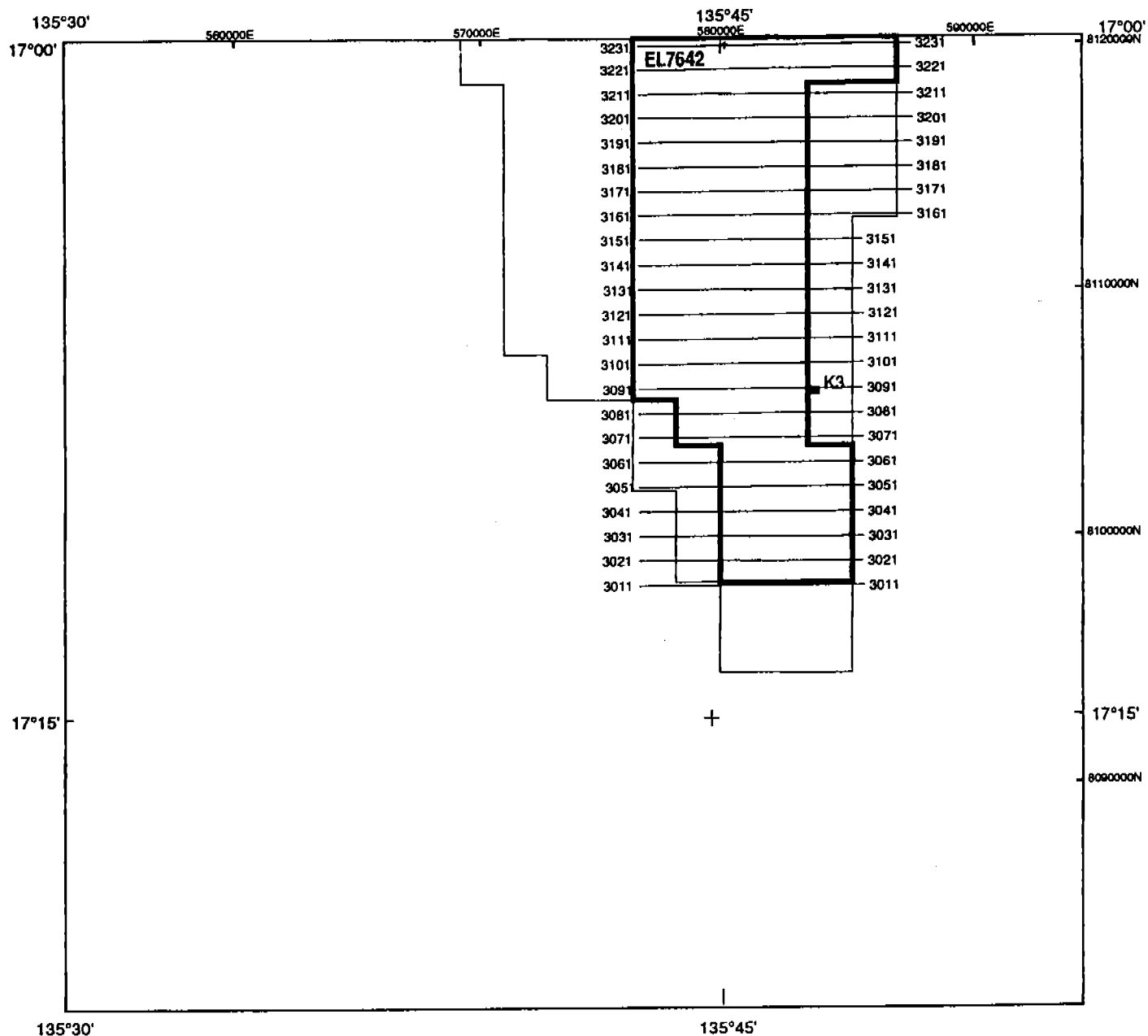
3.1.1 GEOTEM Survey

An airborne TEM (GEOTEM) survey was flown by Geoterrex Pty Ltd in July 1993. Survey specifications are listed in Table 1. Flight lines over the relinquished portions are shown on Figure 2. Profile data for the relinquished portions are presented in Appendix 2.

Lines were orientated east-west and spaced 1,000 metres apart. Approximately 70 line km were flown over the relinquished portions of the tenement. Interpretation of the GEOTEM data yielded one anomaly, K3, worthy of ground follow-up.

3.1.2 Moving Loop TM

Anomaly K3 was selected for follow-up by moving loop TEM utilising a PROTEM receiver. K3 is located at co-ordinates 583750E 8106000N and plotted on Figure 2. Survey specifications are shown in Table 2 and the data are presented in profile form in Appendix 3.



- K3 GEOTEM Anomaly
- BHP Tenement boundary and number
- BHP Relinquished tenement boundary

0 5 10 15 20km

Microstation

Prepared : I.Brown

Drawn : S.Shephard

Date : 14.2.94

Revised : 19.4.95

BHP Minerals Limited
A.C.N. 008 604 782
MCARTHUR RIVER PROJECT

**KILGOUR EL7642
GEOTEM FLIGHT LINES**

Centre : Perth

A4-5559

FIGURE 2

TABLE 1
GEOTEM SPECIFICATIONS

Aircraft	-	CASA C212-200 Turbo Prop
Magnetometer	-	Scintrex Cesium Vapour Optical Absorption
Resolution	-	0.01 nT
Cycle Rate	-	1.0 second
Sample Interval	-	60 metres
Electromagnetic System	-	GEOTEM II Time Domain EM
Transmitter Base Frequency	-	75 Hz
Receiver	-	Horizontal axis coil in towed bird
Cycle Rate	-	0.14 second
Sample Interval	-	9 metres
Window mean delay times (msec)	-	
em1 0.322 em2 0.478 em3 0.634 em4 0.791 em5 0.947		
em6 1.129 em7 1.338 em8 1.572 em9 1.832 em10 2.119		
em11 2.431 em12 2.770 em13 3.160 em14 3.629 em15 4.228		
Data Acquisition	-	RMS GR33 Thermal Dot Matrix Recorder
	-	GEODAS Digital Acquisition System
Flight Line Direction	-	090 - 270 degrees
Flight Line Spacing	-	1,000 metres
Mean Terrain Clearance	-	105 metres
Navigation	-	GPS satellite positioning/Doppler

TABLE 2

GROUND TEM SPECIFICATIONS

EL	:	7642
Contractor	:	Geoterrex Pty Ltd
Instrument	:	PROTEM receiver. TEM-37 transmitter
Loop Size/Configuration	:	200 x 200 metres/moving
Base Frequency	:	25 Hz, N=20
Receiver spacing/components	:	50 m/Z only
Date	:	June, 1994
Duration	:	1 day production
Coverage	:	1 sites, 2 lines per site
Totals	:	2 line km

K3 is a subtle airborne anomaly located in subcropping Amelia Dolomite, approximately 3km north of the Kilgour Cu Prospect. Data from two lines of moving loop PROTEM highlight the existence of a westerly dipping, weakly conductive horizon. The anomaly is not considered strong enough for further follow-up.

The anomaly was accessed by 4WD and no clearing by heavy machinery was necessary.

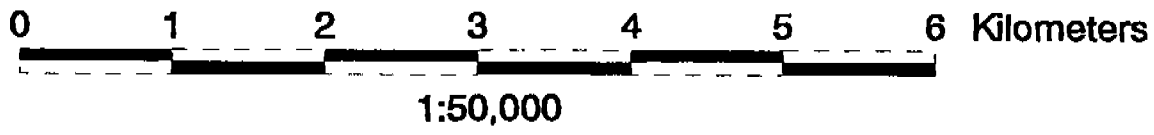
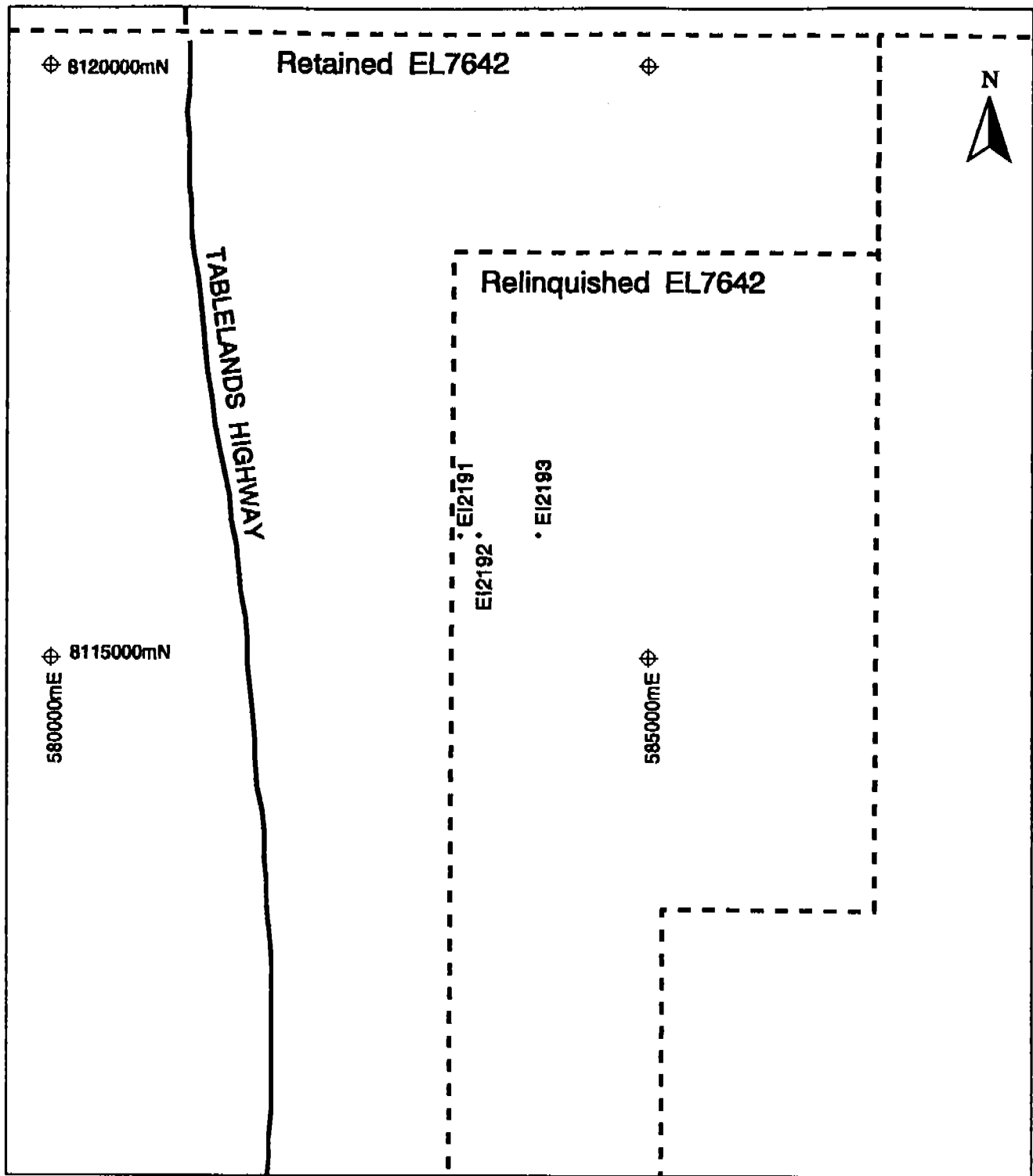
3.2 GEOCHEMISTRY

3.2.1 Soil Sampling

Three soil samples were collected along a traverse east of Dillinghams Bore (Figure 3). This sampling is part of a larger survey completed outside the relinquished tenement. Samples were only collected if Proterozoic subcrop or outcrop was present. Sample spacing was generally 100m and a -80# size fraction was collected at each site. Samples were analysed at Assaycorp, Pine Creek, NT. Analytical procedures and results are presented in Appendix 4.

4.0 EXPLORATION EXPENDITURE

Exploration expenditure for work undertaken in the relinquished area of EL 7642, by the ADEJV and BHP Minerals amounted to \$ 23,993. A detailed breakdown of expenditure is given in Appendix 5.



LEGEND

- Soil Sample Locations
- - - EL Boundaries
- ~ Road

EL7642 KILGOUR SOIL SAMPLE LOCATIONS

FIGURE 3

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Diamond Exploration

During the reporting period, Ashton's exploration programme within EL 7642 has concentrated on the microdiamond and chromite anomaly, situated within the retained areas. Sampling outside these areas returned discouraging results and no further work was considered necessary. The ground was recommended for relinquishment.

5.2 Base Metal Exploration

70 line km of airborne TEM was flown over portions of EL 7642. One anomaly, K3, was selected for ground follow-up by moving loop PROTEM. A very weak bedrock conductor was interpreted, possibly hosted by Amelia Dolomite. The anomaly is not considered strong enough to warrant further work.

Minor soil sampling was completed over outcropping Proterozoic stratigraphy immediately east of Dillinghams Bore. Results are low and do not require further work. Relinquishment was recommended.

APPENDIX 1

Sample Results

**EXPLORATION LICENCE 7642
SAMPLE RESULTS IN RELINQUISHED AREA**

Sample	Result	Type	Diamond		Chromite	Other
			Micro	Macro		
WAL 499	neg	G	-	-	-	-
WAL 500	neg	G	-	-	-	-
WAL 501	neg	G	-	-	-	-
WAL 502	neg	G	-	-	-	-
WAL 503	neg	G	-	-	-	-
WAL 506	neg	G	-	-	-	-
WAL 512	neg	G	-	-	-	-
WAL 513	neg	G	-	-	-	-
WAL 514	neg	G	-	-	-	-
WAL 527	POS	L	1	-	-	-
WAL 528	neg	L	-	-	-	-
WAL 529	neg	L	-	-	-	-
WAL 530	neg	L	-	-	-	-

SAMPLE METHODS/TYPES

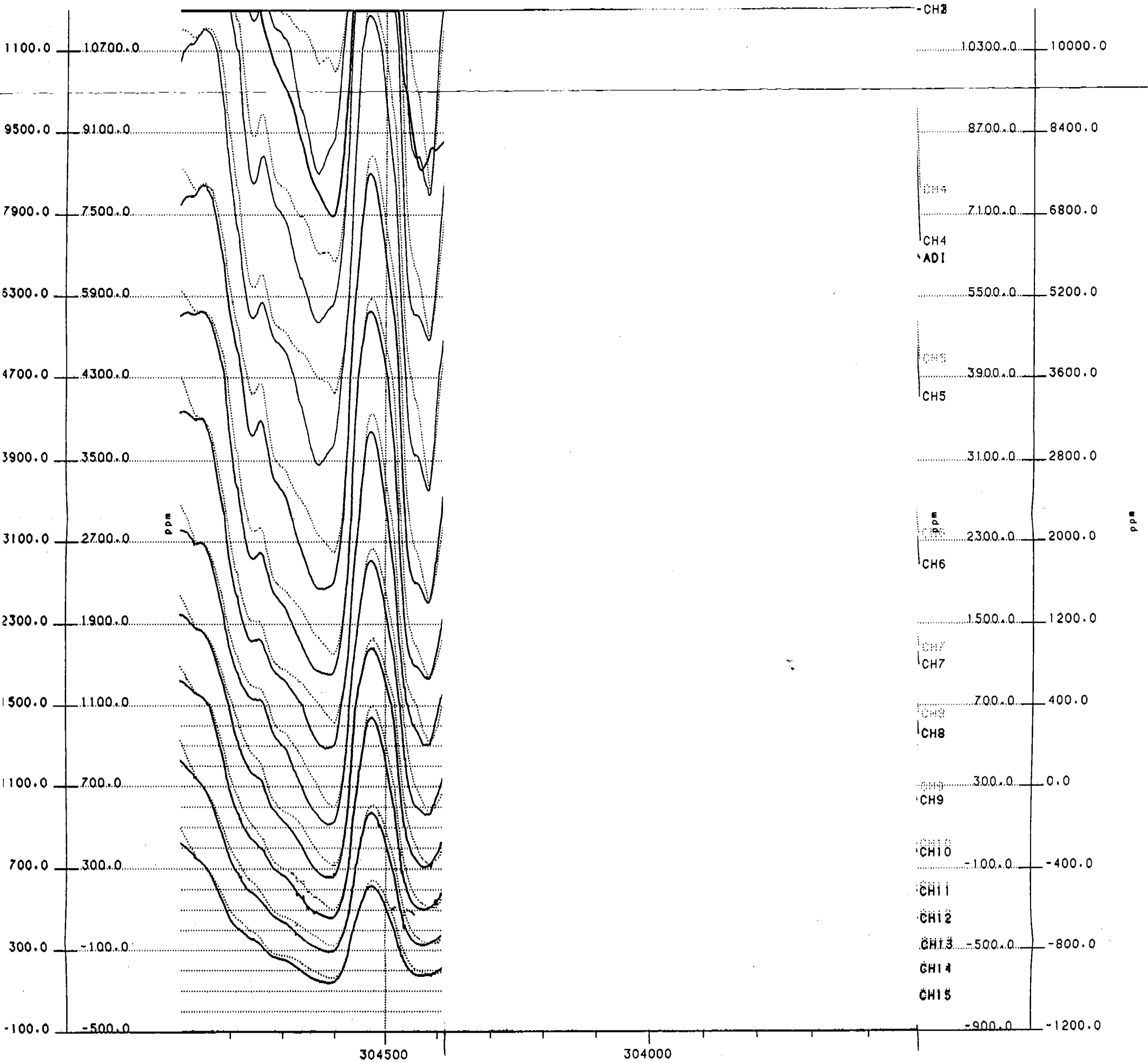
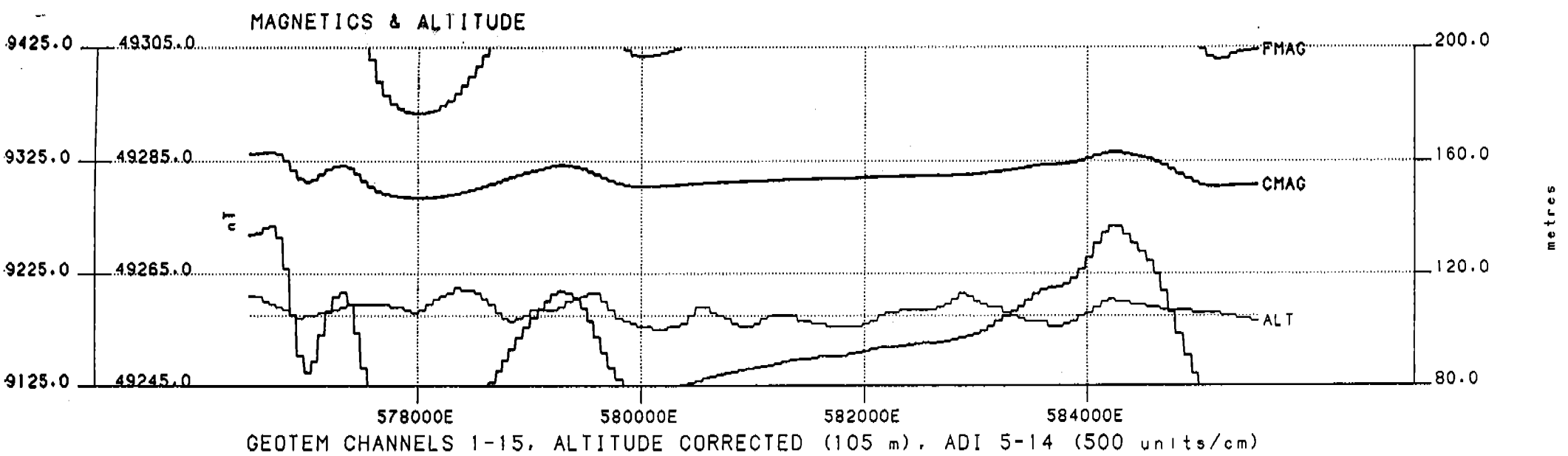
G = Gravel
L = Loam
R = Rock
P = Pit

BG = Bulk gravel
BL = Bulk loam
BT = Bulk trench
TR = Trench/costean

LG = Loam on grid
L PF = Loam on photofeature
DS = Drill spoil

APPENDIX 2

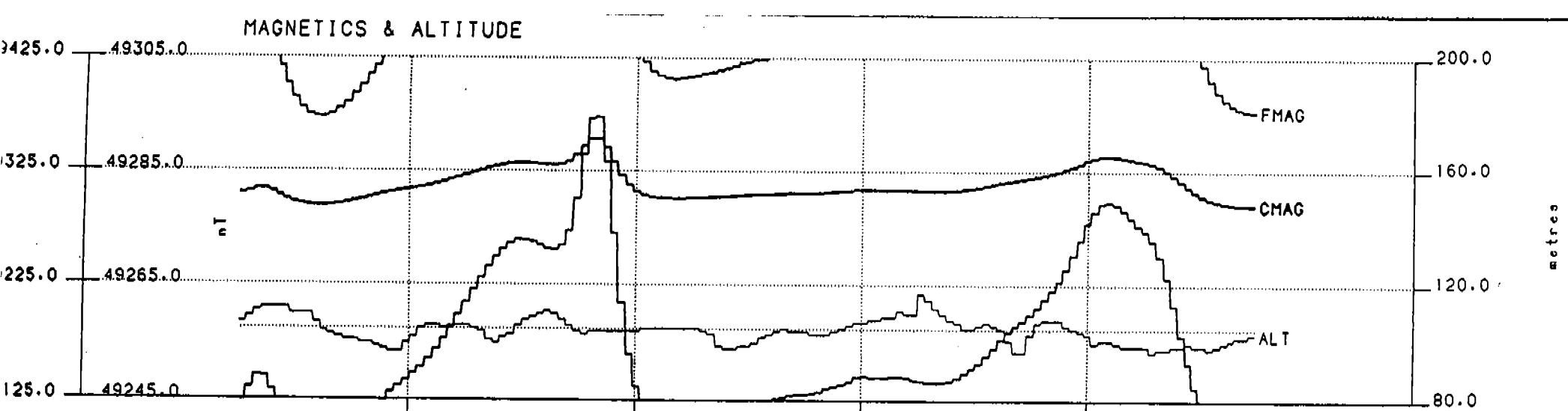
GEOTEM Profiles



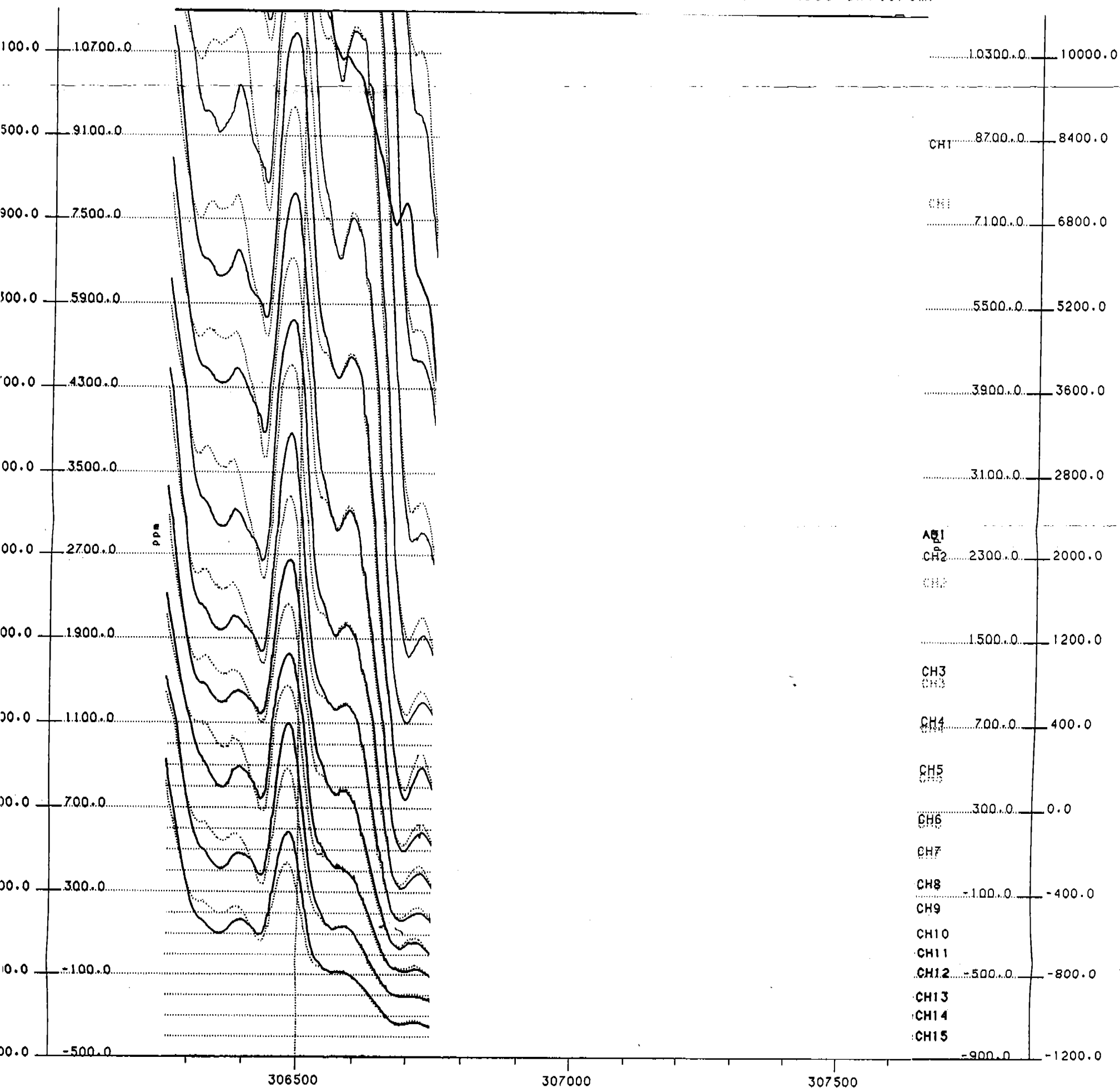
GEOTERREX PTY LTD

SCALE 1:50,000

LINE 301/1 2-702 KILGOUR 75 Hz (2 msec) GEOTFM



GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)



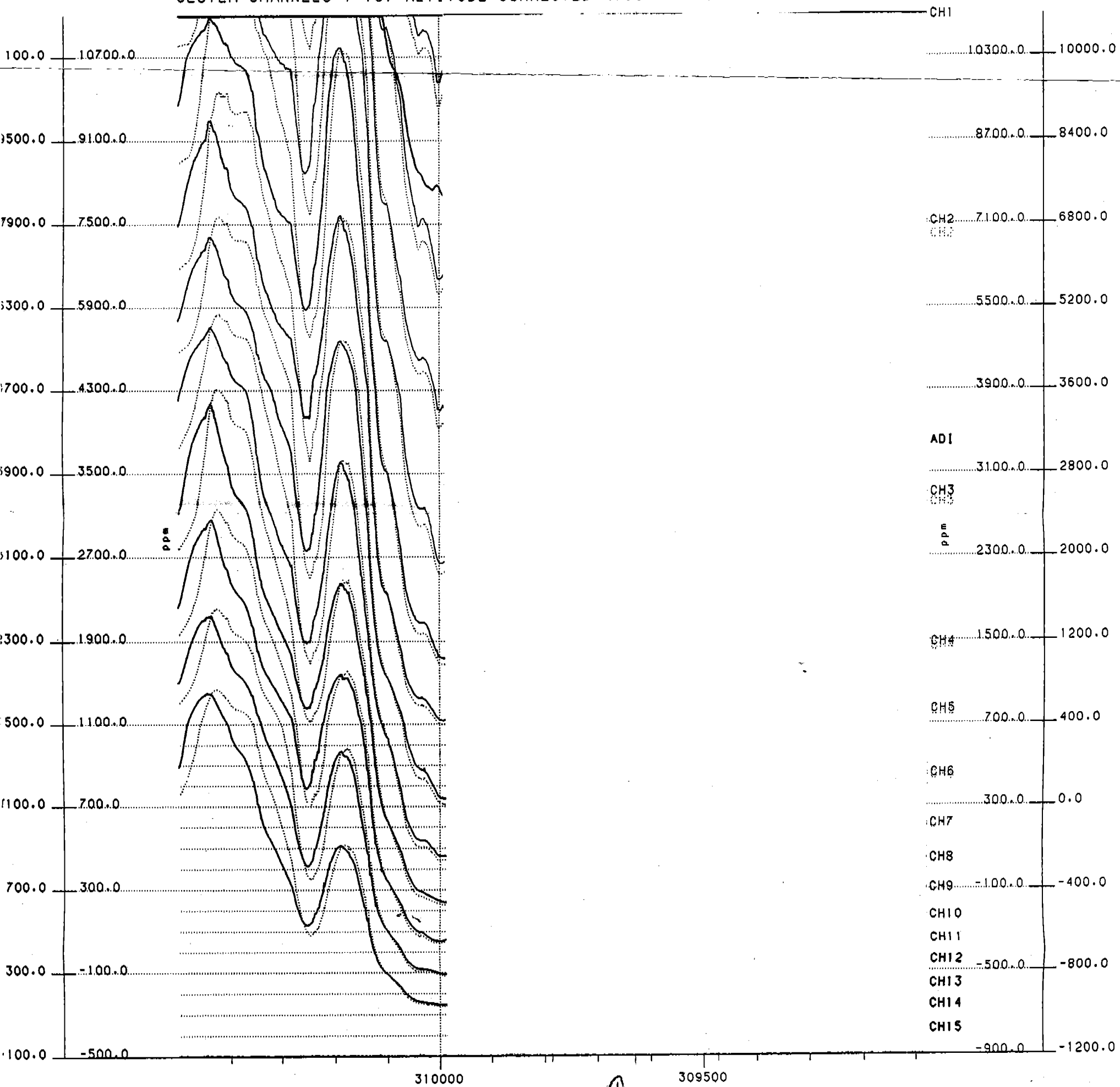
GEOTERREX PTY LTD

SCALE 1:50,000

LINE 302/1 2-702 KILGOUR 75 Hz (2 msec) GEOTEM

The graph displays three data series: FMAG (Fast Magnetic), CMAG (Core Magnetic), and ALT (Altitude). The x-axis represents Easting coordinates from 578000E to 584000E. The left y-axis represents magnetic field strength in Gauss (49245.0 to 49305.0), and the right y-axis represents altitude in metres (80.0 to 200.0). FMAG and CMAG show significant peaks around 578000E and 584000E, while ALT shows a sharp peak at 578000E and a smaller one at 584000E.

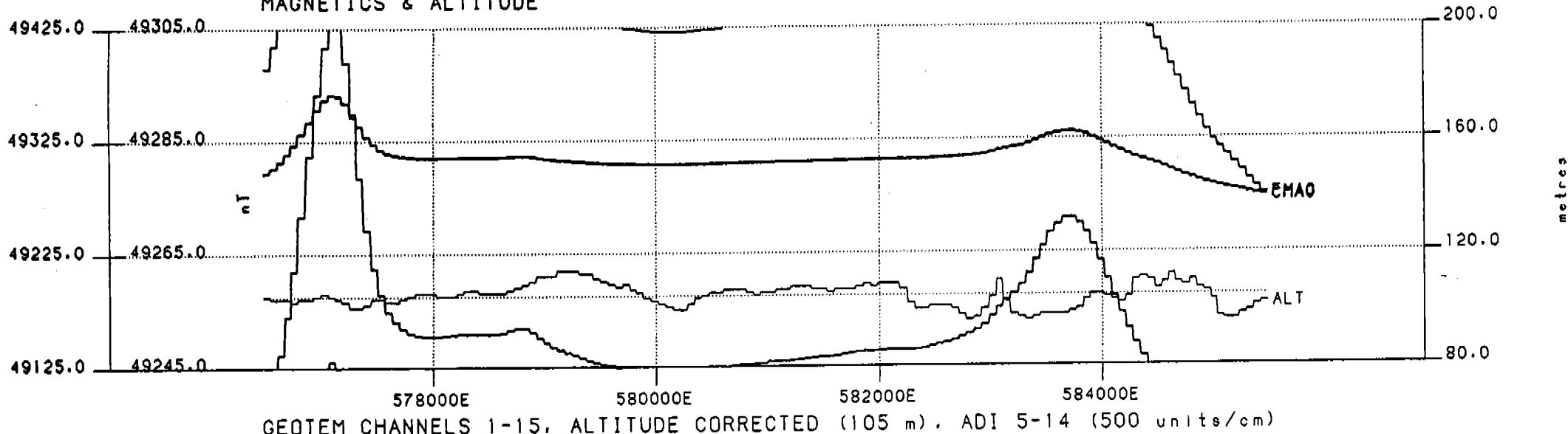
GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)



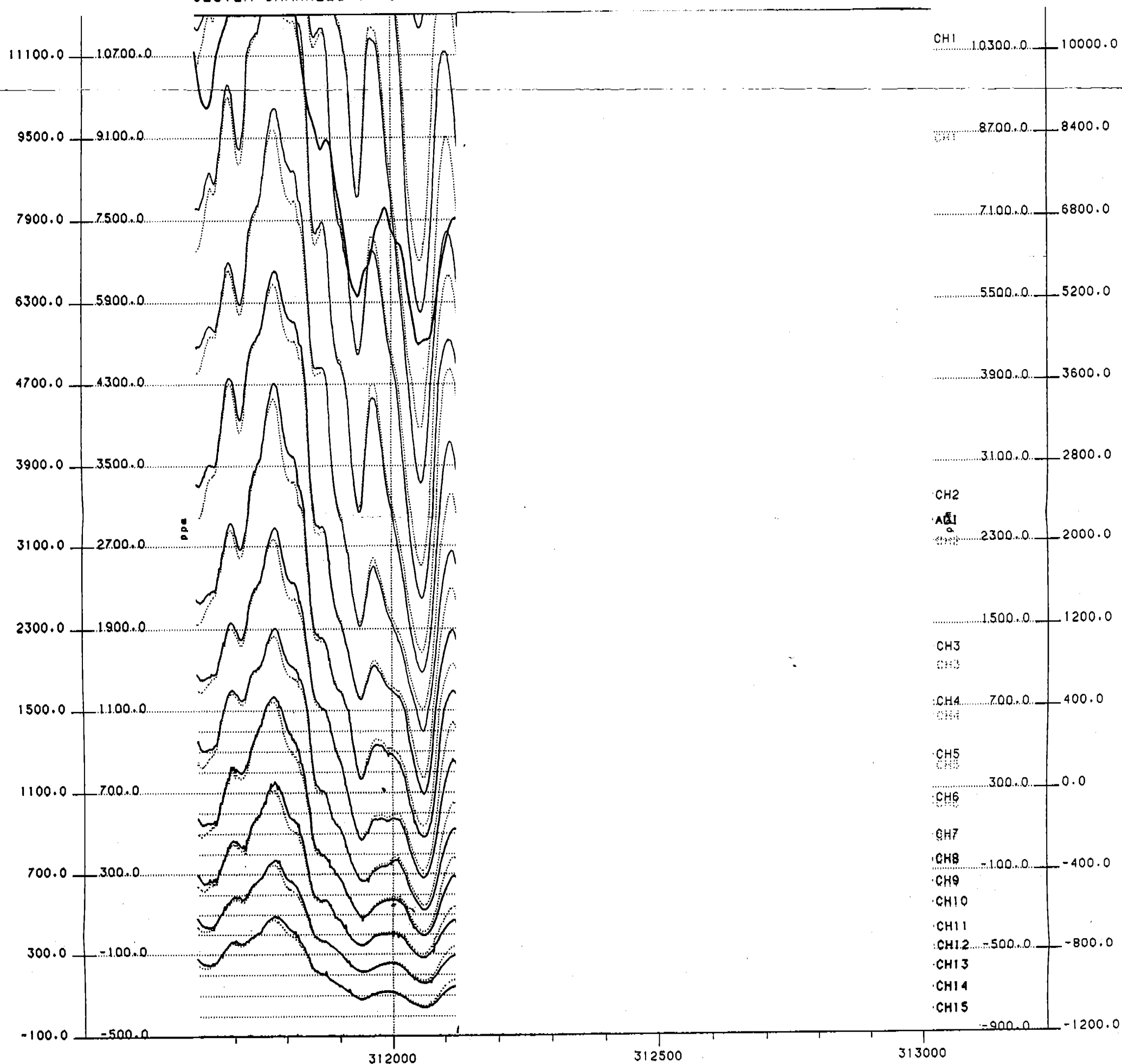
SCALE 1 : 50,000

LINE 303/1 2-702 KILGOUR 75 Hz (2 msec) GEOTEM

MAGNETICS & ALTITUDE



GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)



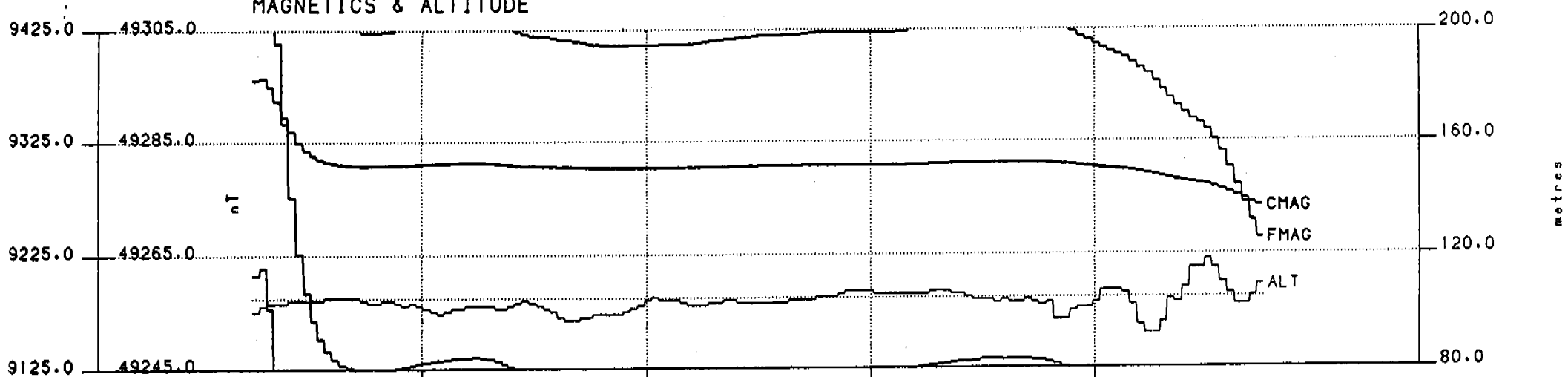
GEOTERREX PTY LTD

SCALE 1:50,000

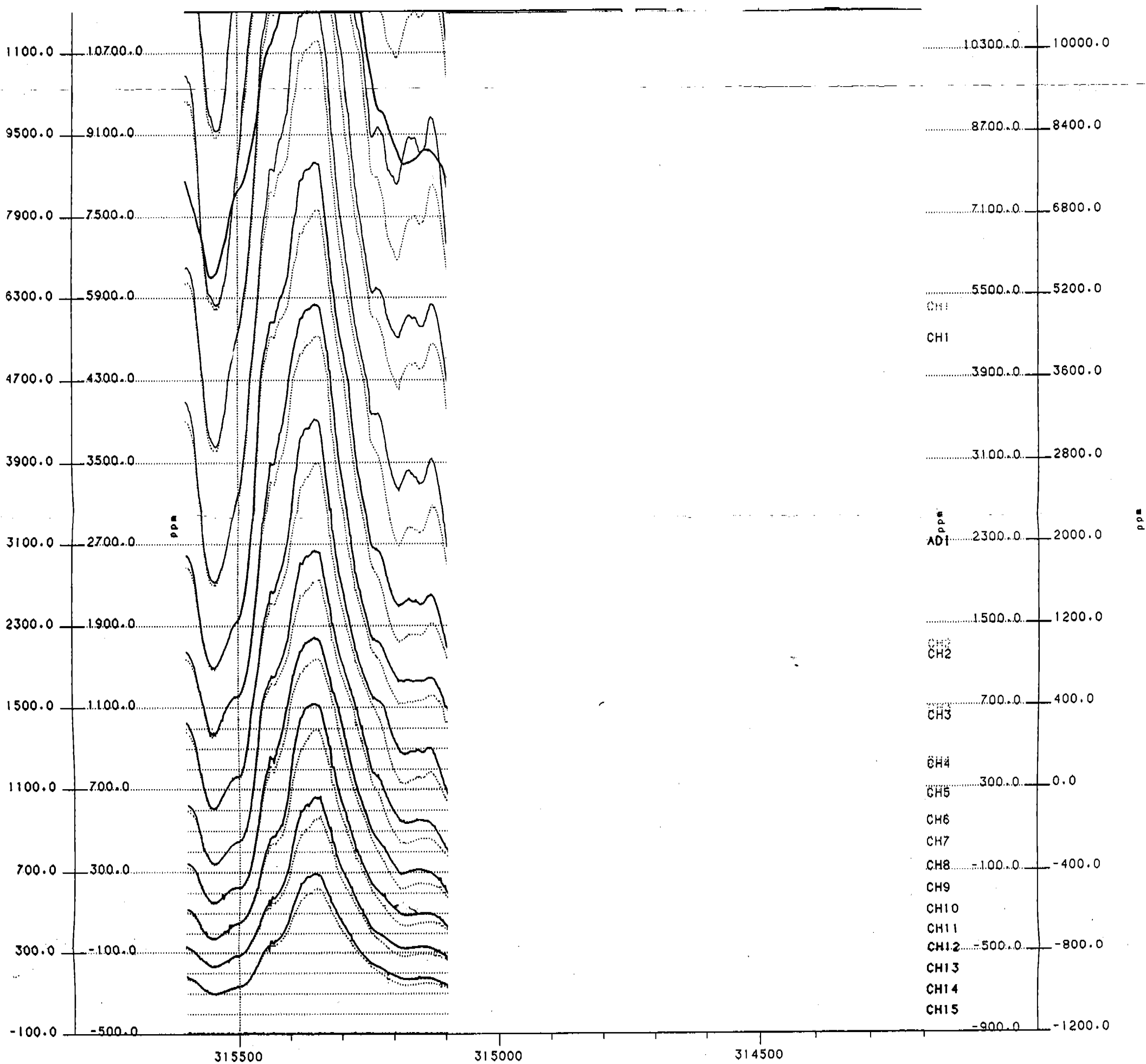
LINE 304/1

LINE 304/1 75 H- (CENTRE) 0-700 VTI COID

MAGNETICS & ALTITUDE



GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)

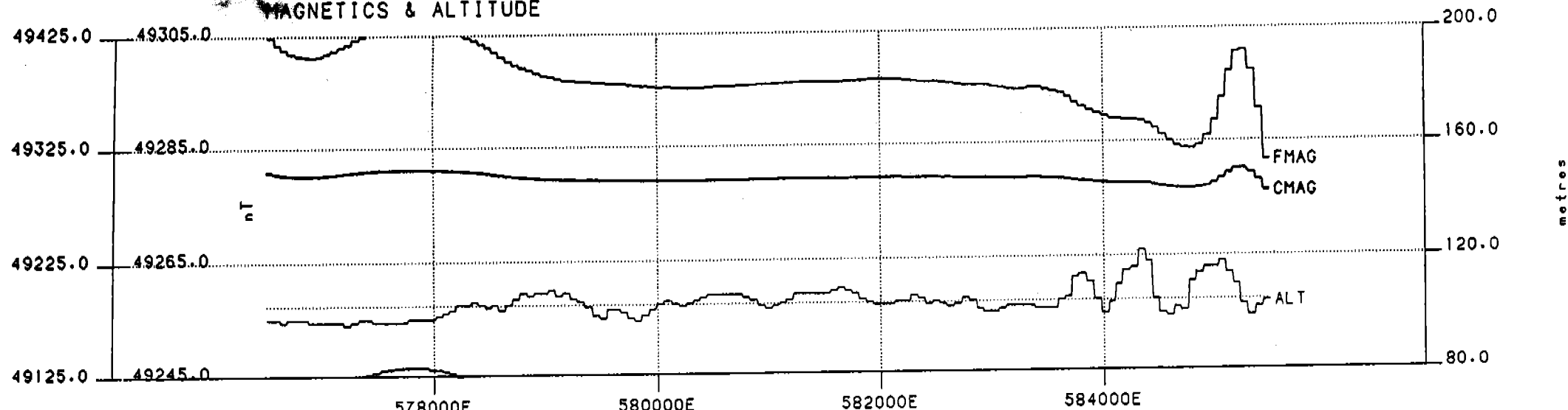


GEOTERREX PTY LTD

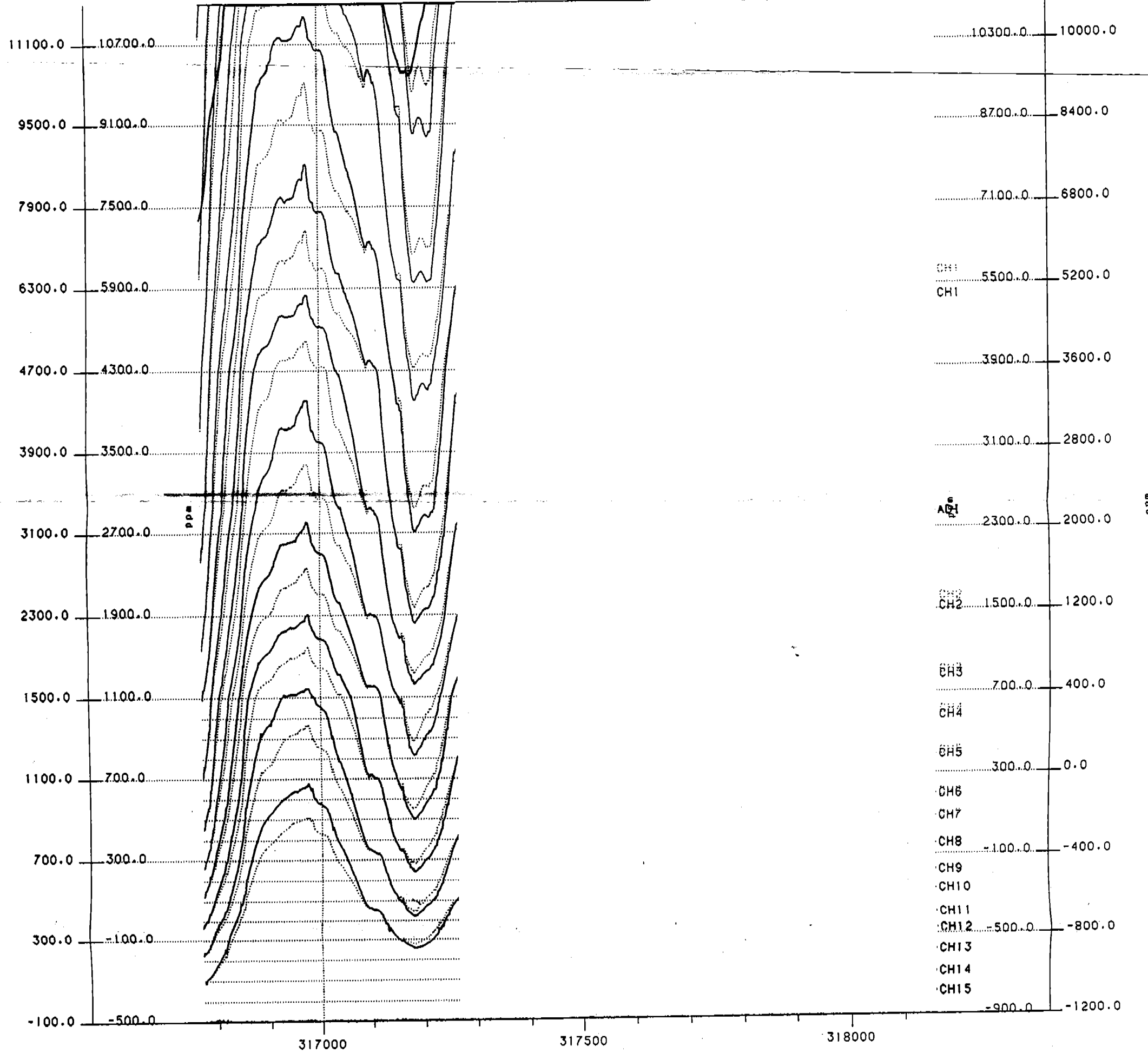
SCALE 1:50,000

LINE 305/1 2-702 KILGOUR 75 Hz (2 msec) GEOTEM

MAGNETICS & ALTITUDE



GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)

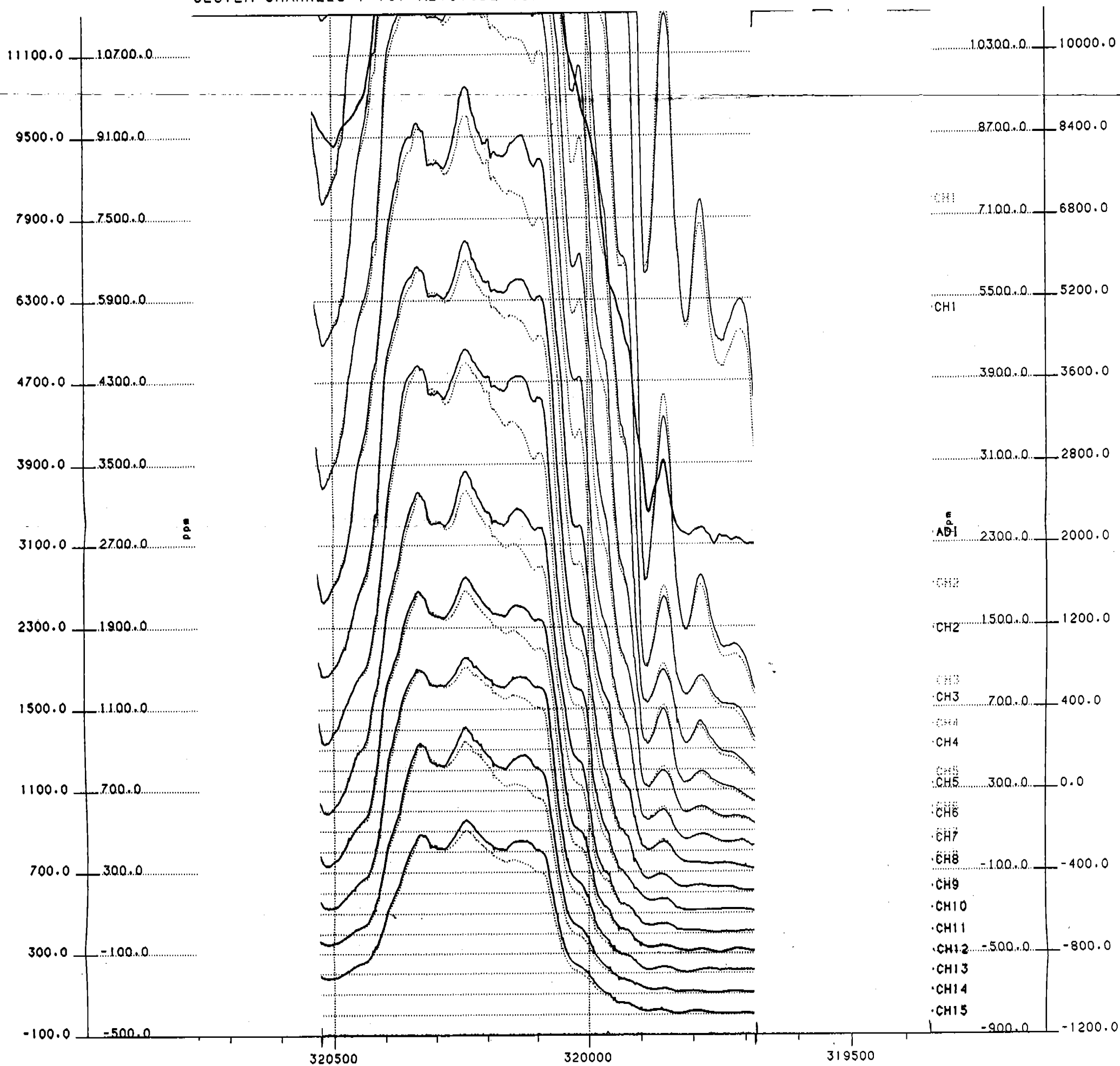
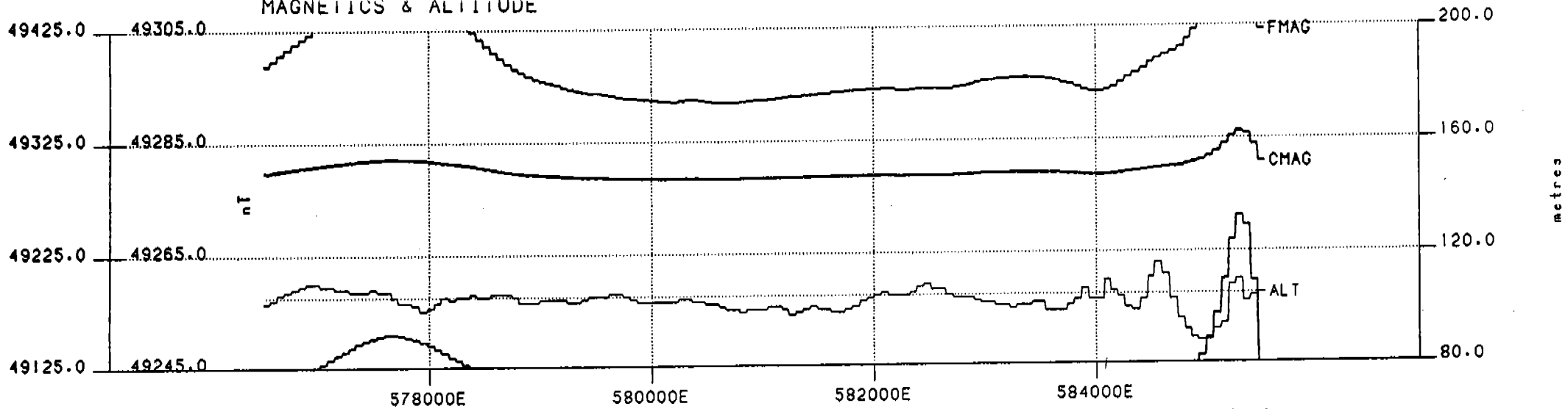


GEOTERREX PTY LTD

SCALE 1:50,000
LINE 306/1

11 LINE 306/1 3-700 KTI COID 75 U- (3) 1000000

MAGNETICS & ALTITUDE

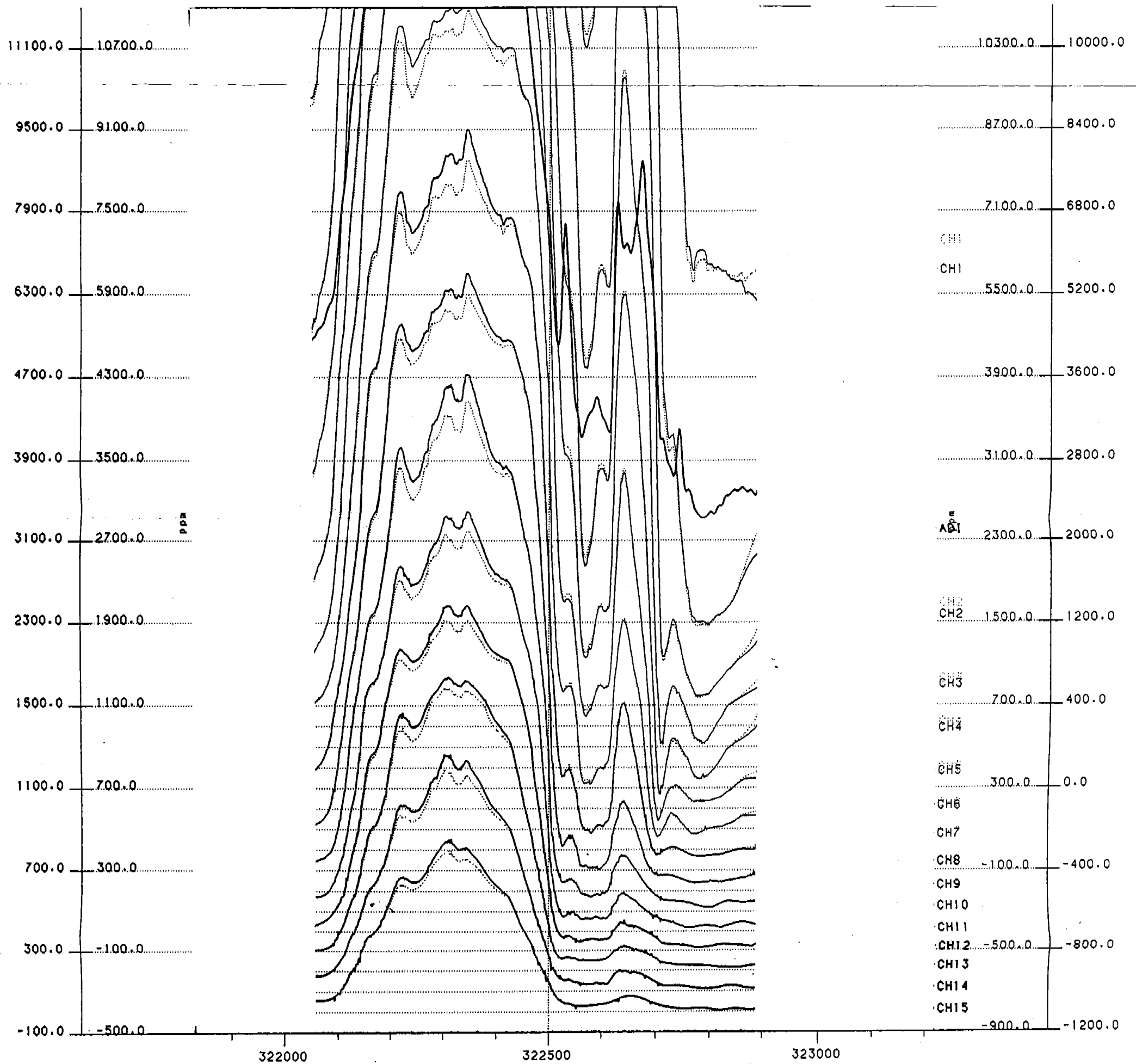
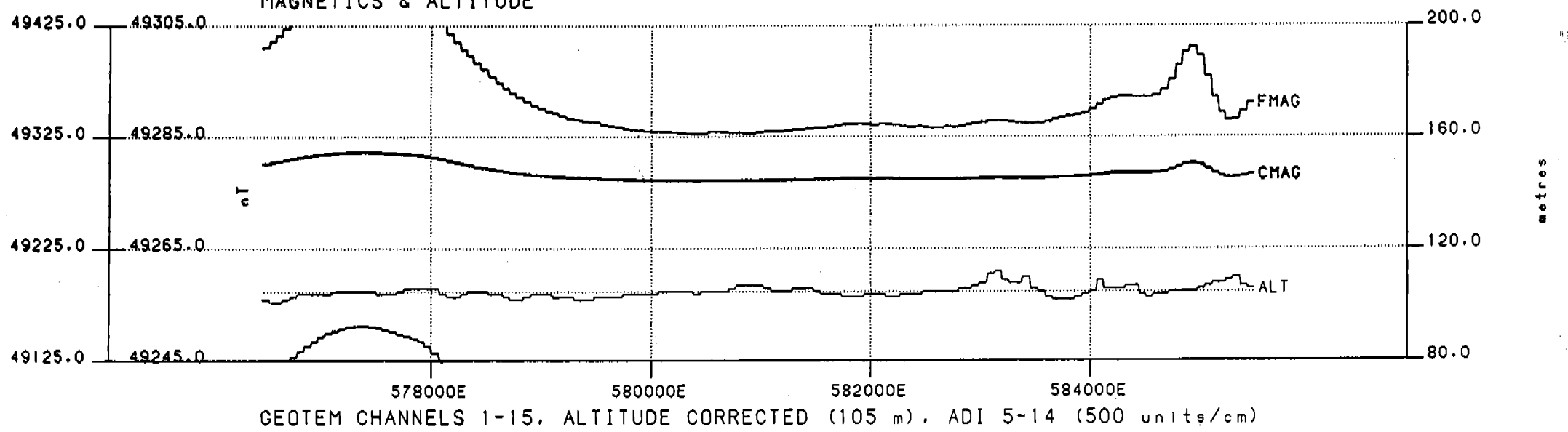


GEOTERREX PTY LTD

SCALE 1:50,000

LINE 307/1

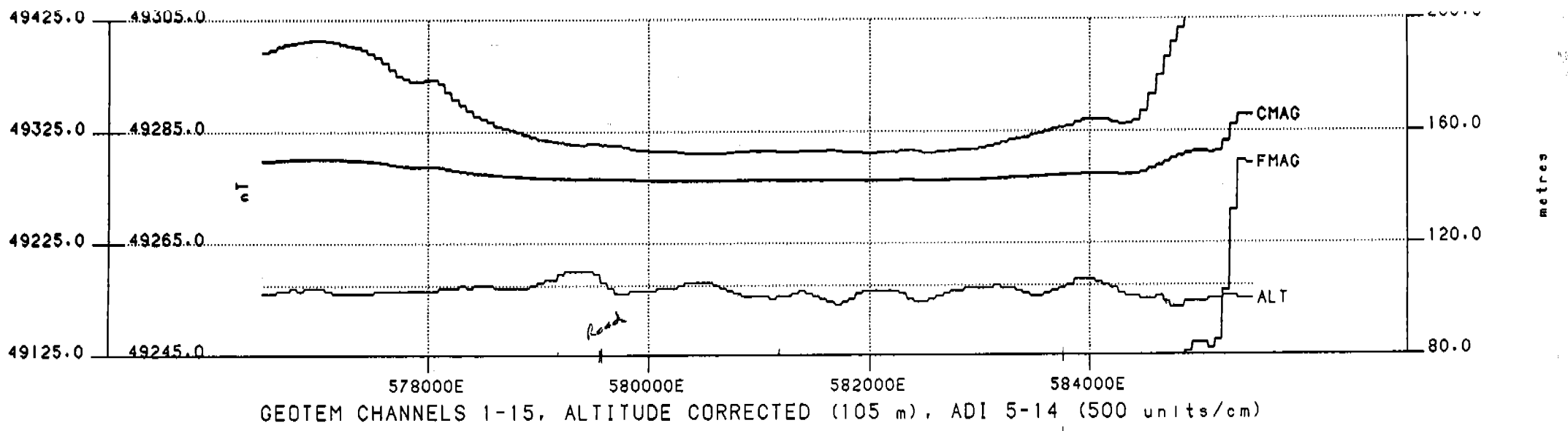
MAGNETICS & ALTITUDE



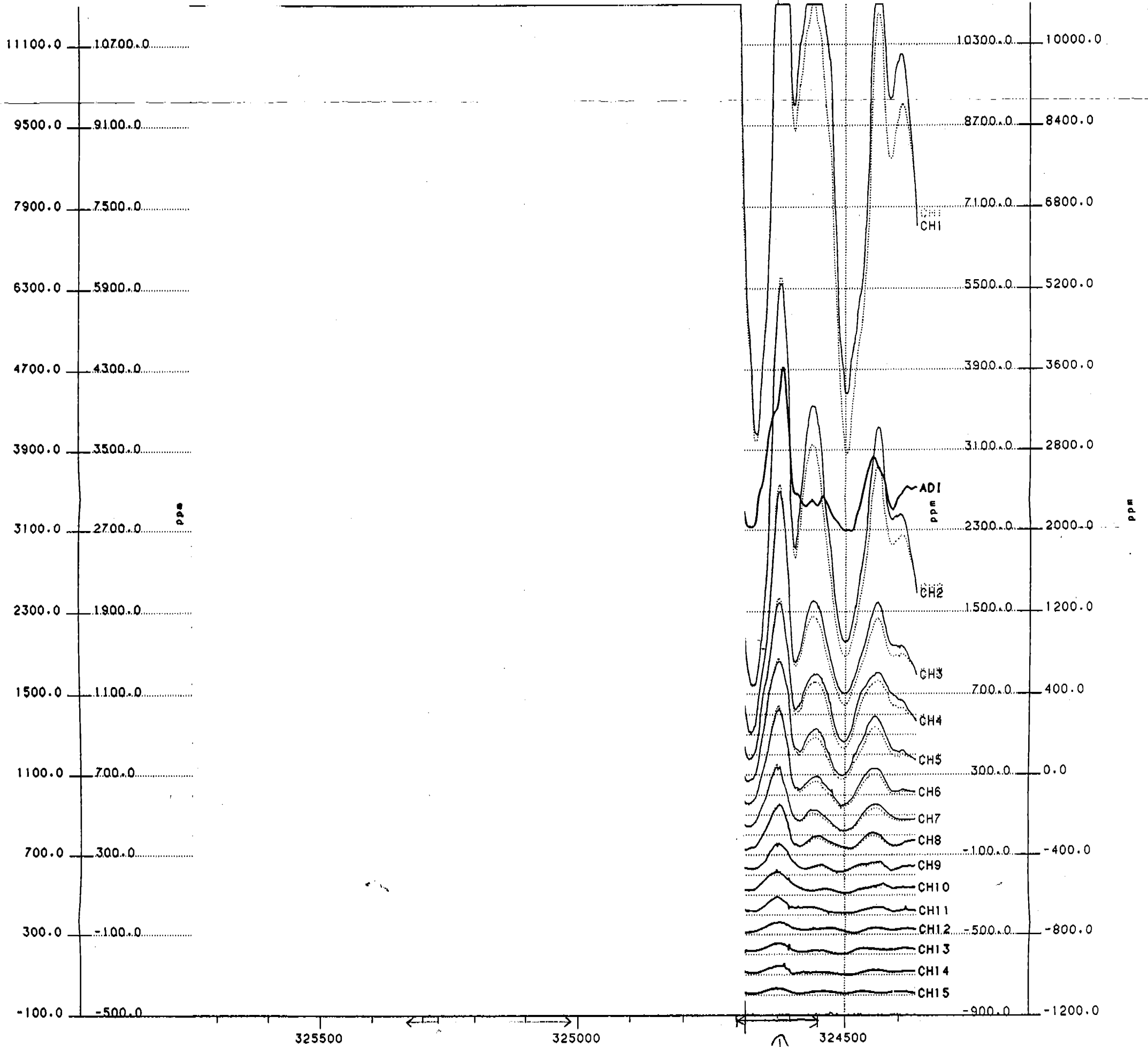
GEOTERREX PTY LTD

SCALE 1:50,000

LINE 308/1



GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)

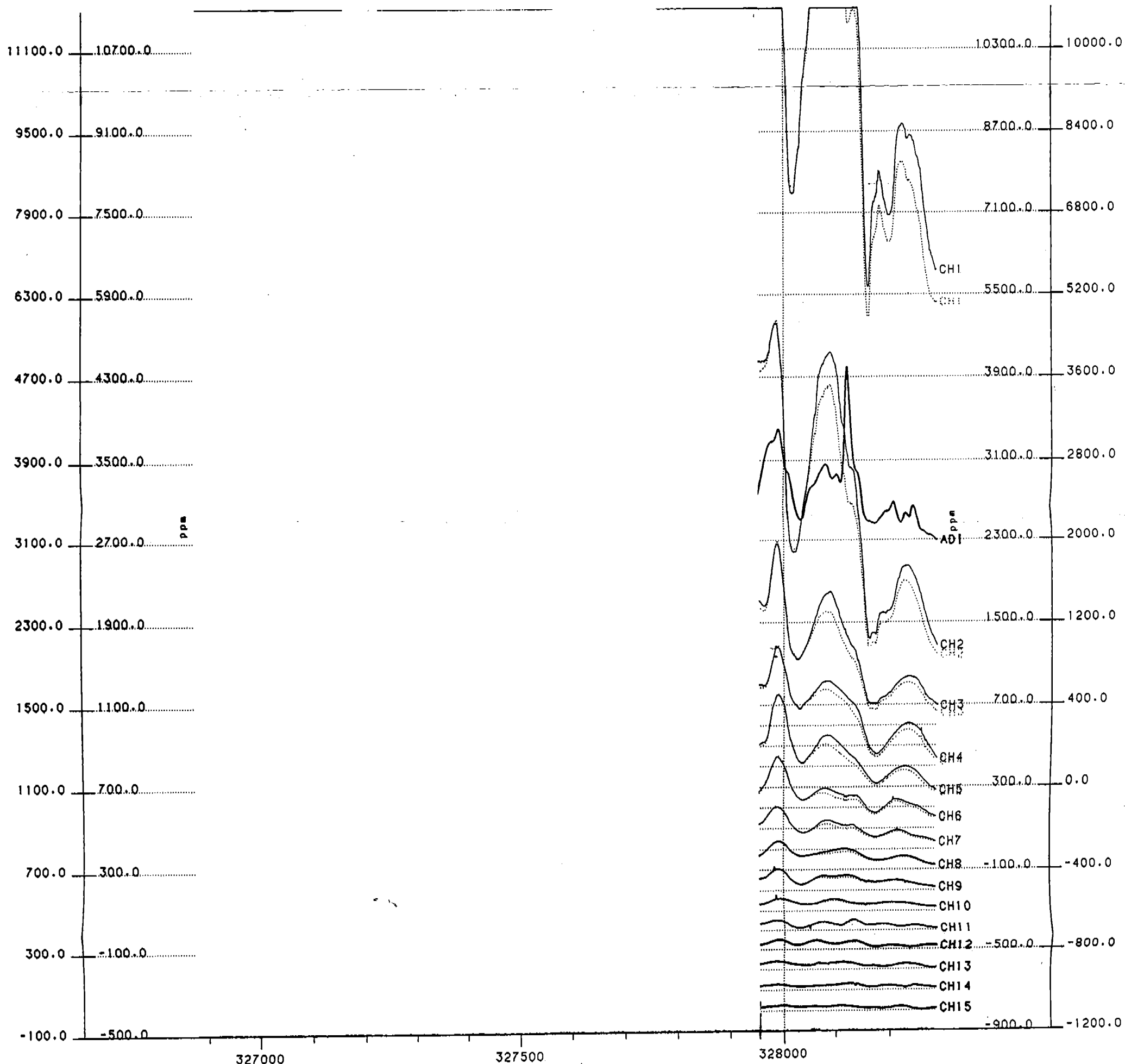
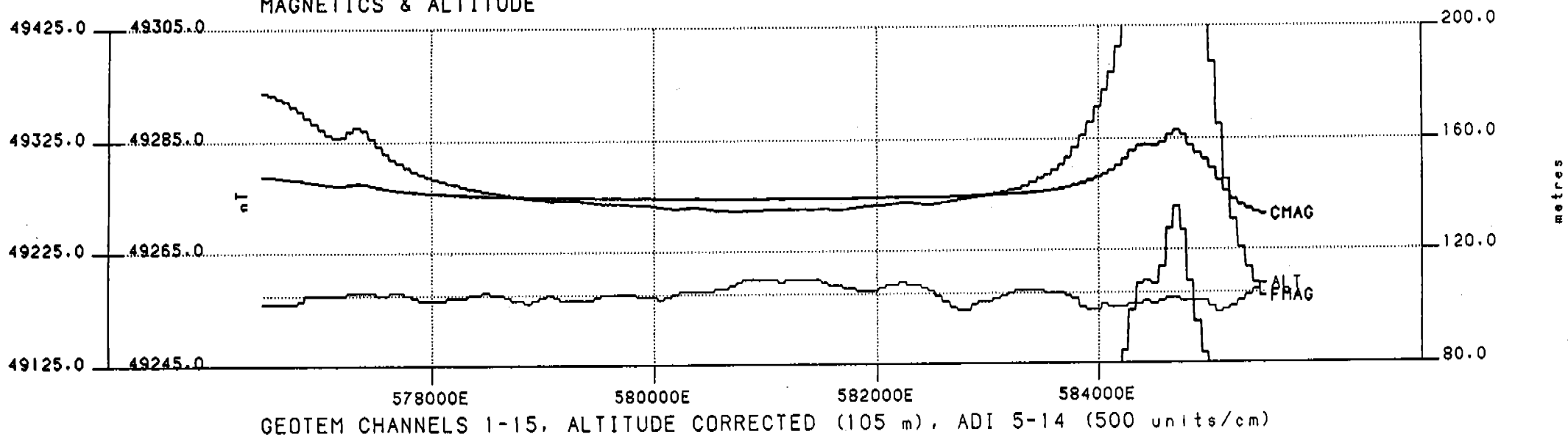


GEOTERREX PTY LTD

SCALE 1:50,000

LINE 309/1

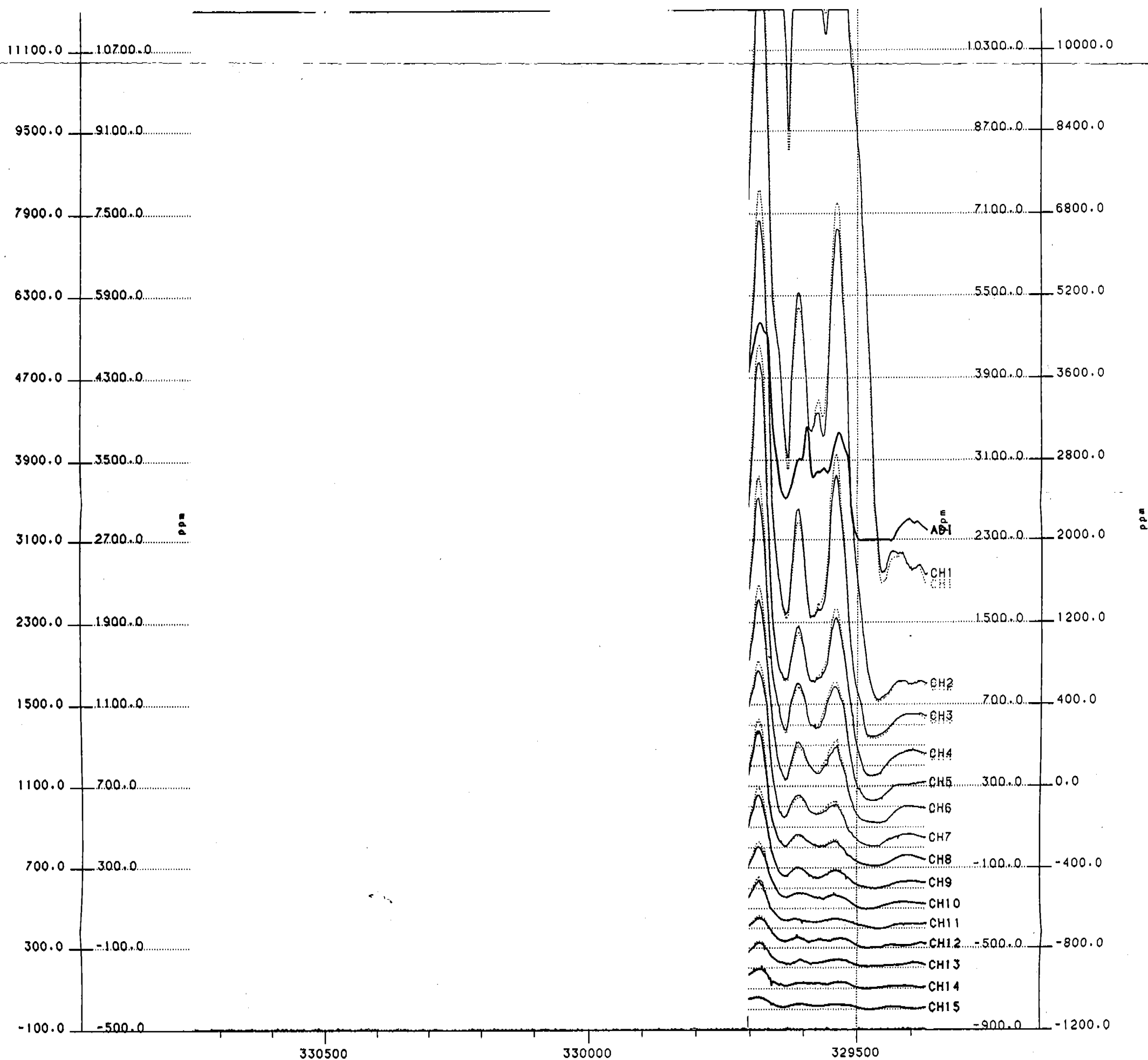
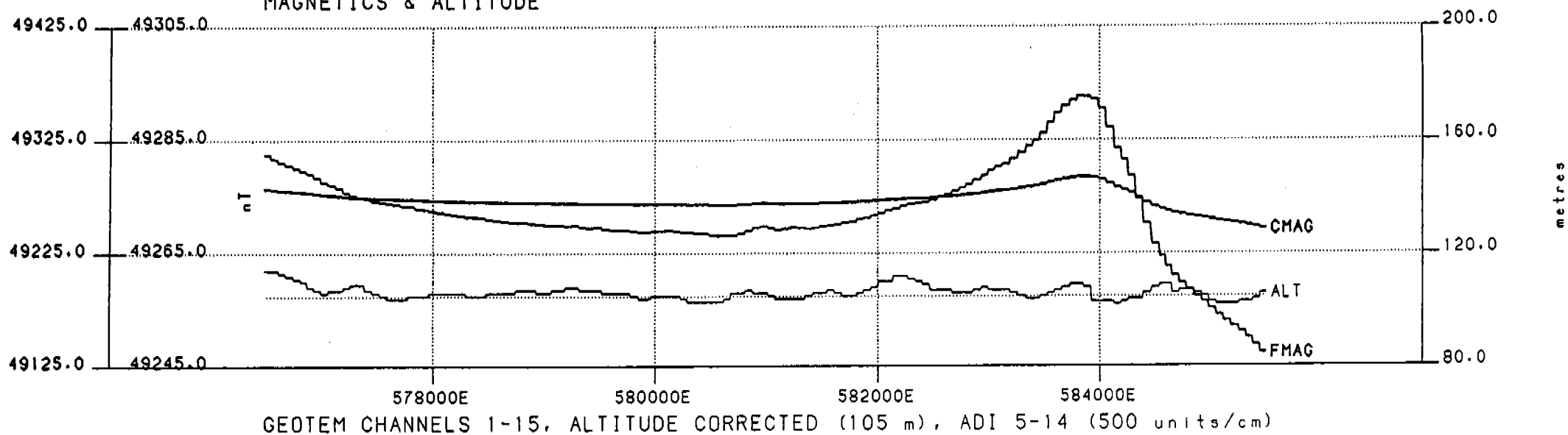
MAGNETICS & ALTITUDE



GEOTERREX PTY LTD

SCALE 1:50,000
LINE 310/1

MAGNETICS & ALTITUDE

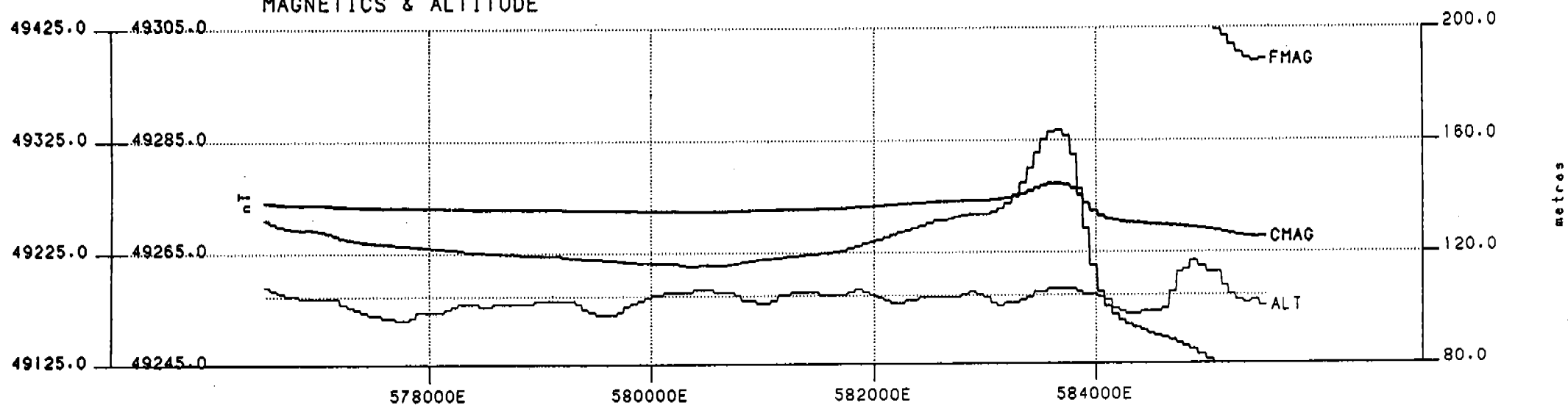


GEOTERREX PTY LTD

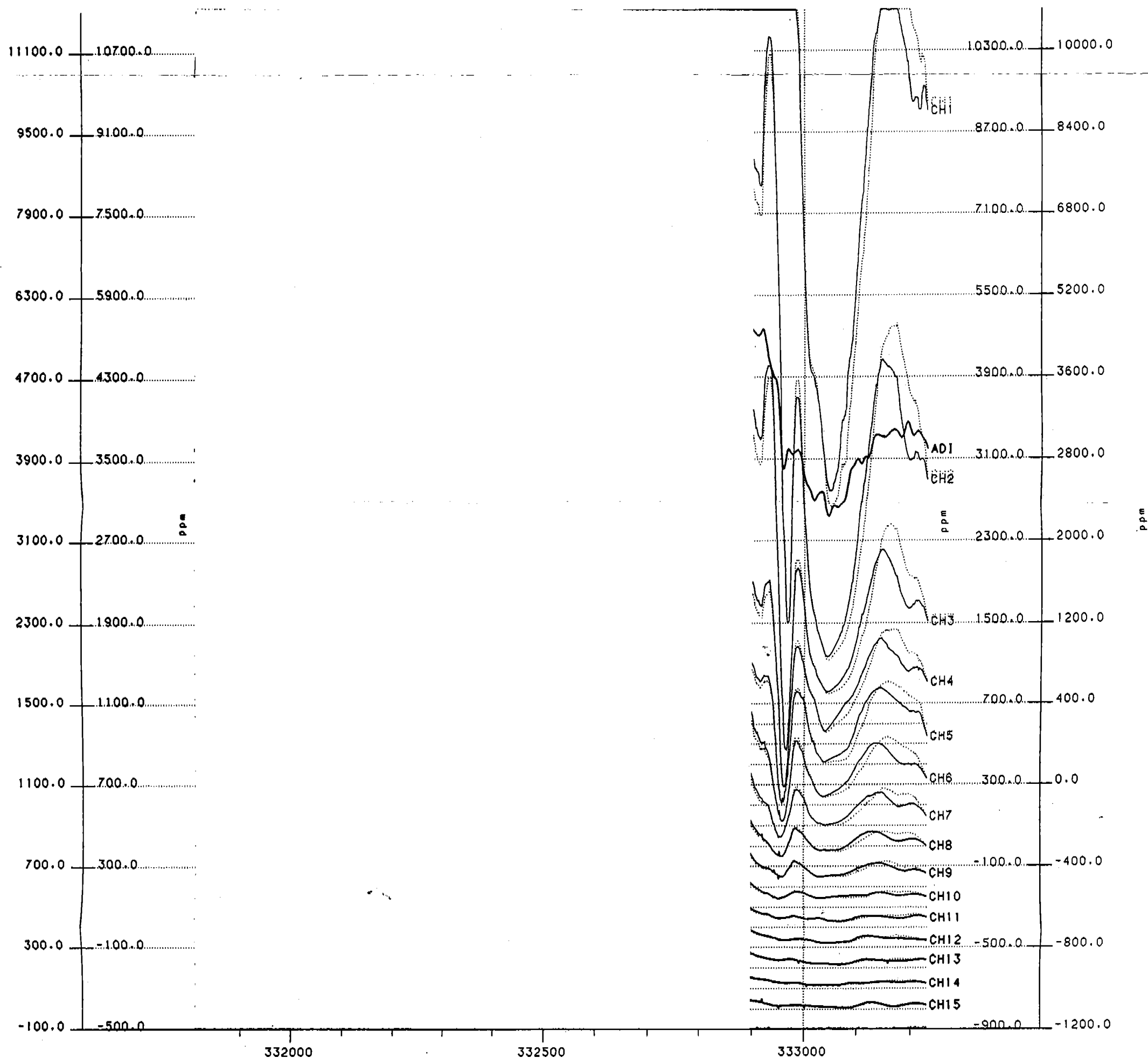
SCALE 1:50,000

LINE 311/1

MAGNETICS & ALTITUDE



GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)

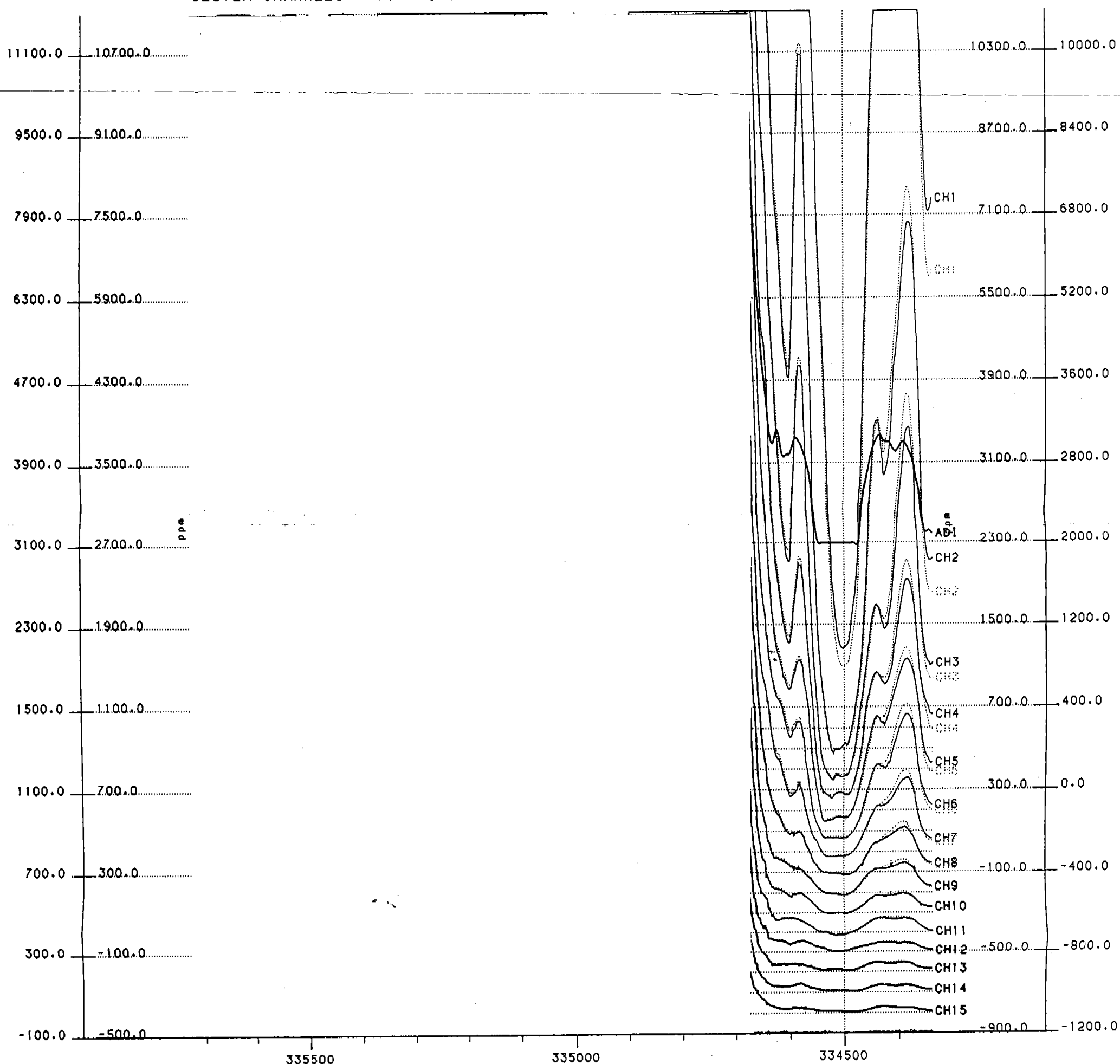
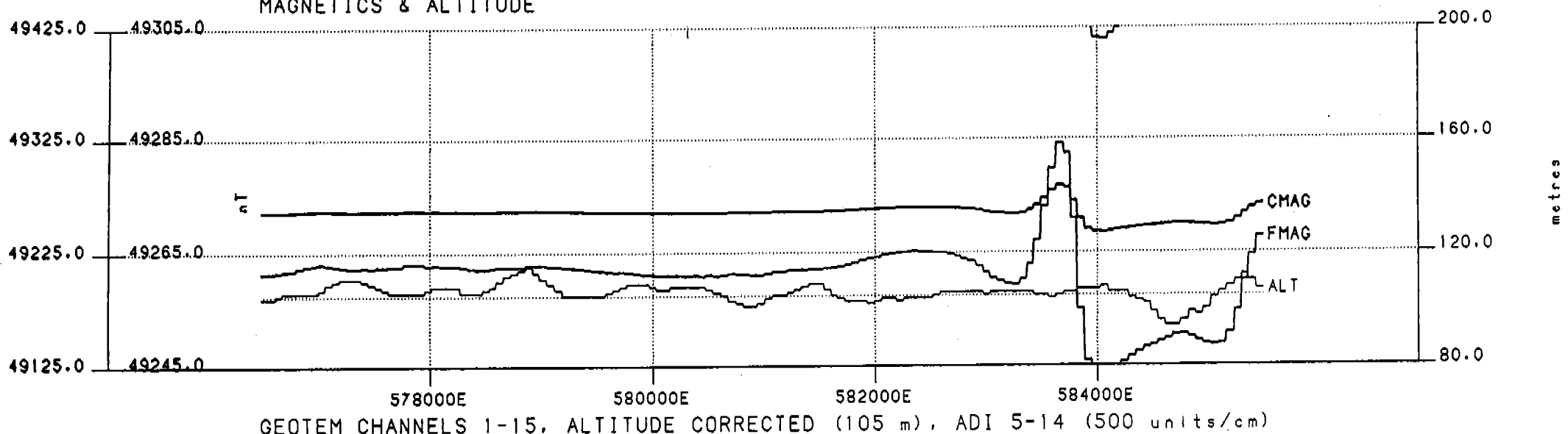


GEOTERREX PTY LTD

SCALE 1:50,000

LINE 312/1

MAGNETICS & ALTITUDE

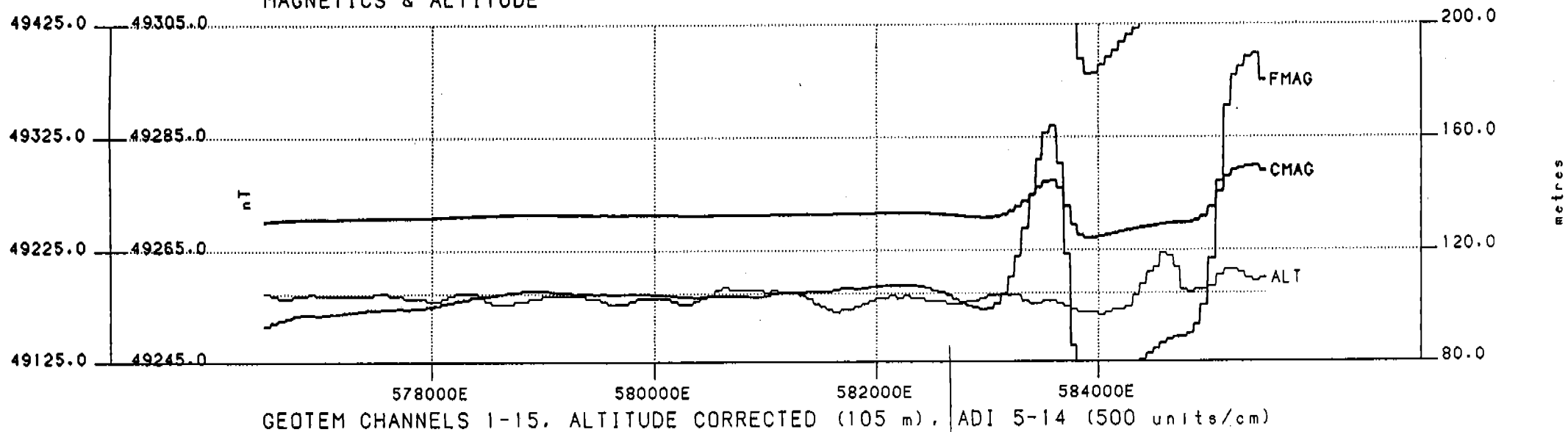


GEOTERREX PTY LTD

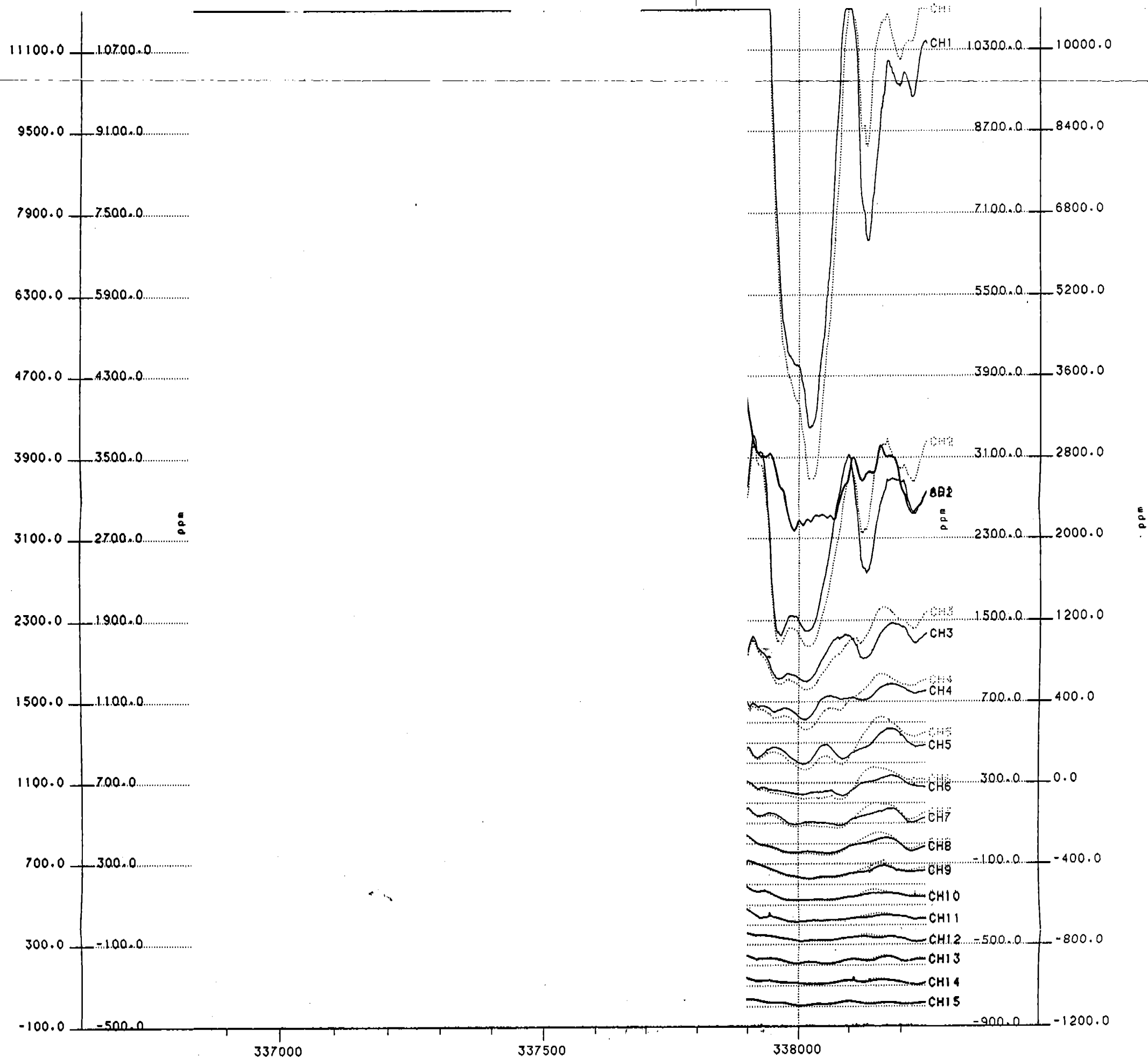
SCALE 1:50,000

LINE 313/1

MAGNETICS & ALTITUDE



GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)

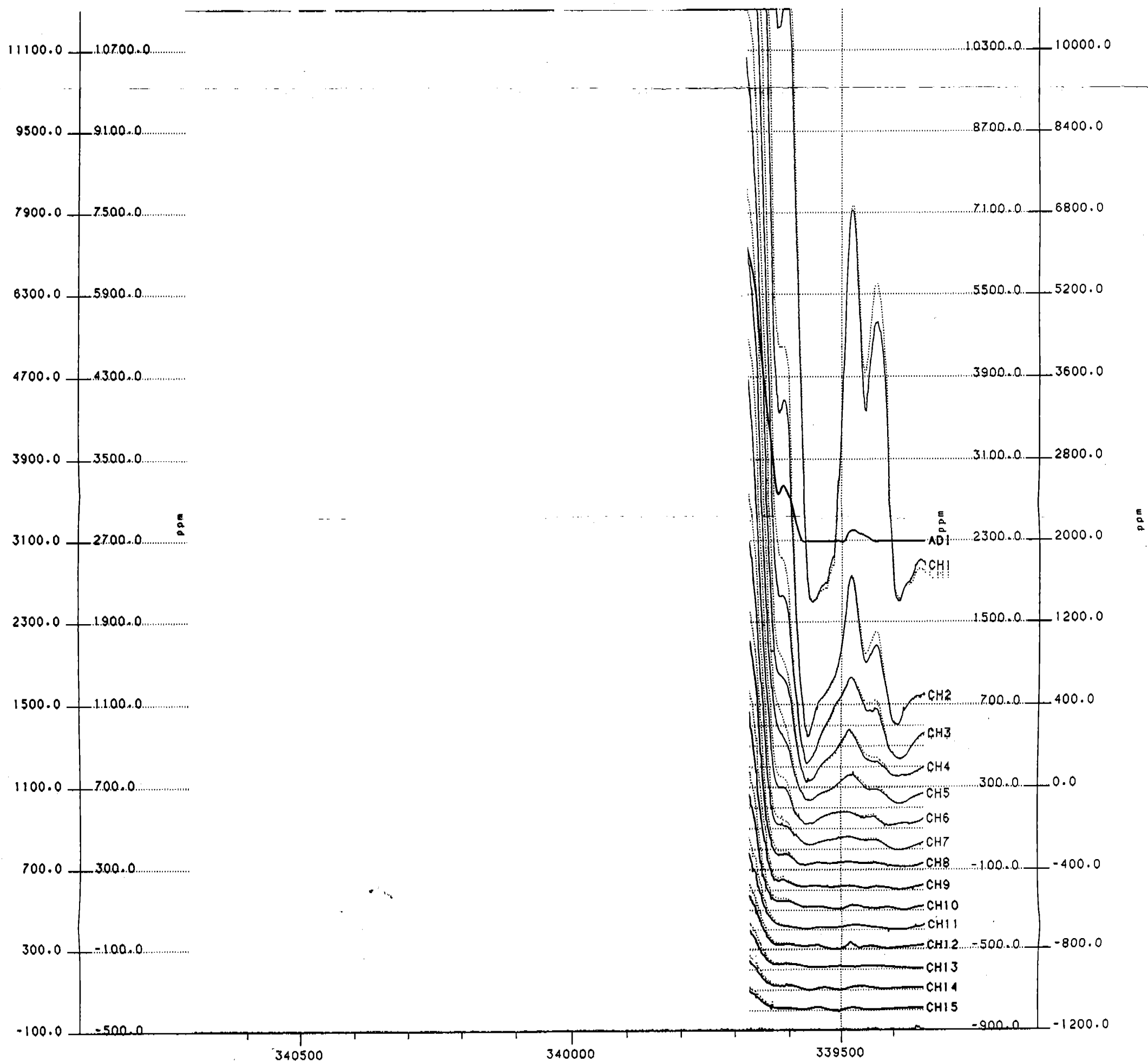
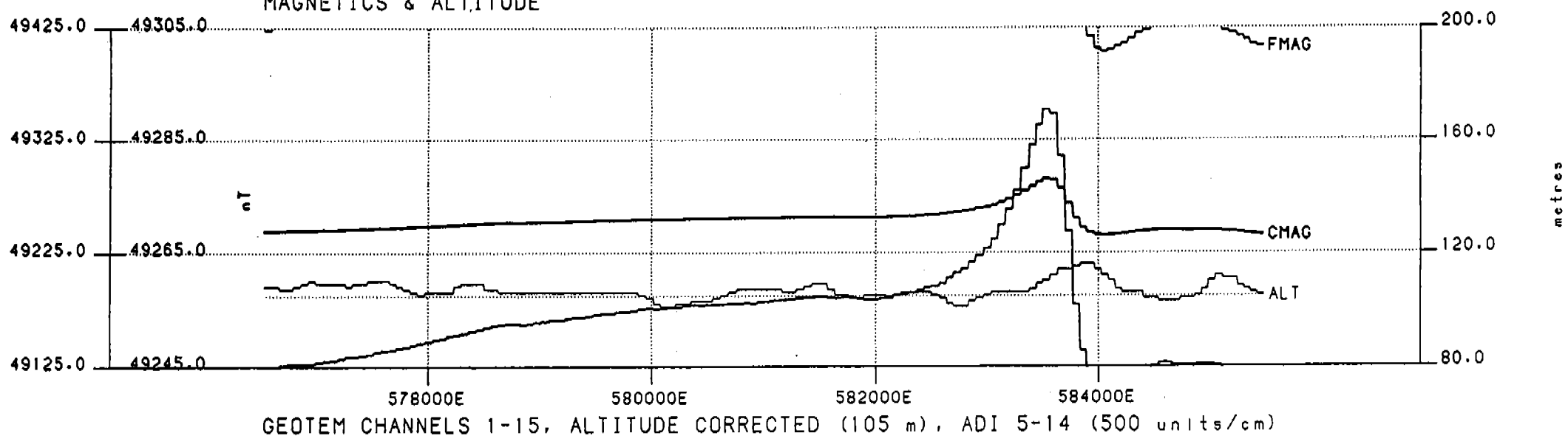


GEOTERREX PTY LTD

SCALE 1:50,000

LINE 314/1

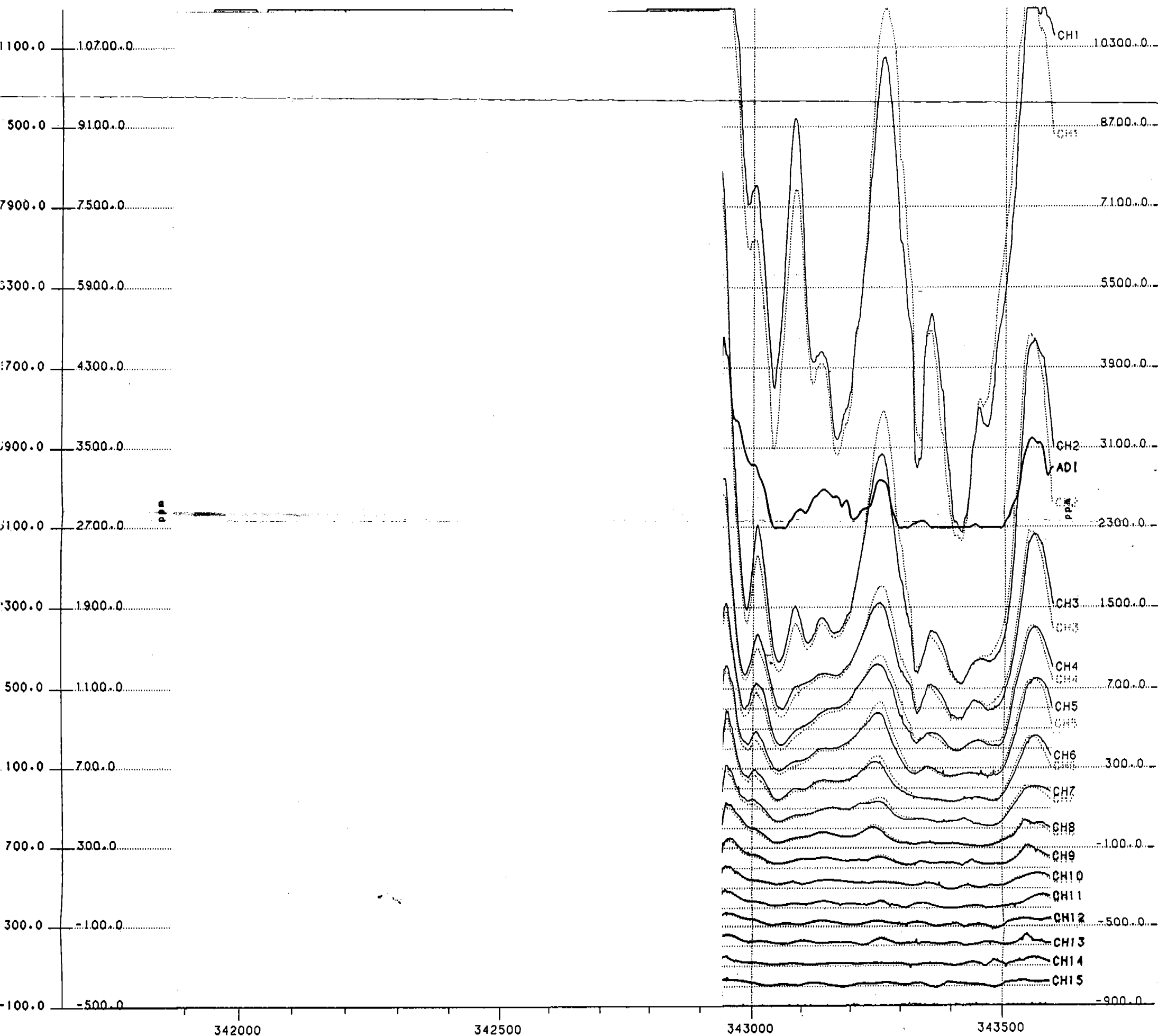
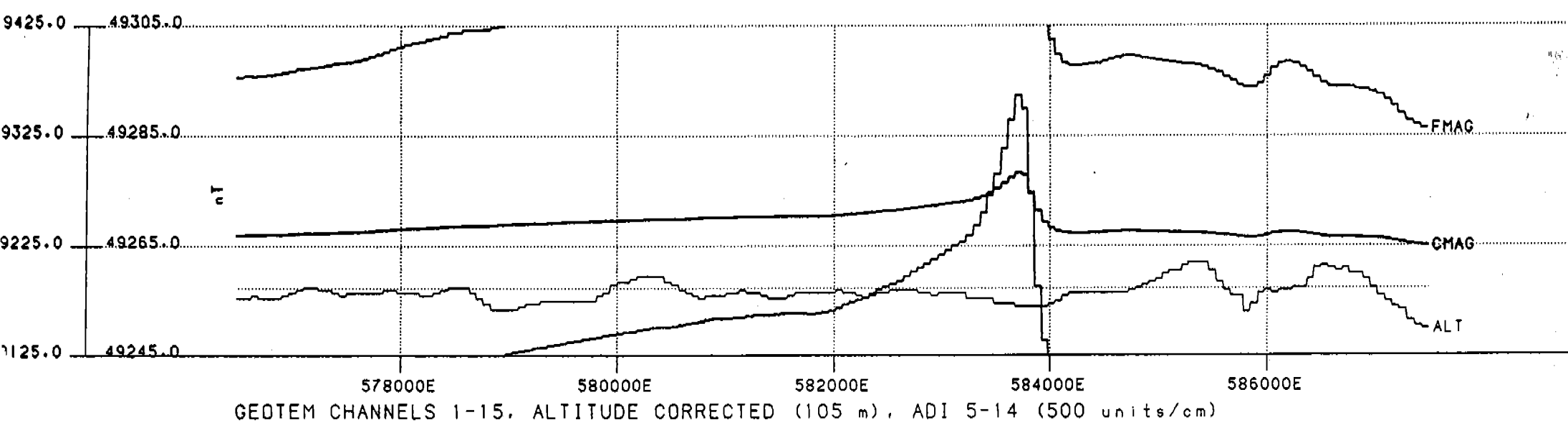
MAGNETICS & ALTITUDE



GEOTERREX PTY LTD

SCALE 1:50,000

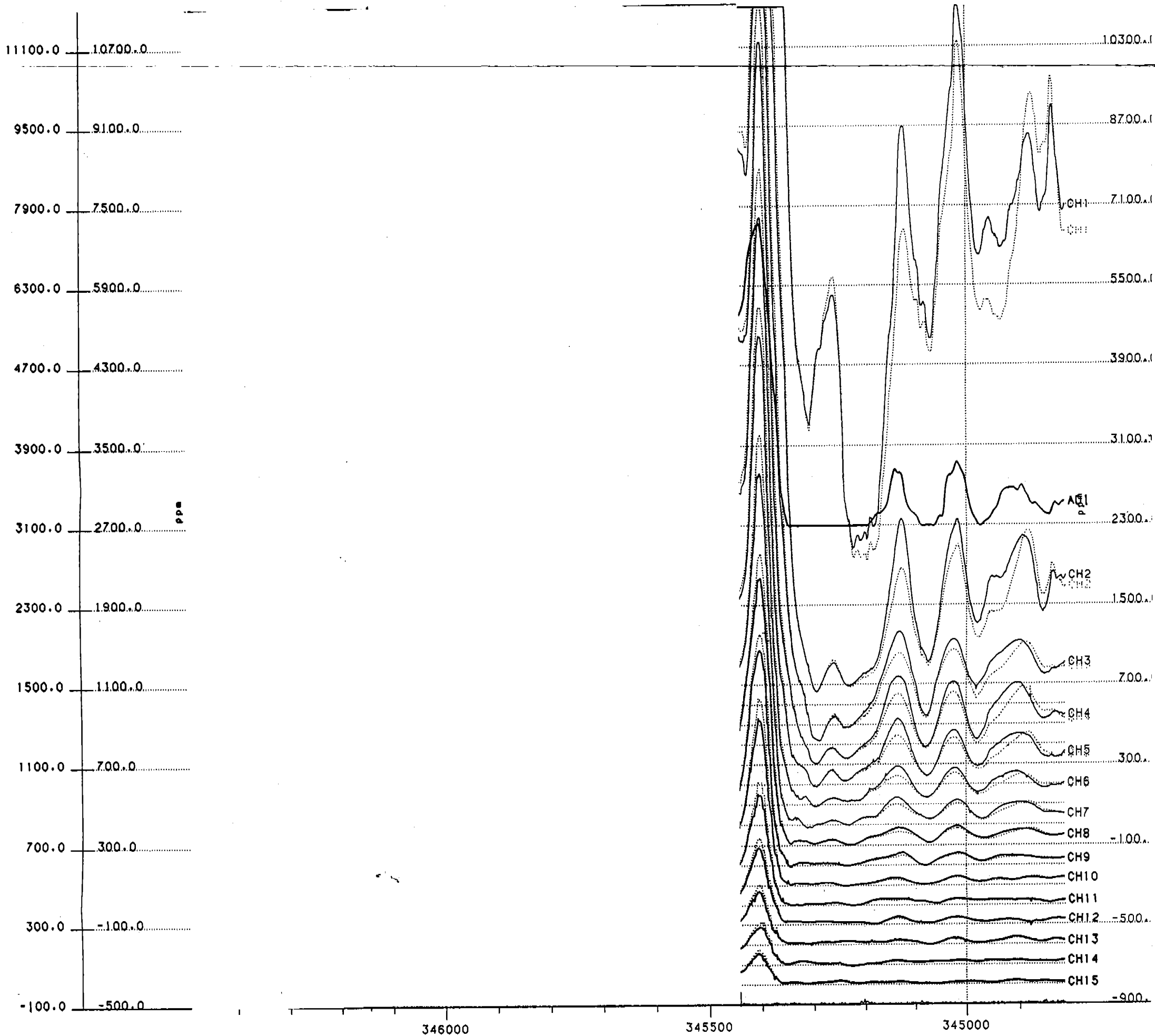
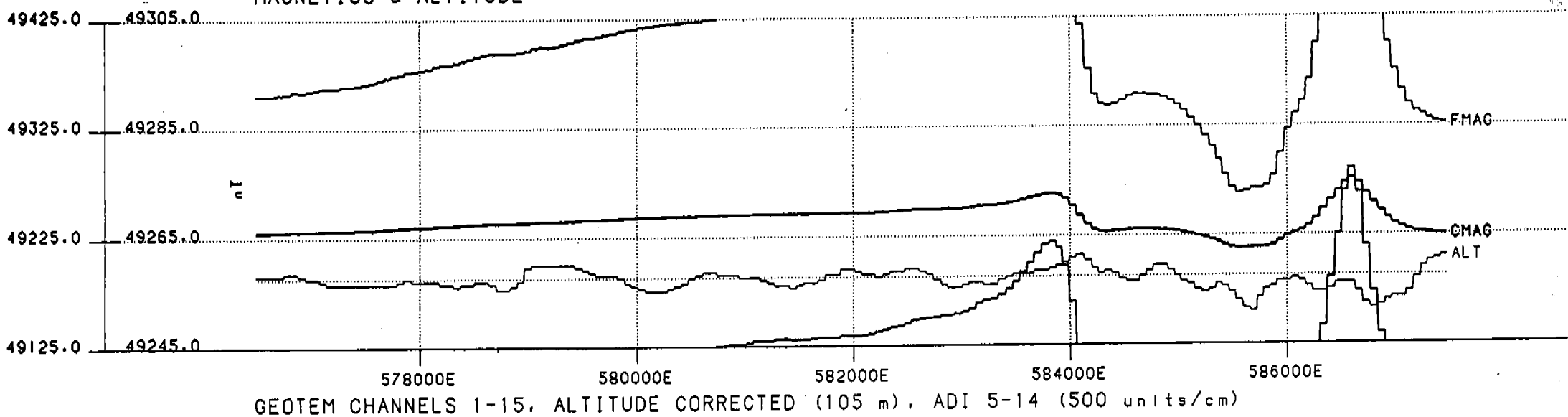
LINE 315/1



SCALE 1:50,000

LINE 316/1

MAGNETICS & ALTITUDE

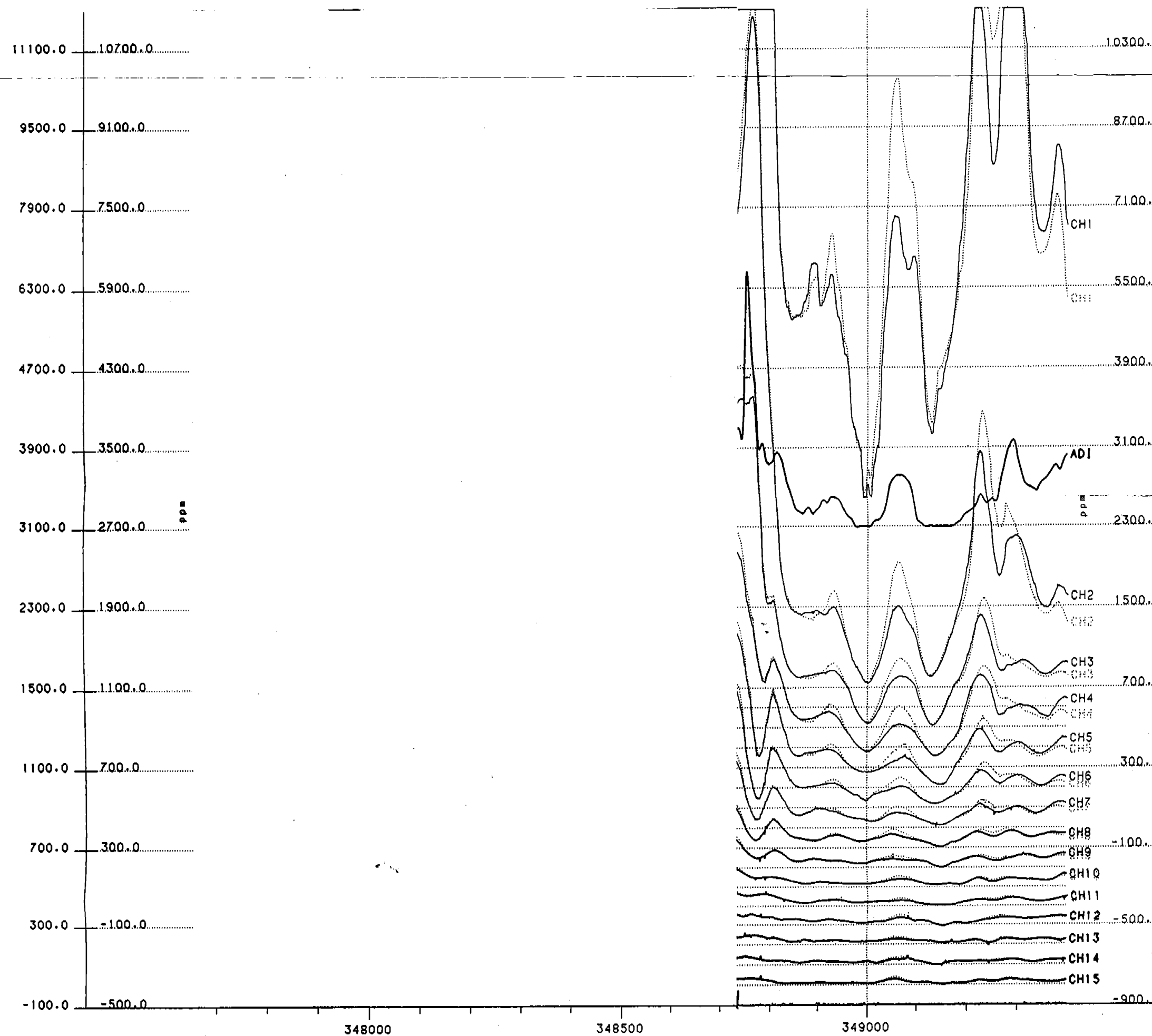
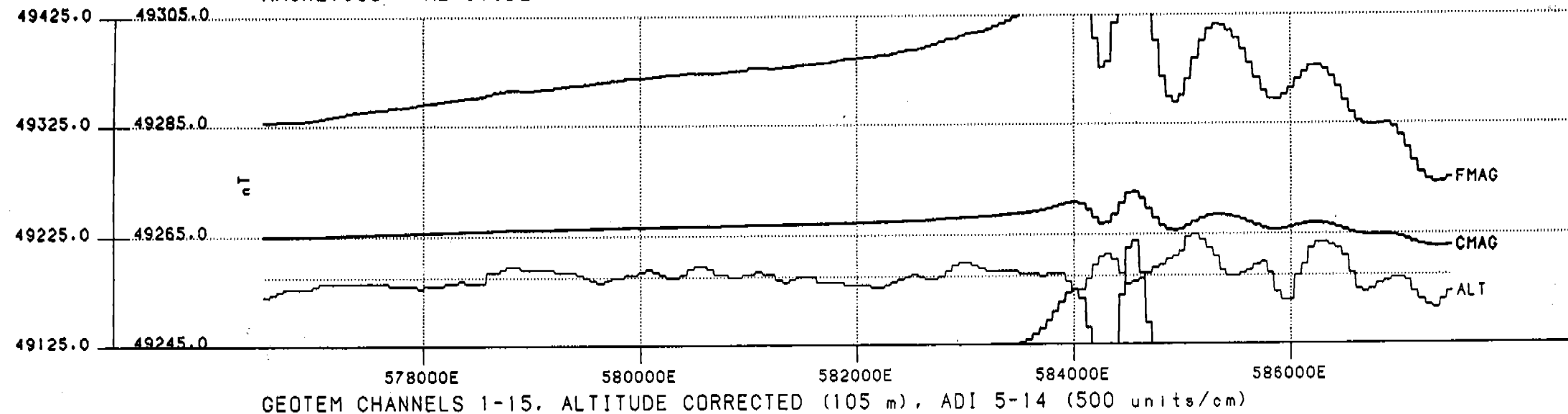


GEOTERREX PTY LTD

SCALE 1:50,000

LINE 317/1

MAGNETICS & ALTITUDE

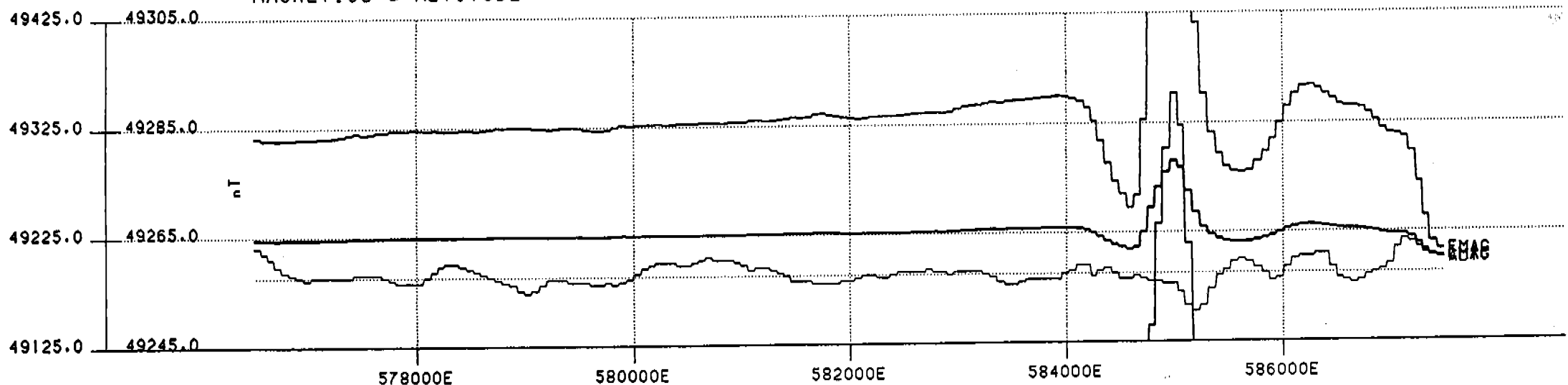


GEOTERREX PTY LTD

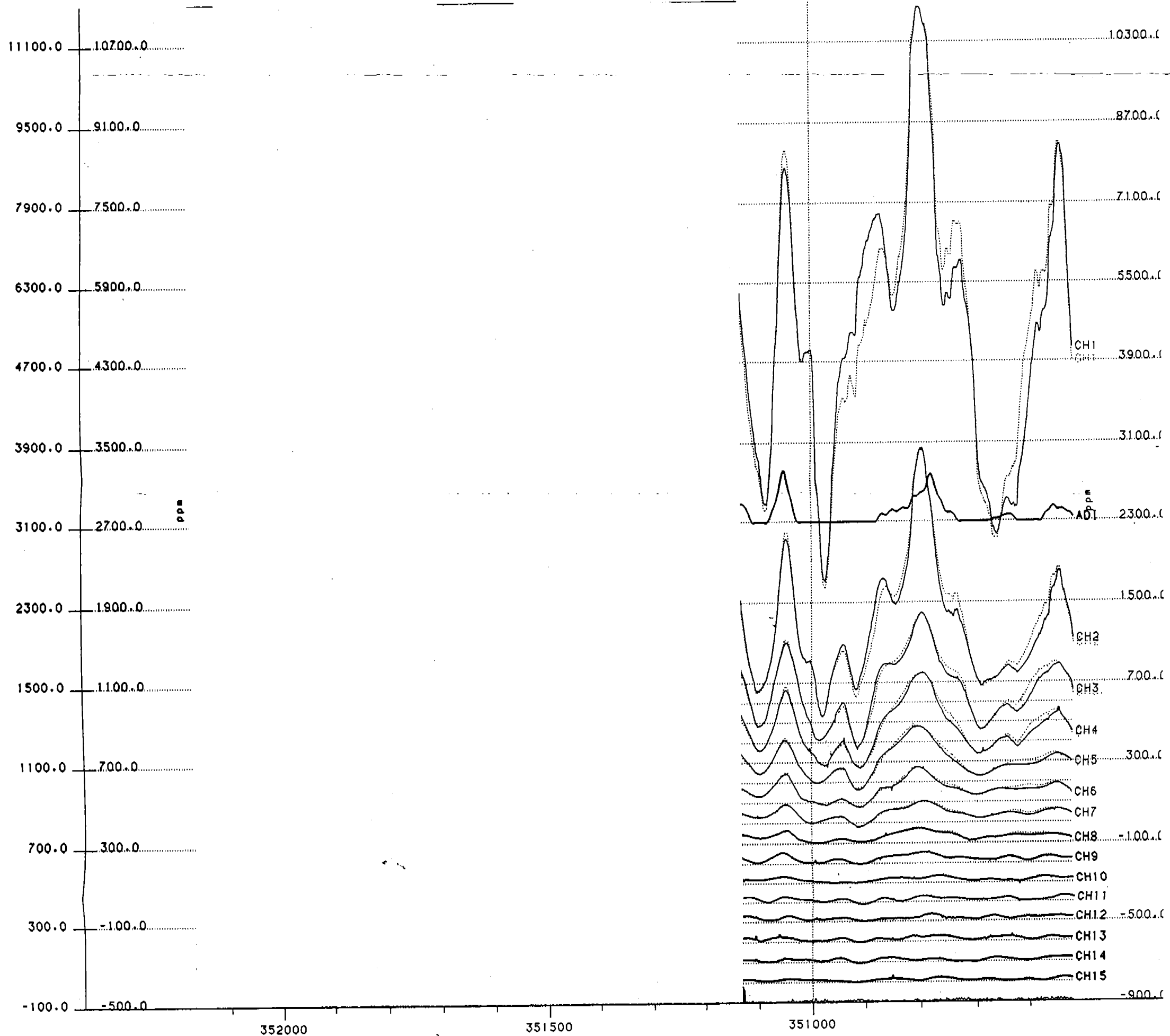
SCALE 1:50,000

LINE 318/1

MAGNETICS & ALTITUDE



GEOTEM CHANNELS 1-15, ALTITUDE CORRECTED (105 m), ADI 5-14 (500 units/cm)

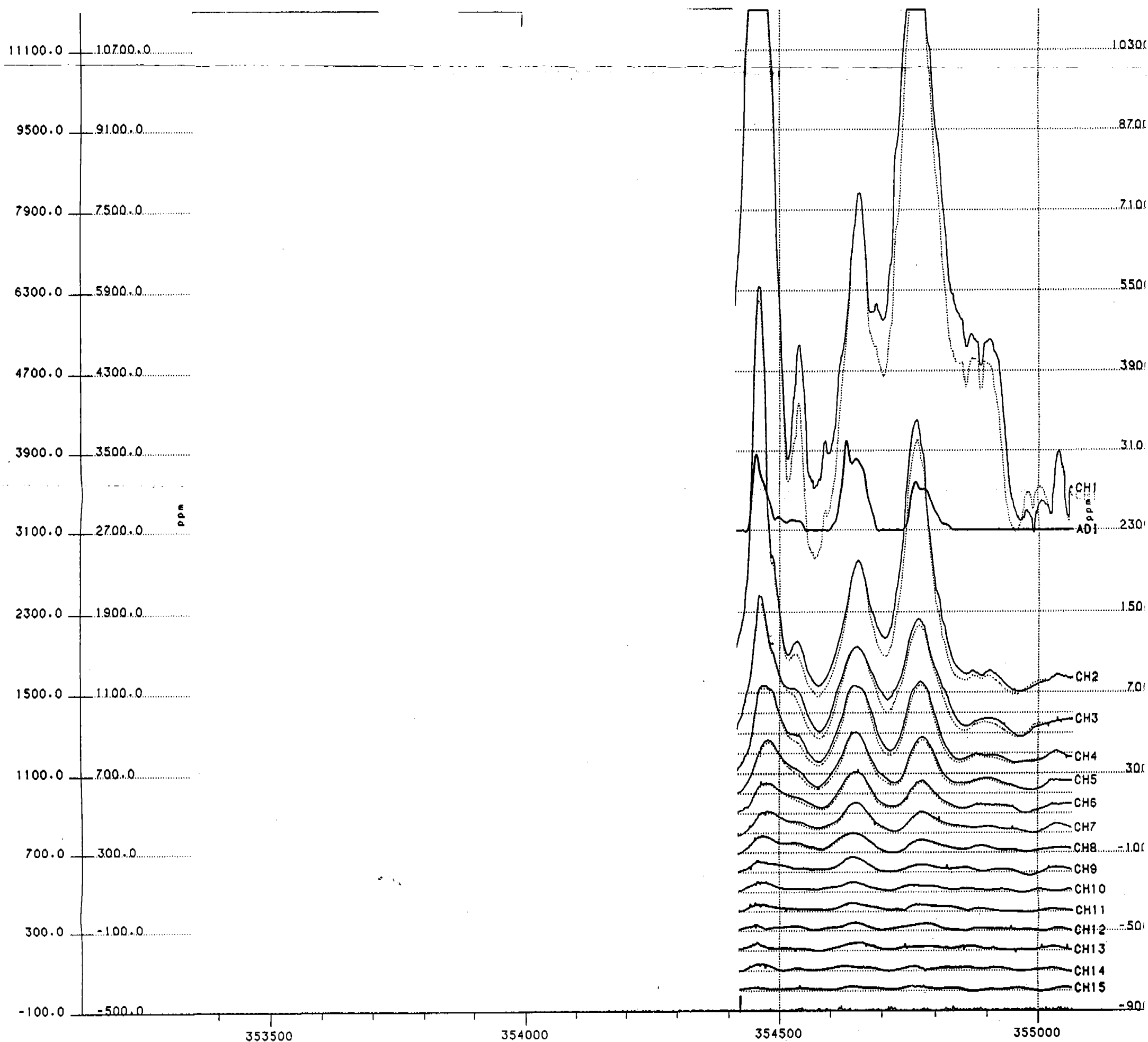
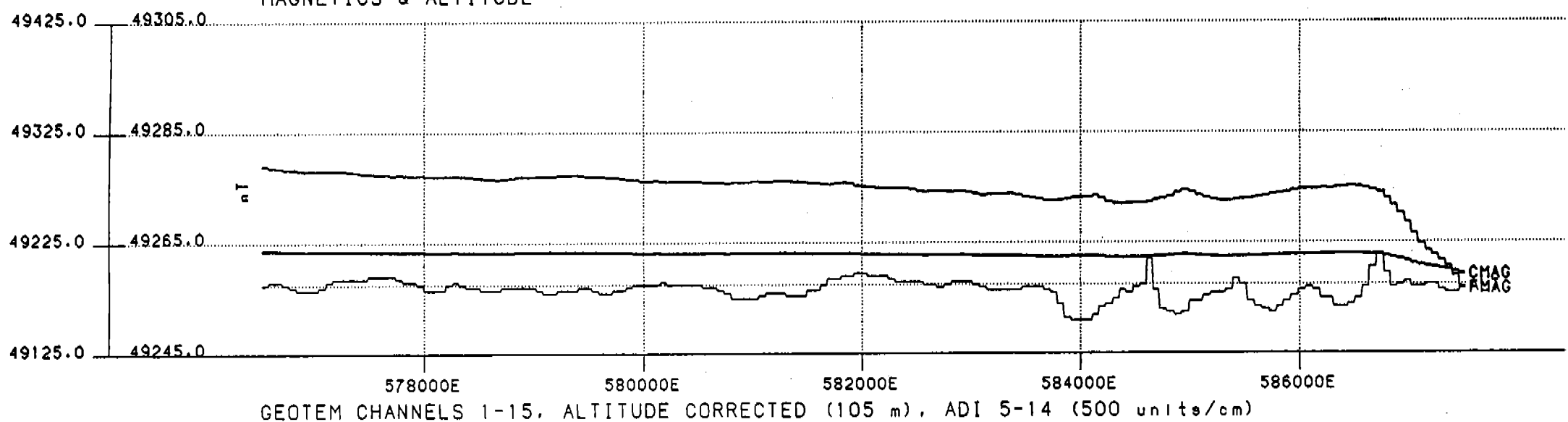


GEOTERREX PTY LTD

SCALE 1:50.0

LINE 319/1

MAGNETICS & ALTITUDE

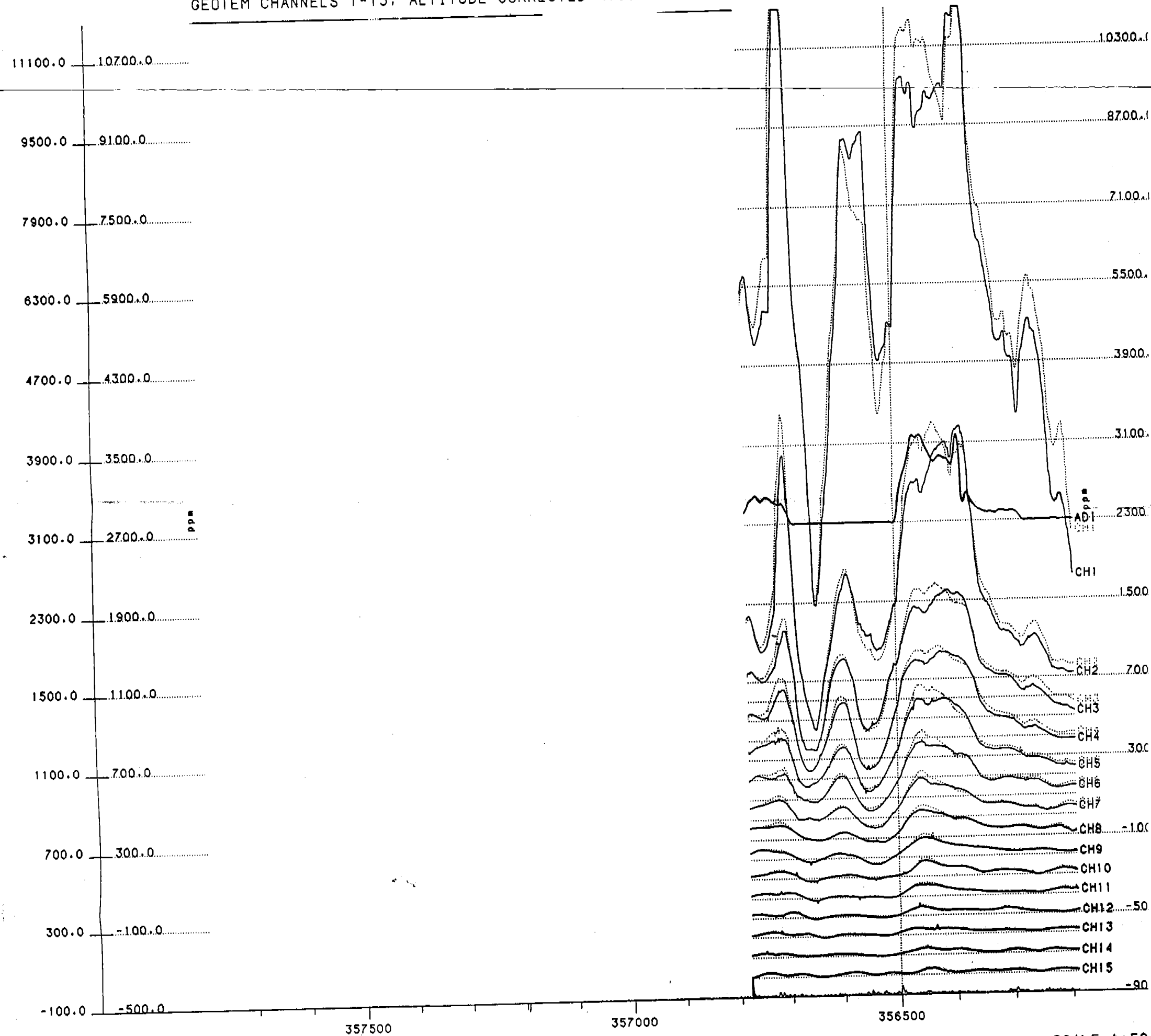
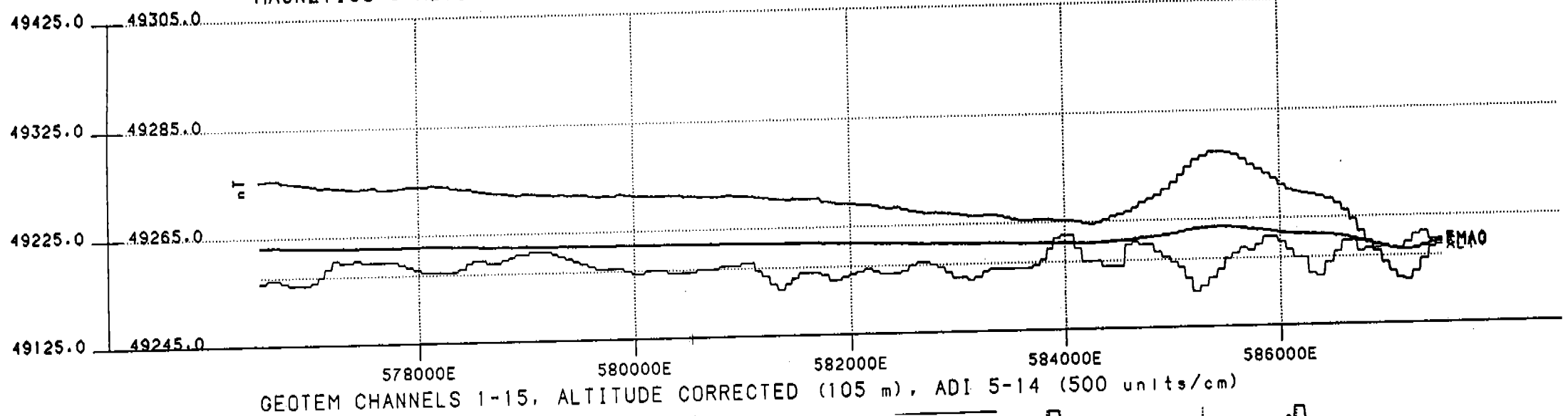


GEOTERREX PTY LTD

SCALE 1:50

LINE 320/1

MAGNETICS & ALTITUDE



SCALE 1:50

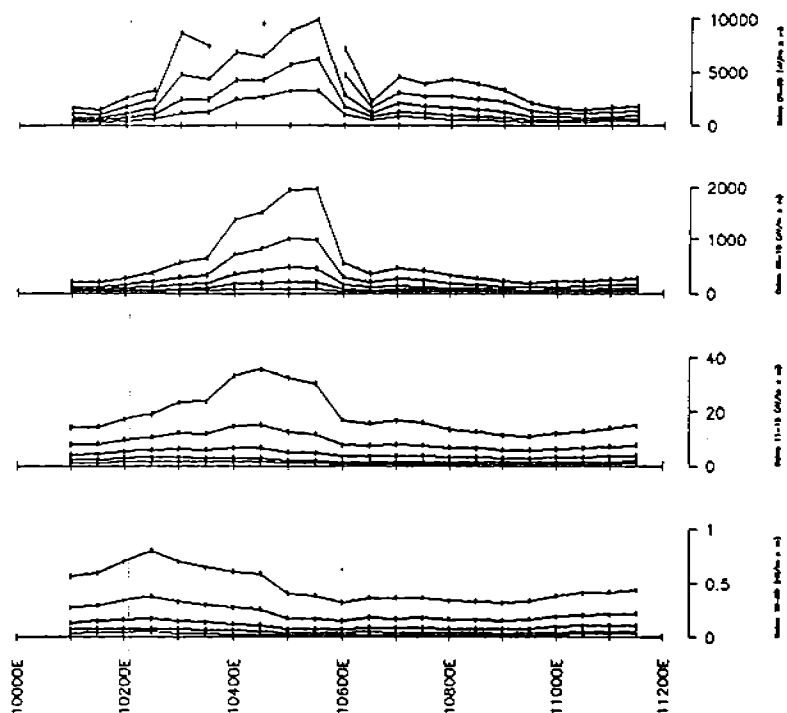
GEOTERREX PTY LTD

LINE 321/1

APPENDIX 3

Ground TEM Data

VERTICAL COMPONENT B(Z)



PROTEM
SURVEY
MOVING
TRANSMITTER

ELECTROMOTIVE FORCE INDUCED BY
SECONDARY FIELD
TIME DERIVATIVE OF FLUX DENSITY (B)

Surveyed and Compiled by GEOTERREX PTY LTD

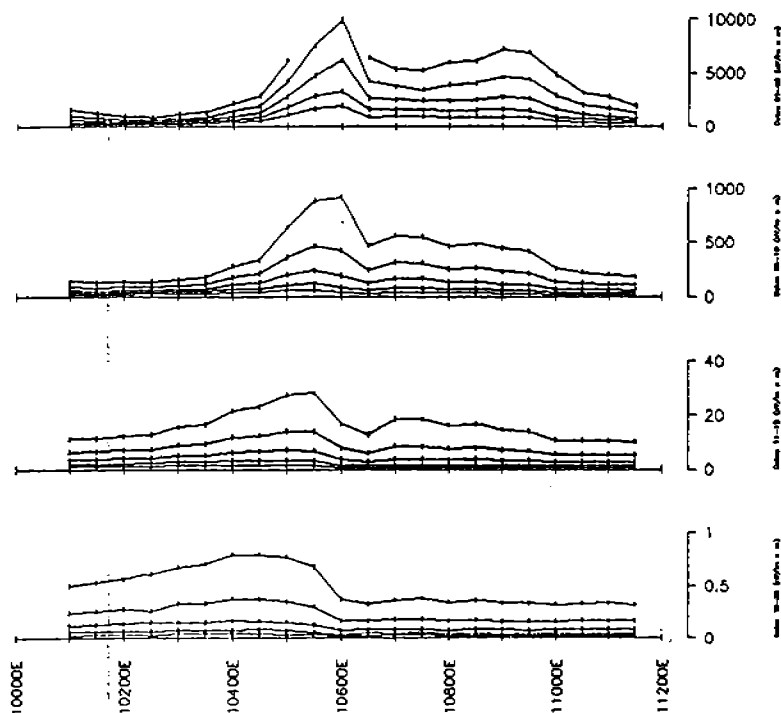
BHP Minerals Pty Ltd

Carpentaria Project 3-825
Anom. K3 Line 10400N
LOOP: 200 x 200
Station 10100 - 11150

SCALE 1: 10,000

DATE: 04 JUNE 1994

VERTICAL COMPONENT B(Z)



PROTEM SURVEY MOVING TRANSMITTER

ELECTROMOTIVE FORCE INDUCED BY
SECONDARY FIELD
TIME DERIVATIVE OF FLUX DENSITY (B)

Surveyed and Compiled by GEOTERREX PTY LTD

BHP Minerals Pty Ltd

Carpentaria Project 3-825
Anom. K3 Line 10000N
LOOP: 200 x 200
Station 10100 - 11150

SCALE 1: 10,000

DATE: 04 JUNE 1994

APPENDIX 4.

Analytical Results

ANALYTICAL TECHNIQUES

All geochemical analyses were carried out at Assaycorp Pty Ltd, Pine Creek, Northern Territory. Analytical methods, elements determined and detection limits used at Assaycorp were:

Soil Samples ("EI" prefix)

AAS/MA-3	-	Cu	2	ppm
	-	Pb	2	ppm
	-	Zn	1	ppm
	-	Ag	0.5	ppm
	-	Mn	2	ppm
	-	Fe	20	ppm
	-	As	2	ppm

Base Metal Assays - Cu, Pb, Zn, Ag, Mn, Fe

A 0.3 g sample is digested in a triple mixture of hydrochloric, nitric and perchloric acids at 180°C. The cooled and dried residue is leached with concentrated HCl acid at 90°C and diluted with distilled water. After cooling the sample is mixed and left to stand for sediment settling. Elements are read on an atomic absorption spectrophotometer (AAS) against aqueous standards of pure metals for each element. Cu, Pb, Zn, Ag, Co and Ni are read using an air acetylene flame and Fe and Mn using a nitrous oxide - acetylene flame.

Hydride Forming Element Assays - As

A 1:10 dilution is taken from the base metal digestion to give a concentration of 10% HCl and 0.2% KI solution. The solution is pumped into a GBC model HG 3000 hydride generator and mixed with concentrated HCl acid and Na BH₄. The gas which is given off passes through a gas-liquid separator and the gas passes to a quartz cell on the AAS for reading.

ASSAYCORP PTY LTD

A.C.N. 052 982 911

174 Ward Street, Pine Creek, N.T. 0847

P.O. Box 41, Pine Creek, N.T. 0847

Telephone (089) 76 1262

Facsimile (089) 76 1310

ASSAY CODE: AC 10466

Page 2 of 2

Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	As (ppm)	Mn (ppm)	Fe (ppm)
EI2191	10	14	9	<0.5	10	785	1.89%
EI2192	15	9	8	<0.5	14	589	2.02%
EI2193	5	8	5	<0.5	2	219	7100

SAMPLE COORDINATES

EI2191	583430mE	8116033mN
EI2192	583585mE	8116034mN
EI2193	584080mE	8116036mN

APPENDIX 5.

Statement of Expenditure

STATEMENT OF EXPENDITURE

EXPLORATION LICENCE 7642 RELINQUISHED AREA

For the period
22nd January, 1992 to 21st January, 1995

Geoscientist/Professional	3,770
Other Contractors	225
Field Support/Office Staff	1,563
Vehicles	460
Equipment	141
Helicopter Charter	1,586
Laboratory	2,678
Geochemistry	112
Geophysics - Ground Survey	5,252
Geophysics - Contract Airborne	5,660
Office Expenses	89
Drafting	276
Sub-Total	\$ 21,812
10% Overheads	2,181
Total:	\$ 23,993