

CONFIDENTIAL

EL 1184 Alroy, N.T.

Final Report

PERIOD ENDING AUGUST, 1980

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Date: October, 1980
Submitted to: W.H. Johnston

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copy to: N.T. Department of Mines & Energy
Aust. Ores & Minerals

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1. SUMMARY

Interpretation and modelling of the lone magnetic anomaly detected in the 1978 airborne survey indicated a weak source at 500 m depth. Since the source is probably similar to the barren metasedimentary unit intersected in drill-holes in EL 2043 Dalmore, drilling of the anomaly was not recommended.

2. INTRODUCTION

EL 1184 Alroy of 466.13 square miles (see Plan NTd 1006) was granted to Australian Ores and Minerals Ltd (A.O.M.) on December 29th, 1977. A joint venture between A.O.M. and C.R.A. Exploration Pty Ltd was signed on August 28th, 1978. The area was selected to explore for concealed Tennant Creek Style copper-gold mineralisation in what were assumed would be Lower Proterozoic rocks beneath the Palaeozoic sediments of the Georgina Basin. Steemson (1980) reported on CRAE's work in the EL area during 1979.

On December 28th, 1979 the EL was renewed for a third year of tenure. An area of 223.71 sq. miles was retained (see Plan NTd 1146), the rest being relinquished. This report reviews exploration activities during the final eight months' tenure over the EL.

3. CONCLUSIONS

A drill-hole over the lone magnetic anomaly on the southern boundary of this EL is not warranted since the source is probably another anticline of the same barren Middle Proterozoic magnetite-bearing metasedimentary unit intersected in drill-holes 79AL2 and 80AL3 (EL 2043 Dalmore).

4. GEOLOGY

The EL area is almost completely covered by Cainozoic fine red sand, most of which was once windborne, but now forms broad, low, vegetated dunes which are elongated many miles in the NW-SE direction of the prevailing south-easterly winds. There are minor patches of black soil, gravel, travertine, detrital laterite and red clayey soil. Within the EL are several scattered low outcrops of fossiliferous Middle Cambrian silicified limestones and dolomites, with interbedded siltstones and chert silicified shales. These are the Wonorah Beds of the Georgina Basin sequence and underlie the Cainozoic sand cover in the EL area.

5. PREVIOUS WORK

An airborne magnetometer and differential spectrometer survey was flown over the area late in 1978, the specifications of which were reported by Steemson (1980). No significant radiometric anomalies were detected by that survey. Preliminary evaluation of residual total field magnetic contours and stacked magnetic profiles indicated that, except for one anomaly on the southern border of the EL (see Plans NTd 1021 and 1430), the area was devoid of magnetic features comparable to those associated with Tennant Creek style copper-gold mineralisation.

6. MAGNETIC MODELLING

The single magnetic anomaly warranting follow-up, that is, the anomaly on the southern border of the EL (see Plans NTd 1021 and 1430), was computer modelled using the company's MAGMOD programme. The observed data was digitised off the airborne contour plan and plotted as a north-south profile across the anomaly - see Figure 1. The x coordinates are in metres with the zero value assigned to the southern boundary of the area. A susceptibility of 0.002 cgs was used in the modelling programme. Although the observed data are incomplete, the model of Figure 1 (that is, the calculated curve) gave a reasonable fit. The model thus adopted was a 480 m thick tabular body dipping at 45°, commencing at 500 m depth.

7. DISCUSSION

The depth of 500 m to the body and the low susceptibility (lower than that obtained from drill core in hole 79DDAL2 in the neighbouring EL 2043 Dalmore - see Snelling, 1980b) do not make this anomaly a good target. Furthermore, drilling of a similar, but more intense, magnetic anomaly in the neighbouring EL 2043 Dalmore has indicated that the source is a barren magnetite-bearing metasedimentary unit, not a Tennant Creek-type ironstone lode (Snelling, 1980a). As well, the magnetite-bearing metasedimentary unit is interbedded with dolomites that contain stromatolites of Middle Proterozoic age. Thus it was considered that drilling of the magnetic anomaly on the southern boundary of this EL was not warranted.

A.A. SNELLING

8. REFERENCES

Snelling, A.A. 1980a EL 2043 Dalmore, N.T. Annual Report, Period ending 28.5.80. CRAE Report 10145.

Snelling, A.A. 1980b EL 2043 Dalmore, N.T. Final Report, Period ending August, 1980. CRAE Report 10259.

Steemson, G.H. 1980 EL 1184 Alroy, Report for Year Ending 28.12.79. CRAE Report 9905.

9. KEYWORDS

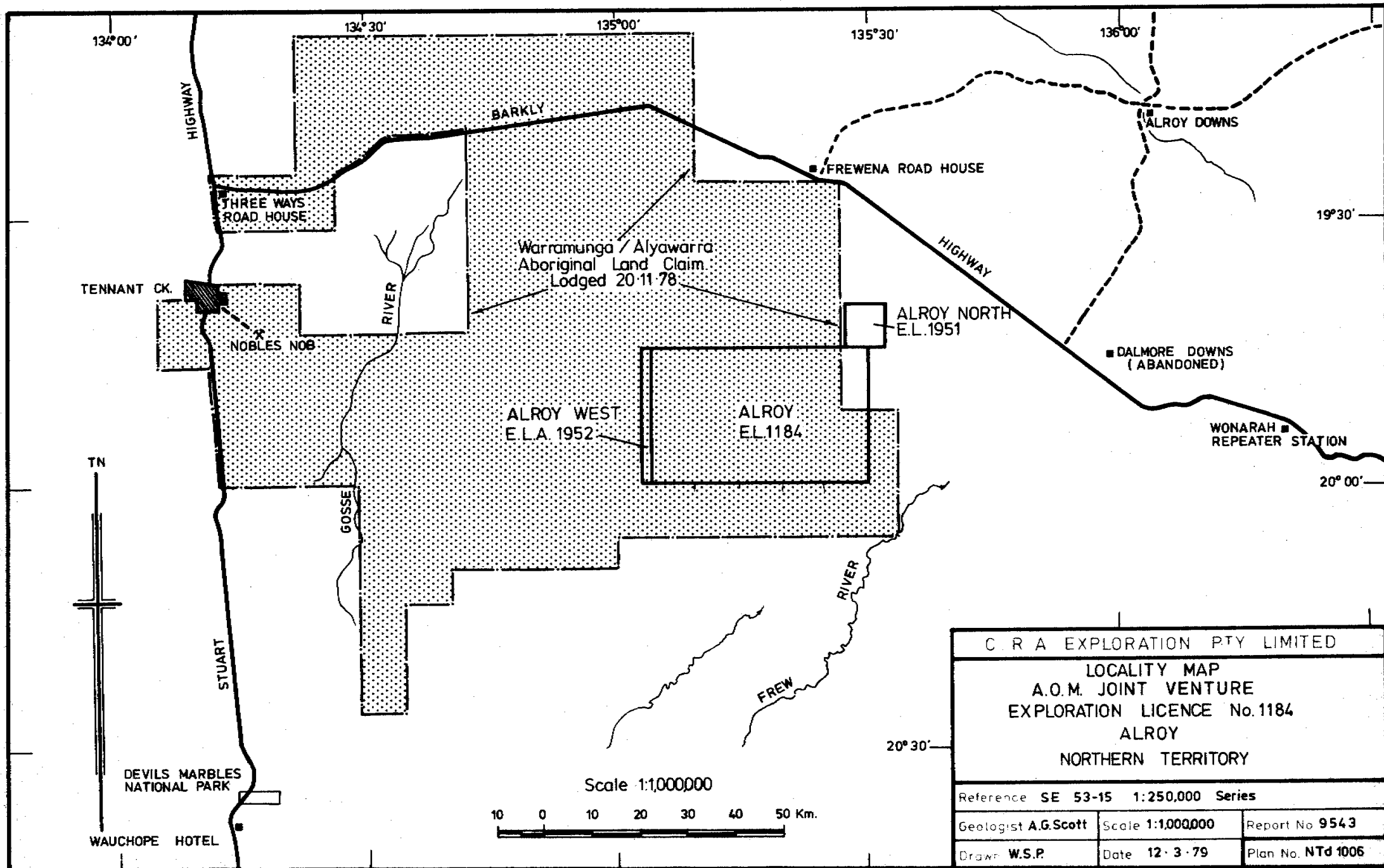
Gold, copper, Alroy SE/53-15 1:250,000, geophys-mag, geophys-interpret. theory, Proterozoic-Md, dolomite, magnetite

10. LOCATION

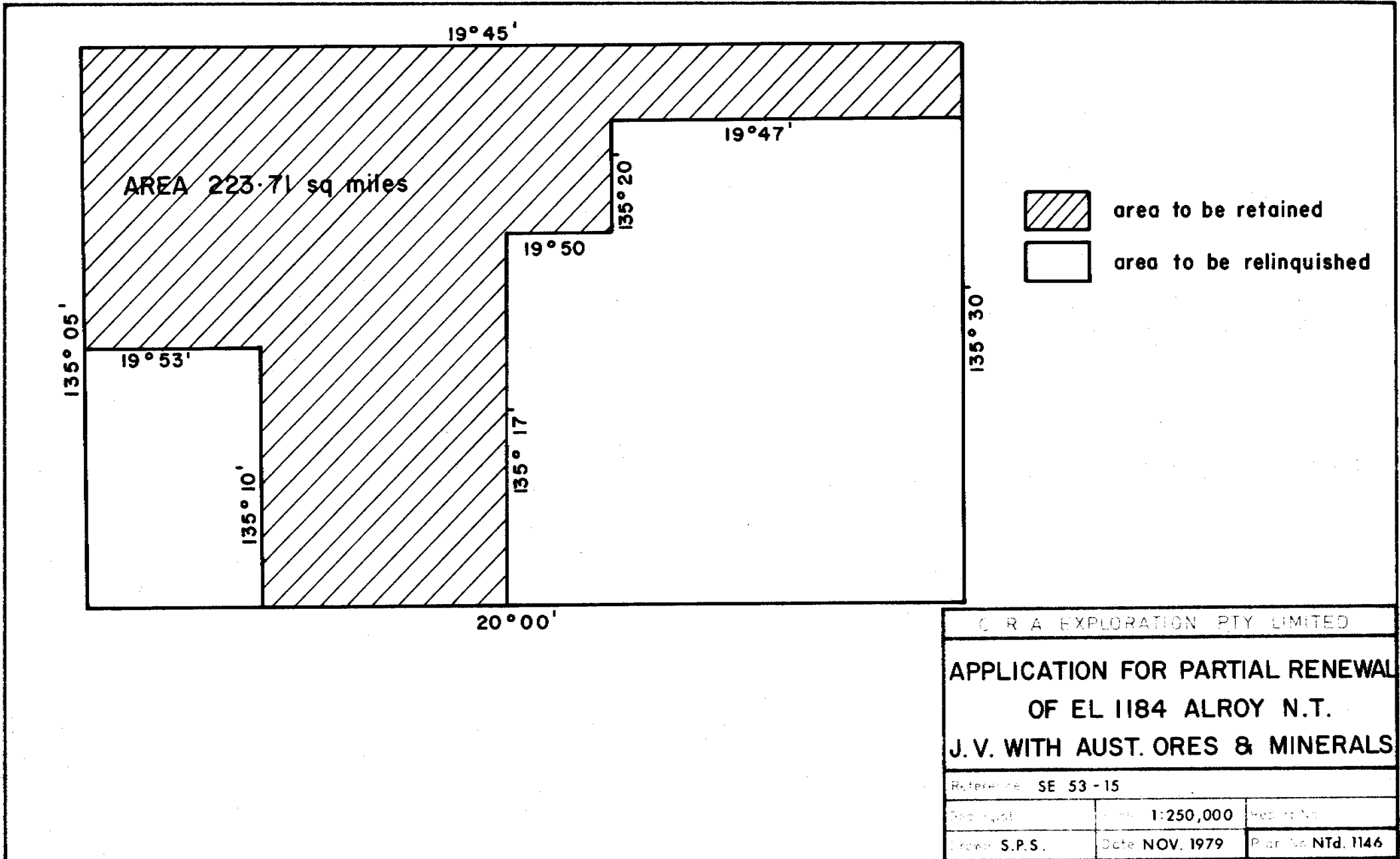
Alroy SE/53-15 1:250 000 map sheet

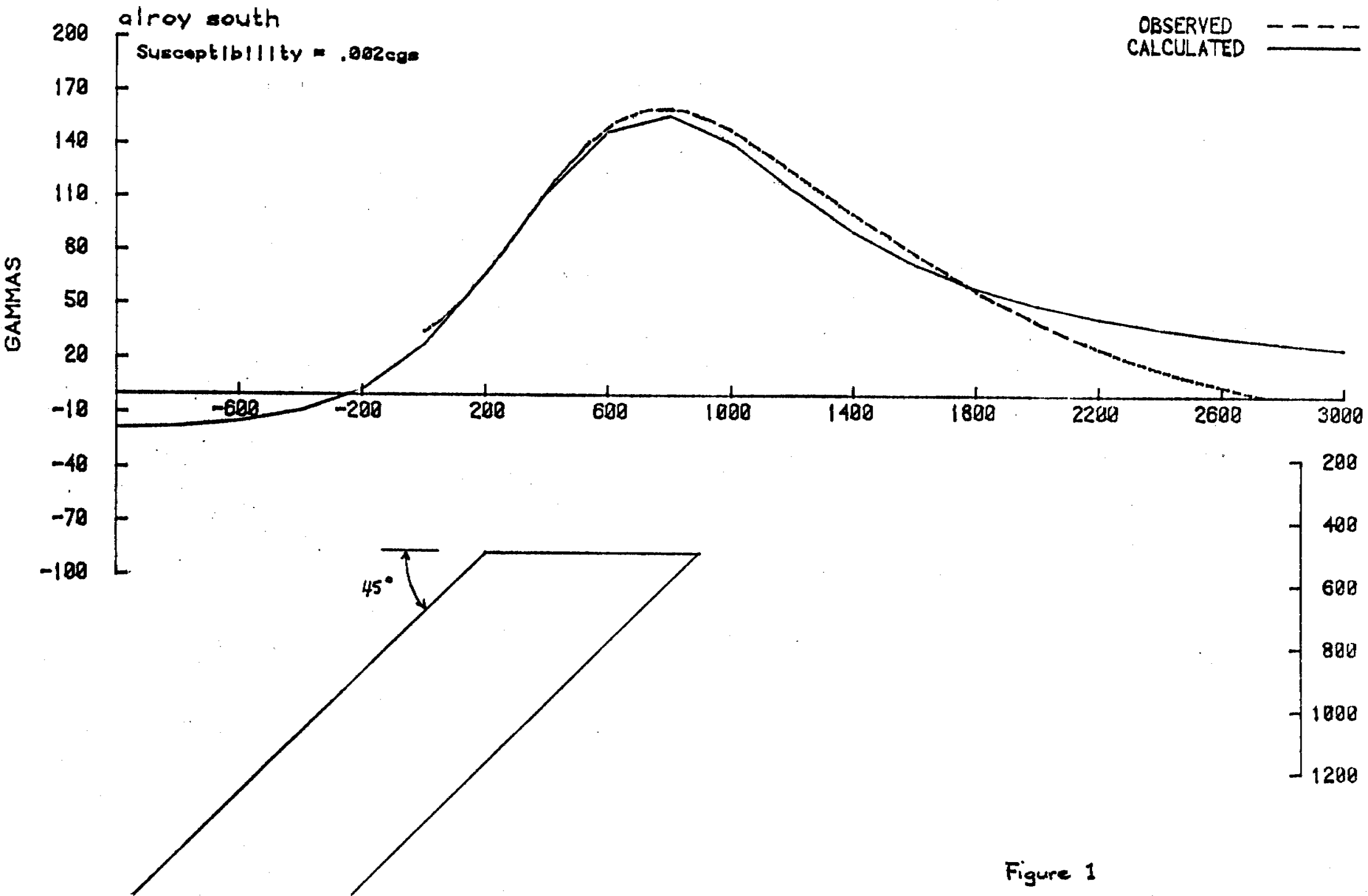
11. LIST OF PLANS

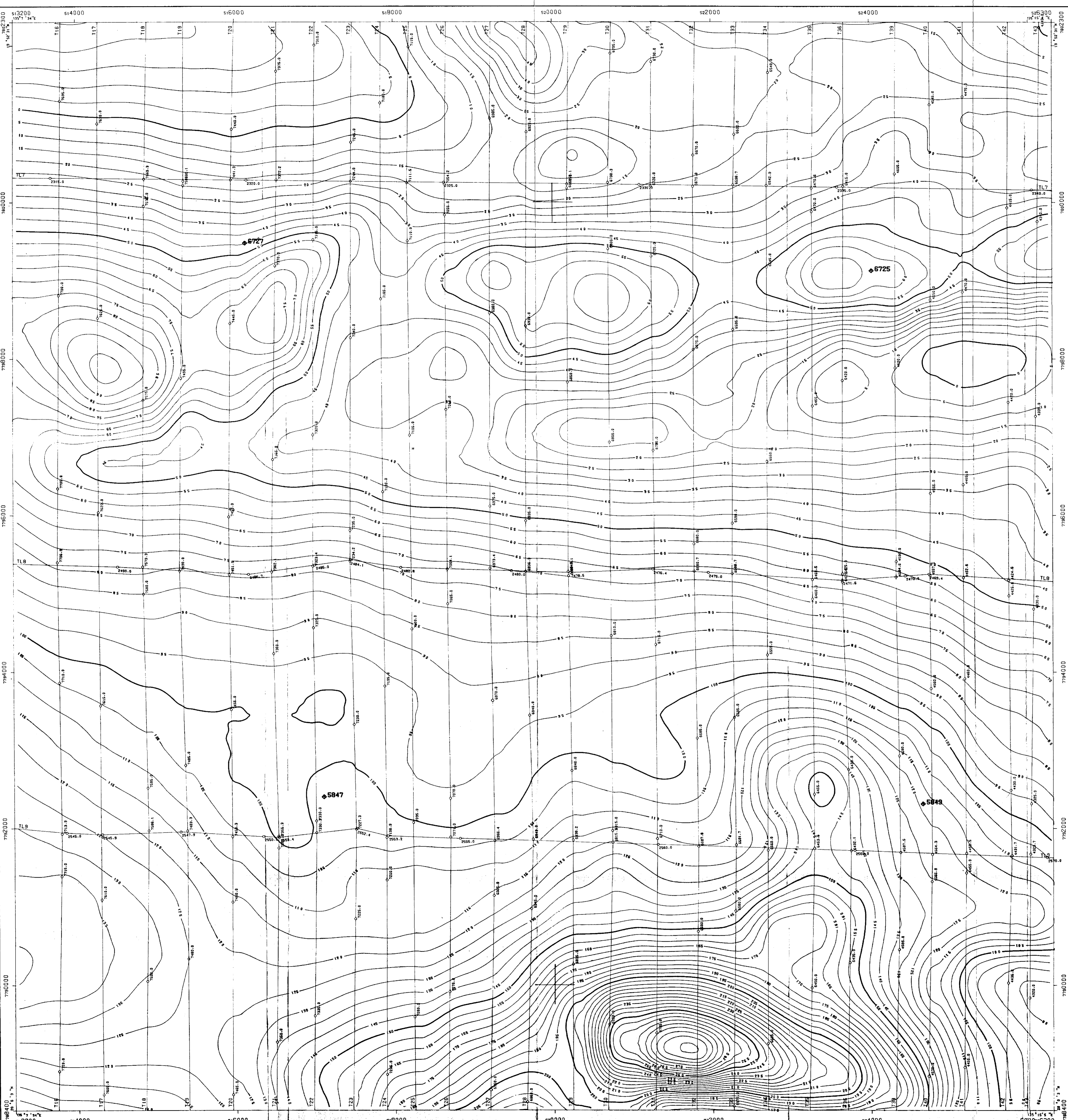
<u>Plan No.</u>	<u>Title</u>	<u>Scale</u>
NTd 1006	Locality Map A.O.M. Joint Venture, Exploration Licence No. 1184 Alroy, Northern Territory.	1:1 000 000
NTd 1146	Application for Partial Renewal of EL 1184 Alroy, N.T. J.V. with Aust. Ores & Minerals	1: 250 000
NTd 1021	Alroy, Residual Magnetic Contours, Sheet 7	1: 20 000
NTd 1430	Alroy Area, Residual Magnetic Contours	1: 100 000
Figure 1	Computer-generated Magnetic Model for the Alroy South Anomaly	



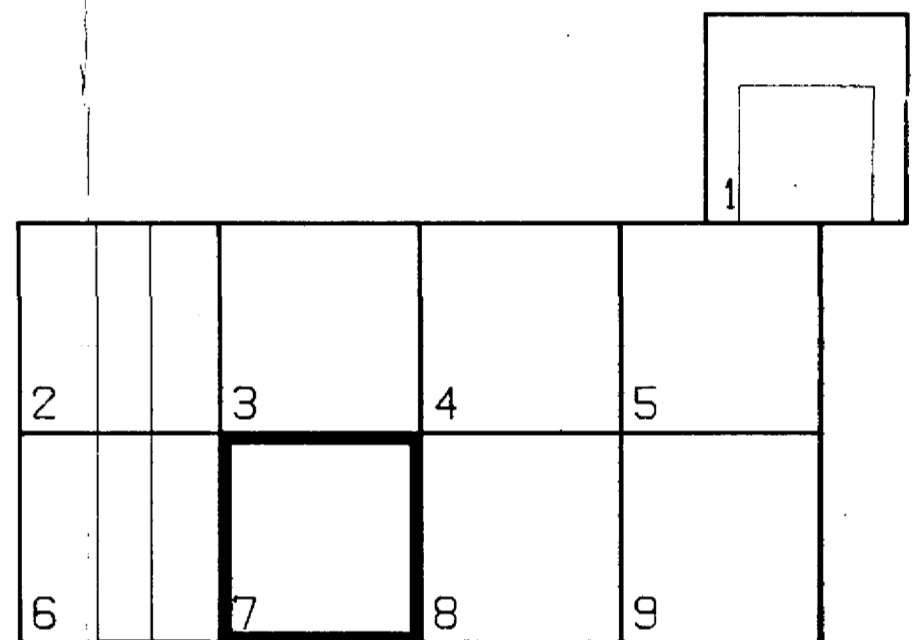
C. R. A. EXPLORATION PTY LIMITED		
LOCALITY MAP		
A.O.M. JOINT VENTURE		
EXPLORATION LICENCE No.1184		
ALROY		
NORTHERN TERRITORY		
Reference SE 53-15 1:250,000 Series		
Geologist A.G.Scott	Scale 1:1,000,000	Report No 9543
Drawn W.S.P.	Date 12-3-79	Plan No. NTd 1006







SHEET INDEX
(1:500,000)



FLOWN FOR CRA EXPLORATION BY GEOMETRICS
GEOMETRICS JOB NUMBER 9187
DECEMBER, 1978

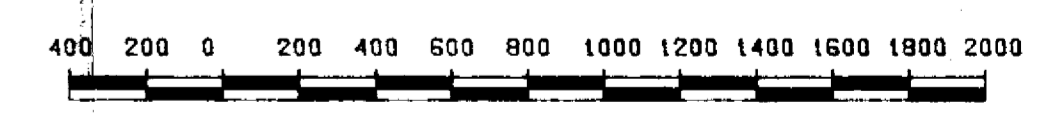
SURVEY SPECIFICATIONS

MAGNETOMETER: GEOMETRICS G-803 PROTON PRESSION
 SENSITIVITY: 0.5 NANOTESLAS
 FLIGHT LINE DIRECTION: NORTH TO SOUTH
 FLIGHT LINE SEPARATION: 500 METRES
 MEAN TERRAIN CLEARANCE: 90 METRES
 ALONG LINE SAMPLING: 50 METRES

SURVEY FLOWN BY DOPPLER
IGRF REMOVED

CONTOUR INTERVAL 5 NANOTESLAS

METRES

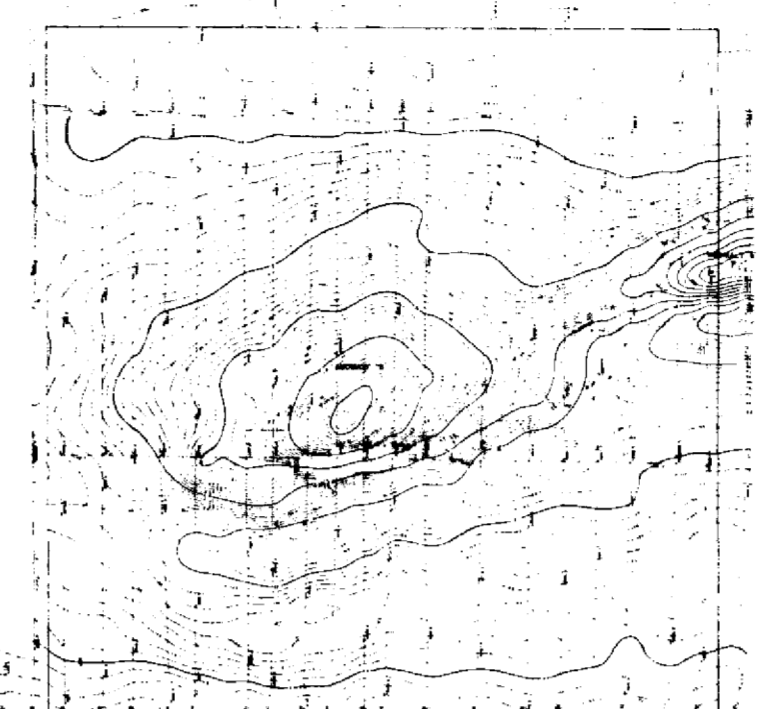
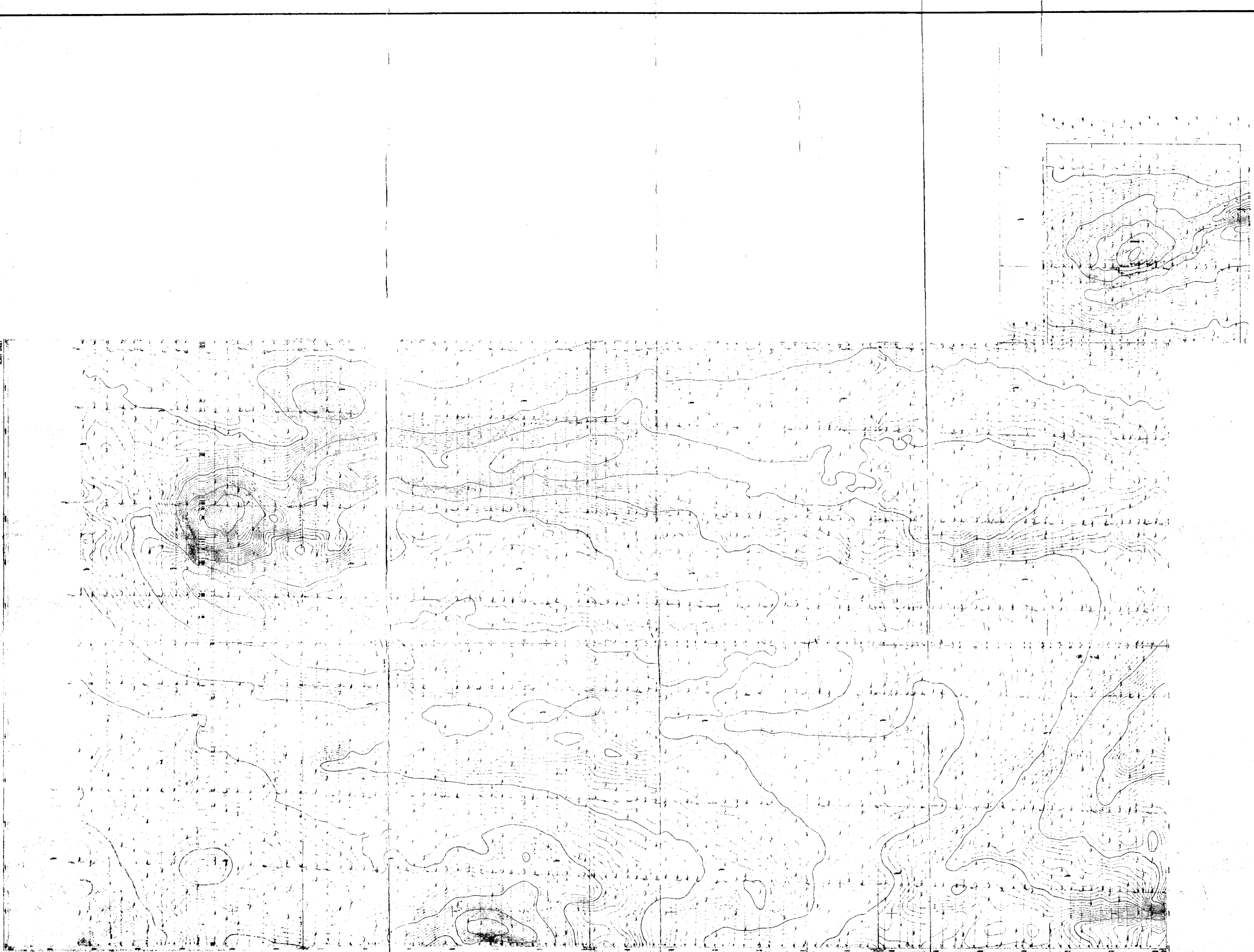


CR801233

CRA EXPLORATION PTY LTD
SHEET 7

ALROY
RESIDUAL MAGNETIC CONTOURS

SCALE: 1:20,000	DATE: <i>Report 10257</i>
DRAWN:	REVN PLAN NO
CHECKED:	
APPROVED:	NTD 1021



SHEET INDEX

2		3	4	5
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FLOWN FOR CRA EXPLORATION BY GEOMETRICS
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 DECEMBER, 1978

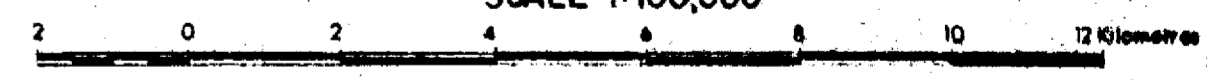
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SURVEY FLOWN BY DOPPLER
 IGRF REMOVED

CONTOUR INTERVAL 5 NANOTESLAS

SCALE 1:100,000



CR 80/233

CRA EXPLORATION PTY LTD
 ALROY AREA

EL's 2043, 1951, 1952, 1184
 RESIDUAL MAGNETIC CONTOURS
ALROY SE 53-13

SCALE: 1:100,000	DATE:	
DRAWN:	REVN	PLAN NO
CHECKED:		NTd 1430
APPROVED:		