98-4245

206001

GLADSTONE
EL15/95

ANNUAL REPORT
FOR THE PERIOD 11/11/97 - 10/11/98

October 1998

206002

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1.0 SUMMARY

Two projects were completed this year at Gladstone. The first project completed comprised detailed ground magnetic surveys of the Bluebell and Portland prospects carried out by a group from the University of Tasmania's Geology Department supervised by Dr. Michael Roach. These surveys clearly delineated stratigraphic magnetic anomalies and a number of faults trending WNW and NE, some of which occur close to old workings, and an area of magnetite destruction around the Portland mine which is interpreted as a zone of alteration. The second project was a reinterpretation of aeromagnetic, radiometric and gravity data, undertaken by Southern Geoscience Consultants. Generalised target zones were interpreted over north-south trending anticlinal fold axes and specific targets were outlined at intersections of faults and magnetic lithologies, and in areas of alteration inferred from possible magnetite destruction within magnetic lithologies.

2.0 TENEMENT INFORMATION

2.1 Location

E.L. 15/95 "Gladstone" is located in the far north east of Tasmania, containing the township of Gladstone in the south west corner of the licence (Figure 1).

2.2 Tenure

The licence was granted to Anglo Australian Resources N.L. on the 10th of November, 1995. The licence covers an area of 167 square kilometres.

2.3 Land Status/Usage

The land is almost entirely private freehold and is mostly used for sheep farming. One property, Rushy Lagoon, occupies approximately 80% of the licence area. The south-west corner of the licence area covers the small township of Gladstone, with numerous buildings. Around the township of Gladstone there are many old mine workings associated with both gold and tin deposits.

2.4 Topography/Vegetation

The majority of the licence area is relatively flat and less than 100 metres above sea-level, except for the extreme south-west corner which rises up some 300 metres near Mount Cameron. The northern half has been mostly cleared to pasture, whilst the southern half is vegetated by open eucalypt forest, although denser near watercourses.

2.5 Access

Access is very good. There are many tracks in and around the township of Gladstone, whilst at Rushy Lagoon there is free access through paddocks as well as along the network of roads and tracks servicing the property.

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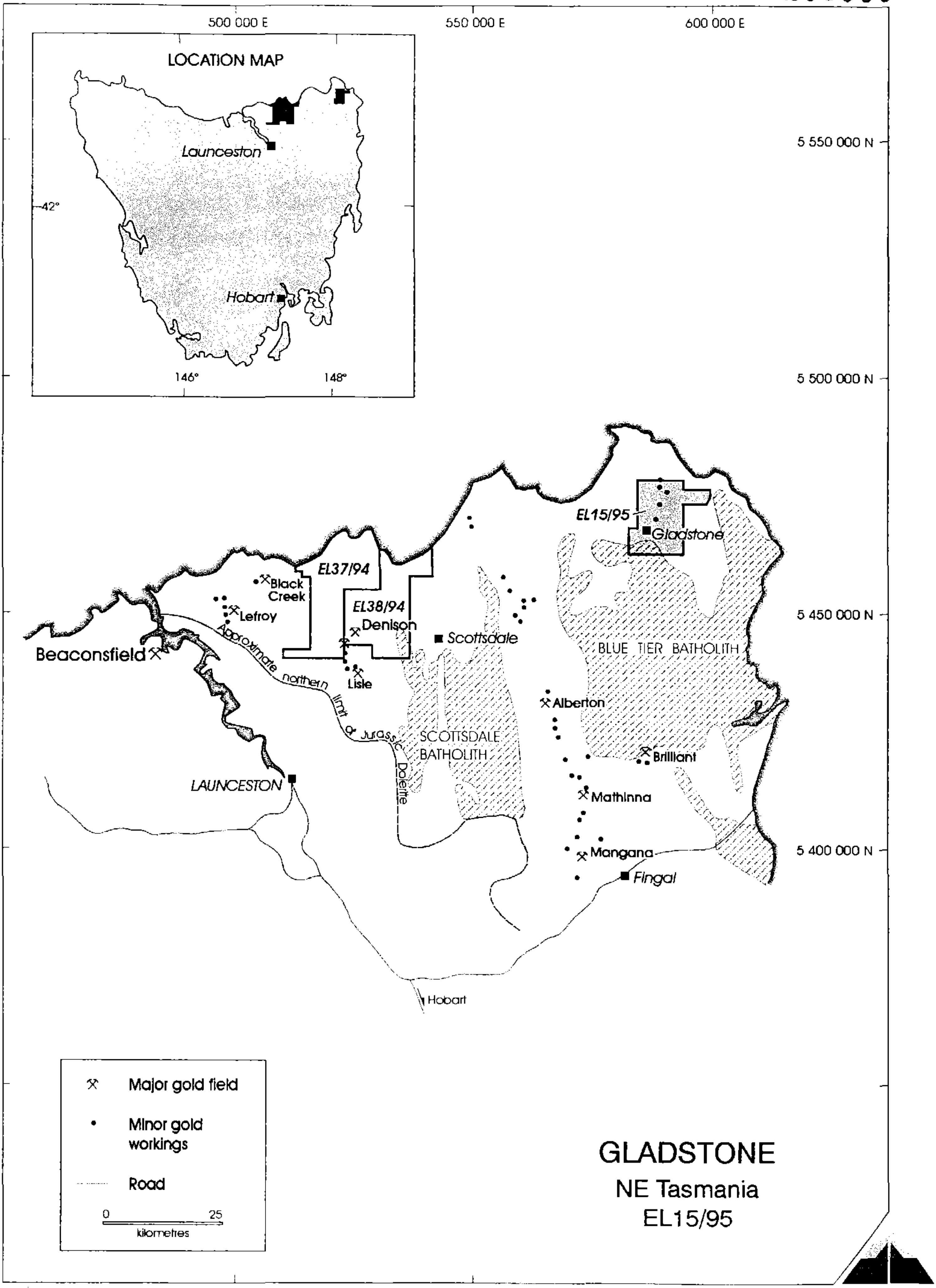

Figure 1.

3.0 SUMMARY OF PREVIOUS EXPLORATION

Work carried out prior to Anglo Australian Resources is summarised in the 1996 annual report.

Work conducted by Anglo Australian Resources in year one included sampling of mullock heaps with some promising results. Seven samples returned assays of over 30g/t Au, with a high of 125.7 g/t from the Portland mine.

Two short diamond drill holes were targeted on the Royal Tasman No. 2 reef, near the Gladstone township, beneath the reported depth of old workings to test the idea that reported drops in grade with depth were metallurgical. Both holes intersected the reef which is white microcrystalline quartz with little sulphide or ferruginisation. Gold assays in both cases were very low.

In year two work undertaken included taking 496 hand-augered soils samples in the area between the Bluebell mine and the Grand Flaneur workings and to the north of the Grand Flaneur workings, and the digging of about 140 metres of trenches, two trenches located south of the Grand Flaneur and four near the Portland mine. Soil results showed anomalous gold and arsenic in the environs of the old Bluebell, Prince Imperial and Grand Flaneur mines and an area of anomalous arsenic in an area near the Grand Flaneur with no old workings apparent. The anomaly was apparently spurious as trenching indicated at least 4.5 metres of transported overburden. Transported gravels and sands were encountered on most lines and preclude any further hand-augered soil sampling.

The trenching returned relatively low values for gold with all metre channel samples below 0.8 g/t and most below 50 ppb. Arsenic gave a better vector to the Portland reef from both the north and south, exhibiting an increase from >50 metres away.

4.0 WORK COMPLETED DURING THE REPORT PERIOD

4.1 Detailed ground magnetic survey

In July 1997, a detailed ground magnetic survey was carried out at the Bluebell and Portland prospects by a third year exploration geophysics group from the University of Tasmania, supervised by Dr. Michael Roach. The report is included as Appendix A. Data was acquired at a line spacing of 10 metres and the survey successfully delineated faults associated with known gold mineralisation as well as faults with no known mineralisation cross-cutting stratigraphic magnetic features. Magnetite destruction and remobilisation is interpreted as alteration associated with the Portland reef. This work showed that if further ground magnetic surveying is undertaken, a maximum line spacing of 20 metres should be used. The study also showed that the best possible helicopter magnetics would not show up the subtle magnetic and structural features at a local scale.

4.2 Re-interpretation of aeromagnetic, radiometric and gravity data

An interpretation of magnetic, radiometric and gravity data was completed in April 1998 by John Ashley of Southern Geoscience Consultants. The main source of data was the MRT Netgold database and the data acquired from the detailed ground magnetic survey (outlined in 4.1) was also used. John Ashley's report is included as Appendix B. Although suggesting that there is "no distinctive signature obviously related to gold mineralisation", John Ashley's study has confirmed the work of Michael Roach in inferring that the Bluebell and Portland gold mineralisation occurs over or adjacent to an anticlinal fold axis. He further infers a 'regional' fault (F2) adjacent to the anticlinal axis and suggests that the area adjacent to F2 is of exploration interest, especially where a series of north-east trending faults intersect both F2 and magnetic lithologies to the east (the Empress prospect). A similar structural setting exists about six kilometres to the east of the Bluebell where north-east trending faults intersect magnetic lithologies between two north-south trending faults, F5 and F6. Other specific areas of exploration interest are near the Big Musselroe mine, where a northeast trending fault intersects magnetic lithologies; zones to the south-east and south-west of the Portland where disrupted magnetic lithologies may indicate alteration; and a magnetic feature three kilometres east-south-east of the Portland which may be related to skarn mineralisation.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The detailed ground magnetic study was very successful in delineating structural and magnetic features associated with gold mineralisation which could not be inferred from the Placeco aeromagnetic survey and would be unlikely to be delineated by the best possible helicopter survey. A lot of the country around the area of this survey is flat or gently undulating pasture, ideal for ground magnetics and this technique could be used to good effect in the future.

The reinterpretation of geophysical data by John Ashley has brought out more structural detail than has been apparent in previous interpretations. Follow up of specific target areas, starting with those near known gold mineralisation is recommended. Because some of the areas of interest are partly covered by stable, low, vegetated sand dunes and gravel-filled palaeo-drainage channels up to at least five metres deep, conventional soil sampling has had limited success in delineating areas of interest for further exploration and the soils program of 1996 produced a spurious arsenic anomaly which was trenched in 1997. In order to overcome this problem, new techniques such as Mobile Metal Ion (MMI) sampling may be effective along with, or in place of "wacker" sampling which has proved successful elsewhere in the north-east. MMI is cheaper than "wacker" sampling and the latter is reputedly less effective in unconsolidated sands compared to typical Mathinna Group derived soils.
In terms of future exploration, it is therefore proposed to carry out MMI (Mobile Metal Ion) surveys at the Bluebell prospect, over the same area that was soil sampled in 1996 and had detailed ground magnetics conducted in 1997, and at the Empress prospect, six to seven kilometres south of the Bluebell. Anomalous areas defined by first pass MMI surveying will be infilled with more MMI sampling and where warranted, RC drilling will follow.

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206011

APPENDIX A

Detailed ground magnetic surveys in the Gladstone and Denison areas, NE Tasmania – Michael Roach, Geology Department, University of Tasmania

206012

Detailed Ground Magnetic Surveys in the Gladstone and Denison Areas, NE Tasmania

Michael Roach

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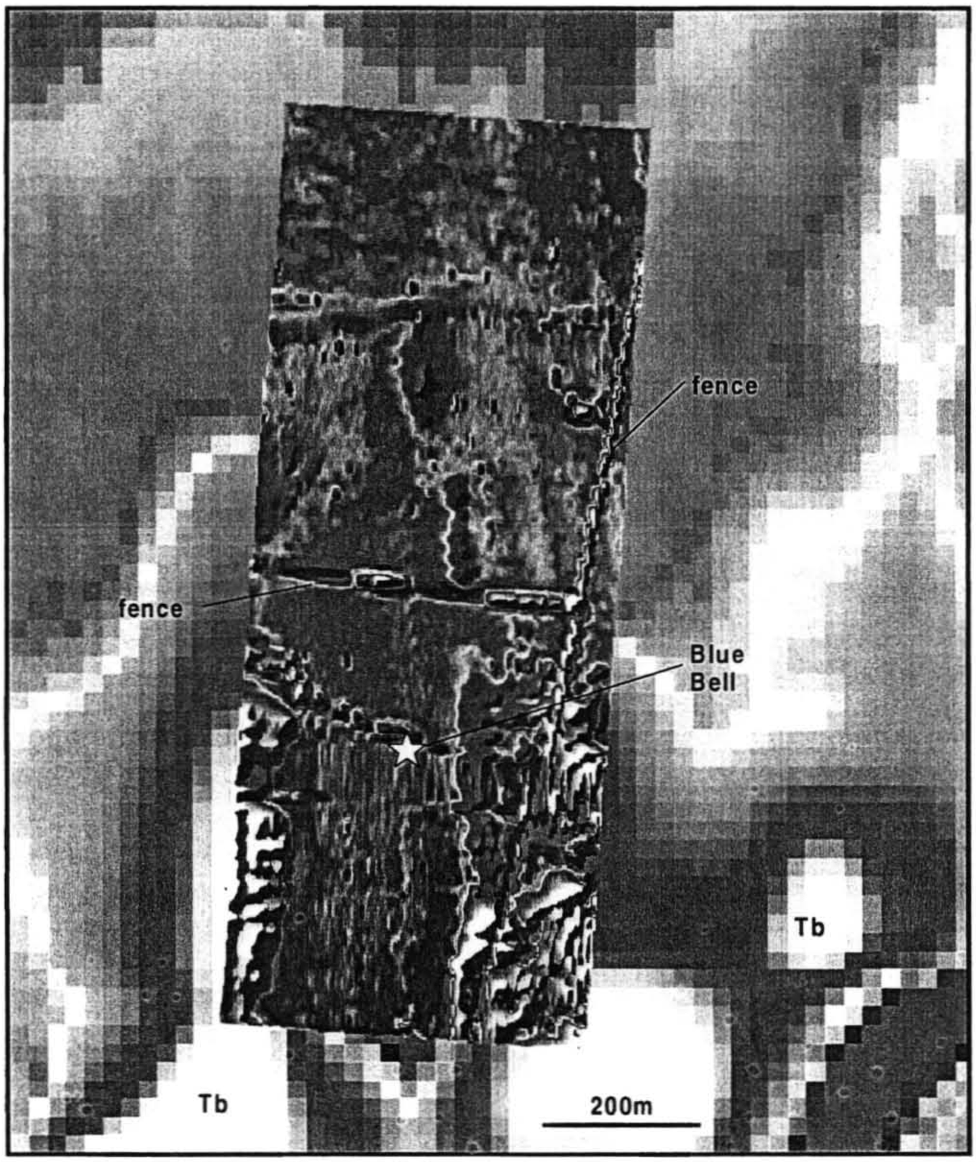

A report to Anglo-Australian Resources on detailed ground magnetic data acquired by third year exploration geophysics students from the University of Tasmania, July 1997.

October 1997

5 cm

206013

Detailed Ground Magnetic Surveys in the Gladstone and Denison Areas, NE Tasmania

A report to Anglo-Australian Resources on detailed ground magnetic data acquired by third year exploration geophysics students from the University of Tasmania, July 1997.

Michael Roach

Lecturer in Geophysics,
Geology Department,
University of Tasmania.
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Summary

In early July 1997, ground magnetic data was acquired by 3rd year Exploration Geophysics students from the University of Tasmania over the Bluebell and Portland prospects near Gladstone in northeast Tasmania. Ground magnetic data was also acquired over a portion of the Denison Goldfield by Iain Clarke, a third year geology student from Anglia University in the UK.

At the Bluebell prospect, the magnetic data clearly delineates subtle stratigraphic magnetic anomalies within the Mathinna Group and a number of faults which trend WNW and NE. Some of these inferred faults pass close to areas of historical gold mineralisation.

The magnetic image of the Portland prospect shows a broad north trending magnetic anomaly parallel to the regional strike of the Mathinna Group rocks. This feature is cross-cut by a number of NE trending structures which are marked by zones of magnetite destruction and remobilisation. The Portland mine lies in the centre of this zone of alteration.

At Denison, much of the magnetic data is affected by the presence of an irregular zone of near-surface magnetic material which results in high frequency irregular anomalies. A NNE (local grid) trending structure is apparent crossing the entire survey, despite the presence of significant geological noise. This feature obliquely transects subtle NNW (local grid) anomalies which are inferred to be due to Mathinna Group stratigraphy and is interpreted as a fault or fracture zone.

Analysis of the ground magnetic data from the Bluebell prospect indicates that most of the stratigraphic and structural features interpreted from the 10m line spaced data would have been apparent at a line spacing of 20m but that many of these features would not have been interpreted at a line spacing of 40m or from detailed helicopter aeromagnetic data. A maximum line spacing of 20m is therefore suggested for future ground magnetic surveys in NE Tasmania but the additional resolution provided by 10m line spacing would obviously result in a more confident interpretation.

Data Acquisition and Processing

Local survey grids were established at Bluebell and Portland and the existing Anglo-Australian grid at Denison was infilled to provide additional control for the magnetic survey. The Bluebell and Portland grids were surveyed using tape and magnetic compass. The orientation of these grids was 350 degrees magnetic to conform to previous geochemical sampling grids in these areas.

The locations of the corners of the Bluebell and Portland grids were recorded using hand-held GPS receivers and this information was used to transform the data to AMG coordinates prior to processing. No attempt was made to transform the Denison data to AMG coordinates.

At the completion of the magnetic surveys at Bluebell and Portland all survey markers were removed and hip chain thread collected.

Mobile magnetic data was acquired using a GSM19 fast sampling magnetometer along 10m spaced east-west lines with a sensor elevation of ~2m.

For all of the Denison grid and the southern third of the Bluebell grid, magnetometer sampling and distances along each line were controlled by a hip-chain trigger system. Magnetic data in these areas were acquired with an along-line sample spacing of 0.5m.

For the remainder of the Bluebell grid and all of the Portland grid the magnetic data were acquired using a 0.5 second sampling interval and distances linearly interpolated from 100m distance flags recorded in the magnetometer record. This resulted in an along-line sampling distance of ~0.7m and more convenient operation in areas of open farmland.

All magnetic data presented in this report has been diurnally corrected with base station information recorded using a G856 magnetometer with a 30 second sampling interval.

The raw magnetic data was tie line levelled and gridded using a bicubic spline algorithm. A low-pass filter with a wavelength of approximately 3m was applied to the located data prior to gridding to reduce the effects of high-frequency noise and across line aliasing during gridding. All magnetic images have been gridded using a 2m grid cell size.

There are still some line-related artifacts in the magnetic grids but these do not significantly detract from the geological detail and no attempt has been made to apply micro-levelling techniques to remove these problems.

An exabyte tape containing the located and gridded magnetic data in ERMapper format for each site is provided with this report.

Aeromagnetic Data - Gladstone Area

Detailed aeromagnetic data was acquired across the Gladstone area in 1987 by Austirex Pty Ltd for Placeco Australia N.L.. Data was acquired on 125m spaced east-west lines with a terrain clearance of 60m.

The Placeco aeromagnetic data clearly indicated the presence of folded and faulted magnetic stratigraphy within the Mathinna Group in addition to magnetic anomalies due to Jurassic dolerite and Tertiary basalt (Leaman 1992, Roach 1994). The location of the Bluebell and Portland survey grids in relation to the aeromagnetic data is shown in Figure 1.

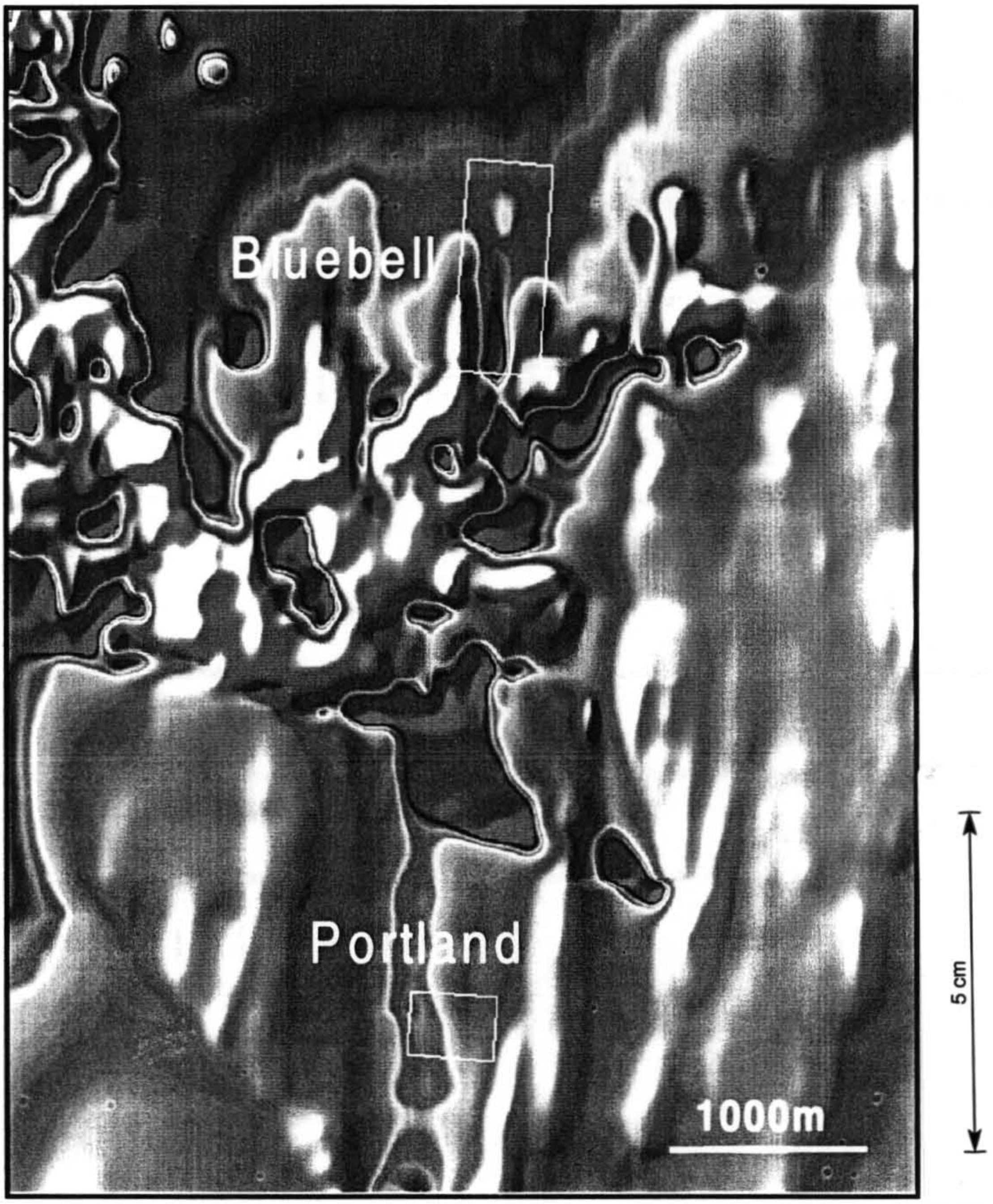


***Figure 1**. Location of the Bluebell and Portland survey grids in relation to the Placeco aeromagnetic data.*

The Bluebell grid extends across the northern margin of a zone of irregular high frequency magnetic anomalies due to a thin layer of Tertiary Basalt. North of the basalt the areomagnetic data is subdued and shows little stratigraphic or structural detail.

The Portland grid lies between two major north-striking stratigraphic magnetic anomalies in a zone interpreted by Roach (1994) as an anticlinal axis. Again, there is little indication of cross-cutting structures in this area.

Bluebell Prospect

A rectified airphoto image of the Bluebell prospect is shown in Figure 2 for geographic context. The majority of the area is cleared farmland with flat or gently undulating topography. The survey grid is also traversed by wire several fences which are apparent in Figure 2.

Tertiary basalt crops out in the southern portion of the area in several locations but the underlying Mathinna Group rocks are poorly exposed an often covered by a variable thickness of transported material.

An image of the detailed ground magnetic data of the Bluebell prospect is shown in Figure 3 and a qualitative interpretation of this image in Figure 4. Images, stacked profiles and contour maps at a scale of 1:2000 have also been provided with this report.

Wire fences are characterised by high amplitude, very high frequency anomalies. There is a bend in the NNE trending fence anomaly south of 5473700mN which is due to a bend in the grid baseline which was established from Anglo-Australian for geochemical sampling. No attempt has been made to remove this geometric distortion from the data. The maximum misplacement of the anomaly due to the fence is approximately 25-30m to the west at the southern margin of the survey.

Areas of Tertiary basalt (Tb) are clearly delineated in the total magnetic intensity image as high frequency, high amplitude anomalies. Basalt crops out in the southeast of the survey area but is also inferred in the southwestern corner on the basis of the magnetic data.

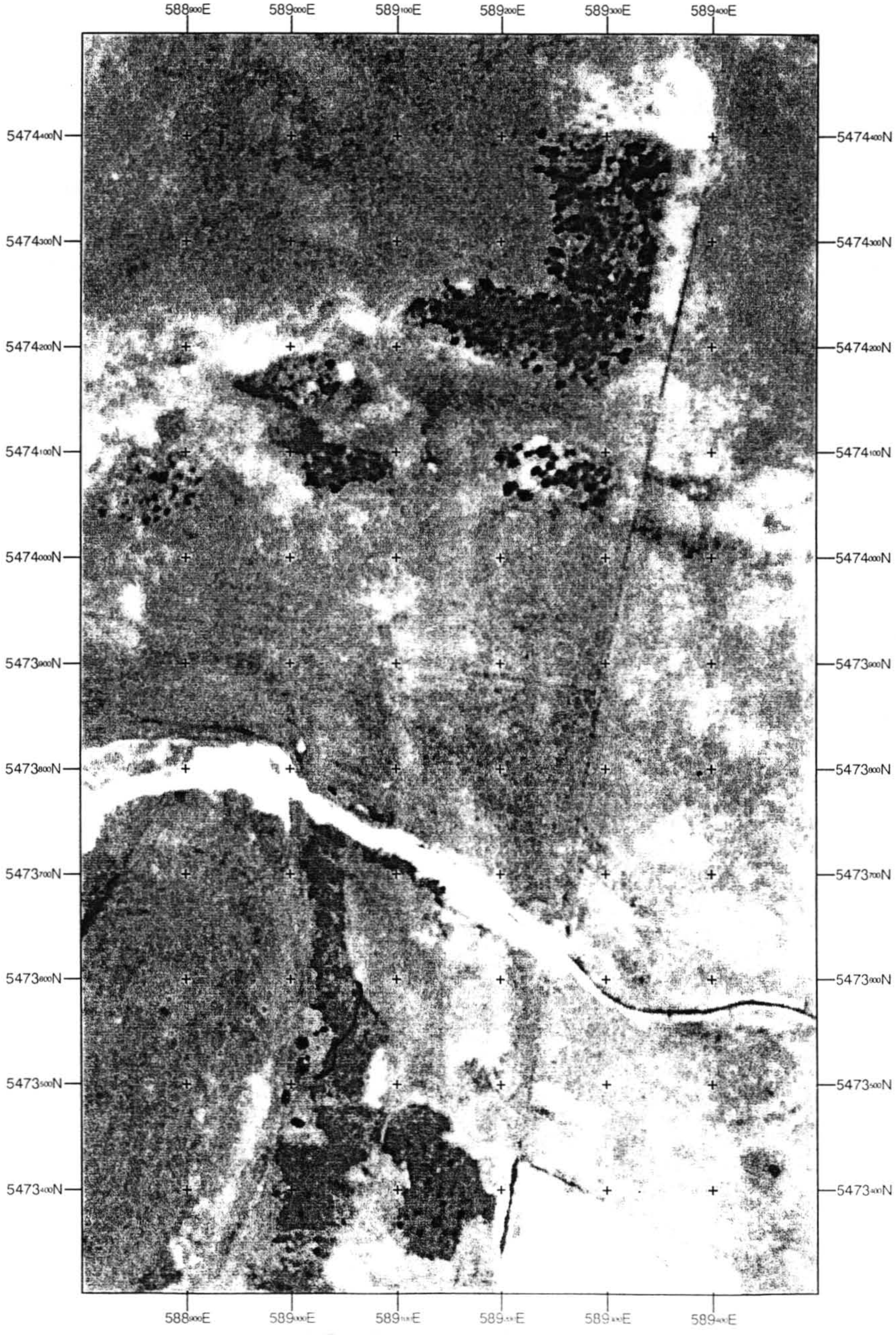
Broad, moderate to low amplitude, NNW trending magnetic anomalies are interpreted to be due to magnetostratigraphic units within the Mathinna Group (MG). Quantitative interpretation of these anomalies suggest near vertical to steeply east-dipping tabular sources with depth to top of between 20 and 30m. Mathinna Group rocks only crop out along the drainage ditch near 5473750mN and in-situ measurements of magnetic susceptibility at this site gave only low values ($<0.5\times10^{-3}$ SI) which cannot explain even these low amplitude anomalies. A minimum susceptibility of approximately 5×10^{-3} SI is required to match the form of these anomalies. Mathinna Group rocks with magnetic susceptibilities greater than this value have been recorded from the Mussellroe River, approximately 2 km to the east of the Bluebell prospect (Roach, 1994).

The continuity of the Mathinna Group magnetic anomalies is clearly disrupted in a number of areas by cross-cutting faults. A WNW trending structure just north of the Bluebell mine dump (589100mE 5473700mN) is marked by a series of small irregular anomalies and a mismatch in the magnetostratigraphy across the structure. This structure is broadly coincident but slightly to the north of the drainage ditch located just to the north of the Bluebell dump. The drainage ditch was excavated along a former watercourse and lies at the boundary between slightly raised irregular topography to the south and flat featureless topography to the immediate north. A NE trending structure is indicated by disruption of Mathinna Group magnetic stratigraphy near 589100mE 5474000mN. A ENE trending fault completely truncates the Mathinna Group stratigraphy near 589100mE 5474200mN. There is little or no outcrop in this area. To the north of this structure the total magnetic intensity image shows few significant features.

206017

BLUE BELL PROSPECT
AIR PHOTO BASE MAP
1:5,000

Scanned and rectified from a 1:42000 DELM airphoto
Grid: Australian Map Grid - Zone 55



5 cm

Figure 2

206018

BLUE BELL PROSPECT
TOTAL MAGNETIC INTENSITY
1:5,000

East - west gradient enhancement
Grid: Australian Map Grid - Zone 55
Data acquired by KEA324 - University of Tasmania - July 1997

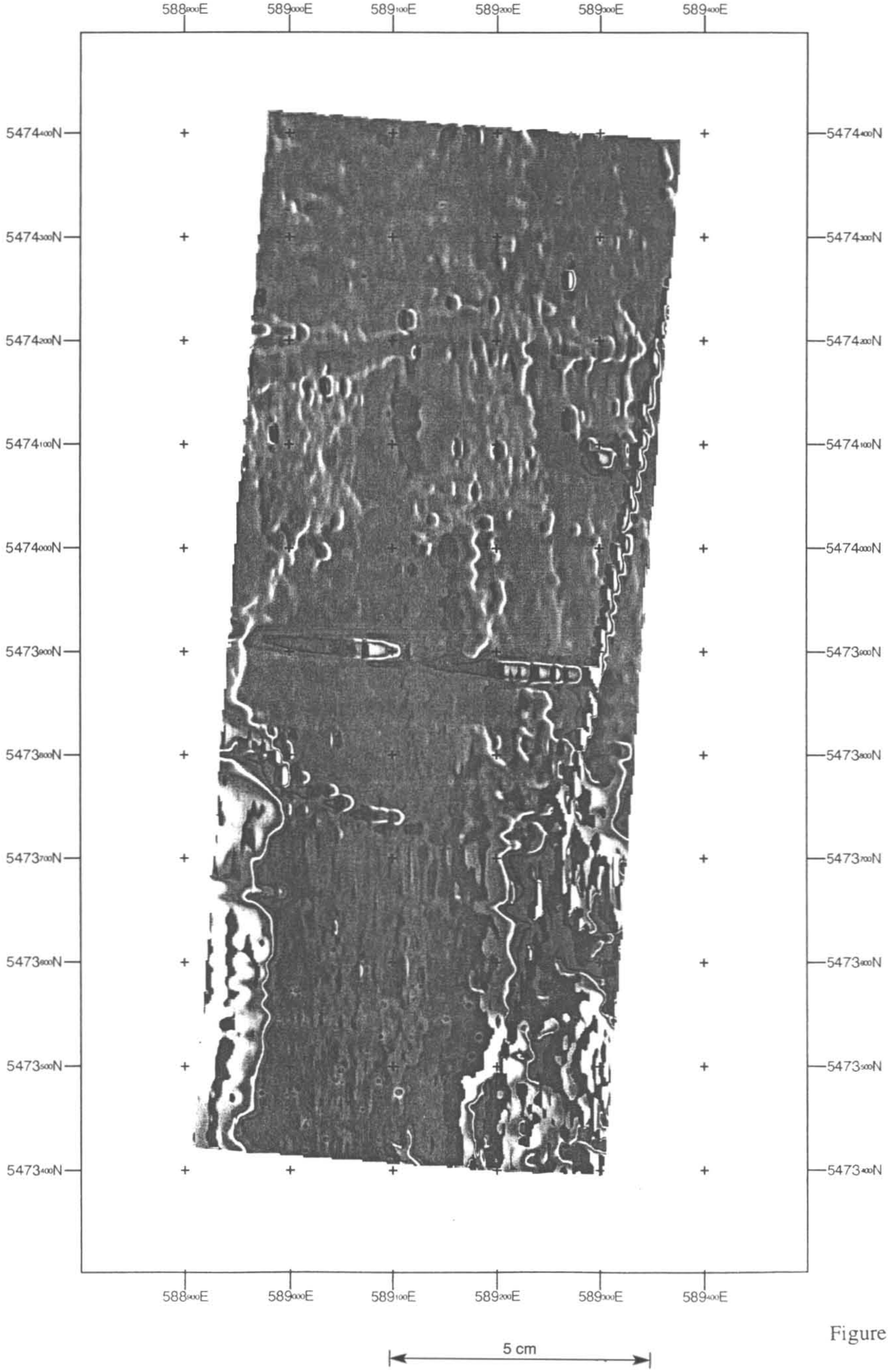


Figure 3

206019

BLUE BELL PROSPECT
QUALITATIVE MAGNETIC INTERPRETATION
1:5,000

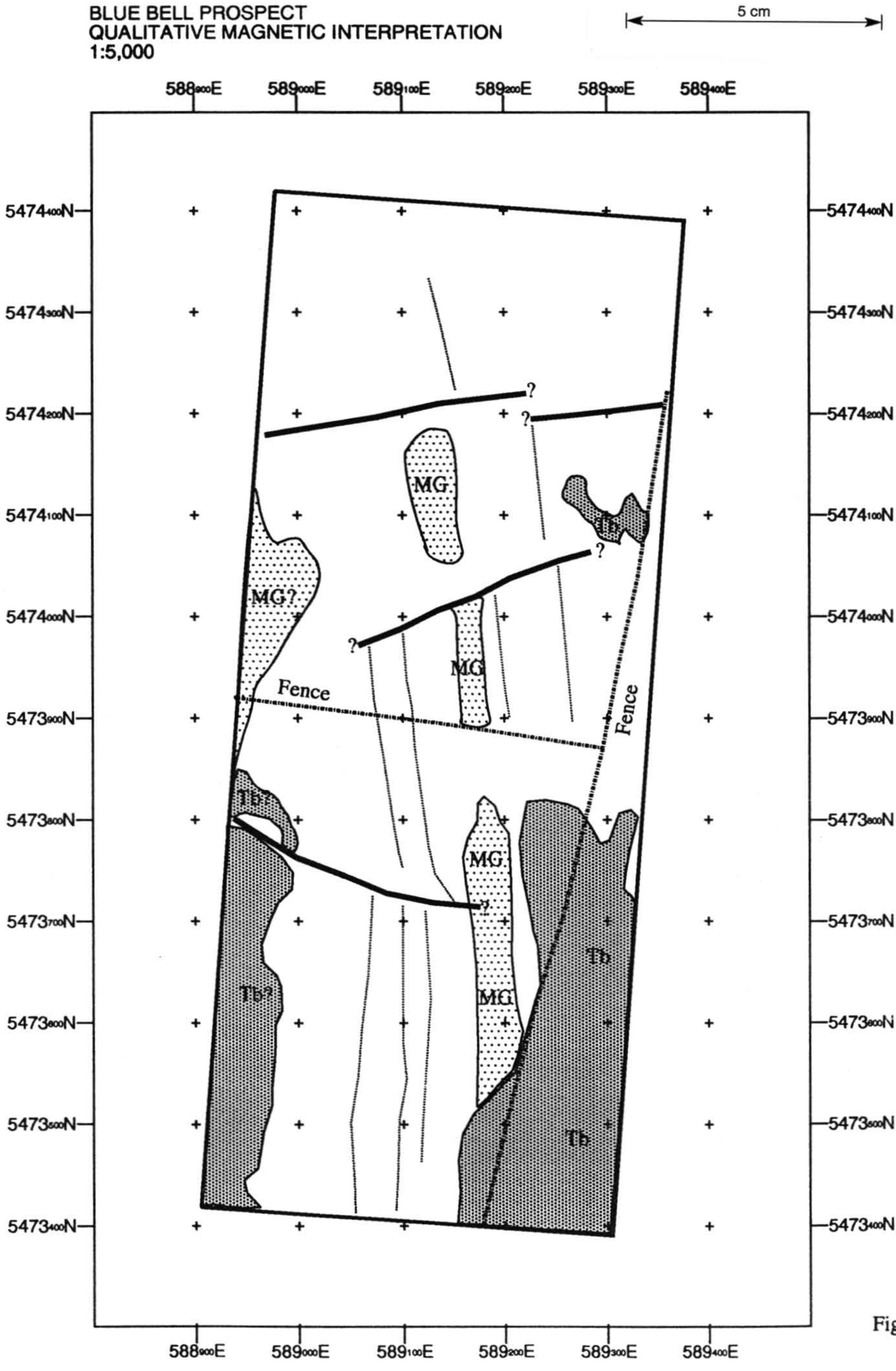


Figure 4

The Bluebell ground magnetic data is superimposed on the detailed Placeco aeromagnetic image in Figure 5 to illustrate its much greater resolution and to place the detailed anomalies into a more regional context.

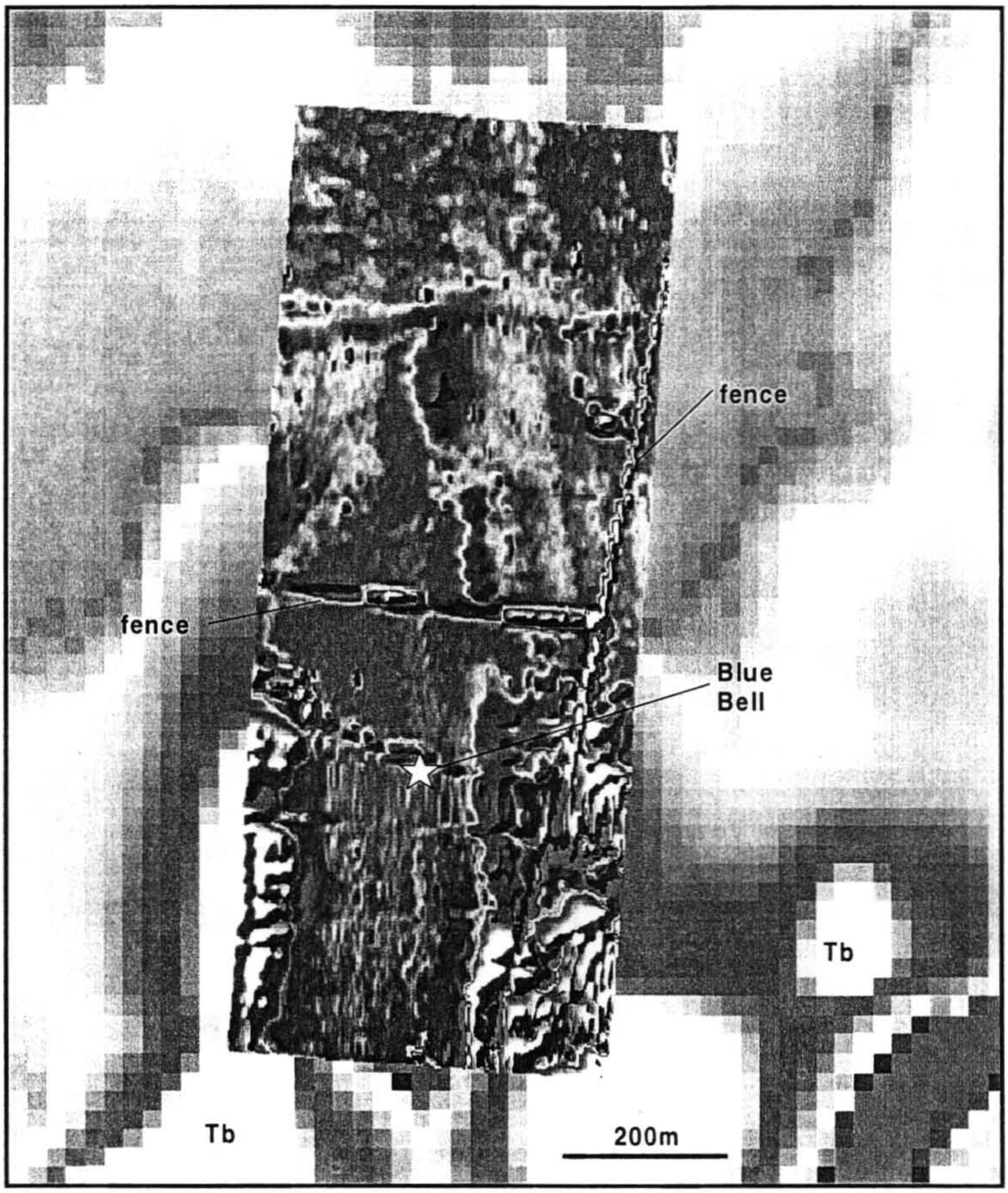
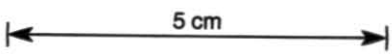


Figure 5. *Detailed ground magnetic data for the Bluebell prospect superimposed on the Placeco aeromagnetic data.*

Portland Prospect



A rectified airphoto image of the Portland prospect is shown in Figure 6 for geographic context. The remains of the Portland Mine dump are marked by the light area in the centre of the image at 588930mE 5470320mN.

PORTLAND PROSPECT
AIR PHOTO BASE MAP
1:2,500

Scanned and rectified from a DELM 1:42,000 air photo
Grid: Australian Map Grid - Zone 55

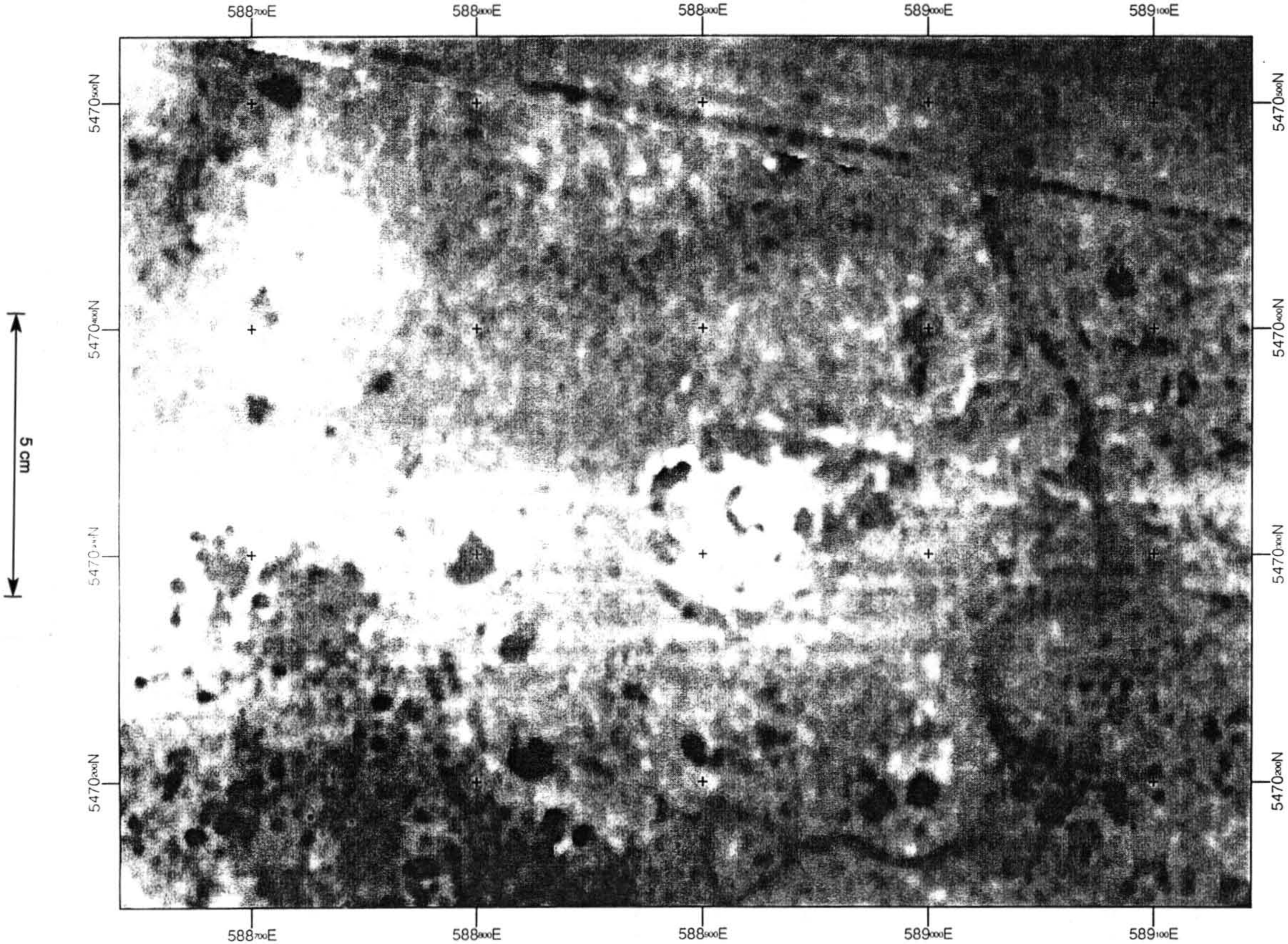


Figure 6

206021

PORTLAND PROSPECT
TOTAL MAGNETIC INTENSITY
1:2,500
Northwest gradient enhancement

Histrogram equalisation contrast stretch
Grid: Australian Map Grid - Zone 55
Data acquired by KEA324 - University of Tasmania - July 1997

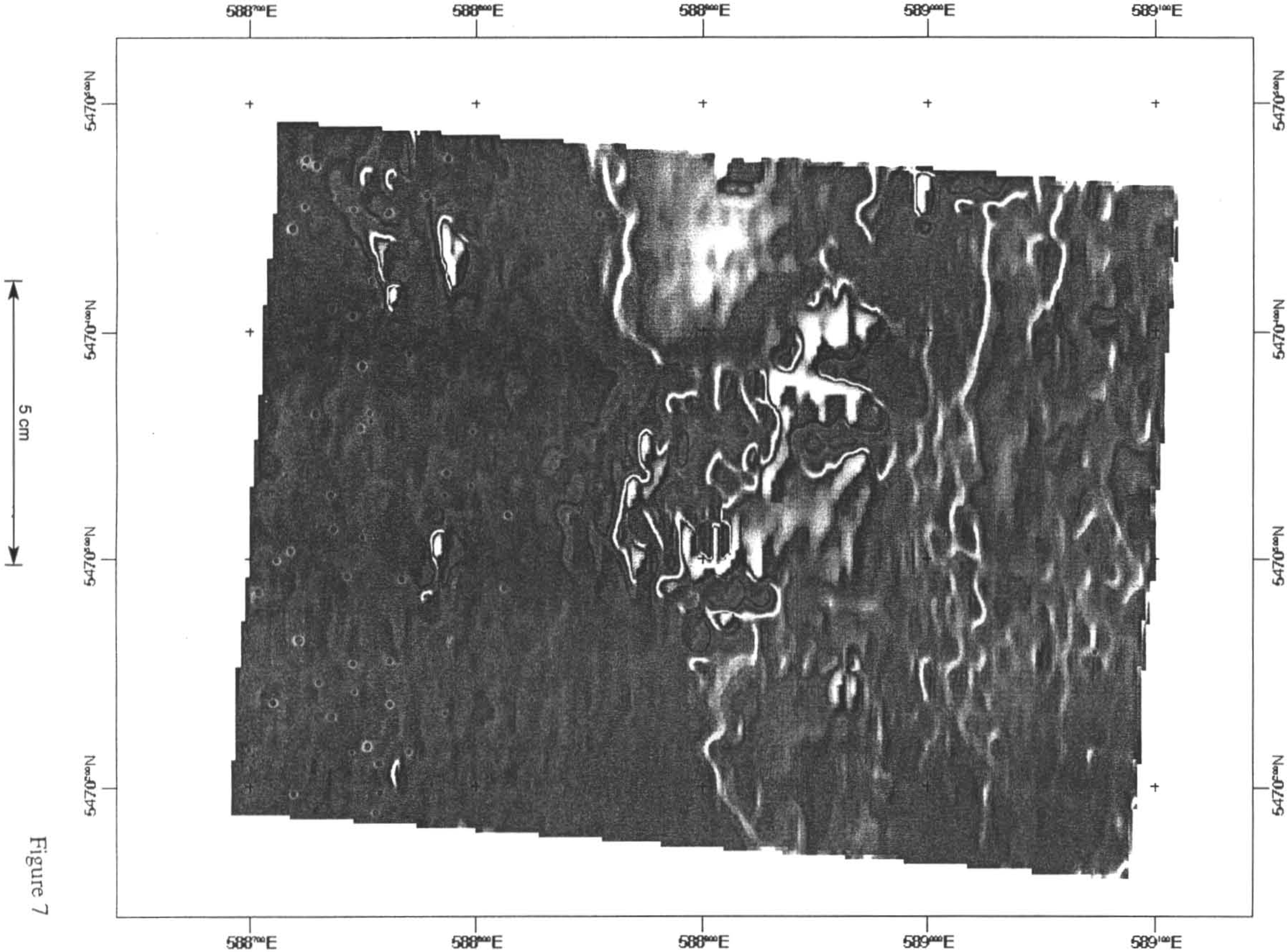


Figure 7

206022

PORTLAND PROSPECT
QUALITATIVE MAGNETIC INTERPRETATION
1:2500

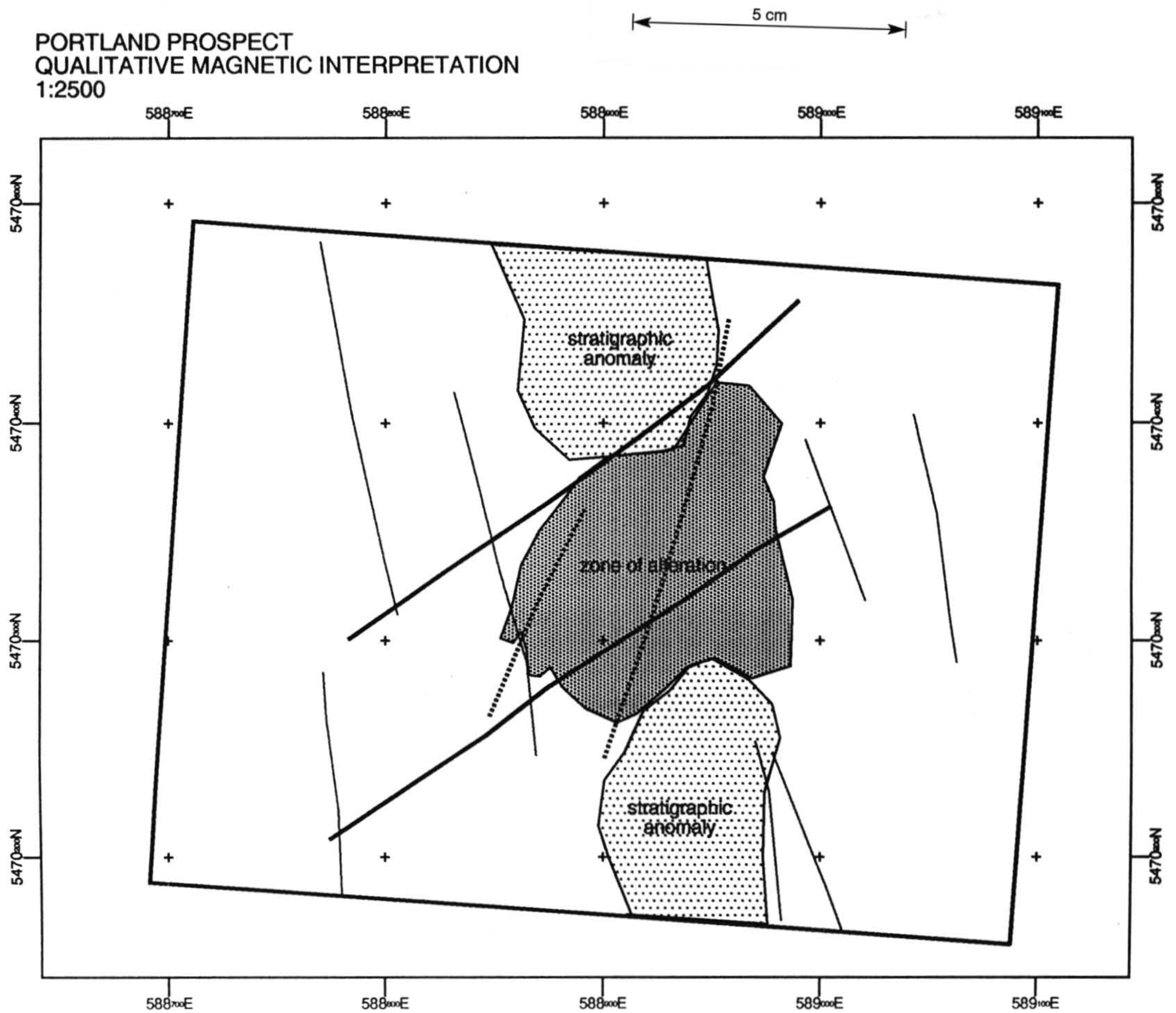


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Figure 8

An image of the detailed ground magnetic data of the Portland prospect is shown in Figure 7 and a qualitative interpretation of this image in Figure 8. Images, stacked profiles and contour maps at a scale of 1:1000 have also been provided with this report.

The broad NNW trending anomaly is interpreted as a stratigraphic unit. NE striking structures transect this broad anomaly and produce a zone of reduced total magnetic intensity which extends from 5470200mN to 5470300mN. Within this zone there are also a number of higher amplitude high frequency anomalies. The NE striking structures are most apparent within the broad magnetic anomaly but can be traced for some distance into the adjacent effectively non-magnetic lithologies

The zone of reduced total magnetic intensity is inferred to mark an area of structurally controlled alteration centred on the Portland mine.. Some of the very high frequency, high amplitude bipolar anomalies near 588900mE 5470300mN may be due to cultural features although little ferrous material was apparent on the surface. The larger anomalies to the northeast near 588950mE 5470370mN are too broad to be due to near surface cultural features and are interpreted as zones of magnetite alteration due to mobilisation of magnetite from within the stratigraphic anomaly.

The somewhat irregular magnetic zone to the east of the Portland Mine marks the western margin of a major magnetostratigraphic anomaly apparent in Figure 9 which shows the Portland ground magnetic data superimposed on the aeromagnetic image.

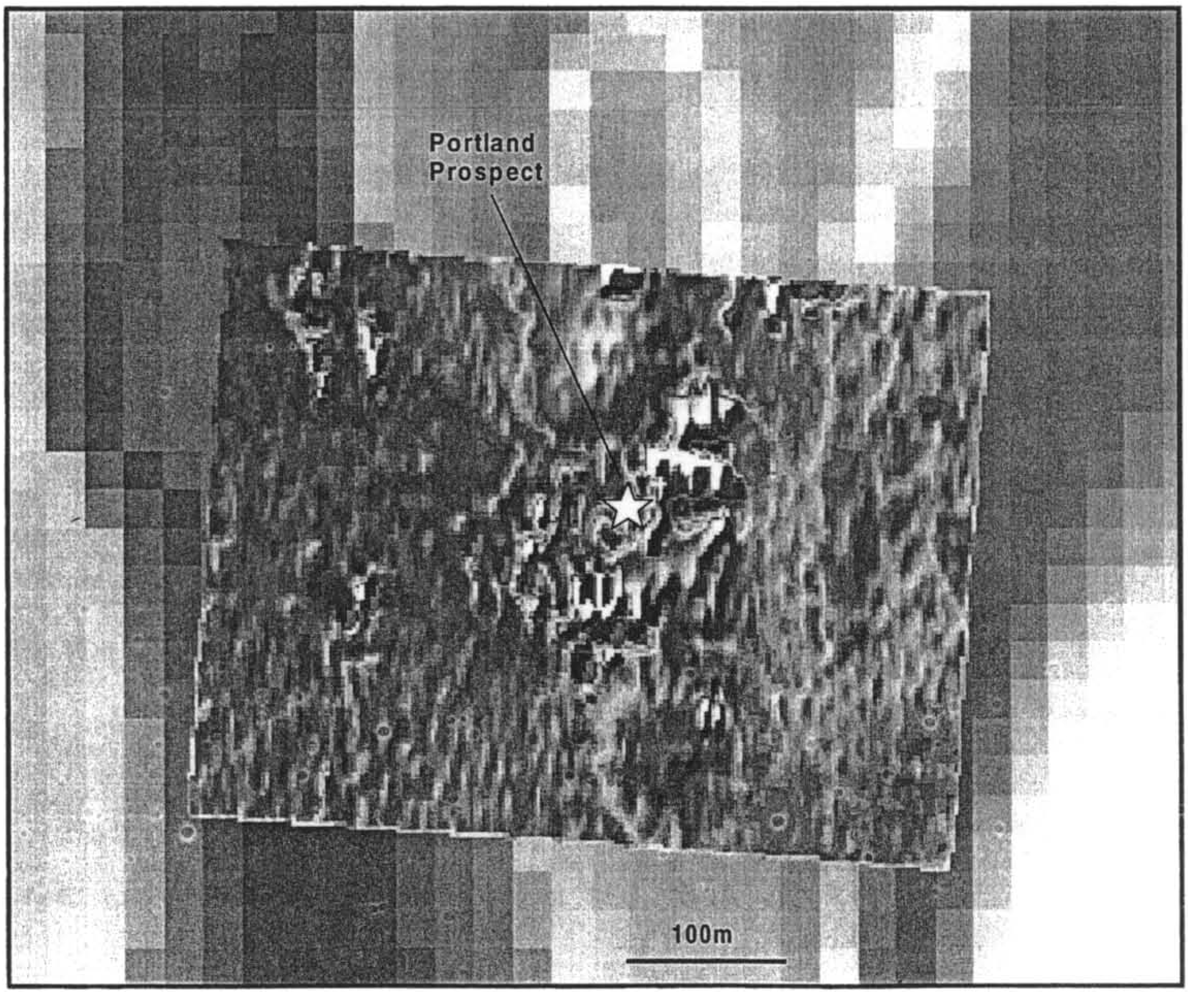

Figure 9. Detailed ground magnetic data for the Portland prospect superimposed on the Placeco aeromagnetic data.

5 cm

Denison Goldfield

A ground magnetic survey of the a small portion of the Denison Goldfield was conducted by Iain Clarke, a third year geology student from Anglia University in the UK using the University of Tasmania's equipment. A total magnetic intensity image of this survey is shown in Figure 10 and an image with a 5x5 averaging filter applied is shown in Figure 11. Images, stacked profiles and contour maps at a scale of 1:1000 have also been provided with this report.

Terrain in the Denison area ranges from gently undulating to moderately steep and vegetation from open woodland to thick, nearly impenetratable scrub. The poor access in these areas has, in part, contributed to the noisy appearance of the profiles and images due to a combination of variations in sensor position and locational uncertainties.

Interpretation of bedrock structures at Denison is affected by near-surface magnetic sources which produce irregular moderate amplitude, high frequency anomalies. While some of these anomalies may be due to cultural features, the majority are geologically sources. The cause of these anomalies is unknown and no surface mapping and magnetic susceptibility measurements have been conducted.

Despite the noisy appearance of the TMI image (Figure 10) a NNE (local grid) trending structure is apparent extending from 7500mE 4800mN to 7600mE 5050mN. The low-pass filtered image (Figure 11) slightly enhances this feature which is discordant to bedding and interpreted to be a fault or shear zone. There are other features in this image with a similar trend but these are poorly defined. In contrast to the Portland and Bluebell surveys, there are no clearly defined stratigraphic anomalies.

Additional ground magnetic surveying in the Denison area is required to confidently assess the distribution and geological significance of structural features.

Optimisation of Survey Parameters

The ground magnetic data discussed in the previous sections was all acquired with 10m line spacings and approximately 0.5m along line sampling interval. The dataset from the Bluebell prospect has been reprocessed to illustrate different acquisition parameters

The Bluebell located data was progressively sub-sampled and regridded to simulate data acquired on 20m and 40m spaced lines. The data was also upward continued and regridded to simulate different aeromagnetic acquisition parameters. In all cases, the subsampled data has been gridded with the usual grid cell size of 1/5 of the line spacing.

The reprocessed data is illustrated in Figures 12 to XX and the parameters for each figure are shown in Table 1.

The majority of the detailed stratigraphic and structural features apparent in the full resolution dataset (Figure 12) are still apparent in the image generated from 20m spaced lines (Figure 13). However, most of these features would not have been interpreted from a image generated from typical ground magnetic data (Figure 14).

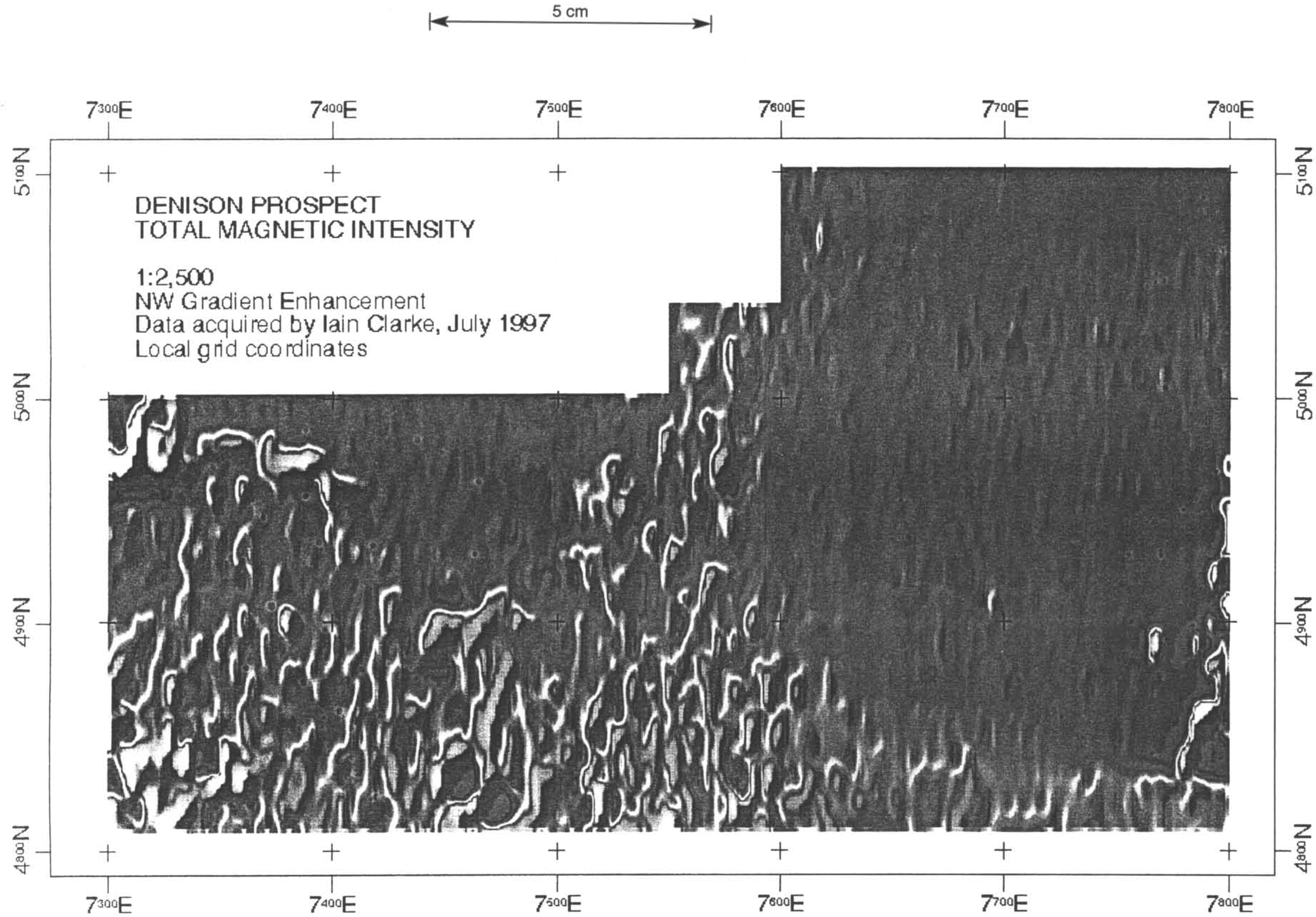

Figure 10

206026

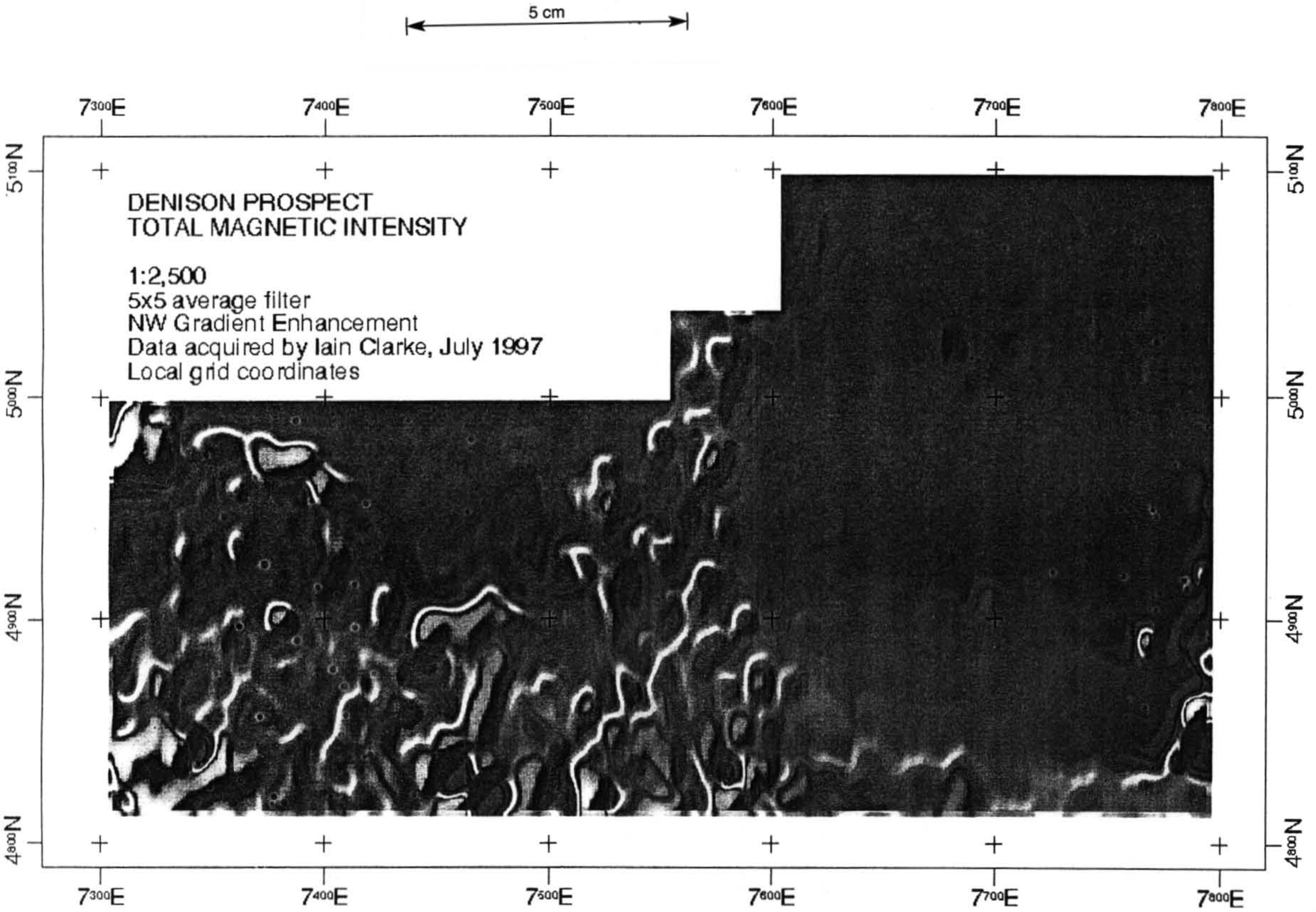

Figure 11

206027

	Line Spacing (m)	Sample Interval (m)	Height (m)	Grid Cell Size (m)	Comments
Figure 12	10	0.5	2	2	High resolution ground magnetics
Figure 13	20	0.5	4	4	Detailed ground magnetics
Figure 14	40	4	2	8	Typical ground magnetics
Figure 15	40	4	10	8	Best possible helicopter magnetics
Figure 16	40	4	30	8	Typical detailed helicopter magnetics
Figure 17	125	10	60	25	Placeco aeromagnetic data

Table 1. Acquisition and processing parameters for regridded magnetic data.

Figure 15 shows the expected image for the best possible helicopter aeromagnetic coverage (10m height) which would be practical in some parts of the Gladstone area but not elsewhere in NE Tasmania. Figure 16 shows an image which would be acquired by a typical detailed helicopter aeromagnetic survey. The simulated helicopter data and the Placeco aeromagnetics (Figure 17) all fail to identify the important cross-cutting structural features.

Conclusions

High resolution ground magnetic data acquired in NE Tasmania by third year students from the University of Tasmania has successfully defined both subtle stratigraphic and structural features in the Mathinna Group. Cross-cutting structures with a close spatial relationship to known gold mineralisation have been identified at all sites in addition to several features with no historical record of mineralisation.

At the Bluebell prospect the old workings lie close to a WNW trending structure which is marked by truncation of subtle magnetostratigraphic marker units. The Portland mine lies near the centre of a zone of irregular magnetisation, interpreted to result from alteration associated with NE trending cross-cutting structures. Ground magnetic data in the Denison Goldfield is adversely affected by a zone of near-surface magnetic anomalies but a NNE trending structure parallel to a zone of anomalous gold soil geochemistry is still apparent.

Future acquisition of ground magnetic data in NE Tasmania should be conducted with a maximum line spacing of 20m although the increased resolution provided by10m line spaced data would be welcome in many areas to help resolve both stratigraphic and structural details. The most cost-effective solution would probably be to conduct initial surveying with a 20m line spacing and to infill this data with 10m lines in areas of specific interest.

206029

5 cm

BLUE BELL PROSPECT
TOTAL MAGNETIC INTENSITY
1:5,000

East - west gradient enhancement
Grid: Australian Map Grid - Zone 55
Data acquired by KEA324 - University of Tasmania - July 1997

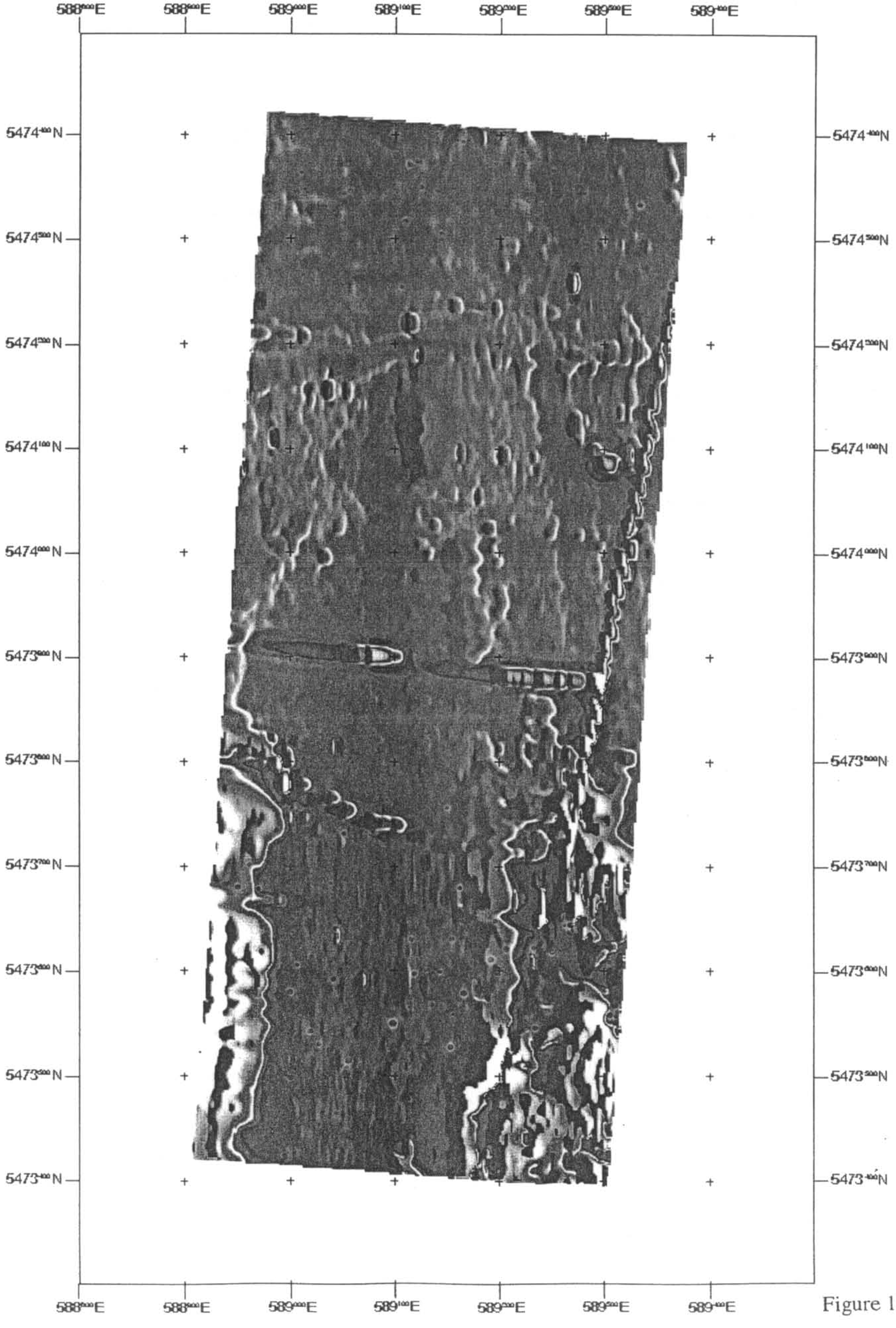

Figure 12

206030

5 cm

BLUE BELL PROSPECT
TOTAL MAGNETIC INTENSITY
1:5,000 - 20m Lines

East - west gradient enhancement
Grid: Australian Map Grid - Zone 55
Data acquired by KEA324 - University of Tasmania - July 1997

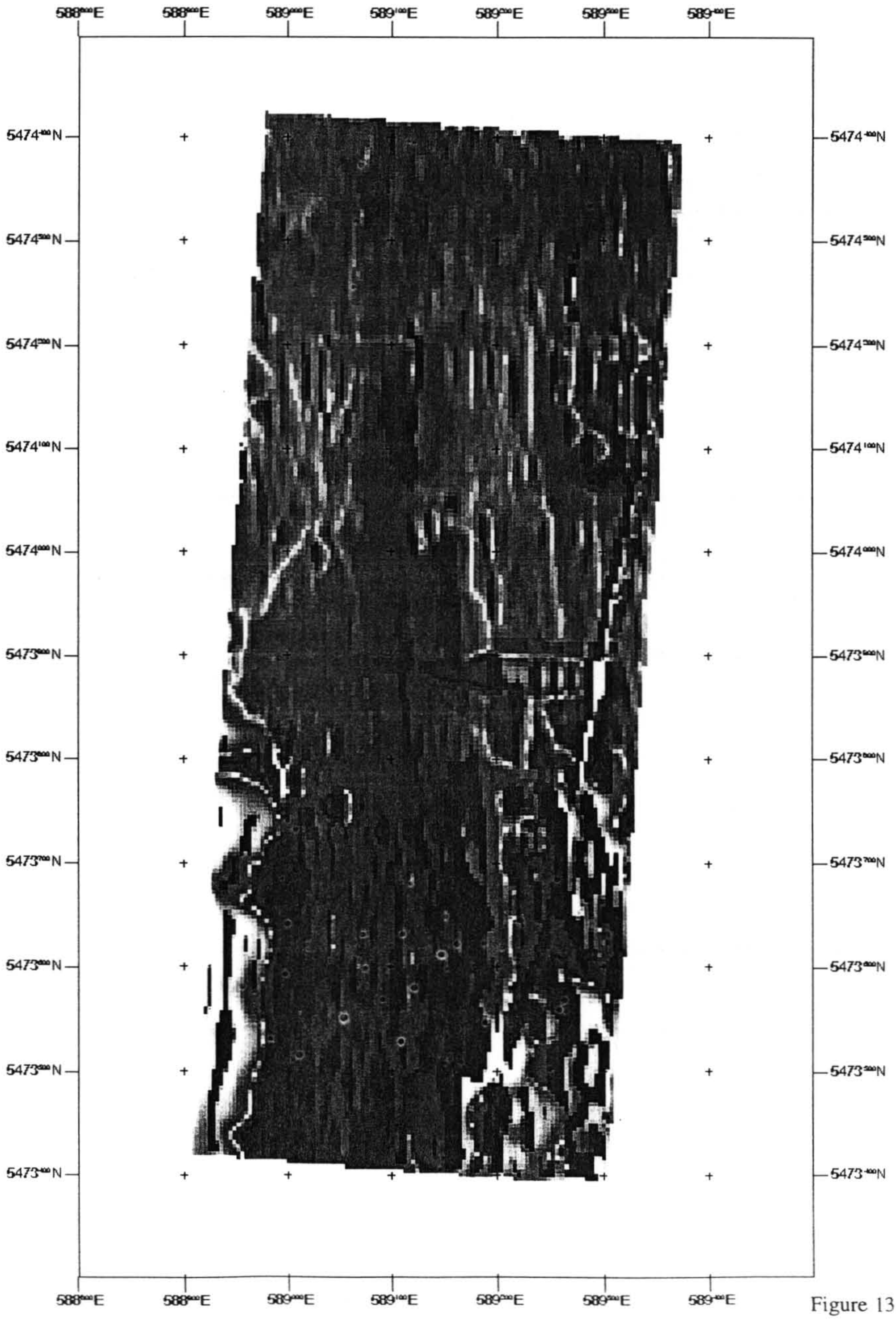

Figure 13

206031

5 cm

BLUE BELL PROSPECT
TOTAL MAGNETIC INTENSITY
1:5,000 - 40m Lines

East - west gradient enhancement
Grid: Australian Map Grid - Zone 55
Data acquired by KEA324 - University of Tasmania - July 1997

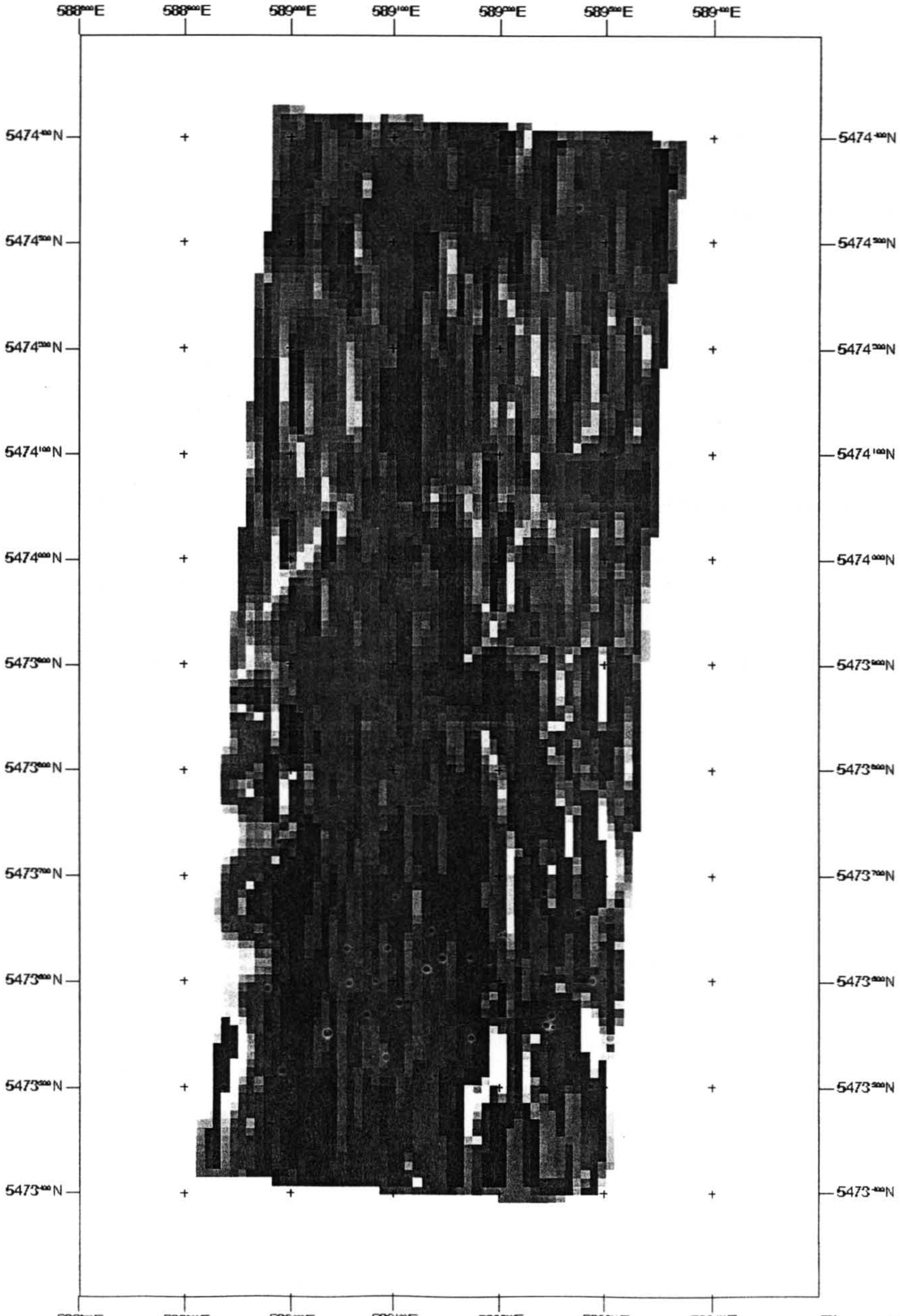

Figure 14

206032

5 cm

BLUE BELL PROSPECT
TOTAL MAGNETIC INTENSITY
1:5,000 - 40m Lines - up 10m

East - west gradient enhancement
Grid: Australian Map Grid - Zone 55
Data acquired by KEA324 - University of Tasmania - July 1997

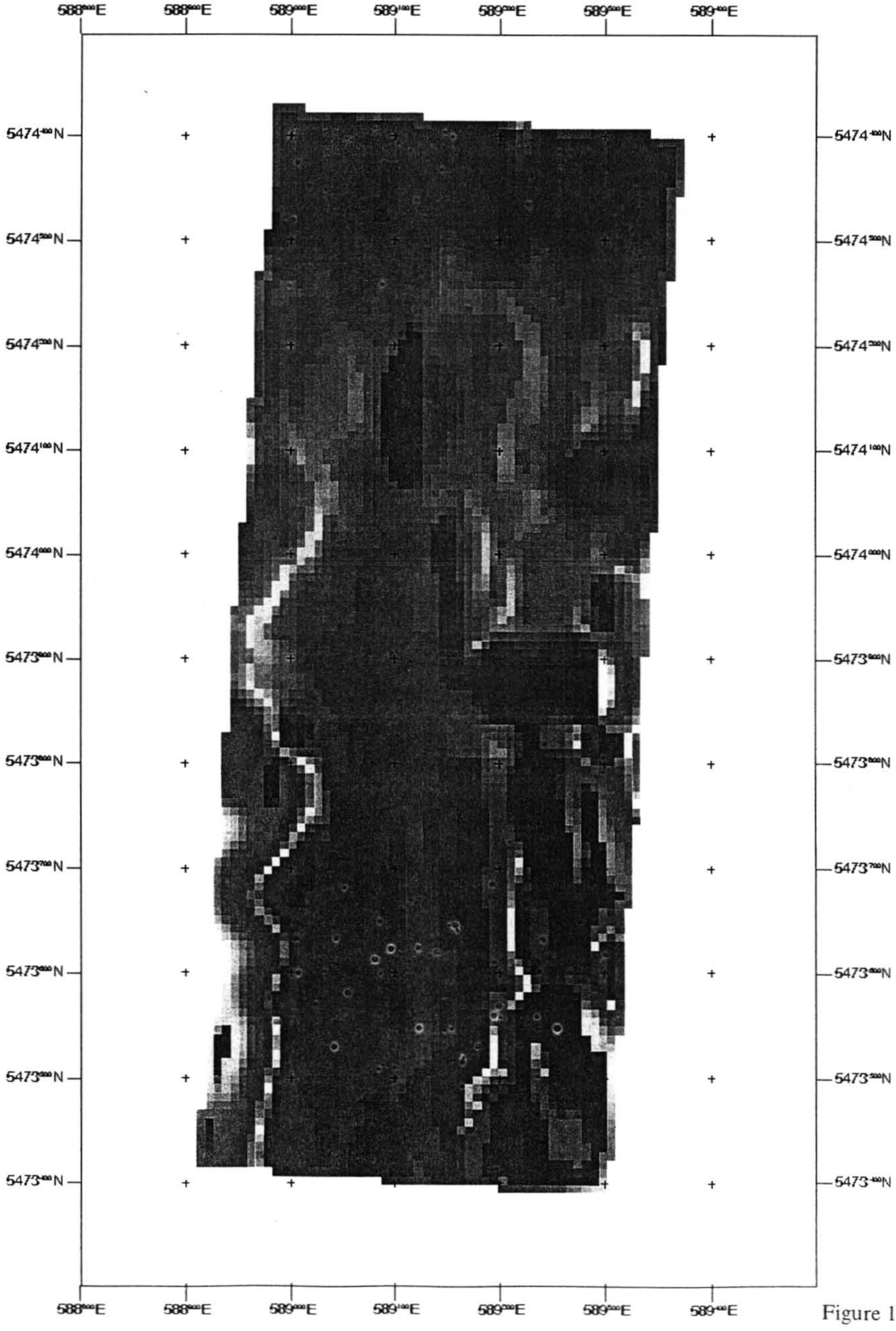

Figure 15

206033

5 cm

BLUE BELL PROSPECT
TOTAL MAGNETIC INTENSITY
1:5,000 - 40m Lines - up 30m

East - west gradient enhancement
Grid: Australian Map Grid - Zone 55
Data acquired by KEA324 - University of Tasmania - July 1997

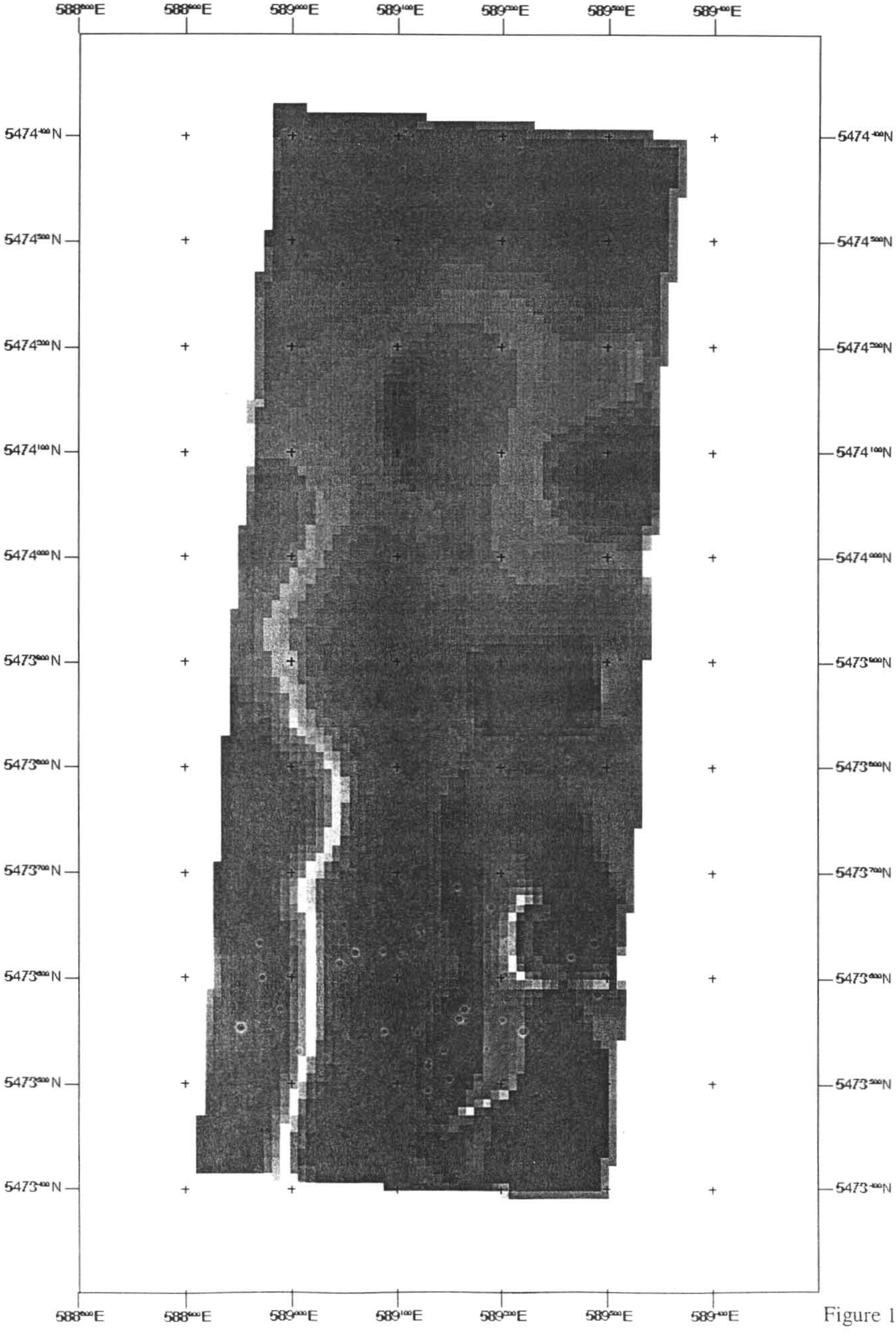

Figure 16

206034

BLUE BELL PROSPECT
TOTAL MAGNETIC INTENSITY
Placeco Aeromagnetic Data

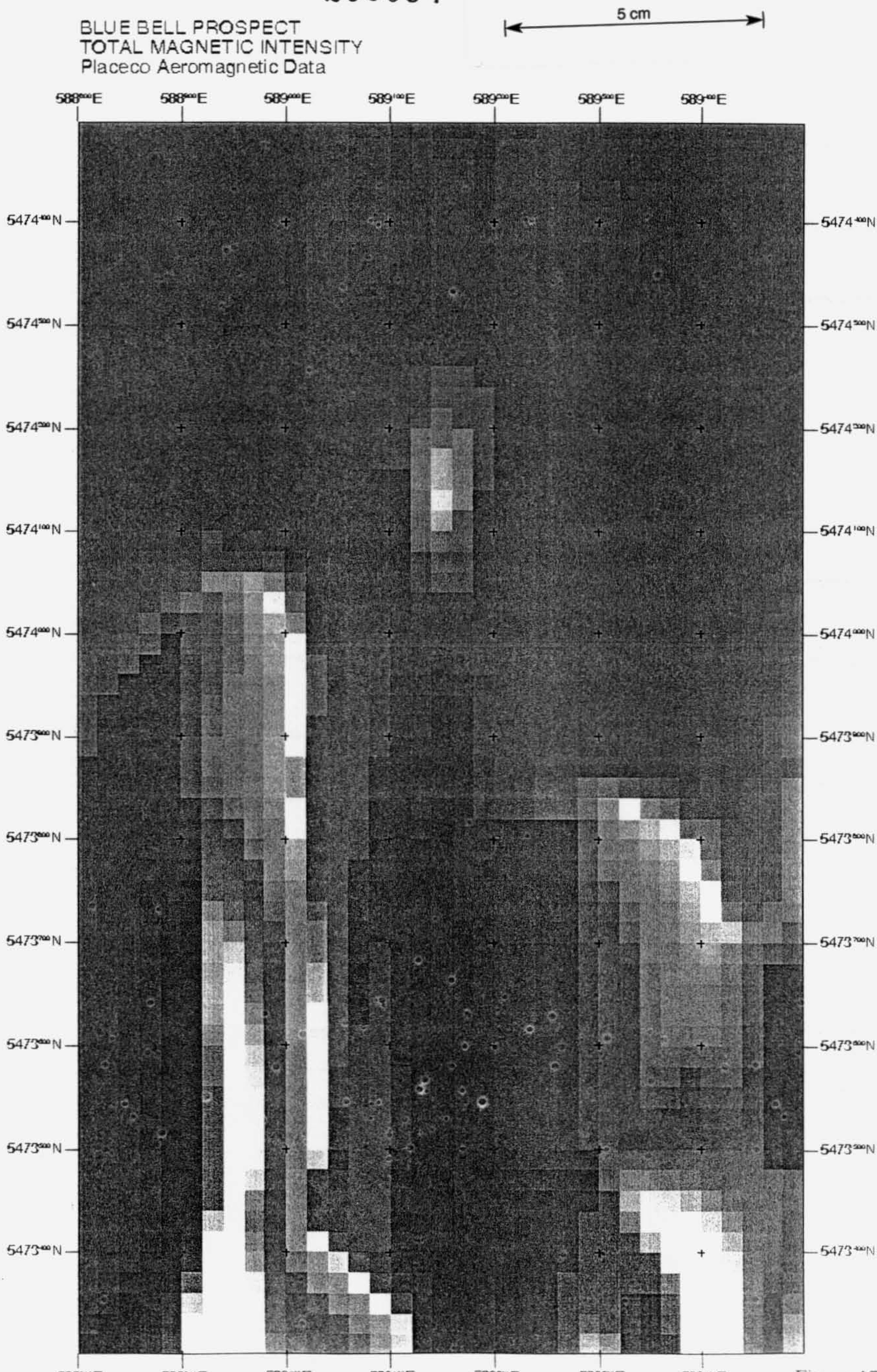

Figure 17

References

Leaman D.E. 1992. Mainly magnetics: Mathinna Beds and gold mineralisation in NE Tasmania. *Exploration Geophysics*. **23**. 185-190

Roach M.J. 1994. The regional geophysical setting of gold mineralisation in northeast Tasmania. Ph.D. Thesis, University of Tasmania. Unpublished.

98-4245B

206036

APPENDIX B

Interpretation of Airborne Geophysical and Gravity data – John Ashley, Southern Geoscience Consultants

206037

ANGLO AUSTRALIAN RESOURCES NL

Gladstone Project, EL 15/95, NE Tasmania
Interpretation of Airborne Geophysical
and Gravity Data
J.Ashley
April 1998

206038

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ILLUSTRATIONS

SUMMARY

Geophysical data (magnetic, radiometric and gravity) over EL 15/95 have been interpreted to assist in exploration for gold mineralisation.

The known mineralisation occurs in quartz reefs hosted by a magnetic sequence of Mathinna Group rocks and by granitoid.

The Mathinna Group rocks are interpreted to be steeply dipping and to be folded about north - south axes. Several strike faults and numerous 'secondary' faults are interpreted to disrupt the sequence.

Generalised target zones are interpreted over north - south trending anticlinal fold axes; specific targets are outlined at intersections of faults and 'magnetic' (brittle?) lithologies.

Additional targets are inferred alteration zones (magnetite destruction) and one inferred skarn zone.

1. INTRODUCTION

Airborne geophysical data (magnetic and radiometric) over EL 15/95 in northeast Tasmania (Figure 1) have been interpreted to outline target areas for gold mineralisation.

The geophysical data are from the Netgold database of NE Tasmania.. The data were acquired in June 1987 by Austirex Pty Ltd at height of 60 m on east - west flight lines spaced 125 m apart. Sample interval for the magnetic data was approximately 11 m and for the radiometric data was approximately 100 m.

The data were made available in digital form (located and gridded data) and have been processed by Southern Geoscience Consultants Pty Ltd. The aeromagnetic data are presented as a contour map of total magnetic intensity (TMI) at scale 1:25000 (Figure 5) and have been image processed; results of the latter are presented as hardcopies in an A4 booklet. Selected images were plotted at 1:25000 scale for use in the interpretation i.e.

TM2 (linear scaled) shaded with 50% east gradient (with Automatic Gain Control) plus TMI contours (included as Figure 6).
Gradient Combination Image (northeast + east + southeast) plus TMI contours.
TMI first vertical derivative plus TMI contours.
TMI second vertical derivative plus TMI contours.

The radiometric data are presented as A4 hardcopies of total count, uranium, thorium and potassium channels and as a Ternary image map. The latter is included as Figure 9 at scale 1:25000.

The Netgold gravity data for northeast Tasmania have been processed and a residual gravity image/contour map is included as Figure 8 at scale 1:25000. This was derived by subtracting regional model data (Mantle 91) from the Bouguer gravity data.

Geological information is from the Eddystone/Boobyalla 1:50000 geological maps. This was scanned and enlarged to 1:25000 scale.

Other available material was the report 'Detailed Ground Magnetic Surveys in the Gladstone and Denison Areas, NE Tasmania' by M.Roach, University of Tasmania. This report contained the results of the surveys over the Blue Bell and Portland prospects in the Gladstone tenement.

Interpretation of the data is presented at scale 1:25000 in Figure 9.

206042

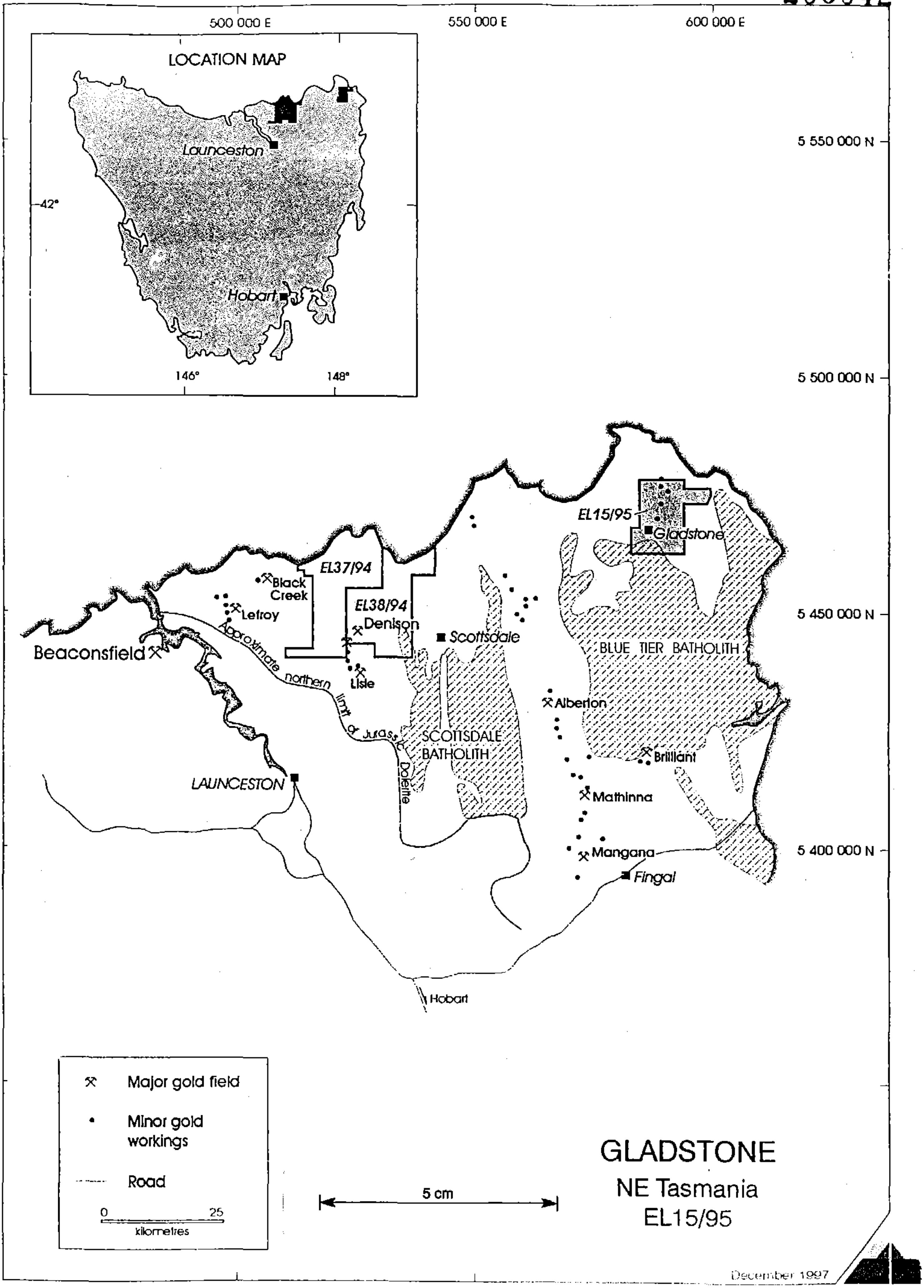


Figure 1.

2. DISCUSSION

The early Devonian - Ordovician/Silurian Mathinna Beds (turbilites) crop out in about 60% of the tenement. These rocks are intruded by Devonian granitoids in the south and southeast (the Blue Tier Batholith) and in the north and east (the Eddystone Batholith) and are overlain by Tertiary sediments and volcanics in the southeast and northeast and by Jurassic volcanics in the northwest.

Gold and tin mineralisation occur adjacent to the Blue Tier Batholith in the southwest; gold mineralisation occurs at Portland, Blue Bell and Big Musselroe in the central north part of the tenement. It is understood that this mineralisation is in quartz reefs within Mathinna sediments.

An image of the aeromagnetic data is presented in Figure 2 at scale 1:150000. This image (also included as Figure 6) is a combination of the total magnetic intensity (TMI) and the east gradient filtered data modified by automatic gain control (AGC). The TMI contributes most to the coloured relief (white = 'high', black = 'low') whilst the filtered data add detail.

The magnetic relief ('high' to 'low') ranges up to about 150nT. The 'white' anomalies on Figure 2 indicate amplitudes of >150 nT. Linear northerly trending anomalies are within the Mathinna sediments and, to the writers knowledge, have not been identified in outcrop or by drilling; they are tentatively ascribed to magnetite bearing sandstone units.

The irregular pattern of magnetic relief in the northwest is attributed to Tertiary and Jurassic volcanic rocks. There are some anomalous magnetic 'lows' in this area which indicate that the volcanics contain remanent magnetisation.

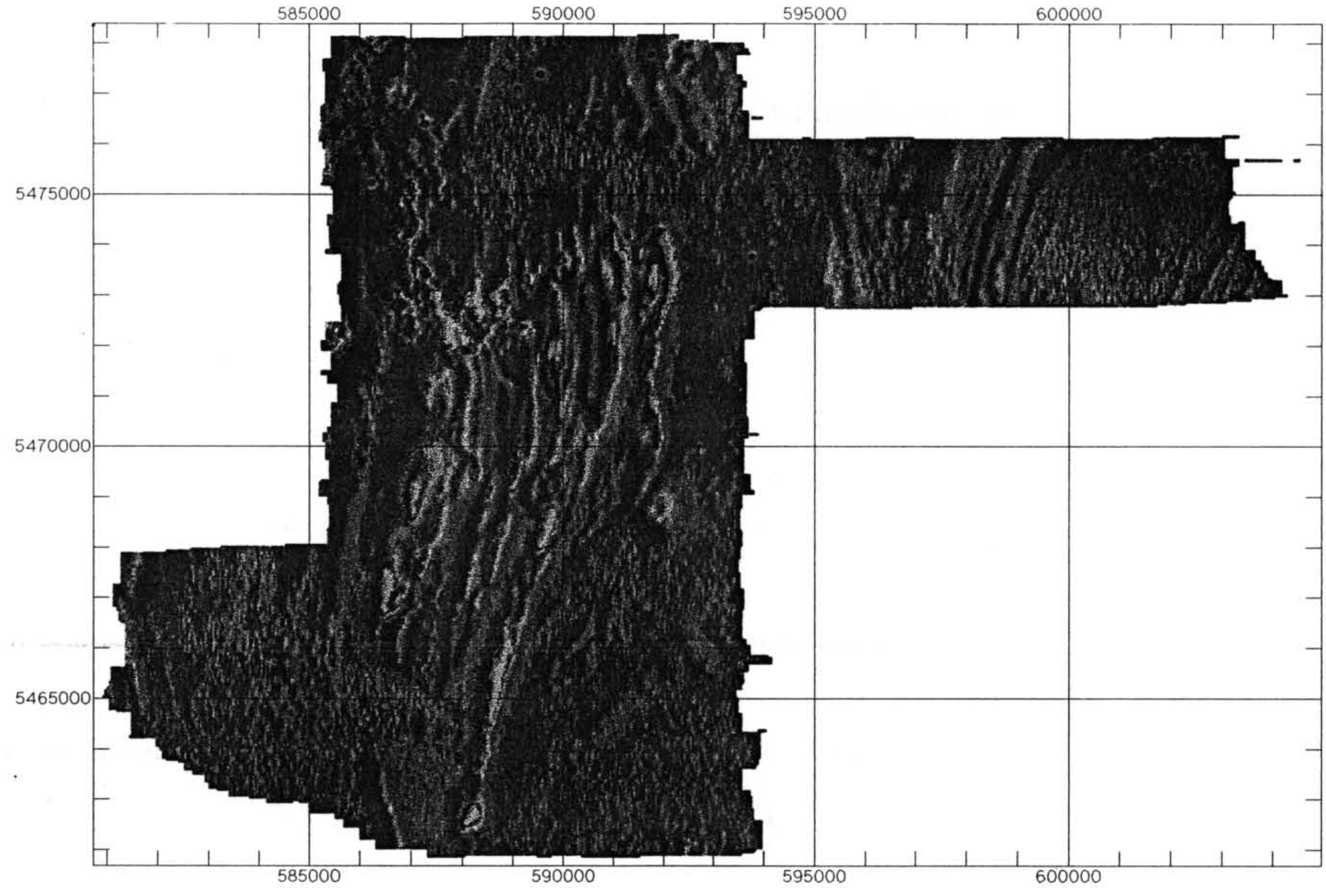
Linear anomalies within the northeastern part of the tenement are also of unknown origin but are assumed to be of similar origin to the central anomalies although the rocks contain less magnetite. Some of these north-northeast trending linear anomalies are attributed to dolerite dykes.

In the southwest and southeast the 'mottled' areas of low magnetic relief occur over granitoids and thin Tertiary sediment cover (over granitoid).

On the central north margin of the area (vicinity of 592000E) the zone of irregular magnetic relief is over part of a granitoid and probably indicates a distinct phase of intrusion.

The magnetic data have been modelled on twelve flight lines. The magnetic units within the Mathinna Beds have susceptibilities in the range ~0.0001 to 0.002 cgsu implying

206044



5 cm

HIGH

LOW

N

0 3000 6000

Scale 1 : 150000

MAP GRID ZONE 55

AGD 84 SPHEROID

GRID CELL SIZE : 20 Metres

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ANGLO-AUSTRALIAN RESOURCES NL

GLADSTONE AREA, TASMANIA

AIRBORNE GEOPHYSICAL SURVEY

TOTAL MAGNETIC INTENSITY IMAGE

(LIN) SHADED WITH 50% EAST AGC GRADIENT

Supervisor : J. Ashley	DATE : 23-02-1998

Fig: 2

equivalent volume magnetite content of ~0.03 to 0.7%. In hand samples it could be difficult to distinguish the 'magnetic' rocks from 'non-magnetic' rocks.

On the interpretation plan the rocks are categorised according to their modelled susceptibilities. This classification may contain some errors because widths (and hence susceptibilities) of magnetic rocks cannot always be accurately defined. Dips appear to be mostly steep; some fold axes are interpreted from dips and 'closures'.

Numerous faults are interpreted. Strike faults (F1 - F8, Figure 9) are positioned where magnetic trends are divergent or where magnetic rocks are terminated. 'Secondary' faults, mostly northeast and northwest, are positioned where magnetic rocks are offset. The offsets shown on the interpretation plan are probably 'real' but it should be noted that the survey navigation was not precise and several lines of data had to be removed, because of bad positioning, prior to processing.

The radiometric data are shown as an image map of the total count at scale 1:150000 in Figure 3 and as a ternary image/contour map at scale 1:25000 in Figure 7. Highest radiometric relief occurs in the north and south over outcropping granitoids. Moderate to high radiometric relief varies over the granitoid in the extreme east; granite is shown to the west of fault F8 but both radiometric and magnetic data indicate the granite margin is at F8.

The hornfelsed portions of the Mathinna Beds are generally radiometrically anomalous; anomalous, non-hornfelsed, Mathinna rocks are annotated on Figure 9 (R1 - R6).

In the northern half of the tenement there are several near east - west radiometric trends; these features are parallel to the drainage pattern and presumably reflect a fracture pattern which has no obvious effect on the magnetic Mathinna Beds. The flood plain of the Musselroe River is distinctly, radiometrically, anomalous.

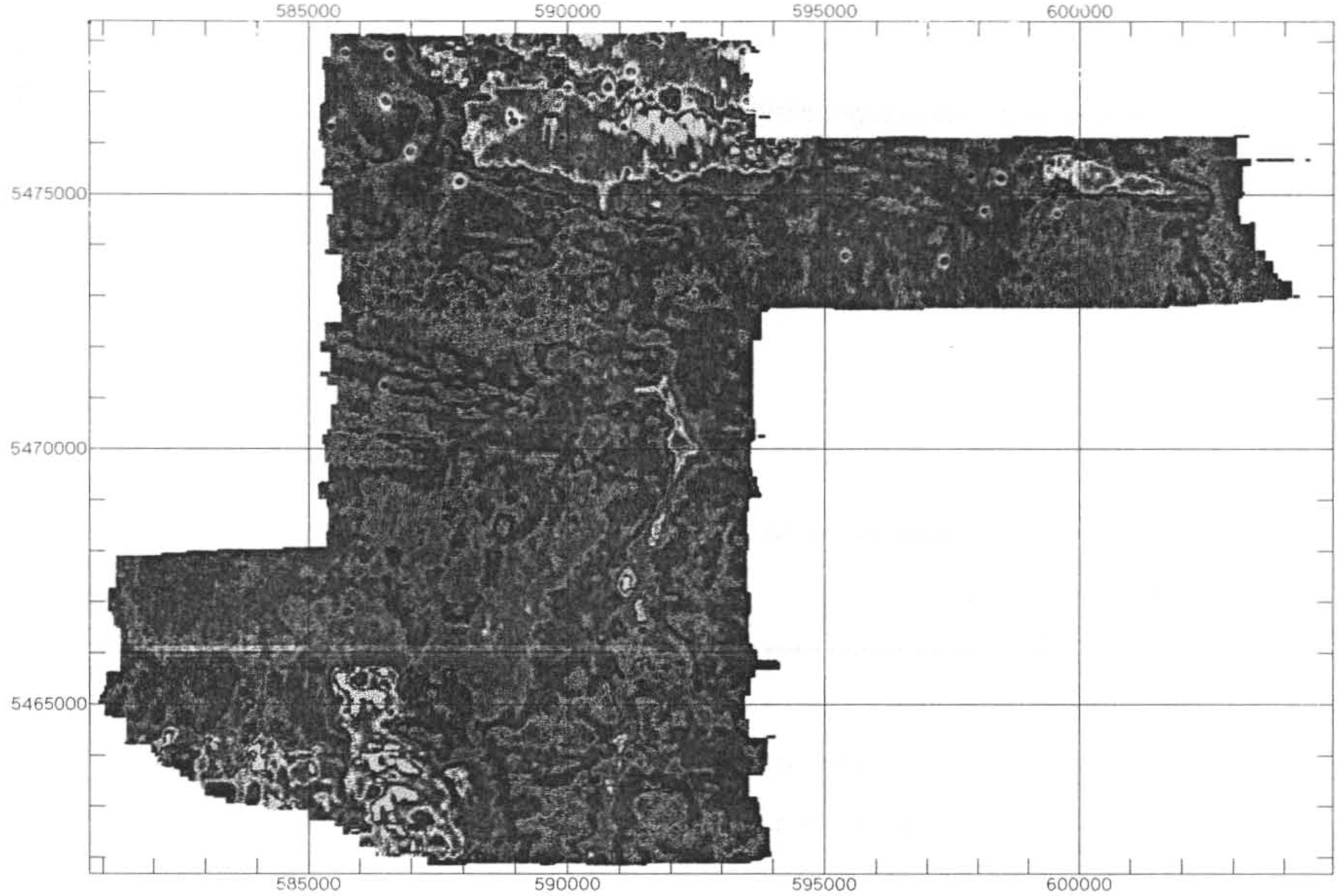
The residual gravity data are shown as an image map at scale 1:150000 in Figure 4 and as an image/contour map at scale 1:25000 in Figure 8.

The total residual gravity relief ('high' to 'low') is ~13 mgals. The areas of low relief occur over the granitoids. In the east there is a strong north - south gravity gradient, more or less coincident with F8, which suggests that the latter is a major fault structure.

In the northwest a gravity 'high' extends to the northwest; the axis of the 'high' is coincident with the northwest fault F9 (Figure 9).

The overall trend of the central gravity 'high' is east - west but 'secondary high' axes trend north - south. These correlate with inferred synclinal fold axes.

206040



5 cm

HIGH

LOW

N

0 3000 6000

Scale 1 : 150000

MAP GRID ZONE 55
AGD 84 SPHEROID
GRID CELL SIZE : 20 Metres

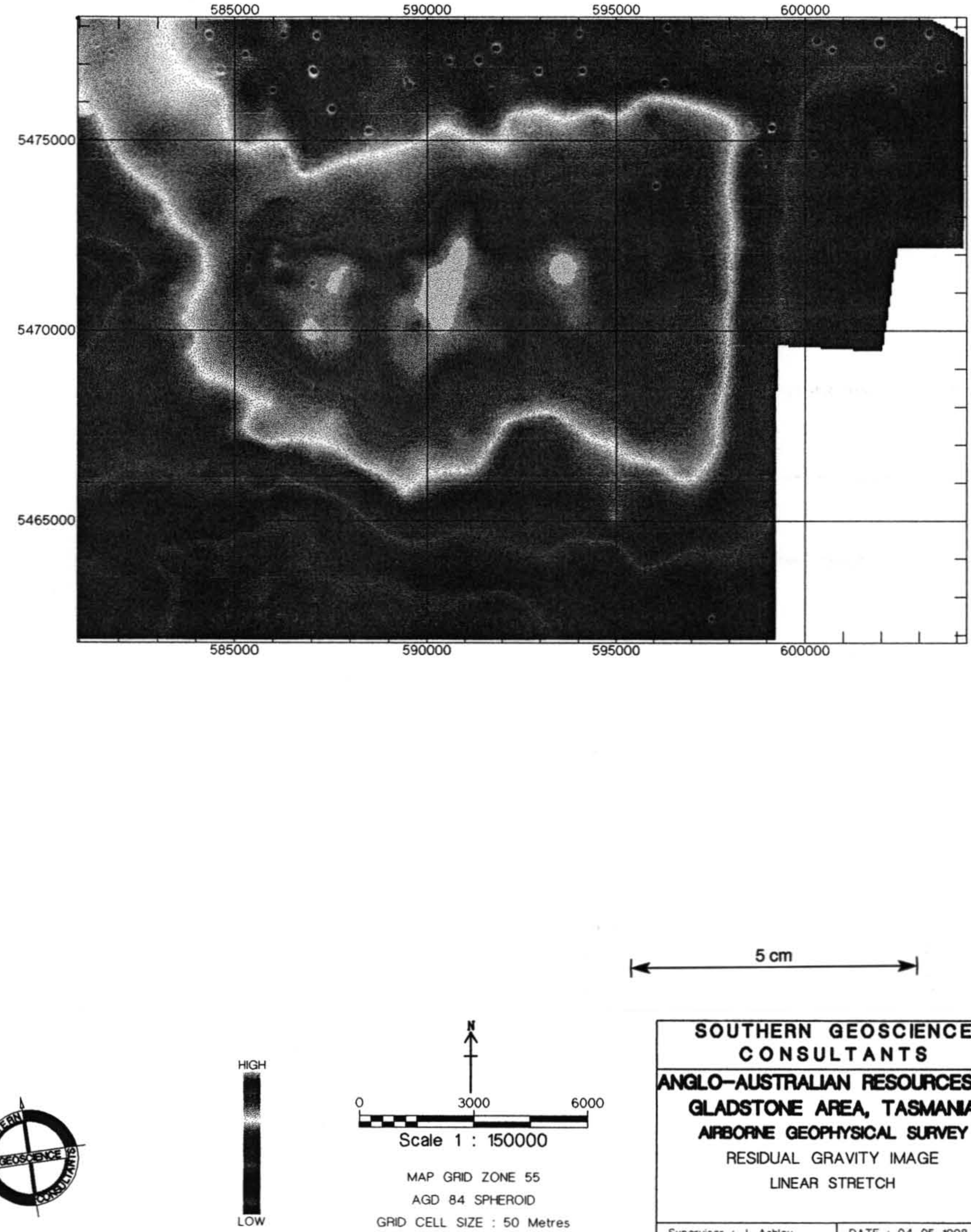
SOUTHERN GEOSCIENCE CONSULTANTS

ANGLO-AUSTRALIAN RESOURCES NL
GLADSTONE AREA, TASMANIA
AIRBORNE GEOPHYSICAL SURVEY
TOTAL COUNT RADIOMETRIC IMAGE
LINEAR STRETCH

Supervisor : J. Ashley	DATE : 23-02-1998

Fig: 3

206047



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ANGLO-AUSTRALIAN RESOURCES NL

GLADSTONE AREA, TASMANIA

AIRBORNE GEOPHYSICAL SURVEY

RESIDUAL GRAVITY IMAGE

LINEAR STRETCH

Supervisor : J. Ashley | DATE : 04-05-1998

Fig: 4

3. TARGET AREAS

In the airborne geophysical and gravity data there are no distinctive signatures obviously related to the known gold mineralisation.

The detailed ground magnetic data provide useful additional information. At Blue Bell the mineralisation is along a very weakly magnetic zone (≥ 20 m wide) near its intersection with a west-northwest dyke (probable dextral fault). From the 'regional' data a north-south fault (F2) is inferred through or adjacent to the mineralisation. Dilation associated with the fault structures, allowing fluid flow, and brittle fracturing of 'magnetic' Mathinna rocks may be factors locating quartz and gold.

At Portland the detailed magnetic data indicate that the mineralisation is within an alteration zone (probable magnetite destruction) along one of the 'magnetic Mathinna' horizons. There is vague evidence of northeast faulting through the alteration zone; the mineralisation is close to the 'regional' fault F2.

From the gravity and regional magnetic data it is also inferred that the Blue Bell and Portland gold mineralisation occcurs over or adjacent to an anticlinal fold axis.

No detailed geophysical or geological data are available over the Big Musselroe Reef.

In the vicinity of the Royal Tasman/Royal Standard reefs there are north-northwest linear magnetic zones (ie parallel to the reefs) which presumably indicate fractures containing magnetite (or pyrrhotite).

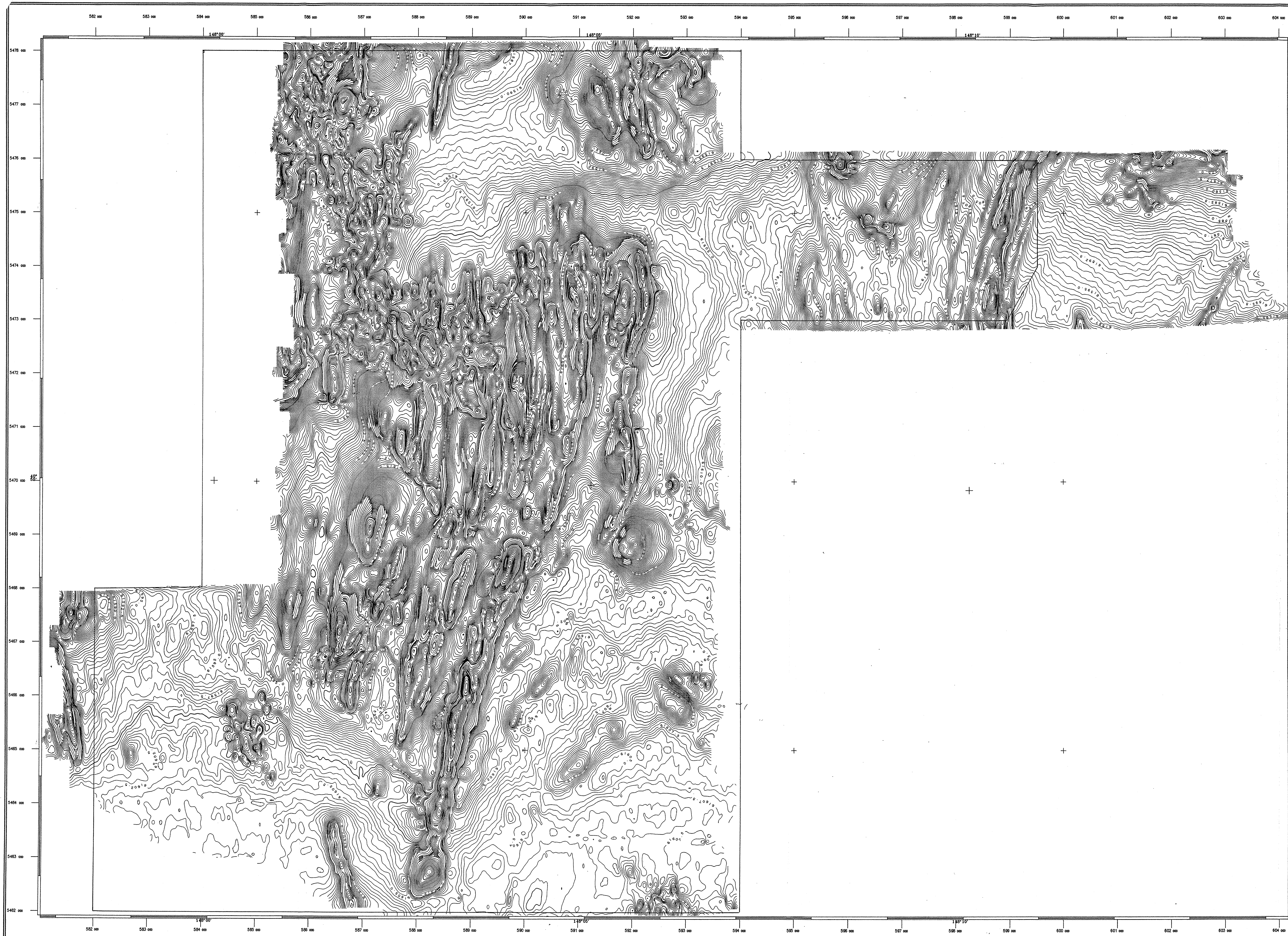
From the above considerations it is suggested that a zone along and adjacent to the structure F2 is a zone of exploration interest. Specific targets are intersections of F2 and the northeast faults F11 - F14 and the intersection of F11 - F14 with magnetic lithologies adjacent to F2.

A northeast sinistral fault zone (F15) is interpreted in the vicinity of the Big Musselroe Reef but is not obviously related to the reef mineralisation. However it is suggested that the zones where this structure crosses magnetic lithologies be prospected - if these are of interest then similar zones to the south would merit investigation.

In the northeast the structural setting of the F5/F6 zone has similarities with the Big Bell/Portland scenario and is recommended for exploration. An alteration zone (A1) is inferred adjacent to F8, where the magnetic response is locally subdued, and is recommended as a target zone.

Zones A2 and A3 to the southeast and southwest of Portland are over zones where the magnetic lithologies appear to be disrupted. They may indicate discrete small intrusives or alteration zones (magnetite destruction) and merit examination.

The isolated magnetic feature M1 (3 kms east-southeast of Portland) has been modelled as an east dipping 'block' of folded (?) magnetic sediments on the margin of, and underlain by, granitoid. However it is suggested it be prospected for indications of skarn mineralisation.



SURVEY SPECIFICATIONS

Survey Date	:	June 1987
Sample Interval	:	approx. 11 metres
Flight Line Spacing	:	approx. 125 metres
Flight Line Direction	:	90-270 degrees
Tie Line Spacing	:	approx. 1 km
Mean Terrain Clearance	:	60 metres

PROCESSING DETAILS

Diurnal magnetic variations have been applied.

Processing : Southern Geoscience
Composition : M J M
Supervision : J. Ashley

PLOT SPECIFICATIONS

First Level Contours	:	0.5 nT
Second Level Contours	:	2.5 nT
Third Level Contours	:	10 nT
Fourth Level Contours	:	50 nT

Grid Cell Size : 20 mE x 20 mN

98-4245

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GLADSTONE - ANGLO AUST RES.
ANON

N

500 0 500 1 000 1 500

SCALE 1: 25000

AUSTRALIAN MAP GRID ZONE 55
AGD 84 SPHEROID
SOUTHERN HEMISPHERE

SOUTHERN GEOSCIENCE CONSULTANTS PTY. LTD.
A. C. N. 067 552 461

ANGLO-AUSTRALIAN RESOURCES NL

GLADSTONE AREA, TASMANIA

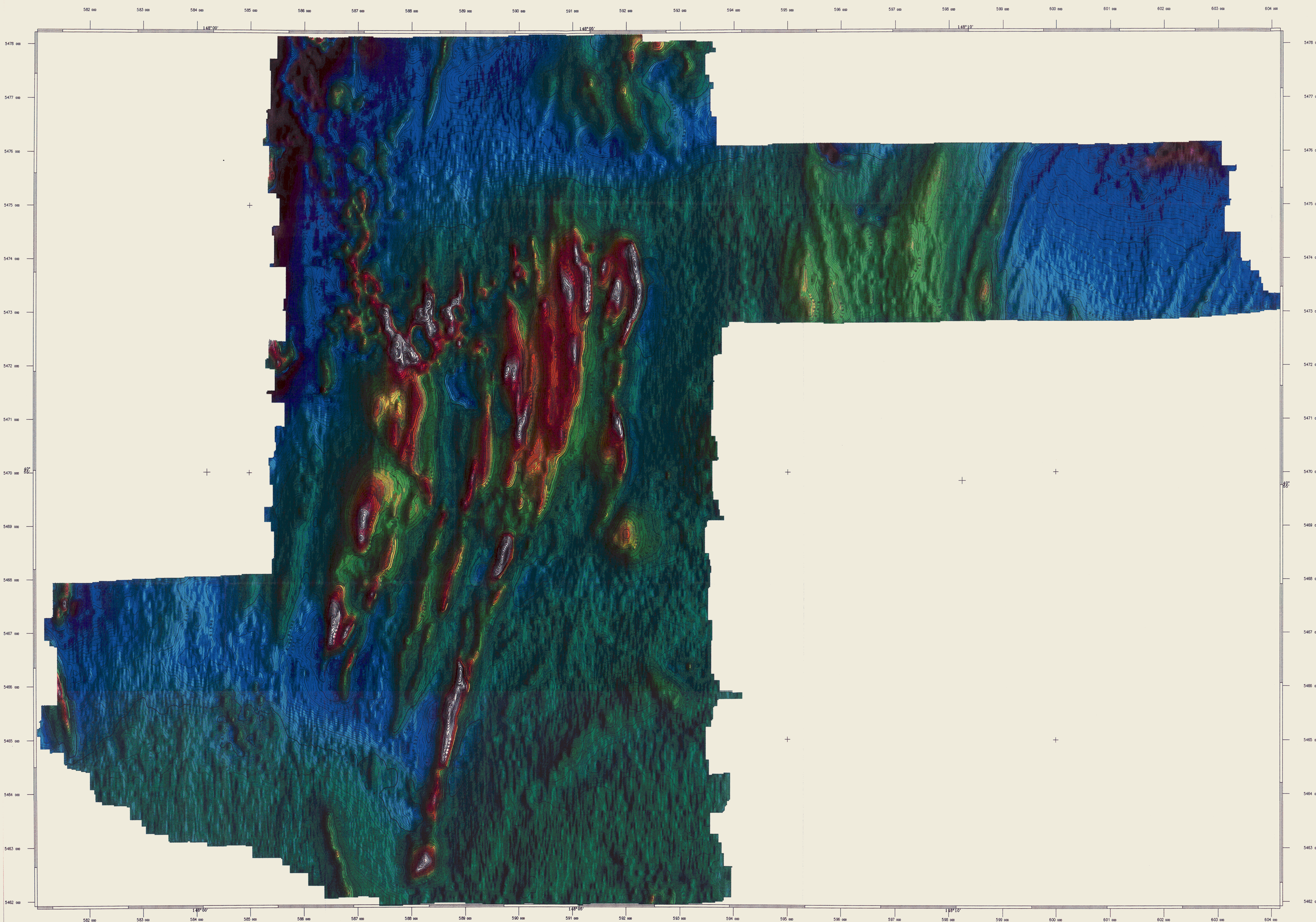
AIRBORNE GEOPHYSICAL SURVEY

TOTAL MAGNETIC INTENSITY CONTOURS

SCALE: 1: 25, 000	J. ASHLEY
DATE: 23-02-1998	FIGURE: 5

5 cm

206050



SURVEY SPECIFICATIONS

Survey Date	:	June 1987
Sample Interval	:	approx. 11 metres
Flight Line Spacing	:	approx. 125 metres
Flight Line Direction	:	90-270 degrees
Tie Line Spacing	:	approx. 1 km
Mean Terrain Clearance	:	60 metres

PLOT SPECIFICATIONS

First Level Contours	:	0.5 nT
Second Level Contours	:	2.5 nT
Third Level Contours	:	10 nT
Fourth Level Contours	:	50 nT

Grid Cell Size : 20 mE x 20 mN

PROCESSING DETAILS

Diurnal magnetic variations have been applied.

Processing : Southern Geoscience
Composition : M. J. M.
Supervision : J. Ashley

98-4245

ANNUAL REPORT-EL 15/95
GLADSTONE - ANGLO AUST RES.
ANON

N

500 0 500 1 000 1 500

SCALE 1: 25000

AUSTRALIAN MAP GRID ZONE 55
AGD 84 SPHEROID
SOUTHERN HEMISPHERE

206051

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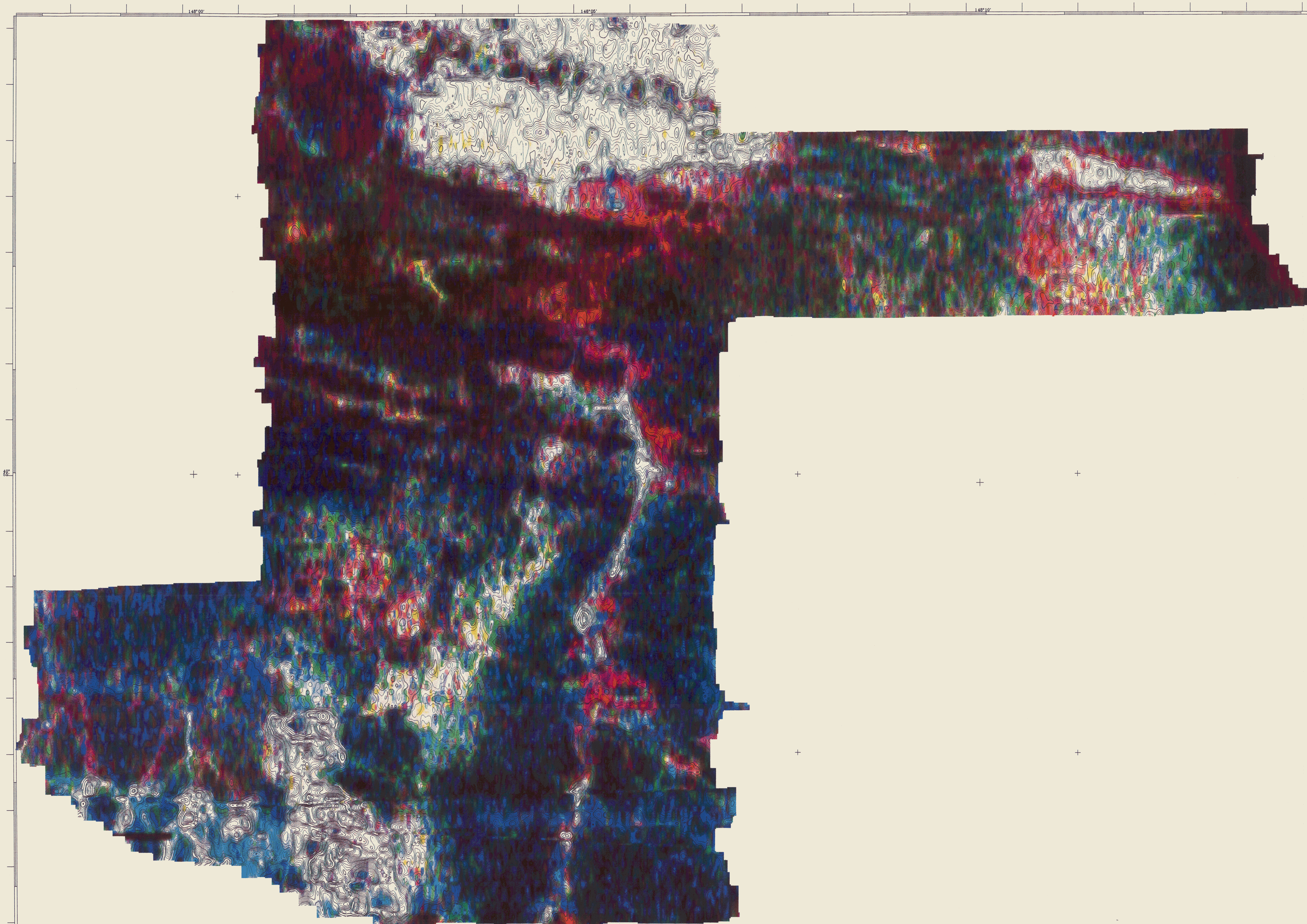
ANGLO-AUSTRALIAN RESOURCES NL
GLADSTONE AREA, TASMANIA
AIRBORNE GEOPHYSICAL SURVEY
TOTAL MAGNETIC INTENSITY IMAGE (LIN)
SHADED WITH 50% EAST AGC GRADIENT
TOTAL MAGNETIC INTENSITY CONTOURS

SCALE: 1: 25, 000	J. ASHLEY
DATE: 23-02-1998	FIGURE: 6

5 cm



SURVEY SPECIFICATIONS

Survey Date	: June 1987
Sample Interval	: approx. 100 metres
Flight Line Spacing	: approx. 125 metres
Flight Line Direction	: 90-270 degrees
Tie Line Spacing	: approx. 1 km
Mean Terrain Clearance	: 60 metres

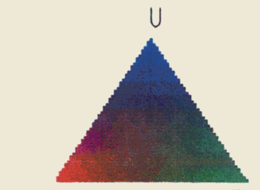
PROCESSING DETAILS

Processing	: Southern Geoscience
Composition	: M. J. M
Supervision	: J. Ashley

PLOT SPECIFICATIONS

First Level Contours	: 50 cps
Second Level Contours	: 250 cps
Third Level Contours	: 1000 cps

Grid Cell Size : 20 mE x 20 mN



N

500 0 500 1 000 1 500

SCALE 1: 25000

AUSTRALIAN MAP GRID ZONE 55
AGD 84 SPHEROID
SOUTHERN HEMISPHERE

5 cm

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GLADSTONE AREA, TASMANIA
AIRBORNE GEOPHYSICAL SURVEY
TERNARY RADIOMETRIC IMAGE
BLUE=U, GREEN=TH, RED=K
TOTAL COUNT CONTOURS

SCALE: 1: 25, 000	J. ASHLEY
DATE: 23-02-1998	FIGURE: 7

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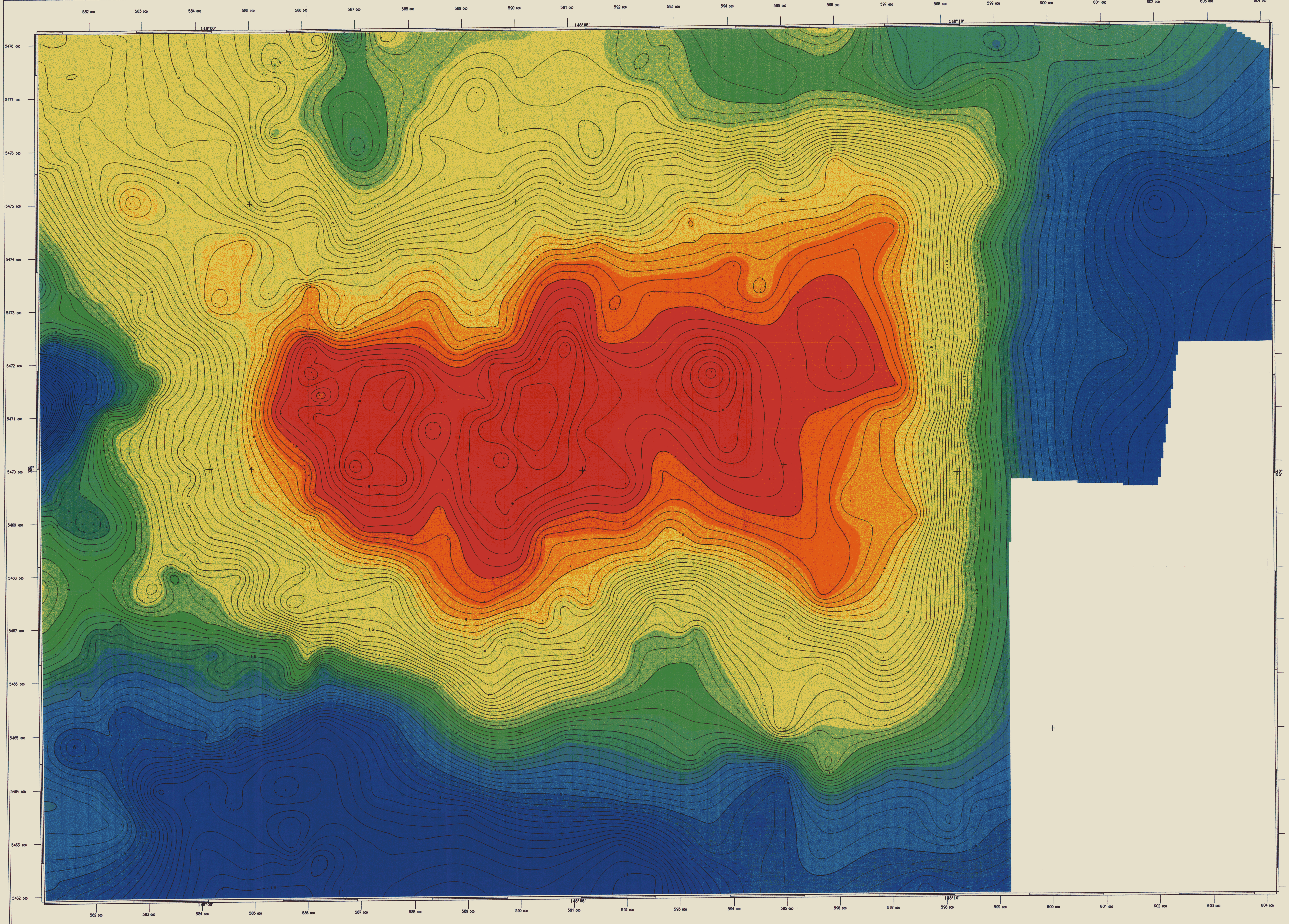
ANON



SURVEY SPECIFICATIONS

All gravity data in the NETGOLD package have been fully terrain corrected, using a density of 2.67 t/m3 and a radius of 21 km, and Bouguer corrected with a Bouguer density of 2.67 t/m3 using the 1930 gravity formula (Isogal 65).

Residual gravity produced using the MANTLE91 model.

PROCESSING DETAILS

PROCESSING DETAILS

Processing : Southern Geoscience
Composition : B R J.
Supervision : J. Ashley

PLOT SPECIFICATIONS

First Level Contours : 0.2 mGal
Second Level Contours : 1.0 mGal
Third Level Contours : 5.0 mGal

Grid Cell Size : 50 mE x 50 mN

Kriging, 50 points, 15 km search radius

-6.0000
-6.5000
-7.0000
-7.5000
-8.0000
-8.5000
-9.0000
-9.5000
-10.0000
-10.5000
-11.0000
-11.5000
-12.0000
-12.5000
-13.0000
-13.5000
-14.0000
-14.5000
-15.0000
-15.5000
-16.0000
-16.5000
-17.0000

98-4245

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ANON

N

500 0 500 1 000 1 500

SCALE 1: 25000

AUSTRALIAN MAP GRID ZONE 55
AGD 84 SPHEROID
SOUTHERN HEMISPHERE

5 cm

206053

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ANGLO-AUSTRALIAN RESOURCES NL

GLADSTONE AREA, TASMANIA

GRAVITY SURVEY

RESIDUAL GRAVITY CONTOURS

SCALE 1: 25,000	J. ASHLEY
DATE 5-04-1998	FIGURE 8

98-4245

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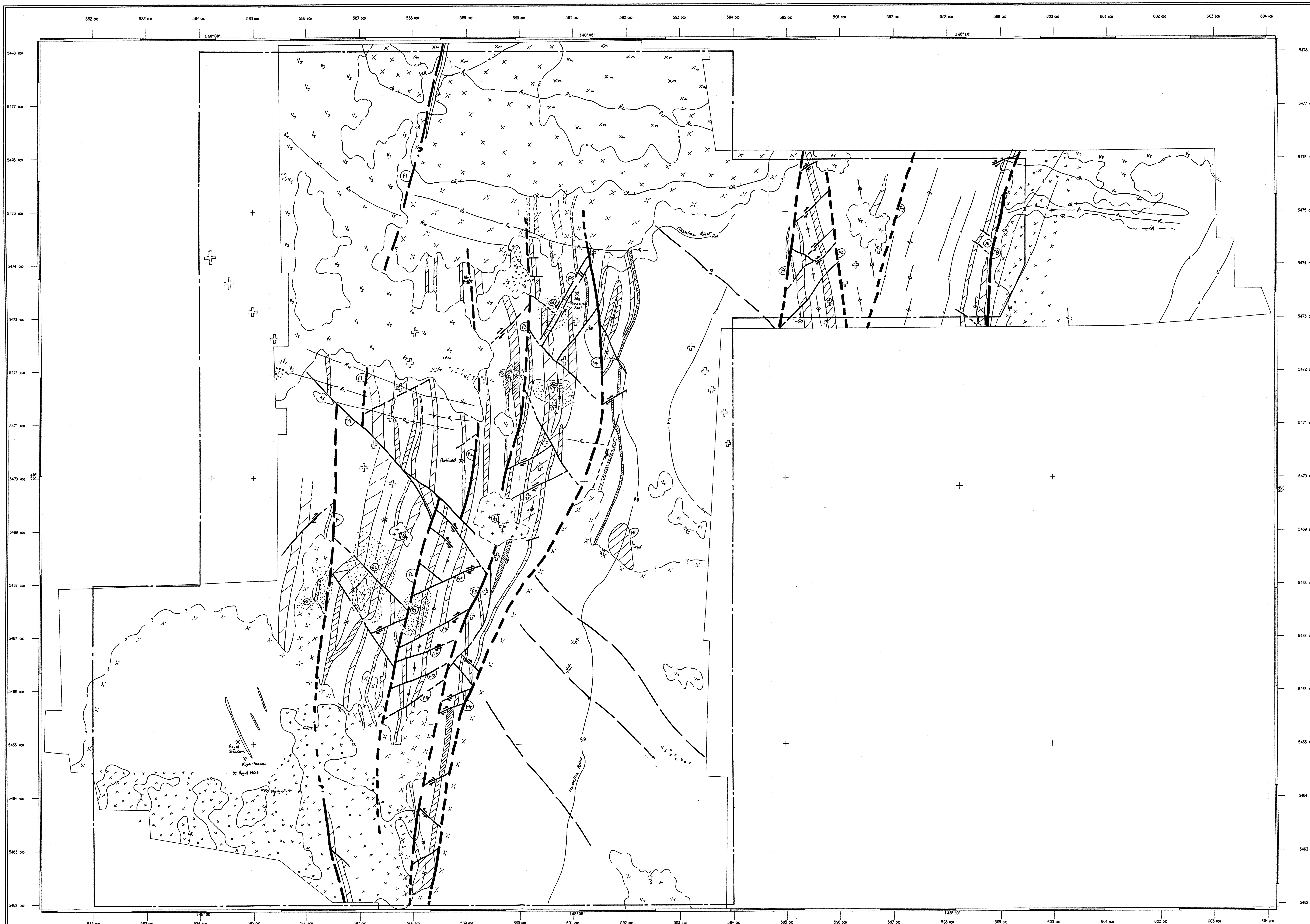
ANON



LEGEND

- Granite outcrop
- Inferred granite ('non-magnetic')
- " " ('magnetic')
- " " at shallow depth
- Volcanic outcrop
- Inferred Jurassic volcanics
- " Tertiary "
- 'Magnetic' Mathinna rocks (susc. >0.0008 cgsu)
- " " " (" 0.0003 - 0.0008)
- " " " (" <0.0003)
- Inferred dyke rocks
- Undifferentiated magnetic rocks
- Interpreted dip
- " fold axes
- 'Magnetic contact' (relatively more magnetic on hatched side)
- Interpreted strike faults
- " 'secondary' faults
- Radiometric anomalies of possible exploration interest
- 'Radiometric contact'
- Axis of radiometric 'low'
- " " " 'high'
- Axis of gravity 'high'
- Historic gold mine

500 0 500 1000 1500

SCALE 1: 25000

AUSTRALIAN MAP GRID ZONE 55
AGD 84 SPHEROID
SOUTHERN HEMISPHERE

5 cm

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GLADSTONE AREA, TASMANIA

AIRBORNE GEOPHYSICAL SURVEY

INTERPRETATION PLAN

SCALE: 1: 25, 000	J. ASHLEY
DATE: 23-02-1998	FIGURE: 9

206054