PASMINCO EXPLORATION

YOLANDE RIVER EL 25/91

ANNUAL REPORT
JULY 1994 – JUNE 1995

FINAL REPORT
NOVEMBER 1991 – AUGUST 1995

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SUBMITTED TO: Regional Exploration Manager – Tasmania

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– Melbourne
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– WA
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SUBMITTED BY:

ACCEPTED BY:

BURNIE
July
1995

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SUMMARY

Exploration Licence EL 25/91 Yolande River covering an area of 66square kms was granted to Pasminco Australia Limited on 30 November 1991. An exploration programme has been conducted since that time, to locate economically viable volcanogenic massive sulphide mineralization.

The work has involved a data review of all previous relevant exploration, compilation of a base map with access, rivers and creeks, existing geochemistry and mineral occurrences, minor reconnaissance mapping and sampling, and a helicopter-borne magnetic and radiometric survey.

None of the results of these investigations are sufficiently encouraging to warrant further exploration at this time and consequently the licence will not be renewed beyond the current term which will expire on 20 August 1995.

Total exploration costs for the 13 month period extending to July 1995 was $20 283.

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1 INTRODUCTION

This Final Report for EL 25/91, Yolande River, summarizes all the exploration activity undertaken since the grant of the licence on 30 November 1991. Only minor fieldwork was carried out during the last 12 months, this is included herein.

Notice of the Company's intention not to renew the licence was submitted to the Department of Industry Safety and Mines on 17 July 1995.

EL 25/91 covers an area of 66km^2 extending from immediately north of Queenstown, northwards to the southern boundary of the Yolande EL 11/85 (See Fig.1) and comprises mostly Dundas Group correlates, with Devonian to Silurian sediments to the south, and minor felsic volcanics of the Central Volcanic Sequence to the north-east.

Access to the Yolande River Licence is by the Zeehan Highway. Much of the area is relatively inaccessible due to steep and rugged topography covered by temperate rain forest.

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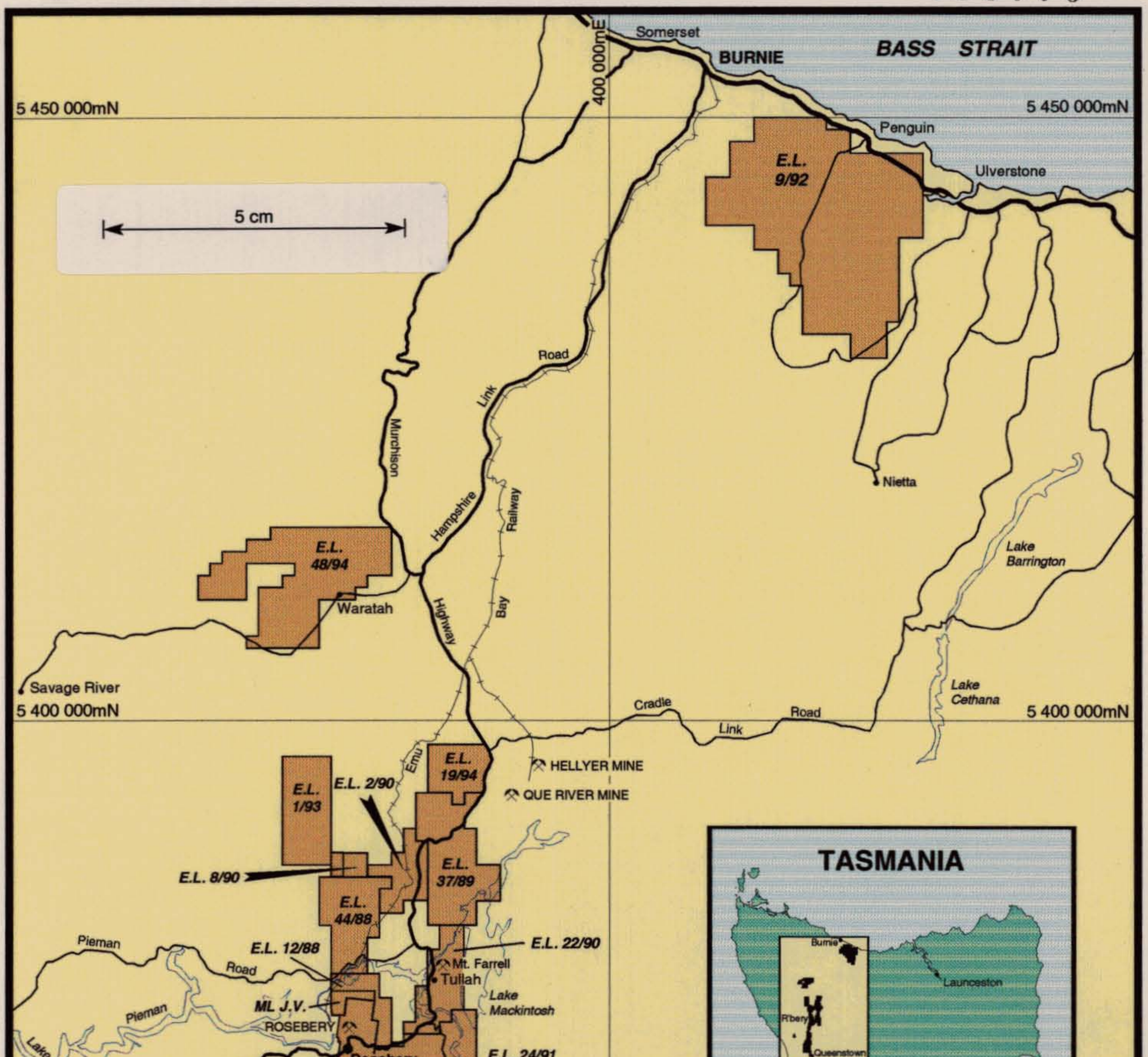


BASS STRAIT
Somerset
BURNIE
Penguin
Ulverstone
5 450 000mN
5 450 000mN
400 000mE
5 cm
E.L. 9/92
Road
Link
Murchison
Hampshire
Railway
Nietta
E.L. 48/94
Waratah
Highway
Bay
Lake Barrington
Savage River
5 400 000mN
5 400 000mN
Lake Cethana
Cradle
Link
Road
Emu
E.L. 19/94
HELLYER MINE
QUE RIVER MINE
E.L. 1/93
E.L. 2/90
E.L. 8/90
E.L. 37/89
E.L. 44/88
TASMANIA
Burnie
Launceston
R'bery
Queenstown
HOBART
Pieman
Road
E.L. 12/88
E.L. 22/90
Mt. Farrell
Tullah
Pieman
Lake
ML J.V.
ROSEBERY
Lake Mackintosh
Rosebery
E.L. 24/91
RENISON MINE
ROSEBERY ML
HERCULES
ML J.V.
Lake Murchison
Road
Anthony
Zeehan
E.L. 11/85
R.L. 8809
5 350 000mN
5 350 000mN
400 000mE
E.L. 25/91
MT. LYELL
Queenstown
E.L. 11/85
Lake Burbury
SOUTHERN OCEAN
Strahan
Macquarie Harbour
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : G.M.B.
DATE : June 1995
DRAWN : G.M.B.
REVISIONS. :
FILE : YOLRVLOC
DRAWING No.
E.L. 25/91 - YOLANDE RIVER
LOCATION MAP
SCALE 1:500,000
0 5 10 km
FIG. No. 1

2 TENURE

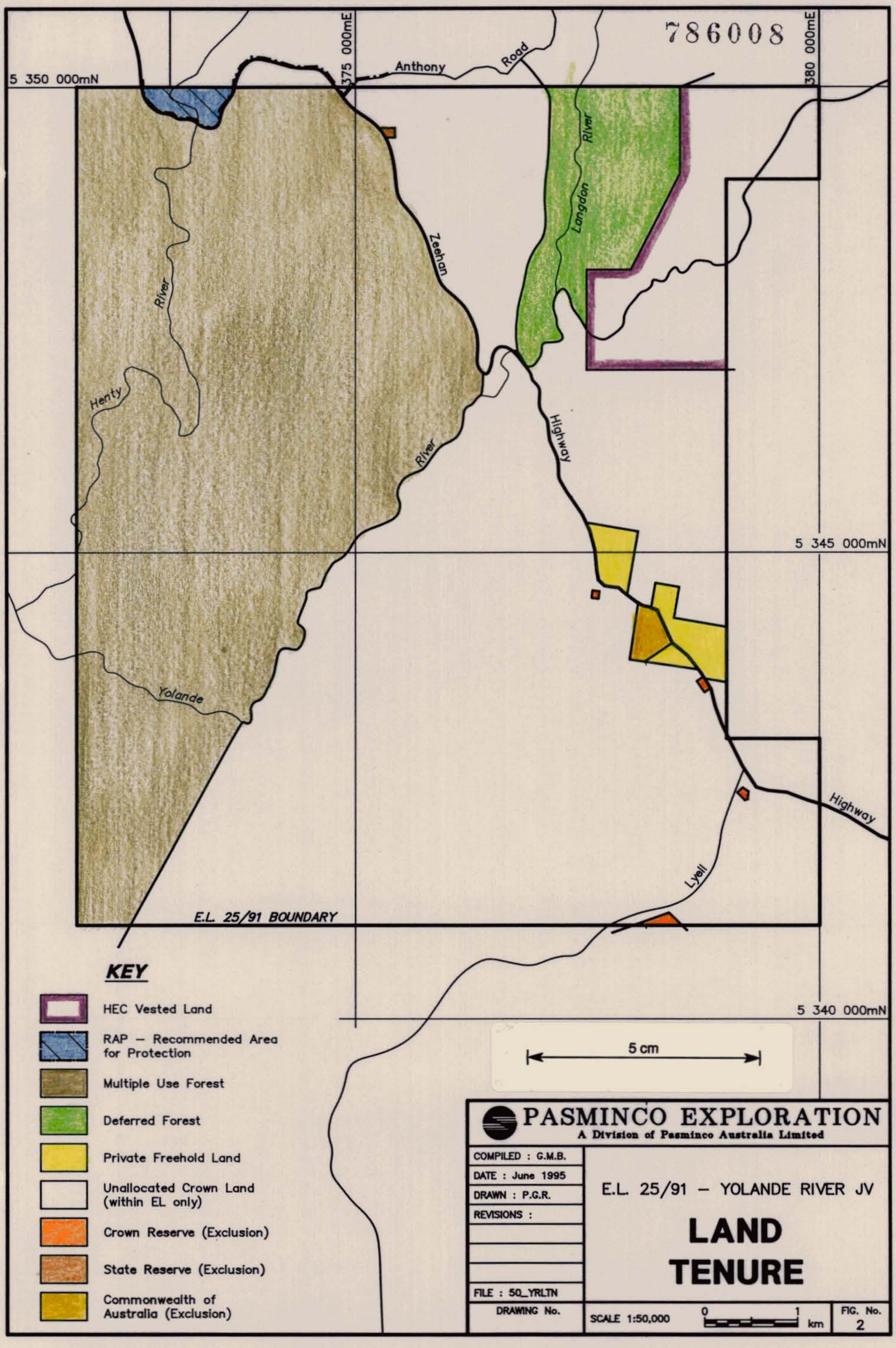
Exploration Licence 25/91, Yolande River covering an area of 66km2 was granted to Pasminco Australia Limited on 30 November 1991. EL 25/91 Yolande River was incorporated into the terms of the Yolande Joint Venture Exploration Licence 11/85 and was thus included in the Agreement.

The terms of the Yolande Joint Venture EL 11/85 Agreement are as follows:

A Joint Venture Agreement was concluded on 4 December 1990 between Hudspeth, Norgold and Pasminco Australia Limited. Under the terms of this Agreement Pasminco Exploration, a division of Pasminco Australia, are operators and managers of the Joint Venture. Pasminco earned a 50% interest in the tenement on 31 December, 1991. All three parties contributed to exploration expenditure for the remainder of 1991-92 in the proportion: Pasminco (50%), Norgold (25%) and Arimco (25%).

All parties contributed to the exploration expenditure from 1 January – 30 June 1992 on EL 25/91 in the same proportion as for EL 11/85. Since that time Pasminco has been sole funding the exploration expenditure on both tenements. The current equity of each partner, as at 30 June 1995 is: Pasminco (71.6%); North Limited (14.2%) and Australian Resources (14.2%).

Following a meeting with the Mines Department approval was given on 11 May 1992 to amalgamate the Annual Report and Licence Renewal Dates for both EL's 11/85 and 25/91 to reduce the administrative burden. Both licences are now due for renewal on 20 August 1995.


786008
375 000mE
380 000mE
5 350 000mN
5 345 000mN
5 340 000mN
Anthony
Road
Langdon
River
Zeehan
River
Henty
River
Highway
Highway
Yolande
Lyell
E.L. 25/91 BOUNDARY
5 cm
KEY
HEC Vested Land
RAP – Recommended Area for Protection
Multiple Use Forest
Deferred Forest
Private Freehold Land
Unallocated Crown Land (within EL only)
Crown Reserve (Exclusion)
State Reserve (Exclusion)
Commonwealth of Australia (Exclusion)
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : G.M.B.
DATE : June 1995
DRAWN : P.G.R.
REVISIONS :
FILE : 50_YRLTN
DRAWING No.
E.L. 25/91 – YOLANDE RIVER JV
LAND TENURE
SCALE 1:50,000
0
1
km
FIG. No.
2

The land tenure of EL 25/91 comprises the following (see Fig 2).

1. Multiple Use Forest Land
2. Deferred Forest Land
3. Recommended Areas for Protection (Mt Dundas & Mt Read)
4. SW Conversation Area
5. HEC Vested Land
6. Uncommitted Crown Land
7. Private Property
8. Queenstown Urban Conversation Area
9. Crown Reserves

3 EXPLORATION PHILOSOPHY

The Yolande River project was generated by mineral potential evaluation studies both on Yolande EL 11/85, and elsewhere within the Mount Read base metal province of Western Tasmania.

The principal objective of the exploration program on Yolande River was to identify economically viable polymetalic base metal sulphides. Three major areas of interest include:

1. Following up investigation of a massive pyrite outcrop discovered in the bed of the Henty River on the Yolande EL 11/85 1.2kms from the boundary.
2. Testing the model that volcanic lithologies similar to those hosting the Howards Anomaly and Newton Creek projects might occur close to the surface in anticlinal positions beneath Yolande River Sequence rocks.
3. Tracing Newton Creek – Howards Anomaly lithologies into the area south of Basin Lake in the north-east corner of the licence.

The results of these investigations whilst inconclusive are not sufficiently encouraging to warrant further exploration at this time.

4 PREVIOUS EXPLORATION

Previous mineral exploration has been undertaken by Rio Tinto Australia Exploration, Cyprus Mines, Pickands Mather and the Mt Lyell Company. A comprehensive review of past exploration and prospecting has been compiled by Purvis (1983).

Early prospecting and exploration activity is summarised in Poltock and FitzGerald (1991).

6 SUMMARY OF EXPLORATION 1991 - 1995

The following exploration has been undertaken by Pasminco since the inception of EL 25/91 in November 1991.

1991-1992

Minor work involving data research in determining stratigraphic correlations of Yolande River lithologies.

1992-1993

A magnetic and radiometric survey was flown over Yolande River Licence to the following specifications:

Aircraft:	Aerospatiale Squirrel 350B
Survey size:	432 Line Kilometres
Line Spacing:	200m
Tie Line Spacing:	2000m
Flight Line Direction:	90 degrees AMG
Tie Line Direction:	Orthogonal to traverse lines
Navigation:	DGPS
Nominal sensor terrain clearance:	80m above tree canopy
Nominal aircraft speed:	40m per second

Plans of flight lines and contoured values are enclosed (Figs. 8, 9 10, 11).

Results are discussed in Leaman (Appendix 2) and are summarised as follows:

1 Three distinctive suites are indicated:

a. Sedimentary units occurring in the west, have a low magnetic background, and are mixed with highly magnetic tuffaceous rocks. The magnetic contrast highlights several structural features including a large syncline.

b. Volcanic units to the east are structurally and magnetically distinctive, and appear to be contained in a large antiform.

c. A series of porphyry bodies occur between units

(a) & (b). These porphyry bodies are spatially associated with known mineralisation, both features perhaps reflecting Devonian structural events.

2 The area is divided into two distinctive structural zones. In the western zone NE, NW, and sub E/W trends are dominant, whereas NS trends are dominant in the eastern zone.

Leaman stresses the initial nature of this study. He recommends collection of physical properties in conjunction with petrology to confirm inferred values for units, and also suggests that the collection of gravity data would enhance subsequent investigation.

1993-1994
Computerization and review of existing geochemical data and the creation of a base map with access, drainage, existing geochemistry and mineral occurrences (Figure 7).

1994-1995
Two orientation traverses were made as follows:
The Gordon Limestone occurrence in the bed of the Henty River south of the Henty River Bridge was visited, and samples were collected, these samples were not assayed.

The area south of Basin Lake was visited in an attempt to correlate volcanic lithologies with lithologies of the Newton Creek sequence. Samples were collected but not assayed.

Results were not sufficiently encouraging to warrant further work.

7 ENVIRONMENTAL DISTURBANCE & REHABILITATION

There has been no activity on Yolande River EL 25/91 which could have caused environmental disturbance. Activities have been either airborne, or traverses which have not included track building or cutting.

As such there has been no necessity for any rehabilitation work.

8 EXPENDITURE

Total expenditure on EL 25/91 during the final period, July 1994 to July 1995, was $20 283 bringing the total expenditure since it's inception on 30 November 1991 to $79 133.

1994–95 EXPENDITURE

Personnel: Salaries, Wages & On costs	9 698
Travel & Accommodation	282
Geophysical Surveys & Consultants	650
Drilling: inc. access & core process./storage	717
Other Contractors	150
Stores & Supplies	500
Vehicles & Equipment	524
Computing	382
Tenement Costs	1 292
Office Running Costs	4 244
Total Direct Costs	18 439
Administration/Management Fee	1 844
TOTAL EXPENDITURE	**$20 283**

9 CONCLUSIONS AND RECOMMENDATIONS

The results of exploration completed to date within EL 25/91, Yolande River, has failed to locate economic base metal mineralization. Whilst the geological setting may still be favorable for the occurrence of volcanogenic massive sulphide deposits within buried Cambrian sequences, no significant targets have been identified by recent exploration.

It is recommended that the licence not be renewed beyond the current term, which is due to expire on 20 August 1995.

KEYWORDS

LEAD, ZINC, GOLD, LIMESTONE, VOLCANICS, FAULT, FOLD, VOLCANOGENIC, CAMBRIAN, GEOCHEM ROCK, GEOPHYS, GEOPHYS MAGNETICS.

LOCATION

QUEENSTOWN SK5505, HENTY RIVER, YOLANDE RIVER.

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Purvis, J.G., 1983. Relinquishment report, Henty - Yolande and West Huxly Areas, Tyndall EL9/66, Western Tasmania. Goldfields Exploration Pty Ltd Unpublished Report.

Quayle, P.M., 1993 Annual Report Yolande EL 11/85 & Yolande River EL 25/91. Pasminco Exploration Report No. T93/7.

Quayle, P.M., 1994 Annual Report Yolande EL 11/85 & Yolande River EL 25/91. Pasminco Exploration Report No. T94/4.

Appendix 1

Tenement Schedule

SCHEDULE

Commencing at the north west corner at grid co-ordinates 372 000 metres E. 5 350 000 metres N. thence grid east to 380 000 metres E. grid south to 5 349 000 metres N. grid west to 379 000 metres E. again grid south to 5 343 000 metres N. again grid east to 380 000 metres E. aforesaid again grid south to 5 341 000 metres N. again grid west to 372 000 metres E. aforesaid thence grid north to the point of commencement.

The area excludes:	Henty Glacial Moraine State Reserve	1 ha
	Crown Reserves	1 skm
	Commonwealth Land	3 skm

Land Tenure:	The area comprises:	Private Property
		Crown Land
		Land vested in HEC

The area includes: Part of Mt Dundas RAP and the Australian Heritage Commission Act Registered Entry Queenstown Urban Conservation Area

Note: This land tenure table is a guide only.

Appendix 2

Aeromagnetic Survey Acquisition and Initial Interpretation July 1993 - Leaman, 1993

5 REGIONAL GEOLOGY

The basement in Western Tasmania is a sequence of Proterozoic greenschist facies metasediments. Basement is exposed in the Sticht Range east of the Henty area, and to the west of Dundas.

During the Cambrian a crustal rift developed forming the Dundas Trough, which was the focus for the emplacement of the Mount Read Volcanics.

The Mount Read Volcanics form a belt extending 200km in length by 20km in width along the eastern side of the Dundas Trough. These mid to upper Cambrian volcanics, which are subdivided on the basis of geochemistry into three calc-alkaline suites and one thoilitic suite include intermediate to felsic lavas, subvolcanic porphyries and granites (Crawford et. al., 1992).

The Mount Read Volcanics are the host to several significant volcanogenic sulphide bodies including:

Rosebery
Hercules
Hellyer
Que River
Mt Lyell

Other significant ore deposits in Western Tasmania include:

Renison
Mt Bischoff
Henty
Oceana
Zeehan Field

There is evidence for at least one period of Cambrian deformation during which time regional structures such as the Henty and Rosebery Faults were active and appear to have influenced volcanism, sedimentation and mineralisation.

Sedimentation continued in the Dundas Trough after the cessation of volcanism in the late Cambrian. Initially these sediments were partly derived from the volcanics, but during the Ordovician, extensive sediments predominantly derived from Precambrian metamorphics were deposited. This period of sedimentation culminated in the wide spread deposition of a shelf limestone sequence.

The late Devonian Tabberabberan Orogeny in Western Tasmania resulted in the development of predominantly open NNW trending folds in the Ordovician–Devonian cover sequence. Underlying Cambrian structures were significantly modified by this event. Extensive granite emplacement occurred in the latter stages of the Orogeny and were associated with structurally controlled and carbonate replacement tin–tungsten and gold mineralisation.

The Devonian was followed by erosion and glaciation. Younger Palaeozoic sediments were intruded by Jurassic dolerites and extensive uplift and erosion followed. Much of the prospective sequences north of Hellyer were later covered by the extrusion of Tertiary flood basalts.

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EL 25/91 YOLANDE RIVER
AEROMAGNETIC SURVEY
ACQUISITION AND INITIAL INTERPRETATION

for
PASMINCO EXPLORATION

by
D.E. Leaman

July 1993

YOLRIV

CONTENTS

SUMMARY

Completion of an initial interpretation of new aeromagnetic data within the Yolande River area NW of Queenstown has shown that there are at least three distinctive suites of Cambrian rocks or that some of these suites are structurally juxtaposed.

In the west of the area the sedimentary rocks include some tuffaceous units. The magnetic background is very low and the tuffs are generally among the most magnetic rocks in the licence area. Some members are very strongly magnetised and possess properties normally associated with the Comstock or Lynchford Tuffs. These units allow mapping of the western region including the fault offsets associated with the Firewood Siding Fault and the linking faults joining this to the Ewarts Creek Fault system. The tuffs suggest that they are infolded as part of a large syncline.
The volcanic suites of the east of the area, north of Queenstown, are structurally and magnetically distinct. The rocks are more magnetic in bulk and variable in composition and properties. They also appear to be contained in a large antiform which has been sliced by NW-trending faults.
The region between these two suites is largely occupied by a family of porphyries, each member possessing a distinct and recognisable magnetic character. Margins of the porphyry bodies tend to mirror the structural demands of the blocks to east and west. The properties of the intrusives are variable but some exposures should be revisited in order to check existing mapping which may not be consistent.

Trend patterns are zonally distinctive across the licence area and the eastern and western zones display different trend emphases. N-S trends are dominant in the east while NE, NW and sub E-W are dominant in the west. NNW trends are dominant in the block involving most porphyry. The zonal boundaries trend NW-SE and imply a Devonian re-arrangement. This trend system can be linke into the western part of the Firewood Siding Fault per an extension of the Ewarts Creek Fault system.
Mineralisation in the area appears to be associated with the porphyries although it is unclear which composition is critical. This may be an illusory relationship since the porphyries may be linked to the central zonal boundaries and it may be the Devonian fault linkages about them which are important. All are suggested by the magnetic field.

Many assumptions have been made, and published geology simply accepted, to derive the present initial conclusions. There is scope to refine this work following some outcrop review. Infill of the presently poor gravity coverage would also allow control of the interpretation and improved definition of the porphyries which seem central to the understanding of this area.
Targetting may depend upon appraisal of Devonian and older structural controls if these can be deduced. For example, the two E-W arms of the Firewood Siding Fault may mark the approximate site of an older feature, perhaps at a northing midway between them. That would be of interest because the Madam Howards mineralisation would then lie at the intersection of that older control and the regime boundary 2/3. It would also account for the change in mafic volcanism and observed termination of porphyries nearby.

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INTRODUCTION

EL 25/91, Yolande River, is an area of about 65 square kilometres located NW of Queenstown in western Tasmania. The Yolande River flows across the area from the northeast (Figure 1). Ground access is restricted to the Zeehan Highway and the Lake Margaret road and a few tracks.

The area is not well understood geologically although regional maps are available (e.g., Baillie, 1977; Corbett *et al*, 1989). This reflects stratigraphic and correlation problems inherent in the exposed greywacke and volcaniclastic sequences, extensive occurrences of basalt, andesite and porphyry, and a major cross-cutting fault system.

The area is not known to be extensively mineralised and the barytes workings at Madam Howards are somewhat enigmatic. Other mineralisation occurs at Gold Creek in the north of the area.

Some previous reviews of the Yolande River area (e.g., Leaman, 1989) considered known geology and regional gravity and aeromagnetic data but found these insufficient to draw inferences and conclusions of exploration significance.
The Henty River extension of this licence area (see Figure 1) was also discussed by Leaman (1989) but upgraded magnetic coverage (Leaman, 1990) and subsequent exploration by Pasminco Exploration has enabled considerable re-evaluation of the prospects and structures within the area.
The new Yolande River licence area was included in recent aeromagnetic surveys for Pasminco Exploration in view of such results. This report outlines briefly the parameters of survey, primary presentations of the magnetic field and an initial interpretation of structural and lithological elements in order to guide future mapping, exploration, physical property assessment and general target focus.

AEROMAGNETIC SURVEY

The licence area was surveyed during March 1993 by Geoterrex Pty. Ltd on behalf of Pasminco Exploration.

The survey used a Squirrel helicopter and a Scintrex Caesium Vapour Magnetometer with a sensitivity of 0.05 nT and a cycle time of 0.1 secs. The nominal terrain clearance was 80 m with a sample interval less than 10 m. Traverse lines were flown E-W with a separation of 200 m while tie lies were N-S 2 km apart.
Navigation was based on Sercel NR103 GPS and NDS100 UHF DGPS systems.

The raw data have been corrected for diurnal and base corrections and converted to residual format using the 1990 IGRF definition updated to March 1993. Residual values have been modified by the addition of 2000 nT. The reference base value used was 62335 nT (for 420 000 S, 453 000 E). Plots have been prepared using contour intervals of 1, 10 and 100 nT using a 50 x 50 grid mesh.

Although details have not been provided by the contractor this preliminary analysis suggests that the residuals are true and that the base station was adjusted to the IGRF estimate before correction. This means that any quantitative analysis should resolve a near neutral or zero modelling curve offset from observed data.

No images were available to the writer at time of preparation of this report.

A spectrometer was also carried during the survey. This was a 16.8 l Nuclear Data 256 Channel ADC spectrometer recording at 1 sec intervals. No data are yet available.

Results of the magnetic survey are shown in Figures 2, 3, 4, 6, 7 and 8. Various scales and overlays have been used in these presentations in order to indicate rock correlations and location of anomalous features.

GEOLOGY AND ROCK PROPERTIES

A geological base map compiled from Mines Department sources is shown in Figure 5.

The western portion of the area; that is west of the Three Sisters (about 373 000 E, 5346 000 N) and north of the Firewood Siding Fault, contains Cambrian sedimentary rocks with minor tuffs. These are overlain (?) by basal Ordovician materials in an apparent syncline. Further north, near Ewart Creek at 5350 000 N, this structure has been considered to be entirely fault-bounded.

East of 373 500 E, and generally east of the Henty River, the Cambrian rocks have been described as greywacke siltstone with interbedded acid tuffs (Baillie, 1977). Dips and foliations are complex and no obvious patterns have been mapped. Exposure has limited evaluation of the continuity of tuff horizons and their relationships.

Within the Queenstown sheet area (east of 376 000 E)(Corbett *et al*, 1989) the materials appear to be enriched in volcanic components and include at least three quartz-feldspar porphyry variants. Some of these bodies have a NNW extension but all appear to terminate a little north of the Madam Howards deposits.
Basalts and andesites occur north and south of the transverse fault mapped NE of Madam Howards.

The far NE portion of the licence area includes large volumes of felsic pyroclastic rocks generally equated to the Mt Read Volcanics.

The major fault extending across the Mt Lyell and Mt Owen areas to the east has been mapped into this region a little east of Davies Hill (379 000 E, 5345 000 N). There is some evidence of sinistral lateral displacement on this structure across a gross antiform (?) but the sense is not systematic and clear given existing mapping and assumptions about lithologies. North of the fault exposed porphyries are associated with crystal tuffs.

The Firewood Siding Fault and its Henty River offset zone, which appears to connect northward into the Ewart Creek Fault system, dominates the region and rock distribution. Ordovician to Devonian rocks are exposed south of this predominantly E-W structure while the Cambrian volcaniclastic suites are exposed north of it. The mapping of Corbett *et al* (1989) shows that these formations dip into the southern block and may underlie the younger Palaeozoic rocks (see also Leaman, 1989, 1990). Onlapped and faulted relationships between all units are indicated along the Queen River south of Queenstown.

No rock property data base is available for the materials exposed in this area but it may be presumed that properties observed or inferred for similar materials to north and east are relevant to this study.

Such observations would suggest very low susceptibilities and magnetisations for most felsic volcanics (< 0.0002 cgs) while basalts, andesites and porphyries could possess variable properties but generally not much different from the other volcanics. Associated sedimentary rocks would offer contrasts of at least an order of magnitude less. Tuffs, however, may be locally very strongly magnetised with values perhaps as high as 0.003 cgs. This would be the case if materials were comparable or equivalent to the Comstock or Lynchford Tuffs.

Note: 0.00012 cgs is equivalent to 0.0015 SI units.
0.0012 SI is equivalent to 0.0001 cgs units.

Properties of the magnitude indicated have been used as a basis for analysis until/unless examination suggests them to be misleading or incorrect.

Plots of the magnetic field have been superimposed on geological base maps in Figures 6, 7 and 8.

INTERPRETATION

INTRODUCTION

This initial interpretation is based on the data summarised in previous sections of this report. It is assumed that geological and lithological variations and descriptions, currently published, are valid and justified (and consistent) and that rock property judgments are reasonable.

The interpretation depends only on magnetic data. Gravity data exist for the eastern half of the licence but the station spacing is approximately 1 km and is unlikely to resolve any of the issues raised by current geological mapping or this magnetic survey. Gravity coverage of the western half of the Yolande River area is sparse.

A phased interpretation has been provided; including a qualitative response correlation, trend analysis and cross area modelling to test some of the assumptions and assess the type of geological information which may be extracted.

ANOMALY CORRELATIONS

Review of Figures 7 and 8 illustrates the uneven character of responses and the variability of lithology.
Consider Figure 7.

Quartz feldspar porphyry.
There are at least six mapped exposures of this lithology - including Diamond Hill. There is negligible magnetic response at Diamond Hill (377 000 E, 5343 000 N); 377 000, 5345 000; 376 300, 5345 800 but subtle to modest responses may be noted on the larger bodies near 376 500, 5348 500; 378 700, 5347 000 and 380 000, 5343 000. There are also some locally marked variations at 380 000, 5342 600 and 378 700, 5347 300. In the context of the bulk character of the unit and its responses the latter are distinctly anomalous.

Quartz feldspar hornblende porphyry.
The main body mapped with this composition extends NNW from Madam Howards and is strongly magnetised. Only parts of a sub parallel body extending from Davies Hill have equivalent responses. The far northern and southern limits of this second (eastern) body are anomalous. The response patterns of the southern end of the Madam Howards body and much of the Davies Hill body suggest a different lithology - perhaps more like the quartz-feldspar porphyry.

Quartz-feldspar-pyroxene porphyry.
This unit is strongly magnetised wherever observed. A significant exposure extends south of Lake Margaret township.

Andesitic/basaltic intrusives and extrusives.
These lithologies appear to be consistently and moderately magnetic across the Crown Hill and Madam Howards regions.

Crystal tuffs.
The tuffs mapped west of Crown Hill and SW of Lake Margaret township appear to generate a subtle to moderate response but the effect is unclear.

Mt Read Volcanic units and presumed equivalents.
These rocks show variable to moderate magnetisations.

General Cambrian sequence near Madam Howards.
Most of the predominantly sedimentary units north of the Firewood Siding Fault and extending north of Madam Howards are non magnetic. These units are described as tuffaceous but their magnetic character cannot be distinguished from local greywackes.

Western tuffs.
The tuffs mapped in the area immediately east of the Three Sisters are strongly magnetic but the properties are far from uniform. Note especially the unit at 374 600 E, 5343 000 N whose response suggests either anomalous behaviour, incomplete or incorrect mapping. The zone north and east of the fault junction along the Firewood Siding Fault at 373 000, 5342 000 is distinctive and clearly lithologically different from materials to both east and west. A suggestion of comparable character is implied just east of the Ewart Creek Fault zone in the north of area at about the same easting as the southern effect.

Some responses mark the general position of the Firewood Siding Fault. These tend to be local and aligned E-W. Most such effects are geometric responses due to the angular change in source distribution along the fault - especially where strongly magnetic units, such as the western tuffs, are involved. Some other effects may reflect local alteration or oxidation along the fault, particularly at offset sites.

TRENDS

Trends inferred from the aeromagnetic data are shown in Figure 9. This diagram is the result of an essentially subjective review of gradients and trend continuity and patterns.

The pattern recovered does, however, suggests some major discontinuities within the geology of this area. Few features extend unambiguously across the entire area and some trends and orientations are either more continuous or more common in certain parts of the region. Relatively few of the trends suggested are pronounced in the existing geological mapping and the magnetic survey will make a considerable contribution to mapping of the area.

Three main regimes and one sub regime have been recognised in the magnetic field and inferred trend patterns shown in Figure 9.

Regime 1 is restricted to the NE corner of the area and includes the Mt Read Volcanics-dominated part of the licence area. N-S trends appear to be dominant. Other elements are subsidiary. This character is modified near the mapped extension of the Lyell-Owen Fault system a little north of Davies Hill.

Regime 2 contains a more complex trend pattern. There are many NW-SE elements which mimic the general fault systems across the Queenstown region but the previously dominant N-S trends are balanced by some ENE and E-W elements. This regime contains most of the larger exposures of porphyry within the area.

Regime 3 is quite different. There are rare N-S elements and some major, isolated sub E-W features but other elements are inconsistent. There are few prevailing NW-SE trending features. The eastern boundary of this regime trends either NNW or NW and may be compound but it is certainly located somewhere near the western contacts of the mapped porphyries.
A sub regime has been recognised within this regime. This relates the strong magnetic character associated with the western tuffs and is shown shaded in the Figure. The boundaries of this internal zone are either faulted or have sweeping arcs like many other elements of the third regime. This suggests that many boundaries and features are caused by unit changes and their folded presentation. It would also imply that the materials of sub regime 3A are contained in the core of an antiform or a synform. If these rocks can indeed be correlated with the Comstock or Lynchford Tuffs - on the basis of their extreme properties - then a synclinal arrangement is probable.

Figure 9 also shows the location of sites of apparently anomalous porphyry (circled) and mineralisation.
Mineralised sites appear to lie near the margins of regime 2 or trend sets which must be youngest. Too few sites are known to draw any firm conclusions but regime 2 would appear to be a crucial element in the regime since it separates two very different rock suites and structural patterns. It is also unclear whether the known mineralised sites reflect the true potential of the area or past prospecting efficiency in a difficult region.

MODELLING

Ten magnetic profiles across the licence area have been examined in detail. These have not been selected with any particular bias or objective. The set was intended to provide some systematic indication of the structural and lithological patterns of the region and has not been focussed on any particular element. Nine profiles correspond to regular grid intervals.

The analysis has been directed toward general structural appraisal, assessment of probable bulk contrasts, and implied dips and volumes of materials.

Any exploration significance of the findings must depend on such analysis, subsequent ground proving, rock property confirmation and perhaps revision with linkage to gravity data.

The models provided represent samples of the simplest consistent solutions found and do not necessarily represent a unique style of solution. Some options have been tested, and details are given below, but others may well exist. Some may not be assessed until some aspects of rock distribution or properties have been confirmed. It must be stressed that this is an initial, *guide*, interpretation.

All models satisfy primary data needs, including the definition of base levels, and are consistent in their use of credible properties. This does not make them correct, merely feasible.

Line 5350 000 mN (Figure 10)

This northern boundary profile samples tuffs adjacent to the Ewart Creek Fault zone in the western regimes as well as the northern extension of the central porphyries and the principal block of Mt Read Volcanic correlates.

The model stresses the very high contrasts required of the western tuffs. The lesser unit must have an effective contrast of 0.0005 cgs while the major anomaly requires 0.015 cgs. It should also be noted that the major anomaly is compound and comprised of at least two sources. This means that one or both of them possess much higher contrasts than the average value inferred assuming no non magnetic materials interbedded. It might also be possible to model this tuff pattern with a fault block or syncline. Either option would require contrasts up to 0.003 cgs. The background character of the field away from these tuffs re-inforce this conclusion and also show that little anomalous or magnetic occurs across a large part of the area.

The major exposure of quartz-feldspar porphyry produces a small response step but even this implies a substantial contrast and a locally elevated variation near its western face (not detailed in Figure). The largest anomaly in the eastern section is linked to the crystal tuff. Anomaly forms indicate that the junction between tuff and porphyry is steep but probably dips steeply east. Resolution of the contribution of the subtler Mt Read equivalents is less certain.

Approximate regime boundaries are also suggested in the Figure.

Line 5349 000 mN (Figure 10)

This profile includes some 3D effects from the termination of many units in the north of the region - especially about regime 3A near the Ewarts Creek Fault System. An equivalent solution of this effect has been generated in order to account for the regional anomaly form and allow improved assessment of shallow dips and contrasts. It must be recognised that this approximation is imperfect and that the section must not be extended more deeply without considerable adjustment and consideration of such regional effects.

The modelling at this northing does suggest how a synclinal form involving tuffs might appear. In this case only lower contrast tuffs are present and presumably the stratigraphically higher, and higher contrast, tuffs have been eroded but appear across the faults to the north.

Two porphyries appear in the section and have been described as similar. The magnetic profile shows that the compositions applied by Corbett *et al* (1989) must either be verified or amended. These rocks are not the same. Or, if they are, then a major change in alteration and volume must occur near the regime boundary.
An alternate interpretation consistent with the mapping can be conceived. This requires that the bulk of the volume indicated for the eastern porphyry is composed of the crystal tuff which must then dip relatively shallowly to the east. There is no evidence supporting such a dip.

The final change to Mt Read Volcanics equivalents is also distinctive but it should be noted that the volume indicated for materials at the survey limit cannot be considered reliable.

Line 5348 000 mN (Figure 11)

This profile indicates the nature of the contribution of the crystal tuff and its relativity to the adjacent porphyries. It also shows that these poprhyies can be distinguished from other compositions.

The crystal tuff possesses a modest magnetic contrast but this is much less than the hornblende porphyry on its western face (overlying unit?). The underlying porphyry, to the east, is not less magnetic even though it has been mapped as a normal porphyry. This comment applies notwithstanding the reduction in the observed field which has geometric and interference origins. It remains an option that the crystal tuff forms an anticlinal core and that the eastern porphyry actually overlies it with the same properties as the western body. This would be distinguishable in a more detailed analysis but the mapped dips and compositions are not consistent with such a solution.

The observation that the more easterly pyroxene rich porphyry variant dips east could allow some review of relationships. This unit is distinctive.
All the high contrast rocks lie in regime 1 and give the bulk appearance of an antiform or anticline.

The porphyry of regime 2 appears "normal" and certainly is less magnetic.
The rocks of regime 3, with the exception of a single tuff bed, are virtually non magnetic.

Line 5347 000 mN (Figure 11)

This profile tests the possibility, based on mapping, of westerly dips in the east of the region. This seems to be sustainable magnetically although the indicated dips seem a little shallow overall. The relative contributions from the crystal tuff and basalt-andesites is apparent. The andesites of Crown Hill are strongly magnetised and are more magnetic than the pyroxene porphyry nearby.

A major discontinuity occurs between the crystal tuff and the western hornblende porphyries. There is a change in facing, dip or intrusion style. This relationship may have occurred on previous sections but the bulk of porphyry limited definition.

The more westerly normal porphyry makes little contribution to the magnetic field but could be included to remove the slight negative mismatch between the observed and calculated profiles west of 377 000 E.

The materials of regime 3 are essentially not magnetic and the very high contrast with a single tuff unit is marked. This unit must dip east. This dip pattern could indicate a structural continuity between regimes 2 and 3.

Line 5346 000 mN (Figure 12)

This profile samples the largest available cross section of porphyries and much of the western tuffs. Basalts of the Crown Hill area are also reviewed.

The model is relatively simple across the non magnetic rocks of regime 3 and the pattern of a folded tuff sequence, ambiguously suggested in other profiles, is certainly implied. The tuffs form an extension of regime 3A and a strongly magnetised.

The large body of hornblende porphyry satisfies both exposure and magnetic field constraints north of Madam Howards. The presence of a large body can account for the irregular and poor correlations between magnetic field and surface exposure observed around the exposed material. The implied contrast seems low and this may indicate that the normal porphyry forms a core to the body interpreted or that the total volume is much less. Other sections indicate higher contrasts. The entire porphyry mass occupies regime 2.

Structural opposition again marks the junction between regimes 1 and 2 west of Crown Hill and north of Davies Hill. Basalts and other volcanics appear to dip west in this region.

Line 5345 000 mN (Figure 12)

This profile supports previous comments about the character of the porphyries of regime 2 and the tuffs of regime 3. The poorly exposed basalts and andesites at the eastern margin of the area have not been modelled.

The western tuff sequences are disrupted by the cross faulting associated with the Firewood Siding Fault and it is the geometry of the fault and its truncation of the tuffs which generates the asymmetry of anomaly observed.

The variability of the western tuffs may also be noted; most are significantly magnetised, some very strongly (0.003 cgs).

Line 5344 000 mN (Figure 13)

Patterns for the western tuffs similar to those at 5345 N may be observed in this section. There are two distinct tuff types in the western succession; one very strongly magnetised.

The apparent reduction in contrast within the porphyries of regime 2 may reflect a three dimensional effect near the limit of the intrusion. The normal porphyry north of Diamond Hill makes no contribution to the profile.

The local basalts are much more distinctive and appear to dip east rather than west as indicated in available mapping.

Line 5343 000 mN (Figure 13)

The components of this profile are very similar to those at 5344 N and display the same contrasts within the western tuffs. No response due to any porphyry variant is apparent other than at line end where the mapped "normal" porphyry has the properties of a pyroxene type. The mineralisation at Madam Howards appears to occur near the truncation of the basaltic sequence.

Line 5342 000 mN

This profile was not modelled since it lies very close to the strike of the Firewood Siding Fault and is dominated by geometric effects which cannot be compensated by simple modelling methods.

Line 5341 000 mN (Figure 14)

This model represents a simple attempt to review the overall stratigraphic and structural continuity of Cambrian rocks from their exposures east of the Queen River beneath the Siluro-Devonian cover. The model cannot be considered realistic for two reasons; it depends on some equalisation of the significant 3D effects generated at the Firewood Siding Fault, and only a magnetic upper unit is presumed within the Cambrian sequence.

It does, however suggest the depth range which should be considered in any structural analysis of the region south of the Firewood Siding Fault. There are also no substantial magnetic aberrations observed until the profile approaches exposure near its eastern end.

Line 373 500 mE (Figure 14)

This profile acts as a modelling tie line and tests property and geometric assumptions where these have been used to generate a regional effect in other profiles. The section samples only the western tuffs and background of regime 3.

INFERRED PROPERTIES

The following properties have been deduced during modelling. All are generally consistent with inferences or observations in adjacent areas although some values, such as those for the Mt Read Volcanics correlates may be higher than observed elsewhere.

Cambrian sedimentary rocks: 0.0 cgs

Porphyry: qz-fd: 0.0 - 0.0004 cgs
hb : 0.0002 - 0.0005 cgs
py : 0.0008 cgs

It is possible that some identifications of base porphyry are invalid since the range 0.0-0.0004 is misleading. The deductions are bimodal, 0.0001 or less and >0.00035 cgs.

Basalt/andesite: 0.0004 - 0.0009 cgs.

Mt Read Volcanics: 0.0002 - 0.0003 cgs

Crystal tuff: 0.0002 - 0.0009 cgs. This variation may be important.

Western tuffs: type 1: <0.0001 cgs
type 2: 0.0003 - 0.0006 cgs
type 3: >0.002 cgs.

Tuffs with the characteristics of type 3 have only been observed previously at Comstock or Lynchford.

While some variation and overlap is evident between some of the magnetic units in the Yolande River area the indicated properties are separable in most cases and marked variations from the mean should cause ground review. Most such problems attach to the porphyries.

RECOMMENDATIONS

The interpretation depends upon the inferred or assumed rock properties and some attempt should be made either to confirm the absolute values or the relativity and contrasts indicated.

There is also a need to review the petrology and magnetisation, as well as distribution, of the quartz porphyries. These bodies seem to be related to the mineralised sites which are known and form a distinct magnetic regime which forms the contact between two contrasting magnetic terranes. Dips, alteration and deformation near these regime boundaries should be reviewed wherever outcrop permits.

The magnetic data obtained have not been over interpreted in this initial study but complete appraisal should be based on updated geological information and property assessments and may need to employ some 3D methods. Coupling with another method, such as gravity, in order to appraise the porphyries is strongly recommended.

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Baillie, P.W., 1977. Strahan. 1:50 000 geological map sheet. *Tas Department of Mines Geological Atlas.*

Corbett, K.D., Calver, C.R., Everard, J.L., & Seymour, D.B., 1989. Queenstown. 1:25 000 geological map sheet. *Tas Department of Mines Geological Atlas.*

Leaman, D.E., 1989. Gravity and magnetic interpretation of EL 11/85, Yolande River. Report for Pasminco Mining by Leaman Geophysics, September.

Leaman, D.E., 1990. Aeromagnetic survey EL 11/85, Yolande River. Acquisition report (including update interpretation) for Pasminco Mining by Leaman Geophysics, July.

Report submitted on behalf of Leaman Geophysics

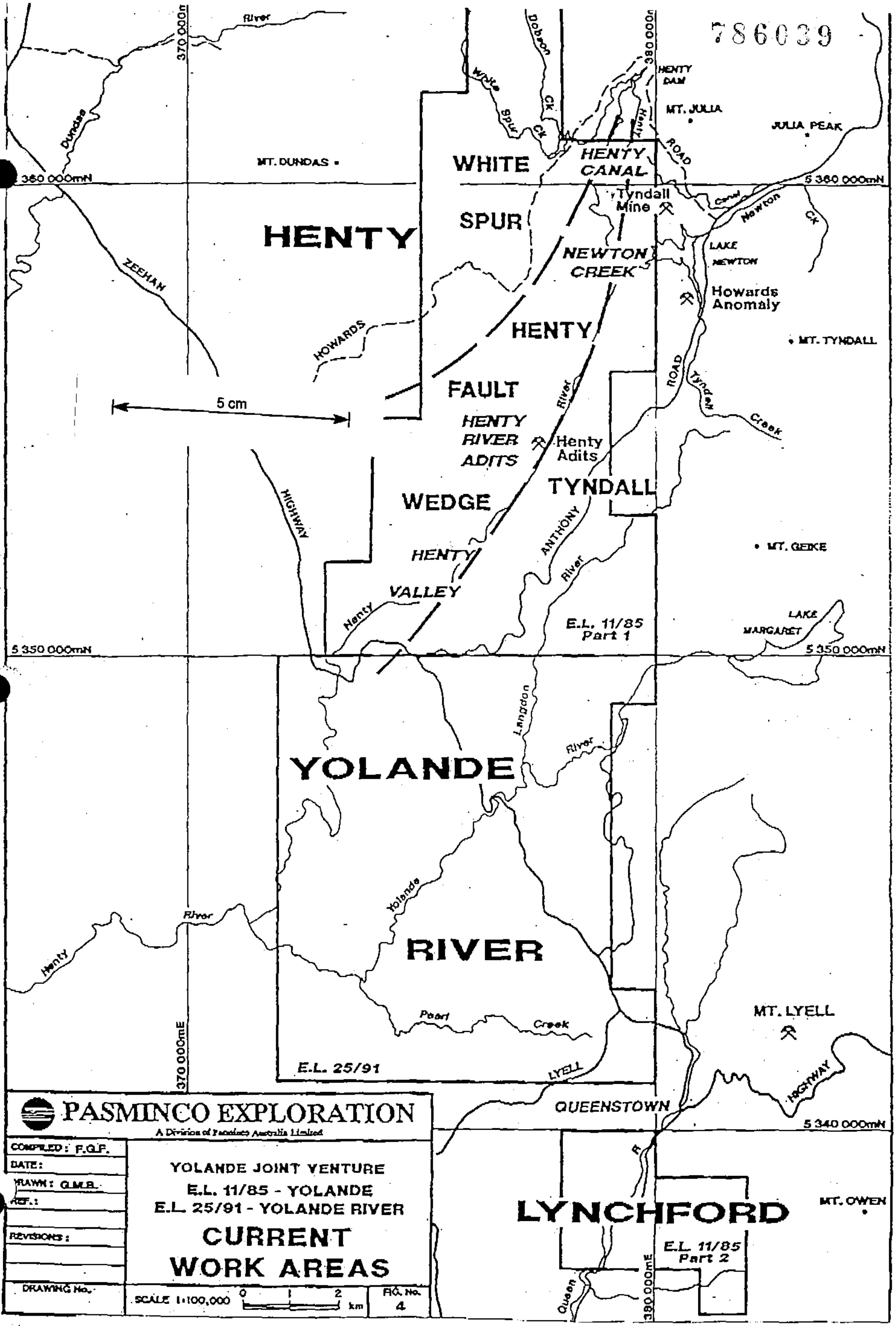
by

D Leaman

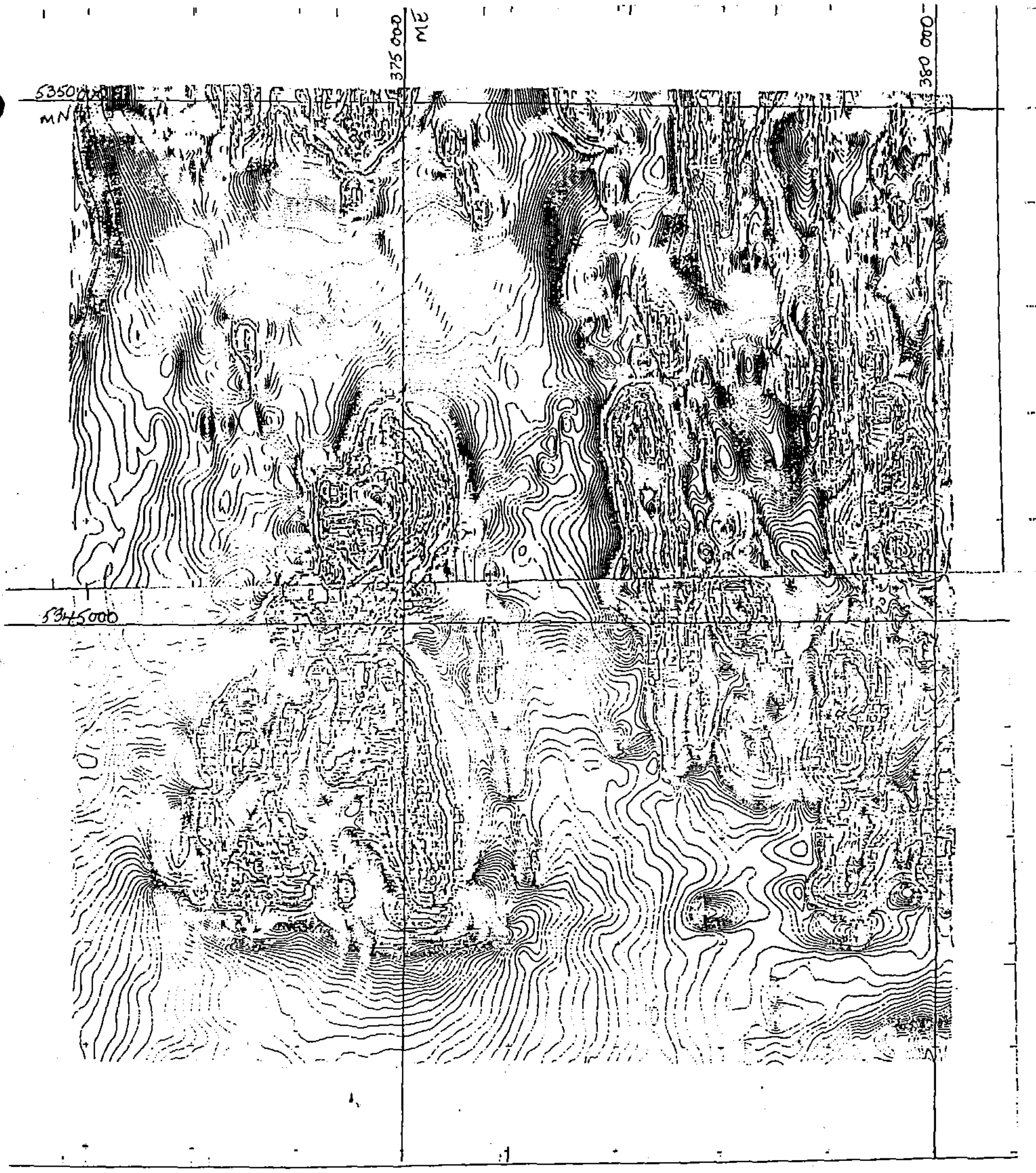
Dr. D. E. Leaman, B.Sc., Ph.D.,
F. Aus. I.M.M., M.M.I.C.A.

Date: 26/7/93

786039



LOCATION OF THE YOLANDE RIVER LICENCE AREA FIGURE 1

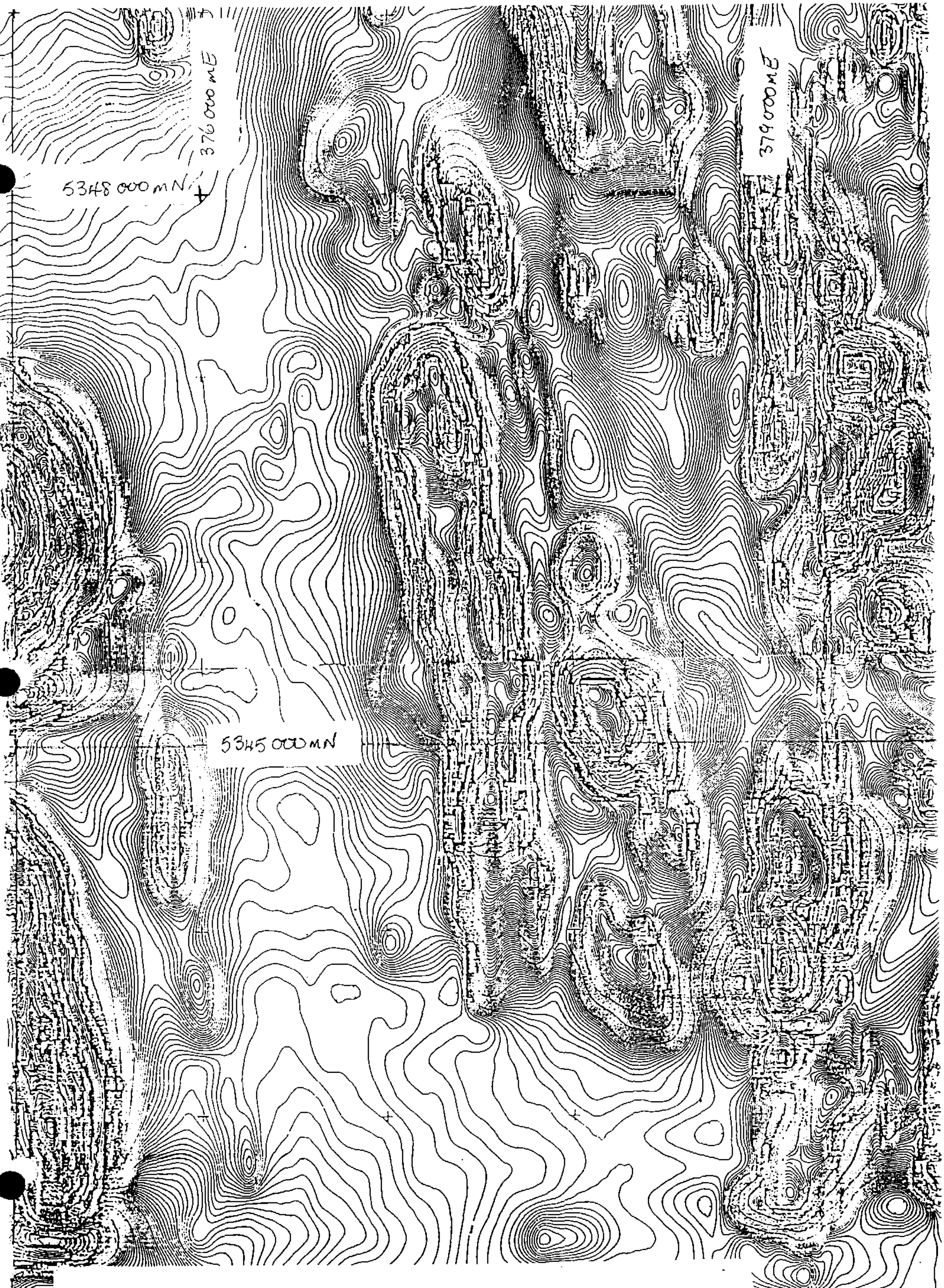


COMPILATION OF THE MAGNETIC FIELD MAPPING AS PRESENTED BY THE CONTRACTOR

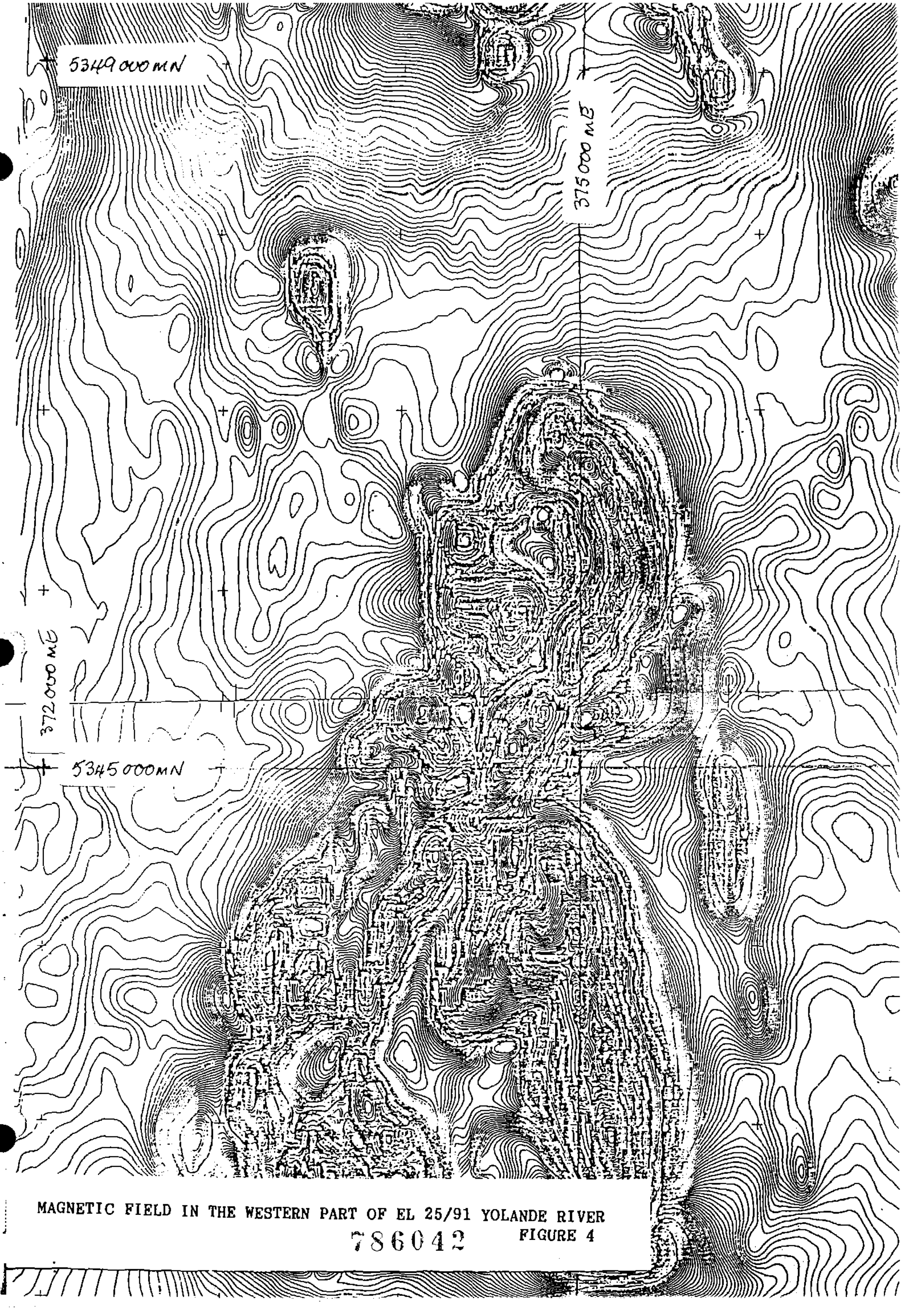
YOLANDE RIVER EL 25/91

FIGURE 2

contour intervals 1, 10, 100 nT

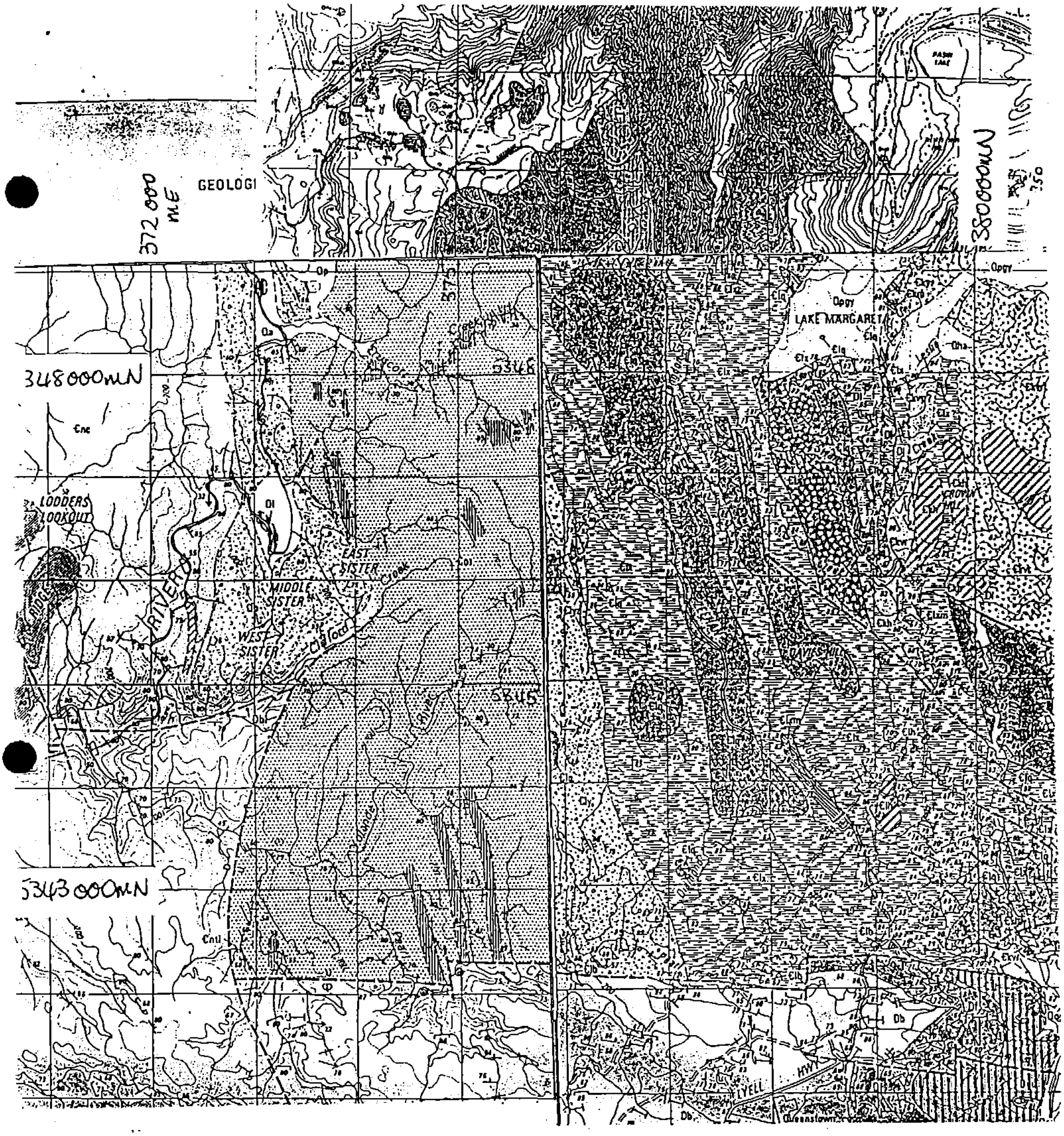


MAGNETIC FIELD IN THE EASTERN PART OF EL 25/91 YOLANDE RIVER
FIGURE 3



MAGNETIC FIELD IN THE WESTERN PART OF EL 25/91 YOLANDE RIVER

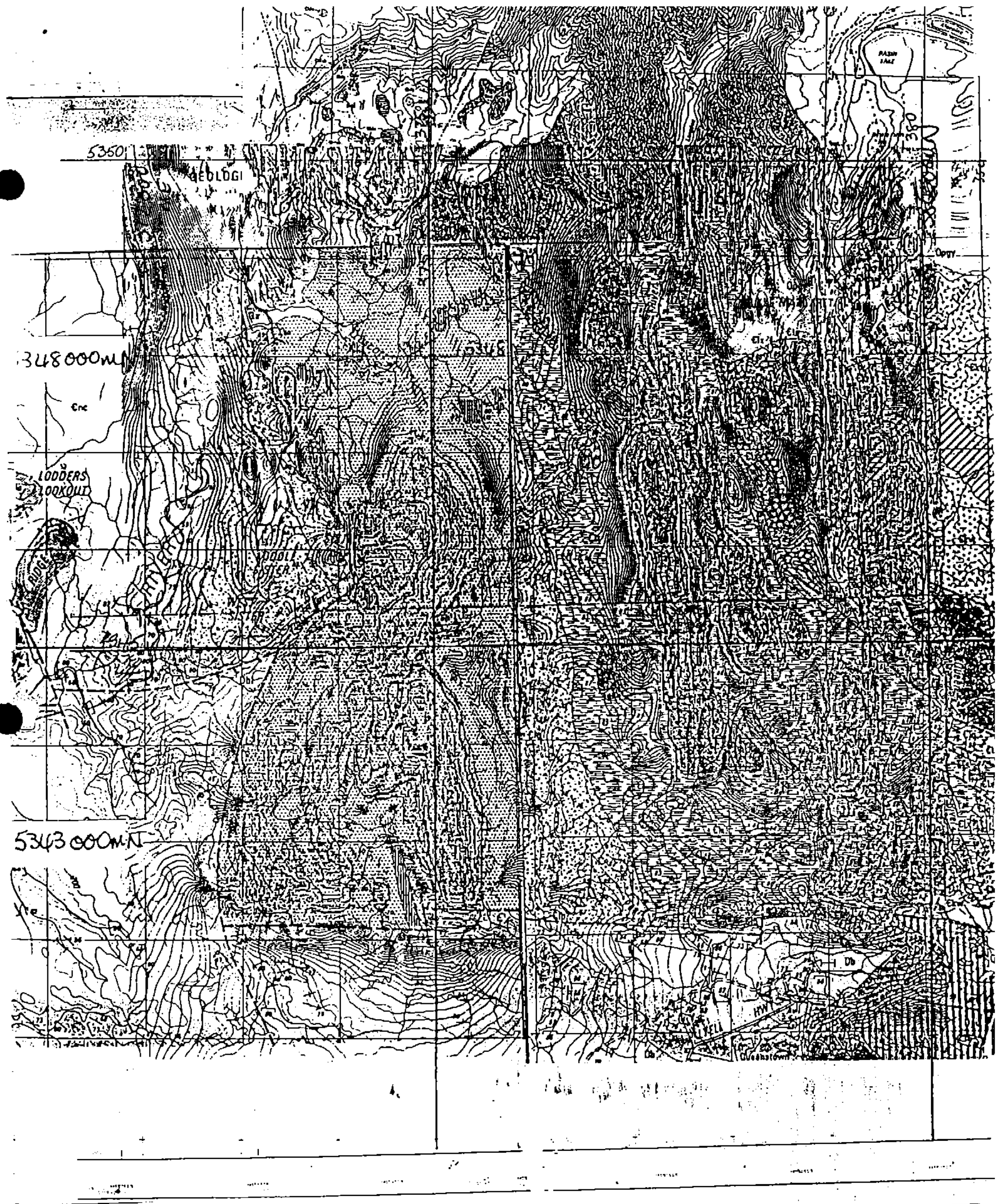
786042 FIGURE 4



786043

GEOLOGICAL BASEMAP COMPILATION YOLANDE RIVER REGION
Mines Department sources including Baillie (1977), Corbett et al (1989)

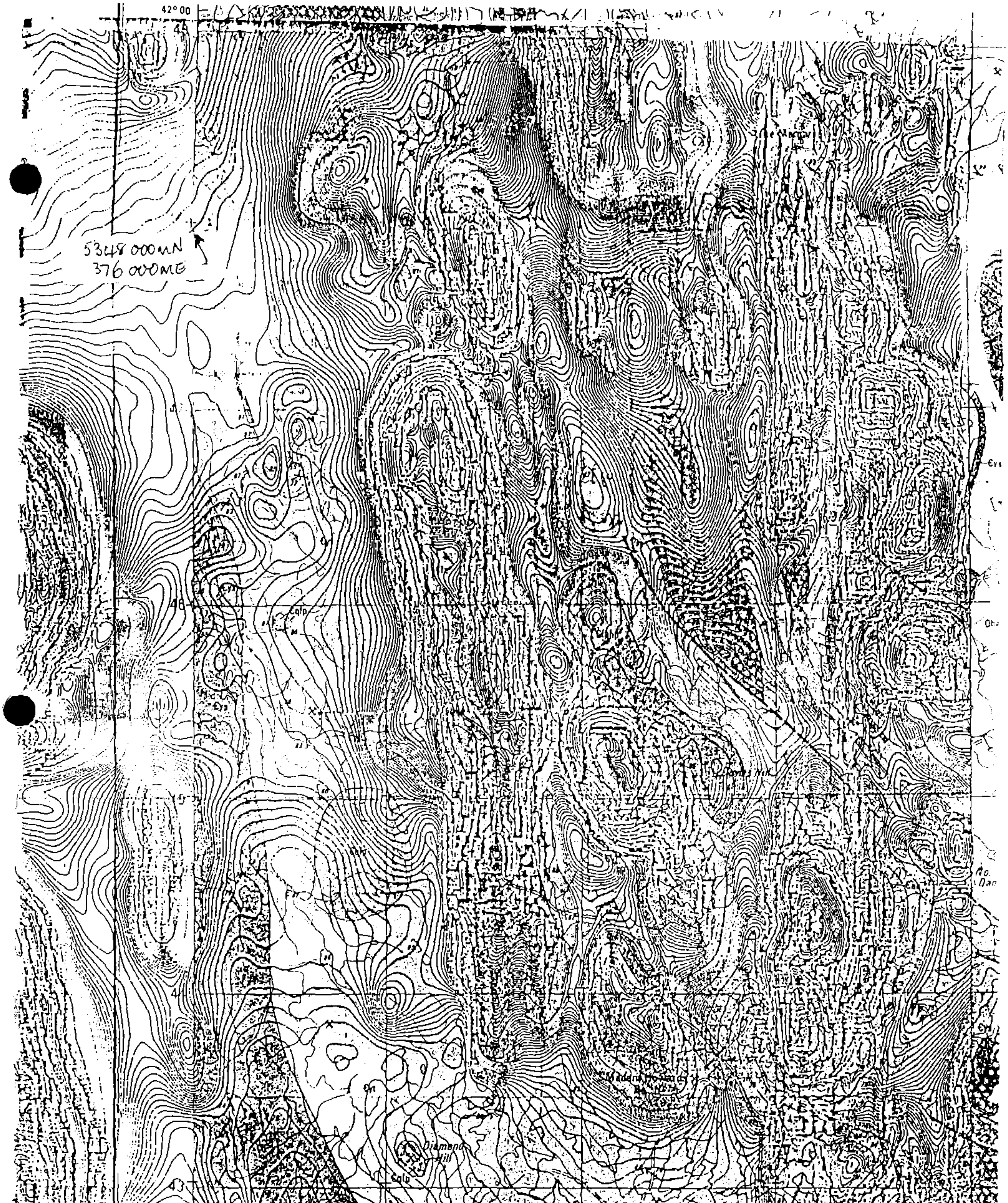
FIGURE 5



786044

OVERVIEW OF GEOLOGY AND MAGNETIC FIELD EL 25/91 YOLANDE RIVER

FIGURE 6



GEOLOGY AND MAGNETIC FIELD IN EASTERN HALF OF EL 25/91
YOLANDE RIVER

786045

FIGURE 7

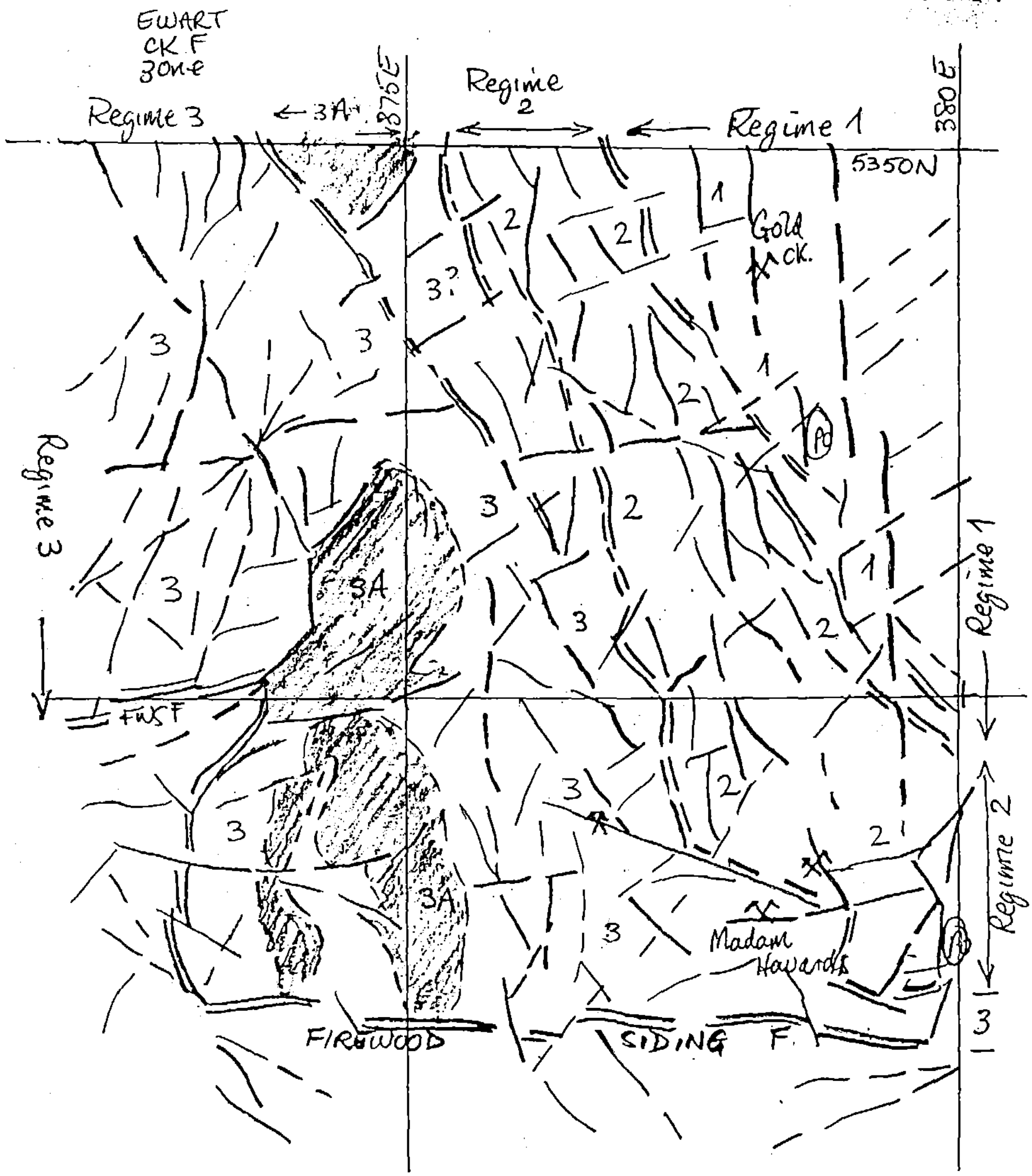
5342N
380E

GEOLOGY AND MAGNETIC FIELD IN WESTERN HALF OF EL 25/91
YOLANDE RIVER

786046

FIGURE 8

786047



TRENDS RECOGNISED IN THE MAGNETIC FIELD ACROSS THE YOLANDE RIVER LICENCE AREA EL 25/91

FIGURE 9

LEAMAN GEOPHYSICS
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Hobart, Tasmania 7001

07/93

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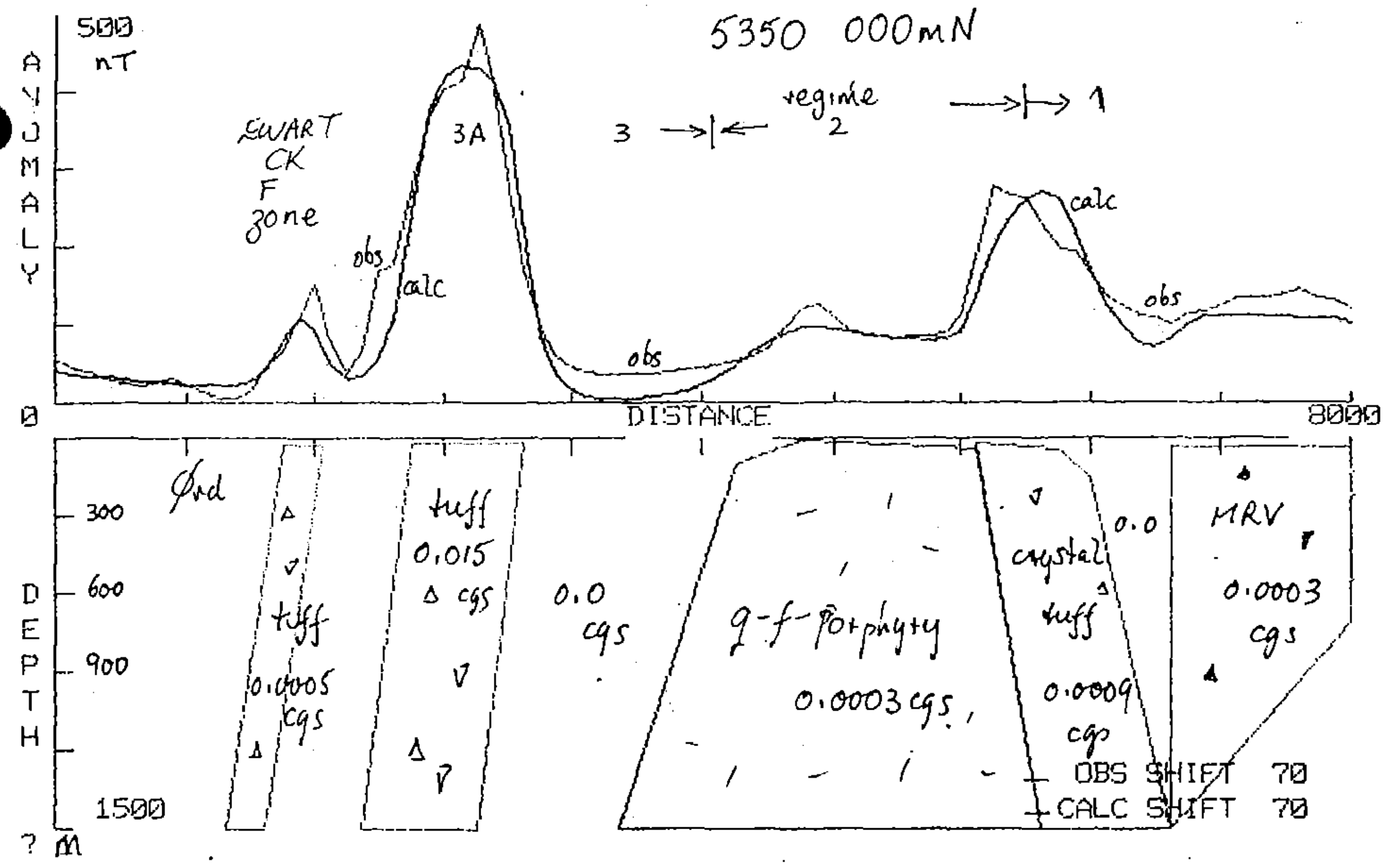
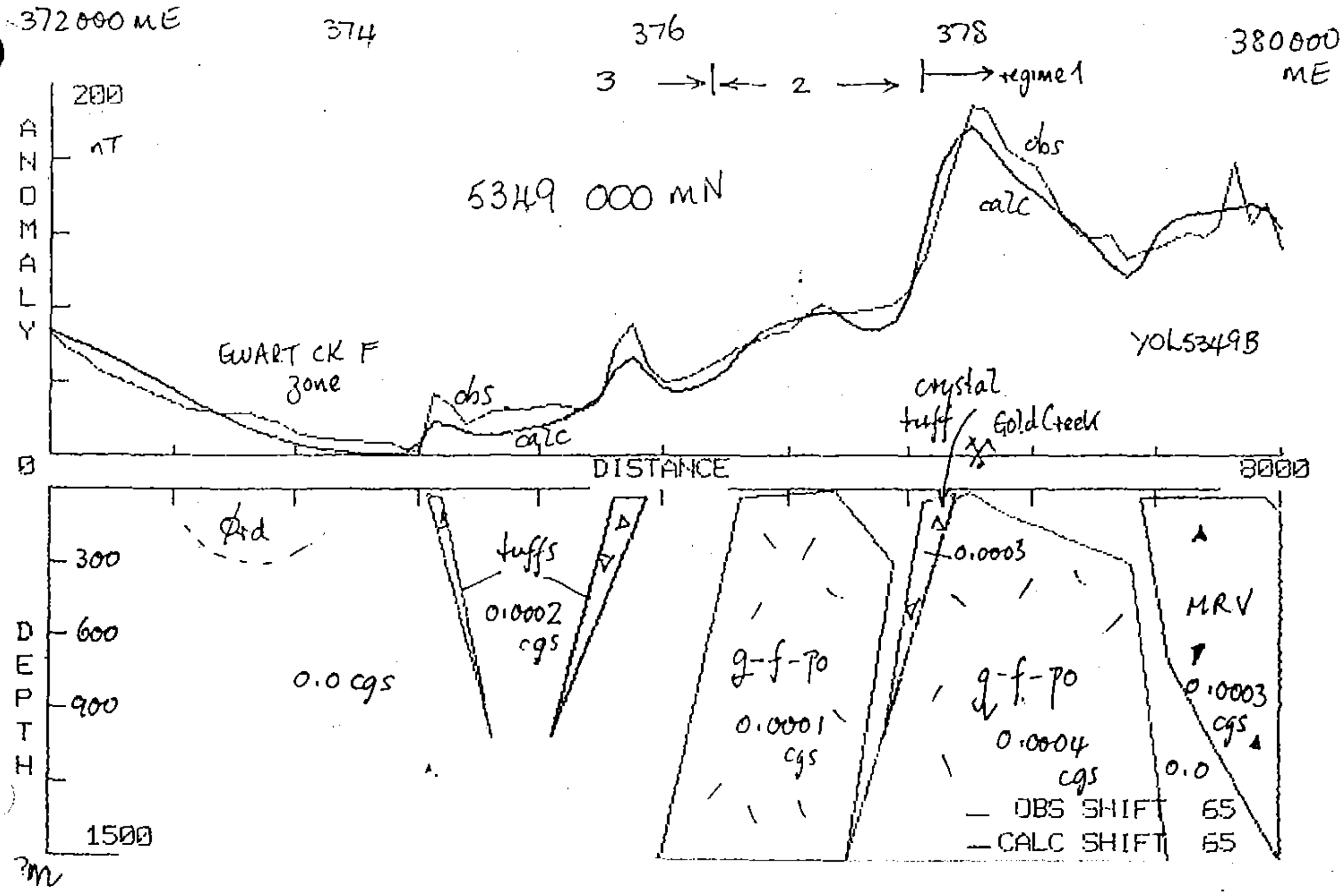
Hobart, Tasmania 7001





PRELIMINARY 2D MAGNETIC MODELS 5350 000 N YOLANDE RIVER REGION
5349 000 N

FIGURE 10

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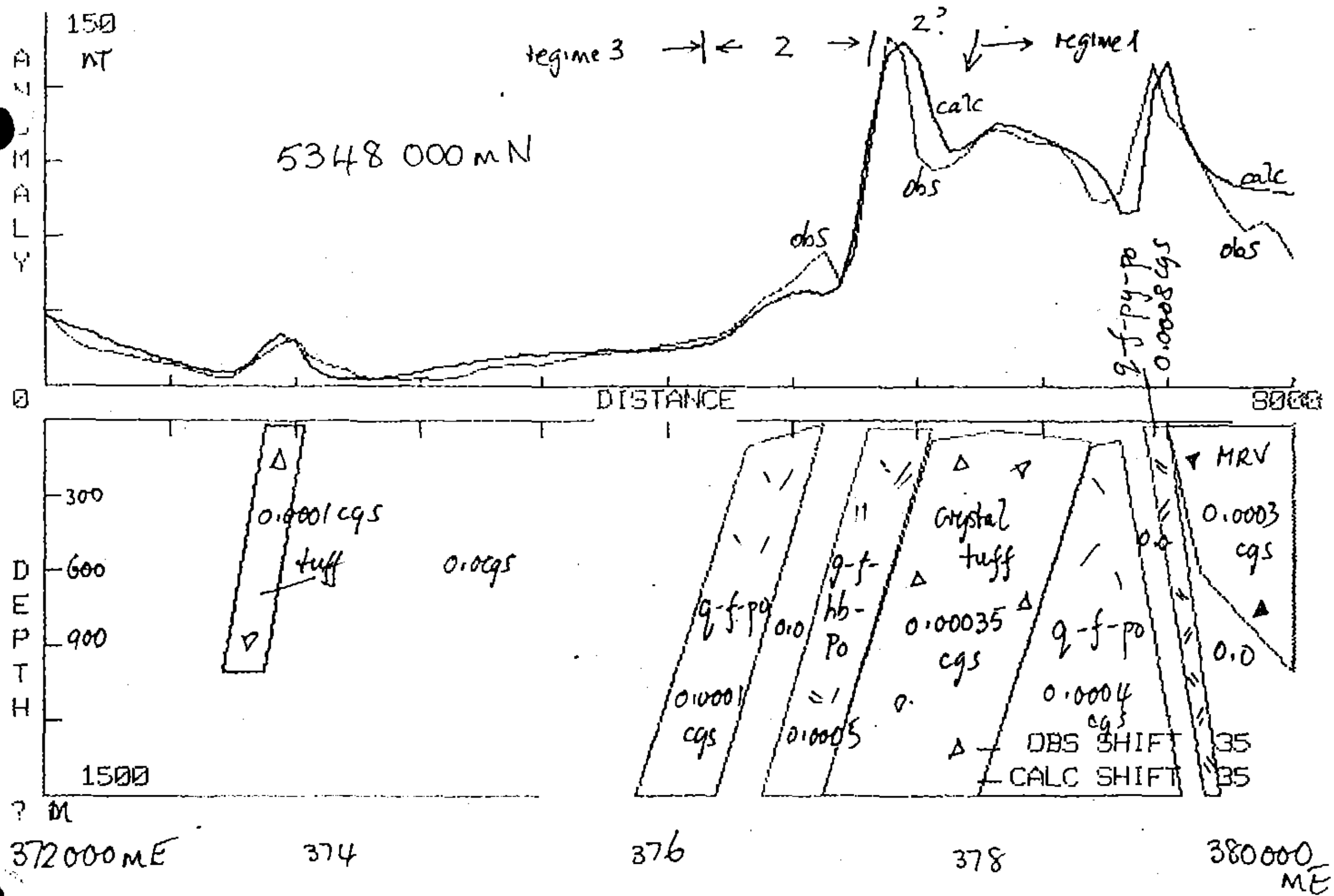
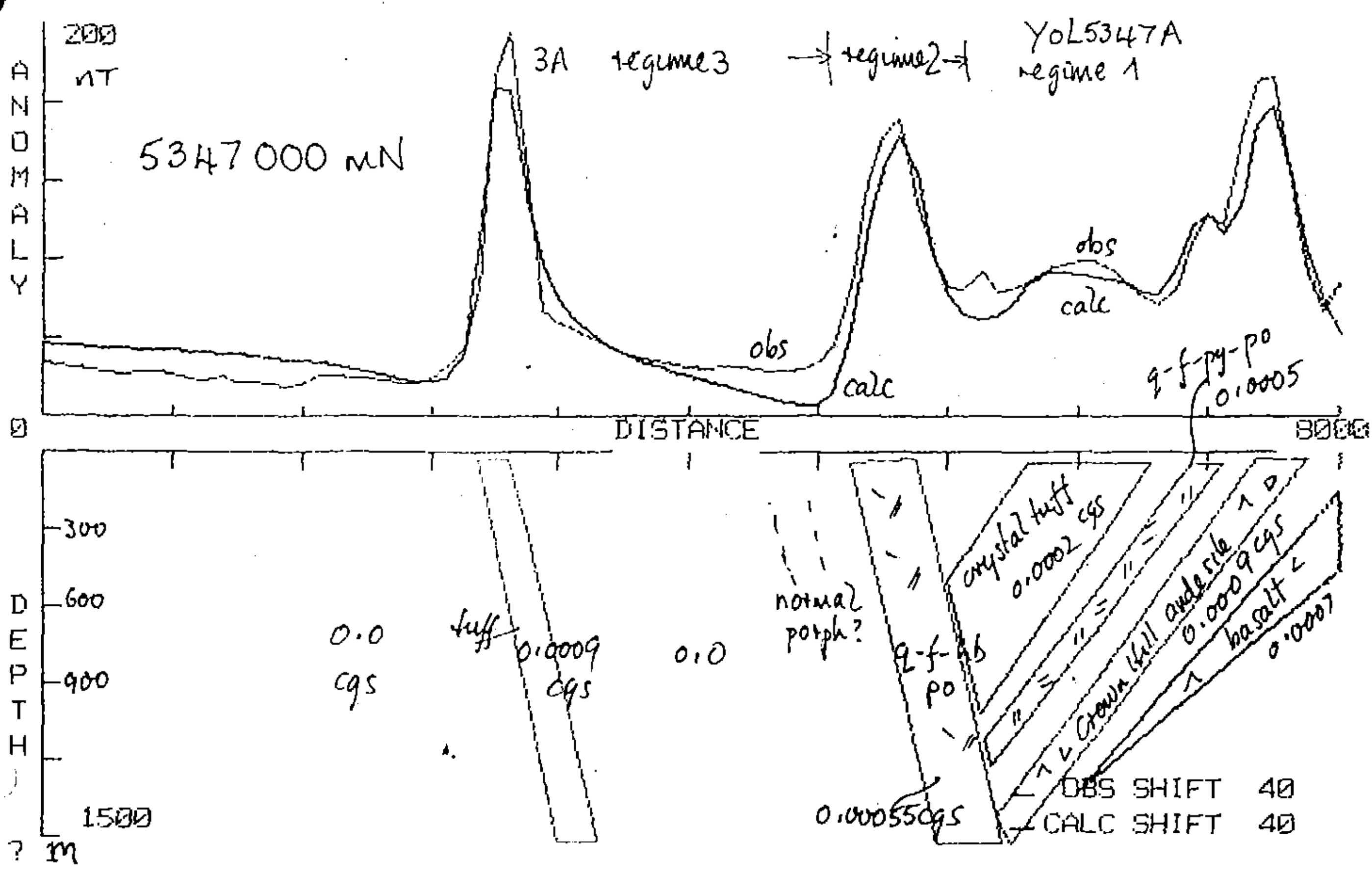
Hobart, Tasmania 7001





PRELIMINARY 2D MAGNETIC MODELS 5348 000 N YOLANDE RIVER REGION
5347 000 N

FIGURE 11

LEAMAN GEOPHYSICS
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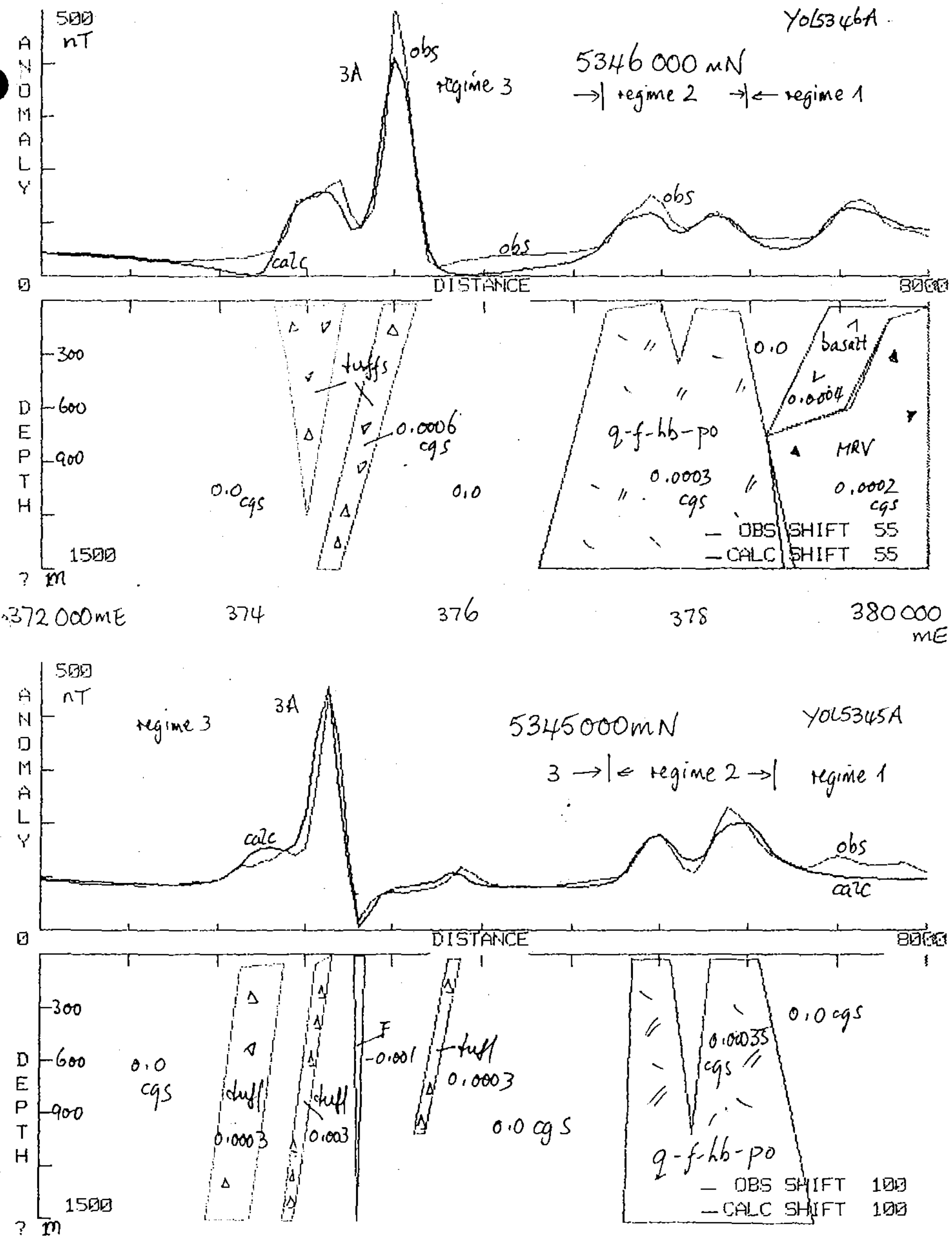
Hobart, Tasmania 7001



PRELIMINARY 2D MAGNETIC MODELS 5346 000 N YOLANDE RIVER REGION
5345 000 N

FIGURE 12

LEAMAN GEOPHYSICS
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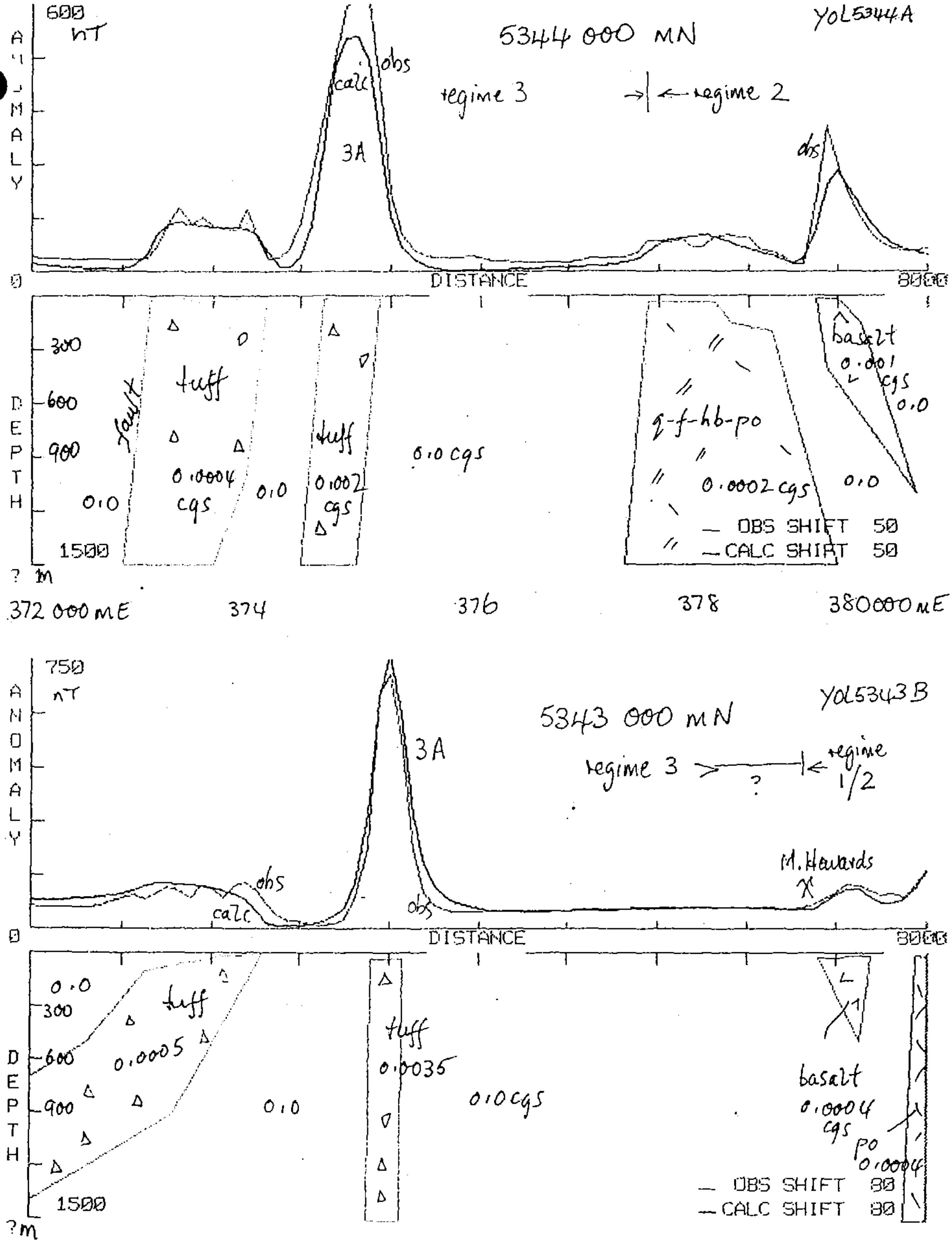
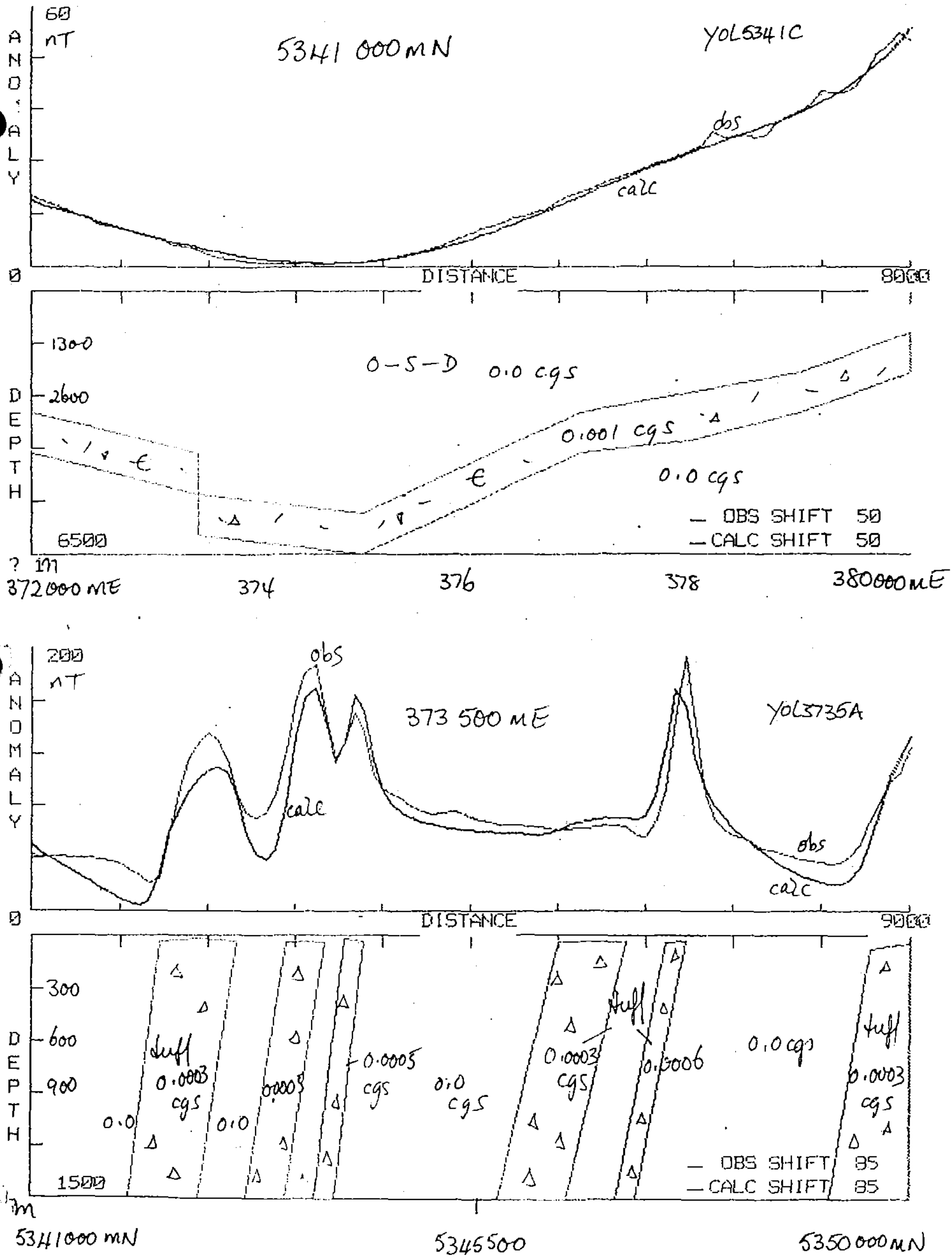
Hobart, Tasmania 7001



PRELIMINARY 2D MAGNETIC MODELS 5344 000 N YOLANDE RIVER REGION
5343 000 N

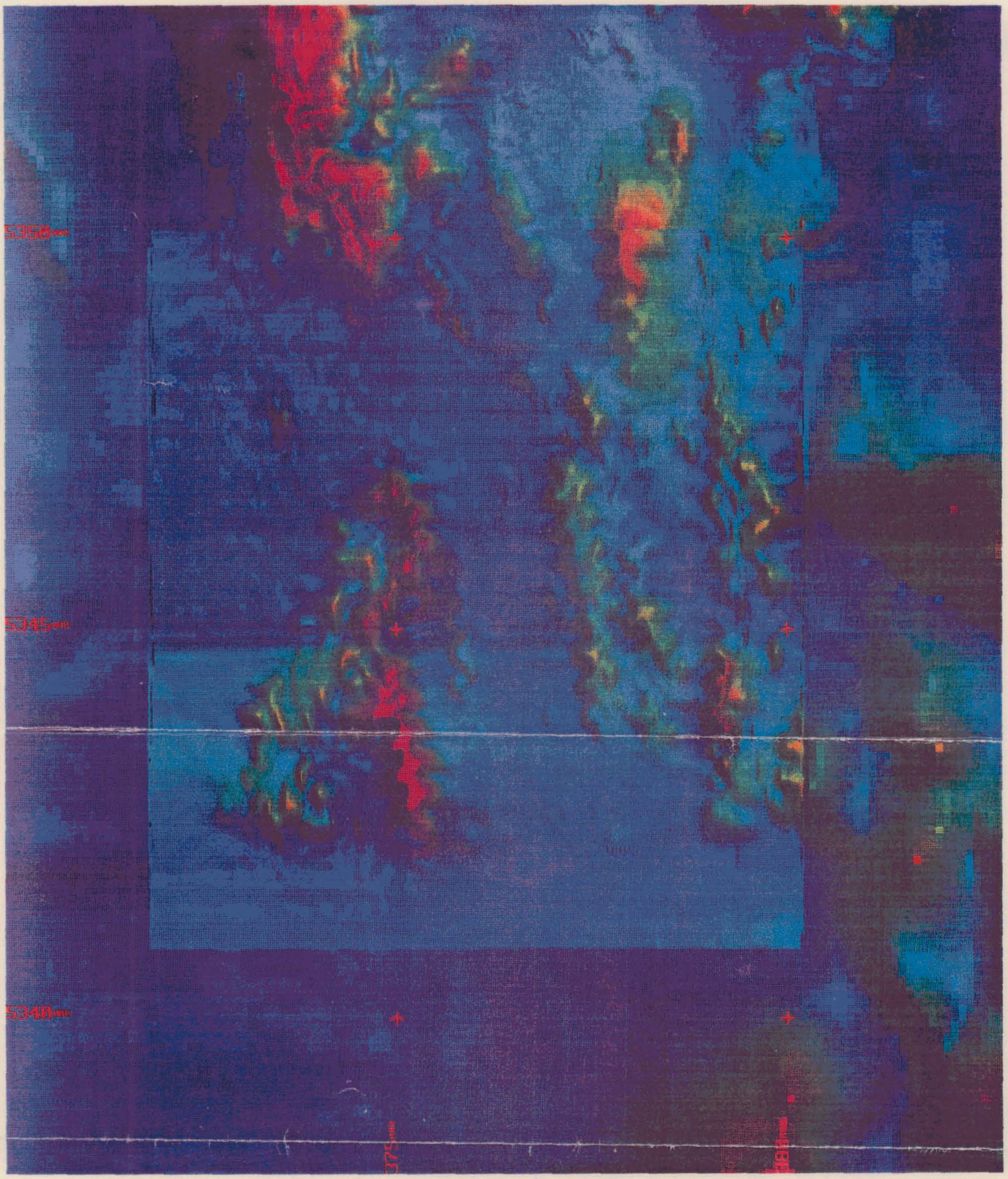
FIGURE 13



PRELIMINARY 2D MAGNETIC MODELS 5431 000 N YOLANDE RIVER REGION
373 500 E

FIGURE 14

LEAMAN GEOPHYSICS
G.P.O. Box 320 D.
Hobart, Tasmania 7001

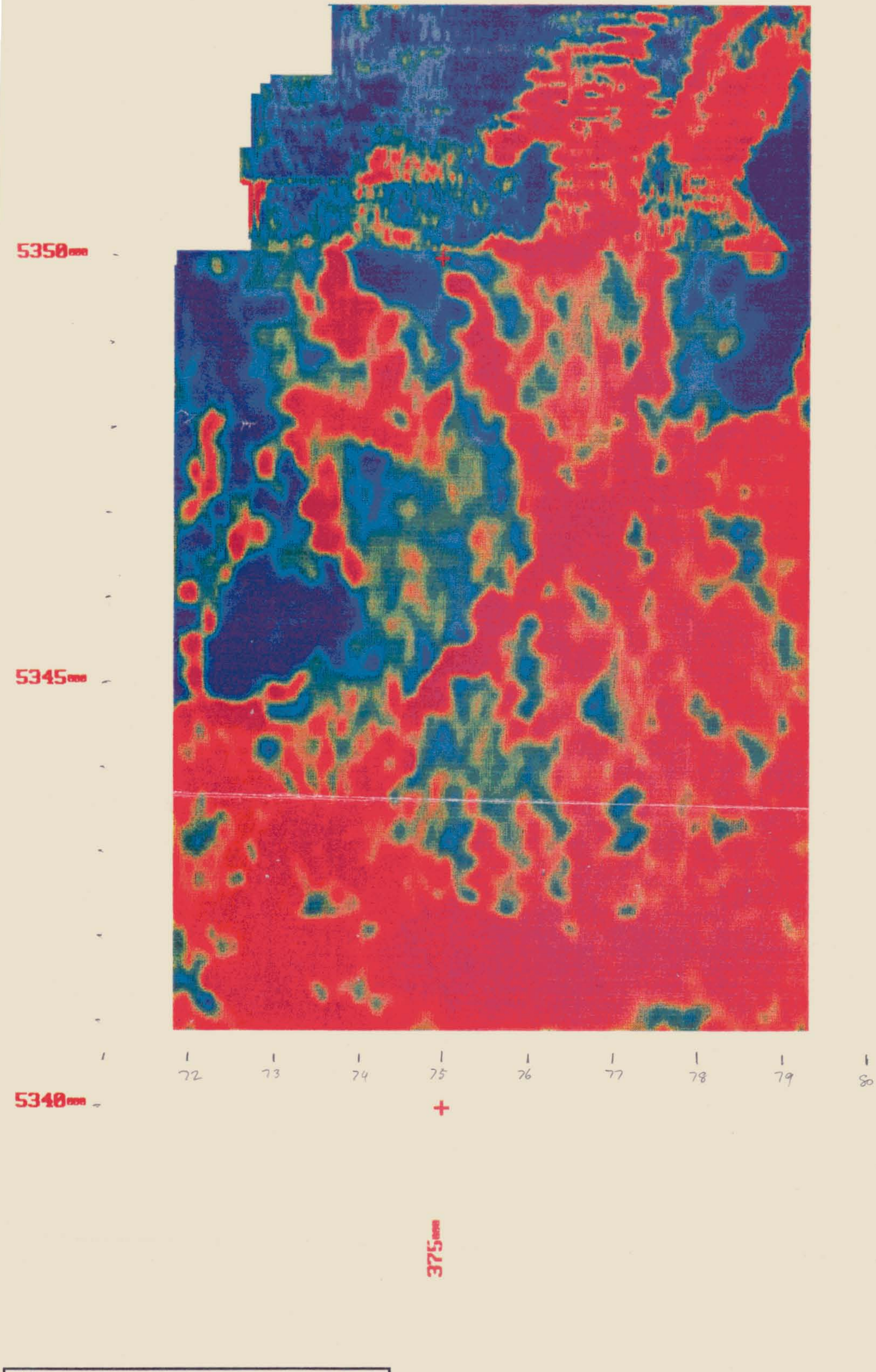


PASMINCO EXPLORATION

A Division of Pasminco Australia Limited

COMPILED :	E.L. 11/85 - YOLANDE JV
DATE : July, 1993	
DRAWN :	YOLANDE RIVER
REF. :	MAGNETICS
REVISIONS :	colour drape s/a NE45-70
DRAWING No.	SCALE 1:50,000 0 — 1,000 m
FIG. No.	4

5 cm

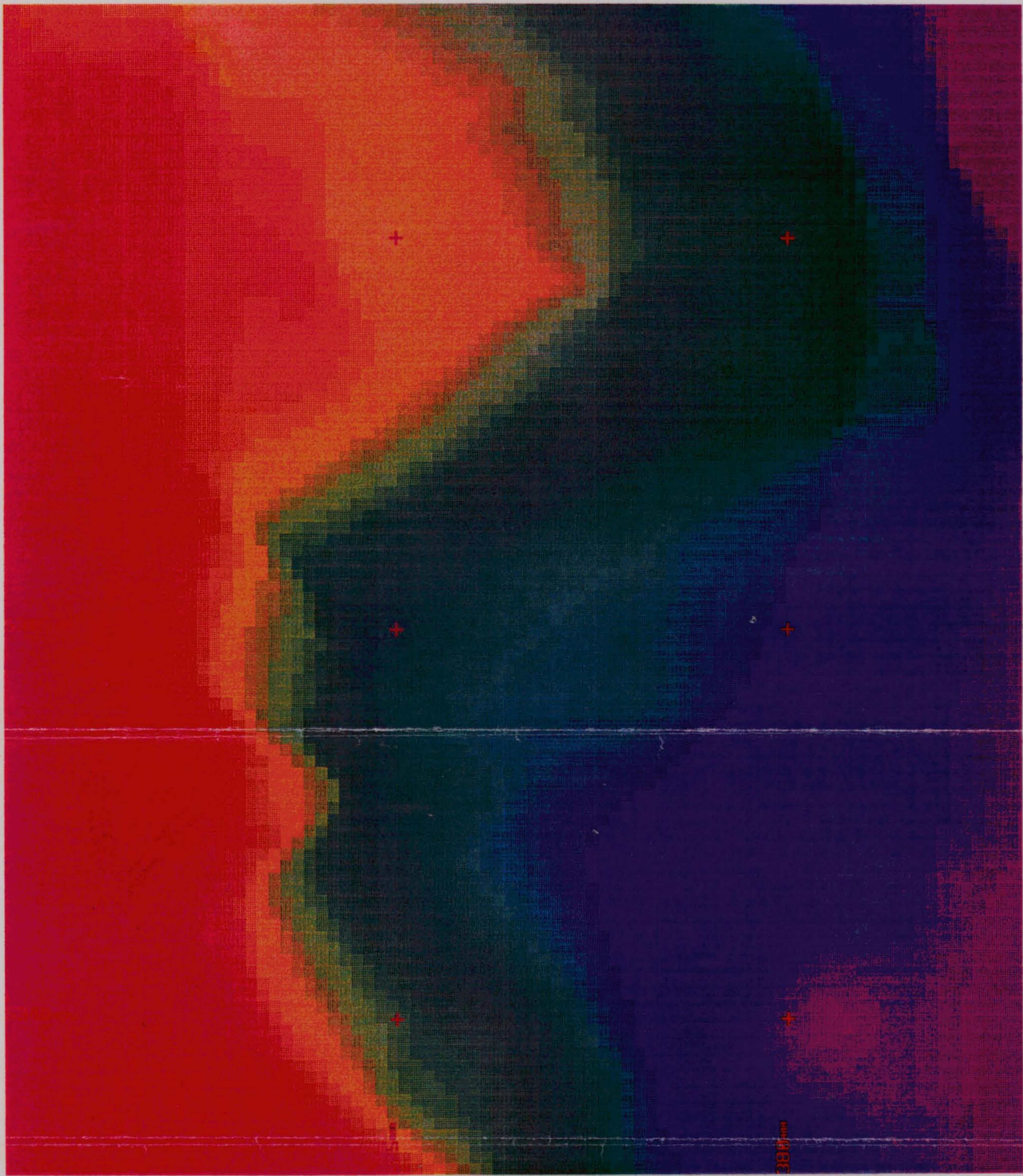


PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED :	E.L. 11/85 - YOLANDE JV
DATE : July, 1993	
DRAWN :	YOLANDE RIVER
REF. :	
REVISIONS :	RADIOMETRICS Total Count pseudo-colour
DRAWING No.	SCALE 1:50,000 — 0 — 1,000 m — FIG. No. 5

5 cm

786054



PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED :	E.L. 11/85 - YOLANDE JV
DATE : **July, 1993**	
DRAWN :	
REF. :	**YOLANDE RIVER**
REVISIONS :	**GRAVITY**
	pseudocolour
DRAWING No.	SCALE 1:50,000 — 0 to 1,000 m — FIG. No. 6

5 cm

AIRBORNE SURVEY SPECIFICATIONS

AIRCRAFT :	Squirrel Helicopter
MAGNETOMETER :	SCINTREX cesium vapour optical absorption mounted on a bird Sensitivity : 0.05 nT
RECORDING INTERVAL :	0.1 sec
NOMINAL TERRAIN CLEARANCE :	Sensor in towed bird at 80 m
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 16.8 litres
TOTAL COUNT WINDOW :	0.4 - 3.00 MeV
POTASSIUM WINDOW :	1.35 - 1.57 MeV
URANIUM WINDOW :	1.63 - 1.89 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec
DATA RECORDING :	Geoterrex MADACS acquisition system Digital to magnetic tape
NOMINAL TERRAIN CLEARANCE :	Detectors in aircraft at 110 m
NOMINAL LINE SPACING :	Traverse lines 200 m Tie lines 2.0 km
FLIGHT PATH NAVIGATION :	SERCEL NR103 GPS and SERCEL NDS100 UHF DGPS navigation system
FLIGHT PATH RECORD :	real time from UHF DGPS system corrected for selected availability

FLIGHT PATH

Grid notation refers to Australian Map Grid Zone 55

Navigation fix · 32768

MAP INDEX

145°26'30"E 145°33'30"E
41°59'00"S 1 41°59'00"S
2
42°05'00"S 42°05'00"S
145°26'30"E 145°33'30"E

95-3746

YOLANDE RIVER EL 25/91 ANNUAL AND FINAL REPORT JUNE 1995 - QUAYLE P M - PASMINCO

TN GN MN

Grid Convergence = 1.01°
Declination = 13.03°

SCALE 1:10000

200 0 200 400 600 800 m

5 cm

JOB NO : 3-446
Surveyed by GEOTERREX PTY LTD : March 1993
Compiled by GEOTERREX PTY LTD, SYDNEY
Processed by GEOTERREX PTY LTD, SYDNEY

786059

PASMINCO EXPLORATION

YOLANDE RIVER EL 25/91
FLIGHT PATH
BURNIE SK55-3
SHEET 2 OF 2

fig.9

DRAWING NO: | DATE : 13-MAY-1993

AIRBORNE SURVEY SPECIFICATIONS

AIRCRAFT :	Squirrel Helicopter
MAGNETOMETER :	SCINTREX cesium vapour optical absorption mounted on a bird Sensitivity : 0.05 nT
RECORDING INTERVAL :	0.1 sec
NOMINAL TERRAIN CLEARANCE :	Sensor in towed bird at 80 m
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 16.8 litres
TOTAL COUNT WINDOW :	0.4 - 3.00 MeV
POTASSIUM WINDOW :	1.35 - 1.57 MeV
URANIUM WINDOW :	1.63 - 1.89 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec
DATA RECORDING :	Geoterrex MADACS acquisition system Digital to magnetic tape
NOMINAL TERRAIN CLEARANCE :	Detectors in aircraft at 110 m
NOMINAL LINE SPACING :	Traverse lines 200 m Tie lines 2.0 km
FLIGHT PATH NAVIGATION :	SERCEL NR103 GPS and SERCEL NDS100 UHF DGPS navigation system
FLIGHT PATH RECORD :	real time from UHF DGPS system corrected for selected availability

FLIGHT PATH

Grid notation refers to Australian Map Grid Zone 55

Navigation fix . 32768

MAP INDEX

145°26'30"E 145°33'30"E
41°59'00"S 1 41°59'00"S
2
42°05'00"S 42°05'00"S
145°26'30"E 145°33'30"E

95-3746

YOLANDE RIVER EL 25/91 ANNUAL AND FINAL REPORT JUNE 1995 - QUAYLE P M - PASMINCO

TN GN MN

Grid Convergence = 1.00°
Declination = 13.03°

SCALE 1:10000

200 0 200 400 600 800 m

5 cm

JOB NO : 3-446
Surveyed by GEOTERREX PTY LTD : March 1993
Compiled by GEOTERREX PTY LTD, SYDNEY
Processed by GEOTERREX PTY LTD, SYDNEY

786058

PASMINCO EXPLORATION

YOLANDE RIVER EL 25/91
FLIGHT PATH
BURNIE SK55-3
SHEET 1 OF 2

fig.8

DRAWING NO: | DATE : 13-MAY-1993

AIRBORNE SURVEY SPECIFICATIONS

AIRCRAFT :	Squirrel Helicopter
MAGNETOMETER :	SCINTREX cesium vapour optical absorption mounted on a bird Sensitivity : 0.05 nT
RECORDING INTERVAL :	0.1 sec
NOMINAL TERRAIN CLEARANCE :	Sensor in towed bird at 80 m
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 16.8 litres
TOTAL COUNT WINDOW :	0.4 - 3.00 MeV
POTASSIUM WINDOW :	1.35 - 1.57 MeV
URANIUM WINDOW :	1.63 - 1.89 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec
DATA RECORDING :	Geoterrex MADACS acquisition system Digital to magnetic tape
NOMINAL TERRAIN CLEARANCE :	Detectors in aircraft at 110 m
NOMINAL LINE SPACING :	Traverse lines 200 m Tie lines 2.0 km
FLIGHT PATH NAVIGATION :	SERCEL NR103 GPS and SERCEL NDS100 UHF DGPS navigation system
FLIGHT PATH RECORD :	real time from UHF DGPS system corrected for selected availability

RESIDUAL MAGNETIC CONTOURS

Grid notation refers to Australian Map Grid Zone 55

Magnetics :	Diurnals removed, tie-line levelled
IGRF :	1990 model (updated for secular variation to March 1993) removed, datum 2000 nT added
Total Field :	62335 nT (at 420000S, 1453000E)
Inclination :	72.5 degrees S
Declination :	13.03 degrees E
Grid mesh size :	50 x 50 metres
Grid filter :	None
Contour interval :	1, 10 and 100 nT

MAP INDEX

145°26'30"E 145°33'30"E
41°59'00"S 1 41°59'00"S
2
42°05'00"S 42°05'00"S
145°26'30"E 145°33'30"E

95-3746

YOLANDE RIVER EL 25/91 ANNUAL AND FINAL REPORT JUNE 1995 - QUAYLE P M - PASMINCO

GN
TN
MN

Grid Convergence = 1.00°
Declination = 13.03°

SCALE 1:10000

200 0 200 400 600 800 m

5 cm

JOB NO : 3-446
Surveyed by GEOTERREX PTY LTD : March 1993
Compiled by GEOTERREX PTY LTD, SYDNEY
Processed by GEOTERREX PTY LTD, SYDNEY

786056

PASMINCO EXPLORATION

YOLANDE RIVER EL 25/91
RESIDUAL MAGNETIC CONTOURS
BURNIE SK55-3
SHEET 1 OF 2

fig.10

DRAWING NO: | DATE : 12-MAY-1993

AIRBORNE SURVEY SPECIFICATIONS

AIRCRAFT :	Squirrel Helicopter
MAGNETOMETER :	SCINTREX cesium vapour optical absorption mounted on a bird Sensitivity : 0.05 nT
RECORDING INTERVAL :	0.1 sec
NOMINAL TERRAIN CLEARANCE :	Sensor in towed bird at 80 m
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 16.8 litres
TOTAL COUNT WINDOW :	0.4 - 3.00 MeV
POTASSIUM WINDOW :	1.35 - 1.57 MeV
URANIUM WINDOW :	1.63 - 1.89 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec
DATA RECORDING :	Geoterrex MADACS acquisition system Digital to magnetic tape
NOMINAL TERRAIN CLEARANCE :	Detectors in aircraft at 110 m
NOMINAL LINE SPACING :	Traverse lines 200 m Tie lines 2.0 km
FLIGHT PATH NAVIGATION :	SERCEL NR103 GPS and SERCEL NDS100 UHF DGPS navigation system
FLIGHT PATH RECORD :	real time from UHF DGPS system corrected for selected availability

5345000N

RESIDUAL MAGNETIC CONTOURS

Grid notation refers to Australian Map Grid Zone 55

Magnetics :	Diurnals removed, tie-line levelled
IGRF :	1990 model (updated for secular variation to March 1993) removed, datum 2000 nT added
Total Field :	62335 nT (at 420000S, 1453000E)
Inclination :	72.5 degrees S
Declination :	13.03 degrees E
Grid mesh size :	50 x 50 metres
Grid filter :	None
Contour interval :	1, 10 and 100 nT

5344000N

5343000N

MAP INDEX

145°26'30"E 145°33'30"E
41°59'00"S 41°59'00"S
1
2
42°05'00"S 42°05'00"S
145°26'30"E 145°33'30"E

5342000N

95-3746

YOLANDE RIVER EL 25/91 ANNUAL AND FINAL REPORT JUNE 1995 - QUAYLE
P M - PASMINCO

TN GN MN

5341000N

Grid Convergence = 1.01°
Declination = 13.03°

SCALE 1:10000

200 0 200 400 600 800 m

5 cm

JOB NO : 3-446
Surveyed by GEOTERREX PTY LTD : March 1993
Compiled by GEOTERREX PTY LTD, SYDNEY
Processed by GEOTERREX PTY LTD, SYDNEY

786057

5340000N

PASMINCO EXPLORATION

YOLANDE RIVER EL 25/91
RESIDUAL MAGNETIC CONTOURS
BURNIE SK55-3
SHEET 2 OF 2

fig.11

DRAWING NO:	DATE : 12-MAY-1993