Zelos Resources NL

EL 42/2004 Mt Bertha

Year 1 Annual Report

For the period 1 July 2005 to 1 March 2006

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7 November 2006

ZELOS

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Abstract

EL 42/2004 the Mt Bertha licence, is in the interior of the north- west quarter of the state. This is a large area and is prospective for iron ore repetitions of the Savage River mine, base metals (copper,lead zinc,silver) as well as gold.
The new government sponsored airborne magnetic surveys has revitalized the prospectivity of the area and the company intends to take maximum advantage of this new data.

The geology of the Mt. Bertha licence comprises a variable volcano-sedimentary package of Neoproterozoic-aged rocks including part of the Arthur Metamorphic Complex. The Arthur Metamorphic Complex occupies a tectonic feature also known as the Arthur Lineament and lies between the Rocky Cape and Dundas stratotectonic elements. The complex is a strongly deformed blueschist and greenschist grade metamorphic belt 11Okm long by 1Okm wide running northeast-southwest across North West Tasmania. The lateral boundaries of the complex are transitional into less deformed and less metamorphosed rocks. The lineament is thought to represent a major tectonic boundary between the Rocky Cape and the Sheffield Stratotectonic Elements. The rock sequences within the complex are rich in industrial mineral deposits eg iron ore at Savage River, sillca sand at Corinna, magnesite at Keith River etc.

The company's consulting geophysicist Nigel Hungerford was asked to do a Geophysical Interpretation Report of all the available (old and new) geophysical data available over the EL.

He considered the relevance of the known geology to the geophysics results, listed what types of surveys , by whom , when they were carried out. He included a table of rock signatures, a suite of geophysical maps and generated several targets to be followed up.

It was therefore concluded that "ground truthing and selection of sites" become the subject of further exploration activity with drilling being the result of this field investigation.

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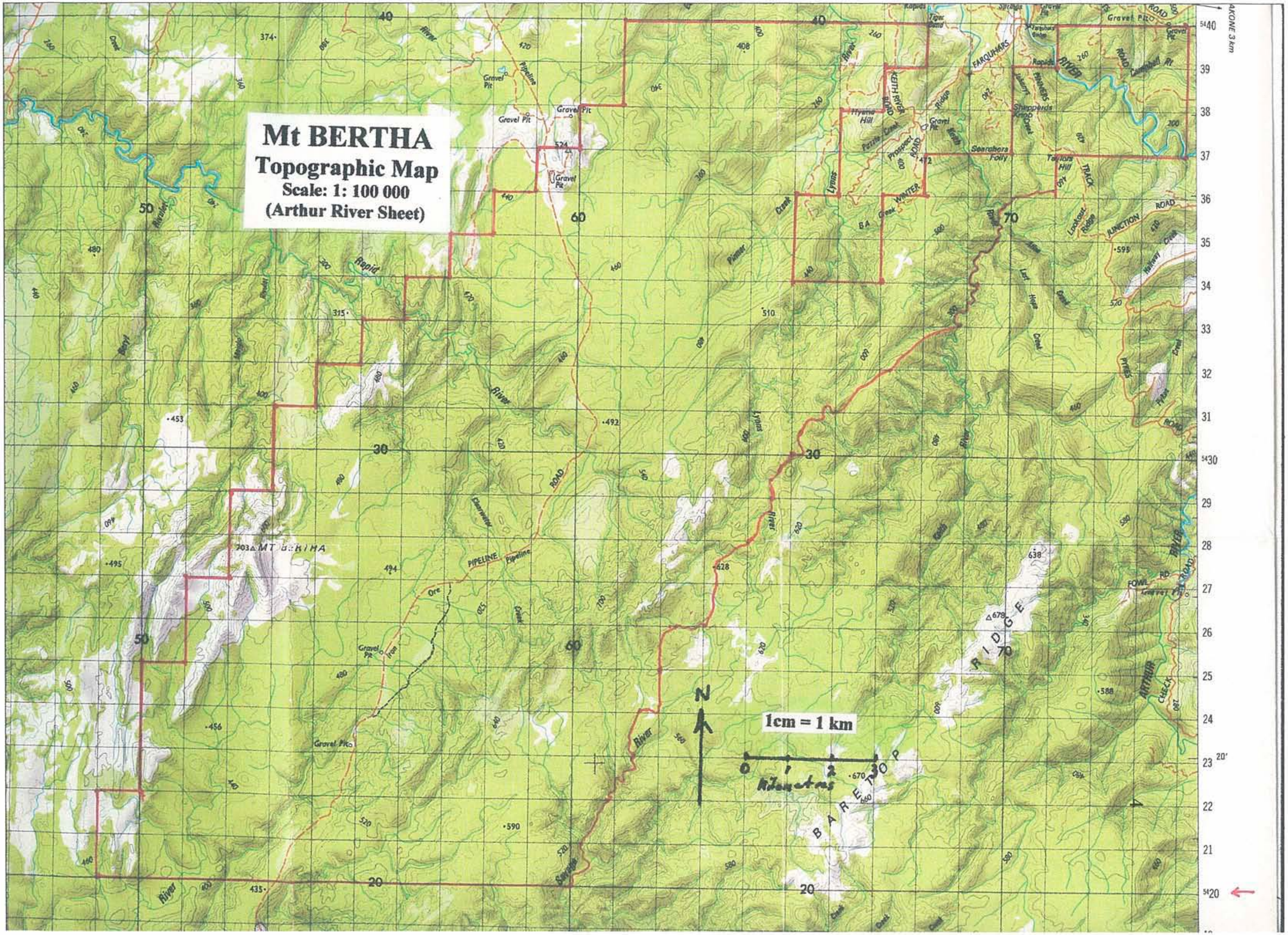

Mt BERTHA
Topographic Map
Scale: 1: 100 000
(Arthur River Sheet)
1cm = 1 km
Kilometres
N
MT BERTHA
BARE TOP
RIDGE
ARTHUR
RIVER
Rapid
River
Lyons
Keith River Road
Pipeline
Gravel Pit
AKONE 3 km

1 Introduction

1.1 Exploration Rational

EL 42/2004 the Mt Bertha licence, is in the interior of the north- west quarter of the state.

This is a large area and is prospective for iron ore repetitions of the Savage River mine, base metals (copper,lead zinc,silver) as well as gold.

Because of its isolation, extremely wet and cold weather, dense vegetation and lack of infrastructure the surface geology of the region has undergone minimal and superficial exploration in the past.

The new government sponsored airborne magnetic surveys has revitalized the prospectivity of the area and the company intends to take maximum advantage of this new data.

From the limited data available from past exploration activity it is clear that the licence area does posses a variety of geological elements that potentially offer several different types of commodity targets. These include:-

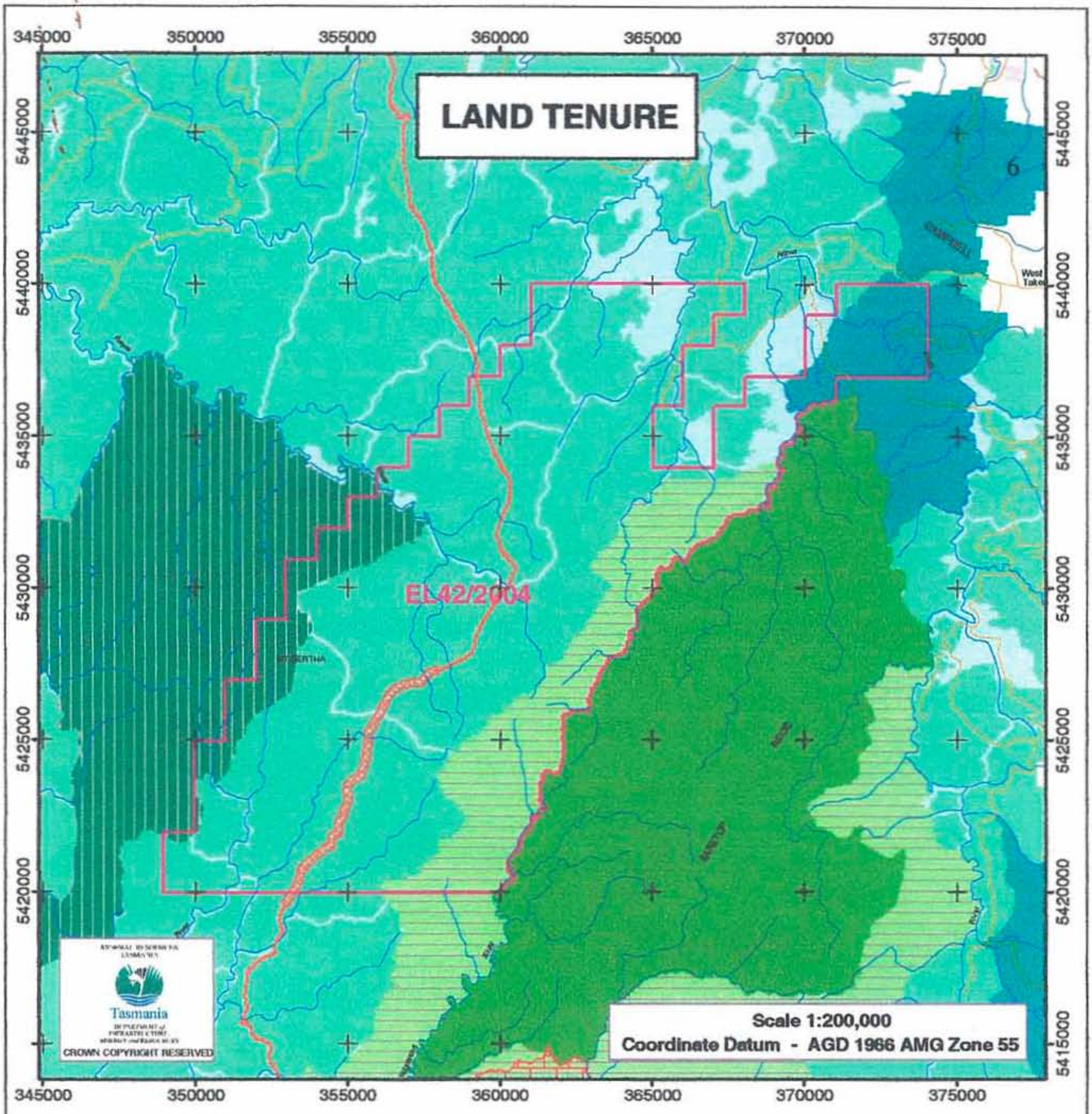
Iron ore copper-gold orebodies associated with brecciation zones along a major fault.

Gold-magnetite lodes similar to the Tennant Creek (NT) area.

Iron ore deposits similar to Savage River

Besshi-style copper mineralization is a possible target with the geologic setting similar to the Japanese Sambagawa Metamorphic Belt which hosts the "Besshi-type" deposit.

High grade magnesite similar to the deposits occurring beyond the north east corner of the licence.



Land Tenure / Special Management Areas (Guide Only)

- * Exploration Licence
- * Mining Lease
- Fossicking Area
- Gas Pipeline Corridor
- RAMSAR Site
- Phytoph Cin Management Zone
- Suspected Phytoph Cin region
- Forest Communities Managed by Prescription
- * MDC Informal Reserve
- State Forest / Hydro
- * State Forest
- * Forest Reserve
- Administratively Excluded Areas
- Aboriginal Administered Land
- Private Land
- Proposed Private Land Reserve (RFA)
- Private Land Reserve (RFA)
- Crown Land
- Public (Crown) Reserve
- Conservation Area
- * Regional Reserve
- * Nature Recreation Area
- National Park
- State Reserve
- Game Reserve
- Historic Site
- Private Nature Reserve
- Nature Reserve
- Private Sanctuary
- Proposed Reserve
- Wellington Park
- Hydro/Transend/Aurora Land
- Commonwealth Land
- World Heritage Area

Relevant tenement land tenure / land management area indicated *

Note: Land Tenure is derived from the LIST and other sources and may be incomplete.
Not all Land Tenure depicted in legend may appear on the map.

1.2 Tenement Information

EL 42/2004 Mt Bertha was granted on the 1st of March 2004 for a period of 5 years expiring on 1 March 2009.

The area is held 100%, and was granted to Zinico Resources NL which was listed on the Australian Stock Exchange on the 25th August 2005.

At the company's AGM on Tuesday 22nd November 2005 the name was changed to Zelos Resources NL.

This report covers the period when work commenced ie 1 July 2005 to 1 March 2006.

1.3 Location

The licence is in the centre of the north-west quarter of the State of Tasmania.

The centre of this large exploration area (224 square kilometres) is located 20km north east of the Savage River Iron Ore Mine and about 50km south-west of the port of Burnie.

Access to the licence is very restricted owing to the lack of road infrastructure. The only road within the licence is the road supporting the maintenance of the slurry pipe line which runs through about the middle of 2/3rds of the length of the licence.

Permission was sought and granted to use this road: on stipulated strict conditions. Forestry and other roads are available for use outside and to the north-east of the licence.

Helicopter support will be the only other viable access to many parts of the EL area.

2 Review of Previous Work

2.1 Regional Geology

The geology of the Mt. Bertha licence comprises a variable volcano-sedimentary package of Neoproterozoic-aged rocks including part of the Arthur Metamorphic Complex. The Arthur Metamorphic Complex occupies a tectonic feature also known as the Arthur Lineament and lies between the Rocky Cape and Dundas stratotectonic elements. The complex is a strongly deformed blueschist and greenschist grade metamorphic belt 11Okm long by 1Okm wide running northeast-southwest across North West Tasmania. The lateral boundaries of the complex are transitional into less deformed and less metamorphosed rocks. The lineament is thought to represent a major tectonic boundary between the Rocky Cape and the Sheffield Stratotectonic Elements. The rock sequences within the complex are rich in industrial mineral deposits eg iron ore at Savage River, sillca sand at Corinna, magnesite at Keith River etc.

In detail the Proterozoic group strikes generally northeast-southwest, is steeply dipping and young from west to east across the licence. The oldest units are siltstones and pyritic mudstones of the Early Neoproterozoic Cowrie Siltstone. These are overlain by a mixed siliciclastic package of siltstones, quartzites and sandstones with minor politic shales (Detention Quartzite, Jacobs Quartzite, Irby Siltstone etc). Subsequent units in the southern part of the property comprise carbonates, clastics, volcanic turbidites and tholeiitic basalts of the Neoproterozoic Forest Conglomerate, Togari and Ahrberg Groups. These in turn are overlain by chert, shale, conglomerate and dolomite of the Black River Dolomite and associates. To the north of the property Neoproterozoic phyllites occupy the Togari, Ahrberg and Black River Dolomite positions. The remaining Neoproterozoic sequence consists of a chloritic schist unit, the Bowry Formation, with dolomites and magnesite deposits, The youngest unit in the complex is the Keith Schist which comprises quartz mica schists, quartzite and phyllite and is thought to be a more deformed version of the east bounding Burnie and Oonah turbiditic siltstone packages (both Late Neoproterozoic in age).

There are Permian sequences that run with the structural grain along the centre of the lease and appear to be fault bounded in a graben-like structure against the various Neoproterozoic sequences. They comprise a lower glaciomarine clastic sequence with limestones and the Tasminite Oil Shale. Overlying these rocks are coal measures followed by an upper glaciomarine sequence. At the northeast corner of the tenement it appears that the Permian is unconformable onto the underlying Neoproterozoic schists.

A subsequent Tertiary basalt eruptive phase resulted in extensive coverage of the tenement (about 50%) masking the underlying Proterozoic units. A review of recently flown airborne magnetic data indicates that the basalt cover may be quite thin in several instances as demonstrated by the continuity of the Neoproterozoic-related magnetic signatures underneath the basalt cover.

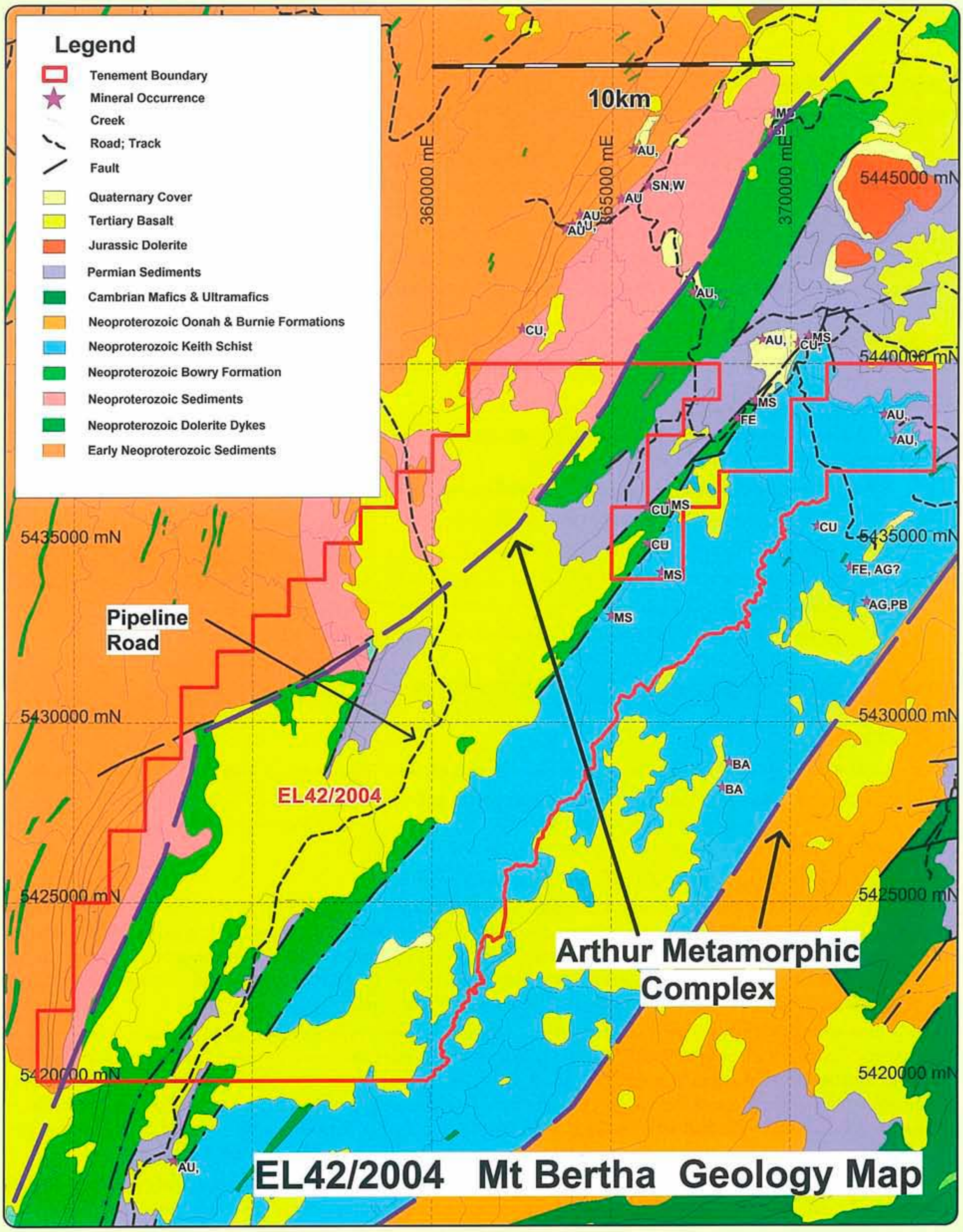


Figure 8: Geology Map of Mt Bertha

The air magnetic data also indicates a substantial structural complexity with several major structures transecting the licence. There are likely to be some differences between new geologic deductions from this air magnetic data and the published geology which may create exploration opportunities.

Reported mineral occurrences on the property are restricted to magnesite on the periphery to the main magnesite leases that occur just beyond the northeast corner of the tenement and to two small gold occurrences at the extreme north-east end of the licence. There are minor copper occurrences outside the tenement in that northeast area. The nearby Savage River lron Ore Mine (15km south west of the southern boundary) consists of concordant massive pyrite-magnetite hosted by greenschist grade tholeiitic metabasalts of the Bowry Formation. In the general area gold occurs as numerous small scale hard rock and alluvial deposits which were mainly worked in the 19th Century. A few small base metal deposits, mostly for copper, are also known around the general area (MRT data source). With a strong structural overprint, fundamental geological faults and favourable mineral hosting units there is strong potential for a variety of styles of economic gold and/or copper mineralisation within the licence.

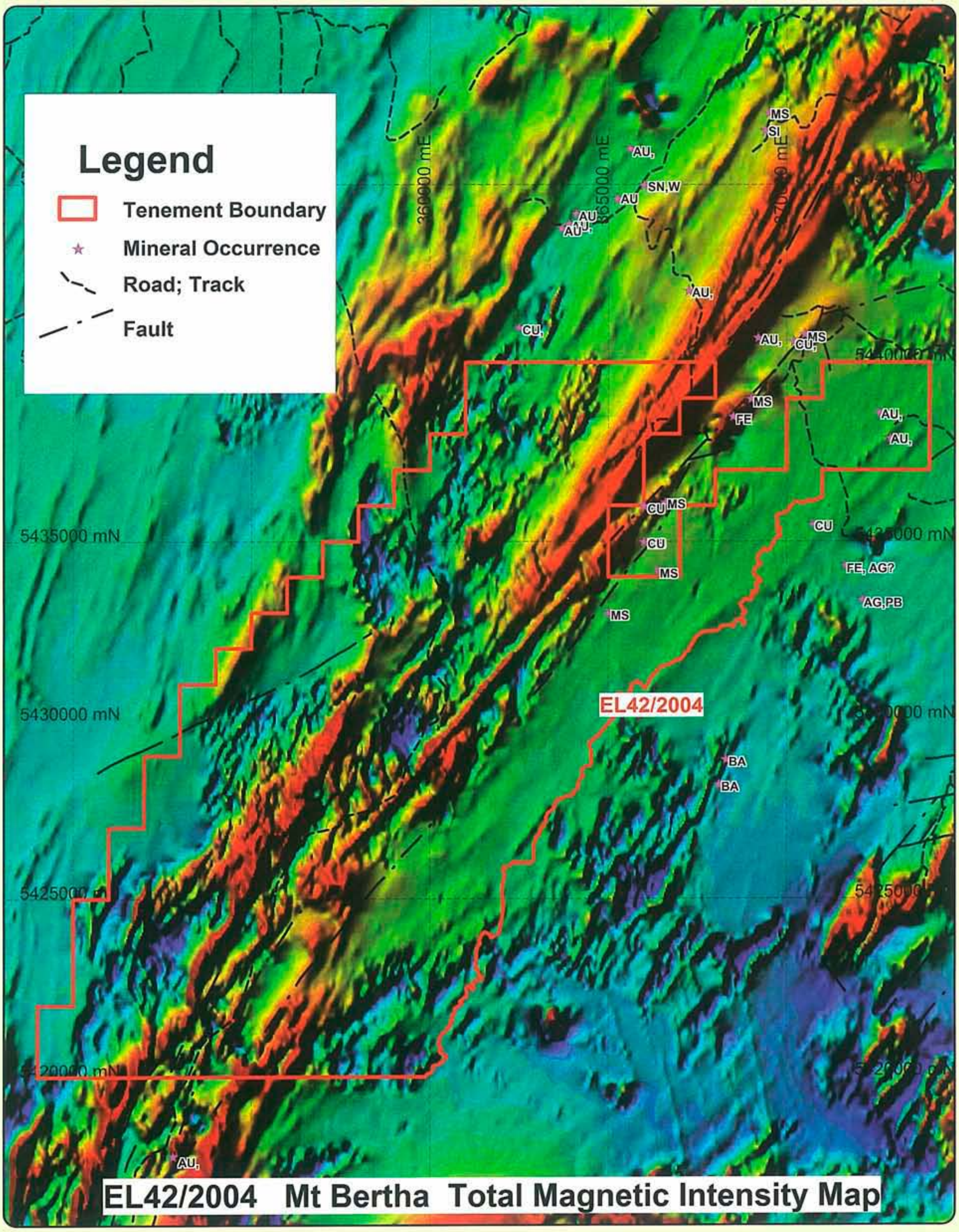


Figure 9: Magnetic Map of Mt Bertha

2.2 Previous Exploration and Mining

The North-Western quarter of Tasmania is subject to severe weather, lack of infrastructure and dense vegetation. Exploration has been inhibited by these factors and also the terrain, extensive Tertiary basalt cover and a lack of geological information.

Airborne surveys have led the way in the past with a series of anomalies being identified, some of which have been followed up. No drilling has been undertaken on the licence area but in the past, pre 1985 , only one or two holes were sunk peripheral to the licence area eg Comstaff in the 1980's.

To date no one has used the recent WTMRP airborne geophysical data to assist with geological interpretation and target selection.
Below is a very brief out line of previous explorer activity.

Pickhands-Mather carried out sizable work in the area with stream sediment surveys on a regional scale. In 1966 they developed and commenced mining at the Savage River Iron Ore (magnetite) deposit.

In 1974 Esso Minerals conducted an airborne magnetic and EM INPUT survey.

In 1978 Mineral Holdings Australia carried out exploration to the north east of the EL and outlined the magnesite deposits in the Lyons and Arthur Rivers areas.

In 1981 Comstaff Pty Ltd partially covered the licence with DIGMHEM and completed some drilling south of the current licence. The search included tin, platinum group and chromite as well as base metals.

BHP Minerals in 1982 carried out photogeology, re evaluated past surveys, stream sediments, and heavy minerals search.

CRAE followed in 1983 with airborne magnetic and radiometric survey, tested local anomalies and did some assessment of magnesite potential.

Petrecon Australia completed a new geology map in 1988.

In 1992 Geopecko carried out water and stream sediment sampling.

Allstate Exploration came in 1996 and did a geophysical report on anomaly assessment.

Titan Goldstream in 1998 carried out minor stream sediment sampling

Pacific Nevada in 1999 carried out geophysical reprocessing and minor stream sedimentary sampling. This work is the last field work carried in the licence area.

Details are in some of the above reports listed in the Reference section below.

SAVAGE RIVER MINE:
Mill Site at Top centre, Open Cut Mine mid right, River at bottom

3 Current Exploration

3.1 Literature Review

Maps and written reports have been reviewed that have (mostly only partly) covered the EL 42/2004 current area. The author of this report wrote in his report to the company Board of Directors meeting last year on Monday 7th November 2005 as follows :-

"The Mt Bertha lease, the MRT reports of which I have just completed reading, need compilation in terms of drawing all the scattered data together in one data set. For example, the streams have been only partly sampled there is no one map locating them , there are no tables as to dates work was done, by whom for what metals and what the results are, in any sensible form. All this needs to be compiled so that the many gaps can been seen in the overall picture. Only then can a sensible plan of attack be mounted for fill in data where necessary. Similarly with the geophysics it too is too generalized and we do have a new data set from the MRT. This needs to be put on clear film sheet, with another for geochemical data (if any) and then overlaid on the known (mapped) geology, compared and then further compared to the scattered field mapping and notes done on site so that any anomalies are identified as real and raised to a prospective status for field checking which may be a late summer field exercise using helicopter support. Drilling in this coming field season is extremely unlikely unless we have an outstanding anomaly that is crying out drill me. I had hoped to use Richard Keele for this exercise (may be a co worker if available). It may also be a good exercise for some one completely new to Tasmania such as Dr David Cohen of UNSW."

At the end of the year in the Quarterly report to the Australian Stock Exchange the author of this report wrote (in part) :-

" Zelos has commissioned two reports one geological and one geophysical of all existing data and they are nearing completion for analysis and planning of intended field work. This is a large area and is prospective for iron ore repetitions of Savage River, and also for base metals such as copper lead and zinc as well as silver and gold. Because of its isolation, weather, vegetation and surface geology the region has undergone minimal and superficial exploration in the past. The new government sponsored air magnetic surveys have revitalized the prospectivity of the area. Zelos is making use of this data in the studies referred to above."

At the time of the renewal of the licence ie 1 March 2006 the geophysical report was completed and it was incorporated in the geological compilation report which was not available until mid March 2006.

3.2 Regional Exploration Activities

Zelos Resources NL made early contact with Australian Bulk Minerals Ltd (the mining / milling operation at the Savage River Mine to seek permission for access to the slurry pipeline maintenance support road. This was granted providing that strict compliance is met with the conditions set.

Several field visits were made to the area which were of a reconnaissance nature and included a site visit to the Office of ABM at Burnie, the mine site and milling site at Savage River, to the clinker palletizing plant at Port Latta and along the northern portion of the slurry pipeline road.

A flight in an Aircommander light aircraft was made as part of an airborne survey of the company's EL areas.

3.3 Prospect-based Exploration Activities.

There has been no field work of any type been carried out within the EL area other than the reconnaissance visits mentioned in the notes above.

Extensive planning was done during February 2006 after the company "tech fest" meeting where the results of various studies were shared between the company and its various consultants.

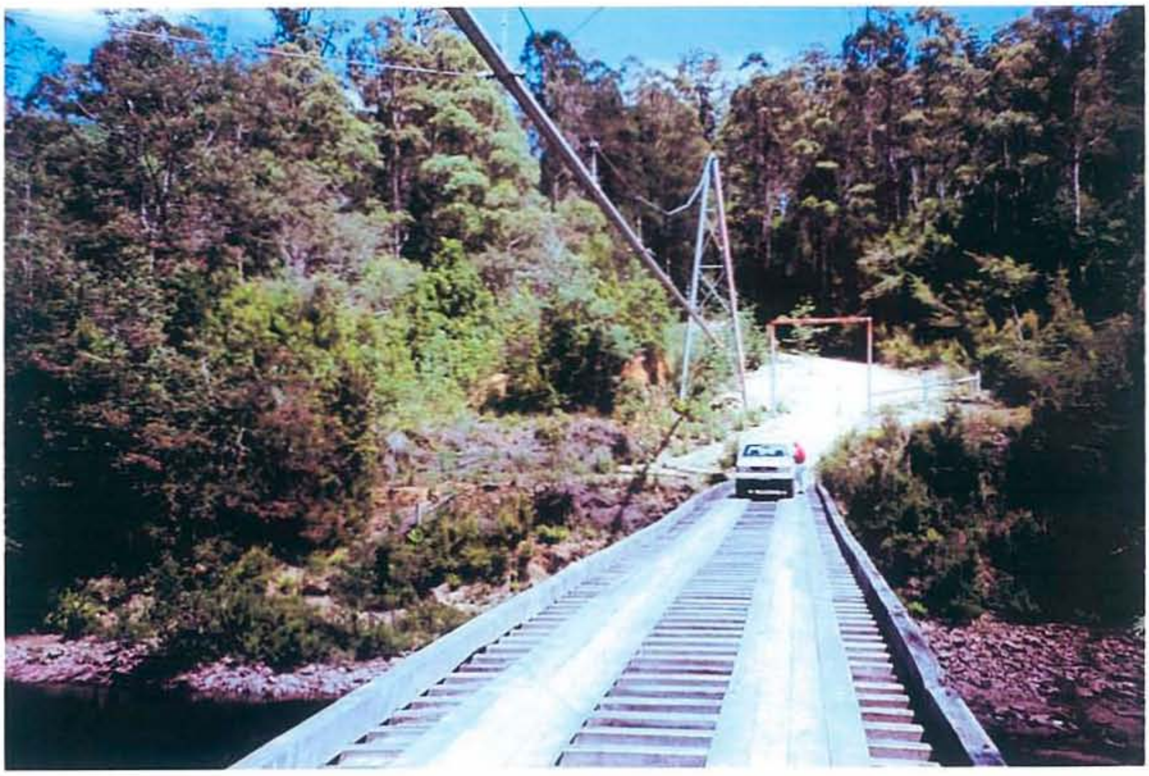
The geological compilation report was not completed at this stage but the geophysical report commissioned was presented by its author.

The company's consulting geophysicist Nigel Hungerford was asked to do a Geophysical Interpretation Report of all the available (old and new) geophysical data available over the EL.

He considered the relevance of the known geology to the geophysics results, listed what types of surveys , by whom , when they were carried out. He included a table of rock signatures, a suite of geophysical maps and generated several targets to be followed up.

Slurry Pipeline and Support Road

Slurry Pipeline crossing the Arthur River



4 Discussion of Results

In summary the geophysical report says that much of the EL is covered by Tertiary basalt which may be in excess of 100m thick. Nonetheless it is possible to discern a number of trends and faults in the underlying NeoProterozoic rocks.

There were no very strong isolated magnetic anomalies within the EL that might indicate magnetite-rich ore bodies but there are at least three anomalies worthy of further investigation which would involve drilling through the overlying basalt. He also recommends that possible EM soundings could determine basalt thickness at drill targets.

There are no ground geophysical surveys anywhere within the exploration licence area. The airborne magnetics appear to confirm that about 50% of the EL is covered by Tertiary basalt of various thicknesses.

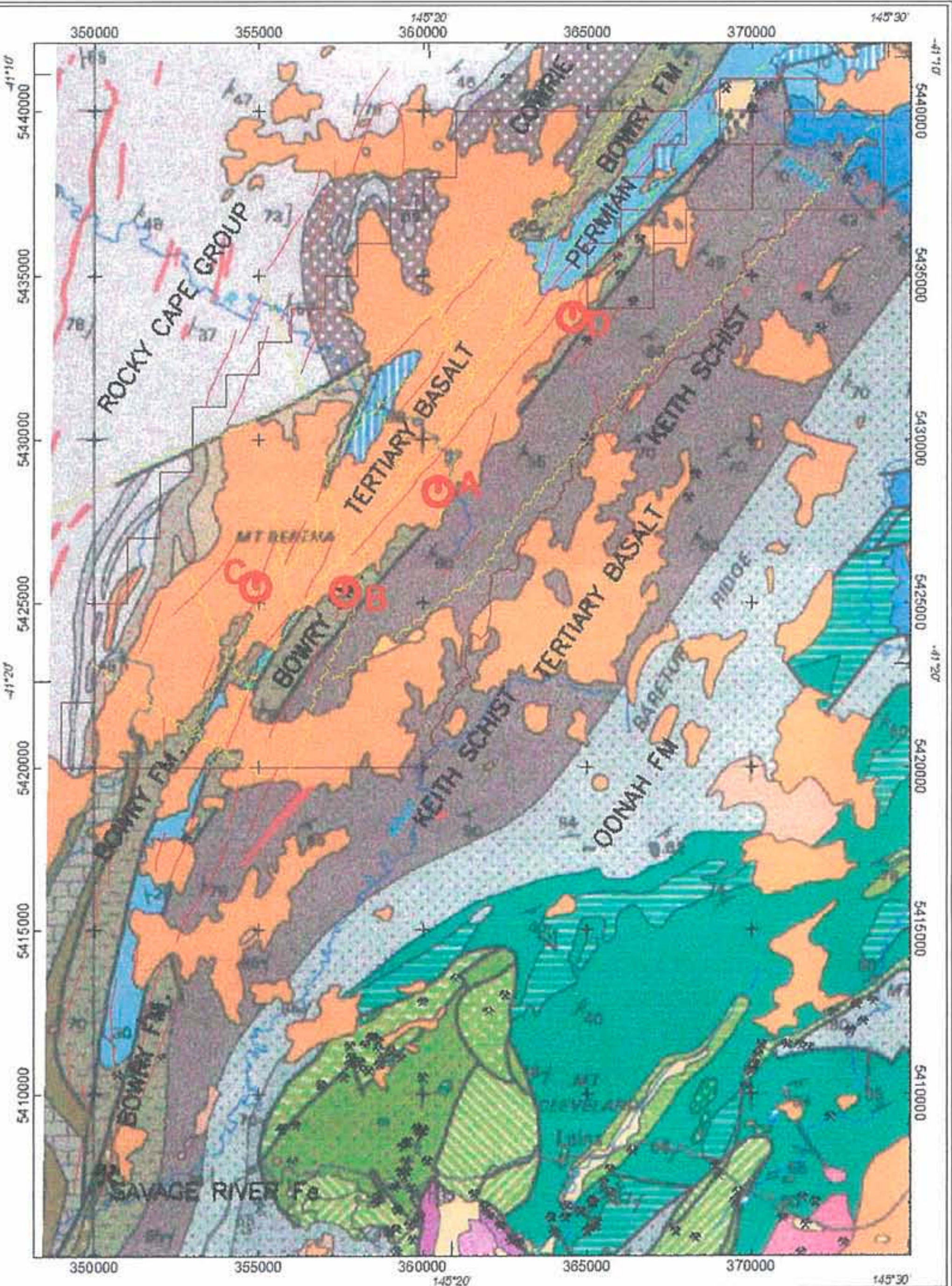
Various filtration and other techniques were used in the reprocessing and the full report can be studied in the appendix below.

Basement magnetic trends (red) and structures /faults (yellow) have been delineated and are shown on images as coloured lines. Strike slip faults includes the very obvious one NE-SW running most of the length of the EL. This magnetic feature is expressed as a linear magnetic anomaly which could be caused by a volcanic flow (sill or dyke) and it coincides with an obvious drop in topography (edge of an escarpement) which maybe along a fault.

Radiometric data was also interpretated. Basalts have low radiation and no anomalies of interest were found within the EL.

There are only two MRT gravity stations within the EL therefore no gravity data was processed.

Targets generated are discussed in the report at length and are noted below.
The report in full is appended and has all the detailed maps and figures (to which some of the figure and map references below refer) that led to the recommended targets.



Scale 1:125000

2500 0 2500

metres

ZINICO RESOURCES

MT BERTHA, WEST TASMANIA; EL 42/2004

REGIONAL incl SAVAGE RIVER MINE

REGIONAL GEOLOGY from MRT
Mag trends in red; mag structures in yellow

NH 1/2006 FIG 1

TARGETS

Target types envisaged on the Mt Bertha EL include ironstone hosted copper-gold deposits such as those found in Proterozoic terrains elsewhere (such as Starra, Osborne, Tennant Creek). These deposits are characterised geophysically as strong magnetic responses either as an increased response along a magnetic horizon or as an isolated magnetic high in a magnetically flat background (of sediments or schists).

There are 3 aeromagnetic features that fit these criteria. These are shown as targets A, B and C on Figs 1 (geology), 2 (tmi/rtp) and 3 (tmi/lowpass filter).

(For details see appended report).

Target A) is located at the junction of 2 interpreted shear zones/faults as seen best on fig 4 (tmi/rtp). As this image shows there are in fact two magnetic anomalies about 600m apart. The north-western one is on the long continuous magnetic trend associated with a topographic scarp as mentioned above. It may therefore be caused by a thicker or more magnetic section of a post Proterozoic intrusive dyke.

The anomaly of interest is immediately to the southeast and has a strike length of about 800m and an amplitude of about 400nT (360470mE; 5428500mN. AMG66, zone 55). The modelled profile across this anomaly is shown on Fig 10. This is a rather diagrammatic model which shows that target A, if depth limited, would have an apparent susceptibility of about 0.07 SI (if the source is narrower or has less depth extent, the susceptibility will be higher). Depth to top is about 100 metres below ground level under probable thick basalt cover.

This target A is adjacent to a rather curious low magnetic anomaly (fig 4) which is immediately to the north-west. Unless this target A has an extremely unusual remnance, this negative anomaly is likely to be caused by reversely polarised basalts which occur elsewhere on the EL, but generally not as markedly.

Target B) (357570mE; 5425400mN) occurs on a magnetic trend which terminates against a major NW-SE fault. This trend may be directly along strike from the Savage River magnetite deposit 19kms to the south-west. The anomaly appears to be under the edge of a Tertiary basalt flow (fig 1, geology) so mapping and sampling around this location may indicate the presence of alteration or mineralisation. The top depth is modelled to be about 170m below ground level with a susceptibility of about 0.03 SI. This is surprisingly deep since the basalt cover is likely to be thin at this location. However the source cannot be shallower because of the gradient of the anomaly flanks which are not very steep (although interference from the overlying basalt responses does obscure the main anomaly).

Target C (354930mE; 5425430mN) is the highest intensity anomaly within the EL (about 850nT). It occurs on a very long magnetic trend obscured by Tertiary basalts but likely to be within the prospective Bowry formation.

As can be seen from the regional magnetic map (Fig 3) this trend is on a parallel limb to the Savage River trend separated by a mapped fault (fig 1, geology).

The modelled profile on Fig 11 indicates that the magnetic source is about 70 metres below surface probably subcropping at the base of the overlying basalts. Bowry Formation rocks outcrop about 1.5kms to the south along strike so that mapping and geochem sampling here may indicate the presence of alteration or mineralisation.

Another exploration target type is shear-hosted gold. Although a number of major structures within the NeoProterozoic have been interpreted from the magnetic data, these structures are largely obscured by overlying basalts or Permian sediments. If future geochemical surveys over non-basalt areas indicate the presence of anomalous gold then these structures may provide a basis for localising further exploration.

Small magnesite deposits occur outside the north-eastern end of the EL associated with a continuous magnetic horizon at the eastern side (top?) of the Bowrie Fm. Within the Mt Bertha EL, about 3kms of this horizon is not covered by basalt so it may be possible to geologically map and sample along it.

This area is indicated as ***Target D*** on the figures.

5 Conclusions

At the technical meeting held between company consultants and management it was decided that the best immediate features of the EL for exploration in the near future were the four target areas selected based on the geophysics report.

It was therefore concluded that "ground truthing and selection of sites" become the subject of further exploration activity with drilling being the result of this field investigation.

One of the company's consulting firms Coast and Mountain Exploration was asked to design and report on the feasibility of this initial field visit. This was completed after the current reporting period and recommended using the slurry pipeline road as access and using a tempory camp site at the quarry where the pipeline crossed the Little Donaldson River.

This initial field visit is proposed in the coming summer of 2006/7.

It is recommended that this proposal be carried out at the earliest opportunity.

6 Environment

There has been no field work of any destructive nature within the reporting period therefore there is no need for any environmental rehabilitation.

7 Expenditure

The total expenditure on EL 42/2004 Mt Bertha for the reporting period was $ 12 330 (exclusive of GST as are the figures below)

The major items of this amount were	Geology	$	5 260
	Geophysics	$	3 140
	Other	$	3 930

8 References

MRT Open File Reports

87_2723
FUNNELL FR — Rapid River EL 1/79 NW Tasmania
CRAE 14753 Final Report 1987

92_3329
MATHISON I — EL 41/89 Mt Bertha
Geopecko Annual Report 1991

92_3330
MATHISON I — EL 42/89 Rapid River
Geopecko Annual Report 1991

96_3876
RIDGE KJ — Savage River Mt Bertha NW Tasmania EL 35/36/94
Annual Report 1995 Allstate Exploration NL 1996

98_4218
TURNER NJ — EL 37/96 Rapid EL38/96 Savage River EL46/96 Flowerdale
Combined Annual Report Goldstream Mining NL 1998

ZELOS RESOURCES NL In House Commissioned Reports

TEAR S
Zinico Resources NL : Prospectus — August 2005

HUNGERFORD N
Geophysical Interpretation Report — December 2005

ZINICO RESOURCES NL
MT BERTHA, NORTH TASMANIA. EL 42/2004
GEOPHYSICAL INTERPRETATION REPORT

by Nigel Hungerford. December 2005

SUMMARY

Geophysical data over the Mt Bertha EL in north-western Tasmania have been processed, imaged and interpreted. Much of the EL is covered by Tertiary basalt which may be in excess of 100 metres thick. Nonetheless it is possible to discern a number of trends and faults in the underlying NeoProterozoic rocks.

There are no very strong isolated magnetic anomalies within the EL that might indicate magnetite-rich ore bodies but there are at least three anomalies that may be worth further investigation. This would have to involve drilling through the overlying basalt although it is recommended that this should be preceded by EM soundings to confirm basalt thickness.

GEOLOGY (Fig 1)

The EL is situated within the Arthur Lineament which is a strongly deformed blueschist and greenschist grade metamorphic belt of NeoProterozoic aged rocks. These rocks are steeply dipping and young from west to east across the EL. They are mainly sediments and comprise siltstones, mudstones, carbonates, turbidites, shales, chlorites, conglomerates, dolomites and schists. The only known igneous basement rocks that are likely to be magnetic are tholeiitic basalts or amphibolites within the NeoProterozoic Bowry Formation which occupies the western side of the EL.

However about 50% of the licence is covered by variably magnetic Tertiary basalts which obscure (both physically and magnetically) the underlying rocks particularly the Bowry Formation. This fact together with very limited and difficult access means that little is really known about the prospective NeoProterozoic sequences within the EL. Although the terrain across the EL is not particularly steep, varying from about 400m to 750m (Fig 2: Digital Terrain image), the EL is heavily forested and the only access is a track that runs the length of the EL.

No mineralisation of any significance has yet been found within the EL. However to the south occurs the Savage River iron ore mine which consists of massive magnetite-pyrite lenses hosted by mafic rocks near the eastern boundary of the Bowry Creek Formation. Magnesite deposits and minor copper occurrences also occur within the Bowrie Formation immediately to the north of the EL.

PREVIOUS GEOPHYSICAL SURVEYS

The EL has been covered by a regional aeromagnetic survey flown by AGSO (now Geoscience Australia) in 2001 (West Tasmania Survey, WTRMP Area C). It was flown with east-west flight lines and line separation of 200 metres. Flying height is about 75 metres above ground.

Previous geophysical surveys include an airborne electro-magnetic survey (INPUT) flown for Esso in 1973, an airborne magnetic survey flown in 1982 by CRA and another flown in 1993 for the Tasmanian Geological Survey. (Information from Allstate report 01-4527). Data from these surveys are not available and in any case the latter two will not be of better quality than the latest AGSO survey. A preliminary interpretation of the 1993 survey was carried out by John Bishop (included in Allstate report 01-4527)

No ground geophysical surveys have been carried out within the EL.

DATA PROCESSING

The airborne data for the 2001 AGSO survey were downloaded from the Geoscience Australia and the Mineral Resources Tasmania (MRT) websites in the form of both located data (profiles) and grids. These were then imported into the author's Geosoft software package for data processing and interpretation. Filtering was done using Fast Fourier Transform (FFT) algorithms.

The AGSO grids (cell size 40 metres) were used for imaging, whilst the located data were used for modelling along selected profiles. The various geophysical grids have been exported to MapInfo images for subsequent use by Zinico. All coordinates are in AMG 66 projection, zone 55.

FILTERING

The regional magnetic field (TMI: Total Magnetic Intensity) is shown on Fig 3 with the Savage River mine in the south west corner of the image. Note that the magnetic field is about 20,000 nT over Savage River whereas the maximum field within the Mt Bertha EL is about 850 nT. The Keith River Cu-Fe Gossan lies just outside the northern end of the El at 368500mE; 5438500.1031mN and has a maximum amplitude of about 1500nT.

The TMI grid has been reduced to the pole in order to place the magnetic anomalies directly over their sources (assuming no magnetic remanence); see Fig 4. The first vertical derivative of the TMI is shown on Fig 5 and the second vertical derivative on Fig 6. These filters accentuate the shallower magnetic features which in this area are mainly caused by the widespread cover of Tertiary basalt. Hence these filters provide a good means of mapping the extent of basalt cover.

In order to accentuate the basement (pre-Tertiary) rocks it is necessary to use a low pass filter which attempts to filter out the high frequency (short wavelength) magnetic anomalies due to shallow sources. This will never be entirely successful since wavelengths from the shallow and underlying sources will overlap and, in addition, the frequency cut-off used is dependant on the depths to the deeper basement (NeoProterozoic) sources which are unknown and likely to be highly variable.

After trying different filter cut-offs the most useful appears to be a wavelength of 800 metres, the image of which is shown on fig 6.

GEOPHYSICAL STRUCTURES AND TRENDS

Using all the above images, basement magnetic trends and structures/faults have been delineated. The trends are shown on the images as red lines and the structures as yellow wavy lines. Of course some of these trends and structures may be erroneously attributed to the NeoProterozoic sequence and could in fact originate within the overlying variably magnetic basalts.

There appear to be strike slip faults as well as transverse faults that partially or completely cut the NeoProterozoic stratigraphy. One of the most obvious strike parallel faults runs most of the length of the EL. This magnetic feature is expressed as a linear magnetic anomaly, which could be caused by a volcanic intrusion (sill or dyke). It coincides with an obvious drop in topography (edge of an escarpment) as shown on the DTM image (fig 2), so that the intrusion may be along a Tertiary or post Tertiary fault.

Tasmanian Tertiary basalts are notoriously variable in their magnetic properties, both in terms of susceptibility and remanence. This, in addition to the multiple flows which overlie each other, means that their signatures are highly variable in amplitude and polarity.

RADIOMETRICS

Radiometric measurements were taken during the aeromagnetic survey. The Total Count image is shown on Fig 8 and the Ternary (Potassium, Thorium and Uranium) image is shown on Fig 9. A grey-scale image of the digital terrain underlies the Ternary image.

As expected the Tertiary basalts have a very low radiometric signature which allows the extent of the basalts to be mapped. There are no radiometric anomalies of interest within the EL.

GEOPHYSICAL SIGNATURES OF STRATIGRAPHY IN MT BERTHA E.L.

Position in EL	**Stratigraphy**	**lithology**	**magnetics**	**Total count**
west	Rocky Cape Gp	sediments	v. low	moderate
	Rocky Cape Gp	Dolerite dykes	low	
	Cowrie Fm	siltstones	moderate	Moderate-variable
	Bowry Fm	Schist	low	low
	Bowry Fm	Amphibolite	high	low
	Keith Schist	schist	low	moderate-low
east	Oonah Fm	turbidites	low	moderate
	Tertiary	basalt	high-variable	low

GRAVITY

There are only two MRT gravity stations within the EL so no gravity data have been processed.

MAGNETIC MODELLING

Two profiles have been modelled across magnetic features in the southern part of the EL. These profiles have been taken from the AGSO located data and their locations are shown on Figs 4 (TMI) and 7 (Low Pass mag). Both profiles are across an area of Tertiary Basalt that obscures the prospective underlying NeoProterozoic sequences and both cross the same strike extensive magnetic trend in the west as well as more isolated anomalies to the east.

Line 11081 is shown on Fig 10 and Line 11252 on Fig 11. The high frequency (short wavelength) magnetic anomalies evident on both profiles are due to the surface basalts. This 'noise' is superimposed on higher amplitude and longer wavelength anomalies which can be attributed to sources within the underlying Bowry Formation. The digital terrain along the line is shown as the profile at the top of each figure.

Although the modelling cannot be carried out with any degree of accuracy due to the interfering basalt responses, the deeper sources have top depths the order of 50 to 150 metres below surface (flying height is about 75m above ground). The implication is that the basalt has a thickness of about this amount with the variation depending on the pre-basalt topography.

The modelled pre-Tertiary magnetic sources have susceptibilities of about 0.05 SI units which is fairly high (about 10% volume magnetite) and indicative of mafic rocks or possibly amphibolite although not high enough to indicate massive magnetite as at Savage River.

Note that with no geological constraints there will always be ambiguity in the magnetic modelling. Although unlikely, rather than being due to NeoProterozoic rocks, the modelled sources could be due to a particularly thick and isolated basalt sequence, eg an intrusive plug.

TARGETS

Target types envisaged on the Mt Bertha EL include ironstone hosted copper-gold deposits such as those found in Proterozoic terrains elsewhere (such as Starra, Osborne, Tennant Creek). These deposits are characterised geophysically as strong magnetic responses either as an increased response along a magnetic horizon or as an isolated magnetic high in a magnetically flat background (of sediments or schists).

There are 3 aeromagnetic features that fit these criteria. These are shown as targets A, B and C on Figs 1 (geology), 2 (tmi/rtp) and 3 (tmi/lowpass filter).

Target A) is located at the junction of 2 interpreted shear zones/faults as seen best on fig 4 (tmi/rtp). As this image shows there are in fact two magnetic anomalies about 600m apart. The north-western one is on the long continuous magnetic trend associated with a topographic scarp as mentioned above. It may therefore be caused by a thicker or more magnetic section of a post Proterozoic intrusive dyke.

The anomaly of interest is immediately to the southeast and has a strike length of about 800m and an amplitude of about 400nT (360470mE; 5428500mN. AMG66, zone 55). The modelled profile across this anomaly is shown on Fig 10. This is a rather diagrammatic model which shows that target A, if depth limited, would have an apparent susceptibility of about 0.07 SI (if the source is narrower or has less depth extent, the susceptibility will be higher). Depth to top is about 100 metres below ground level under probable thick basalt cover.

This target A is adjacent to a rather curious low magnetic anomaly (fig 4) which is immediately to the north-west. Unless has target A has an extremely unusual remanence, this negative anomaly is likely to be caused by reversely polarised basalts which occur elsewhere on the EL, but generally not as markedly.

Target B (357570mE; 5425400mN) occurs on a magnetic trend which terminates against a major NW-SE fault. This trend may be directly along strike from the Savage River magnetite deposit 19kms to the south-west. The anomaly appears to be under the edge of a Tertiary basalt flow (fig 1, geology) so mapping and sampling around this location may indicate the presence of alteration or mineralisation. The top depth is modelled to be about 170m below ground level with a susceptibility of about 0.03 SI. This is surprisingly deep since the basalt cover is likely to be thin at this location. However the source cannot be shallower because of the gradient of the anomaly flanks which are not very steep (although interference from the overlying basalt responses does obscure the main anomaly).

Target C (354930mE; 5425430mN) is the highest intensity anomaly within the EL (about 850nT). It occurs on a very long magnetic trend obscured by Tertiary basalts but likely to be within the prospective Bowry formation. As can be seen from the regional magnetic map (Fig 3) this trend is on a parallel limb to the Savage River trend separated by a mapped fault (fig 1, geology).

The modelled profile on Fig 11 indicates that the magnetic source is about 70 metres below surface probably subcropping at the base of the overlying basalts. Bowry Formation rocks outcrop about 1.5kms to the south along strike so that mapping and geochem sampling here may indicate the presence of alteration or mineralisation.

Another exploration target type is shear-hosted gold. Although a number of major structures within the NeoProterozoic have been interpreted from the magnetic data, these structures are largely obscured by overlying basalts or Permian sediments. If future geochemical surveys over non-basalt areas indicate the presence of anomalous gold then these structures may provide a basis for localising further exploration.

Small magnesite deposits occur outside the north-eastern end of the EL associated with a continuous magnetic horizon at the eastern side (top ?) of the Bowrie Fm. Within the Mt Bertha EL, about 3kms of this horizon is not covered by basalt so it may be possible to geologically map and sample along it. This area is indicated as target D on the figures.

FUTURE WORK

The widespread basalt cover creates problems for geological mapping and geochemical sampling. This necessarily requires the use of geophysical techniques for further investigation of the targets listed above.

A line of TEM (Time Domain Electromagnetic) soundings across each of targets A, B and C would assist in determining the thickness of the overlying basalt (which will be fairly conductive over a resistive basement) and could indicate the presence of massive sulphides. Some Proterozoic copper-gold orebodies are conductive and have distinct TEM responses, but in this geological environment any massive sulphides would have to be of a very substantial tonnage to be discernible against the basalt responses. The targets listed above are not as magnetic as Savage River indicating much less magnetite. But, optimistically, this decreased magnetic signature may imply a greater proportion of massive sulphides possibly of economic grade.

Ultimately only a substantial drilling programme, targeting beneath a considerable thickness of basalt, will be able to verify the presence of mineralisation.

Fig 1

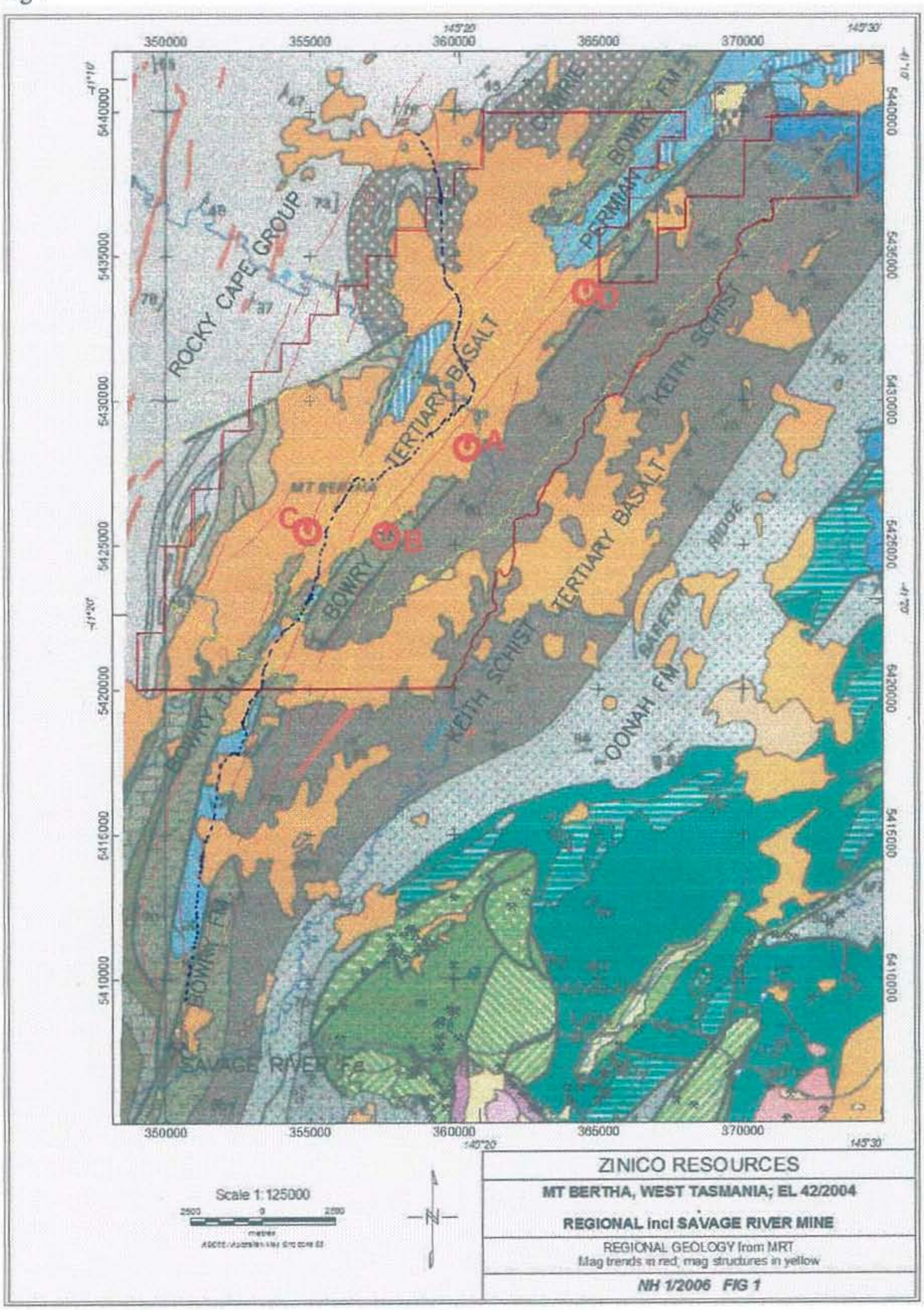

ROCKY CAPE GROUP
TERTIARY BASALT
BOWRY FM
PERMIAN
KEITH SCHIST
OONAH FM
SAVAGE RIVER Fa
MT BERTHA
ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
REGIONAL incl SAVAGE RIVER MINE
REGIONAL GEOLOGY from MRT
Mag trends in red; mag structures in yellow
NH 1/2006 FIG 1
Scale 1:125000

Fig 2

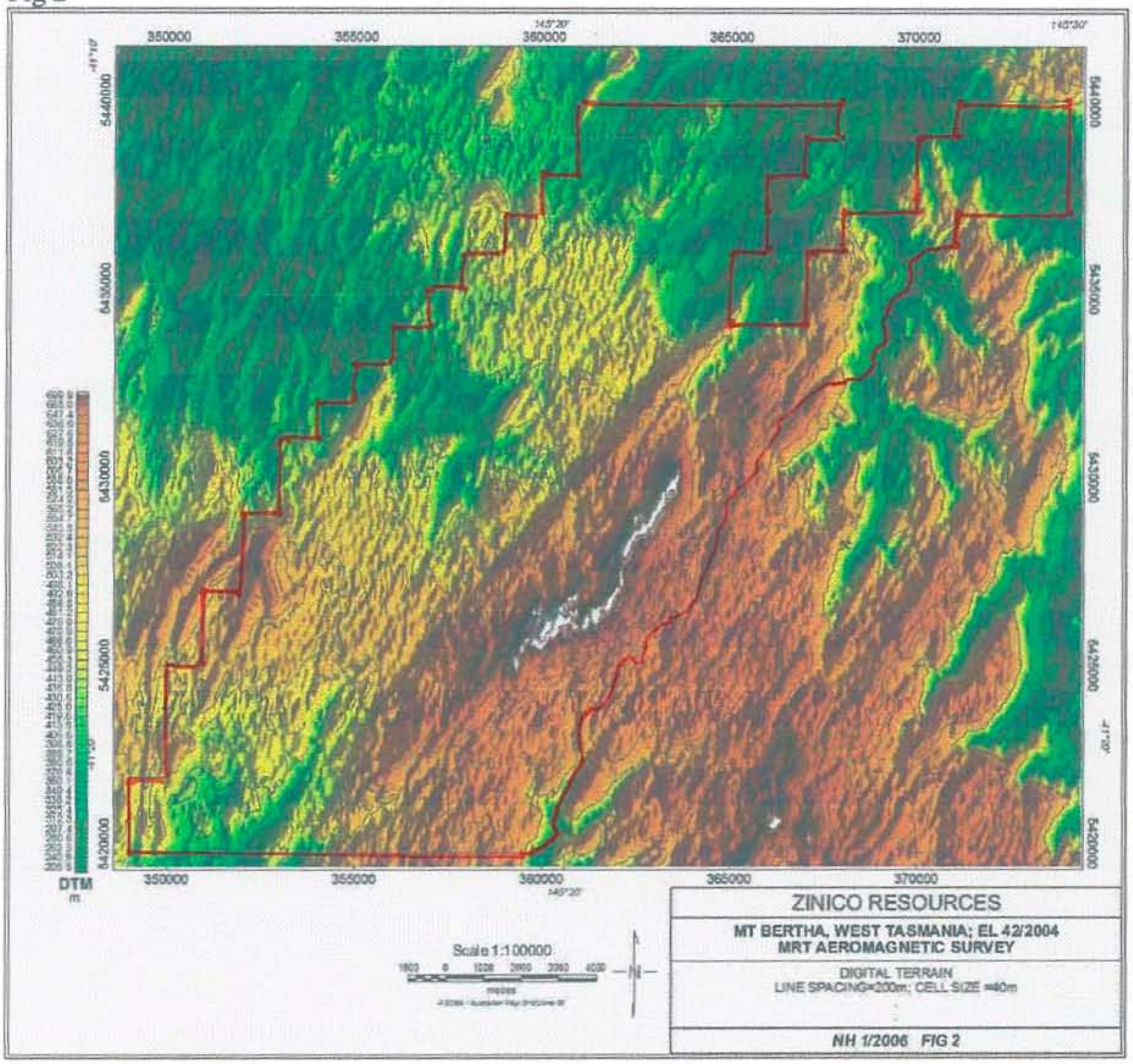

350000
355000
360000
365000
370000
5440000
5435000
5430000
5425000
5420000
DTM
m
Scale 1:100000
ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
MRT AEROMAGNETIC SURVEY
DIGITAL TERRAIN
LINE SPACING=200m; CELL SIZE =40m
NH 1/2006 FIG 2

Fig 3

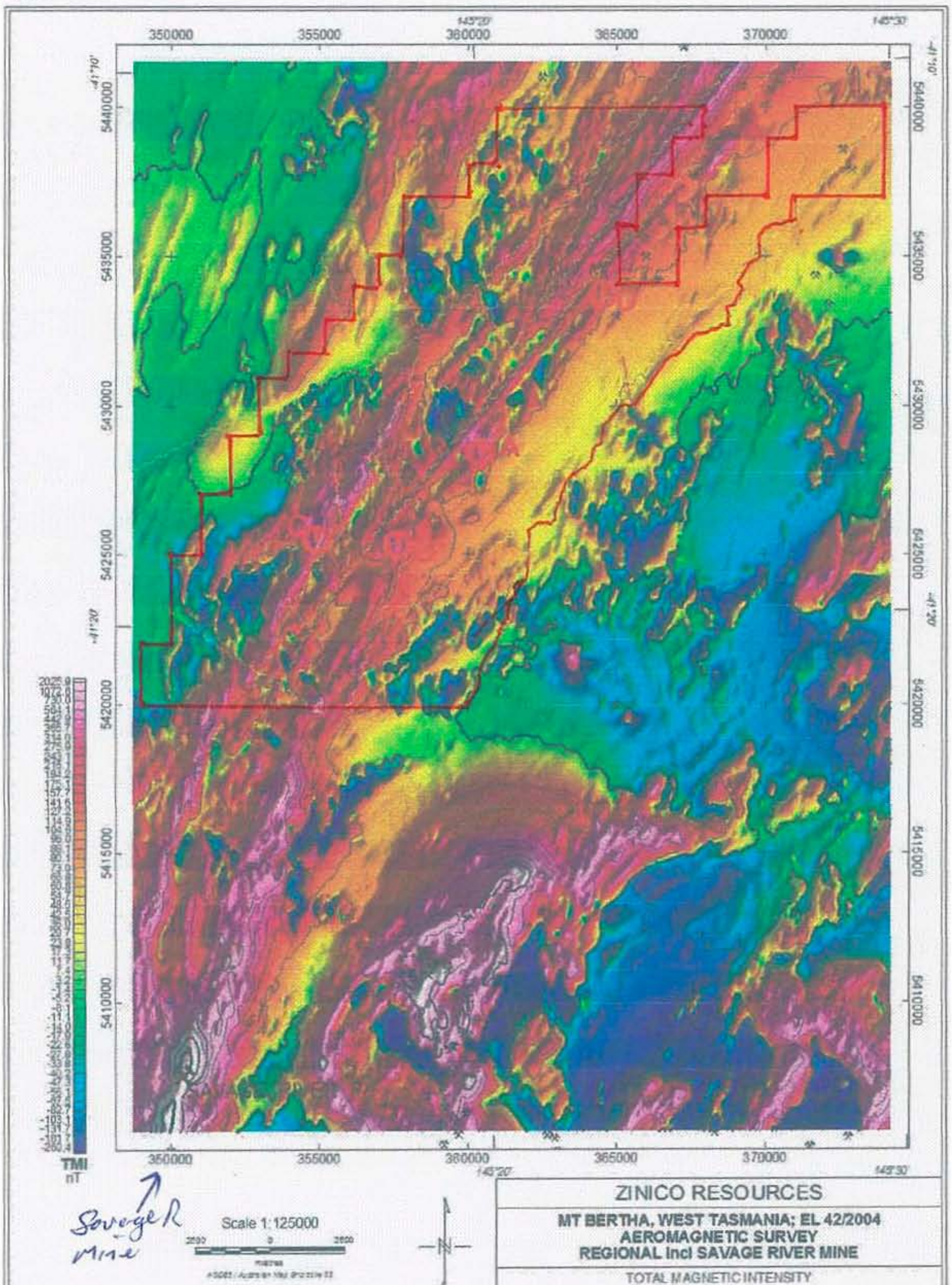

350000
355000
360000
365000
370000
5440000
5435000
5430000
5425000
5420000
5415000
5410000
TMI
nT
Savage R
Mine
Scale 1:125000
ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
AEROMAGNETIC SURVEY
REGIONAL Incl SAVAGE RIVER MINE
TOTAL MAGNETIC INTENSITY
NH 1/2006 FIG 3

Fig 4

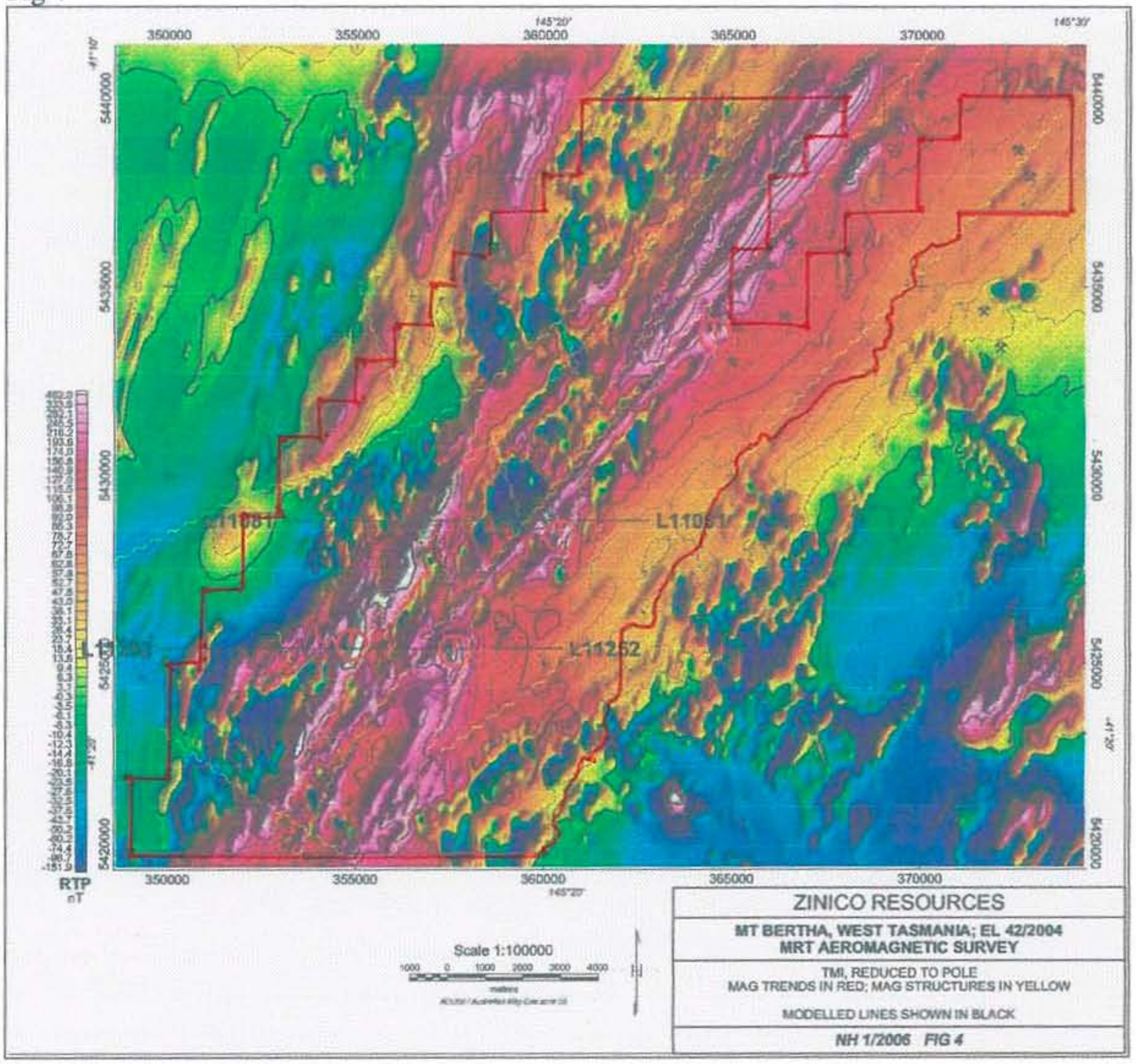

ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
MRT AEROMAGNETIC SURVEY
TMI, REDUCED TO POLE
MAG TRENDS IN RED; MAG STRUCTURES IN YELLOW
MODELLED LINES SHOWN IN BLACK
NH 1/2006 FIG 4
Scale 1:100000
RTP
nT
L11061
L11252
350000
355000
360000
365000
370000
5440000
5435000
5430000
5425000
5420000

Fig5

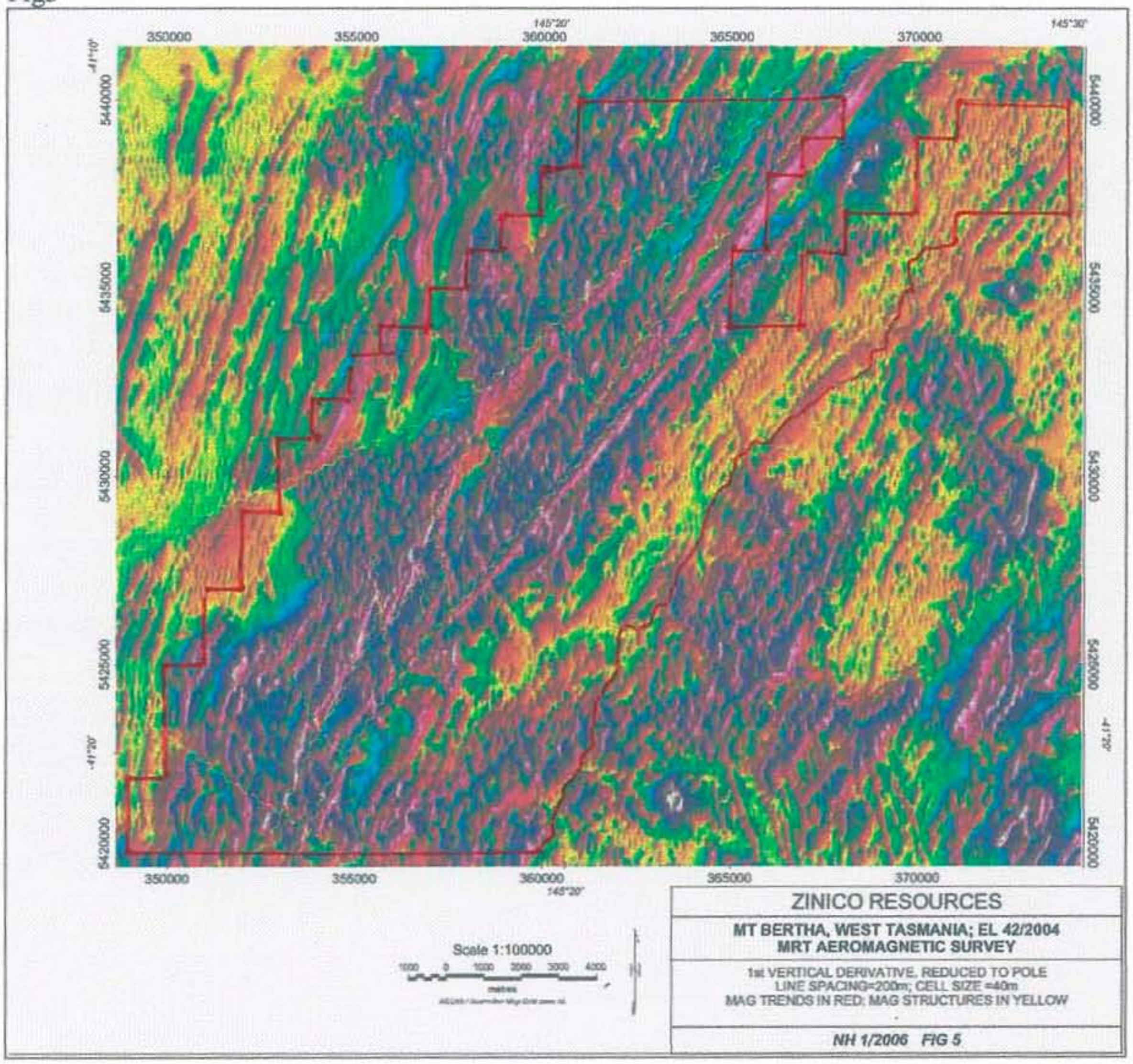
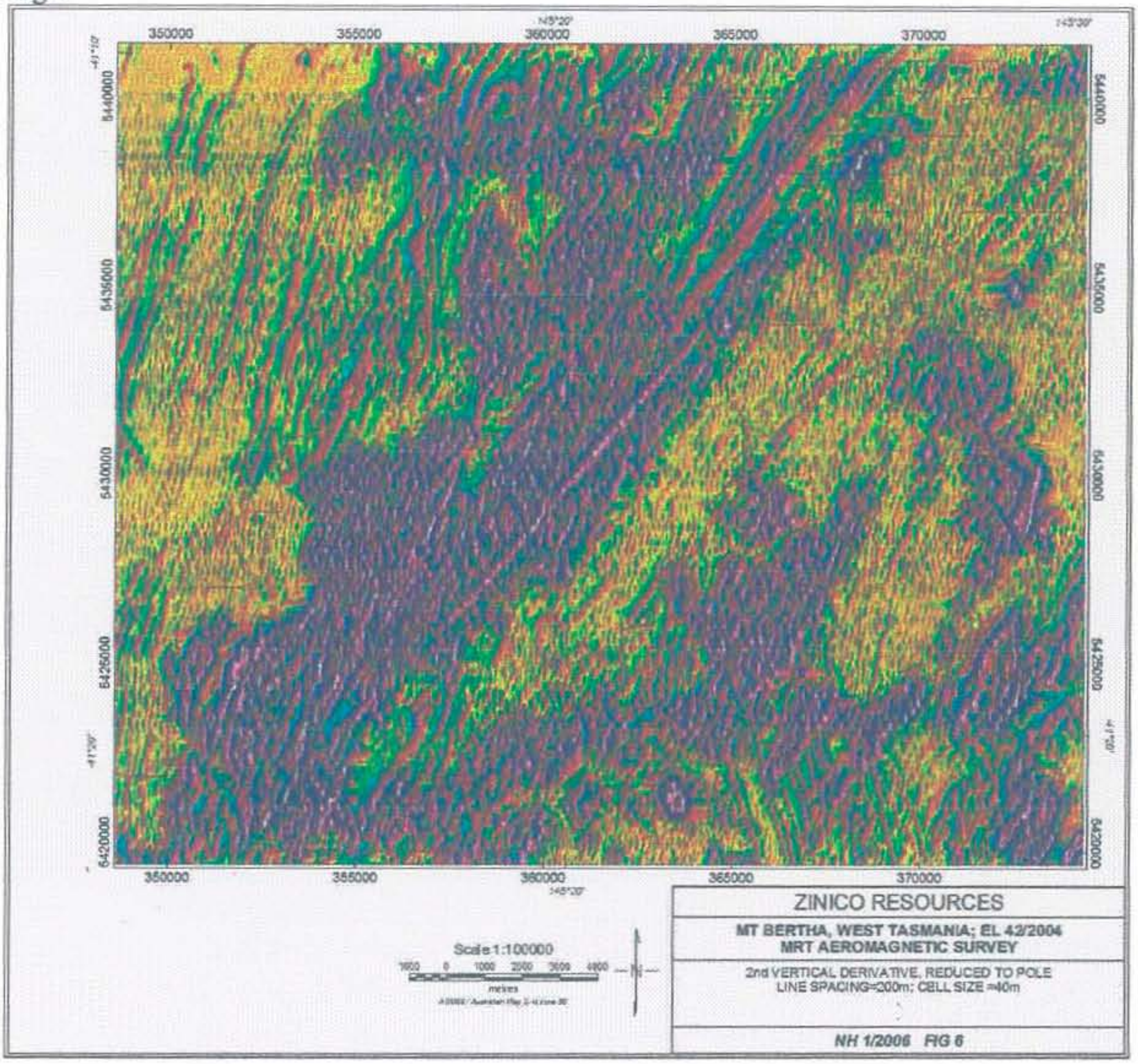

145°20'
145°30'
350000
355000
360000
365000
370000
5440000
5435000
5430000
5425000
5420000
-41°10'
-41°20'
145°20'
Scale 1:100000
metres
ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
MRT AEROMAGNETIC SURVEY
1st VERTICAL DERIVATIVE, REDUCED TO POLE
LINE SPACING=200m; CELL SIZE =40m
MAG TRENDS IN RED; MAG STRUCTURES IN YELLOW
NH 1/2006 FIG 5

Fig 6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355000
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365000
370000
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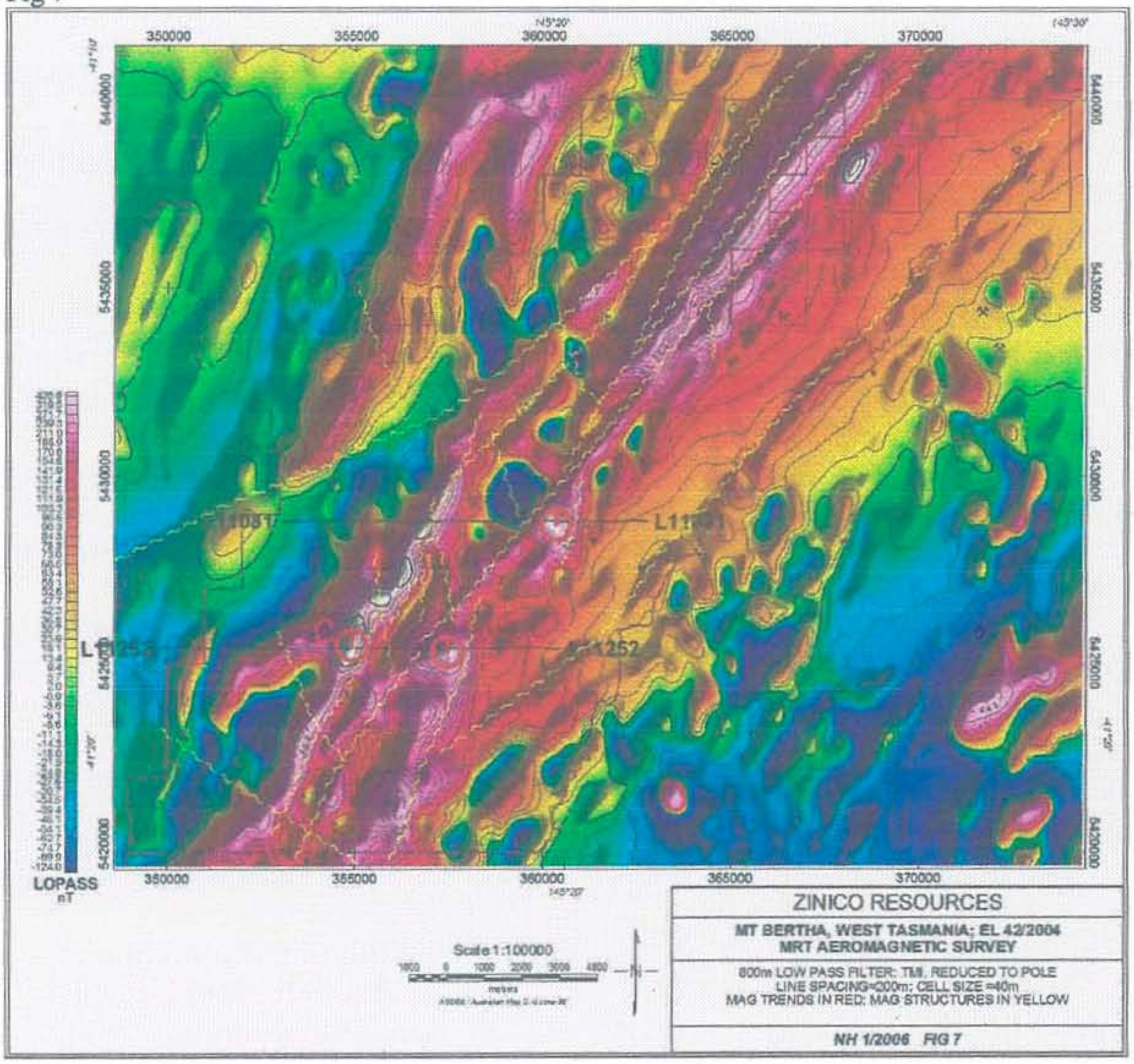
5435000
5430000
5425000
5420000
ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
MRT AEROMAGNETIC SURVEY
2nd VERTICAL DERIVATIVE, REDUCED TO POLE
LINE SPACING=200m; CELL SIZE =40m
NH 1/2006 FIG 6
Scale 1:100000
metres

Fig 7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355000
360000
365000
370000
5440000
5435000
5430000
5420000
L11081
L11081
L11252
L11252
LOPASS
nT
Scale 1:100000
meters
ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
MRT AEROMAGNETIC SURVEY
800m LOW PASS FILTER: TMI, REDUCED TO POLE
LINE SPACING=200m; CELL SIZE =40m
MAG TRENDS IN RED; MAG STRUCTURES IN YELLOW
NH 1/2006 FIG 7

Fig 8

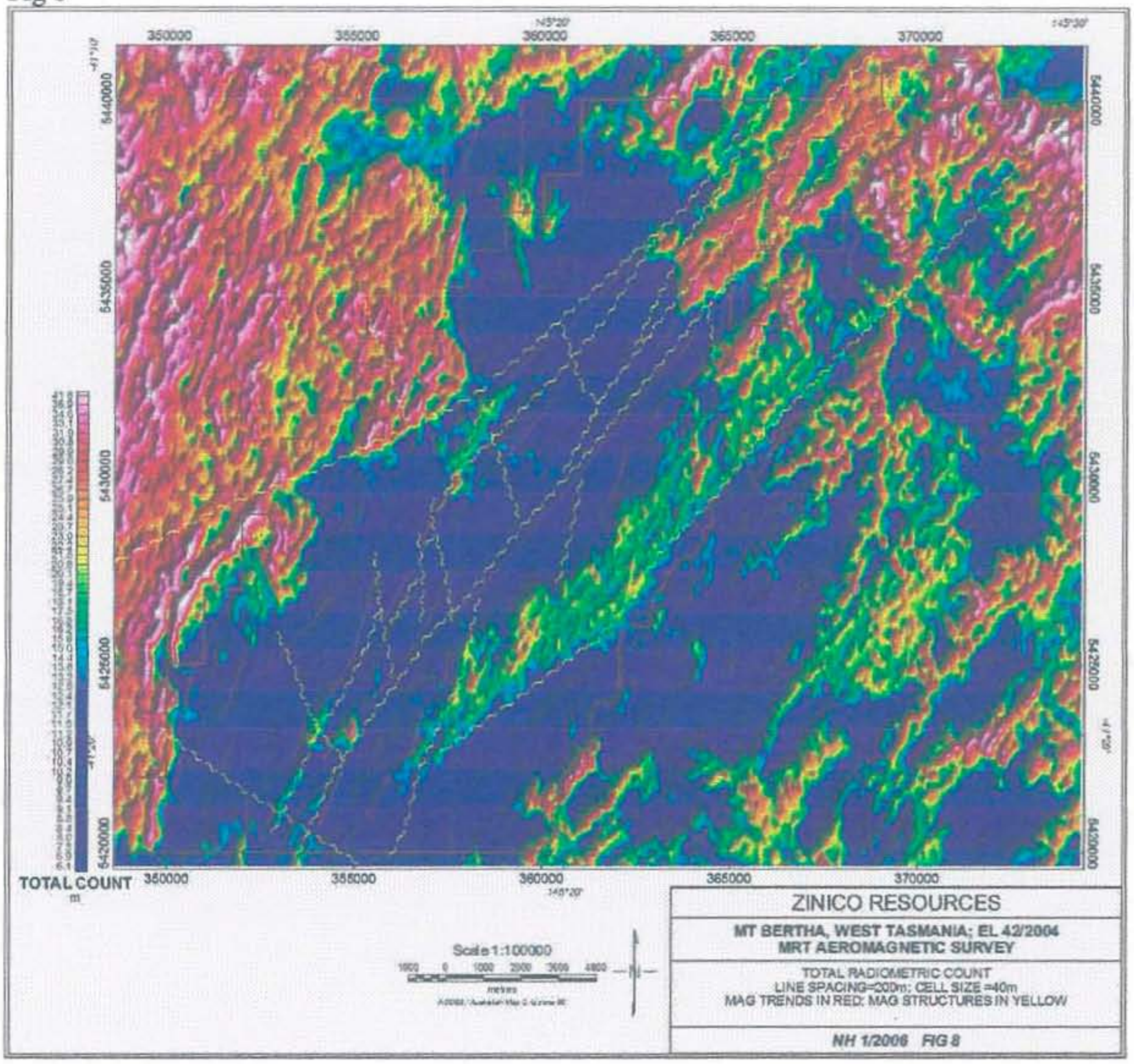

350000
355000
360000
365000
370000
5440000
5435000
5430000
5425000
5420000
TOTAL COUNT
ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
MRT AEROMAGNETIC SURVEY
TOTAL RADIOMETRIC COUNT
LINE SPACING=200m; CELL SIZE =40m
MAG TRENDS IN RED; MAG STRUCTURES IN YELLOW
NH 1/2006 FIG 8
Scale 1:100000
metres

Fig 9

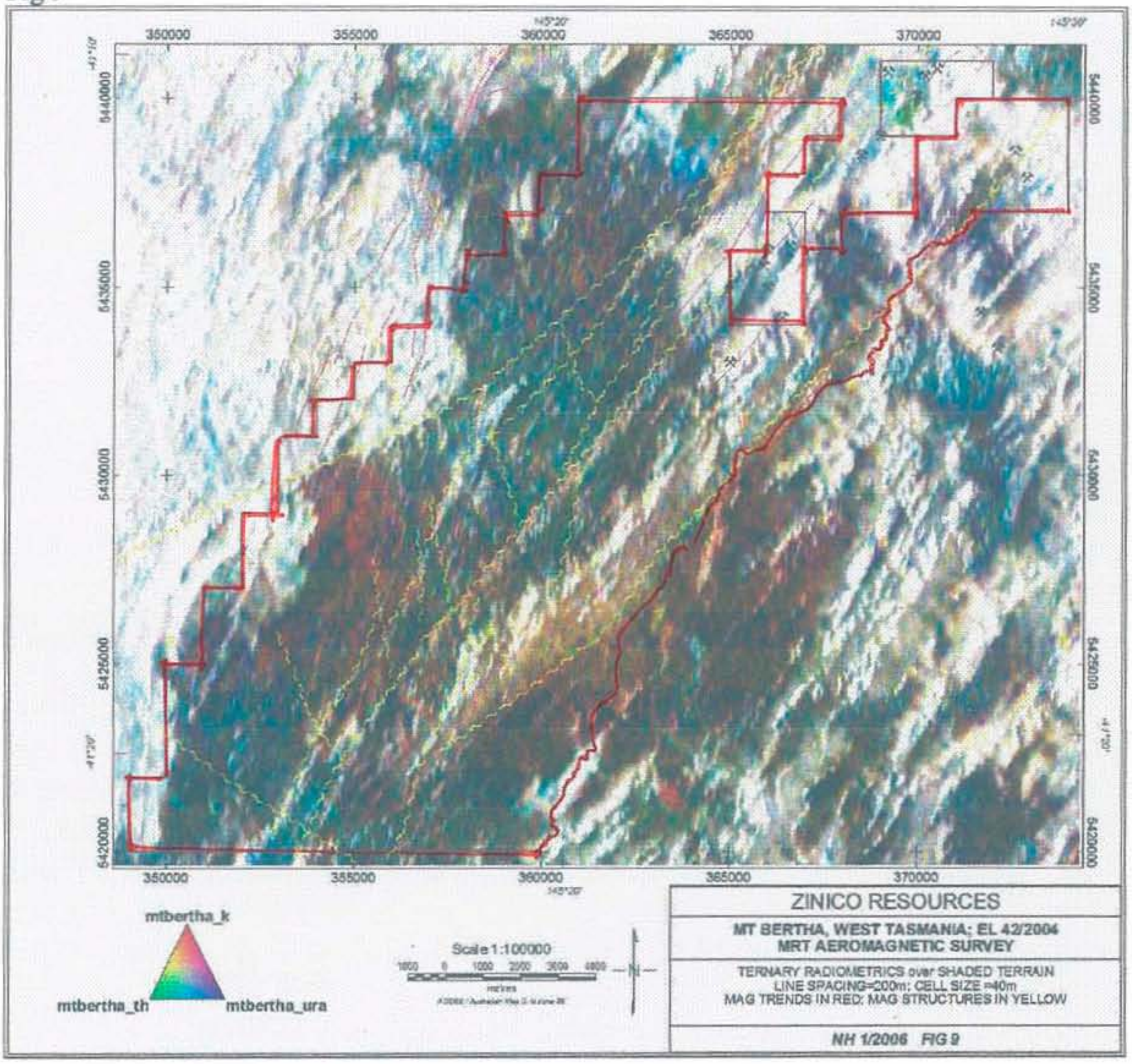

350000
355000
360000
365000
370000
145°20'
5440000
5435000
5430000
5425000
5420000
ZINICO RESOURCES
MT BERTHA, WEST TASMANIA; EL 42/2004
MRT AEROMAGNETIC SURVEY
TERNARY RADIOMETRICS over SHADED TERRAIN
LINE SPACING=200m; CELL SIZE =40m
MAG TRENDS IN RED; MAG STRUCTURES IN YELLOW
NH 1/2006 FIG 9
mtbertha_k
mtbertha_th
mtbertha_ura
Scale 1:100000
metres

Fig 10

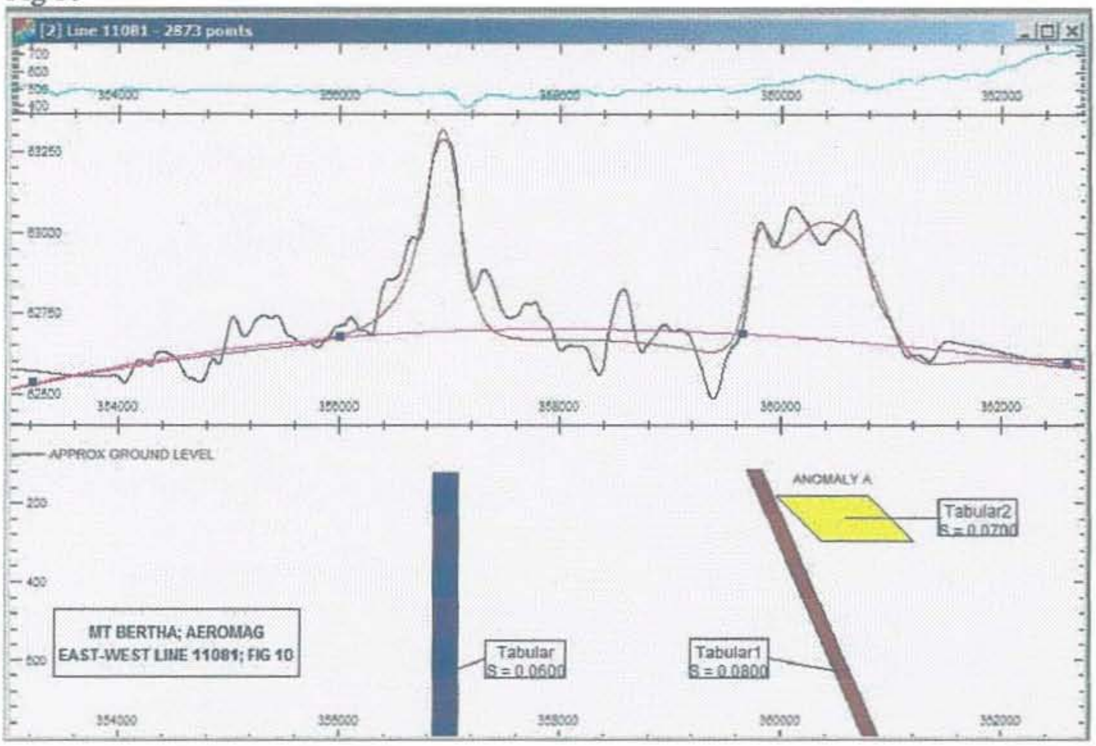
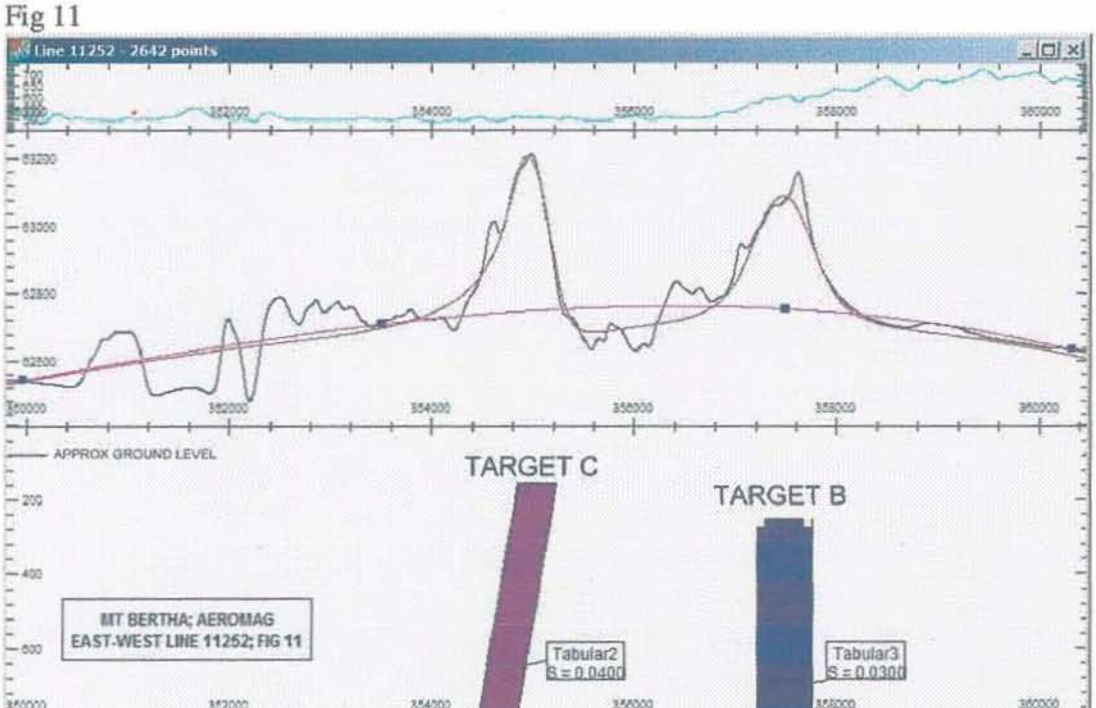

[2] Line 11081 - 2873 points
APPROX GROUND LEVEL
ANOMALY A
Tabular2
S = 0.0700
MT BERTHA; AEROMAG
EAST-WEST LINE 11081; FIG 10
Tabular
S = 0.0600
Tabular1
S = 0.0800

Fig 11


Line 11252 - 2642 points
APPROX GROUND LEVEL
TARGET C
TARGET B
MT BERTHA; AEROMAG
EAST-WEST LINE 11252; FIG 11
Tabular2
S = 0.0400
Tabular3
S = 0.0300