

**Gujarat NRE Resources NL**

**EL 38/2004 Mt Sorell**

**FINAL REPORT**

**and Year 2 Annual Report**

For the period 1 March 2006 to 1 March 2007

**26th February 2007**

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## ABSTRACT

In the first year of tenure, exploration has focused on data compilation and the review of previous exploration; the engagement of a geophysical consultant to review all existing data; the re-establishment an existing grid over previously defined zinc anomalism.

The geophysics interpretation eliminated the conductive point source anomaly, high up on the flanks of Mt Sorell. No bedrock conductor is likely and it has been shown to be a calibration error with the instrumentation. This geophysics report also provided no support for any shallow conductive body coincident with the zinc anomalism delineated by a previous soil geochemistry programme.

In the second year of tenure exploration focused on the completion of the grid which was a total of 21 cross lines of 500m spaced at 100m apart off a 2km long N-S baseline. In addition the 'ground truthing' of airborne electromagnetic anomalies was carried out. Geochemical stream and rock sampling in the environs of three discrete air borne EM anomalies returned poor results.

The company won the licence on a tender basis and had proposed a high level of exploration expenditure and commitment. The company has been fully committed to the successful out come of exploration on the EL, however the slow progress being a combination of a step by step programme operating only in a limited weather window (summer), lack of land access (ie requiring costly helicopter support), limited availability and willingness of experienced staff to camp out under difficult conditions has influenced the company to conserve available funds on this project and redirect them to exploration on projects the company considers are more advanced and have a higher priority ranking of success.

The company therefore intends to relinquish the EL.

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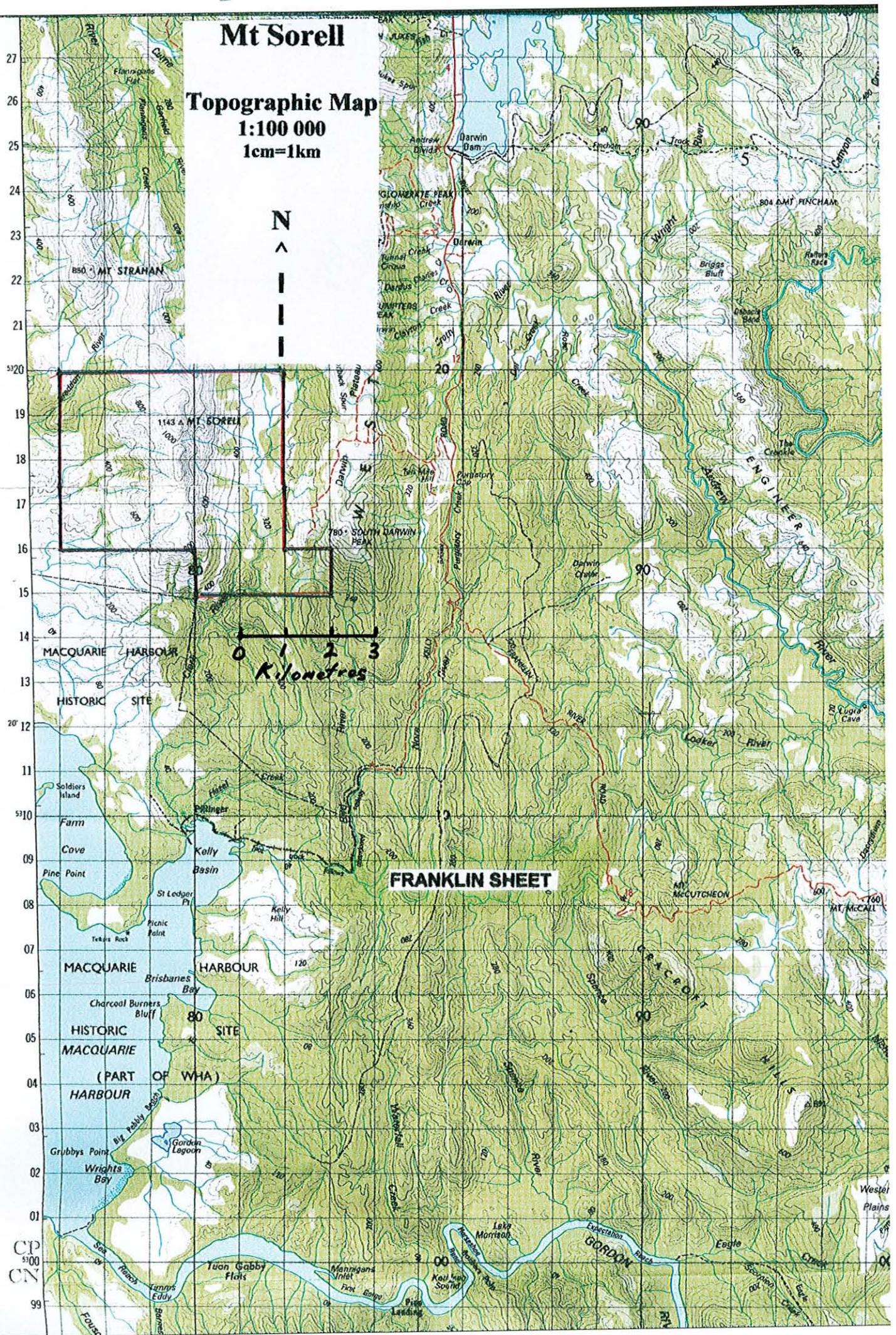
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# Mt Sorell

**Topographic Map**  
**1:100 000**  
**1cm=1km**



**FRANKLIN SHEET**

CP  
5100  
CN

## **1 INTRODUCTION**

### **1.1 Tenement Information**

Gujarat NRE Resources NL holds the Mt Sorell property, in Western Tasmania, as EL38/2004.

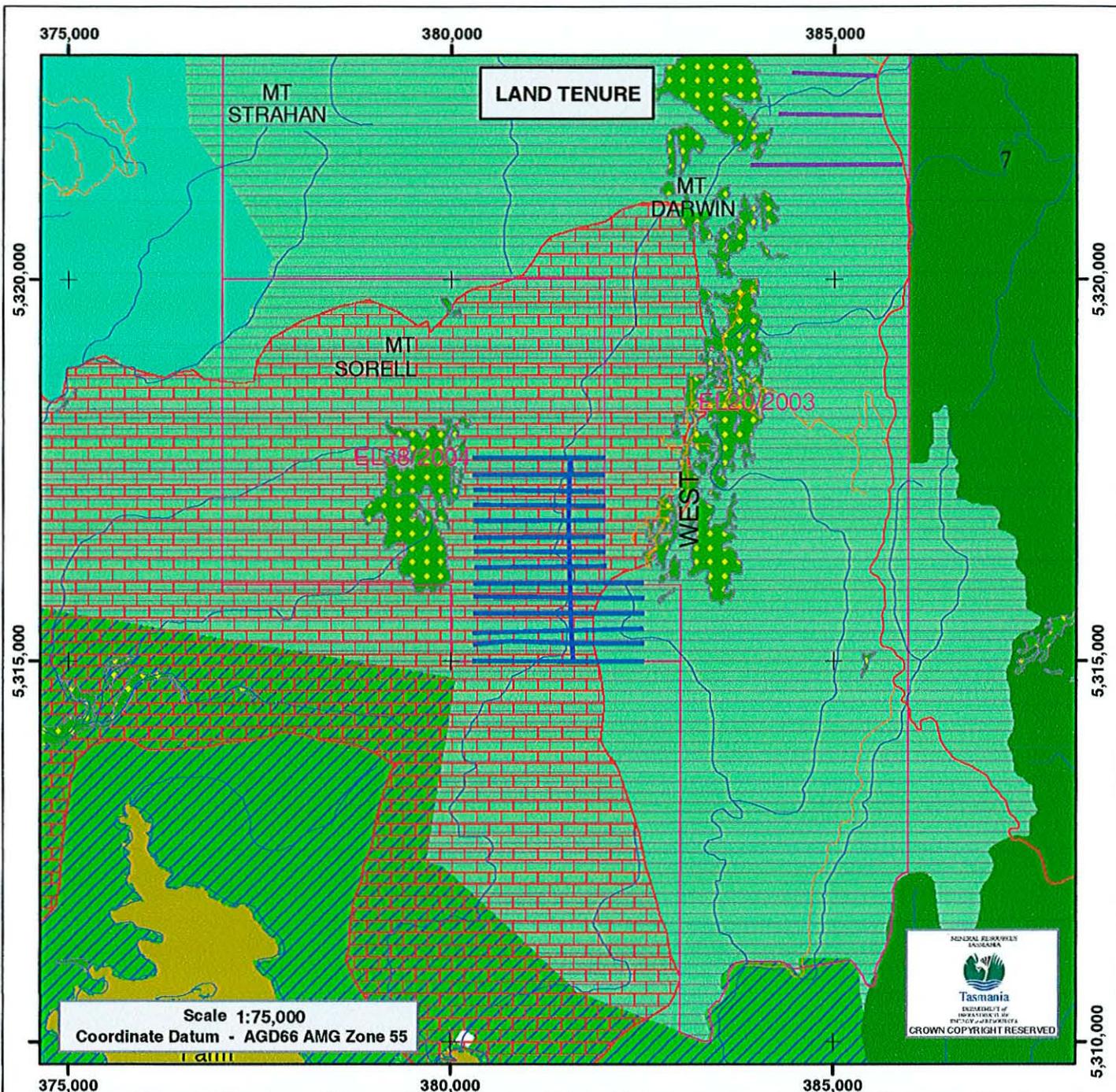
The licence was granted on 1<sup>st</sup> March 2004 for a five year term to Zinico Resources NL.

Zinico which listed on the Australian Stock Exchange on 25<sup>th</sup> August 2005, changed its name to Zelos Resources NL at its first AGM on 22 November 2005 and again (to reflect its major shareholder) to Gujarat NRE Resources NL at the AGM on 23 November 2006.

The 23 square kilometre property is located 20 kilometres south of the Queenstown.

The First Annual Report summarised the results of exploration work completed on Exploration Licence 38/2004 – Mt Sorell – during the period 1st July 2005 to the 1<sup>st</sup> of March 2006.

This Second Second Year Annual Report for the period 1 March 2006 to 28 February 2007 is also a Final Report as the company intends to relinquish the EL.



Land Tenure / Special Management Areas (Guide Only)					
	Non Metallic Exploration Licence		Tas Forest Community Agrmt		Nature Reserve
	Metallic Exploration Licence		Private Land Reserve (RFA) / PAPL		Hydro/Transend/Aurora Land
	Mining Lease		Proposed Private Land Reserve (RFA)		State Forest / Hydro
	Fossicking Area		Suspected Phytoph Cin region		State Forest
	Fossil Site		Administratively Excluded Areas		Forest Reserve
	Forest Communities Managed by Prescription		Public (Crown) Reserve		Conservation Area
	RAMSAR Site		Commonwealth Land		Regional Reserve
	HEC Vested Land		Private Land		State Reserve
	Phytoph Cin Management Zone		Crown Land		Historic Site
	Aboriginal Administered Land		Nationally Significant Wetlands		MDC Informal Reserve
	Gas Pipeline Corridor		Nature Recreation Area		RVE Non-forest Vegetation
			Proposed Reserve		GRID
			Wellington Park		RECUT GRID
			Game Reserve		
			Private Nature Reserve		
			Private Sanctuary		
			National Park		

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.

**\* The area is covered by High Quality Wilderness WPA06/3**

## 1.2 Exploration Rationale

Approximately half of the tenement, that is the area east of Mt Sorell and centred on the Clarke Valley, is underlain by Cambrian rocks assigned to the Central Volcanic Complex and the 'Western Sequence' of the Mount Read Volcanics. This plus the overlying Tyndall Group are considered prospective for both base metals and gold.

The primary target has been the further delineation of an existing, but poorly defined, linear zone of zinc anomalism with similar geochemistry to the Hellyer VHMS deposit. The subsidiary target is the equivalent of the Lynchford Formation – a prospective horizon at the contact of the Western Sequence and Tyndall Group.

Two commodity/genetic targets exist in the Gujarat licence area.

- A. Syngenetic, VHMS, Pb/Zn in the Clarke valley and
- B. Epigenetic, Henty style Au mineralisation hosted by the Tyndall Group units at Mt Sorell

A.

The company's primary aim was to investigate the zinc anomalism defined by Aberfoyle in preparation for drilling. This anomalism was delineated on the basis of 5 grid lines, spaced 400 metres apart. Stage one of the work programme was to re-cut the existing lines and to infill with further line cutting at 100m spacing.

Subsequent second stage field work was the completion of the gridding and also to carry out a soil sampling, grid mapping and possibly ground geophysics programme.

B.

At the completion of the BHP/RGC work programme, Wally Herrmann from CODES was engaged to write an independent document that reviewed the work to date and was used to guide any further work prior to relinquishment. Herrmann noted that moderate potential exists for VHMS deposits at the base of the Tyndall Group, with this favourable horizon – The Lynchford Formation – hosting such mineralisation at Comstock and the low sulphidation epithermal deposit at Henty. This favourable stratigraphy extends south of the Garfield valley, over Slate Spur and into the upper Clarke valley east of Mt Sorell where it is obscured by Quaternary cover. This Quaternary cover is elongate in form and mimics the district strike of the underlying quartz felspar porphyries. Tear -2005 in the prospectus, notes that this overburden is more conductive than the surrounding units and warrants further investigation.

The area has been subject to comprehensive and systematic modern exploration. In particular it is readily apparent that the Garfield – Clarke valley area has been subject to methodical and thorough exploration for a period of nearly 20 years. Prior to the 1980's most exploration was focused to the north where access was easier. The Mt Jukes road, as part of the King River Power scheme, provided the impetus for the recent work which culminated in the discovery of the Garfield resource which is an analogue of the Prince Lyell ore body. Previous explorers included Mount Lyell, BHP, EZ, and RGC.

As part of the exploration programme in the Garfield valley, BHP extended the grid southwards into the Clarke valley. The survey covered the Central Volcanic Complex felsic volcanics on the western side of the Mt Darwin ridge and the adjacent overlying Yolande River sequence correlates to the west. The entire grid, for a strike length of 10kms was mapped, rock sampled and subject to a UTEM survey. No conductors attributable to massive sulphides were noted. Any weak surficial signals were attributed to black shale units.

During the period 1990-1993, RGC conducted a substantial body of work, primarily drilling out the Garfield resource to the north of Slate Spur. Additional soil/rock geochemistry and grid based mapping was undertaken in the Clarke Valley however no drilling targets were delineated.

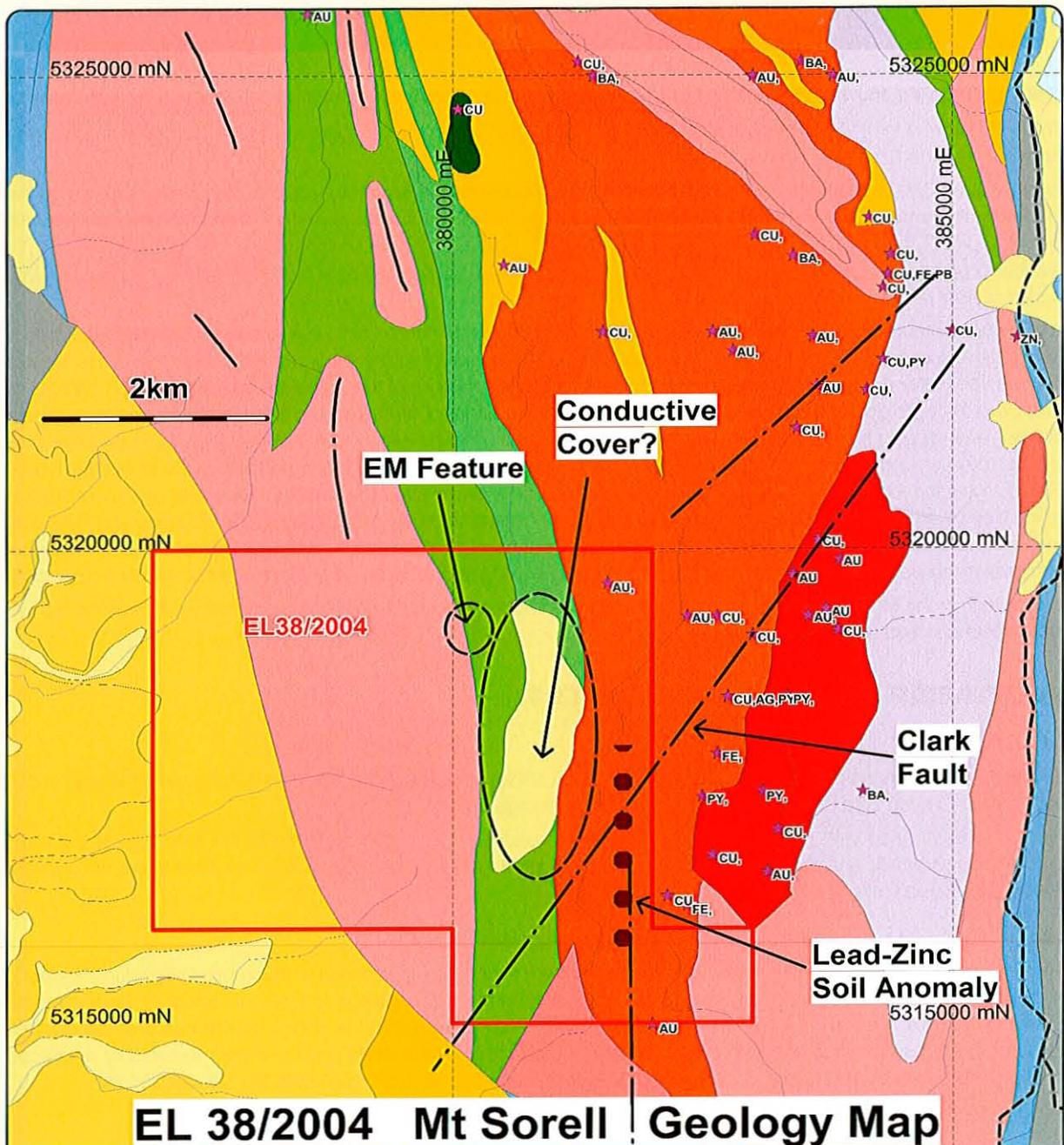
Aberfoyle became the tenement holders for a brief period in 1995, conducting a helimag survey of the Clarke valley. The survey defined a magnetic zone within the Central Volcanic Complex, trending north and south of the Clarke Fault. The helimag data was not processed beyond an initial assessment and is not reported upon by McNeil in his relinquishment report. Up until the Zelos application, there had been no further interpretation of this data. An 'In House' reconstruction by Aberfoyle of previous soil geochemistry conducted by RGC, defined an elongate zone of zinc anomalism.

Aberfoyle- concluded:

"A review of previous mapping, soil geochemistry and IP data indicates that a 50-100m thick black shale unit is present at the base of the Western Sequence from 15600N to 17000N and marks the transition from felsic phyric to quartz-feldspar phyric volcanics. Five soil geochemical samples over a strike length of 1000m define a distinctive soil geochemical unit within this shale sequence. The five samples are characterised by high Fe<sub>2</sub>O<sub>3</sub> (av.17.8%), Ti (8500ppm), P<sub>2</sub>O<sub>5</sub> (90.4%), V (374ppm) and Co (30ppm). High Ti/Zr (32.9) and moderate P<sub>2</sub>O<sub>5</sub>/TiO<sub>2</sub> (0.30) suggest this may be a geochemical Suite II type andesite or basalt."- Lewis 1996. This zone was seen as a potential Hellyer analogue.

The proposed programme to test this zone included additional line cutting to extend the BHP gridding, ground EM, and the use of 'whacker' sampling to penetrate the thick overlying soil mantle.

In 2004, on the basis of the MRT 2002 airborne geophysics programme, a heli-EM anomaly was targeted by BHP in the search for VHMS deposits. No fieldwork was undertaken as the company noted that the anomaly was hosted in a high energy depositional environment which is less suitable to the formation of VHMS mineralisation as a quiescent sedimentary environment and a cessation of volcanic activity is necessary.



**Legend**

- |                    |                             |                              |
|--------------------|-----------------------------|------------------------------|
| Tenement Boundary  | Quaternary Cover            | Cambrian 'Western Sequence'  |
| Creek              | Tertiary Sediments          | Cambrian Andesites           |
| Road               | Siluro-Devonian Sediments   | Cambrian Yolande Sequence    |
| Mineral Occurrence | Ordovician Gordon Limestone | Cambrian Cental Volcanic Com |
| Fault              | Cambro-Ordovician Sediments | Cambrian Darwin Granite      |
|                    | Cambrian Tyndall Group      | Cambrian 'Eastern Sequence'  |

*EL 38/2004 Mt Sorell*

# Mt Sorell

**Topographic Map**  
**1:25 000**  
**1cm=250m**



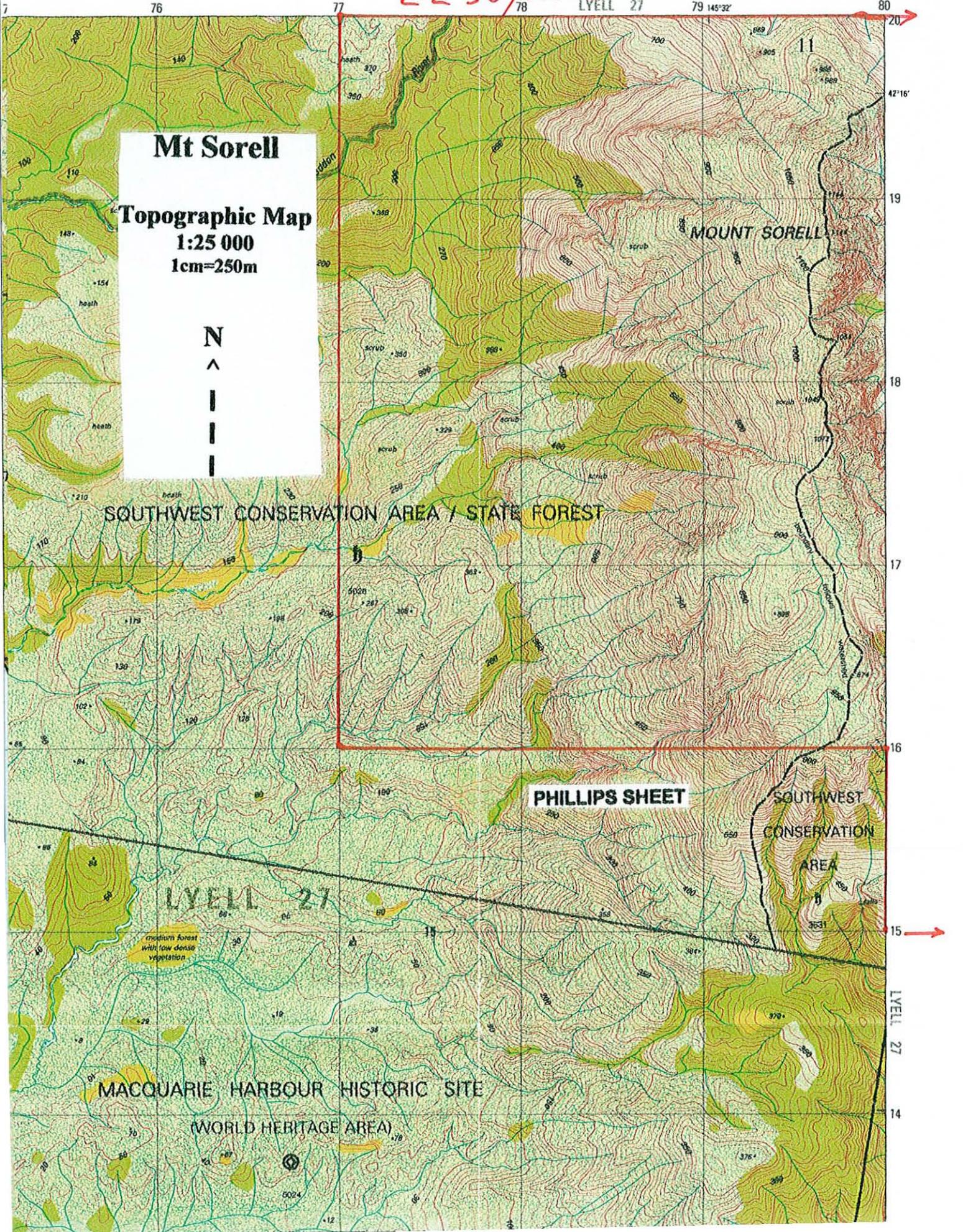
SOUTHWEST CONSERVATION AREA / STATE FOREST

PHILLIPS SHEET

LYELL 27

MACQUARIE HARBOUR HISTORIC SITE  
(WORLD HERITAGE AREA)

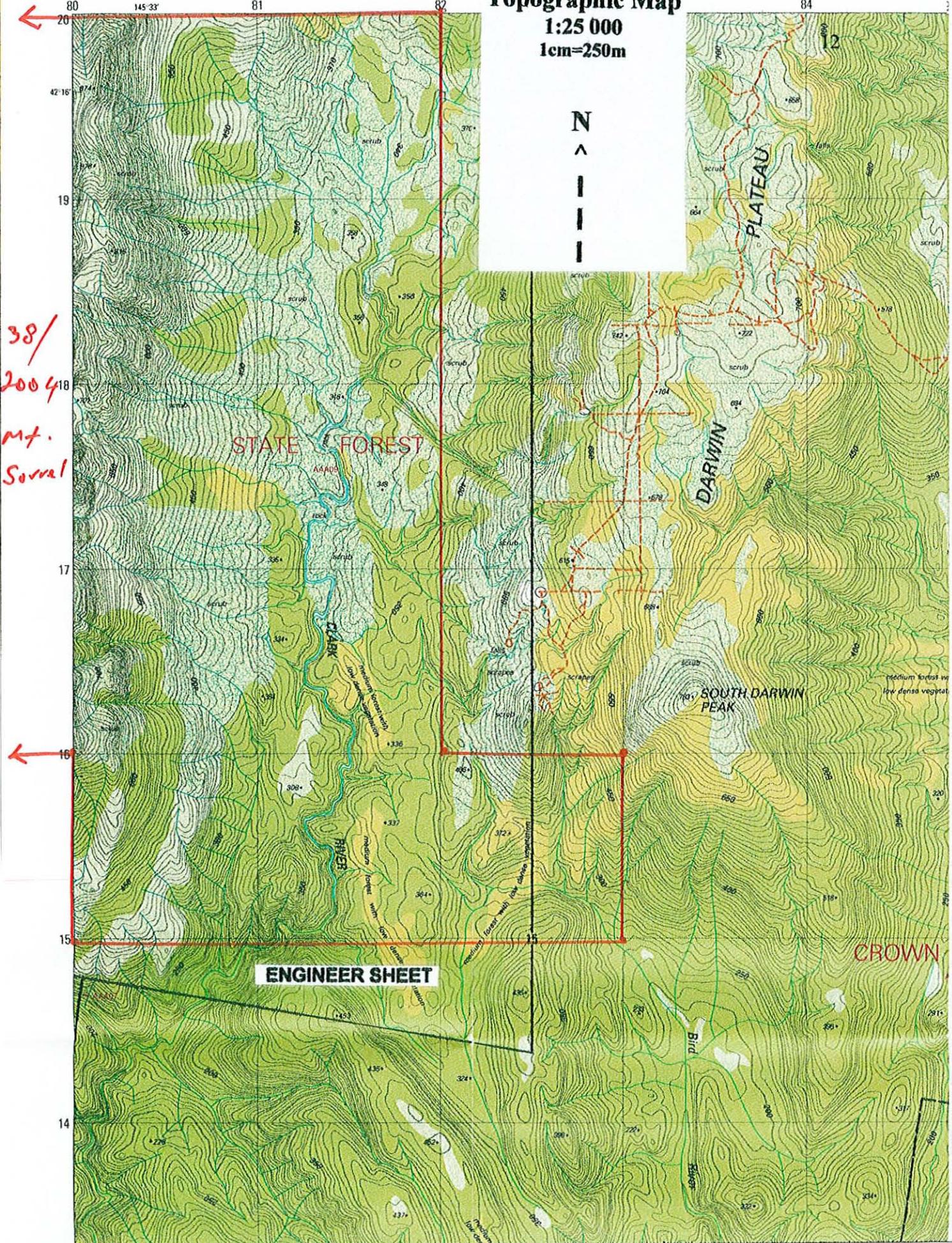
MOUNT SORELL



# Mt Sorell

## Topographic Map

1:25 000  
1cm=250m



38/  
2004  
Mt.  
Sorell

STATE FOREST

CLARK RIVER

PLATEAU

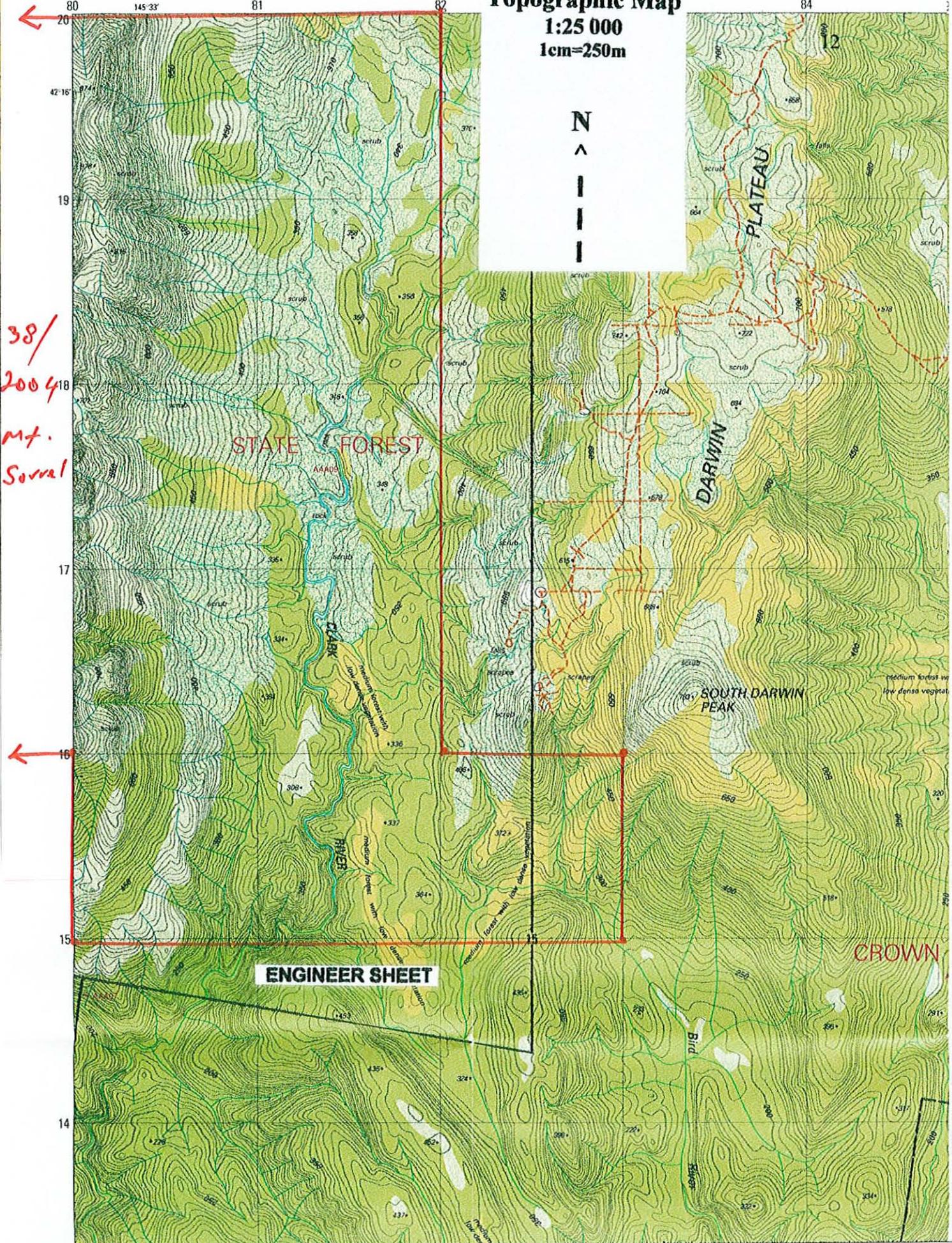
DARWIN

SOUTH DARWIN PEAK

ENGINEER SHEET

CROWN

Bird



### **3. CURRENT EXPLORATION WORK COMPLETED**

#### **3.1 Geology**

The initial work undertaken was a literature review and the subsequent compilation and evaluation of data. This has been in written form rather than in a digital format. The review concentrated on the work by previous explorers conducted during the period 1988- 2004 inclusive. No geological fieldwork, either of a reconnaissance or detailed nature, was carried out in the reporting period to 28<sup>th</sup> February 2006

In the current reporting period to 28 February 2007 there have been three fieldwork visits to the EL. The first was to re establish the previous (1995) baseline and grid, the second several geological reconnaissance excursions and the third to complete the grid.

The first geology field trip was helicopter supported and involved a flyby of the Mt Sorell massif to try to observe if there was any artificial reason (airplane crash etc) for geophysical EM anomaly D. This anomaly has been identified as owing to incorrect calibration of the recording device.

The second geology excursion was also helicopter supported to identify potential drill site locations for shallow scout drilling the conductive overburden anomalous zone covering the Lynchford Formation east of Mt Sorell in the upper Clarke Valley. Two good sites for drilling were identified and also a previously used (by RGC?) camp site.

The third geology excursion was on foot to ground truth the three other EM anomalies. The results are in Appendix 3 in a report p 40.

#### **3.2 Geochemistry**

The primary focus in this initial field season has been the re-establishment of the Goldfields grid in the south east section of the tenement. At UTM 0381576E / 53 15499N; an existing Goldfields helipad was located, recut and utilised as a campsite with a small metal demountable garden shed used as shelter hut. This occurred during the reporting period to the end of February 2006.

At the start of the current reporting period, the baseline of some 2.0 km was recut and pegged, and in addition a further 9.5 cross lines of 500m were cut and an access track of 1km (for emergency purposes) leading to the Mt Darwin plateau area for a total of 7.5 km of cut line. This approximated about half of the required grid needed to be cut for the proposed soil sampling programme to be carried out in the spring ie October 2007.

At the end of the above line cutting exercise, ground traverses were made to ground truth geophysical EM anomalies A, B, C. Stream sediments and rock chips were taken and results were not encouraging and are in Apendix 2 p36 and reported on in Apendix 3 p40

In October 2007 a third fieldwork programme of line cutting was carried out and completed. This comprised a further 11 cross lines of 500m for a sub total of 5.5km of cut line. Thus a total grid of 2km of N-S baseline and 21 cross lines of 500m for a total distance of 12.5km of cut line plus 1km of emergency exit track.

(See Figure 5 p15 and Photos pages 16,17,18,)

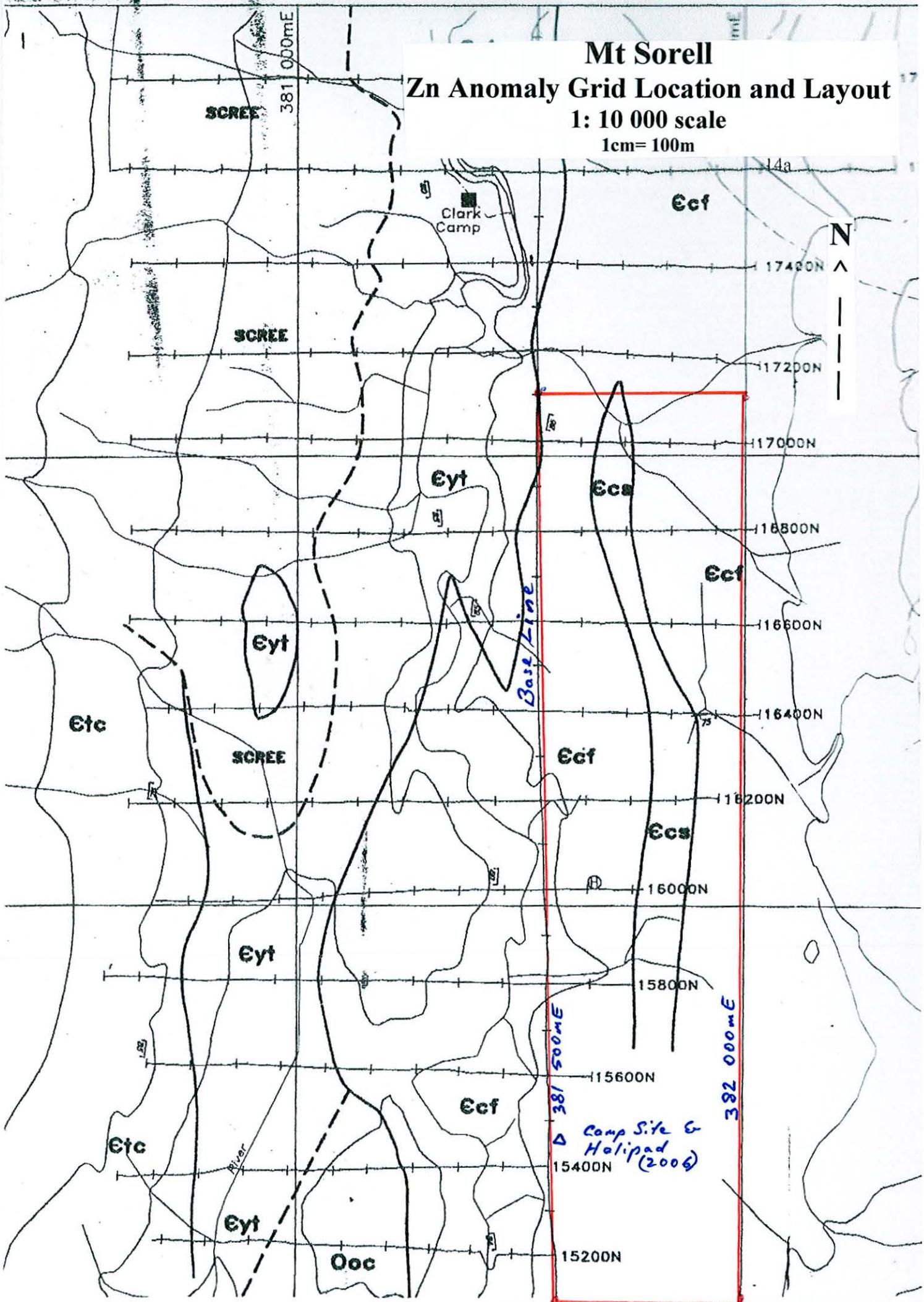
This grid was to be the base for a comprehensive soil sampling programme and geological mapping which was to be started in the north on the new grid cut in February and carried out in a southerly direction concurrent to the grid cutting and catching up with the completion of the newly cut grid in the south. Possible ground geophysics based on the results of the geochemistry would have followed in late summer.

This sampling programme was not carried out as the company decided to conserve its funds and exploration on other projects that had a higher priority at that time. The sampling programme was postponed until March 2007 with the field team again organized when a corporate decision was made to spend no further funds on the EL and do so on other projects with a higher priority ranking.

The company has therefore decided to relinquish the area.

# Mt Sorell Zn Anomaly Grid Location and Layout

1: 10 000 scale  
1cm= 100m





## **Squirrel Helicopter**

**Picking up field crew in the Clark Valley**



**Base line and camp site and storage shed  
in the Clark Valley**



**Base line of the grid  
in the Clark Valley**

### **3.3 Geophysics**

Consultant geophysicist Nigel Hungerford, was engaged to reprocess and re-interpret all existing geophysical data collected by a combination of government organisations and previous explorers. This summary document assesses data from ground and airborne EM, plus airborne magnetic surveys. (See Appendix 1 p27)

### **3.4 Drilling**

It was hoped that future soil sampling results in the Zn anomaly area could lead to the firming up of drill targets.

In addition, the prospective Lynchford Formation in conjunction with the conductive overburden noted in Section 3 above, has been assessed with a view to a small three hole programme of reconnaissance 'wild cat' drilling. The reasoning for this approach is that the area of interest is a series of colluvial fans flanking MT Sorell that obscure any meaningful geochemistry from previous soil sampling programmes. An assessment of logistics was made at each of the three proposed collar locations. Two were selected.

During the current reporting period the company decided to go ahead with this scout drilling but the late start to the project, with further time elapse owing to MRT permitting, contracting a suitable drilling company and other logistics etc meant that the late summer weather window was no longer available and this short drilling project was postponed to later in the year to be carried out in October in conjunction with the completion of the grid in the Zn anomaly area.

For reasons already stated this was not carried out



## **Squirrel Helicopter**

**Set down for sampling purposes in the  
Clark Valley**

## 5. DISCUSSION OF RESULTS

All line cutting was completed in preparation for soil sampling and is comprised of a 2.1km baseline and 11kms of 500 meter long grid lines. (See Figure 5 p15)

Hungerford concluded that the strong isolated airbourne EM conductor on the flanks of Mt Sorell, which was the focus of BHP's initial interest, is likely to be an artefact of poor data collection. Subsequent confirmation of this by Rob Reid, *pers comm*, indicates that calibration of the instrument on that particular day was an issue.

Hungerford also indicates that the zinc anomaly, which is the focus of the completed cut grid, is not supported by any co-incident airborne EM conductor. A linear magnetic high is partly coincident with the zinc anomalism and is thought to represent a mafic volcanic unit within the host shales.

Three discrete EM responses were recorded within both the Yolande River sequence and the Central Volcanic Complex (See Figure 6 p42). 'Ground truthing' by way of reconnaissance stream sediment sampling and minor rock sampling was undertaken in drainages in the vicinity of each of these anomalies and returned poor results. (p36-39).

## **6. CONCLUSIONS**

The area of zinc anomalism, previously defined by Aberfoyle, has been gridded at 100m line spacing in preparation for soil sampling and if results are warranted, ground geophysics.

The three discrete airborne EM responses, highlighted in the Hungerford Summary document, have been tested and no further investigation is warranted.

The spot high noted in the MRT airborne data has now been discounted.

The prospective Lynchford Formation and its attendant conductive Quaternary overburden remains untested.

## **7. ENVIRONMENT**

Apart from grid cutting and the widening of the helipad for camping purposes, there are no outstanding issues with regard to the environmental performance of the company. The helipad extensions were cut in teatree/bauera scrub.

## 8. EXPENDITURE

The expenditure for the reporting period to 1 March 2006 was \$ 55 701

The main expenditure breakdown is as follows:

Geological	\$17,236
Geophysical	\$3,120
Line Cutting	\$16,620
Helicopter Charter	\$15,602

The expenditure for the reporting period to 1 March 2007 was \$ 56 864

The main expenditure breakdown is as follows:

Geological	\$ 17 465
Geochemical	\$ 695
Line Cutting	\$ 30 776
Helicopter Charter	\$ 7 928

Total Spent on the EL to date \$ 117 335

## 9. REFERENCES

- 96\_3827  
Lewis. R.                    Technical progress report. EL 51/94 Clarke Valley.  
Aberfoyle Resources.1996
- 96\_3894  
Mc Neill.A.W.            Relinquishment Report EL 51/94 Clark Valley  
Aberfoyle Resources Limited 1996
- Pers Comm*    Exploration Geologist. Aberfoyle 1995  
                                 Currently on staff at the University of Tasmania
- Tear. S                      Independent Geologists report *in* Prospectus for Zinico  
Resources NL. 2005 (now Gujarat NRE Resources NL)
- 04\_5000  
White M                    First Annual and Final Report Mt Sorell EL 43/2004  
BHP – Billiton



**Sharpening equipment near storage/cooking shed**

**in the Clark Valley**



## **Storage Shed**

**Tied down for Winter**

ZINICO RESOURCES NL  
MT SORELL, WEST TASMANIA. EL 38/2004  
GEOPHYSICAL INTERPRETATION REPORT  
by Nigel Hungerford. December 2005

SUMMARY

Zinico Resources NL requested the author to reprocess and reinterpret the geophysical data acquired by previous mineral explorers over the Mt Sorell licence, EL 38/2004. The surveys include airborne electromagnetic, airborne magnetic and ground electromagnetic surveys dating back to 1990.

A number of bedrock conductors are evident from the airborne and ground EM surveys. These are most likely caused by graphitic black shales in the Yolande River Sequence but the presence of low grade sulphide mineralisation hosted by these shales cannot be discounted at this stage. The strong airborne EM anomaly in the west of the EL and noted by previous explorers is most likely an artefact due to poor data collection. It appears to occur over unprospective Owen Conglomerate. The Zinc soil geochem anomaly previously defined by Goldfields in the south of the EL does not coincide with any airborne EM conductor.

Aberfoyle's airborne magnetic survey shows strongly magnetic units within the Central Volcanic Sequence in the east of the EL. Northwest-southeast trending faults are readily discernable and these may provide foci for gold mineralisation. However these units are mostly outside Zinico's EL.

A small ground EM or possibly IP survey may be warranted at the southern end of the EL to cover 3 airborne EM anomalies over a strike length of about 1 km. This could also cover the Zn geochem anomaly.

MapInfo images have been produced from the various geophysical grids and scanned plans and these have been included on a CD together with this report.

PREVIOUS GEOPHYSICAL SURVEYS

In late 1990 and early 1991 BHP carried out a ground EM survey using the UTEM system (report 91-3252) This survey covered the northern half of the Cambrian volcanic sequence in Zinico's EL leaving the southern part unsurveyed (from 5317600mN south).

UTEM was the standard ground EM technique to use at the time and there is no reason to doubt the results now. In resistive ground such as is encountered in Tasmania, a penetration depth of at least 150 metres can be expected. This technique was responsible for the discovery of the Hellyer orebody in the northern Mt Read Volcanic complex in the mid 1980's. The data from the UTEM survey are not available in digital form but the profiles for each survey line are available in report 91-3252.

In 1995 Aberfoyle flew a semi-detailed helimag survey with 100m line spacing over the Clarke valley in which EL 38/2004 lies. This was not formally interpreted by Aberfoyle before they relinquished their EL.

Zinico's EL, east of the Owen Conglomerate that covers the western part of the EL, has been covered by the MRT government helicopter-borne EM survey flown in 2001-2002. Line spacing for this survey was nominally 200metres and the system used was the Hummingbird multi-frequency coplanar-coaxial system flown by UTS. The coils are in a 'bird' flown under the helicopter.

Hummingbird coil specifications are as follows:

Freq (Hz)	7000	6600	980	880	34000
Coil Orientation	CX	CP	CX	CP	CP

(CX= coaxial; CP=coplanar)

From previous work done by the author using these data and confirmed in the relevant MRT report, it is evident that the low frequencies (ie 880 and 980Hz) should be used with great caution due to calibration problems during the survey. Since the low frequencies have the greatest penetration into the ground, this implies that the HeliEM survey is probably not exploring to great depth ( ie less than 50 metres).

For this report the heliEM located data (profiles) were imported into a Geosoft database for processing. Conductivity grids have been produced for the coplanar channels at frequencies 660 and 34000 Hz and these are shown on figures 2 and 3 as discussed below.

## GEOPHYSICAL SURVEY RESULTS

Figure 1 is a composite plan showing the geophysical and geochemical features over the EL. The geology on this plan is taken from the regional MRT geology and differs somewhat from the Goldfields detailed geology which is shown in report 93-3426 as plan 15. This latter geology plan has been scanned and is attached as Fig 8.

The geology shown on Fig 1 is as follows:

(€ is Cambrian)

€Oo Owen Conglomerate (Cambro-Ordovician)

€mt conglomerates over felsic volcanics (Goldfields €tc and €ta Tyndall Group)

€qt feldspar porphyry (Goldfields €yt Yolande River Sequence)

€mvs felsic volcanics and volcanoclastics (Goldfields €yt Yolande River Sequence)

€mv felsic and intermediate volcanics (Goldfields €cf Central Volcanic Complex)

Note that only the eastern side of Zinico's EL contains prospective host rocks for base or precious metal deposits. This is a strip about 2 kms wide. The western side of the EL is occupied by Mt Sorell which is composed of Owen Conglomerate.

## UTEM

The BHP UTEM survey indicated a rather weak but extensive conductor from responses on the early time channels using a transmitter frequency of 26Hz. This conductor extends under mapped scree over a strike length of at least 100 metres and is open to the south beyond the extent of the survey. BHP detailed this conductor with another UTEM loop and attributed the conductor "to the eastern edge of a conductive source on the slopes of Mt Sorell". The conductor is most probably a thick graphitic/ black shale horizon within the Yolande River Sequence of rhyolitic lavas and volcanoclastics (as mapped by Goldfields €yt ).

## HeliEM

The UTEM ground conductor coincides with a strike extensive HeliEM conductor extending over most of the length of the EL, 4 to 5 kms. This is shown on Fig 1 as a dashed line extending north from heliEM anomaly A in the south.

Figures 2 and 3 show the heliEM conductivities calculated for coplanar frequencies 6600 Hz and 34000Hz. Figure 2 (cp6k) displays the EM response using a linear colour stretch for the image. This shows where the strongest responses are, as indicated by the red and white colours. Using this image it is apparent that there are 4 heliEM anomalies that are of some interest. Figure 3 (cp34k) shows the response using an 'equal area' colour stretch which enhances the lower responses due to poor conductors. The broad north-south conductor mentioned above as a UTEM response is readily apparent.

Anomaly A (380960mE; 5315770mN) is the strongest response along the formational conductor discussed above within the volcanic sequence of the Yolande River Sequence. It may therefore represent either a more graphitic or a sulphide rich part of this horizon. Unfortunately the soil geochem survey carried out by Goldfields in 1993 indicates a lack of base metals at anomaly A (fig 7) which rather downgrades the importance of this EM anomaly. It should also be mentioned that the heliEM anomaly amplitudes are considerably less than could be expected from massive sulphides as found at the Hellyer, Que River or Rosebery deposits. The EM response is in fact similar to that recorded over black shales elsewhere in the Mt Read Volcanics (eg the host shales along strike from Rosebery).

Anomaly C (380727mE; 5314977mN) is about 800 metres south of anomaly A and is likely to have a similar source to A.

Anomaly B (382194mE; 5315186mN) occurs within rocks of the Central Volcanic Complex. It is coincident with a creek so may be due to surficial responses. No geochemical surveys have been carried out in this area.

Anomaly D ( 379920mE; 5319000mN) has been the subject of previous explorers (BHP) who came to conclusion that the response is not due to a bedrock conductor. Investigation of the EM profiles on the two flight lines across this anomaly, suggests that it arises from incorrect measurements possibly due to incorrect coil calibrations which will particularly affect the in-phase component of the measured secondary field.

The in-phase channel of the 6k coplanar coil, from which the conductivity is calculated, is clearly not correct since it increases dramatically in amplitude from strongly negative further east to strongly positive over the anomaly just for this frequency and this component. In addition the in-phase component bears no resemblance to the quadrature component indicating also that the former is likely to be incorrect. These peculiarities are shown on the west-east flight profile across Anomaly D (Fig 9). The problems appear to relate to flights 12 and 15 on two particular days.

This anomaly occurs on the steep side of Mt Sorell over Owen Conglomerate but close to the contact with the upper Tyndall Group. The latter is also composed of conglomerate and is thus an unlikely host for a massive sulphide deposit. The heliEM anomaly peak

also occurs just to the west of a weak magnetic trend that may mark the base of the Owen Conglomerate. The steep terrain is illustrated by the digital terrain image on Fig4.

### Aeromagnetics

Aberfoyle's helimag survey indicates the Yolande River Sequence and the Tyndall Group are essentially non-magnetic whilst the mapped Central Volcanic Sequence contains some quite strongly magnetic horizons (Figs 5). The 1<sup>st</sup> vertical derivative of the magnetic field, reduced to the magnetic pole, (Fig 6) shows the magnetic features in detail.

Most of these magnetic units are outside the eastern boundary of Zinico's EL although one is present in the south-east. This magnetic unit is partly coincident with the Zn soil geochem anomaly detected by Goldfields suggesting that the magnetic anomaly may be caused by a lithology anomalous in zinc. As mentioned above there is no relationship of the geochem anomaly to any EM conductor.

NNE-SSW faults are readily discernible disrupting the magnetic units. Possibly the geochem anomaly is related to one of these cross-faults but further geochem sampling would be required at a closer line spacing than the original 400 metres in order to better define the geochemical distribution of Zn and other elements.

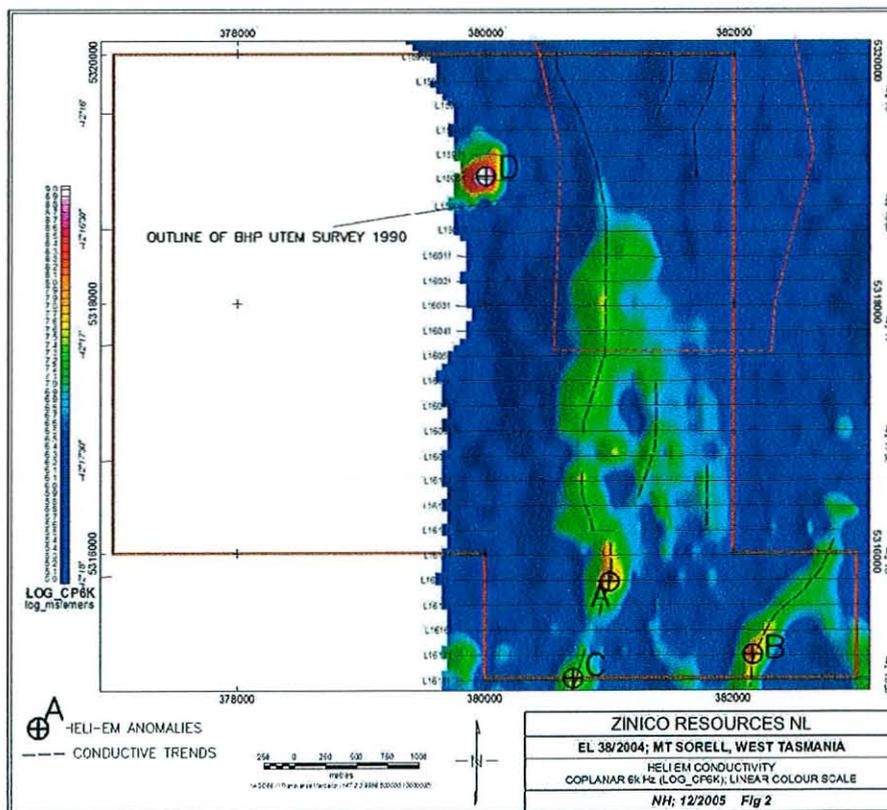
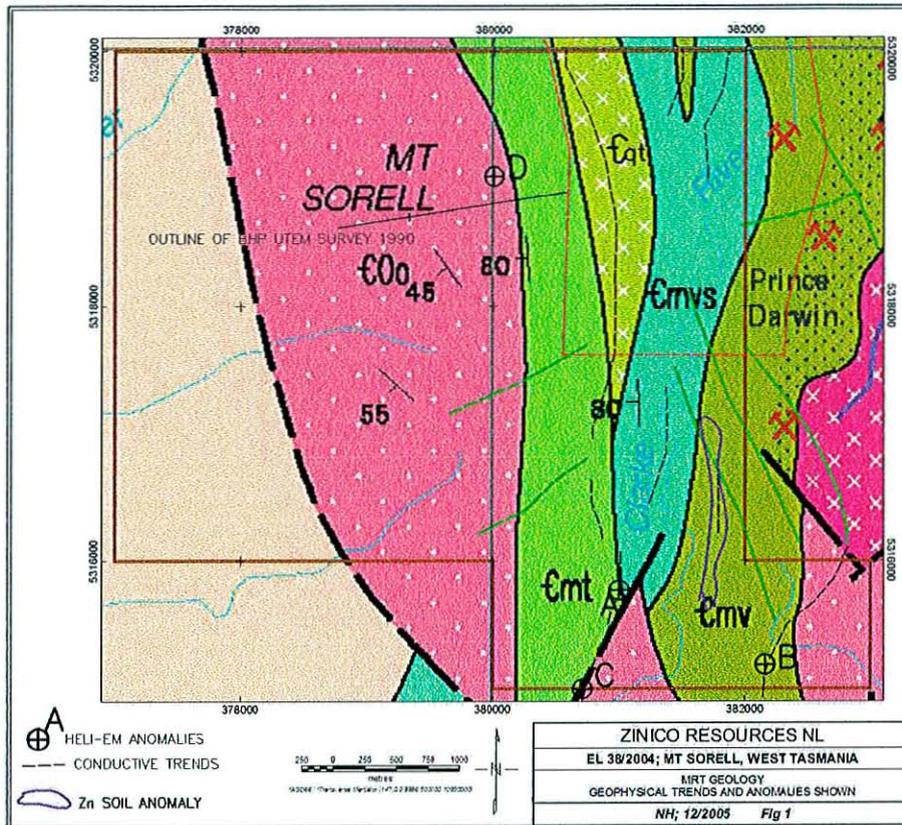
### FURTHER GEOPHYSICAL WORK

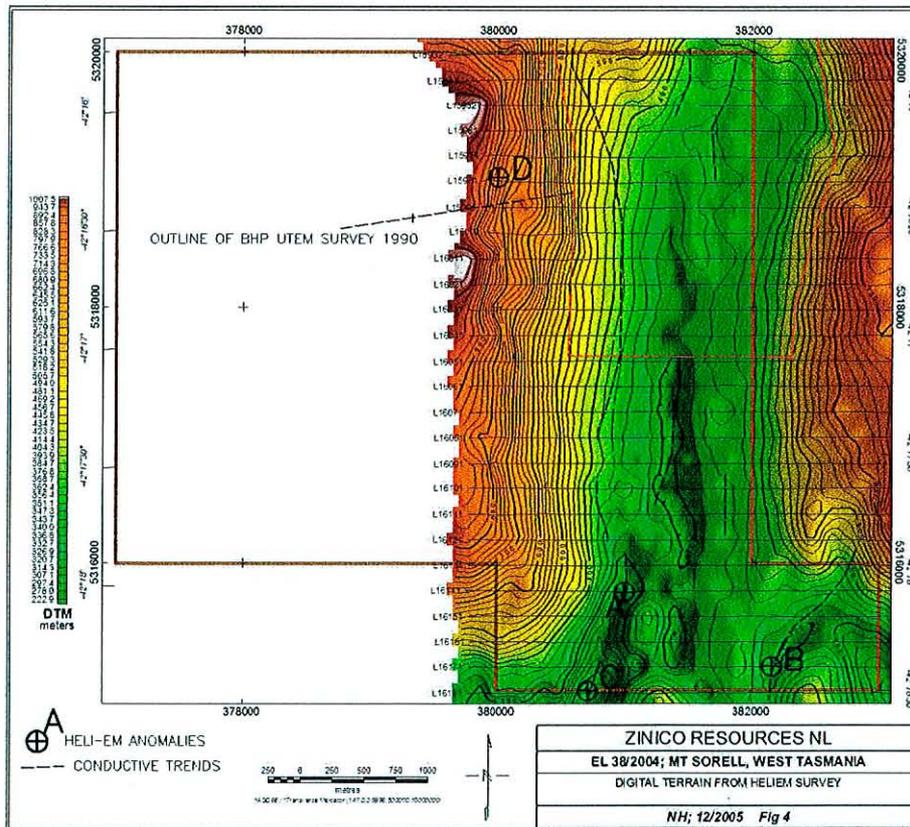
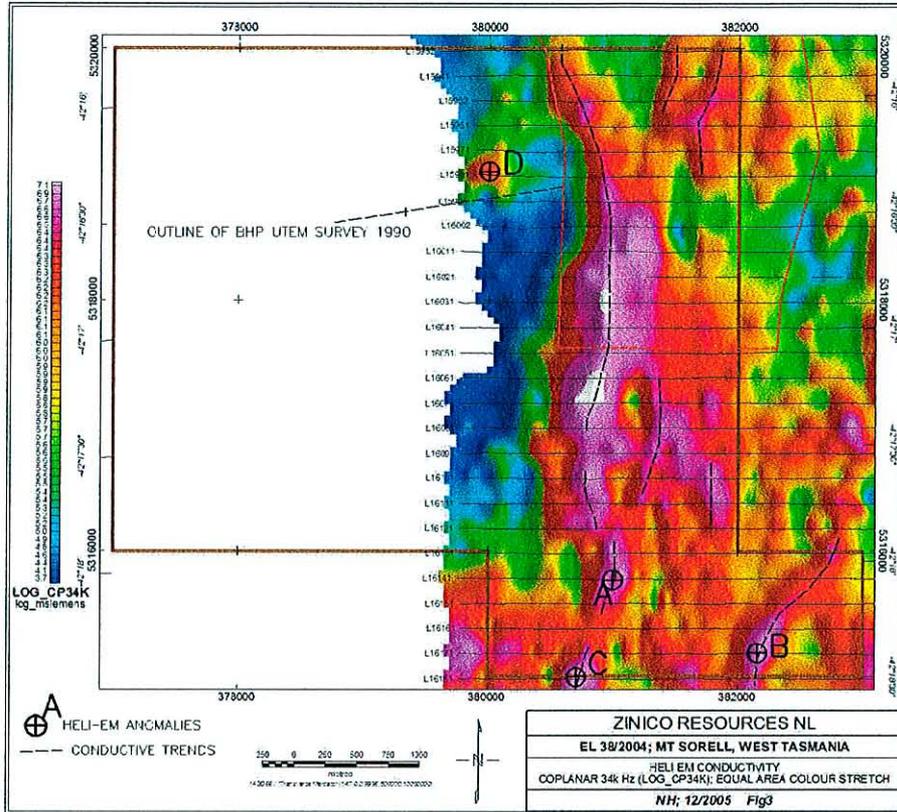
From a geophysical perspective the most interesting area of the EL is at the south where weak-moderate heliEM conductors occur. If this area is thought to be geologically prospective then a TEM (Time Domain Electromagnetic) or IP survey could be carried out to determine whether these conductors are worth subsequent drilling.

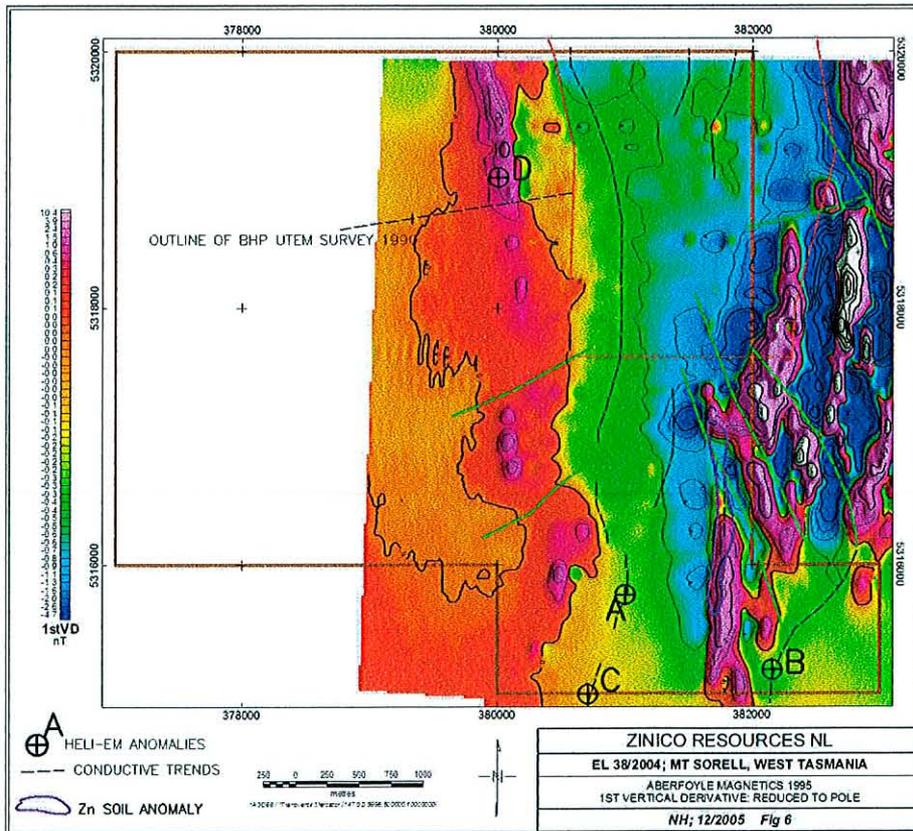
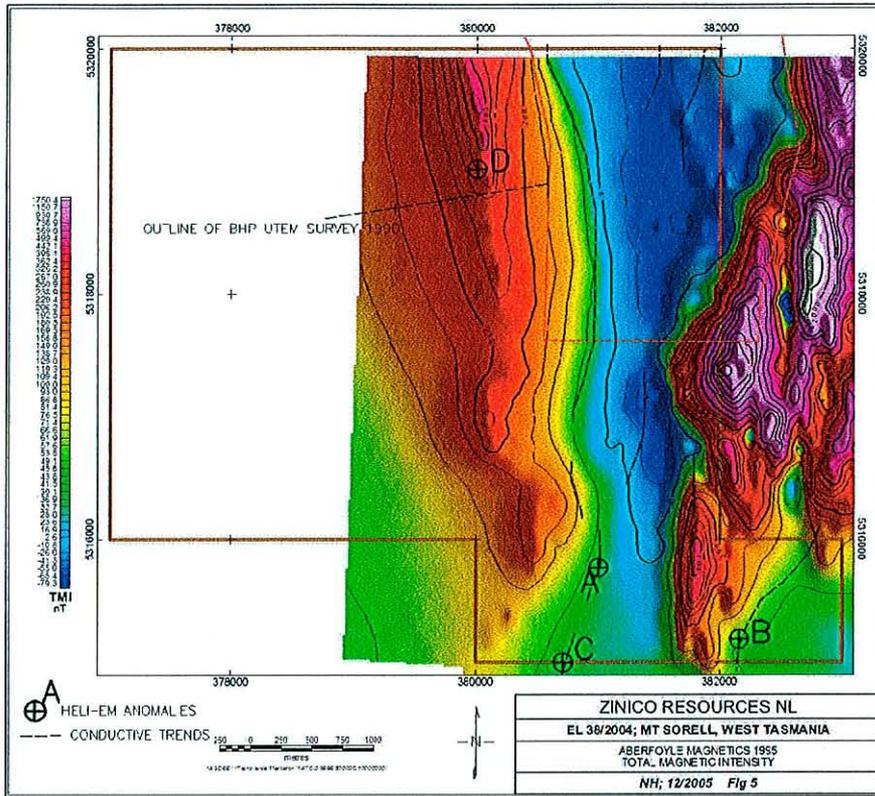
A TEM survey would be rather easier to conduct than an IP survey although considering the access and terrain it would still not be easy. A TEM survey would have the benefit of easier interpretation giving more accurate estimates of a conductor's property such as dip, depth and conductivity. It would be appropriate for following up the HeliEM anomalies as possible massive sulphides but if Zinico considers the area is prospective for gold then IP would be more appropriate since, unlike TEM, it would detect disseminated sulphides. Both techniques will give responses to graphitic black shale horizons and only geochem or drilling will distinguish these from responses due to sulphides.

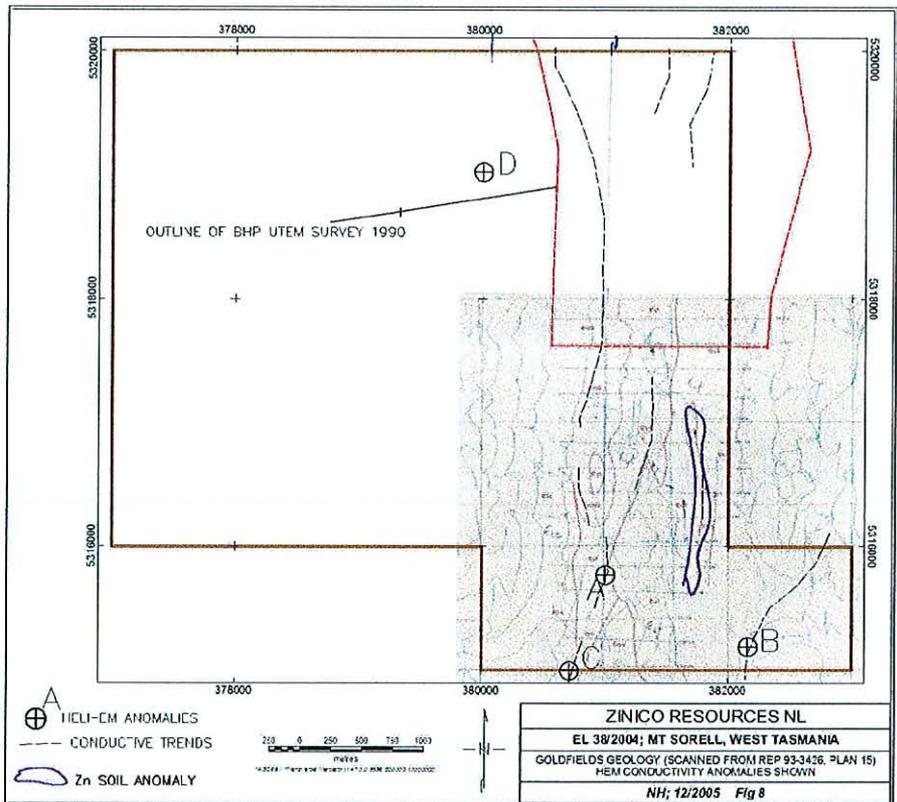
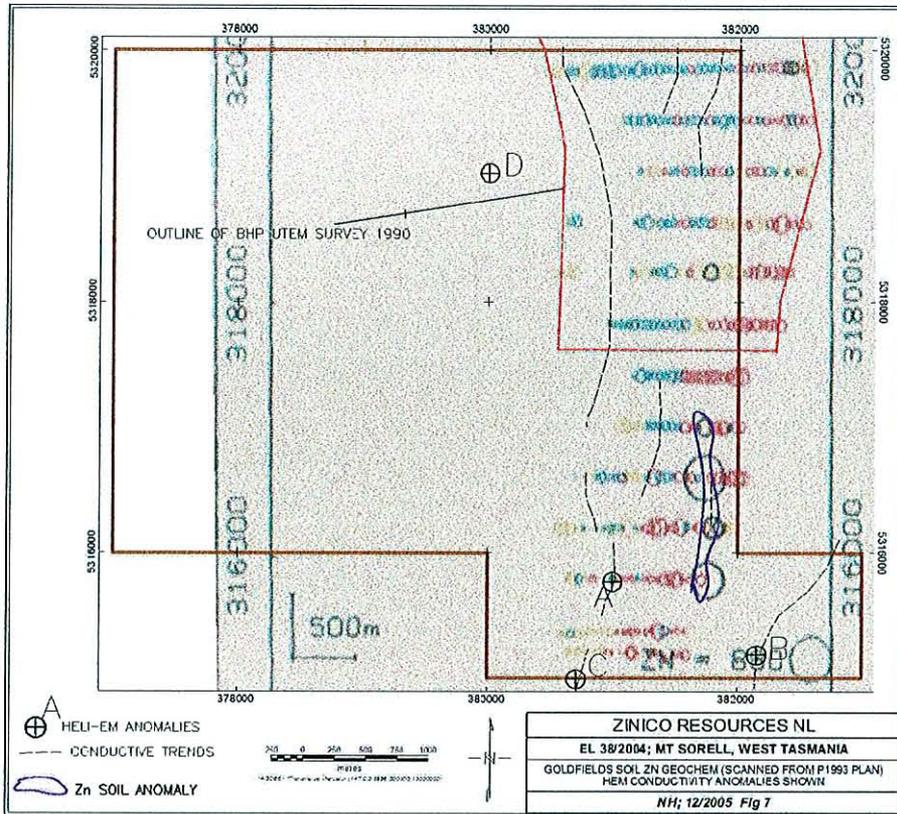
### FIGURES: ( all in AMG66, zone 55 coordinates)

1. Geology with geophysical trends
2. HeliEM Apparent Conductivity coplanar 6k Hz
3. HeliEM Apparent Conductivity coplanar 34 Hz
4. Digital Terrain
5. Total Magnetic Field (Aberfoyle Helimag)
6. Magnetics: 1<sup>st</sup> vertical derivative, reduced to pole
7. Goldfields geochem plan (scanned)
8. Goldfields geology plan (scanned)
9. HeliEM line 15981 across Anomaly D

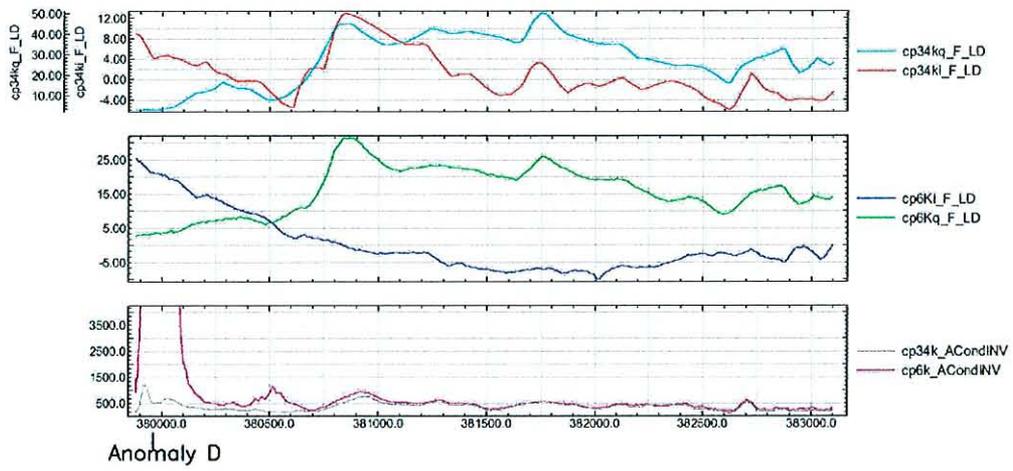








### Line 15981; mt sorell; heliEM



database: D:\zinko\mt\sorell\units\scra%\\_asm.gdb line/group: L15981

Fig 9 2005/12/14



Order No	Au	Au Dp1	Ag	As	Bi	Ca	Cd	Ce	
IDENT	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	
UNITS	FA3	FA3	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	
SCHEME	FA3	FA3	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	
DETECTIC		1	1	1	3	5	10	2	370
MTS20001	<1	--	<1		10	<5	4600	<2	40
MTS20002		2	2	<1	64	<5	480	<2	25
MTS10001		15	--	<1	10	<5	1200	<2	30
MTS10002		5	--	<1	6	<5	2250	<2	30
MTS10003		6	--	<1	4	<5	1000	<2	25
MTS10004		20	--	<1	4	<5	800	<2	25
MTS10005		20	--	<1	4	<5	850	<2	25
MTS10006		3	--	<1	4	<5	1400	<2	40
MTS10007		2	--	<1	6	<5	1250	<2	70
MTS10008		1	--	<1	4	<5	1250	<2	45

Co ppm IC3E	Cr ppm IC3E	Cu ppm IC3E	Fe ppm IC3E	K ppm IC3E	Mg ppm IC3E	Mn ppm IC3E	Mo ppm IC3E	Na ppm IC3E	
	2	2	2	100	10	10	5	3	10
	2	58	12	10700	6350	4200	86	<3	95
	39	39	16	371000	10000	1900	5150	12	85
<2		24	60	8350	6900	1150	105	<3	500
<2		28	32	9200	8550	1650	105	<3	550
<2		17	20	6600	8200	1050	195	<3	290
<2		10	13	4450	6300	900	30	<3	700
<2		22	21	3600	6550	950	26	<3	320
<2		7	22	5150	18400	1450	20	<3	650
<2		9	29	4900	14600	1600	24	<3	1450
<2		22	19	3000	4250	900	22	<3	340

Ni ppm IC3E	P ppm IC3E	Pb ppm IC3E	Sb ppm IC3E	Sr ppm IC3E	Ti ppm IC3E	V ppm IC3E	Y ppm IC3E	Zn ppm IC3E
2	5	5	5	5	2	10	2	2
11	410	<5	<5		7	1050	22	6
60	340	105	22	<2		750	29	16
4	90	78	<5		10	1900	12	7
4	170	26	<5		16	1700	17	7
3	56	12	<5		9	1350	12	6
2	46	<5	<5		10	2150	12	7
3	42	6	<5		13	1550	11	7
2	125	22	<5		20	1900	10	12
2	120	18	<5		20	2500	16	13
3	80	12	<5		13	2150	12	8

## ZELOS RESOURCES – ‘In House’ Geological Note

### MOUNT SORELL - E.M. ANOMALIES

#### Introduction

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Three discrete HeliEM anomalies were identified by Nigel Hungerford utilizing data collected by the MRT heli-bourne EM survey flown in 2001-2002. (Refer to Hungerford December 2005). In addition, Hungerford amalgamated airborne magnetic and ground EM surveys undertaken by Aberfoyle Resources and BHP respectively. The entire data set was reprocessed to enable a geophysical interpretation of the E.L. in its entirety.

Figure 2 and Figure 3 of Hungerford’s report delineated two North – South oriented conductive trends up to 4-5kms in length. With such strike extent, it is assumed that these trends reflect lithographic horizons, most likely graphitic/black shale units within the Formational volcanics. However within these trends, there are 3 anomalies where strong responses may indicate more prospective, sulphide rich parts within these horizons.

Hungerford observes:

*Anomaly A (380960mE; 5315770mN) is the strongest response along the formational conductor discussed above within the volcanic sequence of the Yolande River Sequence. It may therefore represent either a more graphitic or a sulphide rich part of this horizon. Unfortunately the soil geochem survey carried out by Goldfields in 1993 indicates a lack of base metals at anomaly A (fig 7) which rather downgrades the importance of this EM anomaly. It should also be mentioned that the heli EM anomaly amplitudes are considerably less than could be expected from massive sulphides as found at the Hellyer, Que River or Rosebery deposits. The EM response is in fact similar to that recorded over black shales elsewhere in the Mt Read Volcanics (.eg. the host shales along strike from Rosebery).*

*Anomaly C (380727mE; 5314977mN) is about 800 metres south of anomaly A and is likely to have a similar source to A.*

*Anomaly B (382194mE; 5315186mN) occurs within rocks of the Central Volcanic Complex. It is coincident with a creek so may be due to surficial responses. No geochemical surveys have been carried out in this area.*

#### Work Undertaken

‘Ground truthing’ of the EM anomalies was undertaken in an attempt to determine the source of the anomalism and to collect reconnaissance geochemical samples in the immediate environs.

**Anomaly A and Anomaly C** were underlain primarily by Quartz Porphyry. The sediment load in the stream was overwhelmingly quartz rich due to the combined input of Owen Conglomerate and Tyndall Group. The high quartz sand content, combined with the steep gradient of the drainage, made the accumulation of sufficient

mud size fraction problematic. None the less, coarse sands were collected and these will be sieved at AMDEL in the hope that sufficient -80# fraction can be obtained for analysis. Tributary streams, whilst marked on the 1:25000 topography map, were invariably poorly defined and/or too steep to allow accumulation of fine sediment, hence the stream sediment sampling density was less than anticipated.

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Four stream sediment and two rock chip (float) samples were collected. Of note was a float sample of indurated black shale, with trace, disseminated, very finely crystalline, euhedral pyrite (Biogenic?). The other float sample is of a mid grey pelite with intensive limonitic weathering as a selvedge/rind over a fresh core.

An isolated, 'erratic' boulder of Limestone, > 2m in diameter was located in the gorge upstream of Anomaly C. No outcrop of this lithology was located.

**N.B.** No GPS coverage was possible in this gorge due to the terrain and the vegetation cover.

**Anomaly B** is located in the headwaters of the Bird River drainage. The trunk stream in the centre of the anomaly is a low lying, braided and undefined drainage – basically a swamp with the density of vegetation one expects in a swamp! No outcrop was observed and quartz rich sands dominated with very little mud fraction available for sampling. Three poor quality stream sediments were collected. The observed topography concurs with Hungerford's suggestion that the anomalism is probably due to surficial responses.

ANOMALY	SAMPLE No	SAMPLE TYPE	LOCATION
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C	MTS 10001	Stream Sediment	380790 / 5315000
C	MTS 20001	Rock (Float)	380790 / 5315000
C	MTS 10002	Stream Sediment	380760 / 5315100
C	MTS 20002	Rock (Float)	380760 / 5315100
C	MTS 10003	Stream Sediment	380800 / 5315270
A	MTS 10004	Stream Sediment	380940 / 5315720
A	MTS 10005	Stream Sediment	380980 / 5315700
B	MTS 10006	Stream Sediment	382100 / 5315210

B	MTS 10007	Stream Sediment	382200 / 5315320
B	MTS 10008	Stream Sediment	382260 / 5315240

### Coast and Mountain Exploration

27<sup>th</sup> March 2006

