

# **TNT MINES LIMITED**

ABN 67 107 244 039

**EL64/2004**

**WARATAH**

**ANNUAL AND FINAL REPORT TO 09 AUGUST 2012**

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## 1.0 INTRODUCTION

### 1.1 Location and tenure

The Waratah licence is located approximately 55km southwest of Burnie via Waratah township, on the west coast of Tasmania (Figure 1). The 48 km<sup>2</sup> tenement encloses the Mt Bischoff Mining Lease and the adjacent small township of Waratah. The licence area can be found on the Inglis and Arthur River (1:100,000) LTIS map sheets.

Topographically the area is of highly variable relief with the majority of the licence area classified as state forest. In general, vehicular access is limited due to topography and thick rainforest vegetation. In the southern portion of the licence various tracks run off the Murchison Hwy and Magnet Rd between Magnet and Waratah. In the north-east the Belmont and Wandle Roads run off the Murchison Hwy, and in the north there is limited access via Flannel Rd.

Exploration is conducted via a joint venture agreement. The licence is held by Geoinformatics Exploration Tasmania Pty Ltd (Geoinformatics) and the operator is TNT Mines Limited (TNT Mines).

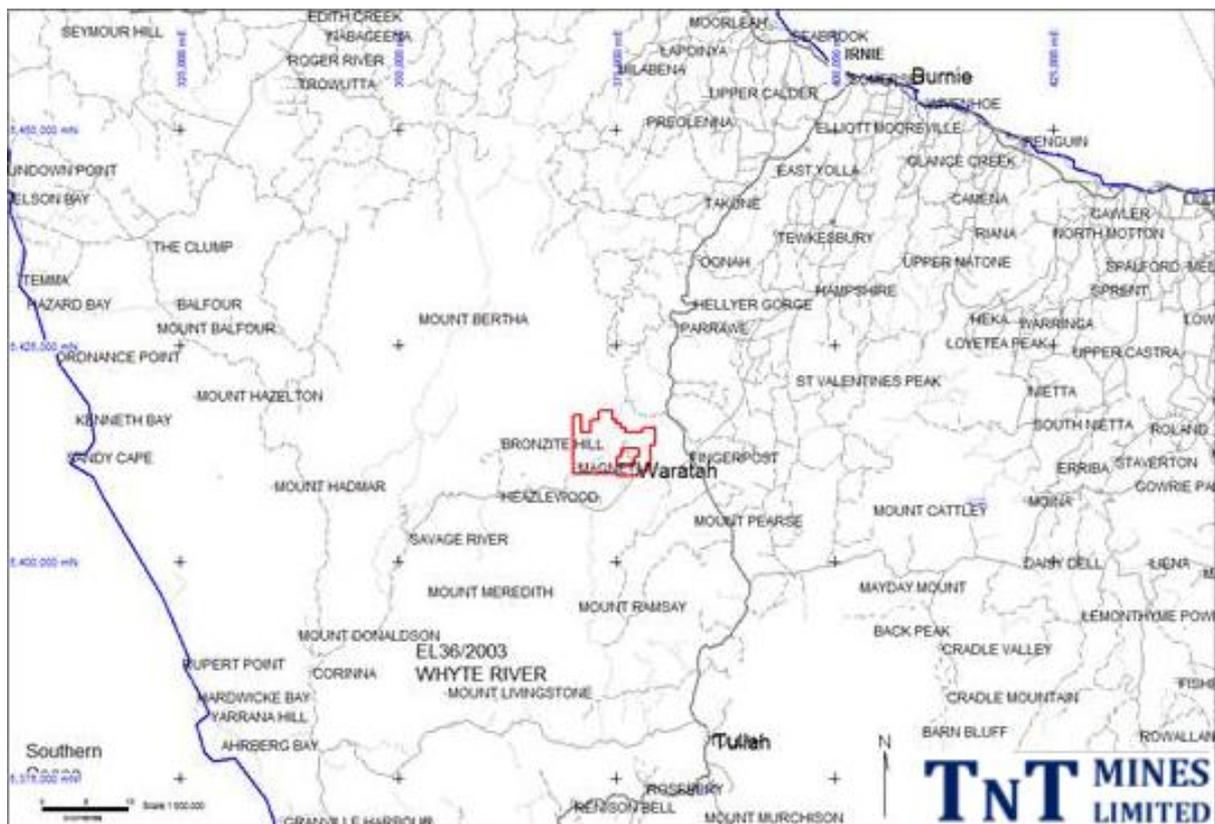


Figure 1: Regional location plan

### 1.2 Geology overview

A number of geological units are present within the Waratah licence area; however the units of interest in terms of prospectivity for significant mineral deposits are chiefly the Burnie and Oonah Formation, Early Cambrian carbonates of the Crimson Creek Formation and Cleveland-Waratah Association, Cambrian Ultramafics and the Devonian Meredith Granite.

Obviously it is the relationship between the Meredith Granite and the earlier sedimentary successions that provides the mineral prospectivity of the area. Regional geology is found below in Figure 2.

#### 1.2.1 *Burnie and Oonah Formation*

The Burnie and Oonah Formation is a thick, polydeformed Proterozoic quartzwacke turbidite succession, widespread in Western Tasmania. The formation comprises of two lithological associations. The dominant quartzwacke turbidite association, which includes minor alkaline dolerite intrusions and lavas, consists of interbedded quartz sandstone, quartzwacke, siltstone and pelite. The secondary lithological association is predominately pelite and/or carbonate including mafic volcanics and conglomerate in some places. Near Zeehan this association is host to a number of Devonian vein, skarn and replacement-tin deposits, and at Mt Bischoff a dolomitic unit hosted major Devonian tin lodes (Seymour *et al*, 2006).

#### 1.2.2 *Crimson Creek Formation*

The Crimson Creek Formation represents a correlate of the Upper Neoproterozoic-Lower Cambrian Togari Group sedimentary and mafic volcanic succession. The group can be subdivided into four main phases of sedimentation; a lower dolomitic succession with basal siliceous conglomerate-sandstone, a phase of mafic rift volcanism and associated volcanoclastic sedimentation, renewal of shallow-marine carbonate sedimentation, and at the top, a Cambrian phase of deep-water siliciclastic sedimentation (Seymour *et al*, 2006).

#### 1.2.3 *Cleveland-Waratah Association*

Considered as emplacement products of the Early Cambrian Tyennan Orogeny, the Cleveland-Waratah association consists of lithicwacke, red mudstone, chert, mafic volcanics with Ocean Floor Basalt characteristics, and rare carbonate rocks which host mineralization at the Cleveland Mine (Seymour *et al*, 2006).

#### 1.2.4 *Cambrian Ultramafics*

In the early phase of the Tyennan Orogeny, the east-facing Tasmanian passive margin collided with an oceanic arc, resulting in obduction of mafic-ultramafic complexes across much of Tasmania. The original geometry of the allocthanous sheets has been substantially disrupted by later deformation so that the present surface occurrences are typically steeply dipping and fault bounded (Seymour *et al*, 2006).

#### 1.2.4 *The Meredith Granite*

World-class tin and tungsten ore bodies, as well as many lead, silver, gold, zinc, copper and bismuth deposits of different styles, are genetically and spatially related to the emplacement of high-level Middle Devonian to Early Carboniferous granitoids in Western Tasmania. The major bodies are the Husetop, Granite Tor, Grassy, Dolcoath, Meredith, Heemskirk and Interview granites, and these include both I and S types. Styles of mineralisation associated with the Devonian granitoids include stratabound carbonate replacement cassiterite-massive sulphide, silicate and magnetite skarns, and disseminated and vein deposits.

Economically, the stratabound carbonate-replacement cassiterite-massive sulphide mineralisation forms the most important Devonian ore type, with major deposits at Renison Bell, Mt Bischoff, Queen Hill, Montana, Cleveland and Razorback (MRT Report, 2005).

#### 1.2.5 *Parmeener Supergroup*

Sediments of the Parmeener Supergroup represent Late Carboniferous to Late Triassic intrabasinal lithologies deposited unconformably on top of Late Devonian granites and older folded rocks. The Lower Parmeener Supergroup consists of mostly glacial and glaciomarine rocks, while the Upper Parmeener Supergroup consists of mostly fluvial and lacustrine sedimentary rocks (Seymour *et al*, 2006).

### 1.2.6 Tertiary Basalts

Radiometric dates from basalts across Tasmania indicate an age range of between 16.4Ma and 64.5Ma (Everard et al., 2004). These basalts cover the majority of the licence.

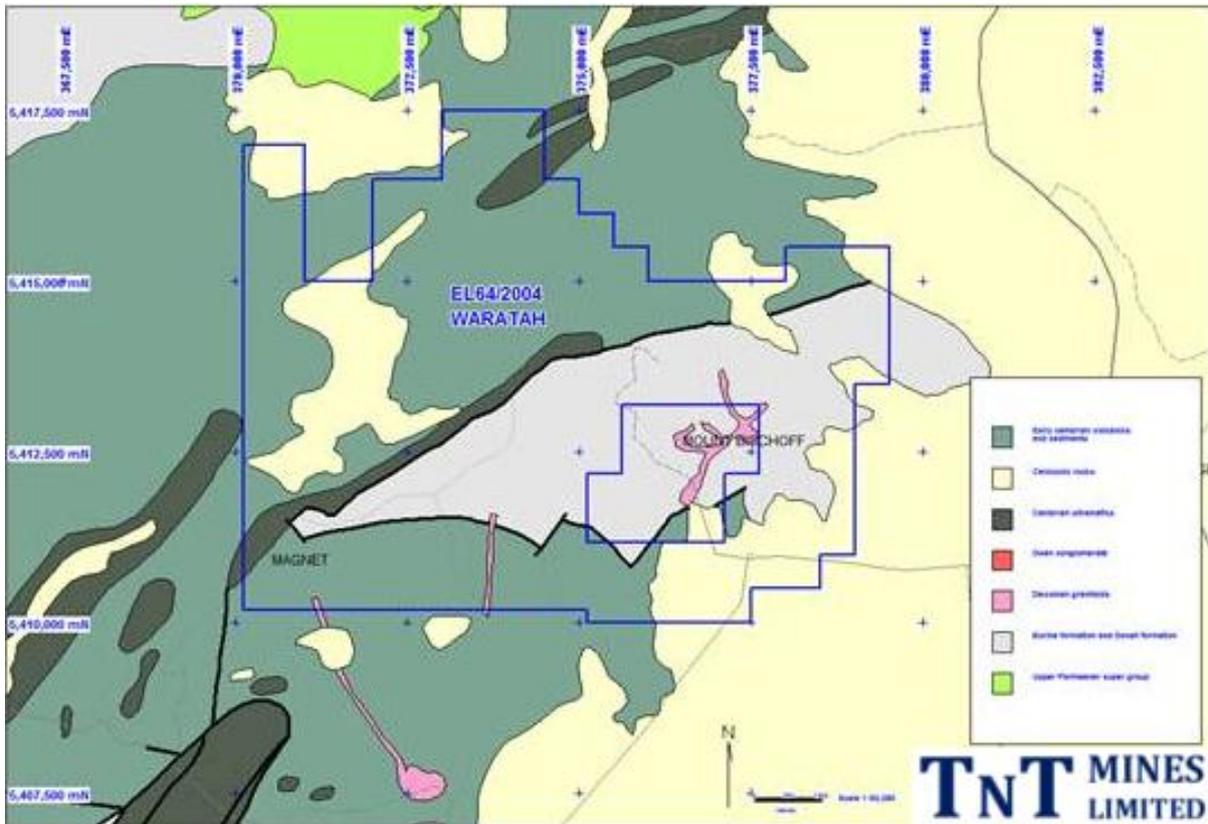


Figure 2: Regional geology

### 1.3 Exploration rationale

Exploration was carried out on this tenement by Bass Metals up until 2009 on behalf of a JV arrangement with Geoinformatics and was focused around the Magnet Pb-Zn-Ag deposit in the western part of the tenement. The intrusive-related deposit targets that Geoinformatics modelled and were originally focused on were not adequately tested during this period of exploration. TNT Mines' focus is to return to the intrusive-related deposit targets.

In 2007 Geoinformatics conducted a retargeting exercise in western Tasmania based on significant advances in some processing techniques that we made after the earlier targeting work. Specific advances in processing magnetic and gravity data that are relevant to Waratah include:

- Phase congruency - for the detection of structure by edge detection
- Improvements in radial symmetry detection - for definition of intrusive systems

Phase congruency produces results that approximate what the human eye can see, but without the interpretive bias and is therefore objective, consistent, and repeatable. Radial symmetry is an unbiased technique for detection of radially symmetric features in potential field data and can detect deep and shallow features, which is very important for IRD's.

The components of the Geoinformatics targeting model for IRD's are summarized below:

- Batholith - specific zones of low gravity
- Deep pathways - phase congruency on gravity
- Mid-crust granite spines - valleys in shallow residual gravity
- Margins of near-surface intrusions - edges of specific magnetic lows

A probability grid for each of the above components was generated and the grids multiplied to produce the final target probability grid. The Waratah target covers Mt Bischoff and extends to the NW and SE. Bass did no work on this target while they managed the Waratah joint venture. Geoinformatics and TNT Mines believe these targets warrants further investigation.

TNT Mines proposes to review all historical exploration data, review and reprocess geophysical data and ground truth anomalies.

## 2.0 REVIEW OF PREVIOUS WORK

### 2.1 Historic mining

The Mt Bischoff tin deposit was discovered in 1871 and during the following decade earned a reputation as being the richest tin mine in the world. Mt Bischoff went on to produce a total of 10.54Mt@1.1%Sn, however for the purpose of this report no further discussion of exploration within the vicinity of the mine will be detailed as the mining lease is excluded from the current exploration licence.

The Magnet lead-zinc-silver deposit was first noted around the same time as Mt Bischoff in 1877. The noted gossan was revisited some time later and in 1895 then Magnet Silver Mining Co NL was founded. Mining commenced with extraction of high-grade silver-lead until 1900 when the installation of a tramway allowed lower-grade ore to be exploited until the mine closure in 1933.

No further mining activity has occurred on the site; however in 1973 the zinc-rich tailings were removed by Electrolytic Zinc for treatment at Rosebery.

### 2.2 Exploration prior to current tenement

Exploration in the Waratah licence area has generally concentrated in the areas adjacent to the Magnet Mine as reflected in the open file data. Modern exploration activity commenced in 1956 (Figure 3). A summary of this work is presented below.

**Date:** 1956-1960

**Company:** Rio Tinto Australian Exploration P/L (EL4/59)

**Exploration Philosophy:** Exploring for large-scale regional targets.

**Work Completed:** Airborne EM survey, airborne magnetic survey, gravimetric profiling, air photograph interpretation and geological mapping.

**Results and Conclusions:** No significant results. No further work recommended (59\_0269).

**Date:** 1951(?) -1963

**Company:** Electrolytic Zinc Co

**Exploration Philosophy:** Exploring for extension to Magnet orebody. Mineralisation interpreted to be open to south.

**Work Completed:** Literature review, surface mapping and two diamond drill holes (WP83 & WP84) southwest of Magnet Mine. Technical report not viewed.

**Results and Conclusions:** Both drill holes intercepted interpreted hangingwall veins of limited width. Best results were; WP83 0.7%Pb, 3.9%Zn, 1.2oz Ag and WP84 2.35%Pb, 2.3%Zn, 3.45oz Ag. No further work recommended.

**Date:** 1963-1968

**Company:** Aberfoyle Tin NL (Cleveland Tin NL)

**Exploration Philosophy:** Magnet Mine mineralisation lies in a similar stratigraphic position to the Cleveland Mine mineralisation. Possibility for extension.

**Work Completed:** Geochemical sampling, magnetometer traverses, geological mapping, diamond core re-logging (EZ holes WP83-84) and petrology.

**Results and Conclusions:** Previous exploration was not adequate to test for repetition of similar ore bodies to the south. Current exploration produced 3 geochemical anomalies interpreted to represent similar ore bodies to the south. These anomalies are recommended for drill testing.

**Date:** 1971-1988

**Company:** Comstaff P/L (EL5/63)

**Exploration Philosophy:** Exploring for repetition of the Magnet Mine mineralisation; Assessment of the Arthur River alluvial tin prospect north-east of Mt Bischoff; Exploration for Mt Bischoff-style tin mineralisation at Ramsay prospect south of Mt Bischoff and Deep Gully Creek to the north-east.

**Work Completed:** Magnet Mine: Soil geochemical sampling, ground magnetic survey, geological mapping, diamond drilling and DIGHEM survey.

Arthur River: Heavy concentrate sampling, stream sediment sampling, geological mapping.

Ramsay Prospect: Geological mapping, geochemical sampling, magnetic survey.

Deep Gully Creek: Heavy concentrate sampling, geological mapping, airborne magnetic survey, DIGHEM survey, percussion drilling (DGC1-5), down-hole SIROTEM surveys, soil geochemistry, rock chip sampling.

**Results and Conclusions:** Drilling around Magnet (MAG1 & MAG2) yielded disappointing results, as did hole BAB1 to the northeast. The Ramsay prospect contains coincident Cu Sn W & ground magnetic anomalies. Deep Gully Creek drilling best result from DGC4 returned 65ppm Sn over 25.5m. Deep Gully Creek is considered prospective for a tin deposit akin to Renison Bell or Mt Bischoff (85\_2411).

**Date:** 1989-1990

**Company:** Billiton Australia (EL46/88)

**Exploration Philosophy:** Follow-up previously defined anomalies. Stone Dam aeromagnetic anomaly has similar characteristics to Mt Bischoff. Deep Gully Creek has same stratigraphic host rocks and encouraging rock chip results from Ethol Creek outcrop. Mt Bischoff-style mineralisation.

**Work Completed:** Stone Dam Creek: Magnetometer survey, geological mapping, rock chip sampling, UTEM survey and diamond drill hole.

**Results and Conclusions:** UTEM and ground magnetic results indicate that Stone Dam anomaly not due to Tertiary basalt, and not inconsistent with massive sulphide (pyrrhotite) source. WD89-1 drilled into UTEM anomaly, however no anomalous geochemistry encountered, and the UTEM anomaly subsequently re-interpreted to be weathering feature in Tertiary basalt. No further work recommended. Tenement relinquished (90\_3092).

**Date:** 1988-1989

**Company:** Placer Exploration Ltd (EL47/88)

**Exploration Philosophy:** Test Magnet Creek area for gold mineralisation.

**Work Completed:** Data review, stream sediment sampling, rock chip sampling, air photograph interpretation and petrology.

**Results and Conclusions:** Weak gold anomalism in Magnet Creek unexplained. No further work recommended. Tenement relinquished (90\_3070).

**Date:** 1990-1993

**Company:** RGC Exploration (EL12/90 & EL15/90)

**Exploration Philosophy:** Explore for gold associated with mafic (boninitic) volcanics.

**Work Completed:** Historic data compilation, stream sediment sampling and bulk leach sampling.

**Results and Conclusions:** Weak gold anomalism in Magnet Creek probably shed from small base metal workings in the area. No further work recommended. Tenement relinquished (90\_3070).

**Date:** 1994-1998

**Company:** Mining Project Investors P/L (EL17/93) JV Pasminco Exploration

**Work Completed:** Data review, stream sediment sampling, rock chip sampling, air photograph interpretation and petrology.

**Results and Conclusions:** Drill hole (NMM-1) into Magnet anomaly in Magnet Creek intersected zone of disseminated magnetite alteration that accounted for magnetic anomaly. No further work recommended.

Literature review and rock chip sampling of Magnet Mine concluded that the mine area is under explored by modern exploration techniques. Further work recommended. Tenement relinquished (98\_4226).

## **2.3 Exploration of current tenement by Bass Metals – Geoinformatics JV**

### *2.3.1 2005 – 2006 (BSM)*

#### *TERRA Satellite (ASTER Data) -*

Still interested in the idea of using a remote sensing system to map wall rock alteration on a more regional basis, BSM managed to source some ASTER data over the northwest corner of Tasmania. It was decided that the data would be used in a more regional sense than had originally been anticipated.

ASTER is an acronym for ‘Advanced Spaceborne Thermal Emission and Reflection Radiometer’ and it is an instrument that flies on the Terra Satellite. It collects a similar radiation spectrum to the HyMap instrument but at a lower resolution (4x4m pixels versus 30x30m pixels). BSM had this ASTER data forwarded to Bob Agars at AGARSS.

BSM realised that because of the lower resolution of the ASTER data and the issue of vegetation shielding radiation reflected from the ground surface that the data would be more useful for targeting ‘active zones’ rather than providing the bullseye targets that had originally been hoped for from the HyMap data.

In terms of alteration within the Waratah tenement, the concentration of alteration occurs within the central part of the licence north of Waratah township. The scattered alteration is dominated by SiO<sub>2</sub> with lesser carbonate alteration adjacent to Mt Bischoff in the Oonah and Burnie Formation. North of Mt Bischoff into the andesitic terrain argillic alteration predominates. Further north again within the volcanic sediments occurs a zone of discreet carbonate alteration. Sericite and phyllic alteration have a strong spatial association and are scattered throughout. These alteration relationships appear to superficially map changes in broad lithological associations, but do not appear to highlight any particular structural features or known mineral occurrences.

In regards to historic mine development in the licence area, there is very little alteration mapped around the Magnet Mine and there is no distinguishable character to the alteration adjacent to Mt Bischoff.

Interpretation methodology employed in processing the ASTER data was included in Appendix 2 of the report for the reporting period 10/8/2006 – 9/8/2007.

#### *Geoinformatics Geological Modelling & Targeting - Regional Targets*

BSM utilised Joint Venture partners Geoinformatics Exploration Inc to compile a 3-dimensional spatial database (GIS).

Models were developed for targeting VHMS, intrusive related tin systems (e.g. Renison and Mt Bischoff) and intrusive related nickel skarn systems (e.g. Avebury). Targets were

identified and ranked according to probabilistic Monte Carlo analysis of best-available 2D and 3D geoscientific data and allowed an assessment of exploration risk and uncertainty.

At Waratah, using Monte-Carlo Ranking analysis, Geoinformatics generated a total of 10 intrusive-related, carbonate-replacement targets, 7 Hellyer-Rosebery VHMS targets and 1 nickel skarn-related target for a total of 18 targets.

To date, attention has been focused on the Magnet mine area, represented by the three co-incident targets in the south west corner of the EL. It is intended that in the 2007-08 period that more attention will be given to the other Geoinformatics targets in the tenement.

The Geoinformatics process methodology was included as Appendix 3 for the reporting period 10/8/2005-9/8/2006.

### *2.3.2 2006 – 2007 (BSM)*

The main thrust of the work was to produce a 3D model of the Magnet mine workings, combined with a review of literature to produce a near mine exploration plan. The near mine environment has not been the subject of recent exploration and presents an attractive target for BSM.

### *2.3.3 2007 – 2008 (BSM)*

#### *Proposal and commencement of a diamond drilling program -*

A proposal for a series of seven short holes (25-50m) to be drilled in the footwall position along the existing magnet access track was approved by MRT. These holes were designed to test for remnant mineralization along the extent of the old mine workings, and test for new Pb-Zn-Ag strike extensions to the north. Figure 3 shows the extent of the shallow program, excluding the southernmost hole indicated. Fig 4 shows a plan view of proposed works and drill hole locations.

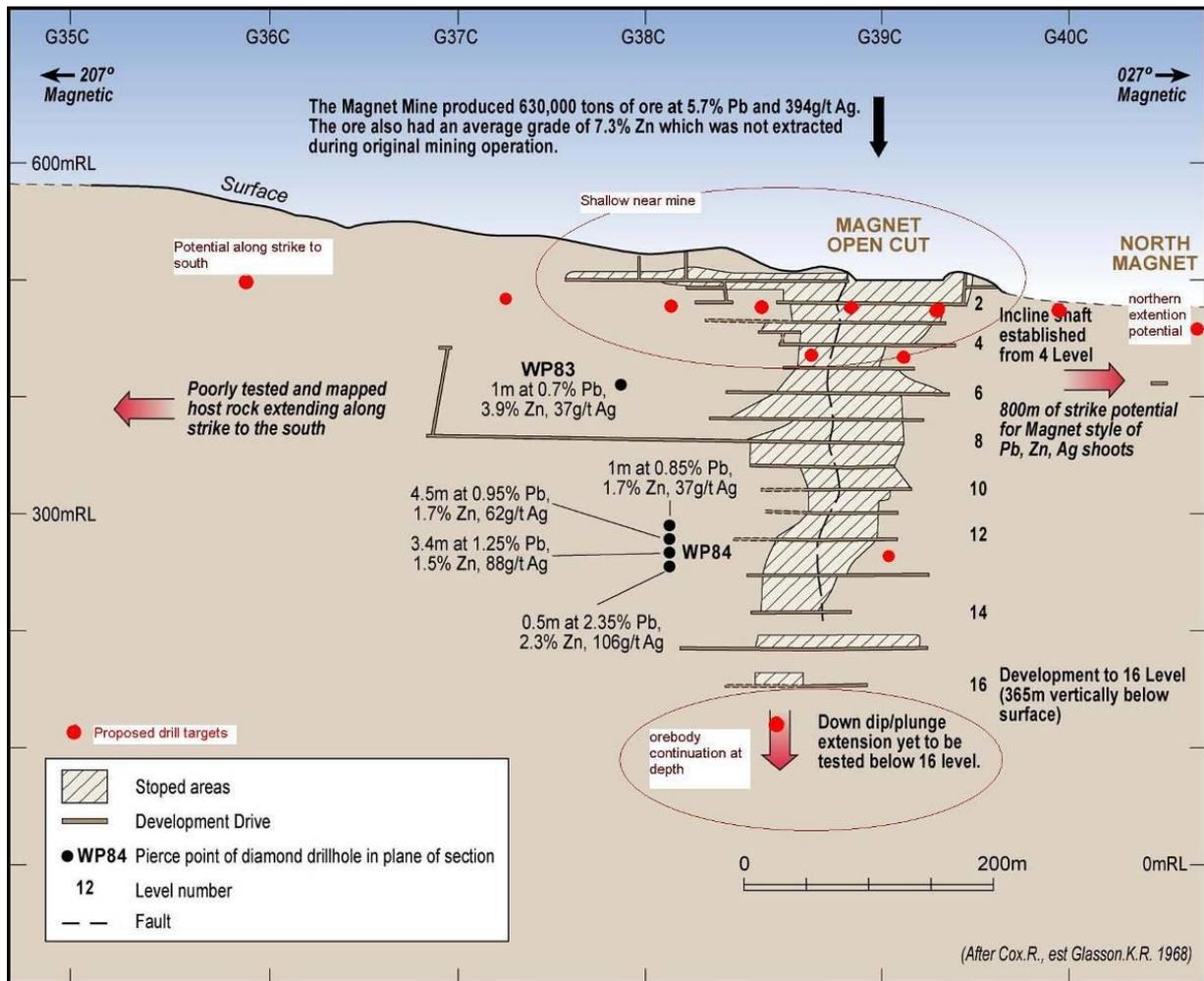
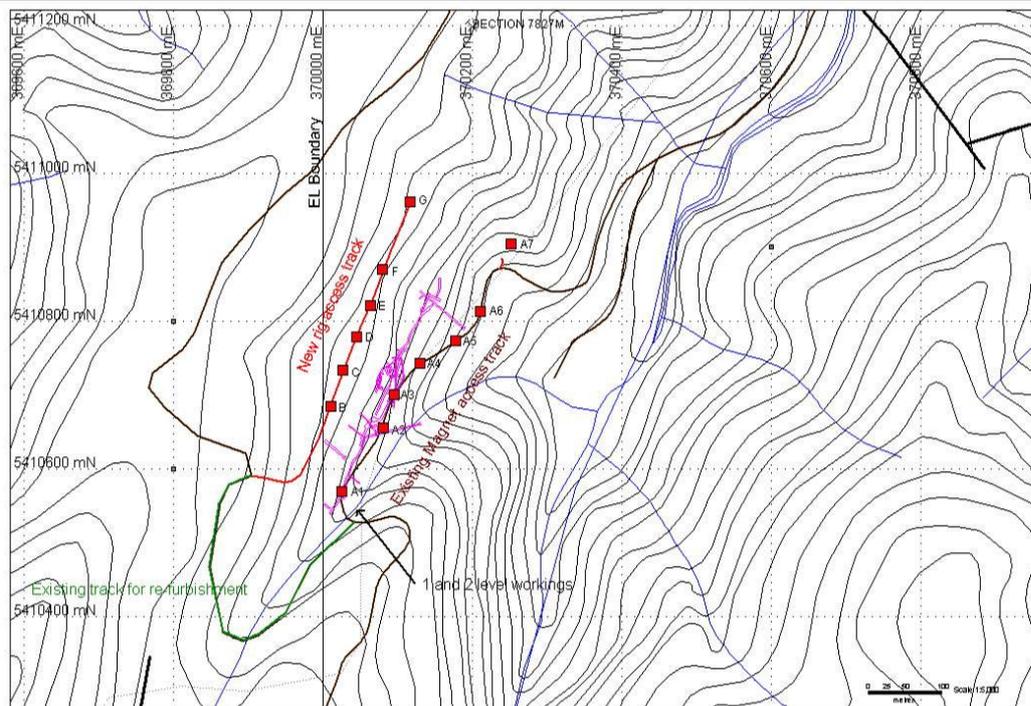


Figure 3: Longitudinal Projection of the Magnet Mine with schematic drill-hole pierce-points (red) as part of the ongoing exploration program.



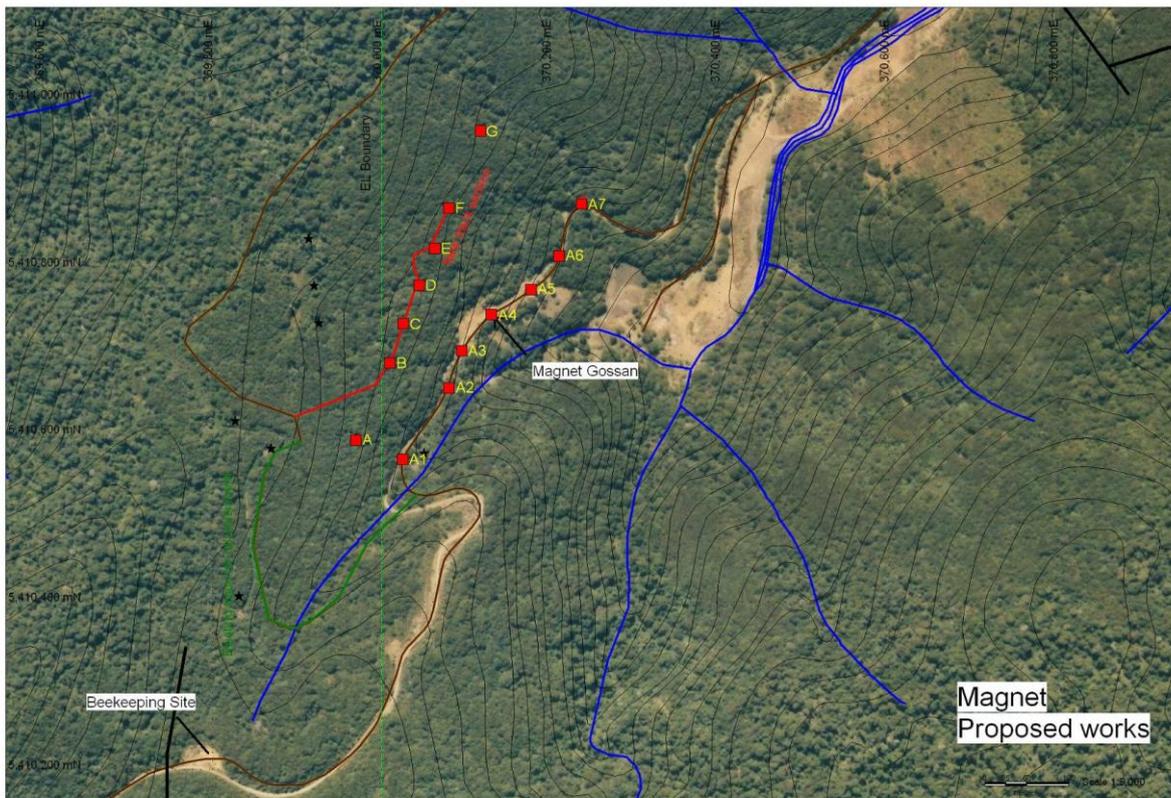
**Figure 4: Plan view of the Magnet Mine upper levels with proposed drilling.**

A further seven holes were proposed to be drilled from the mine hanging-wall position to test for the presence of the 'new lode' at shallow depths, as it may not be possible to test this position with the foot-wall hole due to the presence of stopes. Preparation for drilling in the hanging-wall position required the construction of a new Access track which was granted and prepared. These works were subject to the completion of an archaeological survey which was completed by consultant archaeologist Dr Tony Webster. (Refer to Appendix 1)

Drilling commenced on diamond hole MGD001 at site A7 table 1 and figure 5 and was designed to intercept the Magnet ore position to the north of known workings. This hole had a planned depth of 100m, and was successfully drilled to 97m but encountered no significant mineralisation. Ground conditions were found to be poor, and drill progress was slow due to conventional drilling methods, and collapsing ground around faults, resulting in short runs and extended reaming time. Drilling has been postponed pending a review of the planned program and acquiring a more appropriate drill-rig. This drill hole was considered to have successfully tested the target (interpreted to be around 70m), with sub-economic vein related sphalerite present at the target position. This result leaves open the possibility of finding economic mineralisation along strike, particularly to the south adjacent to known workings. 28 samples were submitted for assay (Refer to Appendix 2 for results) The drill program is scheduled to re-commence during the next reporting period.

**Table 1: Magnet Mine area Drill Planning**

ID	AMGE	AMGN	Dip	AZ MAG	Plan Depth	Target
<b>Drill-holes along Magnet access road</b>						
A1	370025	5410570	-30	277	30	footwall breccia mineralisation
A2	370080	5410655	-30	277	30	footwall breccia mineralisation
A3	370095	5410700	-30	277	30	footwall breccia mineralisation
A4	370130	5410743	-12	277	55	footwall breccia mineralisation
A5	370177	5410773	7	277	95	footwall breccia mineralisation
A6	370210	5410813	7	277	90	mineralised breccia outcrop
A7	370237	5410875	0	300	100	footwall breccia mineralisation
<b>Current Plan western access track</b>						
B	370010	5410685	-55	97	110	Hangingwall 'new lode' + remnant
C	370026	5410732	-55	97	115	Hangingwall 'new lode' + remnant
D	370045	5410778	-55	97	115	Hangingwall 'new lode' + remnant
E	370063	5410822	-55	97	130	Hangingwall 'new lode' + remnant
F	370080	5410870	-55	97	130	Hangingwall 'new lode' + remnant

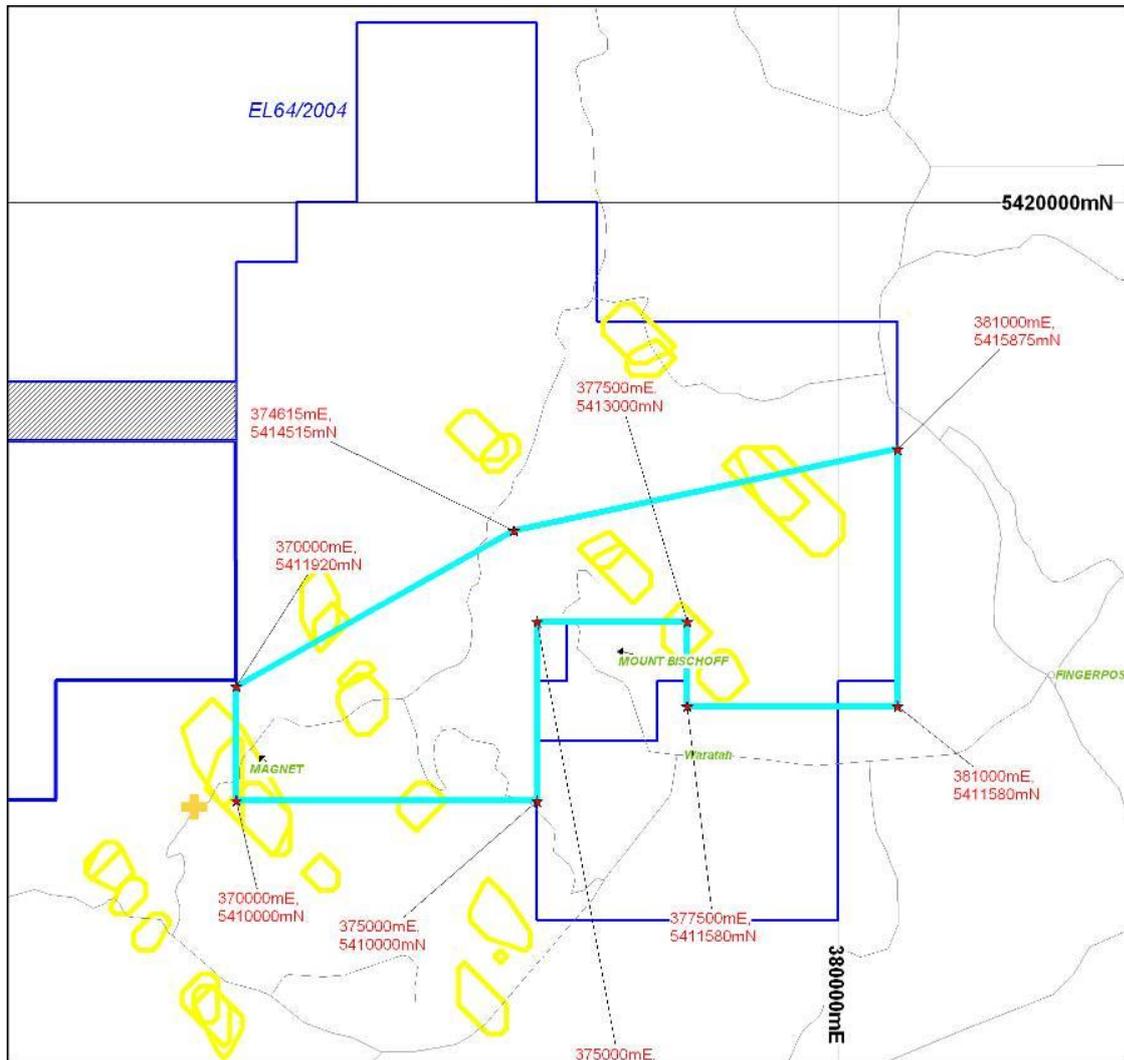


**Figure 5: Plan view of proposed collar locations on aerial photograph**

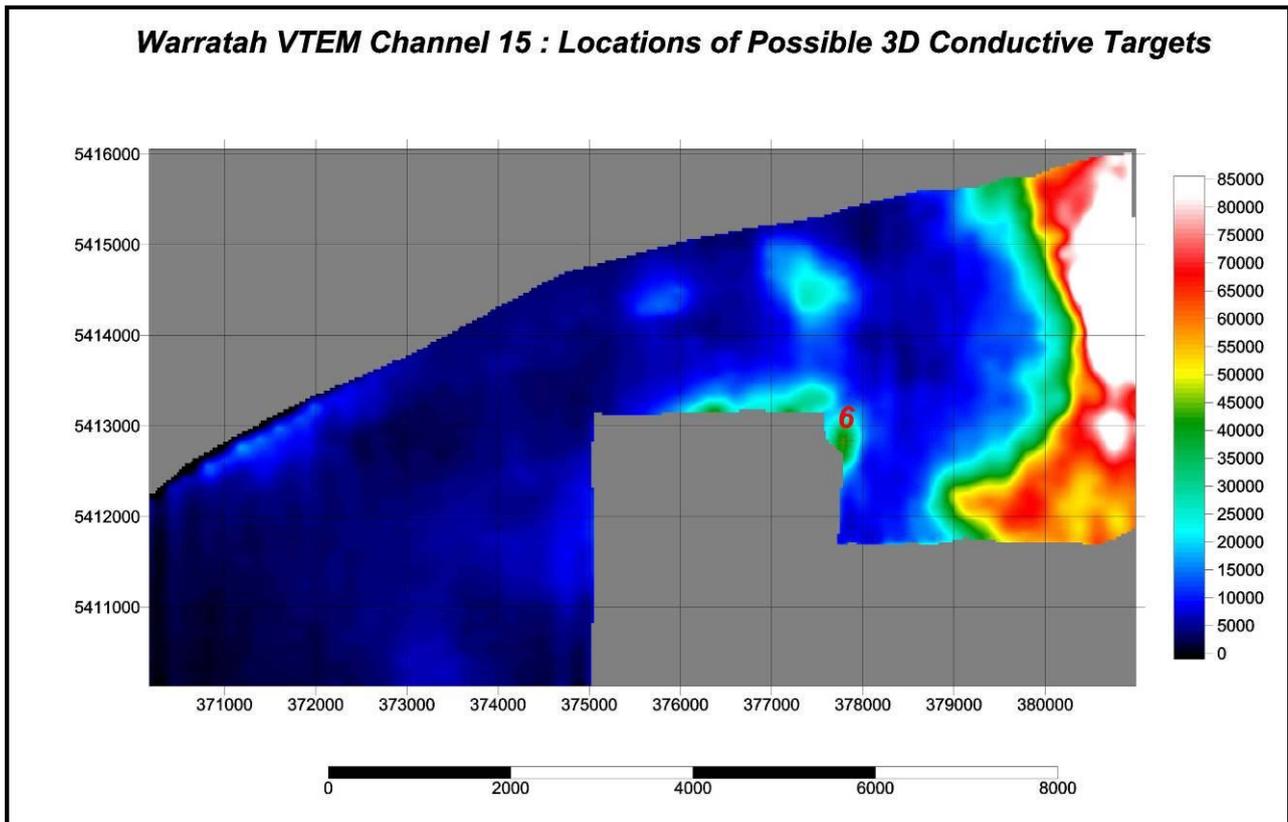
*VTEM program –*

A total of 173.6 line-km was flown over the Waratah tenement. This program was aimed at detecting Pb-Zn-Ag Magnet-deposit analogues which are blind from surface as well as tin mineralization in the immediate vicinity of the recommissioned Mt Bischoff Tin Mine. Potential VHMS targets interpreted by Geoinformatics was also flown as part of this program. (Figure 6)

Preliminary results of the VTEM work indicated one possible conductor detected by the method to be situated adjacent to the Mt Bischoff Tin Mine. (Figure 7) The western part of the survey in the vicinity of the Magnet Mine is devoid of response and the intense response on the eastern side of the survey is consistent with mapped Tertiary basalt; hence these are included in the partial relinquishment review.



**Figure 6: Plan of the Waratah EL with planned VTEM survey area (light blue) and Stage 1B GXL target polygons (yellow).**



**Figure 7: Plan of the contoured Waratah VTEM data and anomalies considered worthy of follow-up.**

*Location of old adits & traverse sampling -*

A traverse was made to locate two adits noted in MPI's 1987 report by S.Chaku. These workings were exploration adits to the north of the main Magnet Mine workings along the line of strike, driven to intercept the ore position and according to Nye, 1923, 'to test at depth an outcrop of gossan, which occurs on the north boundary of the section.

Noted at the 'upper adit, rock types included gossan, altered mafics, siliceous material, and nodular mafics.

Magnet creek was traversed to check for the presence of possible limestone, evidenced by geoinformatics interpretation of this target area. Lithologies were found to agree closely with Placer's geological fact map from Chaku 1997, consisting of red siltstones and light brown volcanoclastic sandstone and blue grey sandstone of the Crimson Creek Formation outcropping in Magnet Creek. Float samples noted to the west of Magnet Creek Formation outcropping on the traverse in from 370000mE were all red siltstone. Samples obtained from Magnet Creek variable contain 1-3% vein related fine pyrite.

A traverse was made west from the central area of the Magnet mine workings with the view of sampling a section through the immediate stratigraphy, which strikes N-S and dips steeply west. Samples collected are listed in table 2 below.

**Table 2: Rock chip sample details in the Magnet area**

Site Description	sample type	sample no	AMGE	AMGN
behind vent rise, sth of gossan	chip	1	370081.5	5410676
adit	chip	2	370022.5	5410613
water race near adit	chip	3	370017	5410610
water race near proposed drill track	Mineralised chip 3% cpy	4	370005	5410645
break in slope near rock pile	chip	5	369970	5410743
water race junction	chip	6	369940	5410810

A traverse was made along North Valley Road to the north east of Mt Bischoff to investigate a potential geoinformatics target. The North Valley road was found to be in good condition to 377100mE, 5412100mN, but is impassable by vehicle from that point with washouts and numerous small trees fallen across. The track was traversed by foot. The rocks traversed included grey siltstone, cream sandstone, pyritic sandstone hornfels of the Bischoff Series, and float evidence of quartz porphyry. Gossanous quartz-pyrite-sulphide veining can be seen cross cutting some sandstone hornfels outcrops along the track.

Another traverse was made along the Mathews Creek to investigate the geology in this area and assess access to a Geoinformatics target on the top of the Magnet Range. Variolitic mafic volcanic and volcanoclastics were sampled. No mineralisation was encountered, though a shallow working by the creek was found. Samples were collected and are listed in table 3 below.

**Table 3: Sample sites**

Site Description	sample type	sample no	AMGE	AMGN
along creek bed	chip	fl1	370940	5411400
along creek bed	chip	fl2	371035	5411460
along creek bed	chip	fl3	371050	5411480
along creek bed	chip	fl4	371085	5411515
along creek bed	chip	mc1	371100	5411530
eastern side of creek	chip	mc2	371150	5411555
along creek bed	chip	mc3	371095	5411590

In total from all the traverses completed 17 samples were submitted for analysis. (Refer to Appendix 3 for assay results).

#### *Water sampling regime -*

A monthly water sampling regime has been designed to cover a number of BSM's exploration areas taking into consideration the environmental factors whilst drilling in remote areas. A total of 3 areas are sampled around the Waratah exploration licence (access permitting). Refer to Appendix 4 for results.

#### Sample localities –

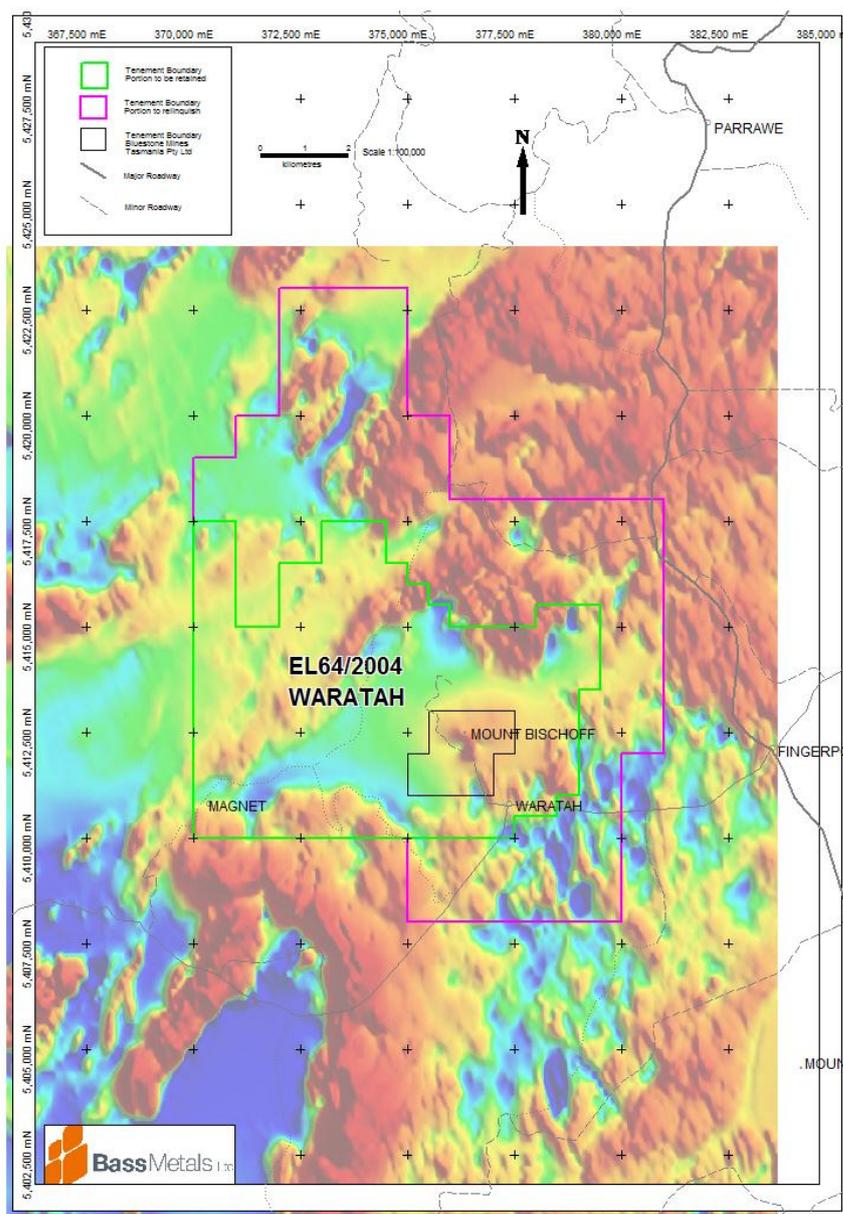
MM1 – Magnet River, flows in a north easterly direction with the sample spot bend on a bend in the river. The water rushes over a rocky bottom which is re-oxygenating the water, man ferns are covering the water's edge and native tree cover is abundant. There was poor GPS coverage at this site due to the tree canopy. Compass bearing towards MM2, 290 degrees at a distance of 20 metres.

MM2 – Adit drainage water flows directly into the Magnet River in a north westerly direction, vegetation is strong in the area. GPS Co-ordinates: 5410348mN, 370133mE.

MM3 – Magnet River Road ford, water flows over a large log placed in the river. Tailings have been spread extensively over the area on the eastern bank side. An old bridge foundation is directly above the water sampling station which was used for river access crossing. Growth of native trees on the western edge is abundant, with very little growth on the eastern flat. The major natives growing include Native Pepper, Leatherwood, Narrow Leaf Wattle, Blackwood and Man fern. GPS co-ordinates: 5411021mN, 370552mE.

### *Partial Relinquishment -*

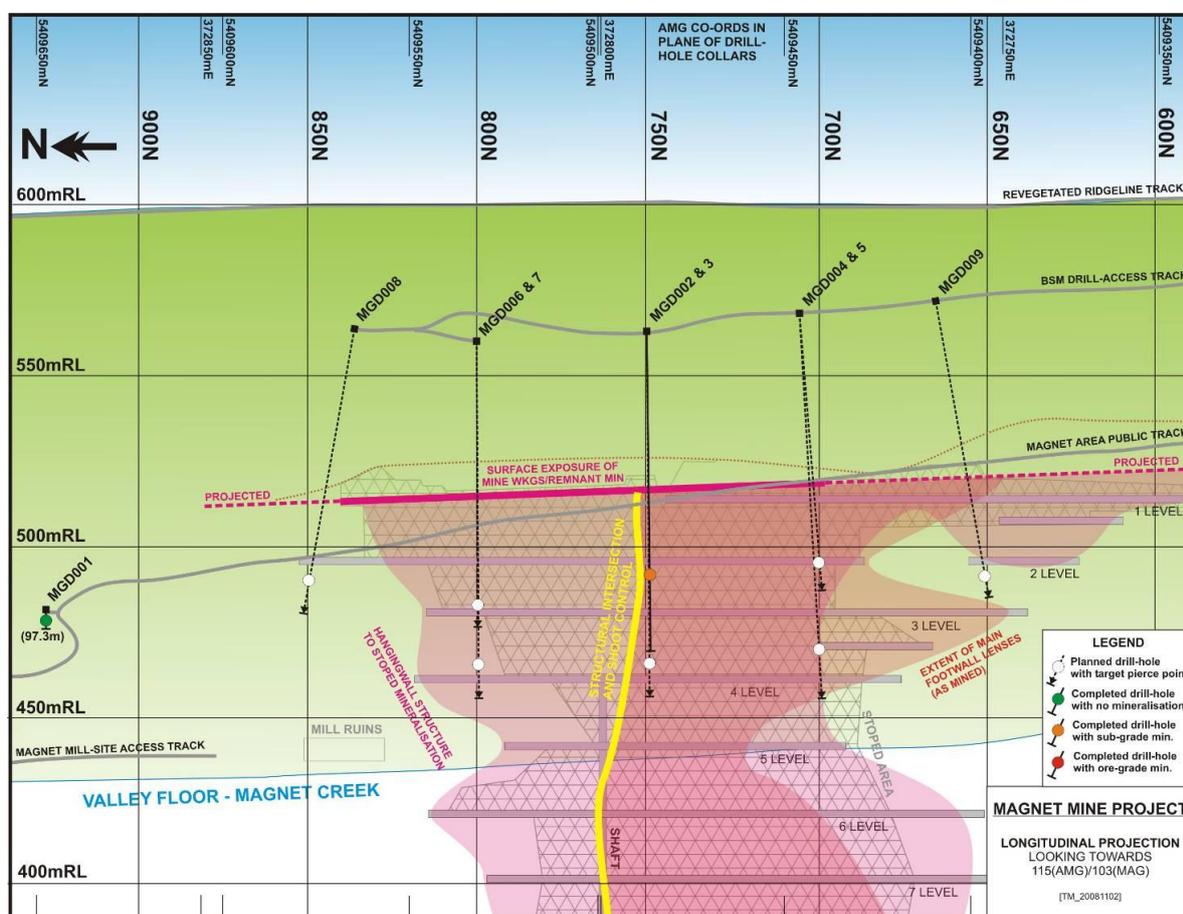
A review for a partial relinquishment of this tenement has been undertaken. In conjunction with the VTEM results, the lack of Geoinformatics targets and minor historic exploration 61.2km<sup>2</sup> has been relinquished resulting in a 53% reduction overall reducing the licence to 42.8km<sup>2</sup>. (See figure 8)



**Figure 8: Waratah licence area displaying partial relinquishment on aeromagnetic image**

### 2.3.4 2008 – 2009 (BSM)

The above mentioned drilling program that began during the last reporting period continued during this period completing a further 4 holes out of an 8 hole program giving total of 612.10m. (Figure 9) This program was designed to test for remnant mineralization along the extent of the old mine workings, and test for new Pb-Zn-Ag strike extensions to the north. Unfortunately the program was terminated after hole number MGD005 given the disappointing results to date (Table 1) and the down-graded prospectivity of defining near surface mineralisation amenable to open-cut mining.

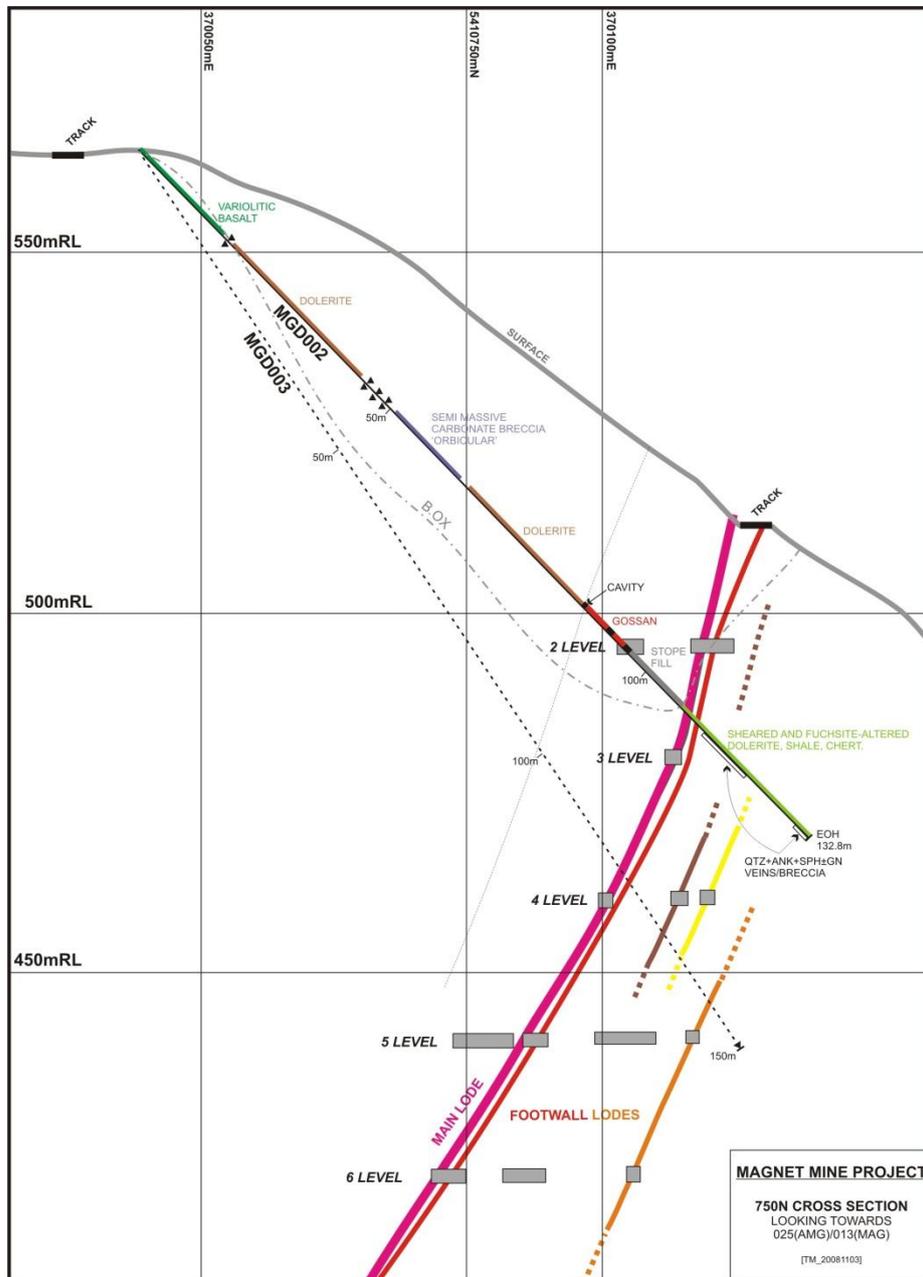


**Figure 9: Longitudinal projection of the upper part of the Magnet Mine and the designed drill-program**

MGD002 was collared in variolitic basalt (Figure 10) and passed through a thick sequence of medium-grained mafic (dolerite?) before intersecting a gossan in the immediate hangingwall to the Magnet Mine workings. Several small voids were intersected and core recoveries were low in the highly oxidised gossanous material. The gossan was intersected from approximately 88.3m to 95.7m at which point a ca. 11.0m interval of mixed rubble was intersected and this is interpreted as stope fill and collapse material. A sequence of strongly foliated and variably fuchsite altered ultramafic rocks (largely serpentinite) were then intersected to the end of the hole. Within this ultramafic sequence sporadic ankerite-quartz-sphalerite-(minor galena) veins and breccia were intersected. The most strongly mineralised of these zones was from approx. 112 to 113.5m where the estimated grades are 4%Zn and 1%Pb. This zone is located up-dip of mined footwall mineralisation. It is highly unlikely that this intersected veining represents ore-grade material.

The target position in the immediate hangingwall in this drill-hole was strongly oxidised and the gossan gave Niton results in the order of 2% Zn (highest of 5%) and insignificant Pb results. From 107.2m to the end of hole the rock was not oxidised. This indicates an asymmetrical oxidation profile where the hangingwall to the mine and orebody is highly oxidised. Given the tightness of

the Magnet Valley and incised topography, it is inferred that glaciation and stripping of the weathered profile has not occurred to any great extent here hence the deep (30m below surface) gossan development and leaching of metals. This may have significant implications on any potential open-cut opportunities at Magnet. However, sulphide bearing rock has been found on the scree slope/dump at around the 2 level RL suggesting that not all of the mineralisation is oxidized at this level. This will be closely monitored and may result in a significant reduction in the drilling metres planned here.



**Figure 10: Cross section looking north on 750N. Geology of MGD002 appended to the drill-hole trace**

MGD003 (750N, Figure 11) intersected gossan in the immediate hangingwall of the mine workings. The gossan was observed over an 11.8m interval although core recovery was very poor. Traces of sulphide (galena, sphalerite) were noted. It was disappointing to intersect gossan at this depth (approx. 50m below surface) and the deep oxidation profile impacts on

the prospectivity of defining open-cut resources in the immediate vicinity of the Magnet Mine. MGD003 was terminated in the stope fill due to drilling difficulties.

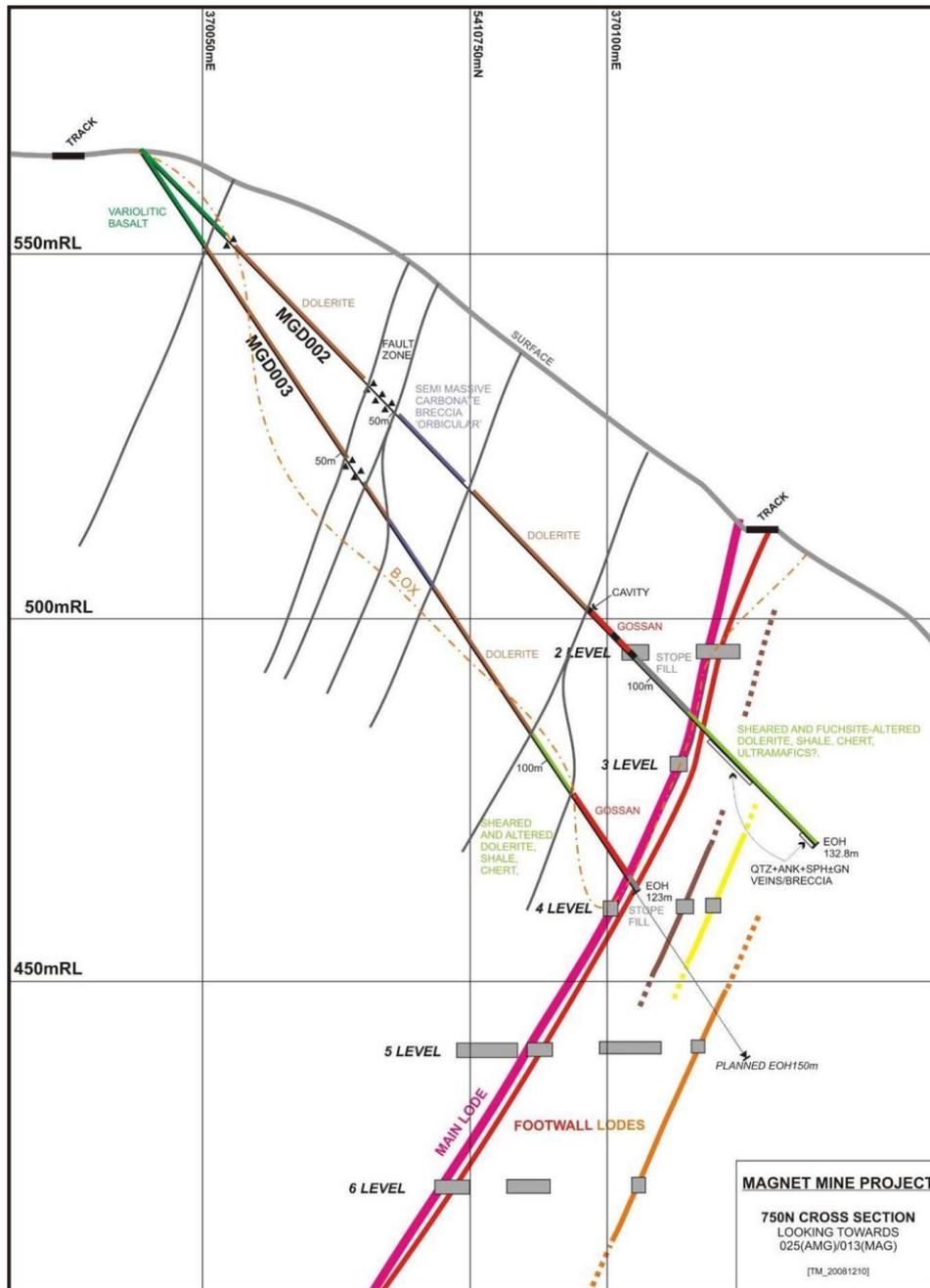


Figure 11: MGD003 cross section looking north on 750N

MGD004 (650N, Figure 12) did not intersect any mine voids as planned. The geology differed in this hole in that a significant interval of shale/slate was intersected through to the immediate hangingwall of the lode material. The oxidation of the slate was low to fresh which contrasted significantly with the mafic intrusive rocks intersected to the north. The ore position was not oxidized drilled successfully and abundant brecciation and veining observed. On analysis with the Niton, the carbonate was found to be manganeseiferous (rhodochrosite). Typical analyses comprised 20-25% Fe and 10-20% Mn. **It is possible that this rhodochrosite has weathered to a pseudo-gossan as exposed at surface. Note that Niton analyses of selected parts of the gossan assay up to 30%Mn.** An interval of significant sphalerite with minor galena was intersected from 98.3 to 99.3m. This interval comprised complex and irregular veining and is estimated at 7.5% (5%Zn) sphalerite and 2% (1.5%Pb) galena. The

veining was intersected earlier than anticipated implying either that there is error in the georeferencing of the level development from which much of the initial geological interpretation is based or the vein intersected is a hangingwall structure.

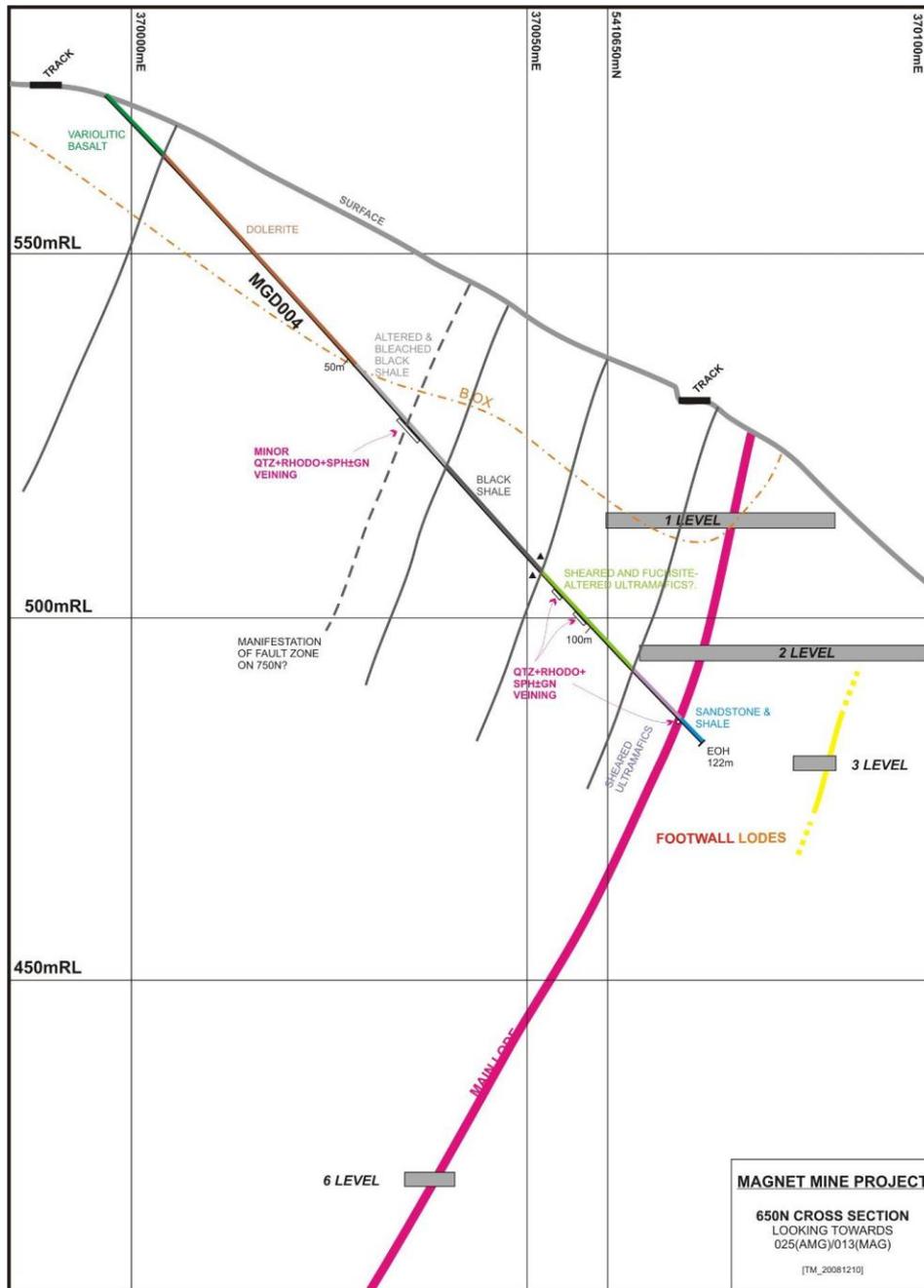
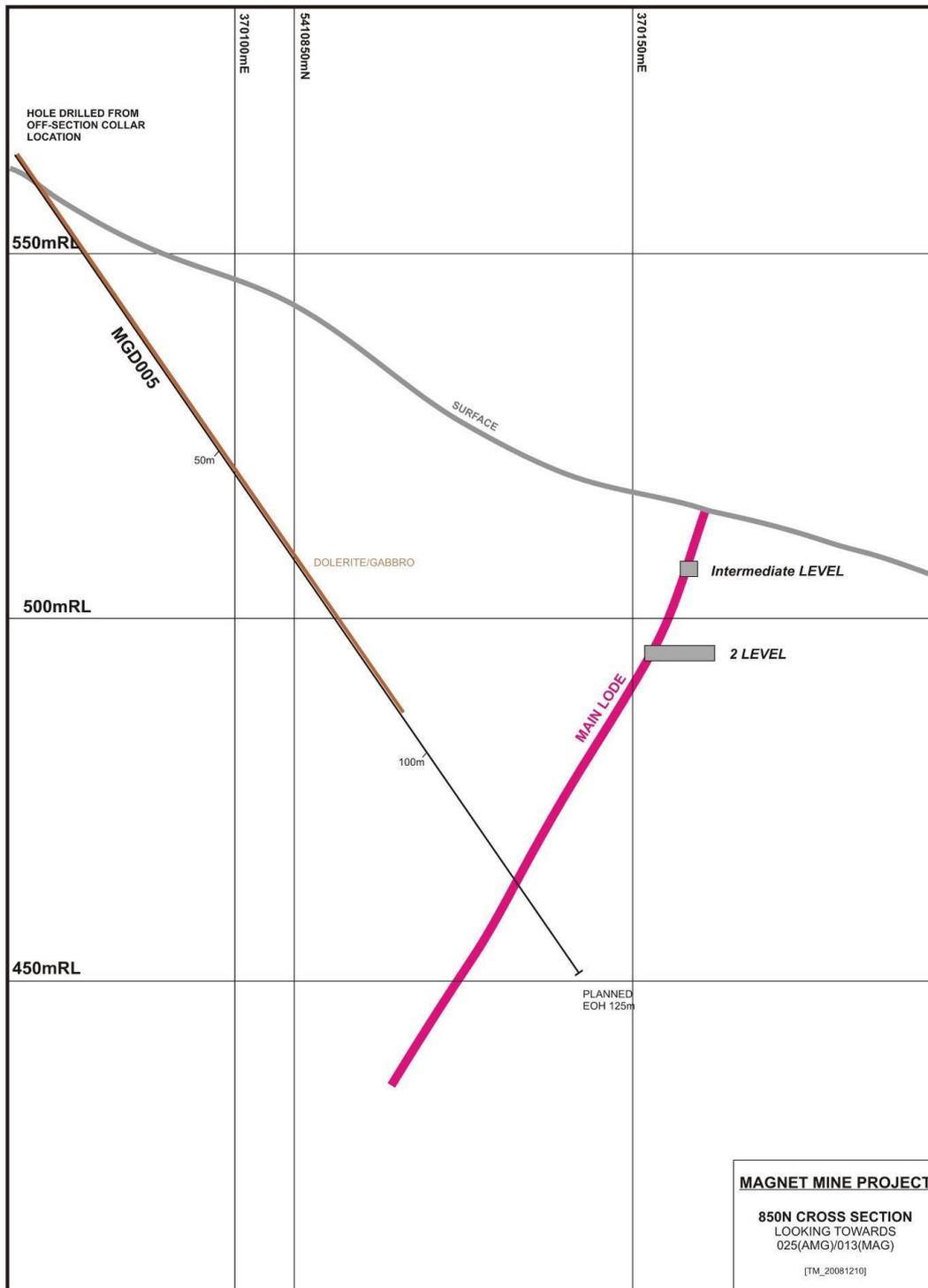


Figure 12: MGD004 Cross section looking north on 650N

MGD005 (850N, Figure 13); this hole was steepened from -45 to -55 degrees to deepen the planned intersection point to drill below the base-of-oxidation. This drill-hole intersected the lode position where predicted, however the veining was largely barren of sulphides.



**Figure 13: MGD005 Cross section looking north on 850N**

*2.3.5 2010 – 2011 (TNT Mines Limited)*

**Phase one – Review of previous exploration by Wally Herrmann**

TNT Mines commissioned Wally Herrmann, an experienced consultant geologist who has worked throughout western Tasmania, to review all historical exploration and geology reports relating to the area now covered by EL64/2004.

Herrmann noted that almost the entire span of the EL had been subject to detailed grid-based mapping, soil and stream geochemical, EM, ground and air magnetics surveys. In particular,

the favourable contact zone between the Oonah Formation and the Crimson Creek Formation was targeted. Exploration drilling failed to detect any carbonate-replacement tin mineralisation.

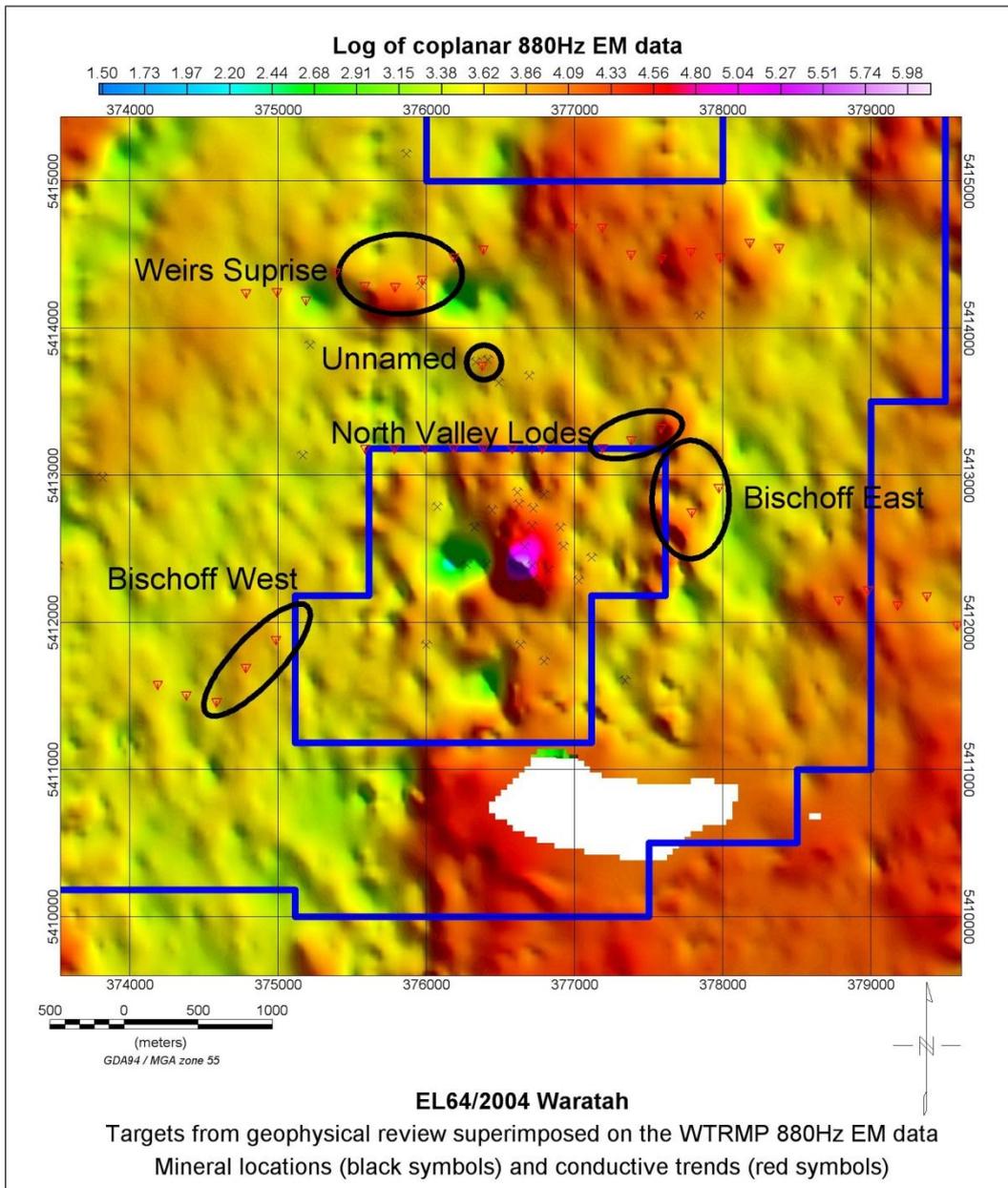
A significant amount of exploration has been carried out around the old Magnet mine at the western extremity of the tenement, mainly for argentiferous base metal mineralisation. There is some potential for tin at depth within the Magnet system, however, at about 150 metres below surface the plunge of the mineralisation takes it onto an adjacent tenement.

Overall, Herrmann considered that there were no untested high-potential geophysical targets or conceptual geological targets within the tenement and that the prospectivity rating was therefore low. Herrmann suggested that the best targets are in the near vicinity of Mt Bischoff and probably off the tenement.

### **Phase two – Review of geophysical data**

At around the same time that the exploration review was being conducted by Wally Herrmann, a review of all geophysical data sets relating to EL64/2004 was conducted by Kate Godber of GroundProbe Geophysics. In particular, reprocessing of WTRMP 2002 Hummingbird EM and the 2008 heli-VTEM data acquired by Bass Metals was carried out. Five anomalies in the vicinity of Mt Bischoff were generated and considered to be of sufficient interest to warrant ground truthing. Of these anomalies, Weir's Surprise and Bischoff East were rated as the most prospective. Both of these anomalies overlap Geoinformatics' probabilistic targets.

The Hummingbird EM system can be reasonably expected to have detected any significantly-sized, conductive ore body within about 150 metres of the surface and the VTEM will see down to about 300 metres.



**Figure 14: Targets generated from reprocessed EM data**

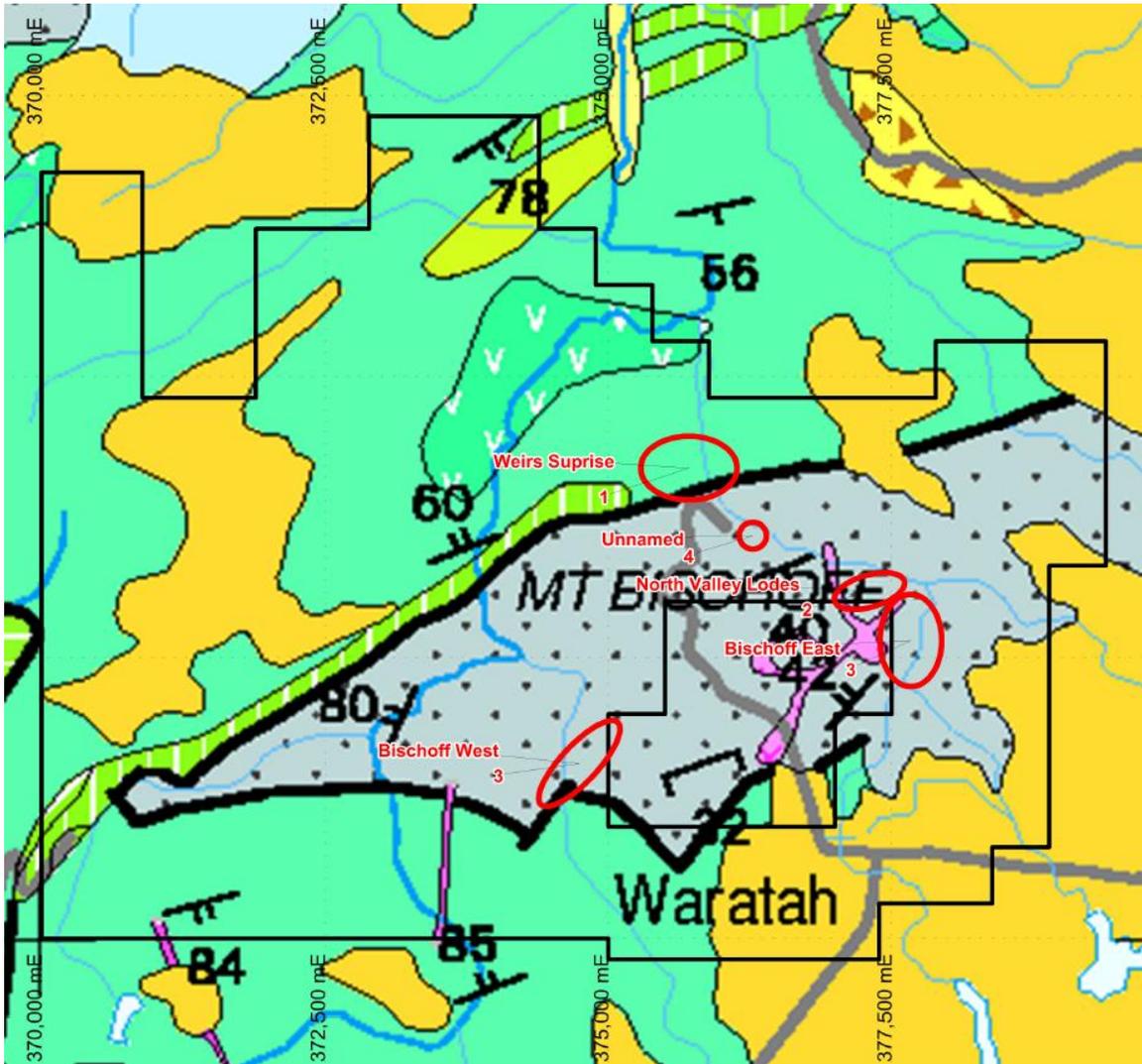


Figure 15: Targets generated from reprocessed EM data on geology background

### 3.0 WORK COMPLETED DURING THE REPORTING PERIOD

#### 3.1 Reconnaissance mapping and geochemical sampling

A program of field mapping and geochemical sampling was commenced in June to ground truth the EM anomalies generated by the review of geophysical data. Four of the five anomalies were visited and 46 rock chip and composite samples were collected and submitted to ALS for multi-element analysis by ICP-MS, ICP-AES and XRF.

Although it occurs near a faulted geological contact between the Onah Formation and the probable Crimson Creek Formation, the most interesting anomaly, Weir's Surprise, was found to be in an area of mullock and tin-bearing alluvium within and adjacent to the Waratah River. Also, unfortunately, a narrow extension to the Bischoff mining lease runs through part of the anomaly area. This ML does not appear on the maps and data supplied by Geoinformatics or its previous JV partner Bass Metals. No anomalous tin was detected in any samples collected here.

The Bischoff East and North Valley Lodes anomalies both returned anomalous tin values from rock chip samples of silica-pyrite altered sandstones and pyritic quartz porphyries. Both these anomalous zones are immediately adjacent to the Bischoff ML in an area of strong topographic relief. Drill targeting would be quite challenging in this area.

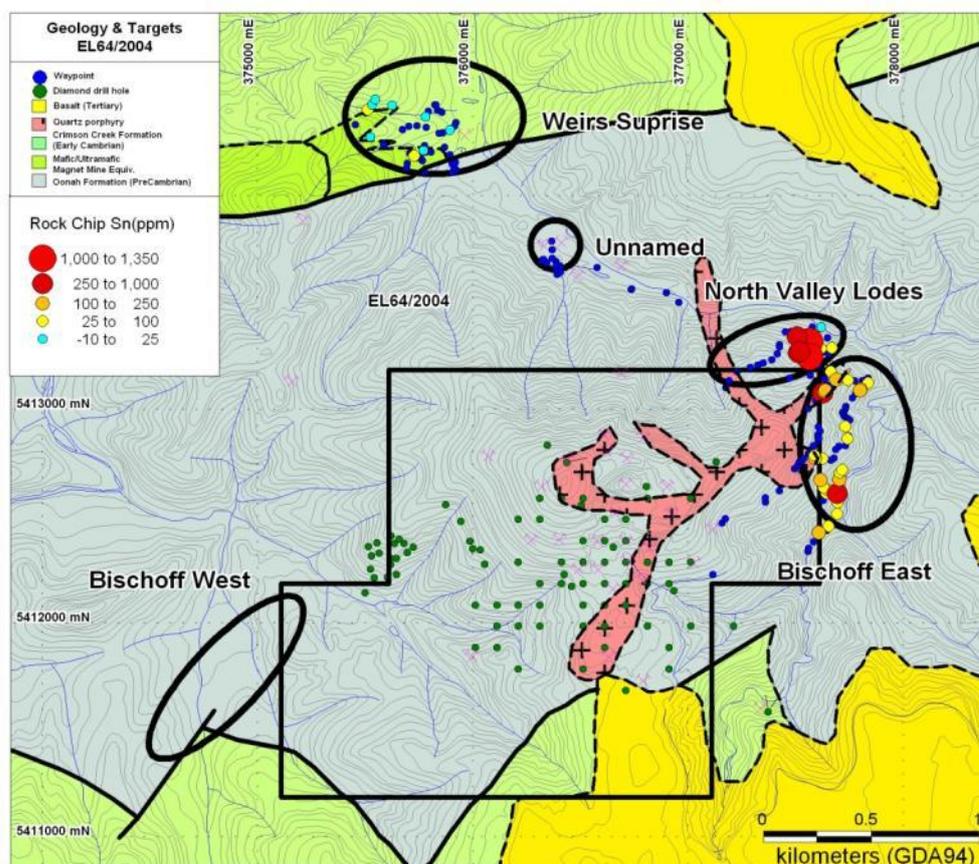


Figure 16: Thematic map showing rock chip sample locations and tin analyses

**Table 4: 2011 sample locations**

SAMP_ID	EAST_MGA	NORTH_MGA	RL		SAMP_ID	EAST_MGA	NORTH_MGA	RL
520932	377644	5412606	474		520959	377611	5413061	541
520933	377647	5412623	477		520960	377621	5413061	541
520934	377630	5412632	482		520961	377631	5413061	541
520935	377617	5412668	473		520962	377641	5413061	541
520936	377619	5413385	385		520963	377690	5413137	520
520937	377669	5413287	426		520964	377744	5413136	495
520938	377618	5413285	417		520965	377832	5413118	455
520939	377567	5413316	434		520966	377836	5413123	457
520940	377508	5413339	433		520967	377801	5413092	466
520941	377508	5413339	433		520968	377800	5413089	458
520946	377663	5413175	504		520969	377732	5412919	486
520947	377567	5413247	481		520970	377741	5412863	477
520948	377514	5413264	476		520971	377625	5412769	518
520949	377520	5413272	460		520972	377592	5412772	534
520950	375729	5414186	354		520973	377588	5412783	536
520951	375525	5414275	390		520974	377609	5412423	427
520952	375512	5414401	383		520975	377653	5412452	423
520953	375532	5414424	382		520976	377695	5412509	429
520954	375547	5414449	393		520977	377697	5412564	432
520955	375627	5414423	375		520978	377695	5412606	423
520956	375781	5414370	348		520979	377705	5412670	418
520957	375894	5414307	347		520980	377706	5412703	423
520958	375771	5414212	345		520981	377717	5412716	433

#### **4.0 DISCUSSION OF RESULTS**

#### **4.1 Reconnaissance mapping and geochemical sampling**

The summary from the report by consultant Rob Reid is reproduced below. The full report is attached as Appendix 1.

*Two key anomalous NW aligned Sn and magmatic element trends were identified via geological mapping and rock chip sampling along the eastern margin of the Mt Bischoff mining lease. These lie in the southwest of the Bischoff East area and in the east of the North Valley Lodes area striking through into the north of the Bischoff East Area.*

*Peak Sn analysis of 1350 and 1215ppm were obtained from the eastern North Valley Lodes area. However, the best visual alteration and mineralisation was identified in the vicinity of an 880Hz EM anomaly located in the south western portion of the Bischoff East area. Rock chips from here returned elevated Sn to 483ppm, occurring with likely magmatic-related elements (incl. Bi & U), which suggest a more proximal to porphyry environment relative to the peak North Valley Lodes anomaly.*

*Disseminated pyrite within variably pervasive silica altered sandstones was common throughout the areas investigated, whilst grey silica veined stockwork and hydrothermal breccia is evident locally. There appears to be a correlation of stronger pyritic alteration and Sn analysis with EM and radiometric (U) anomalies. Identified conductors / conductive trends within the North Valley Lodes area can also be at least in part attributed to dark grey siltstone / shale occurrences.*

*The Weir's Surprise area is somewhat enigmatic with more Cu rich geochemistry, possibly in part related to mafic litho-geochemistry. Weak alteration here was likely formed more distal to source intrusions, with weak Sn returns from two rock chip samples.*

## 5.0 CONCLUSIONS AND FUTURE WORK

Although the review of historical exploration and geologic reports did not turn up any potential good exploration targets, the geophysics review did open up some solid avenues for further exploration in and around the Mt Bischoff area, close to the current Bluestone Mines mining lease (12M/2006). The Hummingbird anomalies are likely to be less than 100-150m deep and the VTEM anomalies less than 300m deep. None of the anomalies were considered to be attractive enough to warrant direct drill targeting.

Nevertheless, the field investigations carried out to date have shown that there is some anomalous tin geochemistry close to the boundary of the Bischoff ML, however, one would probably expect plenty of smoke in the vicinity of a deposit that produced 10.54Mt @ 1.1%Sn (before Bluestone recommenced mining).

Further exploration work warranted would be:

- Conduct ground assessment of Bischoff West anomaly.
- Ground EM of best targets
- Diamond drilling to 150-200m on best Hummingbird anomalies

Unfortunately, TNT Mines is now not in a position to maintain an interest in this project. Further exploration would probably require a JV with Bluestone Mines, given the proximity of the best targets to the ML and capital-raising for conceptual and brownfields exploration had become very difficult.

## **6.0 ENVIRONMENT**

No ground-disturbing exploration work was carried out on EL64/2004 during the reporting period. No rehabilitation of previous disturbance relating to mining or mineral exploration was undertaken.

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**APPENDIX 1      EL64/2004 – Waratah. Field Investigations of Geophysical Targets, June 2011. By Rob Reid**

**APPENDIX 2a**      **Certificate of analysis**  
**APPENDIX 2b**      **QC Certificate**

**APPENDIX 3      Rock chip geochemistry spreadsheet (digital)**

**APPENDIX 4      Sample location spreadsheet (digital)**