

**HIGHCLERE PROJECT  
BLACK BLUFF RANGE GROUP  
TASMANIA  
EL4/2005**

**FINAL REPORT  
8<sup>TH</sup> AUGUST 2008 TO 31<sup>ST</sup> DECEMBER 2008**

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**Distribution:**

Mineral Resources Tasmania  
Bass Metals Ltd  
Clancy Exploration Ltd

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The conclusions and recommendations expressed in this report / table represent the opinions of the Authors based upon the data available and provided to them. The opinions and recommendations provided from this information are in response to a request from the client and no liability is accepted for commercial decisions or actions resulting from them.

**Note: All figures and grids are according to the GDA94, Zone 55 datum.**

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**ABSTRACT**

Bass Metals Ltd (BSM) commenced management of the Highclere exploration licence (EL4/2005) on 8 August 2008. For the period from 8/8/2008 to 31/12/2008 exploration conducted on the tenement has included –

- Assessment for full relinquishment

**Expenditure** – Reporting period \$2,478.91

Total to date \$40,911.06

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## **1 Introduction:**

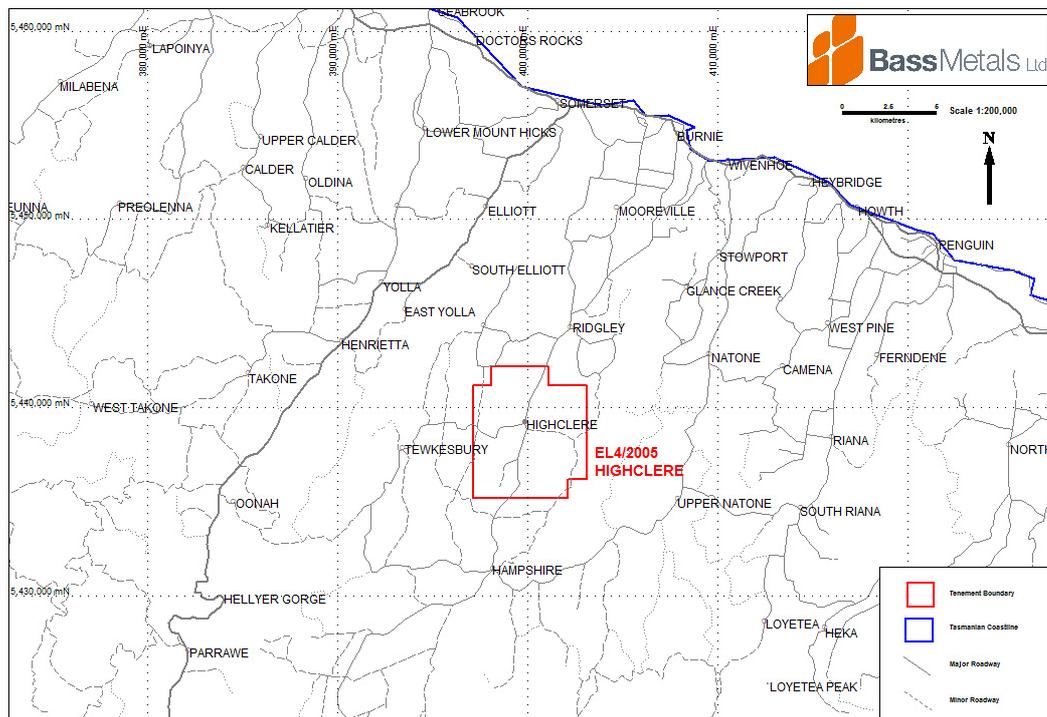
This is a final report summarising the exploration activities conducted on the Highclere exploration licence, EL4/2005 (Figure 1), for the period of 8 August 2008 to 31 December 2008. The tenement covers a total area of 38 km<sup>2</sup>. The Highclere licence is subject to an exploration joint venture agreement between Bass Metals Ltd (BSM) and Clancy Exploration Limited. BSM is currently managing exploration of the tenement from a base at the Hellyer Mine site and has done so for the past 3½ years.

The licence is situated in the northwest corner of Tasmania and located along the prospective north-western margin of the Housetop Granite. It was originally claimed because it was interpreted the Tenth Legion Fault cut the tenement thrusting Burnie and Oonah formation on top of Cambrian and Ordovician sediments providing an aquatard for fluids from the granite. This area is considered prospective by BSM for carbonate-replacement mineralisation.

### **1.1 Location and Access:**

The Highclere licence is located less than 20km southwest of Burnie, on the west coast of Tasmania (Figure 1). The 38km<sup>2</sup> tenement is practically bisected by the Murchison Hwy which provides excellent access to the tenement. The licence area can be found on the Inglis (1:100,000) LTIS map sheet.

Topographically the area is of moderate relief with the majority of the licence area used for agriculture and silviculture (timber plantations) with minor, discreet regions of wet and dry Eucalypt forest and woodland. Vehicular access is good due to an abundance of forestry tracks. The licence area does not encroach on any conservation areas.



**Figure 1. Location of Highclere Exploration Licence (EL4/2005), North-western Tasmania.**

## 1.2 Geology Overview:

The vast majority of the tenement is covered in a considerable veneer of Tertiary basalt with minor inliers of Burnie and Oonah formation in the north and west, and the Devonian Housetop Granite along the western boundary. The Tenth Legion Fault is interpreted to bisect the southern half of the tenement thrusting the Proterozoic Burnie and Oonah Formation over Cambrian and Ordovician sediments of the Tyndall Group; part of the Mt Read Volcanics. Refer to the Regional Geology Map in Figure 2.

### 1.2.1 Burnie and Oonah Formation

Widespread across western and northern Tasmania is a thick polydeformed Proterozoic quartzwacke turbidite succession that has variously been named the Oonah Formation, Burnie Formation, and 'Badger Head Group', which are regarded as correlates. Suggested deposition is in a basin roughly coincident with the Cambrian Dundas Trough that has been obscured by later events. Low metamorphic grade of sub-greenschist to low-greenschist facies, with higher grade, and higher strain schistose equivalents. The base of the succession is unknown, but a maximum thickness of two to three kilometres on the north coast and a minimum of two to three metres near Zeehan. Comprised of two lithological associates the Oonah Formation and correlates are predominantly quartzwacke turbidite including minor alkaline dolerite intrusions and related lavas. The second is predominantly pelite and / or carbonate, including conglomerate and mafic volcanic rocks. The Burnie and Oonah Formation is host to a number of Devonian skarn, vein and replacement-tin deposits and a major Devonian tin skarn at Mt Bischoff.

### **1.2.2 Tyndall Group (Mt Read Volcanics)**

The Tyndall Group is a unit of quartz-bearing volcanoclastic sandstone and conglomerate of mixed felsic and andesite provenance with minor lavas, intrusives and welded ignimbrites (White and McPhie, 1996).

At a regional scale, the Mt Read Volcanics (MRV) are a belt of volcanic, volcanoclastic and sedimentary rocks of Mid- Cambrian age. The belt is famous for hosting Tasmania's world-class polymetallic volcanic-hosted massive sulphide (VHMS) deposits (eg Rosebery, Hellyer, Que River).

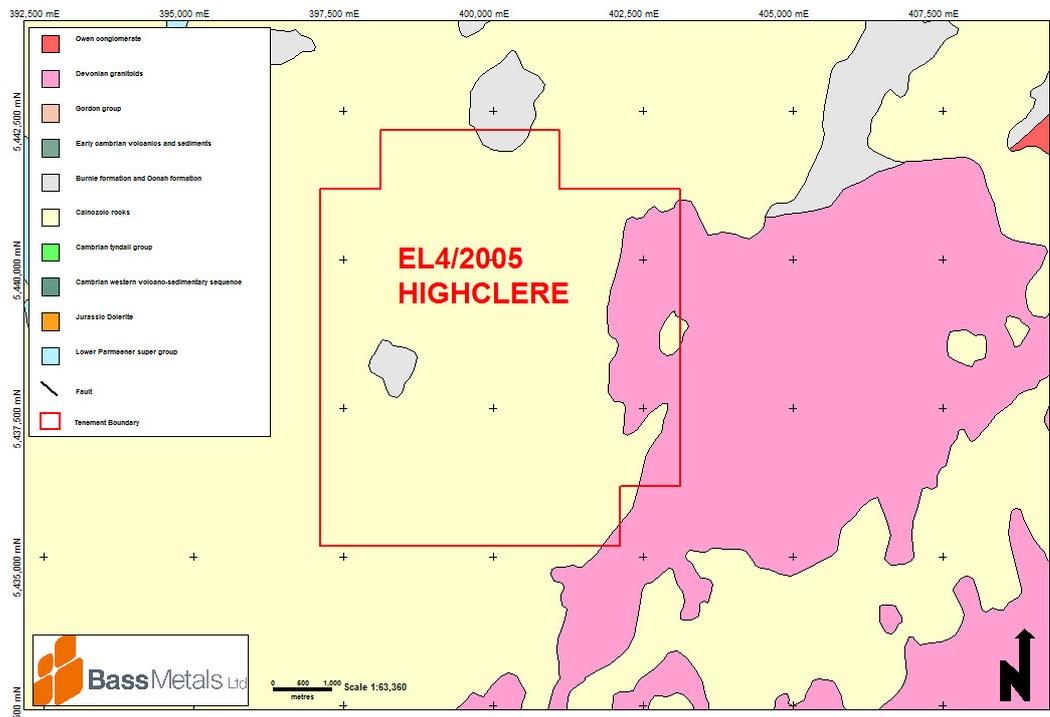
### **1.2.3 The Housetop Granite**

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 Housetop, 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).

### **1.2.4 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 most likely sit on the Back Peak Beds and the Sticht Range Formation. These basalts cover the majority of the licence.



**Figure 2. Regional geology showing licence area boundary**

### 1.3 Exploration Rationale:

The Highclere tenement was acquired for the interpreted relationship between the Tenth Legion Fault (conduit), Housetop Granite (mineralising fluids) and Burnie and Oonah Formation carbonates (trap).

This relationship is seen as a possible analogy to stratabound carbonate-replacement mineralisation associated with Devonian granites such as occur at Renison Bell, Mt Bischoff, Queen Hill, Montana, Cleveland and Razorback.

There are two known mineral occurrences within the tenement; Highclere and Buckby's. The Highclere deposit is an Fe-magnetite skarn-deposit hosted in Cambrian sediments at the contact of the Housetop Granite. The extent of mining is not recorded and its current MRT status is abandoned.

Buckby's is a minor tin prospect with coincident magnetic and tin in soil anomalies that has not been fully tested.

## 2. REVIEW OF PREVIOUS WORK – Prior to current tenement;

### 2.1 Historical Mining:

No records exist in the public domain for work done in the Highclere region prior to 1974.

## 2.2 Exploration Prior to Current Licence Area:

Modern exploration efforts in the Highclere region commenced in 1959. A summary of this work is taken from the limited open file data available and is presented below.

**Date:** 1959

**Company:** Bureau of Mineral Resources

**Work Completed:** Magnetic survey in search of iron ore. Technical report not found.

**Results and Conclusions:** Several magnetic anomalies located

**Date:** 1964

**Company:** Tasmanian Department of Mines

**Work Completed:** Magnetic survey and four diamond drill holes into the Highclere prospect. Technical report not found.

**Results and Conclusions:** Drill holes indicated small high-grade iron ore horizon in limonitic clays.

**Date:** 1972 - 1974

**Company:** Australia & New Zealand Exploration Company

**Exploration Philosophy:**

**Work Completed:** Stream sediment heavy concentrate sampling for scheelite. Thirty-three power auger drill holes. Logging and sampling of Tasmanian Department of Mines diamond drill holes for significant tungsten mineralization.

**Results and Conclusions:** No significant scheelite mineralization was found in the stream sediment sampling campaign. The power auger drilling delineated a narrow, discreet zone of tungsten anomalism within granite. Two of the four Department of Mines diamond drill holes were found to be anomalous for tungsten; one sample containing >2000ppm W. Tenement was relinquished in 1974.

**Date:** 1977 – 1980(?)

**Company:** Comalco Ltd

**Exploration Philosophy:** Discovery of fluorite-magnetite skarns at Moina prompted search of Housetop Granite for similar skarn deposits. Assessment of the BMR magnetic survey anomalies main priority.

**Work Completed:** Geological mapping, ground magnetometer traverses, rock, soil and water sampling (>400 samples), ground magnetic survey, IP survey, local gravity survey, diamond drilling (7 holes) and petrology.

**Results and Conclusions:** Drill results from the Buckby's prospect were disappointing, however a significant, prospective carbonate horizon was discovered. The skarns have uneconomic, but very anomalous tin values indicating the correct conditions for the formation of pyrrhotite-cassiterite style deposits. The area also has potential for scheelite skarn deposits replacing the carbonate horizon. These may be devoid of magnetite and pyrrhotite hence difficult to see in basalt covered areas.

The mapping, magnetic and IP data all strongly indicate that the Highclere deposit consists of only small, isolated roof pendants of magnetite skarn/calc-silicate

rocks. They are also likely to be extremely weathered and hence do not rate as targets for tin, tungsten, fluorine mineralization. No further work is recommended.

**Date:** 1980(?) – 1984(?)

**Company:** The Shell Company of Australia Ltd (JV Comalco Ltd)

**Exploration Philosophy:** Follow up work on Old Park Road geochemical anomaly.

**Work Completed:** Ground magnetic survey, ground Sirotem survey, soil geochemistry, petrography and geological mapping.

**Results and Conclusions:** A coincident Zn and Pb 500x500m soil anomaly exists over the Old Park Road grid. Local intense metamorphic and metasomatic processes have taken place indicating local igneous intrusive activity. Petrographic studies confirm the major rock type to be an impure quartose limestone. Ground magnetic results show that only minor anomalies exist within the grid, however ground EM on one line produced an unexplained anomaly within the Zn-Pb soil anomaly. Further testing is warranted, however no further reporting is available.

### **3. DURING CURRENT TENEMENT**

#### **3.1 August 2005 – August 2006 (BSM)**

The section below reports on exploration activities between 8th August 2005 and the 7th August 2006. Following execution of the Joint Venture Agreement with Geoinformatics Ltd, BSM actively sought any datasets of potential value for targeting VHMS and intrusive-related skarn deposits in the Highclere licence area. The MRT topographic, geophysical and 1:100,000 scale digital geological map series were used as base maps for presenting other historical company datasets. Various company datasets were captured into FracSIS and MapInfo format.

Notwithstanding the significant GIS database that had been compiled at this time, BSM decided to investigate the use of remote sensing in mapping alteration at the licence. BSM had several meetings with Mike Hussey at the CSIRO where it was established that HyMap data was likely to provide the best data source for mapping alteration at the licence. However, after viewing some draft images supplied by Mike Hussey it was decided that vegetation at the licence negatively affected the quality of the data and the data was not purchased.

##### *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.

An argillic alteration zone is considered significant in its relationship to the Old Park Road Pb-Zn soil anomaly in the south-western portion of the tenement. The extension of this argillic alteration north of the anomaly may indicate the anomalism extends in this direction. More interestingly, the argillic alteration appears to map the interpreted position of the Tenth Legion Fault. This area of potential anomalism is located within the green polygon in Figure 4. A report describing the interpretation methodology utilized was included as appendix 1 in the report for the period (8/8/05-7/8/06).

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

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

The Geoinformatics process involves the efficient capture of historical data in proprietary Geoinformatics database and software systems (eg IFS & FracSIS). Proprietary software and methods are then used to generate 3-dimensional geological models and targets (Monte Carlo Ranking). Highclere is part of a larger 'Intervention Project' called the MRVIP (Mount Read Volcanics Intervention Project - Stage 1b). The Stage –1b Project focuses on all of BSM 13 regional licences.

The Stage 1b Project attempts to incorporate Geoinformatics understanding of the three dimensional controls on world class VHMS mineralisation to rapidly provide BSM with high-quality targets for rapid drill testing and for follow-up field work including soil type geochemistry. Models were also developed for targeting 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.

Much of the data for the project was obtained from open file reports. A data audit of 1,300 reports was completed by Dan Core, Graeme Cameron, Neville Panizza and Helen Ly. Work on the Stage 1b Project commenced in early February 2006 and was largely complete by July 2006. A target workshop with alliance personnel was held at Hellyer in July 2006 and final targets were delivered in August 2006. A summary Geoinformatics report was included in the report for the period (8/8/05-7/8/06)

At Highclere, Geoinformatics generated a total of 6 intrusive-related, carbonate-replacement targets (Figure 5).

### **3.2 August 2006 – August 2007 (BSM)**

#### *Bass Metals Ltd. - Field Trip -*

This field trip was designed specifically to look at the relationship between the Old Park Rd Pb-Zn anomaly exposed by Shell after completing a soil sampling program in the mid-1980's, and its proximity in relation to the Emu Bay Railway.

The geochemical soil anomalism is located in open pasture displaying basalt surface float typical of the MRT surface geology. To confirm surface contamination, a total of 6 geochemical samples were taken in the vicinity of the Shell sampling and in close proximity to the railway line.

Sample results appear to confirm the discontinuity of the lead-zinc anomalism and a firsthand view of lead-zinc concentrate material being liberated during transport along the rail line confirms the suspicion that the suggested soil anomalism is most likely due to contamination from the railway. Results for the BSM soil samples are displayed in Table 1 below

**TABLE 1 – Assay Results**

<b>Sample ID</b>	<b>Easting (AGD 66)</b>	<b>Northing (AGD 66)</b>	<b>Description</b>	<b>Pb (ppm)</b>	<b>Zn (ppm)</b>
HI001	398494	5435296	+100m up slope of railway line	8	58
HI002	398504	5435387	+100m up slope of railway line	462	284
HI003	398540	5435495	+10m up slope of railway line	14	79
HI004	398581	5435629	10m down slope of railway line	52	158
HI005	398592	5435731	20m down slope of railway line	3	57
HI006	398679	5435905	40m down slope of railway line	4	58

### **3.3 August 2007 – August 2008**

*Orientation field visit –*

4 team members undertook a field visit to the area for orientation purposes of new staff members.

*Possible Magnetite-Fe resource –*

This tenement undertook review for the potential of hosting shallow Magnetite-Fe bodies. Early exploration has identified narrow near-surface mineralisation but a more comprehensive review of the potential of the contact area is warranted.

### **4. CURRENT WORK (BSM) (8<sup>th</sup> Aug 2008 – 31<sup>st</sup> Dec 2008 – BSM)**

An assessment process for the potential to farm-out was undertaken, given the magnetite-skarn exploration activity in the area. The small magnetite potential is not of interest to BSM/CLY and it was decided to relinquish the whole tenement

## 5. ENVIRONMENT

The company has environmental policies in place that minimise the impact that exploration activities have on the environment. The policies include guidelines on how to reduce the risk of spreading plant diseases and weeds as a result of day-to-day exploration tasks.

The attached Environmental Activity Map in Figure 3 shows the location of the licence relative to conservation areas. No conservation areas encroach on the Highclere tenement.

### Land Tenure

The Highclere Exploration Licence comprises:

- Private Property

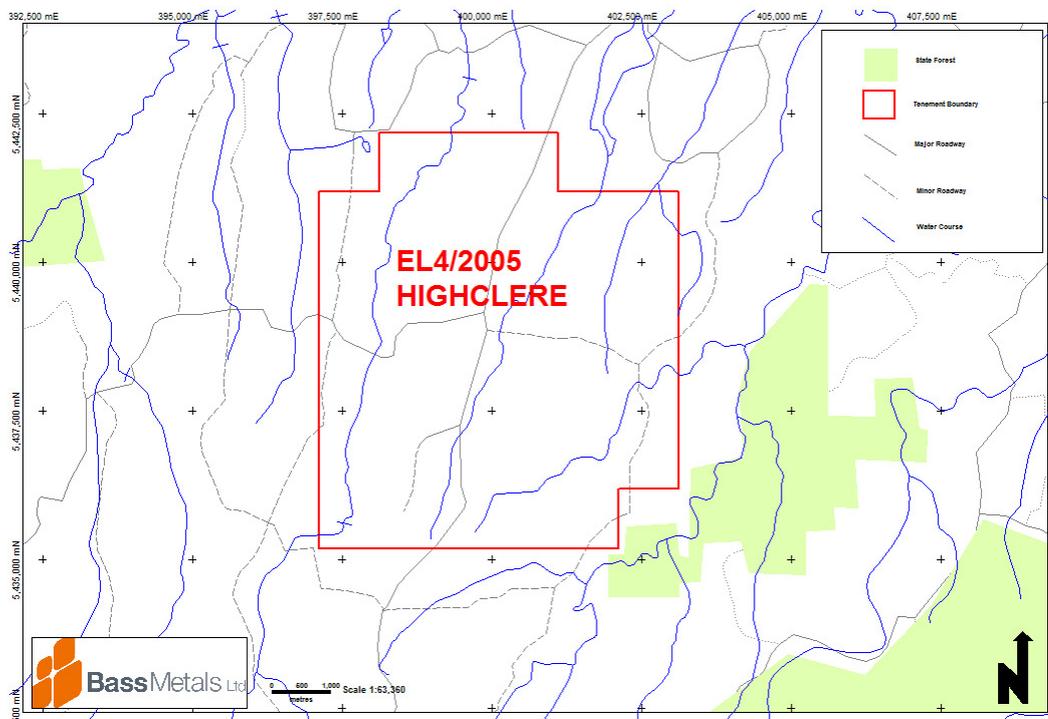


Figure 3. Environmental Activity Map

## 6. EXPENDITURE

August 2008 - December 2008		
Geoscientific Costs	Geology	2,114.11
	Geochemistry	
	Geophysics	
	Remote Sensing	
Drilling & Gridding Costs	Gridding	
	Drilling	
	Land Access Costs	
	Rehabilitation Costs	
	Feasibility Study Costs	
	Other Costs	364.80
	Admin Costs	
	<b>Total - eligible</b>	<b>\$2,478.91</b>

**Table 2. Expenditure 8 August 2008 to 31 December 2008**

*\*Expenditure reported is up to and including 31<sup>st</sup> October 2008*

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