# Project Geoscience Pty Ltd

18th December 2002

The Directors
TasGold Ltd
P O Box 7996
Gold Coast Mail Centre
Queensland 9726
Australia

Dear Sirs,

## INDEPENDENT GEOLOGIST'S REPORT ON MINERAL PROPERTIES

**Purpose of the Report**

This report has been prepared for inclusion in a Prospectus for TasGold Ltd (TasGold) to be dated on or about 9th January 2003 for an issue to the public of 25 million shares at $0.20 (twenty cents) each payable in full on application with an attached free option issued on the basis of one free option for each share purchased.

The objective of the issue is to raise funds to enable TasGold to continue its exploration of two groups of mineral tenements located in Tasmania that are prospective for gold and base metals:

| Property/Locality | Area ($km^2$) | License No | TasGold (%) |
|---|---|---|---|
| **SMRV Project** | | | |
| Elliott Bay} | 177.0 | {EL 20/96 | 90%* |
| Wanderer } | | {EL 21/99 | 90%* |
| High Rocky Point | 250.0 | ELA 24/2001 | 100% |
| **Lisle Project** | | | |
| Lisle | 12.0 | EL 2/92 | 100% |
| Lone Star | 55.0 | ELA 41/2002 | 100% |

* *Exploration & Management Consultants Pty Ltd & McNeil Associates Pty Ltd have a 10% free carried interest to completion of bankable feasibility study.*

Project Geoscience Pty Ltd (P-G) have been commissioned as independent consultant geologists to review and assess the exploration interests of TasGold as set out in this report and to comment on the proposed exploration programs. The report has been prepared to satisfy the requirements of the Corporations Law, the Valmin Code of the Australasian Institute of Mining and Metallurgy and the Listing Rules of the Australian Stock Exchange Limited.

This report has been designed to accompany the Prospectus of TasGold. This report is designed to assist the prospective shareholders of TasGold to assess its Mineral Properties and was not prepared for any other purpose.

**Tenure and Site Visits**

The status and tenure of the tenements and any material documents is dealt with in the Solicitor's report which can be viewed on the TasGold website at www.tasgold.com.au and have not been confirmed independently in the preparation of this report. The locations of the tenement boundaries are shown in the project maps accompanying this report and elsewhere in the Prospectus.
This report was originally prepared in 2001. The Lisle Project area was visited during the preparation of that report. It was also previously visited in 1993 during the preparation of a similar report for Macmin NL. The SMRV Project area was not visited during the preparation of this report. The remote location and inclement winter weather conditions prevented access for the purposes of an inspection.

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**Qualifications and Experience**

This report has been prepared by Ralph. N. Stagg, BSc, MSc, DIC, MIMMM, C.Eng., FAusIMM (CP), Consulting Geologist who has had over 30 years experience in exploring for base metals and gold systems and Walter Herrmann, BSc Hons, M Econ Geol., Consulting Geologist who has had about 20 years experience in the minerals exploration industry. Walter Herrmann has reviewed the section of the report on the SMRV Project because of his extensive field experience in that area between 1980 to 1985 and in 1996, and because a site visit was not considered feasible during the preparation of this report.

**Limitations**

The information used to prepare the report is drawn from reports prepared by previous tenement holders, consultants and MRT and from discussions with directors of TasGold. We do not doubt the authenticity or substance of previous investigation reports. We have not carried out a total audit of the available information.

The statements and opinions contained in this report are given in good faith, but, in the preparation of this report, P-G has relied substantially on information provided by the Directors and Consultants of TasGold. We do not have reason to doubt the information so provided.

The report does not examine the possible impact of Australian State and Federal legislative provisions or their effects or impact on future exploration and other activities of the properties.

**Independence**

At the date of this report, P-G does not have, nor has had any relationship with TasGold other than as may have occurred as a result of providing consultancy services in the ordinary course of business.

P-G has no relevant interest in or any interest in the acquisition or disposal of any securities in TasGold. P-G has no pecuniary or other interest that could be regarded as being capable of affecting its ability to give an unbiased opinion in relation to the mineral properties of TasGold.

Neither P-G nor R. N. Stagg nor W. Herrmann have received or may receive any pecuniary or other benefits, whether direct or indirect or in connection with the preparing of this report other than normal consultancy fees based on fee time at normal professional rates plus out - of - pocket expenses.

**Consents**

P-G consents to the inclusion of this report in the form and context in which it is included. Apart from that, neither the whole nor any part of this report, nor any references thereto, may be included in or with, or attached to any document, circular, resolution, letter or statement without the prior written consent of P-G.

P-G has not been involved in the preparation of, nor has authorised or caused the issue of any other part of the Prospectus in which this report has been included.

Yours faithfully,

Ralph N Stagg

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## 1.1 REGIONAL FRAMEWORK

The TasGold granted exploration tenements are all located in Tasmania. Rocks of cover sequences that postdate the major metallogenic events of the State cover about a third of Tasmania. A further approximately 19% is within the World Heritage Area, unavailable for exploration. The latter area covers mainly Pre-Cambrian terranes.

The remaining roughly 50% of the State can be broadly classified into metallogenic domains hosting a number of mineral deposit types. These are in order of age:

- The north, north – east trending Late Proterozoic Arthur lineament that hosts iron ore and magnesite in north – west Tasmania;
- The Early Cambrian minor mineralisation styles in mafic rocks including platinum group minerals (PGMs), nickel, copper, cobalt, gold and other minerals;
- The Middle Cambrian Mount Read Volcanics (MRV) which host volcanic hosted massive sulphides (VHMS) and disseminated deposits;
- The Middle Devonian mesothermal gold deposits hosted by the Mathinna Beds of north – eastern Tasmania; and
- Late Devonian to Early Carboniferous granite associated tin and tungsten deposits as well as a wide variety of other mineralisation styles.

The two main types of mineral deposits that TasGold is currently exploring for are Middle Cambrian MRV hosted sulfide deposits and the Middle Devonian mesothermal gold deposits.

The MRV hosts three of Tasmania's six 'world – class' deposits. The potential size of this style of mineral deposit discovery can be seen in *Table 1.1*.

*Table 1.1* **Pre-Mining Resources – Examples of some Cambrian MRV hosted deposits**

| Deposit | Tonne (million) | Cu % | Zn % | Pb % | Ag g/t | Au g/t | World Class |
|---|---|---|---|---|---|---|---|
| Mt Lyell (field) | 311.0 | 0.97 | | | | 0.31 | * |
| Rosebery | 31.7 | 0.58 | 14.3 | 4.4 | 146.0 | 2.30 | * |
| Hellyer | 16.5 | 0.38 | 13.9 | 7.2 | 169.0 | 2.55 | * |
| Hercules | 3.33 | 0.40 | 17.3 | 5.5 | 171.0 | 2.80 | |
| Que River | 3.3 | 0.70 | 13.3 | 7.4 | 195.0 | 3.30 | |
| Henty – Mt Julia | 1.82 | | | | | 13.44 | |

* *Criterion is 100t of gold (3.2 million ounce) or equivalent*

Examples of Middle Devonian lode-style gold deposits are shown in *Table 1.2*.

*Table 1.2* **Pre-Mining Resources – Examples of some Middle Devonian gold deposits**

| Deposit | Tonne (million) | Au g/t |
|---|---|---|
| Tasmania (Beaconsfield) | 2.91 | 19.8 |
| New Golden Gate | 0.51 | 15.6 |

In 1999 the then Defiance Mining NL, in joint venture with Connemarra Gold Pty Ltd, announced the discovery of high grade gold mineralisation from two new reefs in the Devonian rocks at Mathinna.

The Lisle goldfield with historically reported production to 1992 of 10t of gold is the second largest in north – east Tasmania after the Beaconsfield goldfield with historically reported production of 27.8t of gold.

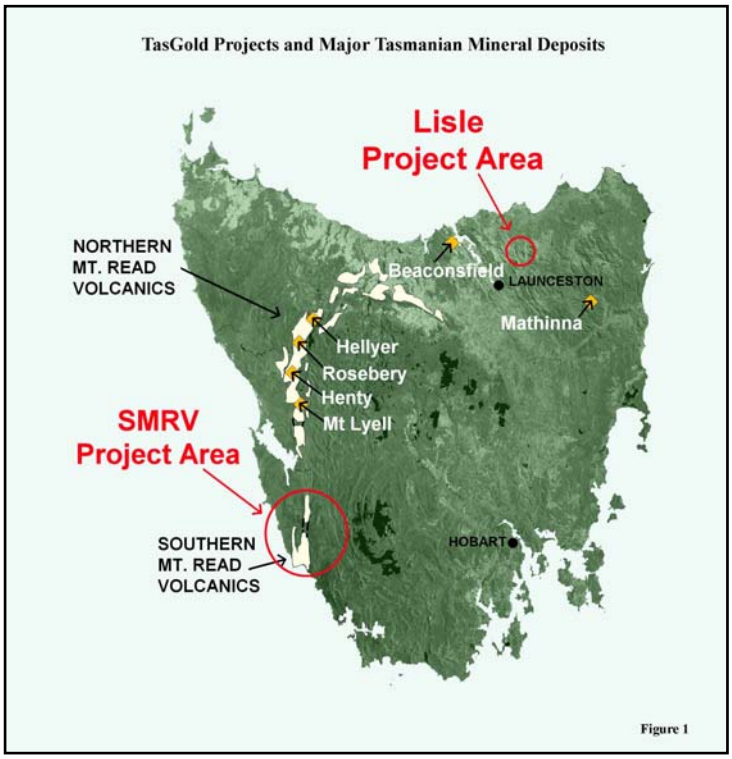
TasGold owns none of the deposits listed in *Tables 1.1* and *1.2*. The locations are shown on Figure 1 *TasGold Projects and Major Tasmanian Mineral Deposits* in this Prospectus.

## 1.2 OVERVIEW OF THE LISLE AND SMRV PROJECTS

The two projects in Tasmania are in markedly different physical and geological environments. The SMRV Project is located in the Southern Mount Read Volcanics in a remote part of the South Western Conservation Area. The Lisle Project is situated in an easily accessible area near Launceston in north – east Tasmania (see Figure 1).

### 1.2.1 SMRV – EL 20/96, EL 21/99 & ELA 24/2001

The SMRV (Southern Mount Read Volcanics) Project is located along the strike extensions of the MRV south of Macquarie Harbour to Elliott Bay, about 45 km of strike. The tenements cover the southern section of the MRV volcanics and related intrusives.




Major mineralised systems occur in the northern section of the MRV as shown in *Table 1.1* and located in Figure 1. Three of these have been classified as 'World – class', i.e. Mt Lyell (Cu – Au), Rosebery and Hellyer (Zn – polymetallic).

The SMRV Project area has not recorded any metal production to date. There are two areas of MRV within the SMRV Project area, a northern area centred on the D'Aguilar Range called Thirkell Hill and a larger southern area that lies between the Wanderer River and Elliott Bay (Figure 1).

Modern mineral exploration commenced in both areas in the 1970s, mainly by Geopeko Ltd, in the Elliott Bay area. Sustained multi – disciplinary exploration programs were undertaken over a number of phases.

Since then, some detailed follow up programs have been undertaken in both areas by a number of different companies, ranging from small private and ASX listed companies through to large multi national companies. A total of more than $6,000,000 is estimated to have been expended to date on exploration and a large and detailed database has been produced.

Exploration targets have been similar, both gold and base metal sulphides conceptually similar to the VHMS deposits known in the northern MRV. More recently the potential for some different gold targets has also been recognised.

At Elliott Bay exploration has focussed on Wart Hill, a VHMS style massive sulphide occurrence where lenses of massive sulphide have been found at surface in a favourable geological environment. Narrow, high grade intercepts in diamond core drilling has provided further impetus to exploration with results such as 1.1 metres at 10.39% Pb, 23.55% Zn, 123 g/t Ag and 0.63 g/t Au and 2m of 11.7% Zn, 6.02% Pb, 59g/t Ag and 2.33 g/t Au. A recent TasGold re-interpretation of existing diamond core drilling has estimated an inferred resource at Wart Hill of 550,000t at 7.2% Zn, 3.4% Pb, 94.3 g/t Ag and 0.5 g/t Au.

The work to date has reduced the potential for a discovery above 150m below ground level, but potential at depth remains promising. Although a number of targets remain, drilling at depth will need to be mainly geologically targeted. The best intersections are in two of the deepest drill holes.

TasGold propose to drill test the wider interval noted above from WH 10 in their Year 1 exploration program. Even though three other holes were drilled apparently testing the depth potential below these holes (two along strike), there is ambivalence in the interpretation that suggests they may not have intersected the target zone.

At Thirkell Hill, exploration has not been as advanced as at Elliott Bay, a number of short drill holes have been drilled into two selected anomalies. No significant intersections have been made. However, there are a number of other similar geophysical and geochemical anomalies in MRV that warrant further work. Priority rating of these anomalies is necessary especially within a geological model driven multi-disciplinary framework.

Gold has been found in a number of environments and geochemical anomalies are widespread (Figure 2).

At Sassy Creek a significant diamond core drill intersection of 3m at 17.5 g/t Au is somewhat downgraded by the drill hole going down the vein(s). Nonetheless the gold is visible in the core and the hole is sited within a large anomalous zone and further more targeted drilling is warranted. At the Lewis River zone, the Hudson River zone and around the Low Rocky Point granite, gold anomalism is widespread (Figure 2) and the sources have not been satisfactorily explained.

A major conceptual gold target is a deposit similar to the Henty – Mt Julia system in the northern section of the MRV. Recent reinterpretation of new aeromagnetic data (Figure 4) coupled with a detailed appreciation of a 'Henty-style' conceptual genetic model has indicated good prospectivity in a number of areas in the SMRV for this style of mineralisation.

Exploration in this area can be difficult and exploration targets will need to be appropriately sized for potential economic exploitation.

### 1.2.2 Lisle – EL 2/92

The Lisle Project is located between Lilydale and Scottsdale in Mathinna Beds sedimentary rocks intruded by Devonian granites.

Auriferous quartz reefs and small alluvial goldfields are widely distributed in north – eastern Tasmania. This gold province has a similar geological setting to the central Victorian gold fields and may represent their southern continuation.

The largest deposit of this type, the Tasmania mine at Beaconsfield occurs in a north – east trending quartz – carbonate vein in lower Palaeozoic sandstones possibly above a granite contact. This deposit has reported historic production prior to 1914 of 854,600 oz at a grade of 24.5 g/t Au. The mine recently re-commenced operations and during the 2002 financial year produced 90,469 oz of gold. Beaconsfield Gold N.L. the mine owner is operating under a receiver and manager appointed who is continuing operations at the mine with the support of the lenders.

Conceptually, several other styles of mineralisation including sheeted veins, quartz stockworks and bulk mineable disseminated gold deposits can be broadly grouped into intrusion – related gold deposits (associated with tungsten – tin deposits) (Figure 3). This is an under recognised and economically important class of gold deposits that could form exploration targets in this area. (See 3.1.3).

The Lisle area produced a reported 250,000 oz gold mainly from alluvial deposits. A source of the alluvial gold has not been confirmed and its origin is therefore speculative. It has been theorised that it came from hardrock vein mineralisation related to the granite intrusion(s).

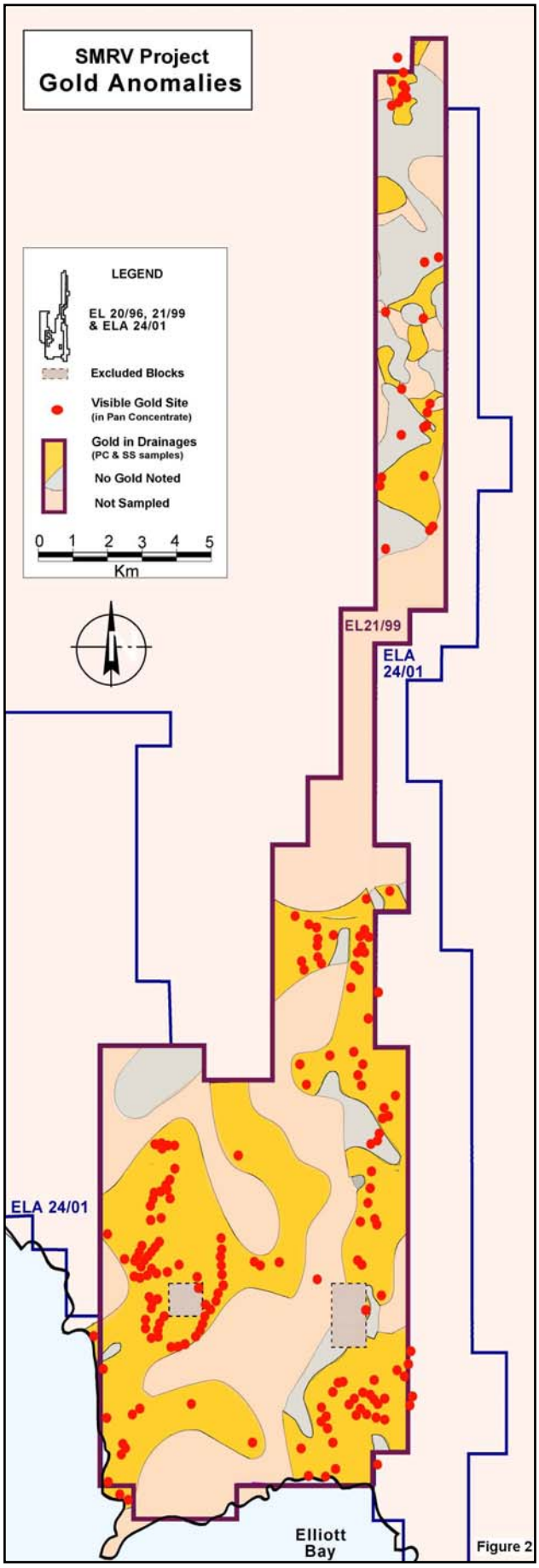
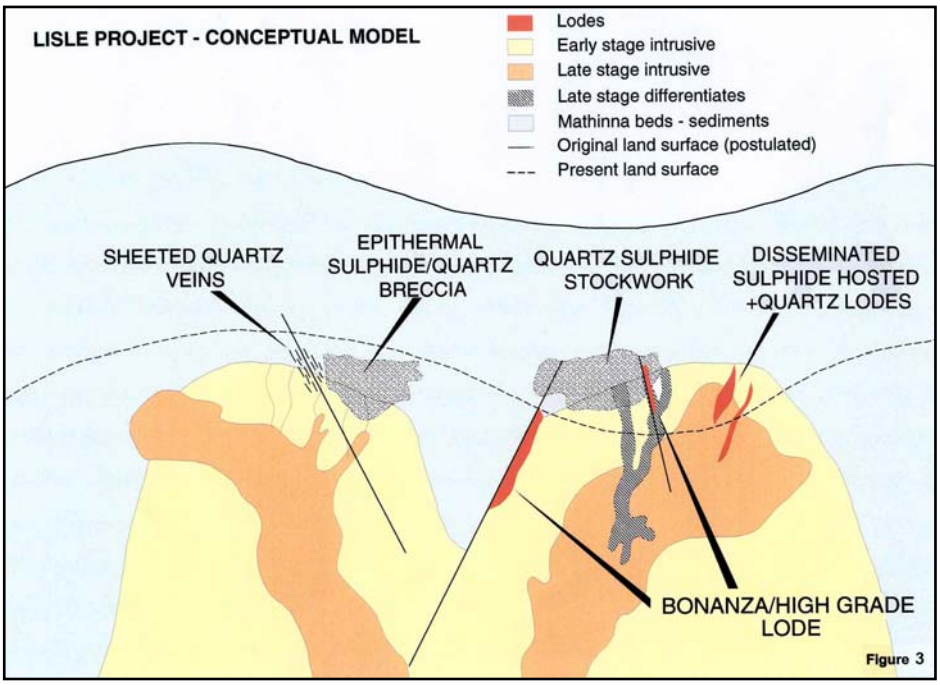


Figure 2

Near the northern end of the Lisle goldfield a number of small hardrock deposits were mined mainly prior to 1914 in the Panama – Golconda area. The largest of these was the Enterprise Mine where production is reported to have averaged 14 g/t Au from lodes in granite.

Drilling by Macmin Ltd (Macmin) intersected a number of zones of mineralisation as well as unexpected openings up to 10m wide interpreted as old mined out areas (stopes or other workings). Typical drilled intersections included 1.9m at 5.6 g/t Au, 0.25m at 20 g/t Au and 24m at 0.23 g/t Au.




Random rock sampling by Macmin from the Panama Prospect adits has obtained samples ranging up to 70 g/t from lode type mineralisation in sediments above the granite contact.

At the Potoroo prospect near Panama, sampling of trenches by Macmin has revealed a zone of 8.0m at 2.3 g/t Au within a larger zone of 55m at 0.55 g/t Au. This trenching has been focussed within a widespread surface arsenic and gold geochemical anomaly covering 4 to 5 square kilometres centred on the Panama – Golconda area.

Extensive soil sampling by Macmin has also located a number of other significant arsenic $\pm$ gold anomalies near the contact of the granodiorite.

During the past year, TasGold has undertaken a limited drilling program at Enterprise and Potoroo. The recent drilling at Potoroo has delineated a gold mineralised, shallow dipping structural zone containing high-grade gold in quartz-arsenopyrite veins / veinlets. Samples with analyses up to 86 g/t Au have been obtained from individual veins / veinlets. Assays to approximately 6 g/t Au have been obtained over 1m intervals contained within low-grade gold mineralised envelope in the structural zone. Stacked veins or higher grade occurrences within the 'general' zone could occur and TasGold propose to target these in future drilling programs.

Drilling at Enterprise confirmed the north trending, moderate west dipping reverse faulted quartz vein model postulated by TasGold. This orientation confirms the larger scale model for the local region. Further drilling will be planned to test this > 1 kilometre long zone outlined by previous soil sampling and old workings.

There is good exploration potential for the discovery of structurally controlled high grade gold deposits similar to the Tasmania Reef at Beaconsfield (or perhaps Pogo style - see 3.1.3). There is also good potential for large, disseminated, intrusion related gold deposits (such as Fort Knox style - see 3.1.3) as sheeted veins, disseminated in granite cupolas and sediments above granite cupolas or in structural corridors.

# 2.0 SMRV PROJECT

## 2.1 INTRODUCTION

The SMRV Project covers all of the MRV south of Macquarie Harbour in south – western Tasmania a strike length of approximately 45 kilometres. The area is held under two granted tenements, EL 20/96 Elliott Bay and EL 21/99 Wanderer. There are two small gaps in the centre of the area approximately in the area of the Stoney Creek granitic porphyry and two sub-blocks in the North Lewis and V10 areas. ELA 24/2001 High Rocky Point is a current application covering the area adjoining to the west and all these areas are shown on an image of total magnetic intensity (Figure 4).

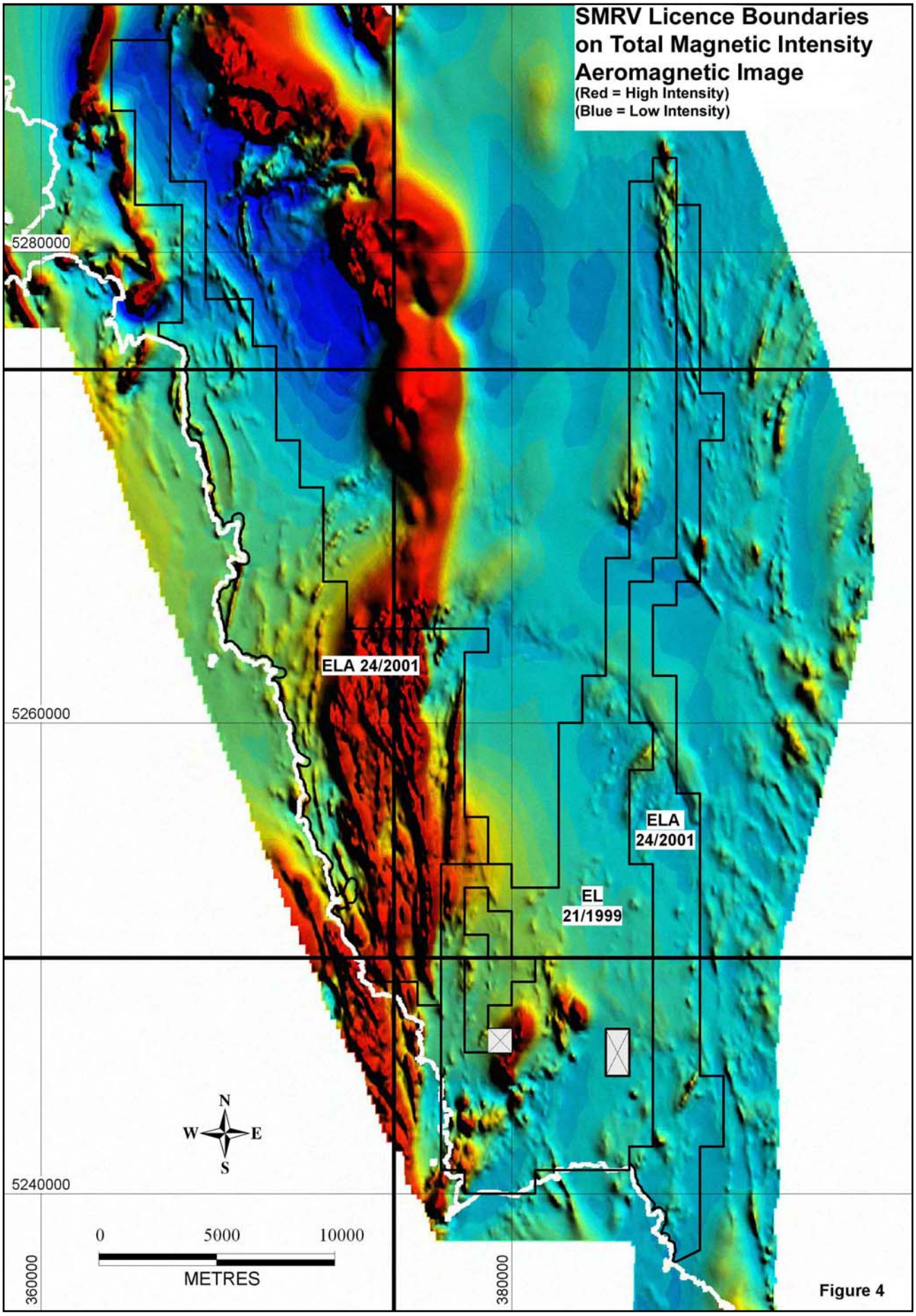

SMRV Licence Boundaries
on Total Magnetic Intensity
Aeromagnetic Image
(Red = High Intensity)
(Blue = Low Intensity)
5280000
5260000
5240000
360000
380000
ELA 24/2001
ELA
24/2001
EL
21/1999
N
W
E
S
0
5000
10000
METRES

Figure 4

The two granted tenements cover an area of approximately 177 square kilometres. TasGold has acquired a 90% interest in the two granted tenements from Exploration & Management Consultants Pty Ltd and McNeil Associates Pty Ltd in consideration of the issue of shares and options. The vendors retain a 10% free carried interest in the tenements to completion of a bankable feasibility study (refer to Independent Solicitors' Report). TasGold holds 100% of the ELA.

This southern end of the MRV, a belt of Cambrian calc – alkaline felsic to mafic volcanics has been significantly under-explored in comparison with the much better known northern section of the volcanic belt. This northern section covering approximately eighty kilometres of strike of similar volcanics from Hellyer to Mount Darwin host the substantial mineralised deposits listed in *Table 1.1*. The relative amount of exploration between the northern and southern parts of the MRV is at least partly explained in the following two sections.

### 2.1.1 Access & Weather

Access to the area is by a rough, unformed track only suitable for 'Bombardier' style transport or four-wheel drive motorbikes, the Low Rocky Point track, from Macquarie Harbour. Larger vehicles (such as drill rigs and support vehicles) need to be ferried across Macquarie Harbour by barge or boat. The alternative and best access is by helicopter or light aircraft but this is subject to the weather.

The area is very exposed to the south westerly weather that dominates the western side of Tasmania. Even in summer this can mean continuous days of persistent drizzle or driving rain.

Both of these factors make exploration difficult and any expeditions need to be well funded, planned and supplied, as this is an expensive and technically challenging exploration environment. Fieldwork is seasonal with ground access easiest between December and May.

### 2.1.2 Land Status

This is intended as a brief and informal general summary. Refer to the Independent Solicitors' Report for detailed information.

Certain sectors of central and south – west Tasmania are World Heritage listed. The MRV (and some areas of volcanics on the Sorell Peninsula) have been specifically excluded from this listing on the basis of their mineral prospectivity.

Prior to the World Heritage listing all areas were classified as part of the South West Conservation Area. In 1992, the Tasmanian Government proclaimed the prospective rocks south of Macquarie Harbour to be within the Sorell Peninsula Prospectivity Zone in recognition of the mineral potential of the area. Any change in the status of the land within the Zone requires approval of both houses of the Tasmanian parliament with any affected party entitled to compensation.

## 2.2 GEOLOGY

### 2.2.1 General Description

**Regional Geology**

A major period of volcanic eruption in the Cambrian period resulted in the development of the MRV. A chain of volcanoes developed along the eastern edge of a water filled rift, which developed in the Tasmanian Continental Crust forming an arcuate ocean basin.

The initial volcanism was predominantly rhyolitic – dacitic in composition. The main unit, the feldspar phyric Central Volcanic Complex, is host to the Rosebery and Hercules VHMS deposits and the 'footwall style' Mt Lyell copper deposit. The predominantly quartz – feldspar phyric Eastern Quartz Phyric Sequence (EQPS) erupted to the east. The volcanics of the Elliott Bay area are lithologically similar to the EQPS.

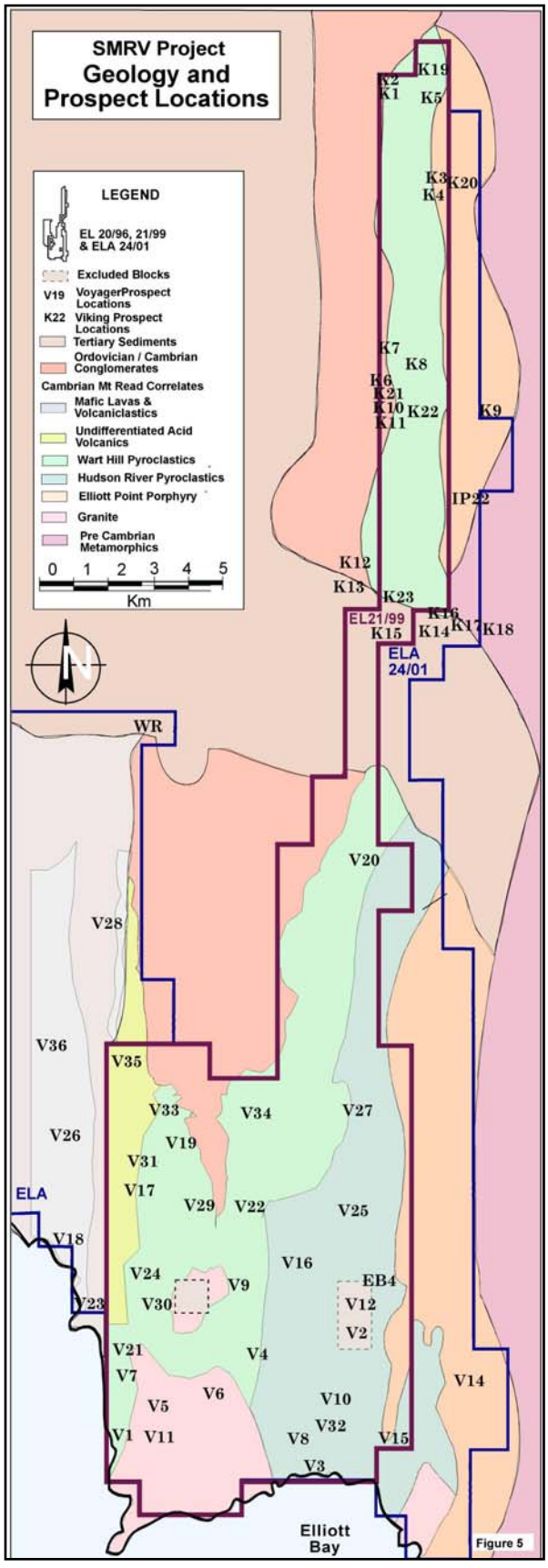
This was followed by a phase of andesitic – basaltic volcanism with further rifting focussed to some extent on the Henty fault system. Major units are host to the Que River and Hellyer VHMS deposits and may also mark the time at which the Mount Lyell deposit formed.

Further rifting occurred on the Henty fault system followed by the mainly felsic final phase of volcanism. Coeval with the

deposition of these dominantly volcanic sequences was the deposition of the Western Volcano-Sedimentary Sequences containing sediments of mixed volcanic or metamorphic provenance and minor felsic and andesitic volcanics.

The extensional tectonism that characterised the eruption and deposition of the MRV was focussed on the Henty fault system and the Great Lyell fault. Both Henty and Mt Lyell are major mineralised deposits hosted or controlled by faults like these. These faults were reactivated as reverse faults and produced upright north – south striking folds. The Owen conglomerate was deposited in the Dundas Trough.

Later intrusion of granitoids led to brittle wrench fault deformation and major tin deposits of various styles and minor base metal and gold vein deposits.




**General Geology**

Within the SMRV tenements, the MRV can be divided into two main areas the D'Aguilar Range – Thirkell Hill area and the Elliott Bay area. The SMRV are separated from the main belt of MRV north of the Gordon River and the two main areas are separated by a Tertiary graben (Moores Valley).

The geological understanding is hindered by relative lack of drilling and the nature of the surface outcrops, which are generally leached and bleached. The general geology is shown on Figure 5.

*Elliott Bay area*

Late Cambrian – Ordovician siliciclastics interpreted as Owen Conglomerate correlates are folded into a gently north plunging syncline with a shallowly dipping eastern limb and a steeply dipping to slightly overturned western limb. This is known as the Mt Osmund syncline. The Owen Conglomerate unconformably overlies MRV.

The sequence on the eastern limb of the Mt Osmund syncline from east to west is:

- a Precambrian sequence of multi - deformed metasediments;
- a westerly dipping unit of volcaniclastic and siliciclastic sediments correlated with the Sticht Range beds of the northern MRV sequence. This unit overlies the Precambrian partly in faulted contact and partly unconformably;
- a 2 to 3 kilometre thick quartz – feldspar – biotite porphyry, the Elliott Point Porphyry, occurs to the east;
- west of the Elliott Point Porphyry, the eastern limb of the Lewis River Volcanics occurs. This has been subdivided into the Hudson River and Wart Hill Pyroclastics. These consist of quartz – feldspar – phyric volcaniclastics including sediments and possible pyroclastics, quartz – feldspar phyric lavas (intrusives?), quartz – feldspar – biotite phyric lavas and intrusives and minor intermediate lavas or intrusives;
- the Waterloo Creek Group unconformably overlies the volcanics. These occur as a unit of felsic derived volcaniclastics, overlain by a unit of black pyritic shale with minor horizons of micaceous siltstone; and
- the Owen Conglomerate siliciclastics conformably overlie the Waterloo Creek Group.

The sequence on the western limb of the Mt Osmund syncline is as follows:

- west of the Waterloo Creek Group, the rocks consist of quartz – feldspar phyric volcaniclastics including sediments, quartz – feldspar – biotite phyric lavas (intrusives?), quartz – feldspar phyric lavas (intrusives?) and sediments ranging from black to grey shales, sandstones, vitric tuffaceous siltstones and siliciclastic sandstone, conglomerate and breccia. These rocks form part of the Wart Hill Pyroclastics;
- the Wart Hill Pyroclastics are followed to the west by a unit of interbedded conglomerate and sandstone with minor shale and siltstone. This varies compositionally from predominantly volcaniclastic to predominantly siliciclastic. A unit of shales and siltstones with minor volcaniclastics in turn follows this. These two units are called the Western Epiclastics;
- the Copper Creek fault is a major fault that extends from south to south – south – west through the Western Epiclastics. To the west of this fault the Western Epiclastics contain mafic volcanics possibly akin to the Mainwaring River Group further to the west;
- the western margin of the Western Epiclastics is faulted (Copper Creek fault?) and rocks to the west of this consist predominantly of sedimentary and volcaniclastic rocks of quartz – feldspar – phyric and feldspar – phyric composition. There are also units of plagioclase – pyroxene – phyric lavas, black to grey shales, siltstones and sandstones with an intercalated felsic to intermediate volcaniclastic; and
- the western boundary of this package is also in faulted contact with Mainwaring River group tholeiitic mafic lavas (intrusives) and mafic derived volcaniclastics.

Three granitoid bodies intrude the MRV, the Low Rocky Point granite, the Little Rocky River granite and the Stoney Creek porphyritic granite. The Low Rocky Point granite is a composite intrusion consisting of pink granite, cream adamellite and coarse porphyritic granite. The Stoney Creek body comprises granite porphyry with feldspar, quartz and biotite phenocrysts in an intensely sericitised and cleaved matrix. The Little Rocky River granite is also a composite intrusion consisting of massive granite porphyry and a strongly foliated medium – grained quartz feldspar porphyry.

The relative timing of these intrusions and folding events is not known. There is, however, fairly good consensus that the granitoids are more or less synvolcanic i.e. Cambrian and predate deformation. Anomalous tin in geochemical samples is associated with the granitoid bodies.

General correlations have been made with the major units of the Elliott Bay area with those in the main part of the MRV to the north. Although specific correlations with the better known lithostratigraphy of the northern section of the MRV (north of Macquarie Harbour) are unavailable, there is consensus that the Elliott Bay area does represent the southern continuation of the MRV.

*Thirkell Hill area*

The MRV lie on the eastern limb of a north striking, shallowly north plunging syncline. Ordovician siliciclastics lie in the core of the fold. The western limb of the fold has been downfaulted during the formation of a Tertiary graben. The sequence dips at $60^{o}$ – $70^{o}$ and faces west.

A sequence of coarse to fine grained sediments with mixed Precambrian and volcanic provenance unconformably overlies Precambrian metasediments. To the north this sequence is in faulted contact with Ordovician siliciclastics. The unit fines from east to west and changes compositionally from Precambrian provenance to volcanic provenance. The sequence has been correlated with the Sticht Range Beds further north in the MRV.

A large, elongate body of coarse quartz – feldspar – biotite phyric porphyry occurs to the west of the sediments. It has been interpreted to be a Cambrian intrusive. Similar intrusives occur in the MRV package to the north and south.

A package of mixed felsic (quartz – feldspar $\pm$ biotite phyric) lavas or intrusives and felsic volcaniclastics occur further west. This unit is the main exploration target for VHMS deposits and possibly gold deposits near the intrusive porphyry contact. Within this unit in the northern part of the area east of Mt Lee, a unit of "siliciclastic breccia – conglomerate with quartzite clasts" cuts across the regional strike. Petrologic examination indicates that the silica may originate as hydrothermal filling along a fault. The volcanics underlying this body are strongly silica – sericite $\pm$ hematite altered.

A unit of felsic volcaniclastics, conformably overlies this package and is in turn overlain by fine shales / siltstones. These rocks are commonly schistose and sericitic and are correlates of the Waterloo Creek Group.

Siliciclastics interpreted as correlates of the Ordovician Owen Conglomerate to the north overlie the Waterloo Creek Group correlates. The contact may or may not be conformable.

A number of north – east and north – west trending wrench faults have been interpreted from aerial photography.

### 2.2.2 Mineralisation

Various exploration programs in the Elliott Bay and Thirkell Hill areas have identified a number of distinct types of mineralisation.

Gold mineralisation as:

- High grade in silicified structures – possibly 'Henty-style';
- In VHMS deposits, eg at Wart Hill (V19);
- As quartz – pyrite – tourmaline alteration zones related to shears, eg at North Lewis (V12);
- As quartz – gossanous zones associated with magnetite – chlorite alteration at granite margins, eg the Low Rocky Point granite;
- As stratabound vein style mineralisation in coarse pyroclastics, eg Sassy Creek (V24);
- As quartz veins, eg Hudson River Zone; and
- In Tertiary gravels.

Base metal sulphide mineralisation as:

- VHMS massive sulphide style, eg Wart Hill (V19);
- Vein style galena, sphalerite and arsenopyrite mineralisation along the Copper Creek fault eg. V31;
- Disseminated Pb – Zn – Ag mineralisation in volcaniclastics eg. Lewis River
- Postulated Besshi style, eg Mainwaring Group prospects

The latter styles of mineralisation are widespread. Lead isotope work has recognised an early Cambrian as well as a Devonian age base metal signature.

### 2.2.3 Exploration Model(s)

**Gold deposits**

The most interesting target for gold mineralisation in the SMRV is a deposit similar to the currently operating Henty – Mt Julia gold mine in the northern MRV. This deposit hosts gold associated with sulphides in an alteration zone adjacent to the Henty fault that is a major syndepositional structure transgressing the MRV. The main controls appear to be the conjunction of a favourable litho-stratigraphic, or chrono-stratigraphic, host unit and a major, semi-regional, probably syn-volcanic fault. Intersections of major syn-depositional faults may be particularly favourable locations. The TasGold interpretation of new regional aeromagnetic and radiometric data sets supports the conceptual Henty-style prospectivity of the area between Wart Hill and Elliott Bay.

Faults of these orientations are widespread across the SMRV area and, in themselves do not provide unique targets. However, semi-meridional faults along Copper Creek and Waterloo Creek broadly enclose a large part of the area of anomalous gold, in stream sediments south of Wart Hill. Furthermore, some known gold prospects lie close to mapped north west trending fault zones (e.g. V12, V24, V30) or near intersections of meridional and north west trending faults (e.g. V33).

More detailed interpretation of these structural elements and their relationships to existing drainage and soil geochemical anomalies and/or alteration zones could reveal some more specific gold exploration targets.

Stratabound gold mineralisation similar to the volcanic hosted Temora gold deposit in the Silurian volcanics of the Tasman Geosyncline in New South Wales could also occur. Here gold occurs in an alteration system with anomalous base metal (Pb) analyses associated with major zones of silicification.

Gold could also occur in a variety of other styles including quartz veins in alteration zones and stockworks or sheeted vein systems in granite. The latter models are discussed in section 3.1.3.

TasGold do not own any of the above named deposits.

**VHMS base metal style**

"Palaeozoic Australian VHMS deposits occur within the submarine portion of calc – alkaline volcanic belts that are composed of a series of complex volcanic centres with related epiclastic facies" (Large, 1992).

The volcanic hosted massive sulphide (VHMS) deposit style of mineralisation in Tasmania is typified by the deposits already known in the northern section of the MRV. Some examples of these have already been summarised in *Table 1.1*. In the northern section of the MRV two types of VHMS deposits are known, viz high grade polymetallic stratiform massive zinc – lead – copper sulphides and low grade copper rich disseminated to massive stratabound deposits. The precious metal contents of the MRV deposits are particularly high in comparison with other massive sulphide deposits worldwide.

Large (1992) reported on 30 Australian VHMS deposits. The average size of sixteen Cu deposits was estimated to be 12.6 million tonnes at 1.3% Cu and 1.6 g/t Au and of ten Zn – Pb – Cu deposits was 7.6 million tonnes at 11.8 % Zn, 4.7 % Pb, 1.0 % Cu, 117 g/t Ag and 2.0 g/t Au. The four Zn – Pb – Cu deposits in the northern MRV are larger and higher grade than most other Australian VHMS deposits. Rosebery, Hercules, Hellyer and Que River average 10.3 million tonnes at 14.8% Zn, 6.0% Pb, 0.6% Cu, 161 g/t Ag and 2.7 g/t Au.

**Besshi base metal style**

Besshi style deposits are generally thin but laterally extensive deposits of Cu – Zn (– Ag – Au $\pm$ Co) that occur in Palaeozoic and Proterozoic sequences in various parts of the World.

Characteristically they are found in submarine tholeiitic rocks, associated with carbonate. Oxide – silicate iron formation, manganiferous exhalite and chlorite rich envelopes may be present

Fox (1992) reported on 21 deposits in various countries around the World. The average size of these deposits was estimated to be 14.0 million tonnes at 1.9% Cu, 1.9 % Zn, 0.1 % Co, 19 g/t Ag and 0.7 g/t Au. Not all the deposits have Co, Ag and Au.

## 2.3 PREVIOUS EXPLORATION

### 2.3.1 Exploration and Mining History

**Elliott Bay Area**

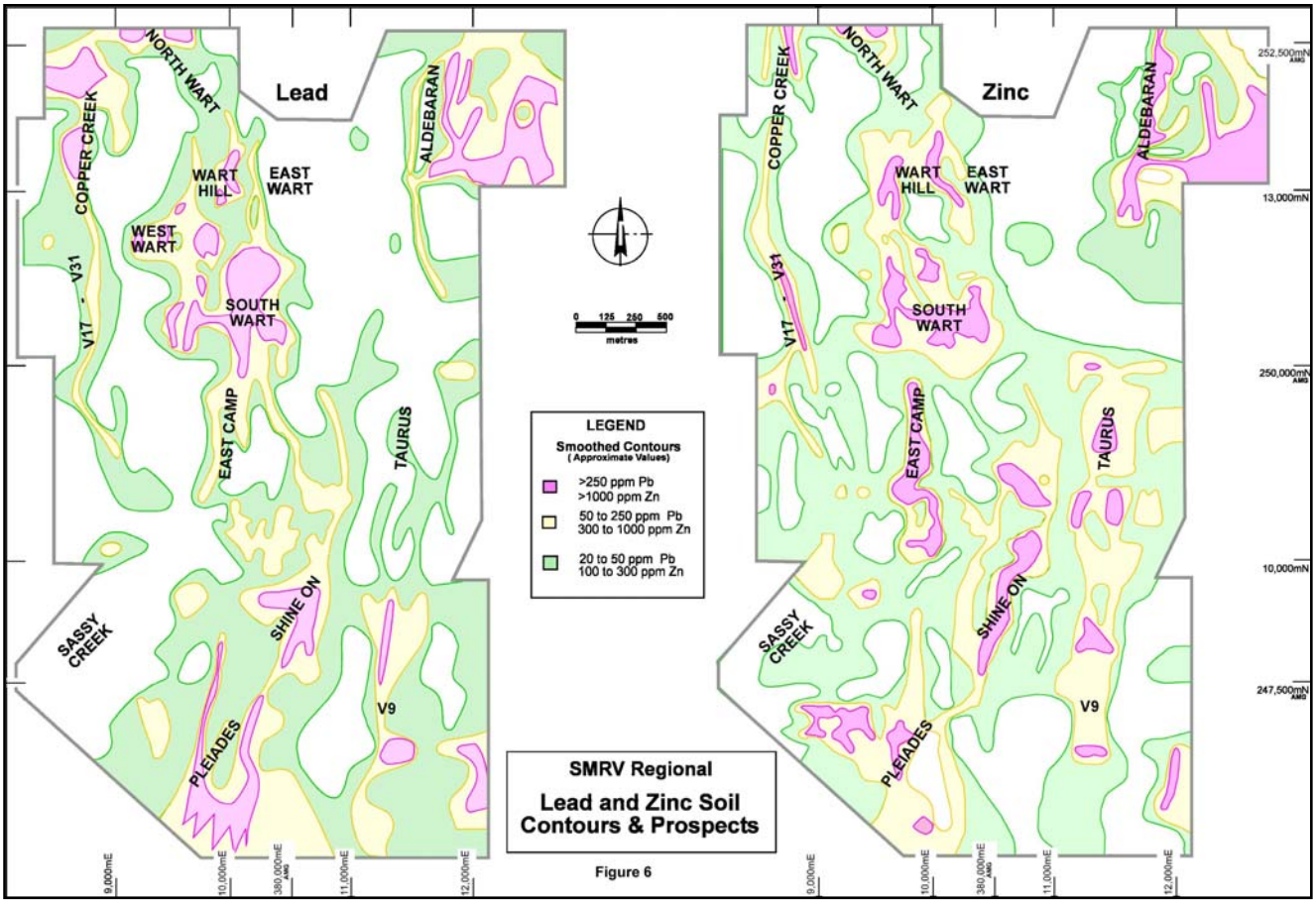
The Elliott Bay area saw some minor historical prospecting probably in the period between 1890 and 1910 and old workings are visible at Voyager 1 (V1) also known as Penders Prospect, Lewis River (V2), and V3. The extensive alluvial gold at Sassy Creek was apparently overlooked during this early prospecting phase.

In 1957 the L. E. E. joint venture held the first modern EL in Tasmania the "Gordon Concession" which covered a large area of south – west Tasmania. They undertook an airborne EM, magnetics and scintillometer survey and undertook inspection and some mapping and sampling of the old workings.

BHP explored the south – west of Tasmania from 1965 to 1975. They also undertook airborne surveys (magnetics and scintillometer) as well as stream sediment geochemical sampling of the MRV and some soil geochemical sampling. They also undertook an airborne EM survey (McPhar H-400)

Geopeko (a division of Peko – Wallsend Operations) undertook an extensive exploration program in the area between 1976 and 1985 recognising the potential of this southern extension of the MRV. The work started collecting stream sediment geochemical samples, geological mapping and followup of regional EM and aeromagnetic anomalies. This work identified 35 prospects called Voyager, numbered V1 to V12 and V14 to V36. The prospects were identified by various methods as historical prospects and outcrops (V1, V2, V3, V12, V18 and V23), aeromagnetic anomalies (V5, V6, V7, V14, V15 and V17), airborne EM anomalies (V11, V21, V26 and V46), stream sediment geochemical anomalies (V8, V10, V24, V25, V27, V30, V31, and V35), soil geochemical anomalies (V28 and V29), favourable geology (V32, V33 and V35) and multi – disciplinary anomalies (V4, V9, V14, V19, V20 and V29). A number of these prospects are outside the area of the current granted tenements viz. V14, V18, V23, V26, V28 and V36, however, they do occur with TaxEx's High Rocky Point E.L. application.

Further work included variously covering prospects with systematic griding, soil geochemical sampling including C – horizon sampling (Figure 6), ground magnetics, VLF – EM and drilling. A total of 32 holes (3,573m) were drilled on 9 prospects. Between 1978 and 1981, drilling focussed on the prospectivity of the V2 (Lewis River), V3, V9, V12 (North Lewis) and V24 (Sassy Creek) /V30 (Pleiades) prospects. In 1981, regional geochemical sampling and follow up mapping resulted in the discovery of the V19 (Wart Hill) prospect where small zones of massive sulphide were discovered with highly anomalous rock chip geochemical sampling results. Trenching and drilling of this prospect was followed by more regional work (IP and C - horizon soil geochemical sampling) in the Mt Osmund syncline. This work led to the identification of the V22, V29 (East Camp), V33 (Copper Creek and North Wart) and V34 (Aldebaran) anomalies. Subsequently V33 was drill tested.




Geopeko withdrew from the area in 1984 for a number of reasons, they had concluded that potential to locate an economic high-grade VHMS deposit within 100m of surface was low, exploration projects were being rationalised Australia wide and they were unable to attract a joint venture partner on favourable terms.

Cyprus Gold Australia Corporation (Cyprus) acquired the exploration rights in 1985 and undertook exploration between 1985 and 1990 targeting VHMS style massive sulphide deposits and gold. After a complete review of the Geopeko work, Cyprus undertook a helicopter borne Dighem – EM and magnetic geophysical survey as well as additional C – horizon soil and rock chip geochemical sampling and geological mapping. Anomalous areas were followed up with priority on V12 (North Lewis), V24 (Sassy Creek), V29 (East Camp) and V19 (Wart Hill).

At North Lewis (V12) Cyprus drilled 5 diamond core holes (349.6 m). Follow up geochemical soil sampling at Sassy Creek (V24) led to a recommendation to drill, but this was not undertaken. Cyprus drilled 3 diamond core holes (409 m) at East Camp (V29). Cyprus also drilled 12 diamond core holes (1,962.3 m) at Wart Hill (V19). Down the hole EM was completed on the majority of the drill holes.

In 1989 – 1990 Cyprus joint ventured the area with Aberfoyle Resources Limited (Aberfoyle). They undertook an airborne QUESTEM geophysical survey covering a large part of the area. This survey identified 9 anomalies (EB1 – EB9) that warranted ground follow up. Ground EM and soil geochemical sampling was undertaken over some of the anomalies. Drilling was attempted at anomaly EB1, located adjacent to V3 prospect but its effectiveness was limited owing to difficult ground conditions. Further work was recommended at EB4 that had gossanous outcrops associated with it, only 600m along strike from North Lewis (V12) but was not undertaken. Aberfoyle also supported lead and sulphur isotopes work at the CSIRO and CODES (University of Tasmania).

Plutonic Operations Ltd (Plutonic) successfully tendered for the area in 1994 and carried out work from 1994 – 1995. Plutonic reviewed data and geologically mapped core and outcrop at V3, Wart Hill (V19) and East Camp (V29), reviewed various geophysical surveys and undertook a moving loop SIROTEM and ground magnetic survey at Wart Hill (V19). They undertook a detailed geological re-evaluation of Wart Hill attempting to define vectors to mineralisation but decided not to undertake any further drilling at Wart Hill for massive sulphides although drilling targets on geophysical anomalies were recommended. As drilling was a major condition of the tenement grant, Plutonic relinquished the tenement in 1996.

**Thirkell Hill Area**

Australian Minerals completed a Turair survey and reconnaissance geochemical sampling in 1973.

Union Oil Development Corporation (Union Oil) undertook the first systematic modern exploration in the area in 1975. They constructed an access track from Birch Inlet and undertook grid based (31,000m) soil geochemical sampling and IP geophysical surveys over the southern two thirds of the area. They also completed an airborne EM geophysical survey over the southern third of the area and reconnaissance sampling elsewhere. This work identified several Pb, Zn, and Cu geochemical anomalies within the MRV. These appeared to be semi-continuous over strike lengths of 1 to 5 kilometres. Numerous more isolated IP, EM and geochemical anomalies were also identified.

Geopeko Ltd (Geopeko) undertook further field work in 1977 and subsequently briefly in 1981. Geopeko confirmed the Union Oil soil geochemical anomalies by analysing C – horizon soil auger geochemical samples. They reviewed several of the prospects and undertook extensive geological traversing. In 1981, Geopeko flew a Dighem EM geophysical survey and completed semi – detailed ground exploration over 2 prospects including extensive auger drilling on one prospect in the MRV.

CSR sampled 13 stream sites for gold in 1985 and collected 4 pan concentrates. The pan concentrates all showed anomalous gold up to 10 g/t Au. However, bulk leach and stream silt analytical results from the 13 sites were all low.

### 2.3.2 Recent Exploration

**Elliott Bay Area**

Macmin applied for an exploration license surrounding the Cyprus / Aberfoyle license in 1994. This was targeted on 3 geochemically anomalous areas; the margins of the Low Rocky Point granite, the Three Creeks and Upper Hudson River areas. Macmin undertook field reconnaissance and soil (auger samples) and pan concentrate geochemical sampling.

Exploration & Management Consultants Pty Ltd (EMC) successfully tendered for the exploration rights to the SMRV area after Plutonic relinquished it and undertook a review of all the past work. In 1998 they joint ventured the area with Fimiston Mining NL (Fimiston).

Fimiston conducted a review and reprocessing of geophysical data then drilled two diamond core drillholes (752 m). One hole was drilled at Wart Hill (V19) and the other was drilled 500m to the south towards the East Camp prospect targeted on anomalous geochemical analyses and geophysics. Fimiston withdrew from the area in 1999. EMC has since focussed on digitising the large body of technical data.

TasGold has undertaken a review and re-interpretation of the existing database highlighting a number of prospects that are ready for drilling.

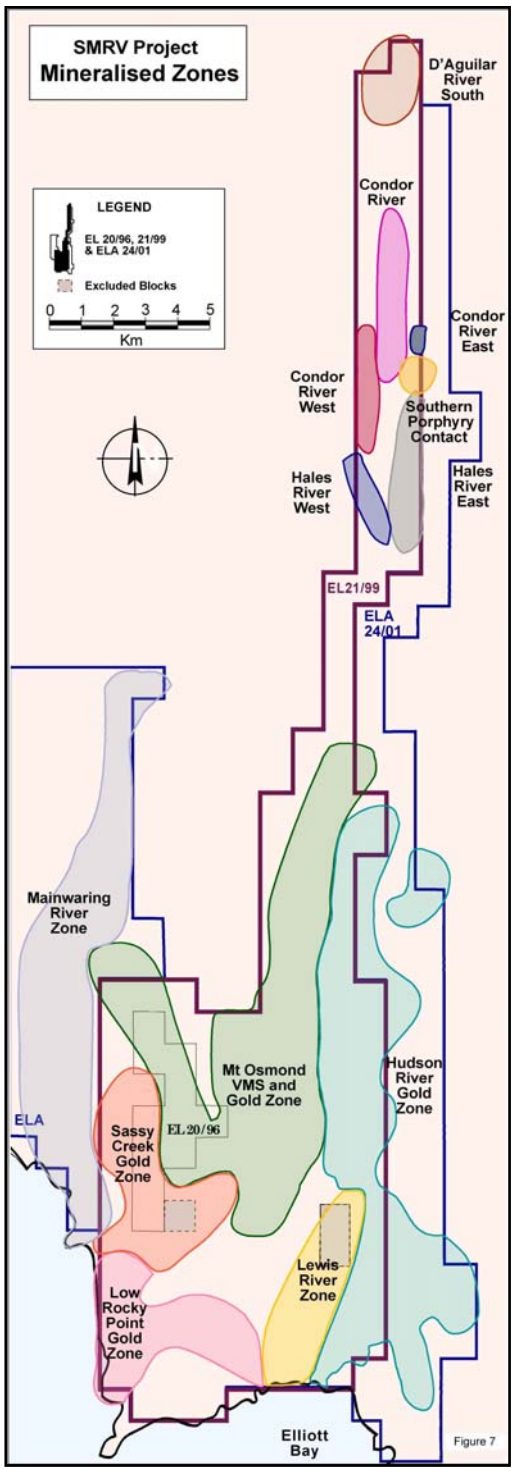
**Thirkell Hill Area**

Macmin in joint venture with Anglo Australian Resources NL (AAR) undertook an extensive geochemical sampling program in 1993 and 1994. This included pan concentrate sampling, soil and rock chip sampling as well as a Huminex soil sampling program using MRT technology. This work led to diamond drilling and in 1995 six short drill holes (292.5m) were drilled on the Southern Porphyry Contact grid (south zone) targeted on "the best of the defined gold soil anomalies "to test stratigraphic and structural associations. In 1996 further geochemical sampling was undertaken.

After AAR withdrew from the joint venture in 1997, Macmin undertook further drilling in 1998. Two diamond core drillholes (371m) were completed at the Condor prospect to test a base metal soil geochemical anomaly in MRV. Macmin's targets were both VHMS style base metal sulphides and gold.

## 2.4 PROSPECT DESCRIPTIONS

### 2.4.1 Elliott Bay




The work done by EMC since Fimiston withdrew from the joint venture has focussed exploration interest into a number of Prospective Zones (Figure 7), all of which comprise a number of the historical prospects. The locations of these prospects are shown on Figures 5 and 6.

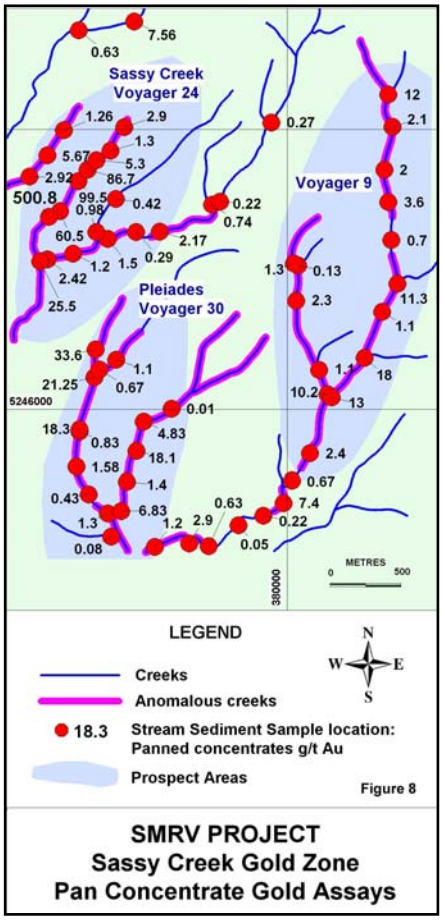
**Sassy Creek Gold Zone**

Pan concentrate stream geochemical sampling has outlined a significantly anomalous zone of gold often associated with Sn and W running from the west of Wart Hill (V19) to south of V30. This anomalous zone covers an area of approximately 6.0 km long and up to about 1.0 km wide, the southern part of which appears to be centred on the Stoney Creek granitic porphyry. The remainder of the Sassy Creek Gold Zone is essentially underlain by Wart Hill pyroclastics. The location of gold anomalies and the Sassy Creek Gold Zone is shown on Figures 2, 7 and 8.

Gold in the northern part of the anomalous zone appears to be associated with the massive sulphide bearing epiclastics. Further south the origin is less clear. A number of prospects have been located within the Sassy Creek Gold Zone including Sassy Creek (V24), V30, V9 (Figure 8), East Sassy Creek, Upper Boyd's Creek, Watters Creek and Gerrard Creek.

*Sassy Creek (V24)*

At Sassy Creek (V24) gold analyses in –80# stream sediment geochemical samples ranging from 50 to 3,000 ppb and in pan concentrate geochemical samples ranging from 292 ppb to 500,800 ppb (Figure 8) led to the discovery of the prospect. Gold grains were examined mineralogically. This work determined the gold was shed from proximal sources and not formed during secondary regrowth.

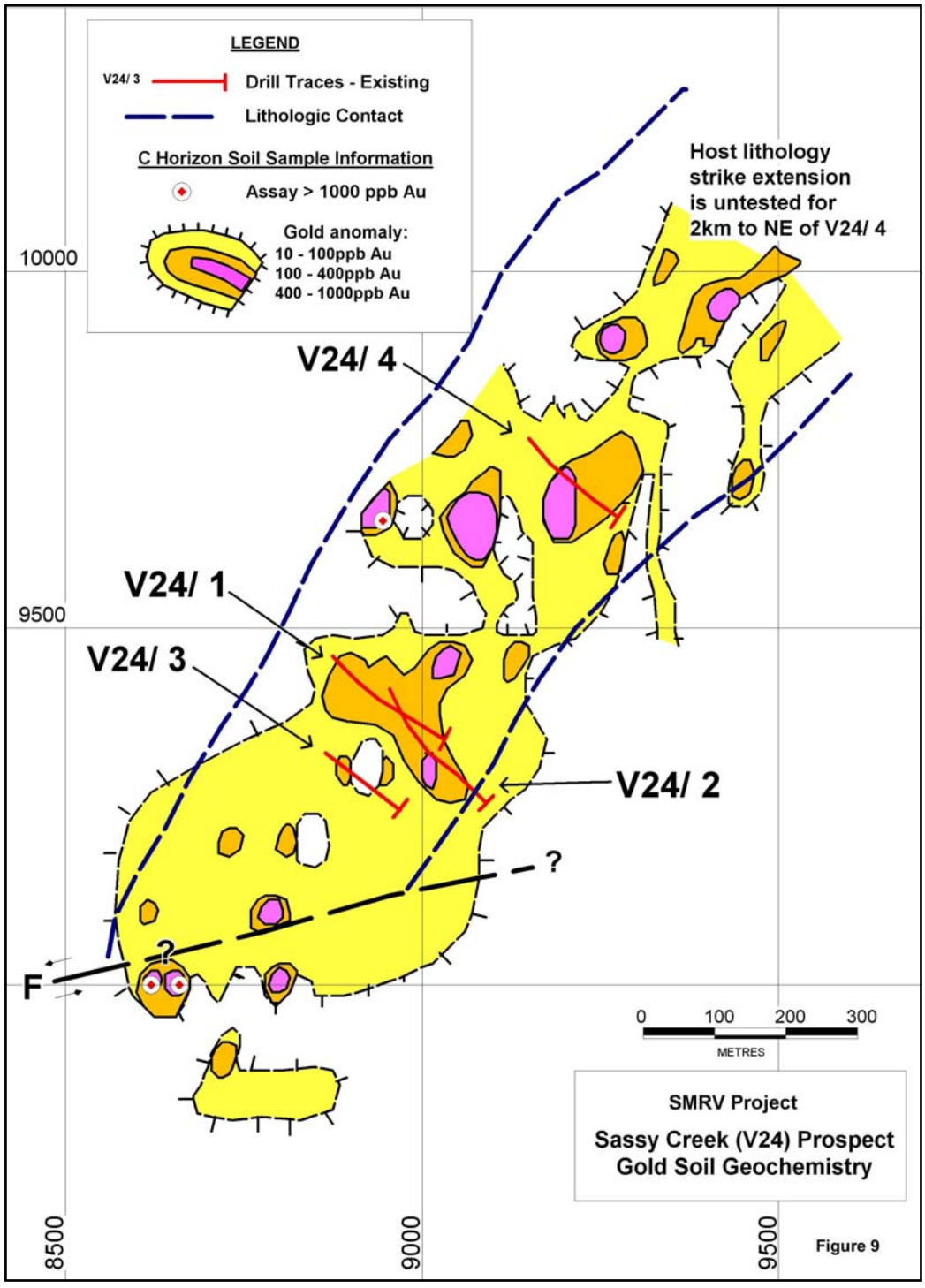



A sequence of dacites, quartz porphyries and tuffs up to 800m wide is overlain by thin grey shale. This is in turn overlain by siliceous crystal lithic tuffs and agglomerates approximately 250m thick. Major sinistral faulting has offset this unit. Extensive massive quartz veining occurs within granite and within dacitic lavas that may be related to granite.

B – horizon soil geochemical sampling was undertaken over the prospect and showed a series of somewhat disconnected gold anomalies in a north – east trending zone overlying a rhyolite lithic crystal tuff unit. C – horizon soil geochemical sampling with values up to 2.3 g/t Au outline a coincident north

– east trending zone of subtle anomalism approximately 200 to 300m wide and up to 1,400m long (Figure 9) and open ended (including prospect V30).

C. – horizon soil geochemical sampling by Cyprus at the southern end of the grid failed to obtain gold values of the same order as Geopeko; most analyses were less than 8 ppb Au. The reason is not known. It is possible that the Tertiary alluvium cover in this area affected the results.




A number of geophysical surveys were undertaken including magnetics, VLF – EM, dipole – dipole IP, SP and gravity (including the Pleiades prospect V30).

Four diamond drill holes (919.65m) were drilled into the anomaly (Figure 9). The results are summarised in *Table 2.1*.

All four drillholes intersected broad zones of low grade gold up to 0.5 g/t Au in 1m intervals that have associated veinlet and disseminated sulphides. These broad sub-vertical zones of gold mineralisation are stratabound within a 120-220 m thick rhyolitic crystal lithic tuff unit that is overlain to the west by bedded rhyolitic epiclastic rocks.

*Table 2.1* **Sassy Creek (V24) Prospect Geopeko drilling results**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Au g/t | Pb% | Zn% | Ag g/t |
|---|---|---|---|---|---|---|---|---|
| V24 / 1 | 281.15 | NSI | | | | | | |
| V24 / 2 | 251.40 | 202.0 | 203.0 | 1.0 | 2.70 | 0.08 | 0.10 | <1.0 |
| | | 208.0 | 209.0 | 1.0 | 0.60 | 0.08 | 0.11 | 1.0 |
| | | 216.0 | 217.0 | 1.0 | 0.95 | 0.11 | 0.01 | 1.0 |
| V24 / 3 | 167.1 | 125.0 | 128.0 | 3.0 | 17.50 | 4.5 | 4.0 | 12.7 |
| V24 / 4 | 220.0 | 111.0 | 112.0 | 1.0 | 3.50 | 0.05 | 0.12 | <1.0 |

*NSI – No Significant Intersections * – Sludge sample analyses*

The high grade intercept in V24/3 coincides with a narrow quartz and sulphide vein running sub-parallel to the core. The vein orientation in hole 24/3 indicate that the holes were drilled at a low angle to the gold-rich veins and therefore not fully effective in testing the mineralised zone.

Gold is apparently stratabound in the felsic unit but the controls on mineralisation are uncertain. The gold appears to be partly in pyritic silicified porphyry clasts that were mineralised prior to volcaniclastic re-sedimentation, and partly in quartz + carbonate + sulphide and pyrite + arsenopyrite veins. The association with pyrite + arsenopyrite veinlets, which are similar to those exposed at the structurally controlled, probably Devonian, Voyager 31 prospect in Copper Creek, suggests a post-volcanic, syn- or post-deformational origin. However, the V24 lead isotope ratios are similar to those at Rosebery and quite distinct from the fault associated sulphide veins at Voyager 31 and 33. This strongly suggests that the V24 mineralising event was Cambrian, probably more or less synvolcanic. Given the proximity to the Stoney Creek microgranite, it is possible that the gold was introduced or remobilised by this Cambrian intrusive.

*Pleiades (V30)*

This prospect is located about 1.0 km to the south of and immediately adjacent to the Sassy Creek (V24) prospect (Figure 8). Gold is abundant in drainages with assays up to 101 g/t Au in pan concentrate geochemical samples.

The prospect was geochemically soil sampled (C – horizon), geologically mapped and geophysically surveyed (VLF – EM, magnetics, SP and dipole – dipole IP). The geology is similar to Sassy Creek (V24) comprising a sequence of dacite, sandstone (epiclastic), quartz porphyry, quartz lithic crystal tuff and porphyritic microgranite (Stoney Creek granitic porphyry).

A number of C – horizon sample anomalies were outlined including a gold anomaly (peak value 1.2 g/t Au) and a zinc anomaly associated with sulphides in strongly chloritised granite. Within the volcanics, narrow mineralised quartz veins were rock chip sampled with peak analyses up to 2.82% Pb, 3.89% Zn, 85ppm Ag and 2.26 g/t Au. Other pit and outcrop assays include 7.0 g/t Au and 0.5 g/t Au but gold assays are generally spiky.

*V9*

The V9 prospect is located in Wart Hill pyroclastics south of the Mt. Osmund syncline on the northern flank of the Stoney Creek granitic porphyry (Figure 8). The area was initially selected as part of a magnetic anomaly from an airborne magnetic survey. Extensive hydrothermal alteration has been geologically mapped in the volcaniclastics.

C – horizon soil and rock chip geochemical sampling was undertaken. The samples were not analysed for gold.

A number of geophysical surveys were undertaken including magnetics, VLF – EM, dipole – dipole and gradient array IP and gravity.

Three diamond core drill holes were drilled (450m). V9/1 was targeted on the magnetic anomaly. V9/2 was targeted on a linear soil geochemical Cu anomaly with a gradient array IP anomaly. V9/3 was targeted on a dipole - dipole IP anomaly. The results are summarised in *Table 2.2*.

*Table 2.2* **V9 Prospect – Geopeko drilling results**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Cu% | Pb% | Zn% | Ag g/t | Au g/t |
|---|---|---|---|---|---|---|---|---|---|
| V9/1 | 60.0 | NSI | | | | | | | NA |
| V9/2 | 232.15 | 186.0 | 187.0 | 1.0 | 0.16 | 0.02 | 0.01 | 1.0 | NA |
| V9/3 | 158.55 | 94.0 | 95.0 | 1.0 | 0.01 | 0.01 | 0.16 | 1.0 | NA |

**NA – not analysed NSI – No Significant Intersections*

The V9 area has not been evaluated for its gold potential. Drainages are consistently anomalous, with assays up to 18 g/t Au in pan concentrate geochemical samples. The drill holes have not been assayed for gold. This will form part of the TasGold Year 1 exploration program.

*Pan Concentrate and Other Geochemical Samples*

Gold anomalies have been reported from a large number of creeks in the Sassy Creek Gold Zone other than those directly draining the Sassy Creek (V24) and Pleiades (V30) prospects. These include the following (not all plotted on figure 8):

- an unnamed creek draining south of the V9 prospect has a number of anomalous gold analyses including 1.1, 2.0, 2.1, 2.4, 3.6, 7.4, 10.6, 11.3, 12, 13, and 18 g/t Au. The creek drains felsic epiclastics and lavas along an interpreted fault;
- a creek branching from this unnamed creek has a number of anomalous gold analyses including 1.09, 2.3 and 10.9 g/t Au. The creek drains the contact between the Stoney Creek granitic porphyry and chlorite altered epiclastics. There is also an IP chargeability geophysical anomaly in the granitic porphyry;
- a creek draining the western contact of the Stoney Creek granitic porphyry and felsic lavas has a number of anomalous gold analyses including 1.4, 4.8, 6.8 and 18.1 g/t Au. The Pleiades (V30) prospect covers part of this drainage basin;
- *Upper Boyd's Creek* has a number of anomalous gold analyses including 2.59, 3.17, 3.7, 3.72, 3.75, 6.9, 8.7, 10, 17.5 and 28 g/t Au;
- *Gerard Creek* has a number of anomalous gold analyses ranging up to 500.8 g/t Au. This sample included 50 visible grains of gold in the pan. This creek drains the Sassy Creek (V24) prospect and these were among the samples that led to it's discovery; and
- *Watters Creek*, north – west of Wart Hill (V19), has a number of anomalous gold analyses in stream sediments geochemical –80# samples ranging up to 1.0 g/t Au. The source is likely to be the Wart Hill (V19) prospect.

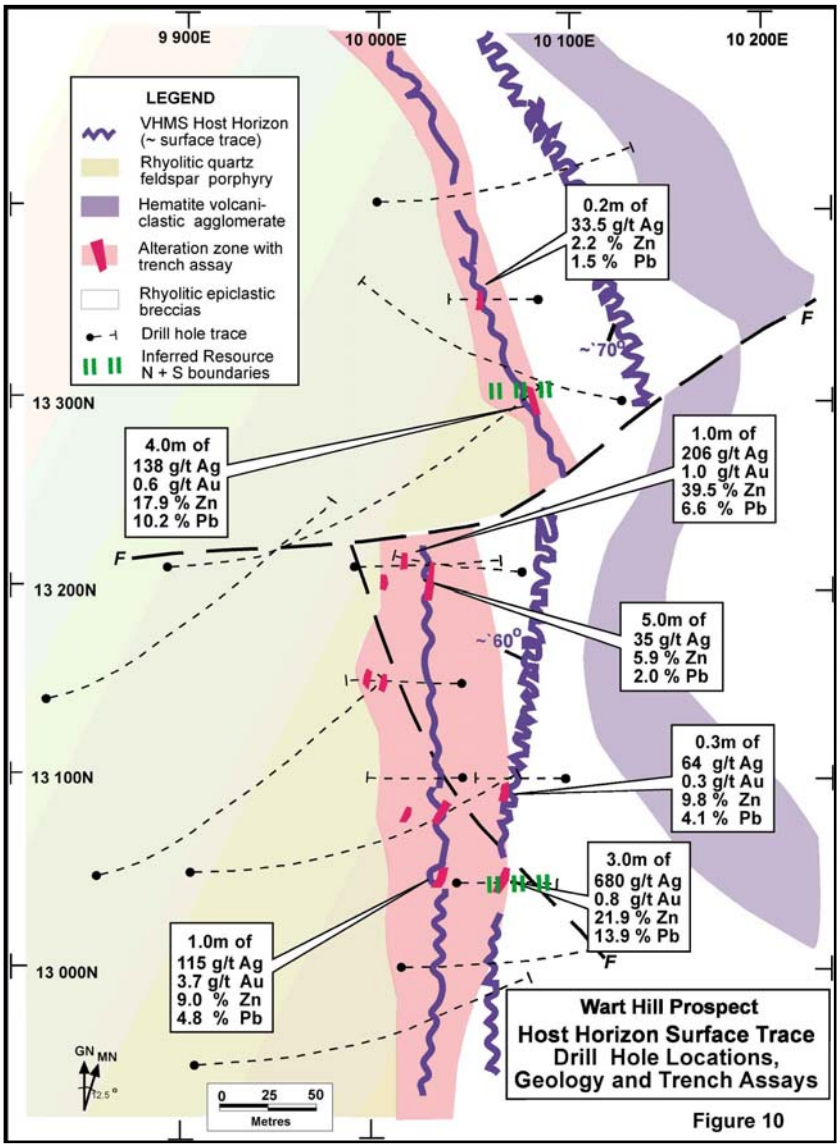
**Mt Osmund Massive Sulphide Zone**

This zone comprises the Wart Hill and Hudson River pyroclastics folded around the Mt Osmund syncline. This includes the Geopeko prospects V19 (Wart Hill) also named Silver Hill by Fimiston, V29 (East Camp), V22 (Taurus), V33 (Copper Creek & North Wart) and V34 (Aldebaran) as well as the Cyprus prospects North Waterloo Creek, Mt Osmund East and Wooloomooloo Creek.

Detailed C – horizon soil geochemical sampling around the Mt. Osmund syncline by Geopeko located a number of base metal anomalies within the volcaniclastic rocks including East Camp (V29) and Copper Creek (V33) prospects and around the syncline the Taurus (V22) and Aldebaran (V34) prospects (see Figures 5 and 6).

*Wart Hill (V19)*

In 1981 regional geochemical sampling and follow up geological mapping resulted in the discovery of the Wart Hill (V19) VHMS prospect. Highly anomalous values of up to several percent lead and zinc were obtained from C – horizon soil geochemical sampling. Trenching on a small outcrop of high-grade massive



sulphide resulted in rock chip geochemical channel sampling assays of 3m at 13.94% Pb, 21.9 % Zn, 680 g/t Ag and 0.84 g/t Au (Figure 10).

Rock chip geochemical sampling of another trench located 260m to the north resulted in assays of 4m at 10.2% Pb, 17.9% Zn, 132g/t Ag and 0.6g/t Au. This led to an initial phase of diamond core drilling the results of which are summarised in *Table 2.3*.

*Table 2.3* **Wart Hill (V19) Prospect – Geopeko drilling results**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Pb% | Zn% | Ag g/t | Au g/t |
|---|---|---|---|---|---|---|---|---|
| V19 / 1 | 200.36 | 128.0 | 132.0 | 4.0 | 0.33 | 0.17 | 4.4 | NA |
| V19 / 2 | 160.20 | NSI | | | | | | |
| V19 / 3 | 301.20 | 46.0 | 47.0 | 1.0 | 0.53 | 1.00 | 30.0 | 0.46 |
| | | 48.0 | 50.0 | 2.0 | 0.22 | 0.37 | 7.8 | 0.03 |
| V19 / 4 | 70.60 | NSI | | | | | | |
| V19 / 5 | 150.20 | NSI | | | | | | |

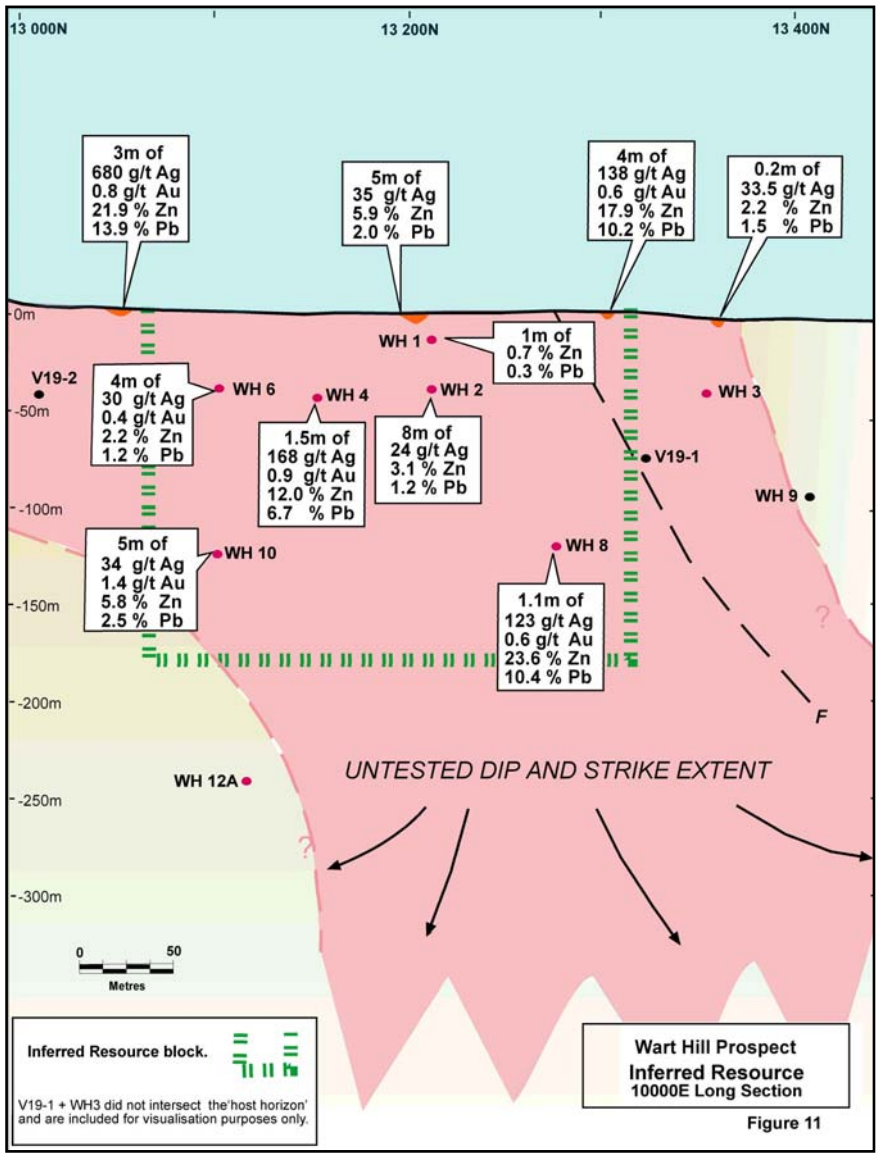
*NA – Not Analysed NSI – No Significant Intersections*

The failure of the drill holes in intersecting massive sulphides at depth in this phase of drilling was explained by the preferred theory that the sulphides had moved from the site of deposition by slumping or mass flow of fragments from a primary VHMS deposit.

Extensive and detailed geophysical surveys undertaken at Wart Hill (V19) by Geopeko included IP, gravity, magnetics and UTEM as well as a number of trial surveys utilising other methods. All the work led to the conclusion that a large massive sulphide deposit was unlikely to be situated within 50m of the surface of the Wart Hill (V19) prospect.

Cyprus undertook a more intense drilling program at Wart Hill (V19) completing 12 diamond core drill holes (1,962.7 m). The results are summarised in *Table 2.4*. and most holes are shown on Figure 11.

Cyprus determined from their drilling that a host horizon was present and that their drill intersections represented in-situ lenses of massive sulphide mineralisation. They also noted that some of the near surface lenses could be clasts as postulated



by Geopeko.

*Table 2.4* **Wart Hill (V19) Prospect – Cyprus drilling results**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Pb% | Zn% | Ag g/t | Au g/t |
|---|---|---|---|---|---|---|---|---|
| EBT-88-WH1 | 78.50 | 16.0 | 17.0 | 1.0 | 0.34 | 0.71 | 15.0 | 0.01 |
| EBT-88-WH2 | 64.00 | 33.0 | 34.0 | 1.0 | 0.70 | 4.40 | 13.0 | 0.08 |
| | | 43.0 | 51.0 | 8.0 | 1.21 | 3.11 | 24.0 | 0.18 |
| EBT-88-WH3 | 69.20 | NSI | | | | | | |
| EBT-88-WH4 | 95.10 | 53.3 | 54.3 | 1.0 | 5.53 | 11.18 | 74.0 | 0.09 |
| | | 84.0 | 85.5 | 1.5 | 6.70 | 12.05 | 168.0 | 0.90 |
| EBT-88-WH5 | 82.50 | NSI | | | | | | |
| EBT-88-WH6 | 68.80 | 47.0 | 51.0 | 4.0 | 1.15 | 2.22 | 30.0 | 0.35 |
| EBT-88-WH7 | 120.00 | NSI | | | | | | |
| EBT-88-WH8 | 283.40 | 108.0 | 110.0 | 2.0 | 0.81 | 1.15 | 13.3 | 0.08 |
| | | 184.85 | 185.95 | 1.1 | 10.39 | 23.55 | 123.0 | 0.63 |
| | | 231.0 | 232.0 | 1.0 | 0.18 | 0.49 | 3.8 | 1.13 |
| EBT-88-WH9 | 233.00 | NSI | | | | | | |
| EBT-88-WH10 | 244.50 | 185.0 | 190.0 | 5.0 | 2.54 | 5.84 | 33.5 | 1.45 |
| EBT-88-WH11 | 264.70 | NSI | | | | | | |
| EBT-88-WH12 | 10.50 | NSI | | | | | | |
| EBT-88-WH12A | 359.00 | NSI | | | | | | |

*NA – Not Analysed NSI – No Significant Intersections*

These intersections are more encouraging than those from the earlier holes and included some narrow intervals, notably in holes WH4, WH8 and WH10 of a similar tenor to the surface samples and to known VHMS deposits in the northern zone of the MRV.

Down the hole EM was completed on the majority of the Cyprus drill holes and possible off hole responses were obtained in holes WH5 and WH7. A second phase of DHEM in 1989, in the holes drilled to test these possible responses, eg WH10 below WH5, failed to indicate significant responses.

Aberfoyle undertook an airborne QUESTEM survey that located nine conductors, one of which EB5 is located along the hinge of the Mt Osmund Syncline, to the south and east of the Wart Hill (V19) prospect. The overlying Waterloo Creek Group contains conductive shales and these may be the source of this anomaly.

CSIRO lead and sulphur isotope work suggests that the Pb – Zn massive sulphide lenses in outcrop and core at Wart Hill (V19) originated from a Cambrian age sea floor VHMS deposit.

Plutonic undertook a moving loop SIROTEM and ground magnetic survey and confirmatory C – horizon soil geochemical samples. Plutonic re-logged the Cyprus drill holes and undertook other work emphasising the interpretation of volcanic facies and alteration zonation to provide vectors to the exhalative centre, conceptually the source of the restricted massive sulphide lenses found at surface and intersected in drilling.

This work was unsuccessful in identifying convincing VHMS footwall alteration vectors but tentatively inferred the source of the massive sulphide clasts may have been up dip and to the north a direction that was thought to be unfavourable for exploration potential. The Wart Hill (V19) prospect was considered to have moderate potential but low findability factors for VHMS deposits.

EMC in joint venture with Fimiston conducted a review and reprocessing of geophysical data. Two diamond core drill holes were drilled:

- one at Wart Hill (V19), known as Silver Hill by Fimiston, to test the depth extension of the intersection of hole WH8 drilled by Cyprus; and
- another to test geophysical and geochemical anomalies to the south west of Wart Hill (V19).

The results are summarised in *Table 2.5*.

*Table 2.5* **Wart Hill (V19) Prospect – EMC / Fimiston drilling results**

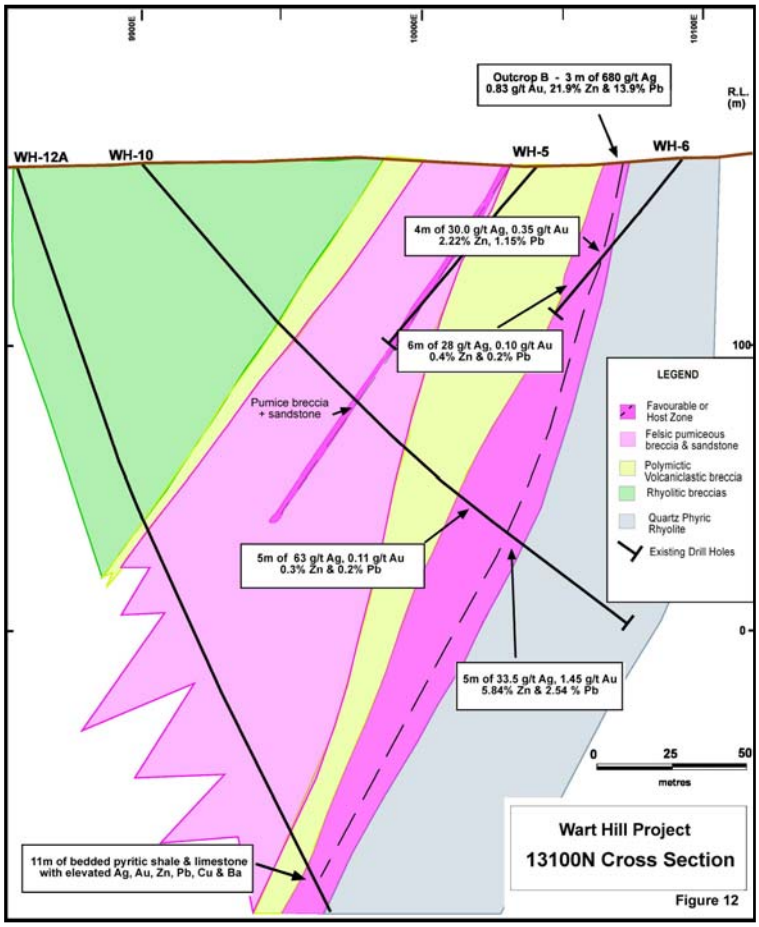
| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Pb% | Zn% | Ag g/t | Au g/t |
|---|---|---|---|---|---|---|---|---|
| SDH1 | 352.0 | 179.0 | 180.0 | 1.0 | 1.22 | 1.35 | 16 | 0.06 |
| SDH2 | 400.0 | NSI | | | | | | |

*NSI – No Significant Intersections*

Only 26 assays over selected intervals totalling 25m out of the 752m drilled were undertaken and it is uncertain whether or not the targets were adequately tested by these holes.

As part of its 2001-02 re-evaluation of exploration data, TasGold examined existing drill cores and assay data from Wart Hill. The TasGold assessment is similar to Cyprus's interpretation but does not support the previous Geopeko interpretations, which had suggested that the sulphide lenses at surface and in drill-hole intersections are re-sedimented clasts derived from an eroded VHMS deposit. It regards the intercepts in six holes (WH 1, 2, 4, 6, 8 & 10) as representing a single host horizon, which contains semi-continuous sulphide mineralisation over a strike length of at least 250m and down dip extent of 200m.

TasGold have estimated that this zone could contain approximately 550,000 tonnes at a grade of 7.2% Zn, 3.4% Pb, 94.3g/t Ag and 0.5g/t Au. Their tonnage estimate is based on a rough calculation of the volume, assuming an average thickness of 2.7m and SG of 4.0 (250 x 200 x 2.75 x 4 = 550,000 t). The quoted grade is a thickness weighted average of the grades all the drill intercepts including trench results (Figure 12).




TasGold conclude that this is an inferred resource (JORC Code) and is sub-economic. TasGold consider there is significant along-strike potential, particularly southward. Their interpretation is based on recognition of north – west - trending linear features in regional aeromagnetic and radiometric data, which possibly represent faults that may have offset the Wart Hill mineralised horizon to the west. Elevated potassium in the radiometric data may reflect a sericitic alteration zone.

*Copper Creek (V33)*

This prospect is on strike to the north of Wart Hill (V19) and includes the North Wart (V33E) prospect. C – horizon soil geochemical sampling outlined two Pb – Zn – Ag anomalies, one in similar stratigraphy 600m along strike of Wart Hill (V19) and the other in the Western Epiclastics (Figure 13).

The first anomaly occurs in fairly massive quartz – feldspar – biotite porphyritic rhyolite and forms a less coherent geochemical anomaly roughly coincident with a broad IP anomaly. A series of two metre long pits were dug over this anomaly. Continuous one metre rock chip geochemical samples analysed up to 1,200 ppm Pb and 20 g/t Ag.

The second anomaly occurs on the contact between argillaceous shales and tuffaceous sandstones and forms a narrow elongate 300m long zone trending north, north – west. A costean was dug across the zone of highest geochemical values.

Continuous one metre rock chip geochemical samples analysed 1.1% Pb, 0.32% Zn, 96 g/t Ag, 0.35 g/t Au with As values up to 1.3% over 8m. Continuous one metre rock chip geochemical samples from another costean analysed 1.1% Pb, 0.7% Zn 67 g/t Ag and 0.33 g/t Au over 3m. The distribution of the sulphides implied a structurally controlled fracture / breccia filling style of mineralisation in proximity to a north trending linear magnetic anomaly, whilst the form of the anomaly suggested a stratabound association. Lead isotope studies suggested that this mineralisation is 'vein – style' rather than host rock age.

Two diamond core drill holes (201.8m) were drilled under the costeans, but not in the strongest section of Zn anomalous soil geochemistry. Core recovery was poor especially in the mineralised zone.

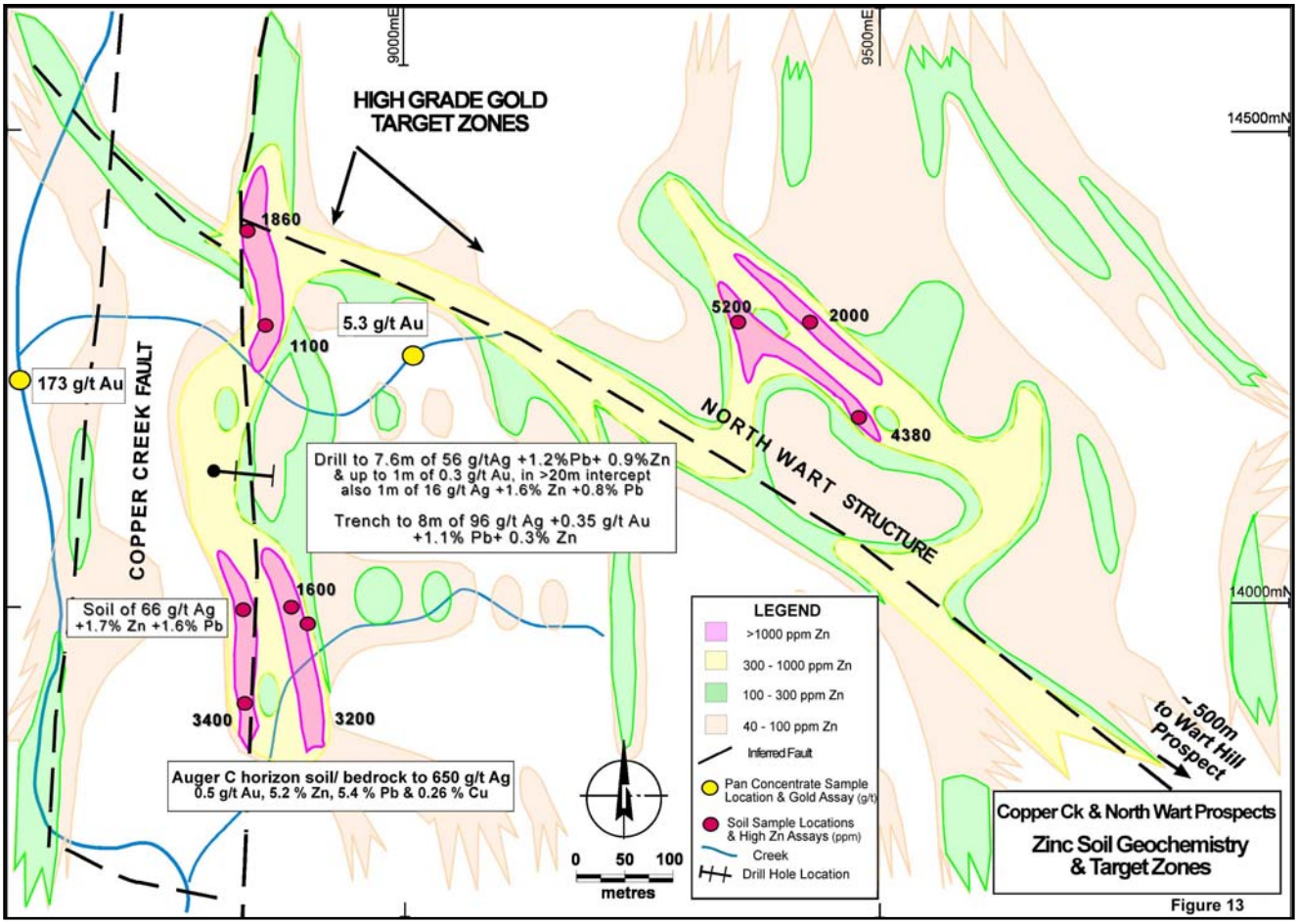
The results are summarised in *Table 2.6*.

*Table 2.6* **Copper Creek (V33) Prospect – Geopeko drilling results**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Pb% | Zn% | As% | Ag g/t | Au g/t |
|---|---|---|---|---|---|---|---|---|---|
| V33 / 1* | 85.5 | 41.2 | 48.8 | 7.6 | 1.24 | 0.89 | 0.1 | 56.0 | 0.06 |
| V33 / 2 | 116.3 | NSI | | | | | | | |

*NSI – No Significant Intersections * – Sludge sample analyses*

The high Pb / Zn and Ag / Pb + Zn ratios and morphology of sulphides is consistent with a vein style of mineralisation possibly related to the Copper Creek fault. No work has been undertaken at V33 since Geopeko's exploration in 1984.




The anomalous gold drainage samples, the gold in sulphides (up to 0.5 g/t Au) intersected in V33/1, as well as interpretation of the new aeromagnetic data has targeted the area of the Copper Creek fault and North Wart structure as having potential for Henty style gold deposits (Figure 13).

*East Camp (V29)*

East Camp (V29) is a prospect immediately to the south of Wart Hill (V19) and has an eastern boundary marked by the axis of the Mt Osmund syncline. Two soil sampling geochemical anomalies were delineated in the southern part of the prospect. A broad 500m by 150m anomaly outlined by a 400 ppm Zn contour with peak values ranging up to 0.5% Pb + Zn occurs on the south western margin of the prospect. A second more linear anomaly covering 400m by 50m has peak values ranging up to 1.25%Pb, 5.45%Zn and 0.33% Cu.

C – horizon geochemical sampling was undertaken as well as pitting and costeaning on high base metal values within the anomalies. This work confirmed visible disseminated mineralisation (principally pyrite and galena) in volcanics at a number of localities. Generally peak analytical values could not be repeated although the samples were still anomalous.

Various geophysical surveys were completed over the prospect including ground magnetics, VLF – EM, IP, SP and gravity. The magnetic survey did not delineate any anomalies. VLF – EM shows a linear conductive zone reflecting black siltstones of the Mt. Osmund syncline. Weaker conductive zones have little relationship with the soil geochemistry. The IP (gradient array) showed a moderately chargeable zone roughly coincident with the northern part of the linear Pb – Zn anomaly. This was followed up by dipole – dipole IP that confirmed the anomaly but suggested that it was rather too nebulous to be likely to have as their source a near surface massive sulphide occurrence. Gravity shows a narrow elongate high coincident with the IP chargeability zone. SP showed no significant anomalies.

Cyprus completed infill surface sampling and costeaning that confirmed the geochemical anomalies but at lower tenor values to the Geopeko results. Three diamond core drill holes (459.5m) were undertaken to test the best coincident geochemical and geophysical anomalies. The results were disappointing with no significant intersections of mineralisation.

*V29W*

V29W was located by following up anomalous gold analyses from stream sediment geochemical sampling. It is located west of East Camp (V29).

The geology comprises a large body of quartz porphyritic rhyolite within fine grained acid crystal tuffs. Trenching of a C – horizon soil sample geochemical anomaly exposed a 2m wide zone of brecciated and silicified quartz crystal tuff with up to 30% pyrite and minor galena principally as breccia space infillings. Rock chip channel samples taken over 1m analysed values up to 0.96% Pb, 0.34% Zn, 24 g/t Ag and 0.17% As.

Various geophysical surveys, magnetics, VLF – EM and IP were undertaken but did not delineate any anomalies.

*Taurus (V22)*

The Taurus (V22) prospect is located in an area of hydrothermally altered Wart Hill pyroclastic rocks on the south eastern flank of the Mt. Osmund syncline. Soil geochemical sampling outlined three Zn – Pb anomalies. C – horizon soil geochemical sampling confirmed the linearity of the anomalies delineating the best Pb – Zn anomaly as a zone 400m long and 50m wide. Spot values up to 585 ppm Pb and 1,400 ppm Zn were obtained from sample analyses. A rock chip sample has assayed 0.44 g/t Au, but overall very limited gold evaluation work was undertaken before 1983 and no work has been undertaken since then.

Magnetic and dipole – dipole IP geophysical surveys were undertaken over the prospect. A subtle resistivity response may coincide with an interpreted fault.

Lithologically the rocks appear as strongly silicified breccias, agglomerates, lithic tuffs and tuffaceous sediments interpreted to represent a volcanic vent area.

*Aldebaran (V34)*

The Aldebaran (V34) prospect is located to the north along strike from V22. It lies on the eastern limb of the Mt. Osmund syncline opposite Wart Hill (V19) on the western limb.

C – horizon soil geochemical sampling (Figure 14) delineated a north – south trending linear anomaly greater than 1,200m long with a higher-grade zone about 400m long with analyses up to 0.42% Pb, 0.54% Zn and 7 g/t Ag. Visible galena was observed in rock chips from C – horizon samples coinciding with values up to 0.4% Pb and 0.19% Zn.

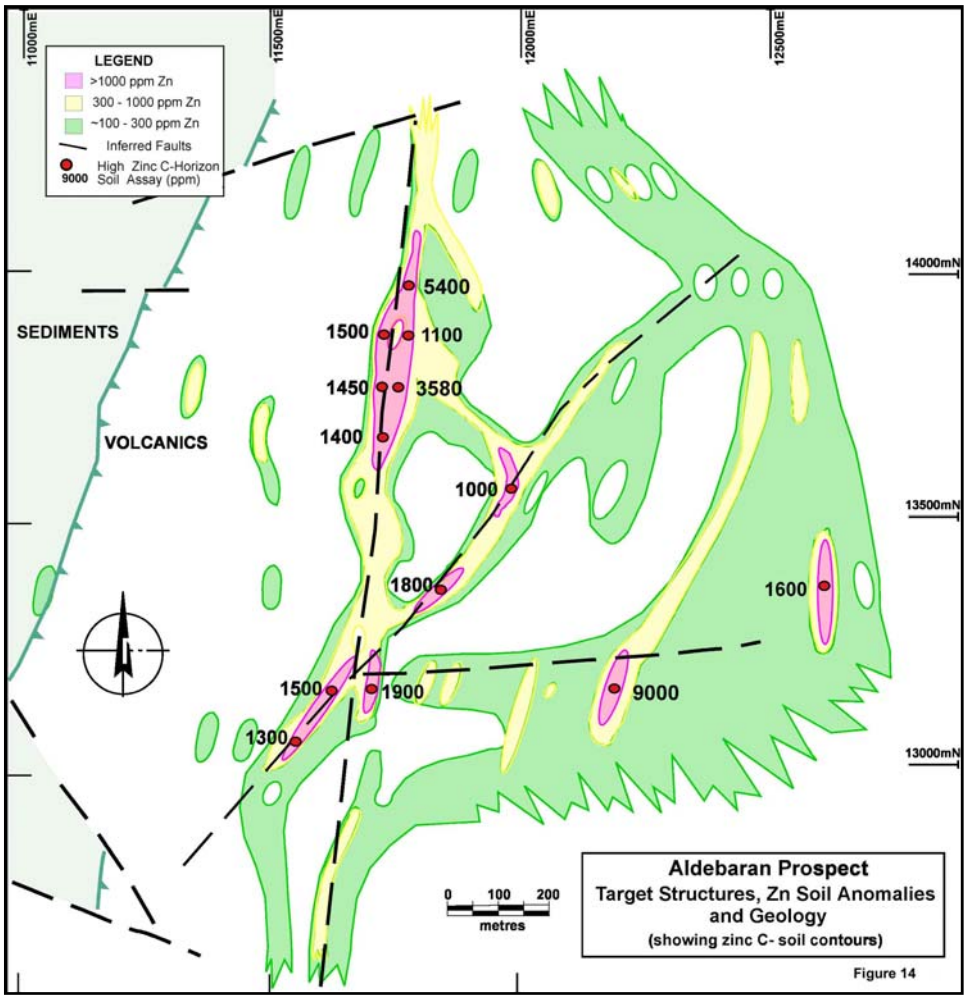
The anomaly is underlain by fine to medium grained pyritic, chloritic quartz – feldspar crystal tuff.

Magnetic and dipole – dipole IP geophysical surveys were the last exploration work undertaken over the prospect in 1983. A broad resistivity low response coincides with the chloritic tuff.

*Mt Osmund East*

This prospect lies to the east of the Mt. Osmund syncline. It was initially located as follow up of airborne geophysical Dighem anomalies. Three traverses of soil geochemical sampling gave values of up to 0.6% Pb, 0.17 % Zn on analysis. One sample of surface gravels gave a geochemical analysis of 1.85 g/t Au but this was unable to be repeated.

The anomalous soils correspond to pervasive chlorite and vein controlled quartz – chlorite alteration of fine to medium grained rhyolitic volcaniclastics.




*North Waterloo Creek*

This prospect lies to the south east of V34. It was initially located as follow up of an airborne geophysical Dighem anomaly with anomalous stream sediment geochemical Pb, Zn and Au analyses. Ground follow up produced weak EM anomalies and the geochemistry could not be repeated.

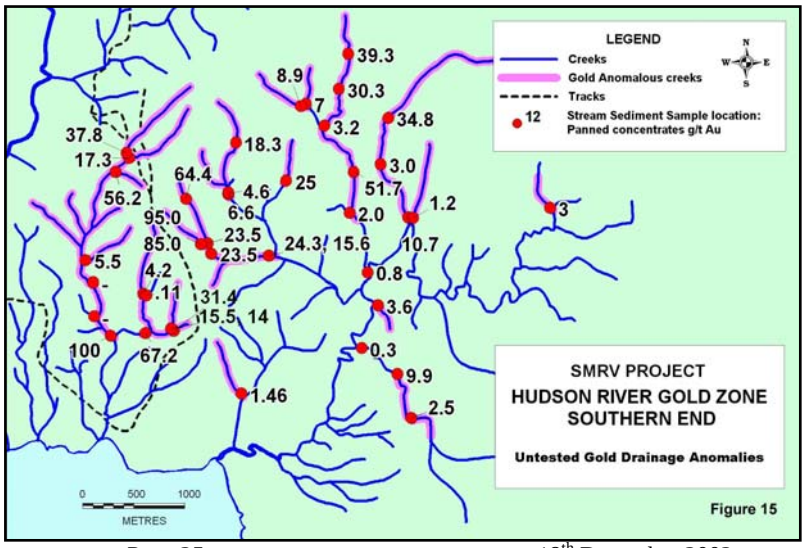
*Woolloomooloo Creek*

This prospect was also located on airborne geophysical Dighem anomalies, which were shown to be very weak. There were no significant anomalous geochemical analytical results.

**Hudson River Zone**

Pan concentrate geochemical sampling along the Hudson River and tributaries to the north has delineated a zone of gold anomalies about 18 kilometres long and 1 to 4 kilometres wide.

Within this zone are more discrete areas with coherent gold anomalous creeks. An example of this is the Lewis River Zone that broadly falls within this Hudson River Zone. The location of these anomalies is shown on Figures 2 and 15.



The Zone broadly conforms with the contact between the volcanics (Hudson River pyroclastics) to the east and the Elliott Point porphyry to the west. Some streams wholly draining the porphyry and some wholly draining the volcanics are also anomalous.

A number of the anomalous creeks drain aeromagnetic anomalies and prospects. Some of these, North Waterloo Creek, Mt. Osmund East and Wooloomooloo Creek have already been described in the Mt Osmund Massive Sulphide Zone section of this report.

*V20*

The V20 prospect is located on the Wanderer River in the northern part of the Elliott Bay section of the MRV. A 'sub – gossanous' zone was discovered outcropping in the Wanderer River during reconnaissance geological mapping. The general area also coincides with two low priority airborne EM anomalies from a very early geophysical survey. Stream sediment geochemical sampling had also indicated Pb and Zn anomalous analyses in streams draining the areas.

C – horizon soil geochemical sampling and geophysical surveys including magnetics and VLF – EM have been undertaken. The prospect is underlain by a sequence of quartz porphyry lava, quartz – biotite porphyritic lava, rhyolitic crystal tuff and hematitic quartz crystal tuff.

Pb and Zn soil geochemical anomalies have been located within the quartz – biotite porphyritic lava with peak values of 2.25% Pb, 0.24% Zn and 20.5 g/t Ag near the tuff contacts.

*North Porphyry contact*

This prospect was located by stream sediment geochemical samples with analyses of 16.9, 30.5 and 36.3 g/t Au in pan concentrates as well as 0.18 and 0.075 g/t Au in - 80# samples. Partial coverage by C – horizon soil geochemical sampling had uniformly low analyses.

*Northern Contact*

About 1 kilometre south of the North Porphyry Contact prospect, stream sediment pan concentrate samples from two creeks analysed 31.7 and 163.3 g/t Au. The latter creek drains an interpreted north – west structure whilst the former has been mapped as draining the porphyry.

Soil geochemical samples taken over a Dighem anomaly to the west produced low analyses except for one sample (1.0 g/t Au).

*Northern Central Prospect*

This prospect covers four creeks with pan concentrate stream geochemical anomalies, which drain from both sides of the Hudson River. The prospect is also believed to be sited near aeromagnetic geophysical anomaly 5. The pan concentrate samples analysed 37.7 and 89.3 g/t Au (in creeks draining from the west) and 465.1 and 4.24 g/t Au (in creeks draining from the east).

A soil geochemical sample traverse over the aeromagnetic anomaly produced uniformly low values. However, this anomaly is not co-incident with the area highlighted by the stream samples.

*Southern Prospect (V14 and V15)*

Creeks draining the relatively unexplored aeromagnetic geophysical anomaly (V14), within the Elliott Point Porphyry had anomalous stream pan concentrate geochemical sample analyses of 51.7, 39.3 34.8 and 30.3 g/t Au. A single pan concentrate sample analysis of 51.5 g/t comes from a stream draining the porphyry in the vicinity of V14.

Ground geophysical follow up of the V14 aeromagnetic anomaly found disseminated magnetite in chlorite altered Elliott Point Porphyry. This also found that the aeromagnetic anomaly could be defined as two discrete anomalies. A stream draining aeromagnetic anomaly 1 analysed 1.16 and 0.48 g/t Au in –80# stream sediment geochemical samples. A soil geochemical sample traverse was not anomalous. The 0.48 g/t Au sample may also drain aeromagnetic anomaly 2 and a

second stream from this anomaly analysed 0.29 g/t Au in similar samples. One soil geochemical sample from a traverse on this anomaly analysed 0.06 g/t Au, the remainder were below the limit of detection.

None of the pan concentrate samples taken from streams draining aeromagnetic anomaly V15 were anomalous. Two samples from a soil geochemical sample traverse taken over the aeromagnetic anomaly analysed 0.03 g/t Au, the remainder were below the limit of detection.

**Low Rocky Point Gold Zone**

Creeks draining the contact between the Low Rocky Point granite and the MRV often have anomalous gold in pan concentrate geochemical samples. The eastern contact is faulted along 2 kilometres in a north, north – west direction. At the contact, the lithologies are silicified and contain abundant quartz stockworks with minor hematite – pyrite – quartz veins and local carbonate alteration. The granite is sheared, foliated and brecciated. Samples were taken along the northern and eastern side of the granite and up to 50 grain counts of gold were observed.

Rock chip geochemical samples with analyses up to 7.25 g/t Au have been taken from the V6 prospect. Soil geochemical sampling was undertaken on the drainage basin of the creek with the highest gold anomalism with results up to 0.06 g/t Au in analyses of these samples.

**Lewis River Zone**

The Lewis River Zone is prospective for gold and massive sulphides. The zone follows a trend running north, north – east from the Drake Creek – Cowrie Beach (V3) prospect in the south through Lewis River (V32), V10, Old Lewis River (V2), North Lewis (V12) and EB4 prospects to the Elliott Point porphyry contact. The North Lewis (V12) and Old Lewis River (V2) prospects are now in an excluded 2 square kilometre area.

This zone contains a large number of anomalous – 80# stream sediment and pan concentrate geochemical sample analyses for Au and As as well as anomalous base metal zones.

*Drake Creek – Cowrie Beach (V3)*

Geopeko followed up old workings on chalcopyrite- malachite veins.

C – horizon soil geochemical sampling outlined a north – east trending zone of anomalies with analyses up to 0.47% Pb and 1.0% Zn. No gold analyses were undertaken. VLF – EM and dipole – dipole IP was conducted over the prospect. The zone of semi – coincident soil geochemical and VLF – EM anomalies was diamond core drilled in holes V3/1 and V3/2. A coincident soil geochemical and dipole – dipole IP anomaly was diamond core drilled in hole V3/3.

Subsequently Aberfoyle's QUESTEM airborne EM survey located a north, north – west trending anomaly immediately to the west of the Drake Creek – Cowrie Beach (V3) prospect. Fixed loop EM was undertaken which confirmed the anomaly. Aberfoyle also undertook confirmatory C – horizon soil geochemical sampling. Analytical results are lower than Geopeko's where the sampling overlaps.

Aberfoyle drilled two diamond core drillholes into the geophysical anomaly and the results are summarised in *Table 2.7*.

*Table 2.7* **Drake Creek – Cowrie Beach (V3) Prospect – Geopeko and Aberfoyle drilling results**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Pb% | Zn% | Ag g/t | Au g/t |
|---|---|---|---|---|---|---|---|---|
| Geopeko | | | | | | | | |
| V3/1 | 30.8 | 10.0 | 11.0 | 1.0 | 0.34 | 0.66 | 1.0 | NA |
| V3/2 | 30.7 | 22.0 | 23.0 | 1.0 | 0.11 | 0.11 | <1.0 | NA |
| V3/3 | 201.1 | 103.0 | 111.0 | 8.0 | 0.06 | 0.40 | <1.0 | NA |
| Aberfoyle | | | | | | | | |
| EB0001 | 58.75 | NA | | | | | | |
| EB0002 | 312.0 | NSI | | | | | | |

*NA – Not Analysed NSI – No Significant Intersections*

All three Geopeko drill holes intersected various volcaniclastics, sediments, crystal and lithic tuffs and rhyolitic lavas (V3/3 only). The Aberfoyle drill holes were both drilled from the same site. EB0001 was abandoned due to drilling difficulties. The holes intersected volcaniclastic sandstones in a fault zone that was interpreted to be the cause of the conductive response. Seventeen samples taken by core grinding of EB0002 had geochemical analyses up to 0.17% Zn and 0.11%Pb.

*Lewis River*

The Lewis River prospect occurs 2 kilometres north – east of the Drake Creek – Cowrie Beach (V3) prospect and south – west of V10.

Geological mapping outlined a sequence of tuffaceous sediments and medium grained volcaniclastics, cut by two faults, one trending a north – west and the other north – east. The north – west trending fault shows strong shearing and chlorite – talc – pyrite alteration. The north – east trending fault contains locally highly chloritised zones.

Soil geochemical sampling was undertaken, gold results are spotty, whilst arsenic roughly follows the two structures. A rock chip geochemical sample in the north – west of the prospect analysed 0.64 g/t Au and 5.55% As.

The gold soil geochemistry does not reflect the visible gold count in the pan concentrates (up to 30 grains) and closer spaced sampling was recommended but not undertaken.

*V10*

The V10 prospect was originally delineated by anomalous base metal analyses in stream sediment geochemical samples. C – horizon soil geochemical sampling delineated a zone about 800m long and 50m to 200m wide with values up to 640 ppm Cu, 3,900 ppm Pb and 1,900 ppm Zn. No Au analyses were undertaken. Visible gold (up to 23 grain counts) has been observed in pan concentrate geochemical sampling from creeks draining this area.

Magnetic, VLF-EM and IP geophysical surveys did not locate any anomalies.

**Mainwaring River Zone**

This zone comprises the prospects Penders (V1), V18, V23 and V21. In the northern part of the Mainwaring River Group of rocks and the Pleasant Creek formation other prospects include V35 and V36, Mt Osmund West, Mainwaring River, Python Pit and Mainwaring South. V23 and all the northern prospects except V35 are outside the current boundaries of the granted tenements but are within ELA 24/2001.

*Penders (V1)*

This prospect is located on old workings on two parallel zones of pyrite – magnetite mineralisation. Geological mapping and results of diamond core drilling has suggested that these lenses may be chemical sediments. Rock chip geochemical sampling gave values of up to 0.75% Cu, 0.31% Zn, 7.0 g/t Ag and 0.03 g/t Au. Scheelite has also been observed.

Geophysical surveying has included magnetic, dipole – dipole IP, VLF and TURAM EM surveys. The results showed no significant anomalies. C – horizon geochemical soil sampling also showed relatively low values.

Two shallow diamond core (Jacro) drill holes (53.5m) were drilled with no significant results.

*V18*

This prospect occurs as outcropping disseminated copper mineralisation. No geochemical or geophysical work has been done. This prospect is located in the High Rocky Point ELA 24/2001.

*V21*

The V21 prospect was defined by an airborne geophysical magnetic anomaly. The prospect is located north of and along strike from the Penders (V1) prospect. C – horizon geochemical soil sampling did not show any anomalous analyses. Gold was not analysed for. However, pan concentrate geochemical sampling did show moderate gold anomalies up to 8.6 g/t Au.

*V35*

This prospect near the northern boundary of the tenement was originally identified as an airborne geophysical EM anomaly. Geological mapping and –80# soil geochemical sampling was undertaken. Anomalous Cu (up to 185 ppm), Zn (up to 180 ppm) and Au (up to 740 ppb) analyses were obtained.

### 2.4.2 Thirkell Hill

The early exploration work done prior to Macmin's acquisition of the exploration rights located a number of prospects including the Condor River, Condor River East and Condor River West prospects, the Hales River West and Hales River East prospects, as well as less well defined but numerous anomalies at D'Aguilar North and South, Thirkell Hill North and South, Hales River NW (Figure 7) and geophysical anomalies labelled Viking 14, 15, 3, and Mount Lee (see Figure 5 for Viking prospect locations).

A focus on gold exploration by Macmin / AAR delineated two prospects, the South Porphyry Contact and D'Aguilar South.

A total of 8 diamond core drill holes (663.1 m) were undertaken at the South Porphyry Contact and Condor prospects

**D'Aguilar South**

D'Aguilar South prospect (Figure 7) occurs as a north, north – east zone of intense foliation containing discontinuous zones of massive silica underlain by intensely quartz – sericite – hematite altered volcanics. Some workers have noted similarities to the "Blow" at Mt Lyell. Intense chlorite $\pm$ pyrite alteration overprints the sericite altered volcanics in two places. Intensely quartz – sericite – minor hematite $\pm$ carbonate altered and strongly quartz veined felsic lava overlies the massive silica.

A – horizon peat geochemical sampling was undertaken over the catchment area of creeks with anomalous gold in pan concentrate samples and the geological contact between porphyry and volcanics and a zone of intense silica – sericite alteration. The samples were analysed using the 'Huminex' method (described under the Southern Porphyry Contact prospect). The results defined a contourable zone of anomalous gold draining the ridge of massive silica that is the possible source of visible gold in pan concentrate geochemical samples. It is also near an area of intense chloritic alteration overprinting earlier quartz – sericite alteration. Pyrite is also visible in some of the chloritic rocks.

Rock chip geochemical sampling was undertaken in the vicinity of a massive silica body with peak values of 125 ppb Au. A – horizon Huminex sampling analytical results showed no coherent gold anomalies. The method is questionable.

**Southern Porphyry Contact**

A – horizon peat geochemical sampling was undertaken on the contact between the quartz – feldspar – biotite porphyry and the volcanics. The samples were analysed using a 'Huminex' method developed at MRT. This technique involves measuring the amount of gold in organic humic acid compounds and is designed to overcome possible lack of dispersion in C – horizon soils and can be undertaken without the use of power augers.

This work delineated a number of anomalies and the southern anomaly was drilled with six diamond core holes (292.5 m). The holes were drilled as a heel to toe fence, each hole overlapping the other. These holes intersected a sequence of rocks from felsic tuffaceous siltstones and tuffs into the quartz – feldspar – biotite porphyry. There is a pyritic veinlet zone in part of the porphyry. Selected samples were analysed for gold but the results were uniformly low with a maximum value of 82 ppb Au over 20 cm from a pyrite – chalcopyrite – quartz vein.

**Hales River East**

This prospect occurs near the eastern margin of cream to pink felsic lavas and is adjacent to or perhaps partly within the quartz – feldspar – biotite phyric lava and / or intrusive and quartz – feldspar – biotite porphyry. The prospect is a north trending linear anomalous zone located immediately to the east of the Hales River west prospect (Figure 7). It has been delineated by:

- anomalous Cu, Pb and Zn stream silt geochemical sample analyses;
- soil geochemical sample analyses up to 45 ppm Pb and 150 ppm Zn;
- C – horizon soil geochemical sample analyses of up to 50 ppm Cu. These samples are not anomalous for Pb and Zn; and
- Pyritic volcanics with rock chip geochemical sample analyses up to 167 ppb Au.

**Condor River West**

The Condor River West prospect is situated near the western margin of the MRV (Figure 7) on a zone of sericite alteration and veining approximately 300 m wide extending north for about 3,500 m. It has been delineated by:

- a pan concentrate gold geochemical anomaly occurs downstream in the Condor River;
- three airborne EM geophysical anomalies. One of these is situated within a broad zone of quartz – feldspar porphyry of rhyolitic composition with evidence of sericite alteration and veining. Immediately to the west is a major unit of Waterloo Creek Group;
- ground IP geophysical low resistivity anomalies over 3,000 m of strike;
- anomalous soil geochemical samples of 50 ppm Pb and 100 ppm Zn; and
- anomalous C – horizon soil geochemical samples of up to 600 ppm Pb and 400 ppm Zn. On Geopeko's Viking 10 grid C – horizon soil geochemical sample analyses of up to 1,190 ppm Pb and 870 ppm Zn were reported.

**Condor River**

The Condor River prospect covers approximately 3 kilometres by 1 kilometre (Figure 7). It is wholly within the western part of the MRV. Geopeko's geological mapping showed a sequence of north – south striking, steeply dipping rhyolitic quartz – feldspar – biotite porphyries, porphyritic lavas and quartz – feldspar lithic tuff. Sericitic, chloritic and silicic alteration was noted at various places over the grid but a coherent alteration zone was not recognised. The prospect is delineated by:

- anomalous stream sediment geochemical sample analyses with peak values of 40 ppm Cu, 100ppm Pb and 90 ppm Zn;
- anomalous soil geochemical sample analyses of 182 ppm Pb and 100 ppm Zn;
- a possible AEM geophysical anomaly and a non – coincident IP geophysical anomaly;
- a pan concentrate gold anomaly occurs downstream in the Condor River; and
- anomalous C – horizon soil geochemical sampling results outlining several northerly trending zones with maximum values of 870 ppm Zn and 560 ppm Pb.

Two diamond core drill holes (370.6 m) were drilled on a C – horizon soil geochemical anomaly. Both holes intersected MRV as massive crystal, lithic and pumice – rich volcaniclastic sandstone. The pervasive greenschist type alteration has been overprinted by fracture and cleavage controlled silica – feldspar – chlorite – carbonate alteration with attendant base metal suphide mineralisation. Both holes intersected a weakly mineralised (galena, pyrite) fracture zone striking roughly north – south and infilled with quartz – feldspar – chlorite and carbonate. Sampling of these zones analysed values up to 1,543 ppm Zn and 1,546 ppm Pb not from the same sample. The weakly anomalous base metal values are thought to adequately explain the soil anomaly at Condor.

**Condor River East**

This is small prospect to the east of Condor River. It occurs near the boundary between the quartz – feldspar – biotite porphyry and the main MRV comprising cream to pink felsic lavas and intercalated epiclastic rocks and was delineated by:

- soil sampling geochemical anomalies up to 260 ppm Pb and 200 ppm Zn. C – horizon soil geochemical sampling failed to replicate these value; and

- an airborne EM geophysical anomaly and a semi – coincident Dighem EM geophysical anomaly.

**Hales River West**

The Hales River West prospect is located in the southern part of the MRV within a broad area of stream silt geochemical anomalies including the Hales River east area (Figure 7). These geochemical anomalies occur in massive fine grained quartz – feldspar porphyritic lavas of rhyolitic composition, containing locally extensive sericitisation, minor sulphides and magnetite as well as crystal lithic tuffs. It has been delineated by:

- stream silt drainage geochemical samples with maximum values of 20 ppm Cu, 240 ppm Pb and 90 ppm Zn;
- soil geochemical sample analyses of up to 400 ppm Zn, 20 ppm Cu and 90 ppm Pb;
- C- horizon soil geochemical sample analyses of up to 860 ppm Pb and 880 ppm Zn. These values are coincident with earlier soil analytical results of 25 ppm Pb and 90 ppm Zn; and
- Two airborne EM geophysical anomalies.

**Other Prospects**

The work to date has also outlined at least 14 other geochemical and geophysical anomalies similar to the ones described which are not as advanced in exploration and / or have lower order geochemical sample analyses.

At Sprent River West, D'Aguilar North and Thirkell Hill North and South prospects, combined soil geochemical and airborne EM geophysical anomalies have been surveyed. Soil geochemical anomalies exist at Hales River NW and Sprent River East and South. Various airborne EM geophysical anomalies, some VLF – EM anomalies and some ground IP anomalies have been surveyed at Viking 14, 15, 19, 3, 4, Line 184N, Mount Lee and D'Aguilar East prospects. Limited reconnaissance style follow up sampling and mapping has been undertaken at some of the prospects.

### 2.4.3 High Rocky Point

TasGold lodged ELA 24/2001 in August 2001, mainly focused on MRT's former Exploration Tender Area (ETA) 433 and 460. The area lies south of Macquarie Harbour on the Sorell Peninsula and partially surrounds the granted licenses in the SMRV project area, abutting the western and eastern margins of EL 21/99 in two sections (Figure 4). Previous exploration has been limited by only being able to access the area by sea or by helicopter. As a result this area remains one of the largest unmapped areas of Cambrian sedimentary and volcanic rocks, including possible correlates of the MRV in Tasmania.

The ETA includes a significant proportion of the calc-alkaline Noddy Creek Volcanics. These may be correlates of the andesitic and rhyolitic VHMS hosting rocks of the MRV. The tholeiitic Mainwaring River Volcanics in the southeast part of the area may correlate with Neo-Proterozoic basalts that underlie parts of the MRV further north.

Previous reconnaissance exploration was undertaken by a number of companies, most recently by Plutonic Operations Ltd. Work completed has involved a partial coverage by aeromagnetic and airborne EM geophysical surveys, as well as stream sediment and other geochemical sampling. MRT has produced a 1:50,000 scale geological map covering the southern half of the ELA.

The area has potential for styles of mineralisation similar to those of the granted tenements of the SMRV.

This application if granted will consolidate TasGold's large tenement holdings in the Southern Mt Read Volcanics. The application is currently under consideration by MRT.

## 2.5 PROSPECTIVITY

### 2.5.1 Sassy Creek Gold Zone

The Sassy Creek (V24) and V30 area has potential to host significant gold mineralisation. The zone has consistently anomalous gold in pan concentrate stream geochemical samples. Only part of the zone has been tested with soil geochemical surveys for gold. These large zones of anomalous soils have not been effectively tested by four drillholes, which were probably oriented at a low angle to the dip of the veins. Nonetheless the few intersections are encouraging, given the high grade of at least one of them and visible gold in three of the drillholes.

A previous interpretation (ex Geopeko) is that gold values and intensity of quartz veining increases towards the south and an interpreted east – west fault zone. This southern area has not been adequately soil sampled because of a greater depth of soil and peat cover. It may be the most prospective part of the V24 prospect but it remains untested because the original drill holes were largely targeted on B-horizon soil geochemical anomalies.

On a broader scale, the Sassy Creek gold zone, including V24 and V30, lies astride a set of north west trending faults, which may have controlled mineralisation. Geopeko interpreted the V24 mineralised zone to be sub vertical and broadly stratabound in north east trending felsic volcaniclastics but the drilling was insufficient to fully constrain either its extent or orientation.

This setting is not convincingly analogous to Henty insofar as:

- the volcaniclastic succession at V24 does not obviously resemble the CVC-Tyndall boundary sequence at Henty (although the Henty sequence was not well documented at the time Sassy Creek was mapped and similarities may not have been recognised)
- the north west faults appear to have small displacements, unlike the major stratigraphic offsets across the Henty Fault.

However, it is quite likely that the north west faults, which run into the Stoney Creek microgranite and may have formed during its emplacement, influence the orientation of auriferous veins at V24. If so, the existing drill holes, drilled to the south east, may be sub-parallel to the veins and thus provide an inadequate test of the extent and grade of the mineralised zone.

Lack of knowledge about the geologic style of this mineralised zone, and the clearly inadequate drill testing, combine to make it a tantalizing target. Equally because of these factors it is of indefinite potential. There is no doubt, however, that it would have been the subject of considerably more exploration drilling if it were in a more accessible location.

### 2.5.2 Mt Osmund Massive Sulphide Zone

**Henty-style gold potential**

Previous exploration efforts in the MRV were biased toward discovery of large, high-grade, poly-metallic massive sulphide deposits, exemplified by Rosebery and Hellyer. However, the Henty – Mt Julia gold deposit, which is the most recent discovery brought into production, is significantly different. The existence of a small lens of massive pyrite (detected by IP survey) led to its initial discovery in 1974, but the ore zone is essentially quartz-rich and relatively sulphide-poor. These atypical features contributed to a protracted exploration history. The gold potential was unrecognised until 1984 and it required a further 5 years persistent exploration drilling to realize its full significance. The main part of the resource was intersected in the 96$^{th}$ hole.

The long uncertainty over the origins of the deposit has hindered exploration for similar deposits elsewhere. The geological parameters were not well understood when the last comprehensive exploration programs were being carried out in the SMRV, during the mid1980s. The recent development of genetic models and recognition of Henty as an economic deposit-style has positive implications for the prospectivity of the SMRV.

The fundamental geological parameters and genetic implications of the Henty – Mt Julia system are:

- The ore lenses are stratabound, in steeply dipping to overturned, east facing felsic volcaniclastics in the upper part of the Central Volcanic Complex (CVC), possibly extending into the lowermost units of the Tyndall Group. Volcanic facies associations indicate a shallow marine depositional environment for the host rocks;
- The ore lenses and enclosing sericite +/- pyrite alteration facies are closely spatially related to the steeply west dipping Henty Fault; they do not extend more than about 150-200 m down dip along the strata, away from their intersection with the fault;
- The quartz-rich ore lenses are strongly fractured, veined and faulted, and the enclosing sericitic alteration zones highly foliated. This indicates that the alteration zones were formed before the major Middle Devonian deformation;
- Pb-isotope data suggests the associated sulphides in veinlets in the ore zone, and in thin lenses near the stratigraphic top of the mineralised unit, are of Cambrian origin. That is, the sulphides were more or less syn-volcanic (but possibly re-mobilized during subsequent deformation/s); and

- Other isotopic data ($\delta^{34}S$ in sulphides and $\delta^{13}C$, $\delta^{18}O$ in carbonates) and metal associations (anomalous Bi) indicate a mixed seawater and magmatic water hydrothermal system. Recent research suggests it was a "hybrid" shallow marine VHMS–epithermal gold system.

The main controls appear to be the conjunction of a favourable litho-stratigraphic, or chrono-stratigraphic, host unit and a major, semi-regional, probably syn-volcanic fault. Intersections of major syn-depositional faults may be particularly favourable locations. The Henty deposit is located near the intersection of the Henty and Great Lyell fault zones. Some other deposits in the Mt Lyell field, which have recently been re-interpreted as high-sulphidation epithermal or hybrid VHMS deposits (e.g. Western Tharsis, Huston & Kamprad, 2001; North Lyell, Corbett, 2001) are spatially related to northwest offsets in the trend of the Great Lyell fault.

The TasGold interpretation of new regional aeromagnetic and radiometric data sets supports the conceptual Henty-style prospectivity of the area between Wart Hill and Elliott Bay. Linear anomalies in the magnetic and radiometric data match previously mapped north – north, north east and north west - north north west trending faults. Interpreted extensions and intersections of these structures may represent favourable zones for gold mineralisation.

Faults of these orientations are widespread across the SMRV area and in themselves do not provide unique targets. However, semi-meridional faults along Copper Creek and Waterloo Creek broadly enclose a large part of the area of anomalous gold, in stream sediments south of Wart Hill. Furthermore, some known gold prospects lie close to mapped north west trending fault zones (e.g. V12, V24, V30) or near intersections of meridional and north west trending faults (e.g. V33).

More detailed interpretation of these structural elements and their relationships to existing drainage and soil geochemical anomalies and/or alteration zones could reveal some more specific gold exploration targets.

**VHMS potential**

Taking into account the exploration to date, the Wart Hill prospect (V19) still has potential to host a VHMS deposit similar in size and style to one of those already discovered in the northern section of the MRV such as Hellyer or Rosebery. Exploration to date has downgraded the top 150m of the host sequence in the immediate vicinity of Wart Hill (V19). Such a discovery will therefore not be easy, it will require the commitment to deeper exploratory type diamond drill holes as well as other exploration techniques integrated with past work.

With the exception of two holes, drilling to date has not penetrated greater than 150m below surface. Geophysical surveys including downhole EM and deeper seeking techniques such as UTEM and SIROTEM have not located any good conductivity anomalies. Petrophysical work on the exposed sulphides at surface has indicated that these are not significantly conductive, therefore the lack of EM anomalies is not surprising. Some but not all of the VHMS deposits in the northern section of the MRV are conductive and EM exploration was instrumental in the discovery of the Que River and Hellyer deposits in the 1980s. Nonetheless an untested UTEM anomaly coincident with a 0.3 milligal gravity anomaly occurs less than 300m from the high-grade outcropping sulphides at V19. Two possible sources of conductive anomalies in this environment are massive sulphides and carbonaceous shale horizons.

The failure of blanket IP surveys to find a zone of high chargeability, representing a sulphidic footwall alteration zone that could be expected, is more surprising. However, surveys carries out in the early 1980s generally had effective depths limited to about 100m below the surface.

The outcrops and drill intersections of high grade massive sulphide discovered at Wart Hill can generally be interpreted in two ways: representing a semi-continuous mineralised host horizon or as clasts deposited by volcaniclastic mass flows.

The host horizon hypothesis is supported by several factors, including the statistically high percentage of sulphide drill intersections in a mixed volcaniclastic unit of polymictic breccias, sandstone and minor siltstone up to about 70 m thick. It has been argued that the frequency of sulphide intersections is far greater than that which could be expected if they were clasts transported by mass flows. Although previous explorers (e.g. Plutonic Operations Limited, 1996) have not been able to establish hole to hole continuity of a single mineralised unit, TasGold still strongly supports the concept, as did Cyprus geologists. The TasGold estimate of an approximately 0.5 Mt inferred resource at Wart Hill is based on that interpretation. The uncertainties about continuity, thickness, shape and metal contents of the mineralised zone make that estimate conceptual in nature, an indication of mineralisation potential.

The mass flow concept also has geological support, most importantly, the existence of discrete clasts of sulphides of quite variable composition, in polymictic volcaniclastic breccias. This virtually proves that erosion of massive sulphides and re-sedimentation by subaqueous mass flows did occur. It can explain many of the features at Wart Hill (V19) and some of the other prospects, notably the apparent absence of intense, VHMS-footwall type hydrothermal alteration. Smaller clasts

of massive sulphides are known from seven sites in the northern MRV, although they have not so far been traced to source.

TasGold consider that the Furutobe, Kuroko-type, massive sulphide deposit in Japan is potentially a formational/depositional analogy to Wart Hill in the SMRV. There were 6 ore deposits mined at Furutobe and they included lower siliceous and upper stratiform zones, that were compositionally more copper rich than Wart Hill. The stratiform zone had a type C subdivision that was mined out and it consisted of "redeposited ore composed of fragments of ores and rocks". This ore type occurred proximal to in-situ mineralisation and within ~500m of the associated in-situ deposits. The Furutobe deposits are estimated by TasGold to have had an ore reserve of approximately 3.8 million tonnes of 1.59 % Cu, 2.38 % Zn 0.47 % Pb, 51 g/t Ag, and 1.3 g/t Au.

The geological data available are insufficient to resolve the geological interpretation of the Mt Osmund Massive Sulphide Zone at this time. Nevertheless, the observed high grade massive sulphides, with Rosebery-like base metal and silver contents and low radiogenic lead isotope ratios, confirm that a potential VHMS forming hydrothermal system existed at Wart Hill, or at most within a few kilometres of it. The evidence for clastic re-sedimentation suggests that the massive sulphide deposit may not have been preserved in situ. However, this is not entirely unfavourable because VHMS deposits frequently exist in clusters or at particular favourable horizons. Given the serious uncertainties about the local direction/s of volcaniclastic transport, the possibility that a major mineralised zone lies undiscovered at depth below Wart Hill or along strike, cannot be discounted.

VHMS deposits have been discovered elsewhere in Australia using modern mineral exploration techniques at depths greater than current exploration at Wart Hill (V19). For example, the orebody at Hellyer, which was discovered by electromagnetic survey beneath conductive carbonaceous shales, starts at 90m below surface at one end and plunges to deeper than 500m. The Scuddles deposit in Western Australia was discovered by an intersection of low grade mineralisation, 40m above the main lens and 100m below surface in the first hole. The bulk of the orebody extended to greater depths.

There is low potential for an economic-sized VHMS deposit to exist at less than 200 m below surface in the area already tested by about 17 drill holes on the north side of Wart Hill. However, TasGold's plan to drill 3 additional holes in a ~50m radius around one of the most significant mineralised intersections to date (WH10) will effectively test the concept of a continuous mineralised horizon. The prospectivity of the area will be considerably enhanced if this concept is confirmed, particularly in a down-dip direction.

TasGold also considers there is potential for a southward strike extension of the conceptual mineralised horizon, which may have been previously missed because of structural complexity. Their interpretation that the southward extension has been displaced westward is based only on recognition of a north – west trending linear in regional magnetic and radiometric images, not on new structural mapping or volcanic facies analysis. The existing geological maps (e.g. Geol. Survey of Tasmania, 1:25,000 scale) show a fault of this orientation but its displacement appears to have been relatively small (<100m) and probably in a SW side up direction, rather than major strike-slip. The previous systematic coverage by IP and EM geophysical surveys has significantly downgraded the near surface prospectivity of this area, immediately south – west of Wart Hill.

### 2.5.3 Hudson River and Low Rocky Point Granite Zones

There are a large number of streams with anomalous gold in various types of stream sediment geochemical samples that have seen little or ineffectual follow up. The source of the gold is unknown.

### 2.5.4 Lewis River Zone

This 7 kilometre long zone has a large number of streams containing anomalous gold and / or arsenic in various geochemical sample types. There has been only limited soil geochemical sampling for gold in the drainage basins where the gold appears to be sourced. There are also considerable gaps in the stream sediment geochemical sample coverage. Drilling results have been generally disappointing; only 3 prospects have been drilled (21 holes) and only one of these (V12) was focussed on a copper / gold target. The others were base metal targets.

The base metal potential of the area is highlighted by the low grade intersections in the V2/1 and V2/6 drill holes. However, the very high gold analyses in the surface gossans at V12 have not been replicated in the drilling. A careful re-evaluation of the data and determination of the style/s of mineralisation is warranted including the AEM target (EB4) located about 400m to the north east of hole V12/9 as well as the overall depth potential. There are untested geochemical and geophysical anomalies identified by past work on a number of prospects including Drake Creek – Cowrie Beach (V3),

V10 and Old Lewis River (V2). Although testing of the most obvious anomalies has produced disappointing results, the zone remains relatively under-explored.

### 2.5.5 Mainwaring River Zone

The Mainwaring River Group rocks conceptually have potential for Besshi – style VHMS deposits. These are thin but laterally extensive Cu – Zn (– Ag – Au $\pm$ Co) deposits hosted by mixed mafic volcanic and sedimentary successions. Many key features of this deposit style have been noted at a number of the prospects in the Mainwaring River Zone.

### 2.5.6 Exploration Techniques

Soil geochemical sampling has generally not been an effective exploration tool in the SMRV Project area. There is an incompatibility of results from different soil sampling surveys over different areas especially when using different sampling techniques. This is caused by lack of true soil development in the wet acidic conditions typical of the area and / or peat, quartz lag or Tertiary gravels. C – horizon 'soil' geochemical samples are really spot rock samples and as such do not reflect the geochemical dispersal in more 'normal' soil development. For this reason it is imperative to rely on C – horizon samples that truly reflect the C – horizon.

Various Companies have drilled a total of 48 diamond core holes (6,976.15m) in the SMRV. Most of these have been in the Elliott Bay area. Approximately 33% of the core has never been assayed at all and 69% has never been analysed for gold. Currently 5,608.7m (80%) of the core drilled is available for evaluation at the MRT core shed in Hobart. TasGold propose in their Year 1 exploration program to geologically evaluate 3,846.8m (50%) of all the drilling historically completed for gold and plan to assay approximately 1,135m. Less than half of the grided prospect areas have been systematically sampled for gold, even though abundant alluvial gold has been noted in many Zones.

The study undertaken on lead isotopes indicated that there were at least three ages of mineralisation in the Elliott Bay area. These included two middle Cambrian volcanic associated systems and one younger, possibly Devonian deformation related system. The economic potential of the earliest Middle Cambrian system is uncertain because it produced sulphides with less radiogenic Pb-isotopic ratios than the ore deposits in the northern part o f the MRV. However, the existence of high-grade massive sulphide lenses and clasts with this signature at Wart Hill, is positive evidence that this was a VHMS forming system in the Elliott Bay area. The later Cambrian event, identified in low-grade disseminated and vein-style mineralisation at Wart Hill, V9 and V3, has similar Pb-isotope ratios to the known deposits (e.g. Rosebery, Hellyer) and therefore offers a double chance for VHMS deposits. The prospects that appear to be structurally controlled (e.g. V31, V33) have more radiogenic Pb-isotopes and lower sulfur isotope ratios suggesting an association with a younger, possibly Devonian, magmatic-related hydrothermal system. Devonian age granitoid-related tin, tungsten and base metal deposits were economically significant in other host lithologies in other parts of Tasmania before the 1980s. Lead isotope studies thus offer a limited means of discriminating and assessing priorities for many of the base metal anomalies within the SMRV.

The logical geophysical techniques of the day have been applied. The airborne EM surveys (QUESTEM and Dighem) by today's standards are of relatively low resolution and quality. Although VHMS deposits in the northern MRV are generally non-magnetic, there are weakly to moderately magnetic deposits in other VHMS environments. An anomaly of this sort was delineated by Plutonic on the Wart Hill (V19) prospect, and is untested by the drilling to date.

The area was covered in early 2001 on 200m line spacings by a high quality aeromagnetic / radiometric survey flown under joint MRT and Geoscience Australia sponsorship. TasGold has acquired the data and made a preliminary interpretation, which highlighted the extent and continuity of several fault trends. These faults, in combination with geochemical data and alteration facies mapping, are important, for targeting previously under-explored potential for Henty-type volcanic hosted gold deposits.

The lack of success to date does not preclude the use of high powered, deep penetrating EM surveys. This method, together with downhole EM and MMR surveys are the most effective geophysical techniques available to search for deep massive sulphide mineralisation. The TEM data to date is limited to two small areas in the Wart Hill (V19) vicinity. Earlier EM surveys are considered not to be effective. Fixed loop TEM surveys are attributed to discovering Hellyer in the northern MRV and also worked at Que River.

The quantity of past exploration data is considerable and the ability to evaluate the past work and priority rate some of the areas for future exploration will be considerably enhanced when the complete database has been computerised and multiple layers of different data can be thoughtfully examined.

## 2.6 EXPLORATION PROGRAM

TasGold have prepared an exploration program. The primary targets are high-grade Henty-type volcanic hosted gold and high-grade polymetallic VHMS deposits. This program will predominantly involve evaluation and drilling of 4 well-defined target zones (Sassy Creek, Wart Hill, Copper Creek and Pleiades) and a number of less well defined prospects (North Wart, Taurus and Aldebaran). The fieldwork program at Copper Creek may be restricted depending upon accessibility. A total budget of $800,000 has been proposed to undertake this program.

The most cost effective mobilisation previously at Elliott Bay appears to have been undertaken by Cyprus, when they utilised a skid mounted rig and an excavator to drag it. Some consumables were resupplied via fixed wing aircraft to Moores Valley Airstrip and transported to camp by 4 wheel drive (WD) and 6 WD motorcycles. TasGold anticipates that it will utilise a similar approach. In addition, the excavator will be used onsite to pit various prospect areas to evaluate the potential for gold mineralisation, in advance of siting the drill rig.

The program is designed to minimise new track cutting and development of drill pad sites in order to allow for easier remediation following the program.

TasGold plan that work will commence as soon as possible after listing on the ASX. Fieldwork will be planned for the coming summer field season. The program will be undertaken by a team of four people with a further four (or five) drill personnel. All personnel will be accommodated at the existing Wart Hill camp.

Excavator pitting will be utilised initially at Sassy Creek (V24) to attempt to define the attitude of the gold mineralisation and then drilling will test it proximal and along strike to the known mineralisation intersected by V24/3. Scout holes will also target gold C-horizon soil geochemistry in the host volcanics located to the south west of V24/3. Mapping and sampling of the southern most north west trending structure, particularly between Sassy Creek (V24) and Pleiades (V30), is recommended. The results of this work may influence the course of on-going drilling.

Drilling to follow up drillholes V33/1 and V33/2 is recommended along the trend of the Copper Creek fault. This should be accompanied by intensive lithogeochemical sampling both north and south along the Copper Creek fault and the northern north west trending structure between Wart Hill (V19) and Copper Creek (V33).

All existing data on the Wart Hill – East Camp zones will be appropriately integrated with the new aeromagnetic / radiometric data to more closely assess the implications of the north west trending structures. Such as reinterpretation could enhance both the base metal resource potential in this area and the previously unrecognised gold potential opportunities, especially to the north west towards Copper Creek (V33).

The proposed holes at Wart Hill (V19) to test the VHMS mineralisation will intersect the favourable horizon approximately 40 metres below and above WH10 and about 50m along strike. An additional hole may be drilled at the West Wart Prospect, testing coincident gravity, UTEM, AEM, IP geophysical anomalies and Pb-Zn C – horizon soil geochemical anomalies. Another hole proximal to hole V19/5, but west of it in the major structure noted from mapping and aeromagnetics plus a strong soil geochemical anomalous zone for Zn may be drilled. The last two noted holes would target possible structural dislocations of the resource zone already defined at Wart Hill.

Excavator pitting and drilling (2 x 150m holes) is planned for Pleiades (V30) to test favourable structural zones, gold in soil geochemistry, IP and magnetic anomalies, outcrop and pit gold anomalies.

All planned drillholes are summarised in Table 2.8.

In addition to the drilling program TasGold also plan the following:

- There are approximately 3,846.8m of core stored in the MRT core shed (out of about 5,608m available) from the SMRV area that have never been analysed for gold. This includes all the V9 holes and much of the V19 series holes. TasGold propose to initially sample and analyse the holes listed in Table 2.9, using 4m composite samples, for their gold content;
- Three component DHEM will be run on all new holes drilled and potentially whichever holes have PVC inserted, particularly, WH 8, 9, 10 and 11, SDH 1 and 2; and
- Digital data compilation will be continued.

The TasGold Year 2 program will largely depend on results of the first season's drilling and geophysical surveys. It may comprise programs of:

- continued drilling of existing anomalies and those that will be defined by the airborne geophysical surveys;
- gold evaluation work (C – horizon soil and rock chip geochemical sampling) in the 20 km long Hudson River Zone;
- detailed aeromagnetic infill surveying; and
- a current generation 25Mhz AEM survey.

*Table 2.8* **Proposed Year 1 drilling program**

| Prospect | Hole No | Depth (m) | Inclination (degrees) | Target From (m) |
|---|---|---|---|---|
| Sassy Creek (V24) | | | | |
| | SCD 1 | 120.0 | 65 | 90 |
| | SCD 2 | 180.0 | 65 | 150 |
| | SCD 3 | 150.0 | *TBD* | 120 |
| | SCD 4 | 150.0 | 45 | *TBD* |
| | SCD 5 | 150.0 | 45 | *TBD* |
| Wart Hill (V19) | | | | |
| | WHD 1 | 150.0 | 60 | 90 |
| | WHD 2 | 150.0 | 45 | 100 |
| | WHD 3 | 200 | 75 | 145 |
| | WHD 4 | 150 | 45 | 80 |
| | WHD 5 | 150.0 | 45 | 80 |
| Copper Creek (V33W) | | | | |
| | CCD 1 | 300.0 | 60 | *TBD* |
| Pleiades (V30) | | | | |
| | V30D 1 | 150.0 | 45 | 50 |
| | V30D 2 | 150.0 | 45 | 50 |
| North Wart (V33E) | | | | |
| | NW 1 | 300.0 | 60 | >100? |
| Taurus (V22) | | | | |
| | V22D 1 | 300.0 | 60 | *TBD* |
| Aldebaran (V34) | | | | |
| | V34D 1 | 300.0 | 55 | *TBD* |
| **Total** | **16** | **3,050** | | |

*TBD – To Be Determined*

*Table 2.9* **Proposed re-assay of MRT core samples**

| Prospect | Hole No | Length (m) | Total Assay (m) |
|---|---|---|---|
| V9 | V9/1 | 61.0 | |
| | V9/2 | 232.0 | |
| | V9/3 | 201.0 | 494.0 |
| V2 | V2/6 | 198.0 | 198.0 |
| V19 | V19/3 | 294.0 | |
| | V19/5 | 149.0 | 443.0 |
| **Total** | **6** | | **1,135** |

A preliminary budget allocation of >$500,000 has been allowed for the Year 2 work.

# LISLE PROJECT

## 3.1 INTRODUCTION

Exploration License 2/92 was granted to R. D. and R. J. McNeil on 24th July 1992 and subsequently transferred to TasGold, a wholly owned subsidiary of Macmin. It currently covers an area of 12 square kilometres in north – east Tasmania, approximately 25 kilometres north – east of Launceston (Figure 16). An additional license (ELA 41/2002 – Lone Star) has been applied for to acquire all known prospects immediately proximal to EL 2/92 and consolidate TasGold's ground position in the Lisle region.

## 3.2 GEOLOGY

### 3.2.1 General Description

The EL lies to the west of the bulk of the Devonian Scottsdale Batholith, which intruded the Mathinna Beds. The geology of the area is shown in Figure 16.

The Mathinna Beds are a thick succession of regionally metamorphosed and multiply folded turbiditic sediments of presumed Ordovician – Devonian age. They crop out over much of the EL. They generally consist of steeply – dipping, north – west trending beds of quartzite with minor fine grained interbeds. Tertiary basalts outcrop to the north – east and south – west of the EL and occupy paleo – topographic lows.

Many of the known sites of gold mineralisation show a close spatial association with small cupolas of granodiorite. These have intruded the Mathinna Beds up to 10 kilometres west of the main boundary of the Scottsdale Batholith. Granodiorite was exposed by mining activities in the Lisle, Golconda, Panama and Lone Star goldfields. Drilling by Macmin has also intersected granodiorite at Enterprise and Golden Crest. Trenching and drilling at Potoroo has also discovered granite below surficial deposits.

The granodiorite is highly weathered at the surface and surficial sediments often obscure the exposures. The outcropping areas of granodiorite are interpreted to be the apical regions of a larger sub-surface body. Topographic depressions occur in all areas where known granodiorite is exposed. The sediments in the contact aureole of the intrusive granodiorite are strongly hornfelsed and resistant to weathering. This contrasts with the granodiorite that has resulted in typical crater – like valley features.

The largest of these features is associated with the intrusion at Lisle. The valley has dimensions of approximately 4 by 5 kilometres and a depth of up to 350m below the ridge tops. The slopes on the flanks of the depression are relatively steep and 10 – 20 m thicknesses of talus have been shed from the enclosing ridges into the basin, the floor of which is flat or gently undulating. The single hydrological outlet from the Lisle valley is to the north through a narrow deeply incised gully.

Intrusions with smaller surface areas, such as at Panama or Golconda to the north of Lisle, display the same basic form as the intrusion at Lisle.

### 3.2.2 Mineralisation

The Panama and Golconda historical gold mining areas (goldfields) lie within the EL2/92 boundary and the Cradle

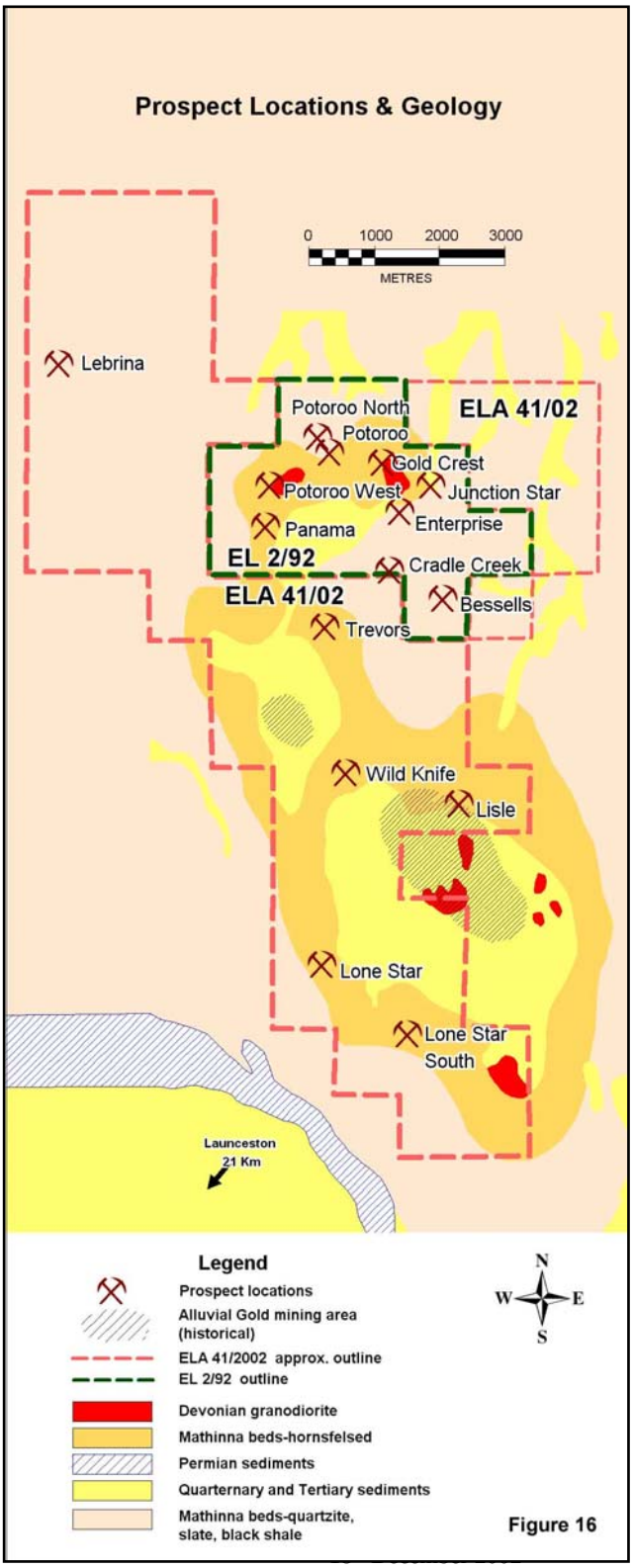


Figure 16

Creek, Lone Star, Lebrina and part of the Lisle goldfields occur within ELA 41/2002.

The majority of the estimated 250,000 oz of gold produced at Lisle was won from sluicing, dredging and panning of numerous streams. Historical evidence suggests that the gold had not travelled far. Gold deposits in alluvium and eluvium along Main (Lisle), Bessels and Thomas Creeks were worked at Lisle. The Lone Star and Cradle Creek goldfields were also in part alluvial.

At Lisle, numerous, patchy gold rich horizons occur in lacustrine sediments and carbonaceous horizons that underlie talus. These produced relatively pure, free crystalline gold. This type of gold is suggestive of a secondary origin.

There is no obvious association with quartz veins at Lisle itself. A number of adits were reportedly driven into the surrounding hills but without success.

At the other goldfields particularly Panama, Denison (not in TasGold's licenses) and Golconda, mineralisation is mainly associated with quartz veining and has a typical gold – arsenic – bismuth geochemical signature. Known quartz veins are typically narrow and impersistent although some old reports indicate the presence of a reticulating series of quartz veinlets. Six individual veins were worked at the Enterprise Mine over a strike length of >350m. Soil geochemistry undertaken by TasGold has shown that this zone of mineralisation extends to Gold Crest and is >1,000m long.

Another mineralisation style alluded to in some old reports at several localities (Cradle Creek, Tobacco Creek) but not confirmed to date is the presence of 'gold impregnated sandstones'. These appear to be localised in the contact aureoles of the granodiorites. At Bessels Reward, gold was reportedly found in the bedding planes of sandstone and slate. This style is reportedly similar to gold mineralisation found by Anglo Australian Resources at the Denison goldfield, located a few kilometres to the north of Panama.

### 3.2.3 Exploration Model(s)

The exploration model that is considered most applicable to EL 2/92 is a function of regional scale brittle deformation with gold mineralisation in vein hosted fractures or shear systems. The Tasmania Reef at Beaconsfield is an example based on the broad geological similarities between the Lisle and Beaconsfield areas. Geologically the model consists of a quartz – carbonate – sulphide filled fracture that is transgressive to the host sediment and is fault controlled. The Tasmania Reef is of limited dimensions with a width varying from 1 to 5m and length of 350 to 400m but a depth extent of at least 850m. It forms a small surface target.

Another style of mineralisation is thought to be similar to the Liese zone on the Pogo claims in Alaska. Pogo is reported to host more than 9.0 million (M) tonnes (t) at 17.8 g/t Au for more than 5.0 million (M) ounces (oz) contained gold. Mineralisation occurs in three or more tabular, gently dipping quartz bodies associated with early biotite and later quartz – sericite stockwork and sericite – dolomite alteration. The quartz bodies occur 1.5 km south of a Cretaceous batholith hosted primarily in gneiss.

In addition, several other styles of mineralisation including sheeted veins, quartz stockworks and bulk mineable disseminated gold deposits can be broadly grouped into intrusion – related gold deposits (associated with tungsten – tin deposits). This is an under recognised and economically important class of gold deposits. An example of this style of mineralisation also occurs in Alaska. Fort Knox occurs as a structurally controlled stockwork and shear quartz veins in a granodiorite pluton. It is reported to host 158.3 Mt at 0.83 g/t Au for more than 4.0 million oz contained gold. Other deposits are known in the Czech Republic, Spain, Kazakhstan, Bolivia and Australia. The Kidston (Queensland) and Timbarra (New South Wales) deposits are other Australian examples.

Reports of gold mineralisation discovered at the nearby Denison goldfield by Anglo Australian Resources in sandstone (Mathinna Beds) may also be a model worth considering for the Lisle Project.

TasGold does not own any of these deposits. A conceptual mineralisation model is shown on Figure 3.

## 3.3 PREVIOUS EXPLORATION

### 3.3.1 Exploration and Mining History

Charles Bessel reportedly discovered gold in alluvial deposits in the district at Tobacco Creek in early 1877. It took eighteen months for the main Lisle goldfield 4 kilometres to the south over Lone Star ridge to be located. This discovery immediately precipitated a gold rush.

The main production period was up to 1900. From this time various attempts were made to bulk mine the alluvial by various syndicates and companies with varying degrees of success.

A total historical production of 250,000 oz was estimated to be produced predominantly from alluvial operations.

Comalco undertook a brief review of the area including geological mapping and bedrock sampling in the 1970s.

CRA Exploration (CRAE) carried out stream silt sampling of the EL area as part of later exploration of another license, EL 53/80. This survey showed anomalous arsenic geochemical values in the southern part of the Lisle area.

B. P. Minerals (BP) and Seltrust carried out a program of geological mapping, rock chip and stream silt sampling, aeromagnetic geophysical surveying and open hole percussion drilling between 1983 and 1986. The aeromagnetic survey results delineated the magnetic expression of the Lisle granitoid and also defined a zone of low magnetic intensity concentrically disposed around the granitoids. Small discrete magnetic highs were scattered throughout this zone.

BP and Seltrust undertook open whole percussion drilling on magnetic and geological targets in 1984. 29 holes were drilled (1.037 m) averaging 30 – 40 m in depth at seven localities. The holes often collapsed, terminating in clays derived from granitoid although some holes intersected both Mathinna beds and granitoids. Low order geochemical gold analyses were recorded in some places.

Argyle Minerals carried out an aerial photograph interpretation between 1986 and 1988. This was followed up by limited rock chip sampling as well a bulk sampling of the alluvial at the Denison River goldfield outside the EL area. Their results indicated limited potential in this area.

Billiton completed a number of programmes between 1990 and 1991. These included:

- A regional BLEG stream sediment geochemical survey sampled 26 sites;
- A comprehensive BLEG stream sediment geochemical survey samples 214 sites. Eleven anomalous sites were re – sampled by duplicate sampling upstream of the original site; and
- A composite BLEG soil geochemical sampling program (264 samples) was undertaken over the ridges surrounding the Lisle valley. Three anomalous areas were re – sampled (28 samples) in more detail.

This work outlined two main exploration target areas the principal one to the north of the Lisle basin with a subsidiary area to the south and west.

### 3.3.2 Recent Exploration

Macmin has completed a number of programs between 1993 and 2001. These included:

- Reconnaissance soil geochemical sampling in 1994 across targets delineated from a review of existing data. This resulted in over 50 anomalous areas delineated by more than 2,500 geochemical samples;
- Grid based B – horizon soil geochemical sampling in 1995 across five grids, follow up power auger sampling, rock chip geochemical sampling from selected adits and shafts;
- Reconnaissance drilling of 4 diamond core holes (195.3m) at the old Enterprise and Gold Crest mines in late 1995;
- Reconnaissance drilling of 4 reverse circulation percussion (RC) holes (359m) at the Enterprise Prospect in 1996; and
- Further soil and auger geochemical sampling, whacker drill and excavator trench sampling in 1997 and 1998 in the Panama Valley, Enterprise Ridge and Tobacco Creek areas as well as excavator trench sampling of other geochemical anomalies.

TasGold completed a drilling program at the Enterprise and Potoroo prospects in June 2002. This included:

- Fifteen relatively short RC percussion holes (571.5m) drilled at Potoroo Prospect; and
- 5 RC percussion drillholes (247m) and 1 NQ diamond tail from hole E5 from 57m downhole (122.5m) drilled at Enterprise.

## 3.4 PROSPECT DESCRIPTIONS

### 3.4.1 Potoroo

The Potoroo prospect is located at the entrance to the Panama valley and is underlain by weathered granite and Mathinna beds overlain by weathered scree.

Costeaning was undertaken as follow up to a 'minor' C – horizon auger soil anomaly with values up to 380 ppb Au and 450 ppm As coincident (Figure 17) with a local aeromagnetic geophysical high.

The costeans intersected a zone of sulphidic quartz veins hosted by weathered / altered granite overlain by a shallow cover of scree or silicified Mathinna Beds.

The costean that intersected the majority of the veins recorded consistent disseminated mineralisation.

Other costeans indicated that Au grades diminish relative to proximity to the veins.

*Table 3.1* shows details of the results of the costeans.

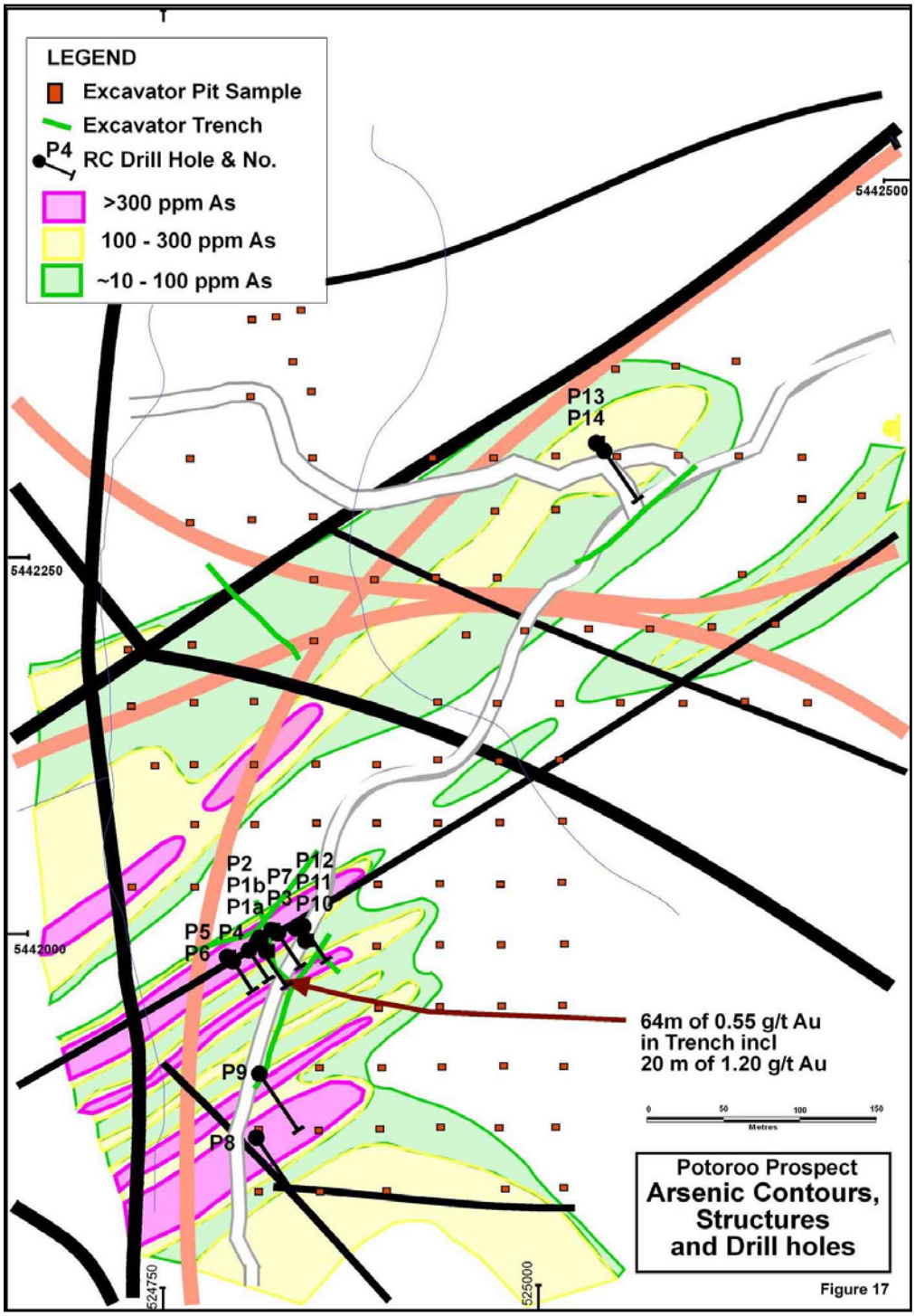



*Table 3.1* **Potoroo Prospect – Costeans**

| Costean No | Length (m) | Width (m) | Au g/t | As ppm |
|---|---|---|---|---|
| TP1 | 64.0 | 64.0 | 0.55 | 1,443 |
| TP2* | 50.0 | 46.0 | 0.25 | 8 |
| TP3 | 25.0 | 14.0 | 0.14 | 13 |
| TP4 | 74.0 | 8.0 | 0.15 | 1,134 |
| TP5 | 98.0 | 42.0 | 0.43 | 3,485 |
| TP6 | 73.0 | 73.0 | 0.02 | 74 |
| TP7 | 32.0 | 32.0 | 0.05 | 269 |
| TP8 | 100.0 | 100.0 | 0.04 | 40 |

* *This trench is just entering the projected zone of quartz veining and has an As spike at the north east end that was not included in the average calculated above.*

The gold anomalous zone appears to be coincident primarily with north east trending, moderate north west dipping veins and subordinately with north trending veins. Topographic constraints suggest that the granite can only be easily exposed in the known limited area. A trenching and pot-holing program did not intersect granite anywhere else at Potoroo.

Assays from the pitting program indicate that the anomaly at Potoroo has not been closed off to the south and west and the extension to the defined mineralised north east trending quartz vein zones is weakly reflected in the pitting program results from the overlying Mathinna Beds

In 2002 TasGold completed a drilling program comprising 15 RC percussion drillholes at Potoroo. The drilling results are summarised in Table 3.2 and the drillholes are located on Figure 17.

This drilling at Potoroo has delineated a gold mineralised, shallow dipping structural zone containing high-grade gold in quartz-arsenopyrite veins / veinlets. Assay results up to approximately 6 g/t Au have been obtained over 1m intervals contained within low-grade gold mineralised envelope in the structural zone.

Re-sampling by sieving to obtain chips of quartz of some of the higher grade gold sections of the Potoroo holes has been carried out to attempt to determine the gold grades of individual veins rather than mineralised intercepts. The results of this work are shown in the *Table 3.2* (spot) with assay results ranging from 8.4 g/t up to 86 g/t gold, indicating the potential for high grade individual veins.

*Table 3.2* **TasGold Drilling at Potoroo in 2002**

| Hole No | Depth (m) | From (m) | To (m) | Width (m)* | Au g/t | Ag g/t | As % | Bi % |
|---|---|---|---|---|---|---|---|---|
| P1a | 25.0 | 11.0 | 12.0 | 1.0 | 0.8 | 2.0 | 0.04 | 0.005 |
| P1b | 48.0 | 11.0 | 12.0 | 1.0 | 4.8 | 3.0 | 0.40 | 0.003 |
| | | 18.0 | 19.0 | 1.0 | 0.7 | 2.0 | 0.03 | 0.003 |
| | | 32.0 | 34.0 | 2.0 | 0.7 | 2.0 | 0.05 | 0.005 |
| P2 | 30.0 | | | | | | | |
| P3 | 35.5 | 4.0 | 6.0 | 2.0 | 0.5 | 1.0 | 0.18 | 0.005 |
| | | 14.0 | 16.0 | 2.0 | 0.5 | 1.0 | 0.06 | 0.006 |
| | | 30.0 | 31.0 | 1.0 | 2.5 | 3.0 | 0.40 | 0.009 |
| | | 31.0 | 32.0 | 1.0 | 0.7 | 5.0 | 0.83 | 0.004 |
| P4 | 30.0 | 12.0 | 13.0 | 1.0 | 4.6 | 9.0 | 0.48 | 0.008 |
| | | 13.0 | 14.0 | 1.0 | 3.9 | 4.0 | 0.15 | 0.007 |
| | | 12.0 | 13.0 | spot | 8.4 | *n.d.* | *n.d.* | *n.d.* |
| P5 | 30.0 | 5.0 | 6.0 | 1.0 | 6.1 | 29.0 | 1.20 | 0.006 |
| | | 6.0 | 7.0 | 1.0 | 3.0 | 3.0 | 0.18 | 0.004 |
| | | 19.0 | 20.0 | 1.0 | 1.1 | 4.0 | 0.23 | 0.005 |
| | | 20.0 | 21.0 | 1.0 | 0.6 | 2.0 | 0.10 | 0.004 |
| | | 5.0 | 6.0 | spot | 13.3 | *n.d.* | *n.d.* | *n.d.* |
| P6 | 31.0 | 12.0 | 13.0 | 1.0 | 1.7 | 7.0 | 0.80 | 0.002 |
| P7 | 47.0 | 12.0 | 13.0 | 1.0 | 6.4 | 24.0 | 0.68 | 0.007 |
| | | 18.0 | 19.0 | 1.0 | 1.7 | 5.0 | 1.19 | 0.004 |
| | | 12.0 | 13.0 | spot | 86.0 | *n.d.* | *n.d.* | *n.d.* |
| P8 | 60.0 | | | | | | | |
| P9 | 65.0 | | | | | | | |
| P10 | 29.0 | 21.0 | 22.0 | 1.0 | 1.5 | 3.0 | 0.14 | 0.010 |
| | | 23.0 | 24.0 | 1.0 | 0.5 | 2.0 | 0.20 | 0.007 |
| P11 | 36.0 | 24.0 | 25.0 | 1.0 | 0.7 | 3.0 | 0.06 | 0.010 |
| | | 27.0 | 28.0 | 1.0 | 1.7 | 5.0 | 0.32 | 0.004 |
| P12 | 32.0 | 1.0 | 2.0 | 1.0 | 0.6 | <1.0 | 0.35 | 0.004 |
| P13 | 55.0 | | | | | | | |
| P14 | 18.0 | | | | | | | |

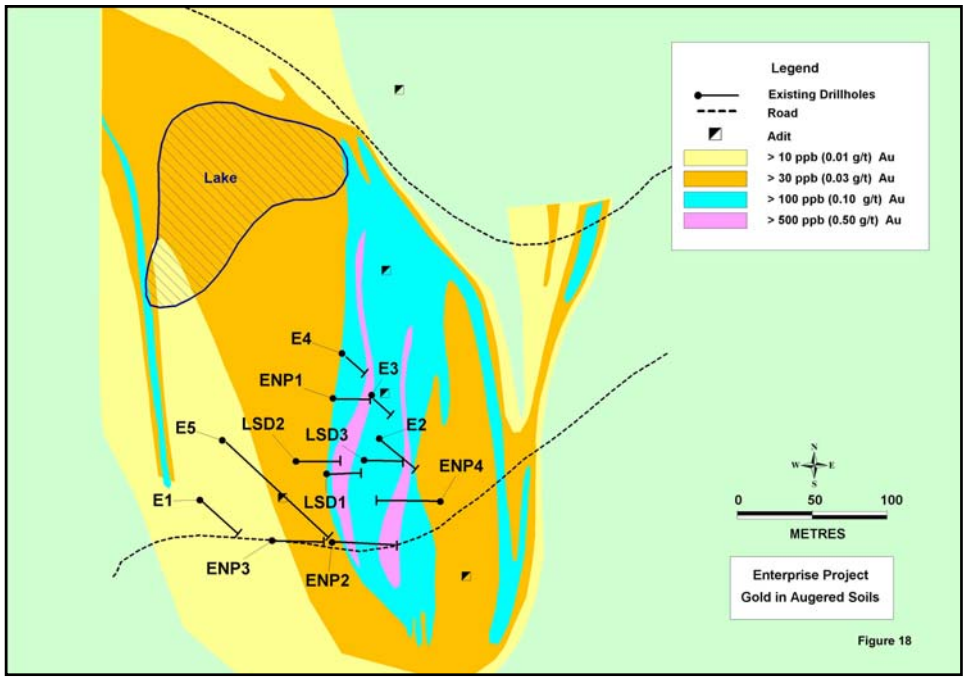
*n.d. no data * Intersections with gold values <0.5 g/t Au not tabulated*

### 3.4.2 Enterprise

A soil sampling grid covering the Enterprise and Gold Crest areas was sampled progressively using B and C – horizon soil sampling.

The B – horizon sampling delineated a semi – coincident gold and arsenic anomaly oriented north – south which connected to the Gold Crest anomaly has a combined strike length in excess of 1,000m and a width varying from 30m up to 250m.

Analysis of the soil samples shows peak values of 1.39 g/t Au and 2,670 ppm As. Typically gold analyses are generally < 0.2 g/t Au and As analyses are less than 150 ppm.




Power auger geochemical sampling along this anomaly delineated two parallel zones at Enterprise up to 200m long and 25m in width (Figure 18), with values in excess of 0.4 g/t Au. A rock chip geochemical sample from a shaft at the northern end of this zone of anomalism assayed 41.25 g/t Au and 1.58% As.

Historical production from the Enterprise workings is reported to be 3,573 tonnes to produce about 50 kg (1,600 oz) of gold, the largest producer in this area. Historical information sources indicate that there was up to 6 veins mined at Enterprise from 4 shafts 60 to 80 feet (18.3 to 24.4m) deep and 2 adits. None of these have been accessible to modern explorers.

Seven drillholes were completed at the Enterprise in 1995 and 1996. The results are summarised in *Table 3.3* and the locations relative to the C-horizon geochemical anomaly and old workings are shown in Figure 18.

*Table 3.3* **Enterprise Prospect - Drillholes**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Au g/t | Comments |
|---|---|---|---|---|---|---|
| LSD 1 | 43.5 | 2.8 | 8.3 | 5.50 | 0.87 | |
| | | 26.85 | 32.3 | 5.45 | Cavity | Old Stope |
| | | 37.8 | 39.85 | 2.05 | Cavity | Old Stope |
| LSD 2 | 61.0 | 0.6 | 2.5 | 1.90 | 5.60 | |
| | | 12.5 | 14.05 | 1.55 | 1.60 | |
| LSD 3 | 61.3 | 1.5 | 18.0 | 16.50 | 0.19 | |
| | | 18.0 | 28.95 | 10.95 | Cavity | Old Stope |
| | | 28.95 | 32.6 | 3.65 | 0.23 | |
| ENP 1 | 64.0 | 52.0 | 56.0 | 4.0 | 2.35 | |
| ENP 2 | 102.0 | 0.0 | 16.0 | 16.0 | 0.10 | |
| | | 30.0 | 33.0 | 3.0 | Cavity | Old Stope (?) |
| | | 81.0 | 82.0 | 1.0 | 2.99 | |
| ENP 3 | 93.0 | 43.0 | 45.0 | 2.0 | Cavity | Old Stope (?) |
| | | 60.0 | 76.0 | 16.0 | 0.13 | |
| ENP 4 | 100.0 | 76.0 | 100.0 | 24.0 | 0.23 | |

*Note: All holes drilled at –60°. LSD – Diamond Core holes. ENP – RC holes*

The drilling intersected zones of low grade gold mineralisation in quartz sulphide veinlets in granodiorite near its contact with hornfelsed Mathinna Group sediments. Features of the results are the narrow higher grade veins within a lower grade halo. This can be seen in most of the holes, eg in LSD 2 two narrow (<0.3m) high grade (>20.0 g/t Au) veinlets occur in the overall intersection between 0.6 and 2.5m down the hole; in LSD 3 a low grade halo occurs surrounding an old stope. Similarly, higher grade narrow vein zones have been assayed within the broader halo intersections of ENP 2, 3 and 4.

Petrography was undertaken on selected samples from this drilling and from a trench and an adit. This work shows that the host rocks are mostly granodiorite pervasively but variably altered. Sericitisation, chloritisation, sulphidation and carbonation occur. Veins are common and variable in texture and mineralogy. Gold occurs erratically as fine to very fine electrum grains with pyrite, chalcopyrite, marcasite, bismuthinite and maldonite (?). The electrum grains are all very silver rich, probably about 30 to 50% silver.

The origin of the alteration and associated mineralisation is interpreted to be caused by cooling of the granodiorites after intrusion. High temperature fluids veined, altered and partly replaced the granodiorite in a zone of local mechanical brecciation at the intrusive contact. The base metals were deposited at this time. As the fluids cooled tectonic activity and fluid overpressure caused repeated veining, brecciation and recrystallisation of veins and wallrocks. Gold was introduced at this stage along with remobilised soluble and ductile metals eg chalcopyrite. Various processes then re – mobilised some of the gold and coarsened some of the grain size.

*Table 3.4* summarises the results of the drilling by TasGold at the Enterprise Prospect during 2002. The locations of the drill holes are shown on Figure 18.

Drilling at Enterprise has confirmed the north trending, moderate west dipping reverse faulted quartz vein model. This orientation supports the larger scale model for the local region, that the gold and arsenic mineralisation previously noted by Macmin through B and C-horizon soil sampling had suggested. The mineralised soil trend from Enterprise up through the Mt Wilson valley to Gold Crest and then north east to the Virginia Ridge zone where LSD4 intersected low-grade disseminated mineralisation in granite is all part of the same structural corridor. Bismuth and arsenic are also strongly anomalous at Enterprise and this geochemical signature supports similarities to the major Alaskan deposits discussed in section 3.1.3.

*Table 3.4* **TasGold Drilling at Enterprise in 2002**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Au g/t | Ag g/t | As % | Bi % |
|---|---|---|---|---|---|---|---|---|
| E1# | 50.0 | | | | *n.d.* | *n.d.* | *n.d.* | *n.d.* |
| E2 | 60.0 | 0.0 | 4.0 | 4.0 | 0.5 | 3.0 | 0.03 | 0.003 |
| E3# | 30.0 | 0.0 | 4.0 | 4.0 | 0.5 | 3.0 | 0.03 | 0.003 |
| | | 23.0 | 24.0 | 1.0 | 1.1 | 3.0 | 0.86 | 0.003 |
| | | 24.0 | 25.0 | 1.0 | 1.2 | 2.0 | 0.43 | 0.003 |
| E4# | 19.0 | | | | Hole abandoned – no samples taken | | | |
| E4b | 31.0 | 0.0 | 2.0 | 2.0 | 0.7 | 2.0 | 0.03 | 0.003 |
| E5 | 179.5 | 29.0 | 31.0 | 2.0 | 2.9 | *n.d.* | *n.d.* | *n.d.* |
| | | 93.0 | 93.4 | 0.4 | 14.4 | *n.d.* | *n.d.* | *n.d.* |
| | | 144.5 | 145.6 | 1.1 | 1.5 | *n.d.* | *n.d.* | *n.d.* |
| | | 148.8 | 149.3 | 0.5 | 3.5 | *n.d.* | *n.d.* | *n.d.* |

*n.d. no data # Holes abandoned before target depth*

### 3.4.3 Gold Crest

The Gold Crest prospect is located along the summit ridges and slopes of Mt Wilson at the northern end of the Enterprise valley.

The B – horizon soil sampling geochemical anomaly shows two linear soil geochemical anomalies interpreted in the shape of a 'Y'.

Selected rock chip geochemical sampling was undertaken from two adits at Gold Crest and nearby 'Power Line' from both veins in the adits and 'mullock'. Analyses from 8 samples varied from 0.53 to 24.75 g/t Au and 270 ppm to 1.92% As (not the same samples) and averaged 6.89 g/t Au and 0.88% As.

On diamond drillhole was drilled in 1995 by Macmin, targeted on the B – horizon soil geochemical anomaly. The results are summarised in *Table 3.5*.

*Table 3.5* **Gold Crest Prospect – Drillhole LSD 4**

| Hole No | Depth (m) | From (m) | To (m) | Width (m) | Au g/t |
|---|---|---|---|---|---|
| LSD 4 | 29.5 | 1.0 | 4.4 | 3.4 | 0.38 |
| | | 4.4 | 6.4 | 2.0 | 2.92 |
| | | 6.4 | 8.0 | 1.6 | Cavity |
| | | 8.0 | 24.0 | 16.0 | 0.40 |

The mineralised zone in this hole shows similar characteristics to the zones intersected in the drilling at Enterprise. There was significant core loss in this hole and this could be reflected in the likelihood that the grades are understated.

Excavator trenching has also been undertaken near this drill hole at Gold Crest. Trench 9 intersected an open ended zone of 16.0m at 0.42 g/t Au.

### 3.4.4 Panama and Potoroo West – Panama Valley

These prospects are located at the south – western and northern ends of the Panama valley. The geological outcrop comprises weathered Mathinna Beds, scree type material derived from weathering of the surrounding ridges and alluvium. Granite has been intersected in costeans at Potoroo West as well as in an historical adit apparently driven along 0.5m to 2.0m quartz – sulphide (with gold) vein (Wilson – Symmonds Reef at Panama).

Costeaning was undertaken over B – horizon soil geochemical anomalism showing spotty weak Au analyses and extensive moderate As values. This was confirmed and better defined in the analyses of the costean samples. The anomaly is not coincident with the old workings.

Three costeans at Potoroo West exposed granite, with moderate As values in areas of silicified Mathinna Beds, but Au assays were inconsistent and low (commonly <0.02 g/t Au). This work interpreted the granite as a north – south trending steep sided dyke – like body with an undulating roof although other interpretations are possible. The Au and As anomalism appears to trend north – east to south - west and the granite appears to be unmineralised, most higher analyses were recorded in association with Mathinna Beds.

Gold was also panned from a buried layer of grey clay in the alluvium.

A number of adits and shafts in the south – west part of the valley at Panama indicate historical mining activity. Historical records indicate there may be up to 15 of these. Selected rock chip geochemical sampling was undertaken mainly from two adits at Panama and nearby shafts, veins and 'mullock'. Analyses from 20 samples varied from 0.61 to 71.1 g/t Au and 2,370 ppm to 2.03% As (not the same samples) and averaged 11.50 g/t Au and 0.89% As.

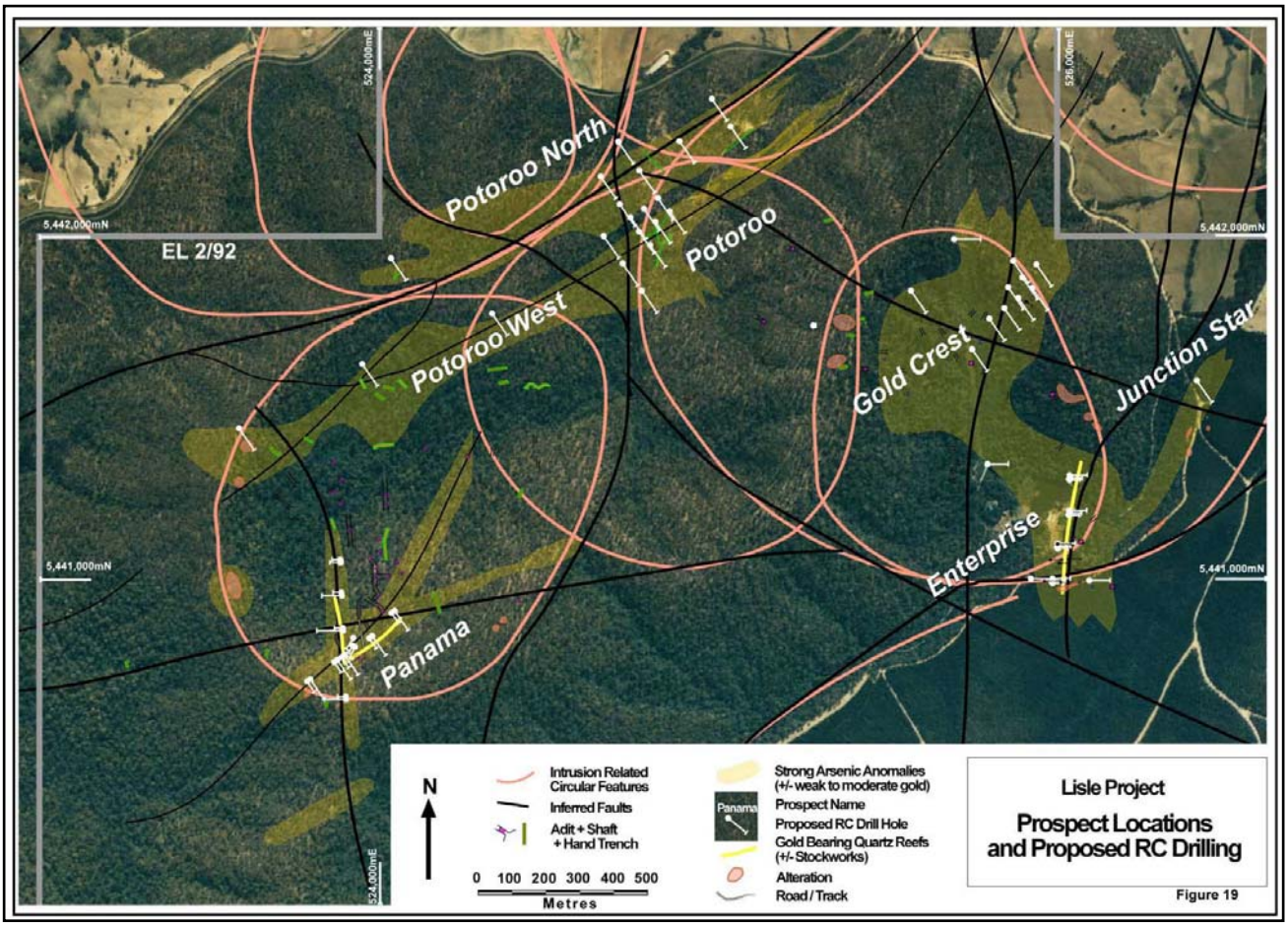
### 3.4.5 Others

Macmin has undertaken widespread soil and rock chip geochemical sampling of a number of other prospect areas. The result of this work has directed initial focus to the named prospects described in the previous sections.

## 3.5 EXPLORATION PROGRAM

A proposed drilling program to be completed over the next 12 months at Enterprise, Potoroo, Panama and Gold Crest comprises 6,000m of RC percussion drilling in 60 to 70 holes (Figure 19). A total budget of $550,000 has been proposed to undertake this program. The drilling is located in State Forest Reserve and has been designed to minimise new track cutting and development of drill sites in order to allow for easier remediation following the program.

Eleven holes totalling 1,100m are planned at Gold Crest to target the known geochemical gold and arsenic anomaly (Virginia Ridge zone) as well as the strike extensions of known mineralisation. At Virginia Ridge the initial program comprises 10 RC percussion holes totalling 1,000m. Follow up drilling comprises the remaining budgeted holes and metres. It is planned to drill heel to toe fences across the anomaly.




The drilling program at Enterprise has been planned to test the depth and strike extent of the mineralised veins. Following the initial drilling phase in June 2002, the second phase consists of 2 isolated drill holes and one fan fence at the southern end of the geochemically anomalous zone.

At Panama and Potoroo West drilling is aimed to intersect the possible strike and dip extensions to known mineralised structures (at Panama). The initial program of four fan fences of angled RC percussion drill holes of varying lengths comprises 9 holes totalling 480m. Fan drilling is designed to drill a targeted system down dip generally from a single drill pad.

In view of the difficulty the RC rig encountered with drilling at Enterprise during June 2002 and the difficult access areas at Gold Crest, after further investigation it may be proposed that a reduced diamond core program will be substituted for the RC program in these areas or a combination of both.

At this stage TasGold have not prepared a formal plan and budget for follow up work in Year 2. This will be subject to the results obtained in the Year 1 drilling program and details cannot be planned until these results are known. If results are favourable it is TasGold's intentions to continue drilling at Lisle with follow up RC percussion and diamond drilling as appropriate. A preliminary budget allocation of $550,000 has been allowed for the Year 2 work.

## 4.0 EXPLORATION PROGRAM

TasGold has prepared exploration programs for the Projects that consist predominantly of drill testing defined targets. In addition the programs include systematic regional exploration to explore the many prospective regional prospects. The aim of these programs has been discussed in the relevant sections in the body of this report.

## 4.1 BUDGET

The exploration budget is summarised in Table 4.1.

*Table 4.1*: **Exploration Budget**

| 2003 | Budget $ 000 | Comments |
|---|---|---|
| SMRV | $800,000 | Diamond Core drilling totalling 3,050m |
| Lisle | $550.000 | RC percussion drilling totalling 6,000m |
| Subtotal | $1,350,000 | Total drilling of 9,050m |

| 2003 | Budget $ 000 | Comments |
|---|---|---|
| SMRV | $550,000 | Final program dependent upon Year 1 results and approval by MRT |
| Lisle | $550,000 | Final program dependent upon Year 1 results and approval by MRT |
| Subtotal | $1,100,000 | |
| **Total** | **$2,450,000** | |

TasGold also has expenditure requirements for ELA 24/2001 subject to grant. TasGold believe this may occur in late 2002 / early 2003. A budget proposal of $62,500 in Year 1 and $125,000 in year 2 has been submitted to MRT as part of the application.

## 4.2 OPINION ON EXPLORATION PROGRAM

The TasGold exploration program for its tenement interests has been planned to meet the requirements of the particular geological environments and exploration methodologies, which have been outlined in this Prospectus.

The exploration program and expenditures covers all of the tenements reviewed in this report and includes expenditure for new prospect generation. The program covers a wide range of technical activities and includes the commencement of new programs. Information derived from previous and future investigations of this type and systematic project exploration will provide targets for drilling.

In compliance with ASX Listing Rule 1.4.4, we consider that the planned exploration program is satisfactory and well defined and that the project and expenditure budgets are reasonable, having regard to the stated objectives of TasGold, the prospectivity of the individual exploration areas and the exploration database already available. We are of the opinion that sufficient exploration work has taken place on TasGold's tenements and areas of interest over the past 2 years to justify the planned exploration programs and expenditure budgets.

# SOURCES OF INFORMATION

## General

***Unpublished and company reports***

CD – ROM entitled TasEx Database 7/2001. Disc 1: Databases – SGG, Documents (Word), Downloads, Drawings, Files (XL) and Print Files. Disc 2: Databases – Fimiston, Drawings – All. Disc 3: Scans. Disc 4: Print Files – Tiffs.

***Published papers and Reports***

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## GLOSSARY OF TERMS

**A**

| | |
|---|---|
| Acid volcanics | Volcanic rocks with high content of quartz |
| Aeromagnetic survey | A survey made from the air to record the magnetic characteristics of rocks |
| Ag | Silver |
| Agglomerate | A rock consisting of angular volcanic fragments larger than 2cm in diameter |
| Airborne EM (AEM) | A survey made from the air to record the electromagnetic characteristics of rocks |
| Alluvial | A deposit formed by processes activated by running water |
| Alteration | Change in mineralogical composition of a rock commonly brought about by reactions with hydrothermal solutions |
| Andesite | A volcanic rock intermediate in composition between basalt and rhyolite |
| Anomaly | Value significantly different to the norm – usually a good thing |

| | |
|---|---|
| Antimony | A white metallic element |
| Argillic | Clay alteration |
| Arsenic | Semi-metallic element, provides a geochemical indicator of possible gold mineralization |
| As | Arsenic |
| Au | Gold |
| Auger drilling | Drill method in which sample is returned to surface by moving up a steel spiral attached to drill rods |
| Aureole (metamorphic) | The zone around an igneous mass within which thermal effects has occurred |

**B**

| | |
|---|---|
| Ba | Barium |
| Basalt | A fine grained volcanic rock composed primarily of plagioclase feldspar and mafic minerals |
| Base metal | A non-precious metal usually refers to copper, zinc, lead and nickel |
| Base of oxidation | Level beneath surface below which rocks are not affected by surface weathering processes |
| Basement | Bedrock |
| Basic | Igneous rocks with low silica content |
| Bedrock | Solid rock underlying unconsolidated material |
| Besshi | Type of base metal deposit, typically thin + laterally extensive |
| Bi | Bismuth |
| BLEG | Bulk leach extractable gold |
| Breccia | A rock consisting of angular fragments in a finer grained matrix |
| Bulk leach | A laboratory technique whereby a sample is treated with a leaching agent (i.e. cyanide) to extract a particular mineral |

**C**

| | |
|---|---|
| Cambrian | The period in geological time between 530 and 460 million years ago |
| Carbonaceous | Rich in carbon/organic matter |
| Carboniferous | Geological time period from about 345 to 280 million years ago |
| Chalcocite | A copper ore, $Cu_2S$, found mainly in the enriched zones of sulphide deposits |
| Chalcopyrite | A copper-iron sulphide mineral |
| Channel sample | Sample obtained by cutting a rectangular channel across a rock face |
| Chargeability | A measure of the ability of a material to hold an electric charge |
| Chemical analysis | Accurate laboratory determination of the concentration of a given element in a sample |
| Chert | Very fine grained rock composed of silica |

| | |
|---|---|
| Chlorite | A green plate iron-magnesium rich silicate mineral |
| Colluvium | Deposits of weathered material transported by gravity |
| Conductivity | Geophysical anomaly relating to electrical conductivity often associated with sulphides |
| Conglomerate | A cemented clastic rock containing rounded fragments of pebble or larger sized gravel |
| Costean | A trench |
| Country rock | Term applied to rock surrounding or penetrated by mineral veins |
| Cr | Chromium |
| Cu | Copper |
| Cupola | A small dome like feature projecting from the main body of a larger igneous intrusion |
| **D** | |
| Devonian | A period of geologic time between 345 and 395 million years ago |
| Diagenesis | Process affecting sediment while it is at or near the earth's surface |
| Diamond core drillholes | Rotary drilling using diamond impregnated bits to produce a solid continuous core sample of the rock |
| Dighem | A proprietary airborne electromagnetic survey system |
| Dilational (zones) | An area that opens up or expands, often along a fault zone |
| Dip | The angle at which a rock layer, fault, or any other plane or surface is inclined from the horizontal |
| Disseminated | Fine particles of mineral dispersed through the enclosing rock |
| **E** | |
| EL | Exploration License in Tasmania |
| ELA | Exploration license application in Tasmania |
| Electrum | Naturally occurring gold with greater than 20% admixed silver |
| Electromagnetic survey | EM - a geophysical exploration method based on measuring magnetic fields using artificially induced currents into the ground |
| Eluvium | Weathered material at, or near its point of formation |
| Epidote | A low temperature mineral occurring mainly in low grade regionally metamorphosed rocks |
| **F** | |
| Facies | The aspects of a rock unit reflecting the conditions of its origin |
| Fan Drilling | Series of holes drilled from effectively the same collar position at varying inclinations to intersect a body at different levels |
| Fault | A fracture in rocks along which there has been relative movement either vertically or horizontally |
| Fe | Iron |

| | |
|---|---|
| Fence | A linear series of drill holes, often inclined and overlapping |
| Fissure vein | A vein occurring in a linear vent or crack |
| Float | Rock material dispersed from bedrock |
| Fold | A bend in strata or in any planar structure |
| Foliation | Parallel orientation of platy minerals |
| Fragmental tuff | A rock formed by volcanic processes and containing fragments greater than 2cm |

**G**

| | |
|---|---|
| g/t (ppm) | Grams per tonne (parts per million), a measure of precious metal content in a sample |
| Gabbro | A coarse grained rock consisting of plagioclase and mafic minerals |
| Galena | A mineral, lead sulphide, the dominant ore mineral of lead |
| Gouge | Rock material ground to a particle size of clay by movement on a fault plane |
| Geochemical anomaly | The occurrence of higher than average content of an element in rock or soil |
| Geochemistry | Study of variation of chemical elements in rocks or soils |
| Geophysics | Study of the earth by quantitative physical methods |
| Gneiss | Applied to banded rocks formed during high-grade regional metamorphism |
| Gossan | A surface capping of oxides of iron from the weathering of metallic sulphide |
| Grade | (To contain a particular) quantity of ore or mineral relative to other constituents, in a specified quantity of rock |
| Granite | A coarse grained igneous rock which contains 20 – 40% quartz |
| Granodiorite | A coarse grained acid igneous rock, similar to granite but with a lower percentage of silica |
| Greywacke | A grey indurated sandstone consisting of poorly sorted grains of quartz, feldspar and rock fragments in a clay matrix |
| Grid | A systematic array of points or lines |

**H**

| | |
|---|---|
| Hematite | A mineral composed of iron oxide; one of the most common ores of iron |
| Hg | Mercury |
| Hornfels | A fine to medium grained rock produced by thermal metamorphism |
| Huminex | An analysis previously run by MRT from humus samples |
| Hydrothermal | A process of ore formation in which mineral solutions are deposited from hot aqueous solutions |

**I**

| | |
|---|---|
| Induced Polarization (IP) | A surface electrical/geophysical surveying technique |
| Intermediate | Igneous rocks whose composition is intermediate between acid and mafic rocks |

| | |
|---|---|
| Intrusive | Having been injected into the earths crust whilst molten and solidifying before reaching the surface. |
| **K** | |
| Kuroko-type | A group of massive iron-copper-lead-zinc sulphide deposits occurring in Japan that are generally thought to form in conjunction with island-arc type volcanism on the sea floor. |
| **L** | |
| Landsat Image (MSS) | The image on the cover of Tasmania obtained by satellite |
| Lava | The material extruded from a volcano, which consists of molten or part molten silicate material |
| Leaching | The dissolution of mineral components in rocks and ores by acids or other reagents |
| Lineament | A large-scale linear feature as evidenced by topography, which may represent underlying structural features |
| Lithic crystal tuff(s) | A volcanic rock containing rock fragments and identified minerals |
| Lode | A tabular or vein like deposit of valuable mineral between well defined walls of country rock |
| **M** | |
| Mafic | Descriptive of rocks composed dominantly of magnesium and iron rock-forming silicates |
| Magnetic survey | A geophysical technique which measures variations in earths magnetic field |
| Magnetite | A magnetic iron oxide mineral |
| Massive Sulphide | Any mass of abundant metallic sulphide minerals, usually of Zn, Pb, Cu, Fe and related to volcanism |
| Mesh fraction | A sizing system used to screen samples prior to their chemical analysis |
| Mesothermal | Hydrothermal mineral (deposit) formed in the 200-300 degree range and at depth |
| Metamorphosed | A rock that has been altered by physical and chemical process involving heat pressure and derived fluids |
| Metasediments | Sediments that have been metamorphosed |
| Mineral resource | A tonnage or volume of rock or mineralization of intrinsic economic interest |
| Mineralisation | The concentration of metals and their chemical compounds within a body of rock |
| ML | Mining Lease |
| Mn | Manganese |
| Mo | Molybdenum |
| MRT | Mineral Resources Tasmania – Department of Infrastructure, Energy and Resources (Mines Dept) |
| MRV | Mount Read Volcanics are an ~north – south trending zone of volcanic and related rocks in the west of Tasmania. It is probably Tasmania's most highly mineralised zone |
| Mullock | Waste rock often located around old workings |
| **O** | |

| | |
|---|---|
| Open cut, open pit | A mine worked at the surface |
| Ordovician | The period in geological time between 500 and 435 million years ago |
| Ore | Material that can be mined and treated at a profit |
| Outcrop | The surface expression of a rock layer |
| Oxidised | Decomposed by exposure to oxygen in the atmosphere and groundwater |

**P**

| | |
|---|---|
| Palaeogeographic | The geography of past and ancient (fossil) times |
| Palaeozoic | Era in geological history from the Pre-Cambrian to the Mesozoic or about 570 to 225 million years ago |
| Pan concentrate | The residual heavy fraction remaining after panning a sample from a stream trap site. Assay values >1 g/t au are considered anomalous |
| Pb | Lead |
| Percussion drilling | A drilling method, which utilizes a hammering action and rotation to penetrate rock. |
| Permian | Period in geological history from about 286 to 248 million years ago |
| Petrographic | Pertaining to the optical study of rocks |
| PGM | Platinum group metals |
| Phyric | Indicates a porphyritic rock |
| Pleistocene | One of the seven subdivision of the Tertiary period in the geological time-scale |
| Porphyry | A medium grained igneous rock containing crystals of any mineral |
| Porphyry Cu | A copper deposit in which the copper minerals occur as discrete grains and veinlets throughout a large volume of rock |
| PPB | Parts per billion (1,000 million) |
| Pre-Cambrian | The period of geological time prior to 540 million years ago (~=90% of all time) |
| Proterozoic | The more recent period of the Pre-Cambrian |
| Pyrite | A yellow iron sulphide mineral |
| Pyroclastic | Fragmental deposits formed from the accumulation of volcanic ejections |

**Q**

| | |
|---|---|
| Quartzite | A silica rich metamorphic rock formed from sandstone |
| Quaternary | A period in geological time from 1.8 million years ago to the present day |
| QUESTEM | A proprietary form of AEM |

**R**

| | |
|---|---|
| Radiometrics | The measurement of radiation produced by the spontaneous decay of certain atoms |

| | |
|---|---|
| Reserve(s) | In-situ quantity of mineralised rock of known grade from which the contained metal can be recovered economically taking into consideration, geological mining, social, political, and environmental factors. Quantity and grade better established than for Resource(s) |
| Resistivity survey | A geophysical technique which measures the electrical resistance of rocks in the ground |
| Resource(s) | In-situ quantity of mineralised rock of known grade, the extent of which has been estimated on the basis of geological information and from which the contained metal may be recoverable economically |
| Reverse circulation (RC) | A drilling method in which the sample is brought to the surface inside the drill rods |
| Rhyolite | Fine grained acid volcanic rock |
| **S** | |
| Sandstone | Sedimentary rock composed of sand-sized grains |
| Schist | A metamorphic rock with platy to foliated texture |
| Sedex | Sedimentary exhalative - a submarine volcanic process whereby sediments or ore deposits are deposited on the sea floor |
| Sericite | Fine grained white micaceous mineral |
| Shale | A fine grained sedimentary rock formed from clay, mud and silt |
| Shear | A zone where lateral movement along parallel planes produces deformation of rock |
| Silicification | The process whereby original rock minerals are chemically replaced by various forms of silica |
| Siltstone | A fine grained sedimentary rock composed largely of silt-sized particles |
| Sirotem | A proprietary electromagnetic survey technique |
| Skarn | A thermally metamorphosed impure limestone |
| Slate | A compact fine grained metamorphic rock |
| SMRV | TasGold project area in SW Tasmania, covering the bulk of the highly prospective MRV south of Macquarie Harbour |
| Sn | Tin |
| Soil sampling | Systematic collection of soil samples at different locations in order to study the distribution of elements in the soil horizons |
| SP (self potential) | A geophysical technique which measures the natural earth currents at the ground surface |
| Sphalerite | A zinc-iron sulphide mineral; a major economic source of zinc |
| Stockwork | An interfacing system of small veins or lodes |
| Stope | Generally the hole left underground after mining narrow moderate to steeply dipping veins |
| Stratabound | Said of a deposit confined to a single stratigraphic unit |
| Stratiform | A type of stratabound deposit that has layered ore minerals |
| Stream Sediment | Drainage sample usually consisting of –80mesh (small) fraction of active stream silt and sediment. Values >0.1 are generally anomalous. |

| | |
|---|---|
| Strike | Horizontal direction or trend of a geologic structure |
| Stringer | A narrow vein of mineral traversing a rock mass of different composition |
| Supergene | A type of mineral deposit formed by weathering or alteration formed by descending solutions |
| Syncline | A fold that is concave up, with younger rocks in the middle |
| Syngenetic | A mineral deposit which is said to have formed at the same time as the enclosing rocks |
| **T** | |
| Tailings | Reject products from a mineral treatment plant |
| TEM | A proprietary ground electromagnetic survey technique |
| Tertiary | The period of geological time between 65 and 1.8 million years ago |
| Tuff | A rock formed of fine grained material from a volcanic explosion |
| Tuffaceous | A rock which contains pyroclastic material |
| Turair | A proprietary airborne electromagnetic survey system |
| Turbidite | A sedimentary rock formed by turbidity (density) currents along a sloping ocean floor |
| **U** | |
| UTEM | A proprietary ground electromagnetic survey technique |
| **V** | |
| V19 | Voyager Prospect 19 (also called Wart Hill) in TasGold's SMRV - Elliott Bay license. Named by Geopeko up to V35 |
| VHMS | Volcanic hosted massive sulphide - high grade and value deposits related to silicic volcanism. They are prime targets in the SMRV |
| VLF-EM | A ground geophysical survey technique utilizing very low frequencies |
| Volcaniclastic | Describes clastic fragments of volcanic origin, often consolidated as sediments |
| **Z** | |
| Zn | Zinc |