

## NEWMHAM EXPLORATION &amp; MINING SERVICES

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EL 7/88

BEACONSFIELD, TASMANIA

1993/94 ANNUAL REPORT

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Prepared for:  
Beaconsfield Mine Joint Venture  
PO Box 58  
BEACONSFIELD TAS 7270

By:  
LA Newnham  
PO Box 40  
LEGANA TAS 7277

Ph (003) 30-2600  
Fax (003) 30-2606

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## 1. SUMMARY

Exploratory work during 1993/94 on EL 7/88 was concentrated on three projects:

- (a) completion of a five hole core drilling program to further test the Tasmania Reef beneath the former mine, between 1,400 to 1,600 RL;
- (b) design of a six hole core drilling program to test the Tasmania Reef extensions between 1,200 to 1,400 RL;
- (c) design of a distinct exploration program to further evaluate the gold potential of that section of the EL north of the North Tasmania Reef.

A detailed report on each of these three projects is attached to this report.

The **1,400 to 1,600 RL Tasmania Reef drilling program** resulted in each of the five holes intersecting a well mineralised reef structure. The intersections were widely spaced across the reef, and in combination with previous drilling and mining data, indicated the existence of a 600,000 to 700,000 tonnes resource averaging 20-25 g/t Au in a 250 metre vertical panel directly beneath the former mine.

Encouraged by these results, the joint venture partners have decided to drill a further six holes to test the **Tasmania Reef between 1,200 to 1,400 RL**. This program will cost \$720,000 and is due to commence in early September 1994.

A **district exploration program** was proposed, to test for Tasmania Reef analogues beneath Tertiary cover rocks north the the North Tasmania Reef. An initial program of RC drilling, costing \$70,000, was recommended and may be undertaken in summer 1995.

## 2. TENURE

EL 7/88 was granted on 14 October 1988, in respect to a 31 square kilometre area around Beaconsfield. It was subsequently reduced to five square kilometres in October 1991, but was amalgamated with ELA 16/91 in 1991 to cover the current 15 square kilometre area.

Within the EL are two significant mining leases:

- (a) ML 1435P/M of 427 hectares held by the Beaconsfield project partners, and which has effect at varying depths below surface;
- (b) ML 145M/69 held by the BHP Company Ltd for all minerals, but primarily worked in shallow quarries for silica.

EL 7/88 was transferred on 18 August 1993 into the joint names of Beaconsfield Gold NL, Allstate Prospecting Pty Ltd, and Poseidon Gold Ltd.

### 3. ACCOMPANYING REPORTS

Accompanying this report are three other reports:

- 3.1 "1993/94 Drilling Program Report and Tasmania Reef Mineral Resource Assessment" for Beaconsfield Mine Joint Venture, by LA Newnham, dated 30 June 1994.
- 3.2 "Tasmania Reef, Beaconsfield Mine, Proposed Drilling Program 1,200 - 1,400 RL, to Determine Scope for Doubling Mineral Resource Potential" prepared for Beaconsfield Gold NL, by LA Newnham, dated January 1994.

This report details a proposed six hole drilling program, which is due to commence in September 1994.

- 3.3 "EL 7/88 Beaconsfield Area District Exploration Proposed Evaluation Program" prepared for Beaconsfield Gold NL, by LA Newnham, dated 20 January 1994.

This report details and recommends an air-core/RC drilling program to search for gold deposits beneath the Tertiary cover north of the North Tasmania Mine.

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**Beaconsfield Mine Joint Venture**

**1993-94 DRILLING PROGRAM REPORT**

**&**

**TASMANIA REEF MINERAL RESOURCE  
ASSESSMENT**

*Prepared for:*  
Beaconsfield Mine Joint Venture  
PO Box 58  
BEACONSFIELD TAS 7270

*By:*  
LA Newnham  
PO Box 40  
LEGANA TAS 7277

Ph (003) 30-2600  
Fax (003) 30-2606

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## 1. SUMMARY

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During 1993-94, the Beaconsfield Joint Venture partners completed a further five cored drilled holes beneath the former Beaconsfield Mine, to better define the resources remaining in the Tasmania Reef.

Results of this program, together with other drilling and mine data, indicates that there is no diminishment in either grade or reef development (strike and width) over a 250 vertical metre zone beneath the former mine. Those geological factors thought to control the reef development parameters appear to extend in depth without significant variation.

Data from the five holes, combined with both previous core drilling information and a thorough re-appraisal of former mining data, suggest an **identified mineral resource of 600,000-700,000 tonnes 20-25 g/t Au is present in the Tasmania Reef over this 250 vertical zone beneath the former mine workings to 1340 RL.** This resource is classified in the Inferred - Indicated Resource category and may be subdivided as:

<b>Central Panel: Indicated Resource: 500,000-550,000 tonnes 20-25 g/t Au</b>
<b>Strike Extensions: Inferred Resource: 100,000-150,000 tonnes 15-20g/t Au</b>

It is considered advisable to quantify both tonnes and grade within a range, rather than specific single numbers, in recognition of both the geological character of auriferous reef structures, such as Beaconsfield, and the variable quality of the former mining operation's data base.

The application of contouring, geostatistical or other sophisticated calculation methodologies was considered premature and inappropriate to both the status of geological knowledge and the data base.

Petrological data suggests the reef has been subjected to varying degrees of tectonism. Gold occurs both associated with pyrite and to a lesser extent arsenopyrite in the earlier formed quartz veins, and with base metal sulphides in the later quartz-carbonate mineralisation phase.

To raise the status of this resource to the Measured Resource category and to quantify some of these resources as Reserves, will require both more intensive core drilling and some reef development to confirm reef continuity and grades, as indicated by current drilling. Programs to satisfy these requirements have been proposed in previous reports by this writer.

Excellent potential exists to increase the identified mineral resource below 1340 RL (700m beneath surface). A drilling program to test this potential has previously been designed.

## 2. INTRODUCTION

Between 1877-1914 the Tasmania Reef at Beaconsfield produced 28 tonnes gold from 1.1M tonnes ore at an average recovered grade 24 g/t.

Production came from a single quartz-sulfide reef structure approximately 400m long, 2 - 3m wide, striking generally eastwest and dipping south 50-60°. This structure was best mineralised and developed where it intersected an east dipping sandstone sequence, hence the mined portion of the structure plunges southeast.

The reef was mined from surface to a vertical depth of 450m via a series of increasingly deeper shafts.

The overall productive capacity of the reef over its mined life was 60kg recovered gold/vertical metre, equivalent to approximately \$1.2M of recovered gold/vertical metre.

Mining ceased at 450m for a combination of reasons, principal of which were limitations on installed pumping capacity, wage demands, first world war, high manning levels and lower gold recoveries.

**Mining did not cease because of a depletion of resources or an increase in water flows.**

### 3. 1993-94 CORE DRILLING PROGRAM

#### 3.1 GENERAL DRILLING INFORMATION

During 1993-94, five primary drill holes and four additional sample wedged holes were completed in order to improve knowledge of the Tasmania Reef resource potential in the 250 vertical metre interval beneath the former mine.

The program was completed by Diamond Drilling Tasmania, using a skid mounted L44 rig. A total of 3324m was drilled at a cost of \$440,000 (all costs included).

Three holes (B18, B19, B20) designed to test the western and central sections of the reef, were drilled from one site, with B19 and B20 being wedged out of B18. Two holes (B21, B22) designed to test the eastern section of the reef, were drilled from a second site, with B22 being wedged out of B21.

All holes were collared with PW and HW tricones and cased with PW, HW and HQ. Coring was HQ-NQ with all reef intersections in NQ.

Hole orientations were controlled through knowledge of natural deviation patterns supplemented by the use of Navl drills and Hall Rowe wedges. Down hole surveys were by Eastman single shot camera, and collars surveyed by a registered surveyor.

Because of difficulties experienced in splitting the broken reef intersections in B18 and B19, it was decided to obtain additional sample reef intersections in subsequent holes and to assay whole core from these additional intersections. Such intersections were obtained in B20, B21, B22, by wedging out of the parent hole in the **immediate** reef HW with a Hall Rowe wedge. The additional sample holes are estimated to be < 0.5m from the corresponding parent intersection. In the case of B22, a third intersection was obtained for metallurgical work.

All core was logged, photographed and racked in the mine site core shed.

Petrological samples were split with a lapidary saw from representative intervals in the B20, B21, B22 parent holes, and descriptive work completed by Wally Fander of Central Mineralogical Services.

Assaying of core was undertaken by Analabs (Burnie). Samples were totally pulverised, including extra time for total fine pulverising. With B18, B19, a 50g sub-sample was taken for fire assay, and reef samples were then re-assayed by Screen Fire Assay (SFA) on 1000g samples. With B20A, B21A, B22B, reef samples were only screen fire assayed, and reef wall rocks fire assayed on 50g samples.

The very coarse nature of Tasmania Reef gold caused some assaying problems with significant differences between SFA and 50g sub-sample fire assays, and in one case between sample splits on the fine fractions in a SFA.

Core for assay was split/selected on a lithological basis rather than uniform intervals.

Drill logs are appended to this report and holes are illustrated as both individual hole plots and on various composite plans and longitudinal projections.

## 3.2 DRILLING RESULTS

A brief overview of each hole, together with an interpretative summary of the program results follows:

### 3.2.1 DDH B18

Designed to test the central section of the Tasmania Reef between existing holes A6/A7 and B11.

It intersected the reef at 1390 RL, 200 vertical metre beneath the lowest mine level (450m level), and 75m beneath A6 and 50m above B11.

**The reef assayed 57.4 g/t over a drill hole thickness (DHT) of 4.0m, with an estimated true thickness (ETT) 2.5m, and an estimated horizontal thickness (EHT) of 2.9m.**

The reef HW rocks consisted of a gradational sequence of (top to bottom) graphitic shales, limestones and siltstones. The limestones were cavernous in places and the siltstones commonly calcareous and hematitic.

Several faults and sulfide veins (faults?) were intersected, including 0.8m quartz-carbonate-sulfide vein at 342.9m which assayed 0.35 g/t Au, 0.65 % As, and a puggy fault zone at 403m.

The siltstones in the immediate reef HW were moderately competent, contained 1-2% pyrite, and were cut by numerous quartz-carbonate and calcite veins. The one metre interval on the reef HW assayed 1.13 g/t Au, 186 ppm As.

The **Tasmania Reef** consisted of extremely broken quartz and quartz-carbonate veining containing variable amounts of pyrite, arsenopyrite and minor chalcopyrite, galena and sphalerite.

There was a 0.5m interval of veined siltstone within the reef structure.

The HW and FW of the reef were very sharp and obvious.

The **reef FW rocks** consisted of a stockworks of quartz and quartz-carbonate veins imposed on an interbedded sequence of sandstones and conglomerates. The stockwork zone was Au and As anomalous for 15 - 20m (DHT).

A narrow 0.2m carbonate-quartz-pyrite vein was intersected 14.7m (DHT) into the reef FW and assayed 11.5 g/t Au.

The density of veining gradually diminished down hole into a sequence of dark conglomerates, grits and sandstones.

### 3.2.2 DDH B19

B19 was wedged out of B18 at 236m and was designed to test the western end of the reef at a similar depth to B18.

It intersected the reef 80m west of B18, at 1388 RL, approximately 200m beneath the 450m level. As such, it was the most westerly hole drilled in to the reef to date. It also intersected the reef 140m east of B13, which intersected only a very weak structure equated with the Tasmania Reef.

The reef in B19 was well developed and assayed 21.9 g/t Au over 4.6m DHT, 2.6m ETT and 3.0m EHT.

The **reef HW rocks** consisted of a gradational sequence of limestones, siltstones/sandstones which were commonly calcareous, grits and conglomerates. A 0.6m quartz-carbonate-pyrite vein (fault) at 353.6m equates with a similar vein in B18 and assayed 0.84 g/t Au. The first conglomerate pebbles appeared in a sandstone sequence at 578.6m. This feature could represent a useful marker bed in future interpretation of stratigraphy.

Conglomerates and sandstones from 606 - 662m were very broken and a calcareous matrix appears to have been completely leached, leaving a very friable "lacey" sandstone-conglomerate. This unit probably equates with the so-called wet beds intersected in the mine.

The sandstone on the immediate reef HW was very broken (rubble) and carried 3m 0.6 Au, 160 As.

The **Tasmania Reef**, which has very sharp HW and FW contacts, consisted of very broken quartz-sulfide

(arsenopyrite) reef overprinted by later quartz-carbonate-sulfide veining. Core recovery was 100%. The proportion of carbonate was greater than B18, especially towards the FW.

The **FW rocks** consisted of sandstone and conglomerate with minor shaley beds. Pyrite (1-2%), quartz-carbonate veining and brecciation common for 10 - 20m into FW.

Apart from the first metre of FW rocks which assayed 0.34 Au, there was no significant gold in the FW.

Some previous work at Beaconsfield suggests the reef was terminated to the west by the conglomerate. However, two important features of B19 are firstly, that the reef had a sandstone-conglomerate sequence in both the HW and FW suggesting that the reef definitely did continue west into the conglomerate, and secondly, the top of the conglomerate unit is not a sharply defined stratigraphic feature.

### 3.2.3 DDH B20

B20 was wedged out of B18 at 229m and was designed to test the western end of the reef up-plunge from B19. It intersected the reef at 1452 RL, approximately 100m west of A6, 80m up-plunge of B19 and 140m beneath the 450m level.

A second sample reef intersection B20A was obtained by wedging off the parent in the immediate reef HW.

The **HW rocks** consisted of a gradational sequence of limestones, siltstones (often calcareous), sandstones, grits and conglomerates. The first conglomerate pebbles were intersected at 548m.

The "Wet Beds" were intersected at 575m, but unlike B19, the calcareous cement was not leached and the sequence cored very well, suggesting that the Wet Beds are not uniformly porous.

Below 587m, the grits and conglomerates became darker and increasingly broken and quartz-carbonate veined.

The **Tasmania Reef** had a very sharp HW and FW, and consisted of broken quartz and quartz-carbonate veins with minor pyrite, arsenopyrite. The amount of sulfides was appreciably less than B18, B19.

The reef was well developed and well defined and assayed 6.5 Au over 1.4m ETT and 1.7m EHT. There was a 0.3m quartz-carbonate FW reef assaying 8.1 Au,

which was separated from the main reef by 1.8m of quartz and quartz-carbonate veined sandstone assaying 0.2 Au.

Petrological descriptions of reef samples are appended and included with the log.

The **FW rocks** consisted of dark sandstone-grits and conglomerates which were intensely brecciated and veined in some intervals.

As with B19, this hole had a sandstones-grit-conglomerate sequence on both the HW and FW, supporting the view that the reef ran west well into the sandstone-conglomerate sequence.

#### 3.2.4 DDH B21

B21 was designed to test the eastern end of the reef. It intersected the reef at 1495 RL, 85m east of both A7 and B4B, and 94m beneath the 450m level.

A second sample reef intersection B21A was obtained by wedging out of B21 in the immediate reef HW.

The reef was well defined and B21A assayed 15.9 Au over 2.8m DHT, 1.7m ETT, and 2.0m EHT.

The **HW rocks** consisted of a gradational sequence of graphitic shales, cavernous limestones filled in part with pure white crystalline calcite and cave detritus, calcareous and hematitic siltstones which were crinoidal in part.

Below 540m, the siltstones were intensely broken (near reef HW) with 1-2% disseminated pyrite.

The **Tasmania Reef** had very sharply defined HW and FW. It consisted of fractured quartz-sulfide and quartz-carbonate sulfide (pyrite-arsenopyrite), together with large blocks/rafts of intensely veined and mineralised siltstone.

Petrological descriptions of several reef samples are appended and included with the log.

The **FW rocks** consisted of calcareous siltstones. The first metre of FW rocks contained abundant thin quartz-carbonate veins and assayed 1.3 Au, 0.2 As. Below that the sequence became more competent and less mineralised with depth.

### 3.2.5 DDH B22

B22 was wedged out of B21 at 180m and was designed to test the eastern end of the reef between B21 and B12.

It intersected the reef at 1475 RL, 40m from B21, 130m from B12 and 150m beneath the 450m level.

Second and third reef intersections (B22A and B22B) were obtained by wedging out of B21 in the immediate reef HW.

All three holes intersected two reefs separated by a narrow interval of veined and mineralised siltstone.

**B22B was assayed and averaged 31.6 Au over 6.9m DHT, 4.4m ETT, 5.4m EHT.**

The **HW rocks** were very similar to B21. The siltstones close to the reef HW were very broken, carbonaceous and carried abundant pyrite.

The **Tasmania Reef** zone consisted of a HW and FW reef separated by a siltstone unit. The zone was relatively competent. The HW reef consisted of massive white quartz veins with intervals of carbonate veining. Arsenopyrite, pyrite and chalcopyrite were common. A number of grains of coarse visible gold were seen, typically as isolated grains in massive white quartz veins. The HW and FW of this reef were very sharp and clearly defined. The HW reef assayed 29.9 Au, 0.22 Cu, 0.56 As over 3.0m DHT.

The 1.8m siltstone unit between the two reefs was cut by an intense network of quartz-carbonate-pyrite-arsenopyrite veins and assayed 11.8 Au, 1.35 As.

The FW reef consisted of massive white quartz veins, minor carbonate veins and pyrite-arsenopyrite-chalcopyrite. Again a few isolated grains of gold were seen in quartz veins. The FW reef assayed 51.2 Au, 0.42 Cu, 0.3 Zn and 1.94 As over 2.1m DHT.

The HW of this reef was sharp but the FW was poorly defined.

The **FW rocks** consisted of a sequence of calcareous siltstones, very strongly veined and silica flooded near the FW reef. The first one metre interval of siltstone below the FW reef assayed 5.3 Au.

### 3.3 SUMMARY OF DRILLING RESULTS

The five drill holes completed in 1993-94 beneath the former mine all intersected a well defined Tasmania Reef in approximately the position anticipated from reef contours. Combined with data from previous drilling and mine workings, this suggests the reef continues in depth to at least 1340 RL, and is not significantly disrupted by secondary cross faulting.

A summary of the drilling results is presented below:

HOLE	WIDTH (m)		UNCUT AU (g/t)
	TRUE	HORIZ	
B18	2.5	2.9	57.3
B19	2.6	3.0	21.9
B20A	1.4	1.7	6.5
B21A	1.7	2.0	15.9
B22B	4.4	5.4	31.6

The rocks on the immediate reef HW were typically very broken, carbonaceous and contain low gold but geochemically anomalous arsenic.

The rocks on the immediate reef FW were typically quartz and quartz-carbonate veined, brecciated and Au-As anomalous. In several of the holes, this FW veining was expressed as a significant and parallel FW reef containing substantial Au.

The Tasmania Reef itself was typically a quartz and quartz-carbonate vein in filling a fault zone 1.5 - 3.0m wide with variable amounts of pyrite, arsenopyrite, chalcopyrite and minor sphalerite and galena.

Petrological studies confirmed hand observations that there were two phases of mineralisation in the reef. An earlier quartz-arsenopyrite-pyrite phase separated by a tectonic event from a later quartz-carbonate (ankerite)-base metal sulfide phase. Gold is associated with both phases of mineralisation. In the earlier phase it is associated with pyrite and quartz, and in the later phase with both the quartz and base metal sulfides.

The reef zone is typically broken, and in places leached.

## 4. TASMANIA REEF - MINERAL RESOURCE POTENTIAL

This report addresses both the identified mineral resources and the potential mineral resources of the Tasmania Reef.

The **identified mineral resource** is considered in terms of the "Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves", published by the Australasian Institute of Mining and Metallurgy.

The **potential mineral resource** is a consideration of the scope or potential of the Tasmania Reef to host resources additional to those regarded as having been identified.

The Tasmania Reef is a classic gold reef. It is developed within a major fault structure and varies significantly in terms of grade and width over very short distances.

Special considerations and care must be taken when estimating indicated and potential resources in such deposits. It is equally important not to downgrade the resource, as it is not to over-estimate it. Also important is the need to carefully study the resource data base, as it may not be of uniform quality and may not lend itself to some of the more common techniques of resource estimation.

### 4.1 DATA BASE

Resource data on the Tasmania Reef comes primarily from two sources:

- former mining records;
- cored drill holes.

#### 4.1.1 MINING RECORDS

Between 1877 and 1914, the Tasmania Reef was mined underground from surface to 450 vertical metres by two companies. The Tasmania Gold Mining & Quartz Crushing Company mined the top 250m, and the Tasmanian Gold Mining Company Ltd mined from 250-450m depth. Records and reports from the former company are virtually non-existent.

The latter company produced surveyed plans and longitudinal projections, but original mining or geological plans have not been found. They produced annual reports which often contained appended technical reports. These reports are regarded by this writer as the most instructive and reliable information available on the technical nature of the reef.

During the development of levels and rises in the reef, grades and widths were reported on a regular basis to the local paper. Several contemporary attempts have been made to faithfully transfer these newspaper reports back onto plans and projections, and to then use this reconstructed data as if it was scientifically collected and collated information - **the source of this data is often overlooked or forgotten.**

No attempt has been made in this report to use this newspaper data in any way, other than to provide a broad picture of grade and reef trends.

For the purposes of this report, the mine survey plans, combined with annual reports and accompanying technical reports, have been used principally to provide the following information on the reef:

- dip and strike trends and continuity of the reef structure;
- presence of mineralised structures in the FW and HW of the Tasmania Reef;
- mine level grades (equivalent to in-ore sill drives) and reef structure payability;
- geological factors which controlled the strike extremities of the reef;
- physical nature of the reef and its wall rocks (mineability);
- mineralogical nature of the reef (treatability).

The current project benefits greatly in having this mine information available, because if evaluated with care it is worth innumerable drill holes.

#### 4.1.2 CORED DRILL HOLES

Since 1960, four campaigns of core drilling the Tasmania Reef from surface have been undertaken.

Of the 19 holes completed, four holes drilled the reef position well outside the anticipated reef boundaries. Of the remaining 15 holes, 13 obtained what can best be described as encouraging, mineralised intersections. Additional sample wedged holes were drilled from five of these holes.

Core and reef intersections from the first two campaigns drilled by the Department of Mines (3 holes) and Allstate (2 holes) are not complete. These holes were surveyed either by acid tube or tropari, but data from them appears reasonably compatible with other later data.

Cores from holes drilled by RGC (5 holes) and the

current partners (5 holes) are complete and are stored at Beaconsfield. These 10 holes were down-hole camera surveyed.

There can be a tendency to "over-use" data from cored drill holes into erratic reef structures.

It must be remembered that on a 50m x 50m drill pattern, an NQ core intersection represents a 0.8 ppm sample of the deposit, and if half core is assayed, the assay sample represents 0.4 ppm of the tested area. If the drill pattern is 100m x 100m, then the NQ core represents 0.2 ppm of the reef and the assayed core 0.1 ppm.

Statistically, these are very small samples within an erratic deposit.

Hence in this report, core drilling results are used principally to provide the following information on the reef:

- existence of the reef structure;
- geological information which may help to predict the strike limiting factors with depth;
- presence or absence of physio-chemical conditions which permit the deposition of gold;
- a broadly based feel for grade trends;
- general information on the physical nature of the reef (mining factors);
- general information on the petrological and mineralogical nature of the reef (milling factors).

Any attempt to grade or thickness contour drill hole reef data on the current drill hole data base, is considered quite inappropriate.

If data from mine records and cored holes is appropriately coordinated, the two data sets compliment each other very neatly.

## **4.2 REEF CHARACTERISTICS**

### **4.2.1 HOST ROCKS**

The Tasmania Reef structure is developed discordantly within a thrust slice of graded Ordovician sediments.

The sediments strike north northwest parallel to the Tamar Structure, dip generally 50-55° to the east, and young to the east.

From top to base, the sequence consists of graphitic shale, cavernous limestone, siltstone, grit, sandstone

and conglomerate. The full sequence is approximately 500 to 600m thick and equates with Gordon Limestone - Moina Sandstone - Owen (Roland) Conglomerate elsewhere in the state.

Further west of the mine there is another limestone unit, but little is known of this. It may represent a repetition of the mine sequence.

The sequence is bounded to the east and west by major thrust faults which are parallel to and probably part of the Tamar Structure zone.

An important characteristic of the mine sequence is that it is completely gradational - there are no sharp boundaries between formations and any attempt to select such boundaries is purely arbitrary.

A feature of the upper limestone unit is the development of a major cave system, which has been partially filled with secondary calcite and sedimentary pyrite which sometimes replaces stalactites (and mites). These caves also carry large volumes of carbon dioxide which is in equilibrium with atmospheric pressure.

The limestone grades down into a sequence of siltstones which are variably calcareous and contain numerous limestone beds. This is the formation locally called the Transition Beds, presumably because they were transitional between conglomerate and limestone. The more calcareous units in this sequence are often intensely hematitic (resulting in a characteristic banded appearance) and crinoidal.

The Transition Beds grade down into dark grit, sandstone and conglomerate units which also contain thin limestone beds and calcareous units. The top section of the conglomerate contains a characteristic fine quartz conglomerate unit with a lacey calcareous matrix (B20), which clearly can be leached by ground water to form a highly porous unit (B19). This unit probably equates with the "Wet Beds" encountered in the western end of the mine.

There has been considerable debate over the years about the stratigraphic control on both the development and gold grades in the Tasmania Reef.

The simplistic picture in the past is that the reef is confined to the Transition Beds and terminates in the east against limestone and in the west against conglomerate, and that the grade and dip of the reef were controlled by the chemical nature of the sedimentary wall rocks and the dip of the sediments respectively.

On the basis of these theories, depth projections of the reef have generally been illustrated on the basis of the predicted intersection of the limestone and reef to the east, and conglomerate and reef to the west. Degrees of flattening and steepening of the reef in depth have also been assigned to these intersection lines. Assessments of the resource potential of the reef have been made on the basis of these predictions.

This writer disagrees with this simplistic approach to assessing resource potential for two basic reasons:

- a) **mining history** and recent drilling indicate the reef was not bounded by its intersection with conglomerate and limestone.
- b) attempts to predict reef contact with specific sedimentary units is very difficult in a gradational sequence in the absence of reliable **marker beds**. Interpretations will vary from one drill program to the next.

**Mining history** of the Tasmania Reef clearly indicates that the reef extended west into the conglomerate-grit sequence, and probably did not extend as far as the limestone in the east.

In 1905, the reef was described as breaking up into branches in broken sandstone in the eastern end and continuing into the grit-conglomerate sequence in the western end, but at reduced grades.

Drill holes B19 and B20 confirm that the reef was not terminated in the west, where it met conglomerate.

In the absence of **marker beds**, attempts to predict the intersection of specific stratigraphic units with the reef, and thereby attempt to predict its depth extensions, are probably misleading.

It is clear that there has been no consistency between drilling programs in identifying such stratigraphic features as "FW of limestone" or "HW of conglomerate".

During the recent drill program, special effort was made to identify marker beds - with only limited success.

Some possibilities are:

- base of graphitic shales;
- base of cavernous limestones;
- banded hematitic limestone;
- first stratigraphic appearance of crinoids;
- last stratigraphic appearance of pebbles;

- wet beds.

Time did not permit re-logging all previous core to further assess the usefulness of these markers. However, they have been partially incorporated on Figure 2 in contour form, to illustrate overall stratigraphic strike and dip.

This limited data suggests strata is gently folded down dip, but overall neither steepens or shallows with depth. It further suggests that the Transition Beds neither thicken nor thin in depth.

**Therefore, if stratigraphy is a factor controlling the development of the Tasmania Reef, there is no evidence to suggest that this factor will cause the reef to diminish in strike length with depth.**

#### 4.2.2 REEF MORPHOLOGY

The Tasmania Reef is developed within a northeast trending fault zone which dips southeast at approximately 60°. The fault strikes almost perpendicular to the strike of the enclosing sediments.

The reef within this fault zone plunges east southeast.

Whilst comprehensive geological and mining reports on the former mine are sparse, there are numerous minor and disjointed references which, when collated, provide a useful insight into the morphology of the reef.

##### **Strike Length**

The reef where mined was essentially a single structure approximately 400m long. It was best developed where the reef intersected the Transition Beds, but it did extend west into the grit-conglomerate sequence at a somewhat lower than average grade. Mine plans also give the impression that the reef tended to branch into several narrower reefs to the west. The eastern end apparently broke up into a number of small branches in a broken sandstone unit.

Levels were sometimes driven both east and west beyond stoping blocks, essentially as a means of prospecting for strike extensions.

Stoping lengths were typically in the range 350m to 400m. Payability losses in low grade reef sections were compensated for by the inclusion of branch

reefs.

There appears to be no reduction in stop lengths with depth:

915' level - 414m  
 1000' level - 393m  
 1100' level - 401m  
 1250' level - 375m  
 1375' level - 385m  
 1500' level - 286m+

The 1500' level was not driven west because of insufficient available pumping capacity to handle the water anticipated in that direction.

**Drilling below 1590 RL produced no information to suggest there is any shortening of the strike length at least to 1340 RL.**

**For the purposes of this report, it is assumed that the strike length of the reef from 1340 to 1590 RL is 350m.**

### Reef Width

The Tasmania Reef is a classical fault controlled quartz reef. As such, it varies markedly in width over very short strike and dip lengths. Again the most instructive data on this variation is contained in mine records. Weekly reports of level drives suggest the reef could vary from one metre (or less) to five or six metre widths over distances of 5 - 10m.

Care must be taken in assessing these old reports because of confusion between reef widths and mined widths. It would seem that most of the lower levels of the mine carried approximately 50% dilution.

On the bottom three levels of the mine, the reef averaged 2.13m (horizontal or true?). The four levels above that averaged 1.8m.

The simple arithmetic average of the 12 drill holes below 1590 RL gives an average horizontal width of 2.8m.

If the recorded 2.13m average for the lowest three levels was in fact true width, then the horizontal thickness for these levels would be 2.6m. This figure, combined with the implied gradual thickening of the

reef with depth, suggests the drill hole average width of 2.8m is reasonable.

**This report assumes an average horizontal thickness of the reef from 1340 to 1590 RL is 2.8m. An assessment of available data suggests there is no overall thinning of the reef with depth over this interval.**

### Reef Dip

Mining records show that the reef dip was variable from almost vertical to 50° south, and that changes in reef dip were not consistent along the full strike length of the reef.

Reef contours (Figure 2) below 1590 RL show the reef with a generally uniform 50-60° dip. This is undoubtedly a simplification of the true picture, which will only emerge with the acquisition of more drilling and development data.

### Reef Continuity

The reef has been cut by a number of widely spaced cross faults which disrupt strike continuity to varying degrees. Several of these, shown on Figure 2, are reasonably well documented or shown on old plans. Others have been inferred either from reports or the shape of mine levels.

The degree of disruption caused by these faults appears to have been minor and predictable. The one exception is the Main Cross Course fault, which disrupted the western end of the upper reef section.

The overall impression of reef continuity is that the reef was remarkably easy to follow, with a few minor disruptions over a 350 - 400m strike length. Beyond that, the reef feathered into a number of narrower but still well defined continuous reefs which were occasionally driven on both east and west in the hope that they may have improved.

Drill holes below 1590 RL can be used to broadly contour the reef below that level and this suggests there are no major reef disruptive features or structures below that level. However, holes are too widely spaced to facilitate more definitive contouring necessary to be able to predict small cross structures, which may disrupt the reef.

**It is reasonable to assume that the reef between 1340 - 1590 RL has not been affected by major faults which may affect reef continuity. There may be small cross faults causing minor reef disruptions.**

### **Reef Splits and Subsidiary Reefs**

Where mined, the Tasmania Reef was not always a simple, single vein. It appears to have frequently split with such splits either feathering off into the FW or HW rocks or rejoining the main reef, thereby resulting in the development of "horses".

A number of splits appear to have been controlled by small cross structures, and it was probably one of these which was intersected in the reef HW in B18, B19, B20.

A narrow auriferous FW reef also appears to be developed in B11, B18, B19, but the intervening horse is poorly mineralised.

The most notable reef split occurs in the eastern end of the mine and was reasonably well documented in the lower levels. The main split is commonly referred to as the FW reef and it was far from consistent or predictable.

On the 1250' level (1669 RL), the FW reef was mined over a length of 60 - 70m. However, below 1250' the horse narrowed and died out and the reefs rejoined. It reappeared on 1370' level (1632 RL), died out by 1615 RL and reappeared on 1500' level (1590 RL). The strength of mineralisation in the horse is not recorded, but both reefs were generally mined.

Down plunge of this eastern reef split, B21 intersected only a single reef at 1490 RL but B22 intersected two well developed and mineralised reefs at 1465 RL, suggesting the variable development of the split reef continues with depth beneath the eastern end of the mine.

In the case of B22, the horse was well mineralised and averaged 11 g/t Au.

The HW and FW of the main Tasmania Reef as seen in all five recent drill holes are very sharply defined.

Mineralisation apart from As at geochemical levels is sparse in HW rocks. However, a feature of the FW

rocks adjacent to the reef is that they are often cut by a stockwork of quartz and quartz-carbonate veins containing sulfides and variable gold mineralisation. For example, B11, B12, B18, B19, B22 all have a zone of FW veining 4 - 6m wide, often containing 1 - 5 g/t Au. Interestingly, hole B15A at 1160 RL also has a FW stockwork developed which, if combined with the main reef, give is an intersection of 7.6m (EHT) 5.1 g/t Au.

FW stockwork mineralisation was not well recorded in the mine, and was generally not mined because it is typically below the historical mine cut off, which was almost certainly above 10 g/t Au.

**No allowance has been made in this resource estimate for FW mineralisation. However, it does exist and as more data becomes available its commercial impact should be reviewed. It could have a beneficial effect on both total resources and the effects of reef FW dilution during mining.**

There is some historical evidence that other reefs may be developed parallel to, and some distance from the main reef structure. Exploration for such reefs in the former mine was by way of HW and FW crosscuts and drives. Small structures were occasionally intersected but appear to have lacked promise. Surface drill holes and mine development have to date failed to locate any significant parallel reef structures within 300m of either the HW or FW of the Tasmania Reef.

There has effectively been no exploration beyond this zone either north or south.

#### 4.2.3 MINERALISATION

Examination of hand specimens suggest there are two phases of mineralisation present in the reef:

- an early phase of quartz veining which can carry significant arsenopyrite and pyrite, and occasionally coarse grains gold isolated in the quartz.
- a later stage of cream coloured carbonate and quartz, typically carrying significant pyrite, arsenopyrite, chalcopyrite and occasional sphalerite and galena.

The relative distributions of these two phases within the reef is unclear, and no pattern has yet emerged. It is possible that both phases are present in roughly the

same relative proportions across most of the reef.

No change in relative distribution was seen with depth. Petrological and mineralogical work on samples from B20, B21 and B22 confirmed the above hand specimen observations. The summary of this work, undertaken by Central Mineralogical Services (CMS), is presented in total below. The full CMS report is appended.

**REPORT CMS 94/5/12**  
**BEACONSFIELD DRILL CORES - B20, B21, B22**

Twenty-one drill core intersections were received for petrographic and mineralogical study; eighteen polished thin sections and three thin sections were prepared and examined, and some carbonate stain tests were carried out to identify carbonate species.

**Summary**

The **host rocks** to the mineralisation are dominantly vein-quartz and ankerite, with occasional wall rock fragments such as black shales, cherts and orthoquartzites.

All the rocks show varying effects of tectonism; the vein-quartz rocks generally show more severe effects because of their brittle, hard nature, whereas the ankeritic rocks tend to recrystallise more easily. Early formed sulphides pyrite and arsenopyrite are also severely microfractured and milled, and splinters are caught up in younger veins.

The **mineralisation** comprises early formed pyrite and arsenopyrite, contemporaneous with the vein-quartz and preceding tectonism. There is a post-tectonic phase of mineralisation of base metal sulphides, mainly chalcopyrite, with sphalerite, galena and tetrahedrite.

**Gold** occurs as minute inclusions (up to 30 $\mu$  but mostly 1 - 10 $\mu$ ) in pyrite, and is also a post-tectonic mineral associated with base metal sulphides (see photos); the earlier gold is pale, Ag-rich, and the later gold is dark, Ag-poor.

If the early-formed gold is associated only with pyrite and not with arsenopyrite, this would be a considerable environmental advantage; however, this needs to be verified by assaying an arsenopyrite concentrate (this can be produced by Superpanning if not by flotation).

This latest CMS report conforms with observations also made by CMS ten years earlier, on drill core samples

from B11.

It should be noted that CMS did not report significant coarse gold in these latest samples. This is because the core was selectively sampled for mineralogical work. All coarse gold observed in core occurred as isolated grains in early stage massive white quartz veins, and there seemed little point in cutting these grains out of the core for mineralogical work.

#### 4.2.4 GOLD GRADE

Reefs which contain abundant coarse visible gold such as the Tasmania Reef, have notoriously variable grades over very short intervals.

On such deposits, cored drill holes are useful in proving the presence and development of the reef, but of limited and often misleading value in predicting grade.

Certainly this view was echoed in former technical reports of the Tasmania Reef, and is the primary reason why core drilling was never used on the mining operation for testing grade ahead of mining.

The current drill hole density in the Tasmania Reef between 1340 - 1590 RL is generally in the range of 50 - 80m centres. In section 4.1.2 above, it was pointed out that holes on such centres represent a sample of approximately 0.5 ppm of the deposit.

Several drill hole intersections have now been repeated with adjacent second, third and fourth sample intersections (B11, B12, B20, B21, B22), and it is clear from both a visual inspection of the core and a study of assay values, that grade variations will be extreme over very short intervals (< one metre).

Other holes have been drilled on relatively close spacings and show similar variations:

B4A - B4B	25m apart	66 g/t - 26 g/t
A6 - A7	15m apart	34 g/t - 13 g/t
B21 - B22	40m apart	16 g/t - 32 g/t

The best method to obtain reliable grade data on resource blocks on such reefs, is by in-reef development including drives and rises.

The ultimate grade indicators are annual production records, provided the data is accurately sourced. Many contemporary maps of the Tasmania Reef show a large amount of grade data on mine development headings - it should not be forgotten that these maps have

invariably been compiled from newspaper reports and possibly other undocumented sources. There seems little point in meticulously contouring or interpreting such data.

Much has been written about grade trends and values on the Tasmania Reef, but great care must be taken to ensure consistency of data. **The difference between recovered grades, mined grades and in-situ reef grades must be recognised.**

The original Tasmania Gold Mining & Quartz Crushing Company mined the reef from surface to 1800 RL (250 vertical metres), at an average recovered grade of 33 g/t Au from 2000 tonnes per vertical metre.

The Tasmania Gold Mining Company Ltd mined from 1800 - 1600 RL at an average recovered grade of 21 g/t from 2500 tonnes per vertical metre.

The recovered gold grade for the last six years of operation was 12 g/t.

However, before reaching the conclusion that there was a decrease in grade with depth, it is necessary to consider mine dilution and mill recovery factors.

It is well documented that **mill recoveries** decreased significantly with depth, because the gold was becoming finer and more closely associated with sulfides (pre-sulfides flotation days). Mill losses for the last six years of production were estimated at 6 - 8 g/t and gold recovery was approximately 70%. Therefore, the mined head grade for that period was 18 - 20 g/t.

Mine dilution factors are poorly recorded. On the 1250' level, overall dilution was 50%. On the 1370' level, it varied from 20 - 50% over a two year period (? management problems?), and on 1500' level it was recorded as 50%.

So it is probable that the **in-situ reef grade** as mined over the last six years of operation (big sample!), was approximately 30 g/t.

The grade of reef on 1370' level (1632 RL) was 13.4 g/t over a 385m sample interval.

The grade of reef on 1500' level (1592 RL) averaged 19.9 g/t over the eastern 286m section. This same section of reef on 1370' averaged 13 g/t.

**Historical data does not support the story that in-situ reef grade was decreasing with depth.**

The weighted average grade of the 11 drill intersections below 1500' level from 1340 - 1590 RL (250 vertical metres) is 31.9 g/t, which equates very closely with the in-situ reef grades estimated for the final six years of production.

The majority of these drill intersections contained coarse visible gold. Such coarse gold always was a feature of the Tasmania Reef. Therefore, no cutting of high grade zones in drill hole intersections was undertaken. To do so would be to devalue a legitimate feature of the reef.

Drill core reef intersections were sampled for assaying on the basis of reef lithology and mineralogy.

The drill hole pattern is reasonably uniform over the resource interval under consideration.

Therefore, there seems little value with this density of drill holes and on this style of deposit, in doing anything else other than calculating a weighted mean of all drill holes using uncut grades.

Attempts to contour grade and width or assign polygons, or to indulge in geostatistical methods, is considered inappropriate at this stage.

An important feature of the drill pattern within the resource panel between 1340 - 1590 RL, is that **all drill holes have intersected a well developed reef and all contained significant gold**. Such an intersection success rate is excellent and testifies to the potential of this reef.

Both historical mine data and drill holes in the interval 1340 - 1590 RL, indicate an in-situ reef grade of around 25 - 30 g/t may continue to 1340 RL. However, in view of the somewhat lower grades reported on the 1370' and 1500' levels, this writer suggests a more conservative estimate of grade is warranted at this stage of limited knowledge.

**An average in-situ grade of 20 - 25 g/t Au is considered a realistic estimate for the Tasmania Reef between 1340 - 1590 RL.**

It is not feasible to predict grades in smaller blocks or RL slices, except for the following observations:

- historical data tended to indicate a generally higher grade central panel on the reef, with somewhat lower

grades towards the eastern and western extremities.

- drill holes near the base of the resource panel are no higher or lower in grade than near the top, i.e. there is no apparent decline of grade with depth.

#### 4.2.5 GROUND CONDITIONS

Ground conditions influence the type and cost of mine development, selection of stoping method and the amount of reef dilution.

There is an almost total lack of historical data on mining ground conditions and mining methods. Some inferences can, however, be made from random comments in reports, and when combined with information from contemporary drilling programs, a reasonable picture emerges.

Wall rock conditions vary both with depth and stratigraphic position. The limestone sequence to the immediate east of the mine is extensively cavernous and is overlain by very broken graphitic shales. These formations come to surface in what is commonly known as the "Deep Lead". The Grubb Shaft was developed in this Deep Lead and the Hart Shaft on the edge. It is, therefore, little wonder that both shafts experienced problems in their upper sections.

The limestone cavities appear to be generating large volumes of carbon dioxide and the depth of their development is unknown - at least 250 vertical metres. The caves are sometimes infilled with secondary calcite (B21, B22).

Below the limestone there is a narrow but very broken siltstone unit, in which the Tasmania Reef is reported to feather out (eastern end).

Underlying this unit, the main Transition Bed sequence is generally very competent possessing excellent ground conditions. This is reflected in both drill holes and the rapid sinking rate on the Grubb Shaft below 150m. Presumably the conditions would be similar in both the reef FW and HW.

Towards the western end of the mine, the Transition Beds pass into a grit-conglomerate sequence known as the Wet Beds. In the upper sections of the mine, these beds were one of the main transmitters of water where they intersected the reef. However, in the lower beds, most water was intersected on the reef itself.

The Wet Beds were intersected in B19 and B20 close to the reef HW, and consisted of a characteristic grit-pebble conglomerate sequence with a calcareous matrix. In B19, this matrix was leached out resulting in a highly porous, low strength crumbly rock. In B20, the matrix was unleached and this same unit was extremely competent.

The immediate reef HW and FW are generally quite fractured. In some drill holes, the HW was extremely broken and carbonaceous (B21, B22) and clearly would require supporting and probably contribute some dilution. The FW tends to be less broken and more silicified and veined.

The width of the fractured zone around the reef varies depending on the HW and FW stratigraphy. Typically, fracturing is intense 5 - 10m either side of the reef.

The competency of the reef itself is also variable and reflects the amount of water passage through the reef zone. Massive quartz vein sections are typically fractured but not excessively broken, whereas carbonate rich sections can vary from crumbly to very good. Ground conditions in the reef in B18, B19 were poor, but in B20, B21 and B22 were reasonable.

**For the purposes of this report, mineability of the reef as determined by ground conditions has not been factored into the resource estimate.**

#### 4.2.6 TREATABILITY (METALLURGICAL RECOVERY)

Two major mineralogical trends were reported in mining operations on the Tasmania Reef, which influenced gold recovery prior to 1914:

- gold was becoming generally finer (smaller grain size) with depth;
- amount of sulfides was increasing with depth.

By 1914, gold recoveries had fallen to 70 - 75%.

These two observations do not tell us much about likely future metallurgical performance, because they neither refer to the relative distributions and relationships of the increasing proportions of fine gold and sulfide, nor do they quantify the nature of the sulfides.

In order to improve recoveries, the ore was finely ground, resulting in large gold losses to slimes. These were estimated as 6 - 8 g/t in the latter years of

operations. Sulfidic ore was also roasted, which would also have contributed to gold losses.

Some metallurgical test work has been undertaken on B11 core and confirms Au is both free and associated with sulfides, principally chalcopyrite and pyrite.

Mineralogical studies on B20, B21, B22 point to similar gold associations, with possibly some gold also associated with other sulfides such as galena, sphalerite and tetrahedrite.

Cores from B22 are available for metallurgical testing, which would provide useful recovery data on material from the eastern end of the reef.

On the basis of macro and micro observations of drill cores, it is not possible to comment on mineralogical trends below the 1500' level, except to say that conditions were still favourable for the development of coarse gold at least to 1300 RL.

With future drilling programs below 1300 RL, two daughter hole intersections should be obtained from each parent - one for whole core assay and one for metallurgical work.

In any mine development plan below 1590 RL, provision should be made for an in-ore sill drive to provide a large bulk sample for metallurgical and plant design test work.

Detailed resource definition drilling will also provide useful material for further test work.

**For the purposes of this report, gold recovery factors as suggested by past mining, mineralogical and metallurgical test work, have not been factored into the resource estimate.**

#### **4.3 SUMMARY OF RESOURCE DEPTH TRENDS**

The following key observations have been made with respect to the resource in the Tasmania Reef extending below 1590 RL (1500' level) and 1340 RL:

- no diminishment in strike length;
- no overall reduction in width;
- the eastern end of the reef appears to have split into several close reefs, forming a wider reef zone;
- no overall reduction in gold grade;

- no gross changes in mineralogy, with conditions appearing favourable for gold deposition at least to 1300 RL;
- no increase in either structural complexity or disruption of the reef due to cross faulting;
- no major trends in reef wall rock ground conditions.

#### 4.4 RESOURCE ESTIMATES

Two classes of resources on the Tasmania Reef have been considered in this report:

- Identified mineral resources;
- potential mineral resources.

**Identified mineral resources** have been dealt with in compliance with the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves. This code provides for three classes of identified mineral resources viz: inferred, indicated and measured.

The full definition (quoted from the Code) of these classes are:

##### **Inferred Resources**

The term "inferred mineral resource" means a mineral resource inferred from geoscientific evidence, drill holes, underground openings or other sampling procedures, where lack of data is such that continuity cannot be predicted with confidence and where geoscientific data may not be known with a reasonable level of reliability.

##### **Indicated Resources**

The term "indicated mineral resource" means a mineral resource sampled by drill holes, underground openings or other sampling procedures, at locations too widely spaced to ensure continuity but close enough to give a reasonable indication of continuity and where geoscientific data are known with a reasonable level of reliability. An indicated mineral resource estimate will be based on more data, and therefore will be more reliable, than an inferred mineral resource estimate.

##### **Measured Resources**

The term "measured mineral resource" means a mineral resource intersected and tested by drill holes, underground openings or other sampling procedures at locations which are spaced closely enough to confirm continuity and where geoscientific data are reliably known. A measured mineral resource estimate will be based on a substantial amount of reliable data, interpretation and evaluation of which allows a clear determination to be made of shapes, sizes, densities and grades.

If the mineralisation data base on the Tasmania Reef consisted only of drill hole data, then the resource would be classified as inferred. However, the drilling data is supplemented by both historical mining information and bounded on its upper margin by mine development.

This additional information demonstrates continuity of mineralisation and supports extrapolation of the geological interpretation below the mine. Mineralisation directly beneath the former mine can therefore be classified as indicated.

Whilst the resource block considered in this report can largely be regarded as an indicated resource, some material along the western and eastern depth extensions should be regarded as inferred, because knowledge and control on these margins are limited.

Sufficient confidence exists in the estimate to allow the planning application of technical and financial parameters in order to enable an evaluation of commercial viability.

The resource is quoted at this stage within a tonnage and grade range. An advantage of doing this is that such ranges can be factored into any sensitivity analyses of commercial viability.

The AIMM code also provides for appropriate components of the Identified Mineral Resource to be classified as Ore Reserves. However, the data base on the Tasmania Reef is not considered adequate at this stage, for any of the identified resource to be so classified.

Proposals exist in section five below, on requirements considered necessary to raise the status of the current identified resource to the measured resource and ore reserve categories.

The report also addresses the **potential mineral resource** of the Tasmania Reef. Such a resource has in no quantifiable way been identified, and as such cannot be considered as pre-resource mineralisation as per the AIMM code. It is merely an indication of the scope or potential in the area to identify additional mineral resources which, if subsequently identified, could influence investment and development options.

#### **4.4.1 IDENTIFIED MINERAL RESOURCE**

The resource on the Tasmania Reef beneath the former mine has been identified using the following criteria, whose selection was described in detail above:

##### **Data Base**

- 11 drill hole intersections plus additional sample wedges;

- 450 vertical metre mine development.

### **RL Range**

- upper limit defined by lowest mine level 1590 RL.  
Lower limit defined by influence of deepest drill holes B11, B12, B19 and arbitrarily placed at 1340 RL, giving vertical depth of 250m.

### **Strike Length**

- 350m, based on mine data and extrapolation of confining geological features to 1340 RL.

### **Width**

- because the resource estimate is done in the vertical plane, horizontal widths perpendicular to reef strike have been used.
- average width 2.8m was estimated. No attempt was made to contour widths because of extreme variations and sparse data.

### **SG**

- no quantitative estimates have been made. However, based on reef mineralogy an SG of 2.9 was used for the purposes of this exercise.

### **Grade**

- overall, a grade range 15 - 25 g/t has been estimated. It is likely that the central section of the reef is close to the upper limit of 25 g/t, whilst the strike extremities are closer to the lower limit of 15 g/t.

### **Core Recoveries**

- 100%; all relevant recent core is racked at Beaconsfield and most assaying was done at Analabs.

### **Payability**

- stoping records suggest a reef payability of close to 100% should be achievable, with branch lodes compensating for any low grade non-payable sections in the main reef.

On the basis of the above parameters, the identified resource is:

$$\begin{aligned} & 350 \times 250 \times 2.8 \times 2.9 \text{ tonnes} \\ & = 710,000 \text{ tonnes at } 15 - 25 \text{ g/t Au.} \end{aligned}$$

If however, the reef averaged 2.2m width as it did on the lower three levels (true or horizontal?) due mainly to its thinner strike extremities, then this resource would be reduced to:

558,000 tonnes at 15 - 25 g/t Au.

It is, therefore, recommended that the identified resource be considered at this stage as falling within a tonnage and grade range of 600,000 - 700,000 tonnes of 15 - 25 g/t Au. These ranges could be further subdivided into an indicated resource category in the central section of the reef, with an inferred resource attributed to the thinner and lower grade strike extremities on the following basis:

500,000 - 550,000t	20 - 25 g/t Au: Indicated Resource
100,000 - 150,000t	15 - 20 g/t Au: Inferred Resource

#### 4.4.2 Potential Mineral Resource

The selection of 1340 RL as the lower limit for the identified resource estimate is governed by existing drill hole locations and not by geology.

**There is clearly potential for the indicated resource to extend below 1340 RL.**

No geological factors have been observed, which suggest either the reef structure or the stratigraphy which possibly controls development of both the structure and mineralisation, might diminish or change detrimentally with depth.

Drill holes B10, B13 and A3 all passed through the extrapolated reef structure along strike from its projected mineralised section, which explains why they failed to intersect mineralisation.

B15A at 1160 RL was an important intersection. The main reef was 1.68m (EHT) at 9.2 g/t Au. If the FW veined mineralisation is included, the total structural zone is 7.6m 5.1 g/t. The hole is important because it suggests the following:

- the main reef is still well developed as a structure at 900 vertical metres;
- physical and chemical conditions remain conducive to gold deposition;
- the FW stockwork zone may be widely developed on this central eastern end of the reef cf B11, B12, B22.

Drill holes B16 and B17 were 50m to the west of B15 and intersected only a poorly defined structure with low gold values. This is not considered too significant or negative. In the previously mined area, the reef was known to thicken and thin, to have blank areas, and to be disrupted by cross faulting. The drill hole success rate into such a structure will never be 100% and it would be unusual if there was not the occasional "dud" hole. The significance and importance of B16, B17 will only emerge with more drilling at depth.

Contouring of the limestone FW (Figure 2) suggests the stratigraphy may be flattening slightly with depth. This may **possibly** also cause the reef to plunge more shallowly with depth. However, this effect may be due to the contouring of inconsistent data, and a thorough re-log of all drill holes would be necessary to determine that.

Further, there are other factors which will determine the plunge of the reef:

- strike of the reef structure;
- dip of the reef structure.

Various combinations of changes in strike and dip of both stratigraphy and reef structure could cause the reef to either flatten or steepen dramatically with depth, and there is simply not enough data to predict that.

Even if such plunge changes did occur at depth, there is no reason to think they might affect the development of reef mineralisation.

A program to further drill test possible depth extensions of the identified resource is outlined in the following section.

Potential also exists to define Au bearing mineral resources along stratigraphic strike to the north and south of the Tasmania Reef. However, this potential has been addressed in other reports and is outside the scope of this report.

## 5. FUTURE RESOURCE EVALUATION

This section recommends evaluation strategies designed to firstly elevate the resource category of the already identified 1340 - 1590 RL resource, and secondly to assess the resource potential below 1340 RL.

### 5.1 1340 - 1590 RL RESOURCE

The report has quantified a central indicated resource panel on the Tasmania Reef beneath the former mine.

Mineralisation extending to the east and west of this central panel has been classified as inferred resource on the basis of geological interpretation supplemented by some drilling information.

The inferred and indicated resources between 1340 - 1590 could be upgraded to a measured resource category by completion of a 50m x 50m cored drill hole pattern over the zone (Figure 4).

A total of 29 holes would be required, and if drilled from a HW decline developed from the 1250' level, would total approximately 4500m and cost \$400,000 to complete (full costs).

Such a drilling pattern, in combination with data from the lower mine levels, would provide confidence in mineralisation continuity, width and strike lengths, grade estimation, and provide additional material for metallurgical testing.

In order to classify any of these resources as reserves, it will be necessary to complete some underground development which will establish tonnes, grade, mineability and treatability.

Ideally, it is recommended that this underground development be in the form of a sill drive developed from a FW decline in such a position to facilitate a start to year 1 production, thereby serving two purposes.

If the reef is 400m long, 2.5m wide and the sill is driven 3m x 3m, then such a sill drive will provide a 10,000 tonnes bulk sample, which may also represent approximately 10% of year 1 production.

If placed 50m below the 1500' level, the sill drive would provide sufficient data to enable resources defined in the block between the sill and 1500' level, together with a 25m block below the sill level to be classified as probable (or proved) reserves.

The reef between the sill and 1500' level should contain approximately 120,000 - 140,000 tonnes, depending on reef payability factors.

Following an assessment of the sill drive results and the 50m x 50m drilling pattern, it may be considered necessary to close the drill pattern to 25m x 25m one year in advance of production from a particular block. Such additional "production drilling" could be undertaken from a FW decline, and would be necessary if the reef was shown by sill driving to be highly disrupted by cross faulting.

## **5.2 1200 - 1340 RL RESOURCES**

Significant potential exists below 1340 RL to define additional resources.

The potential can best be realised by surface drilling. A program of six holes has previously been recommended to achieve this at a cost of \$720,000.

Such a program would be adequate to outline the inferred and indicated resources to 1200 RL; ie. 850m beneath surface, equivalent to approximately double the depth of the former mine.

## 6. PRINCIPAL REFERENCES

The principal references used in compiling this report were records and reports from the former mining operations.

A full set of **annual reports** from the Tasmania Gold Mining Company Ltd is held at the Grubb Shaft Museum. These provide useful information of grades, widths, metallurgy and mining of the reef from around 1900 - 1914.

Accompanying these annual reports are various **technical reports** by the mine superintendent and his consultants, including:

- *"Final Portion of Superintendent's Report for year ending 30th September 1913"* by C F Heathcote, Superintendent.
- *Special Report of Mr Arthur Llewellyn*" January 1914.

An additional report of value was by Cundy and Fawcett, May 1914 titled *"1914 Report to the Tasmanian Minister for Mines"*.

By collating data from all these reports, it is possible to gain a good insight into Tasmania Reef as mined from 250 - 450m depth.

Little reference was made to more recent resource estimate reports. On occasions these contain some serious technical mistakes and it was considered appropriate to start with a clean slate, particularly in the light of recently acquired drilling data.

**APPENDIX 1**

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 18

Commenced:	07 July 1993
Completed:	01 Sept 1993
Logged By:	L.A.Newnham
Drilled By:	D.D.T. (Harvey)

Purpose of Hole
To test the Tasmania Reef at R.L.1400, approx. midway between B11 and A 6. The hole was the first in a program of 5 holes designed to acquire greater knowledge of the Reef resource between 1600 RL (lowest mine level) and 1400RL.

Comments on Completion
Tasmania Reef interpreted to occur between 649.2-653.2m and averaged 57.3 g/t Au over an estimated true width of 2.5m and an estimated horizontal width of 2.9m. A narrow FW reef assayed 11.5 g/t over 0.2m (ETT) and was separated from main reef by 10m (ETT) Au and As anomalous sediments.

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	38,609.1	484644.7	2038.7	-89.5	320

Length (m)
699

Hole Size	
To (m)	Size
12	PW
71	HW
110	HQ
699	NG

Significant Core Loss Zones		
From	To	%Rec.
0.0	71	0.0
84.0	113.0	
218.9	226.9	cavities
424	454	

Hole Condition on Completion
Hall Rowe wedge placed at 236-239m. and B19 ran off wedge at 236m and started coring at 242m. For hole condition above 236m., see logs of B19 and B 20.
Hole below van Ruth plug at 240m. was clean and open.

Summary of Results

Depth		Recovery %	Description	Assays							
From	To			Length	Au	Ag	Cu	Pb	Zn	As	S %
649.2	653.2	100	Quartz-Carbonate-Py-Asp.reef with included rafts sst.	4.0	57.37	20	562	1055	2307	7781	4.8
667.9	668.2	100	Quartz- carbonate-pyrite vein	0.3	11.57	8	1832	632	2045	4467	5.5

DOWN HOLE SURVEY DATA

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 18

Depth (m)	Dip	Bearing (AMG)	Interval		Length (D)	Vertical Distance		Horizontal Distance		Co-ordinates			
			From	To		D. sin dip	R.L.	D. cos dip (HD)	Cumulative HD	N. distance HD. cos brg.	N. co-ordinate	E. distance HD. sin brg.	E. co-ordinate
COLLAR	-89.5	320					2038.70		0.00		38,609.1		484,644.7
0	-89.5	320	0	13.5	13.5	13.50	2025.20	0.12	0.12	0.09	38,609.2	-0.08	484,644.6
27	-89	320	13.5	39	25.5	25.50	1999.70	0.45	0.56	0.34	38,609.5	-0.29	484,644.3
51	-89.5	320	39	65	26	26.00	1973.71	0.23	0.79	0.17	38,609.7	-0.15	484,644.2
79	-88.5	6	65	91	26	25.99	1947.71	0.68	1.47	0.68	38,610.4	0.07	484,644.3
103	-87	318	91	115	24	23.97	1923.75	1.26	2.73	0.93	38,611.3	-0.84	484,643.4
127	-86	312	115	139	24	23.94	1899.81	1.67	4.40	1.12	38,612.4	-1.24	484,642.2
151	-85.5	323	139	163	24	23.93	1875.88	1.88	6.28	1.50	38,613.9	-1.13	484,641.0
175	-85	320	163	187	24	23.91	1851.97	2.09	8.38	1.60	38,615.5	-1.34	484,639.7
199	-85	310	187	212.5	25.5	25.40	1828.57	2.22	10.60	1.43	38,617.0	-1.70	484,638.0
226	-84	301	212.5	241	28.5	28.34	1798.22	2.98	13.58	1.53	38,618.5	-2.55	484,635.4
256	-83.5	304	241	271	30	29.81	1768.42	3.40	16.97	1.90	38,620.4	-2.82	484,632.6
288	-83.5	305	271	300.5	29.5	29.31	1739.11	3.34	20.31	1.92	38,622.3	-2.74	484,629.9
315	-83.5	299	300.5	324.5	24	23.85	1715.26	2.72	23.03	1.32	38,623.6	-2.38	484,627.5
334	-82.7	299	324.5	349	24.5	24.30	1690.96	3.11	26.14	1.51	38,625.1	-2.72	484,624.8
364	-82.7	303	349	379	30	29.76	1661.20	3.81	29.95	2.08	38,627.2	-3.20	484,621.6
394	-82.7	302	379	409	30	29.76	1631.45	3.81	33.77	2.02	38,629.2	-3.23	484,618.4
424	-82.7	301	409	439	30	29.76	1601.69	3.81	37.58	1.96	38,631.2	-3.27	484,615.1
454	-82.5	302	439	469	30	29.74	1571.95	3.92	41.49	2.08	38,633.3	-3.32	484,611.8
484	-83	293	469	499	30	29.78	1542.17	3.66	45.15	1.43	38,634.7	-3.37	484,608.4
514	-82.5	295	499	529	30	29.74	1512.43	3.92	49.07	1.65	38,636.4	-3.55	484,604.9
544	-82.5	294	529	559	30	29.74	1482.68	3.92	52.98	1.59	38,638.0	-3.58	484,601.3
574	-82.5	295	559	589	30	29.74	1452.94	3.92	56.90	1.65	38,639.6	-3.55	484,597.7
604	-82	292	589	619	30	29.71	1423.23	4.18	61.07	1.56	38,641.2	-3.87	484,593.9
634	-82.2	294	619	654.5	35.5	35.17	1388.06	4.82	65.89	1.96	38,643.1	-4.40	484,589.5
675	-82	292	654.5	687	32.5	32.18	1355.88	4.52	70.41	1.69	38,644.8	-4.19	484,585.3
699	-82	292	687	699	12	11.88	1343.99	1.67	72.08	0.63	38,645.5	-1.55	484,583.7
	0	0	0										

866045

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 18

Description		Core Recovery			RQD			Assays									
From	To		From	To	%	From	To	%	From	To							
0.0	12.0	PW and HW tricone; Yellow and white clays.	0	71	0												
12.0	68.0	HW casing advancer; chips of shale, dark gray-black, graphitic, minor quartz veining;															
68.0	71.0	HW casing advancer; limestone, light gray chips, minor dark gray shale.															
71.0	218.9	<b>LIMESTONE</b> grading to <b>CALCAREOUS SILTSTONE</b> below 170m. Light to dark gray limestone cut by numerous 1-10mm anastomosing white calcite veins; occasional dark gray-black calcareous-carbonaceous beds; thin (<1mm) carbonaceous stylolites common; blebs and finely disseminated pyrite <1% in limestone, stylolites and carbonaceous beds.	71	73.3	96	103.3	109.3	63									
				79.3	100		111.3	55									
				80.5	100		113.7	33									
				82.3	83		115.3	56									
				84	100		118.3	63									
				87	50		121.3	83									
				89.3	87		124.3	60									
				91.3	90		127.3	80									
				96	100		130.3	66									
				97.6	0		133.3	90									
		Reduced to NQ at 96m.		100.3	37		136.3	63									
				103.3	73		139.3	77									
		Several narrow breccia zones where angular fragments dark gray limestone up to 20mm set in matrix of calcite:(eg) 102.7-103.7m., 111.4-112.0m		106.3	97		142.3	60									
		118.0-118.3m, 147.0-147.2m, 155.9-156.1m, 163.3-163.8m		111.3	100		145.3	77									
		118.5-118.6: Pyrite-calcite vein at 25 CA;		113.7	54		148.3	80									
		Ptygmatic folding of 1-2mm. calcite veins 131-133m. veins approx. 40 CA;		218.9	100		154.3	64									
		Limestone becoming lighter gray with depth, possibly reflecting increase in silt content.					157.3	77									
		Limestone variably leached, with several 0.2-1.0m cavities in 71-130m interval; these account for core loss figures in this zone;					160.3	66									
		Core generally fresh and competent but several joint sets at 10,30,45,70 CA resulting in number of broken zones, especially in darker carbonaceous material; calcite common on joint surfaces;					163.3	50									
		BCA consistent 20-25 in upper part of unit increasing to 40 below 150m					166.3	63									
							169.3	16									
							172.3	23									
							175.3	37									
							178.3	40									
							181.3	55									
							187.3	30									
							190.3	55									
							193.3	16									
							196.3	73									
							199.3	27									
							202.3	70									

866046



Description		Core Recovery			RQD			Assays									
From	To		From	To	%	From	To	%	From	To							
231.5	244.5	.....cont. 238.6-239.1: vuggy calcite vein 20 CA filled with large clear calcite crystals; pyrite common as coarse aggregates, veinlets, fine disseminations throughout- 2-3% but some narrow intervals to 5% eg. 233.9-234.3m BCA consistent 45; core generally competent but broken zone 237.5-240.3m; fractures parallel bedding and joints 70 and 20 CA;															
244.5	310.0	<b>INTERBEDDED LIMESTONES AND CALCAREOUS SILTSTONES:</b> gradational with unit above; light gray limestones interbedded with darker gray calcareous siltstones <i>Siltstone component increases down unit and becomes the dominant unit by 310m; more massive limestone beds are stylolitic and occasionally fragmental eg. 289.2-289.6m and 293.3-293.6m; fragments commonly pyrite rimmed;</i> calcite veins 2-10mm common, at steep angle to bedding; 1-2% pyrite throughout on fractures, coarse aggregates and disseminated; common in stylolites; narrow (0.5-1mm) pyritic stylolites common in limestone from 309-310m; BCA consistent 40-45; core quite competent; several joint sets at 10,30, 70 CA, generally coated with calcite; most fracturing bedding parallel and on joints at 30 and 70 CA; broken zones 247-250, 292-293m.	244.5	253.3	100	244.2	247.3	63									
			253.3	256.3	93		252.1	17									
			256.3	292.3	100		256.3	62									
			292.3	295.3	97		259.3	40									
				310.3	100		262.3	70									
							266.9	50									
							271.3	60									
							274	48									
							277	27									
							283	69									
							286.3	43									
							289.3	77									
							292.3	22									
							295.3	54									
							297.3	30									
							299.8	76									
							302.5	48									
							307.3	85									
							310.3	57									
310.0	338.3	<b>SILTSTONES with MINOR INTERBEDDED LIMESTONES:</b> dark gray-black well bedded calcareous siltstones with numerous 10-50mm light gray limestone interbeds; occasional 5-10mm white crosscutting calcite veins; fine dissem. pyrite <1% in both siltstones & limestones- diminishing towards base of unit;	310.3	312.1	94	310.3	312.1	44									
			312.1	338.3	100		314.6	88									
							319.3	72									
							322.3	90									
							329.7	80									
							335.3	60									
							340.3	20									

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 18

Page No: 4

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To	Au					As
310.0	338.3														
		.....cont. Competent ground, especially below 312m; BCA consistent 40; Occasional joints 30 and 70 CA; most breaks in core are driller breaks; most fracturing bedding parallel on shaley partings; broken qtz-calcite vein 311.7-312.1m													
338.3	342.8														
		<b>BROKEN SILTSTONE and LIMESTONE:</b> Interbedded gray siltstone and light gray limestone; erratic bedding; Start of unit marked by 20cm breccia with gray limestone fragments set in white calcite matrix; Unit very broken; bedding variable 0-45 CA; several crushed clayey zones; jointing at 20, 45 and 70 CA;													
		338.3	340.3	95	340.3	342.8	10								
			342.1	94											
342.8	343.6														
		<b>QUARTZ-CARBONATE-SULFIDE VEIN:</b> Massive white quartz, cream carbonate, and several angular blocks of calcareous siltstone; Approx. 30 CA; Fine pyrite and coarser arsenopyrite 2-3%, especially in carbonate rich sections; very broken, with fractures generally parallel to vein margin;													
		342.1	345	96	342.8	347.3	0								
								342.9	343.7	0.345					6540
343.6	354.0														
		<b>SILTSTONE:</b> gray, fine grained siltstone, calcareous in part, interbedded with light gray limestone; Minor 5-10mm. qtz-calcite veins 70 bedding; also random network very fine <1mm calcite veins; 10cm. black pyritic rubble- pug-carb breccia zone at 352.2m; Generally broken core, with breaks parallel to bedding and on calcite coated joints at 20, 45, 70 CA; BCA 40 - 45;													
		345	354	100	347.3	350.8	20								
						351.7	0								
						361.1	35								
354.0	402.8														
		<b>INTERBEDDED SILTSTONES and HEMATITIC LIMESTONES:</b> Gradational with unit above but higher limestone component; interbedded light gray limestones and dark gray hematitic limestones													
		354	402.8	100	361.1	361.4	0								
						370.2	18								
						372.3	57								
						382	38								

866049

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To						
354.0	402.8				382	383.4	29								
						386.2	64								
						388.3	29								
						392.6	72								
						395.1	17								
						397.2	33								
						402.1	20								
402.8	403.4	402.8	424.6	100		404.1	30								
403.4	570.0	424.6	426.9	43	404.1	409.3	35								
			444.2	100		416.9	80								
			445.2	80		420.5	55								
			463.8	100		426.9	14								
			454.8	70		430.2	42								
			570	100		438.3	0								
						449.7	15								
						461.4	52								
						466.5	18								
						471.8	36								
						483.3	63								
						494.8	30								
						505.4	22								
						510.6	40								
						519.4	6								
						530.2	26								
						541.9	35								
						548.1	68								
						560.2	50								
						565.8	4								

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 18

Description			Core Recovery			RQD			Assays							
From	To		From	To	%	From	To	%	From	To						
403.4	570.0	.....cont. occasional broken zones 2-5m. wide alternating with more competent intervals; 463.2-468.4: very broken unit with thin pug seams parallel to bedding; numerous joint directions, often calcite coated which appears to alter to soft greasy coating (talc?), attributing to weakness on joint and bedding planes; below 510m. gradual increases to approx 1% fine disseminated pyrite in all rock types; pyrite decomposes on exposure to reddish iron oxide deposit on core surface; number of qtz-carb. veins increasing below 540m.: 1-10mm. wide, 70 CA and almost perpendicular to bedding, occasionally containing coarse dissem pyrite; occasional 2-10cm. dark gray shale beds after 525m; these shaley beds are very broken, especially along bedding surfaces which are typically graphitic;				565.8	571.3	40								
570.0	610.7	<b>LIMESTONE and CALCAREOUS SILTSTONE:</b> gradational with unit above; light gray-white massive limestone interbedded with darker gray calcareous siltstone, and minor thin dark gray siltstone and shale beds; approx. 1% fine grained disseminated pyrite throughout ; some thin limestone beds have brecciated appearance, with dark green-black ?chloritic matrix; narrow (20cm) bedding parallel limestone breccia at 577.3m; BCA consistent 40; core very competent with most fractures being driller fractures; occasional bedding parallel fractures in thin shaley partings; sparse 1-5mm. calcite veins healing fractures but no qtz-carb. veins in this unit;	570	610.7	100	571.3	577.2	69								
							589.6	80								
							601.6	81								
							613.6	72								

866051



Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To	Au	Ag	Cu	Pb	Zn	As
653.2	667.9														
		653.2	667.9	100	654	659	30	653.2	654.2	0.431					528
						663.4	18	654.2	655.2	0.328					1395
						675.6	68	655.2	656.2	0.526					75
								656.2	657.2	0.333					88
								657.2	658.2	1.73					219
								658.2	659.2	2.4					300
								659.2	660.2	0.07					237
								660.2	661.2	0.292					88
								661.2	662.2	1.33					91
								662.2	663.2	0.44					256
								663.2	664.2	1.36					220
								664.2	665.2	0.221					94
								665.2	666.2	0.073					77
								666.2	667.2	0.15					52
								667.2	667.9	0.237					91
667.9	668.1							667.9	668.2	19.5	8	1832	632	2045	4467
										Au (SFA)	Sb	81	S		
										11.57	44	2	5.5		

866053



COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 19

Commenced:	02 Sep 93
Completed:	14 Oct 93
Logged By:	L.A.Newnham
Drilled By:	D.D.T.

Purpose of Hole
To test Tasmania Reef approx 100 m. West of B 18 at R.L. 1400. i.e. to intersect the previously untested western side of the reef approx. 200 m. below the former mine workings.

Comments on Completion
The Tasmania Reef was intersected 85 m. West of B18 at R.L. 1388; drill hole width 4.6m. estimated horizontal width 3.0 m. est. true thickness 2.6 m. average grade 21.9 g/t Au. Reef very broken.

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	38,609.1	484,644.7	2038.7	-90	-

Length (m)
719.3

note: B 19 wedged off B 18 at 236 m.

Hole Size	
To (m)	Size
719.3	NG

Significant Core Loss Zones		
From	To	%Rec.
nil		

Hole Condition on Completion
allrods withdrawn from hole; for condition of hole above 236 m. see log B 20;

Summary of Results

Depth		Recovery	Description	Assays							
From	To	%		Length	Au	Ag	Cu	Pb	Zn	As	S
353.5	354.2	100	mineralised qtz-carb-pyr.-chalco.-asp vein (fault)	0.7	0.84					2.16	
662.4	667.0	100	Tasmania Reef : qtz -carb-pyr-chalco-asp vein (s)	4.6	21.9	2.5	0.1	0.01	0.07	0.16	3.04

866055

DOWN HOLE SURVEY DATA

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 19

Depth (m)	Dip	Bearing (AMG)	Interval		Length (D)	Vertical Distance		Horizontal Distance		Co-ordinates			
			From	To		D. sin dip	R.L.	D. cos dip (HD)	Cumulative HD	N. distance HD. cos brg.	N. co-ordinate	E. distance HD. sin brg.	E. co-ordinate
COLLAR	-89.5	320					2038.70		0.00		38,609.1		484,644.7
0	-89.5	320	0	13.5	13.5	13.50	2025.20	0.12	0.12	0.09	38,609.2	-0.08	484,644.6
27	-89	320	13.5	39	25.5	25.50	1999.70	0.45	0.56	0.34	38,609.5	-0.20	484,644.3
51	-89.5	320	39	65	26	26.00	1973.71	0.23	0.79	0.17	38,609.7	-0.15	484,644.2
79	-88.5	6	65	91	26	25.99	1947.71	0.68	1.47	0.68	38,610.4	0.07	484,644.3
103	-87	318	91	115	24	23.97	1923.75	1.26	2.73	0.93	38,611.3	-0.84	484,643.4
127	-86	312	115	139	24	23.94	1899.81	1.67	4.40	1.12	38,612.4	-1.24	484,642.2
151	-85.5	323	139	163	24	23.93	1875.88	1.88	6.28	1.50	38,613.9	-1.13	484,641.0
175	-85	320	163	187	24	23.91	1851.97	2.09	8.38	1.60	38,615.5	-1.34	484,639.7
199	-85	310	187	212.5	25.5	25.40	1826.57	2.22	10.60	1.43	38,617.0	-1.70	484,638.0
226	-84	301	212.5	238	25.5	25.36	1801.21	2.67	13.26	1.37	38,618.3	-2.28	484,635.7
250	-82.7	276	238	262	24	23.81	1777.40	3.05	16.31	0.32	38,618.7	-3.03	484,632.7
274	-81.5	268	262	286	24	23.74	1753.67	3.55	19.86	-0.12	38,618.5	-3.55	484,629.1
298	-80	270	286	304	18	17.73	1735.94	3.13	22.99	0.00	38,618.5	-3.13	484,626.0
310	-79.5	265	304	325	21	20.65	1715.29	3.83	26.81	-0.33	38,618.2	-3.81	484,622.2
340	-77	256	325	355	30	29.23	1686.06	6.75	33.56	-1.63	38,616.6	-6.55	484,615.6
370	-76	255	355	385	30	29.11	1656.95	7.26	40.82	-1.88	38,614.7	-7.01	484,608.6
400	-76.2	257	385	415	30	29.13	1627.82	7.16	47.98	-1.61	38,613.1	-6.97	484,601.7
430	-76	257	415	445	30	29.11	1598.71	7.26	55.23	-1.63	38,611.5	-7.07	484,594.6
460	-75.5	254	445	475	30	29.04	1569.66	7.51	62.74	-2.07	38,609.4	-7.22	484,587.4
490	-75	254	475	500	25	24.15	1545.52	6.47	69.21	-1.78	38,607.6	-6.22	484,581.2
510	-73.7	254	500	522.5	22.5	21.60	1523.92	6.32	75.53	-1.74	38,605.9	-6.07	484,575.1
535	-72.7	251	522.5	547	24.5	23.39	1500.53	7.29	82.82	-2.37	38,603.5	-6.89	484,568.2
559	-72	249	547	574	27	25.68	1474.85	8.34	91.16	-2.99	38,600.5	-7.79	484,560.4
589	-72	250	574	604	30	28.53	1446.32	9.27	100.43	-3.17	38,597.3	-8.71	484,551.7
619	-71.5	250	604	636.5	32.5	30.82	1415.50	10.31	110.74	-3.53	38,593.8	-9.69	484,542.0
654	-71	252	636.5	686.5	50	47.28	1368.22	16.28	127.02	-5.03	38,588.8	-15.48	484,526.5
719	-71.5	251	686.5	719	32.5	30.82	1337.40	10.31	137.33	-3.36	38,585.4	-9.75	484,516.8

866056







Description		Core Recovery			RQD			Assays									
From	To	From	To	%	From	To	%	From	To								
440.0	518.0	384-440 cont.... mineralisation restricted to rare grains pyrite; core very broken in some intervals along bedding plane fractures and joint sets at 30, 45 and 70 CA; bedding plane fractures usually associated with thin soft-greasy mudstone / shale beds; joints and bedding plane fractures often calcite or calcite-qtz. coated;															
		<b>CALCAREOUS SILTSTONE and MINOR LIMESTONE:</b>															
		440	510.6	100	441.3	452.9	34										
			511.8	84		459.3	11										
			514.8	90		465.3	37										
			517.8	90		483	29										
						494.6	25										
				501	20												
				512.8	0												
				519.4	10												
518.0	543.6	<b>LIMESTONES and CALCAREOUS SILTSTONES:</b> Interbedded light gray-white limestone and															
		517.8	543.6	100	519.4	525.5	74										
					531.8	51											

866060





Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To	Au	Ag	Cu	Pb	Zn	As
11.8	662.4	<b>GRITS, CALCAREOUS SANDSTONE, CONGLOMERATE:</b> speckled gritty sandstone interbedded with dark gray sandstone and pebble conglomerate beds; speckled appearance of grits due to creamy colored carbonate grains set in dark gray siliceous groundmass; calcareous sandstones light gray medium grained; conglomerate mainly consists of white qtz and black shale pebbles set in dark gray siliceous groundmass; BCA consistent 45-50; network of 1-5 mm cream colored carb. and qtz-carb. veins decreasing below 638 m. pyrite common 2-3 % throughout, especially abundant in stylolitic fractures; dissem. as 0.5-1 mm euhedral grains, veins and blebs in all rock types and in both pebbles and groundmass of conglomerate; no conglomerate after 642.5 m. where sequence is dominated by dark gray sandstones and grits with minor calcareous units, all cut by a network 1-5 mm. qtz-carb and carb veins; several thicker veins 659.4-659.8m; below 660 m. increase in thin qtz-carb and carb. veins and microfractures with dissem pyrite in both veins and beds; core quite broken in sections along 20, 30 70 CA joints, commonly coated with qtz and carb; stylolitic fracturing abundant; fracturing throughout unit is open suggesting leaching of carbonate resulting in water transmittable unit; 659.6-660.3: very broken black rubbly sandstone unit with thin qtz veins and dissem pyrite													
		631.8	667	100											
					638.5	644.1	30	634.3	635.3	0.011					<100
						655.7	21	639.4	640.4	0.005					<100
						661.1	10								
								647.9	648.9	0.005					<100
								654.3	655.3	<0.005					<100
								658.6	659.6	0.018					<100
								659.6	661.1	0.57					180
								661.1	662.4	0.729					150

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To	Au	Ag	Cu	Pb	Zn	As
662.4	667.0														
		662.4	667	100				Au by fire assay of 50g pulverised sub sample							
					661.1	666.4	19	662.4	663.4	19.3	<2	932	69	691	480
								663.4	664.4	23.6	8	3222	362	910	3860
								664.4	665.2	65.7	2	418	60	1146	850
								665.2	666.2	22.9	<2	64	47	371	1950
								666.2	667	8.95	<2	48	58	454	630
								Au by screen fire assay on 1000g pulverised sub samples							
										Au		S			
								662.4	663.4	14.64		1.5			
								663.4	664.4	29.9		5.55			
								664.4	665.2	49.36		3.15			
								665.2	666.2	9.96		1.7			
								666.2	667	8.52		3.4			
667.0	690.2														
		667	690.2	100	666.4	671.7	19	667	668	0.336					110
															<100
															100
															<100
															<100
															<100
															<100
															<100
															<100

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To	Au					As
667	690.2														
Irregular 1-10 mm qtz-carb and carb veins common but gradually decreasing down hole; pyrite as small aggregates, blebs and euhedral grains 0.5-1 % throughout in sandstone, cong. matrix and pebbles, and in stylolitic fractures; open stylolitic fractures common and appear characteristic of this unit; stylolitic surfaces are typically coated with dark soft material (? graphite or soft hematite); core reasonably competent except for fracturing on these stylolites and joint sets at 30 and 45 CA															
2	698.9	690.2	698.9	100											
<b>BRECCIATED SANDSTONES and CONGLOMERATES:</b> dark gray sandstone and white pebble conglomerates extensively brecciated and veined by qtz-carb material; stylolitic fractures common, coated with graphite ?; unit appears to have been extensively fractured by injection of qtz-carb fluids which forms both veins up to 30 mm. wide and groundmass to breccia zones where sandstone fragments are up to 50-60 mm. across; start of unit marked by 20 mm. pug zone; pyrite pervasive 1-2 % as striated euhedral crystals up to 0.5 mm. and large blebs up to 10 mm.; pyrite common in stylolites, but present in all rock types including conglomerate matrix and clasts; core generally competent except for fracturing along stylolites;					690.1	696.1	45								
					696.1	702	63	690.2	691.2	0.012					110
								691.2	692.2	0.012					<100
								692.2	693.2	0.01					<100
								693.2	694.2	0.005					<100
								698.3	699.3	<0.005					<100
9	719.3	798.9	719.3	100											
<b>SANDSTONES and CONGLOMERATES:</b> dark gray sandstone with speckled appearance in places due to calcareous grains set in dark groundmass; conglomerate beds consist of semi rounded white qtz pebbles in dark siliceous matrix;					702	707.6	45	703.1	704.1	<0.005					<100
					707.6	713.7	54	712.2	713.2	0.167					150
					713.7	719.3	84								

866065



COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 20 (A)

Commenced:	04 Dec 93
Completed:	04 Dec 93
Logged By:	L.A.Newnham
Drilled By:	Dia.Drill Tas

Purpose of Hole
:To obtain a second intersection through the Tasmania Reef immediately adjacent to B20, primarily for the purpose of obtaining a larger sample for assay and leaving B20 untouched for further studies

Comments on Completion
B20(A) was wedged off B20 only 6 m. in the HW of the Tasmania Reef. Intersection looked very similar in all respects to B20; Whole core was sampled for assay; Reef definition, width and assays were all encouraging;

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
wedged off B20	at 614 m.	and probably	<0.5m	from	

Length (m)
14.2

B20;

Hole Size	
To (m)	Size
628.3	NQ

Significant Core Loss Zones		
From	To	%Rec.
nil		

Hole Condition on Completion
;see log of B20

Summary of Results

Depth		Recovery %	Description	Assays								
From	To			Length	Au	Ag	Cu	Pb	Zn	As	S	
620.8	623.0	100	Quartz and quartz-carbonate-sulfide fault	2.2	6.5	<2	0.02	0.01	0.04	0.23	1.69	
				ETT 1.4 m., EHT 1.7 m.								
624.8	625.1	100	Quartz-carbonate vein	0.3	8.15	<2	0.01	<0.01	0.02	0.10	2.3	
				ETT 0.2 m., EHT 0.25m								

866067

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 20 (A)

Page No: 1

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To	Au	Ag	Cu	Pb	Zn	As
614.1	620.8														
		614.1	620.8	100	614.1	619	46	Au by fire assay of 50g sub sample							
								617.2	618.4	0.398					275
								618.4	619.4	0.135					130
								619.4	620.4	0.107					<50
								620.4	620.8	0.402					95
620.8	623.0														
		620.8	623	100	619	623	0	Au by screen fire assay of 1000g pulverised sample							
								620.8	621.6	9.56	<2	189	84	724	650
								621.6	622	6.13	<2	41	266	158	9100
								622	622.5	1.54	<2	105	14	169	890
								622.5	623	6.84	<2	307	31	152	860
623.0	624.8														
		623	624.8	100				Au by fire assay of pulverised 50g sub sample							
					623	628.3	45	623	624	0.235					150
								624	624.8	0.206					150
624.8	625.1														
		624.8	625.1	100				Au by screen fire assay of 1000g pulverised sub sample							
								624.8	625.1	8.15	<2	145	25	167	1030

866068



COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B20

Commenced:	20 Oct 93
Completed:	04 Dec 93
Logged By:	L.A. Newnham
Drilled By:	Dia. Drill Tas

Purpose of Hole
To test the western end of the Tasmania Reef approx. 100 m. west of A6/A7 and at RL 1450, approx. 150 m. beneath the former mine workings.

Comments on Completion
B20 intersected a well developed reef structure and a narrow FW reef; the reef was very broken but the wall rocks were competent; the core was left in tact and the whole core from the reef intersection in a second sampled wedged hole B20(A) immediately adjacent to B20 was assayed; encouraging results;

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	38609.1	484644.7	2038.7	-90	-

Length (m)
661.8

\* note: B 20 was wedged off B 18 at 229m.

Hole Size	
To (m)	Size
661.8	NQ

Significant Core Loss Zones		
From	To	%Rec.
nil (apart from nav. operation intervals)		

Hole Condition on Completion
PW casing had disappeared down hole (short length) HW casing could not be moved, so 0-71 m. left HW cased with a casing advancer shell on end; HQ could not be moved, and was cut at 98.7 m. with casing cutter, meaning HQ was left 98.7 - 110.0 m. with a shoe bit on end; a metal plate was welded on top of HW casing just below ground level and covered with soil; re-entry of hole should be no problem;

Summary of Results

Depth		Recovery	Description	Assays							
From	To	%		Length	Au	Ag	Cu	Pb	Zn	As	S
The following results were obtained by assaying whole core from B20 (A) which was a wedged hole drilled immediately adjacent (<0.5 m) from B20											
620.8	623.0	100	Quartz and quartz - carbonate - sulfide fault	2.2	6.5	<2	0.02	0.01	0.04	0.23	1.69
				ETT 1.4 m., EHT 1.7 m.							
624.8	625.1	100	Quartz-carbonate vein	0.3	8.15	<2	0.01	<0.01	0.02	0.10	2.30
				ETT 0.2 m., EHT 0.25 m.							

**DOWN HOLE SURVEY DATA**

**COMPANY: Beaconsfield Gold N.L.**  
**PROJECT: Beaconsfield Mine**  
**HOLE NUMBER: B 20**

Depth (m)	Dip	Bearing (AMG)	Interval		Length (D)	Vertical Distance		Horizontal Distance		Co-ordinates			
			From	To		D.sin dip	R.L.	D. cos dip (HD)	Cumulative HD	N. distance HD. cos brg.	N. co-ordinate	E. distance HD. sin brg.	E. co-ordinate
COLLAR	-89.5	320					2038.70		0.00		38,609.1		484,644.7
0	-89.5	320	0	13.5	13.5	13.50	2025.20	0.12	0.12	0.09	38,609.2	-0.08	484,644.6
27	-89	320	13.5	39	25.5	25.50	1999.70	0.45	0.56	0.34	38,609.5	-0.29	484,644.3
51	-89.5	320	39	65	26	26.00	1973.71	0.23	0.79	0.17	38,609.7	-0.15	484,644.2
79	-88.5	6	65	91	26	25.99	1947.71	0.68	1.47	0.68	38,610.4	0.07	484,644.3
103	-87	318	91	115	24	23.97	1923.75	1.26	2.73	0.93	38,611.3	-0.84	484,643.4
127	-86	312	115	139	24	23.94	1899.81	1.67	4.40	1.12	38,612.4	-1.24	484,642.2
151	-85.5	323	139	163	24	23.93	1875.88	1.88	6.28	1.50	38,613.9	-1.13	484,641.0
175	-85	320	163	187	24	23.91	1851.97	2.09	8.38	1.60	38,615.5	-1.34	484,639.7
199	-85	310	187	212.5	25.5	25.40	1826.57	2.22	10.60	1.43	38,617.0	-1.70	484,638.0
226	-84	301	212.5	228	15.5	15.42	1811.15	1.62	12.22	0.83	38,617.8	-1.39	484,636.6
230	-81	276	228	238	10	9.88	1801.28	1.56	13.78	0.16	38,618.0	-1.56	484,635.1
246	-82	295	238	258	20	19.81	1781.47	2.78	16.57	1.18	38,619.1	-2.52	484,632.5
270	-81.5	290	258	272.5	14.5	14.34	1767.13	2.14	18.71	0.73	38,619.9	-2.01	484,630.5
275	-80	292	272.5	282.5	10	9.85	1757.28	1.74	20.45	0.65	38,620.5	-1.61	484,628.9
290	-81	291	282.5	295	12.5	12.35	1744.94	1.96	22.40	0.70	38,621.2	-1.83	484,627.1
300	-79.5	282	295	302.5	7.5	7.37	1737.56	1.37	23.77	0.28	38,621.5	-1.34	484,625.7
305	-79.2	282	302.5	308.5	6	5.89	1731.67	1.12	24.89	0.23	38,621.7	-1.10	484,624.6
312	-77	272	308.5	314.5	6	5.85	1725.82	1.35	26.24	0.05	38,621.8	-1.35	484,623.3
317	-77	270	314.5	320.5	6	5.85	1719.98	1.35	27.59	0.00	38,621.8	-1.35	484,621.9
324	-74.5	266	320.5	328.5	8	7.71	1712.27	2.14	29.73	-0.15	38,621.6	-2.13	484,619.8
333	-74	266	328.5	341.5	13	12.50	1699.77	3.58	33.31	-0.25	38,621.4	-3.57	484,616.2
350	-73	264	341.5	355	13.5	12.91	1686.86	3.95	37.26	-0.41	38,621.0	-3.93	484,612.3
360	-72	262	355	364.5	9.5	9.04	1677.82	2.94	40.20	-0.41	38,620.6	-2.91	484,609.4
369	-70.5	260	364.5	372	7.5	7.07	1670.75	2.50	42.70	-0.43	38,620.1	-2.47	484,606.9
375	-69	259	372	382.5	10.5	9.80	1660.95	3.76	46.46	-0.72	38,619.4	-3.69	484,603.2
390	-67.5	257	382.5	395	12.5	11.55	1649.40	4.78	51.25	-1.08	38,618.3	-4.66	484,598.6
400	-65.5	256	395	407.5	12.5	11.37	1638.03	5.18	56.43	-1.25	38,617.1	-5.03	484,593.6
415	-64	254	407.5	420	12.5	11.23	1626.79	5.48	61.91	-1.51	38,615.6	-5.27	484,588.3

866071

**DOWN HOLE SURVEY DATA**

**COMPANY: Beaconsfield Gold N.L.**  
**PROJECT: Beaconsfield Mine**  
**HOLE NUMBER: B 20**

425	-62.5	252	420	434.5	14.5	12.86	1613.93	6.70	68.60	-2.07	38,613.5	-6.37	484,581.9
444	-61.7	250	434.5	452	17.5	15.41	1598.52	8.30	76.90	-2.84	38,610.7	-7.80	484,574.1
460	-60.7	250	452	462.5	10.5	9.16	1589.37	5.14	82.04	-1.76	38,608.9	-4.83	484,569.3
465	-60.5	249	462.5	476	13.5	11.75	1577.62	6.65	88.69	-2.38	38,606.5	-6.21	484,563.1
487	-59.7	250	476	502	26	22.45	1555.17	13.12	101.80	-4.49	38,602.0	-12.33	484,550.8
517	-59.2	251	502	532	30	25.77	1529.40	15.36	117.17	-5.00	38,597.0	-14.52	484,536.2
547	-58.7	253	532	562	30	25.63	1503.77	15.59	132.75	-4.56	38,592.5	-14.90	484,521.3
577	-58	255	562	592	30	25.44	1478.33	15.90	148.65	-4.11	38,588.4	-15.36	484,506.0
607	-56.5	255	592	634.4	42.4	35.36	1442.97	23.40	172.05	-6.06	38,582.3	-22.60	484,483.4
661.8	-55.5	256	634.4	661.8	27.4	22.58	1420.39	15.52	187.57	-3.75	38,578.6	-15.06	484,468.3
661.8													

866072

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To						
		B 20 was wedged off B19 at 229 m., and coring commenced at 234.2 m.													
234.2	278.0	234.2	269.8	100											
		269.8	273.1	0											
				(nav)											
		273.1	278	100											
					234.2	239.9	30								
						246	61								
						251.8	21								
						263.9	46								
					(nav)	273.4	28								
						279.8	53								
278.0	339.5	<b>HEMATITIC LIMESTONE:</b>													
		278	293.5	100											
		293.5	299	0	279.8	286	69								
				(nav)		292	53								
		299	304.8	100	(nav)	303.8	27								
		304.8	310	0	(nav)	314.8	24								
				(nav)	(nav)	326	31								
		310	316.8	100		332.6	27								
		316.8	322	0		338.4	24								
				(nav)											
		322	339.5	100											
339.5	341.7	<b>MINERALISED FAULT ZONE:</b>													
		339.5	341.7	100											
					338.4	344	12								

866073

Description		Core Recovery			RQD			Assays									
From	To		From	To	%	From	To	%	From	To							
339.5	341.7	cont.....															
		340.6-341.7: qtz-carb vein 3-5 % coarse disseminated euhedral pyrite; unit very broken;															
341.7	448.0	<b>CALCAREOUS SILTSTONE and LIMESTONE</b> Interbedded light gray calcareous siltstone and light gray-off white stylonitic limestone, occasionally hematitic and crinoidal; proportion of limestone beds gradually decreasing down hole below 395m., with corresponding increase in calc silt. component; persistent network 0.5-5 mm qtz-carb. veins; very fine <1mm veins common 390-425 m; BCA 55-60; pervasive 1-2 % disseminated pyrite often coarsely euhedral, generally in limestones and decreasing to rare disseminated grains below 350 m; 347.8: 20 cm. carb-(qtz) vein with 2-5 % disseminated pyrite; vein 40 CA; 354-361: limestone crinoidal; 365-366: several 5-10mm. cream carb-qtz veins;  core overall quite broken; limestone beds competent with most fractures along calcite filled fractures parallel to bedding and occasional 20 and 40 CA joints; siltstones very fractured, especially darker less calcareous siltstone-shaley units, mainly along soft greasy shale laminae and several directions of calcite coated joint sets ranging from 10-70 CA; very broken 345-354 m;	341.7	368.8	100												
			368.8	374	0	344	354.6	0									
					(navi)		366.6	30									
			374	410.8	100	(navi)	377.5	9									
			410.8	415.3	0		383.4	17									
					(navi)		389.8	12									
			415.3	448	100		395.6	27									
		core blocks 1m. out;					401.6	17									
		adjusted at 452m					407.7	8									
						(navi)	416.8	16									
							423.1	19									
							428.9	10									
							435	15									
							439.8	12									
							445.8	7									
448.0	496.7	<b>CALCAREOUS and NON CALCAREOUS SILTSTONES:</b> gradational with unit above; medium gray calcareous siltstone interbedded with darker gray non calcareous siltstone; occasional thin (<20cm) light gray medium grained limestone bed;	448	496.7	100	445.8	458.7	0									
							464.6	7									
							477.2	34									
							495	24									

866074



Description		Core Recovery			RGD			Assays								
From	To	From	To	%	From	To	%	From	To							
448.0	496.7															
		...cont.... BCA consistent 60-65; cream colored carb. and qtz-carb veins, common to 470 m. and ranging from micrevelns to 10 mm. brecciated veins at 20- 30 CA; sulfides confined to rare grains dissem pyrite, usually in more calcareous beds; core quite broken, both along several calcite filled joint directions and on bedding parallel fractures in thin shaley units;														
496.7	538.2															
		<b>CALCAREOUS SILTSTONES and LIMESTONES:</b> dark gray medium grained calcareous siltstones interbedded with light gray medium grained limestones; BCA consistent 65 - 70; only very minor thin calcite veining, no qtz veining; rare specs pyrite, mainly in limestones; core extremely competent, most breaks either driller breaks or occasional greasy bedding parallel breaks in thin (<10mm) shaley beds;														
		496.7	538.2	100												
					495	501.3	68									
						507.8	77									
						514.5	82									
						520.6	56									
						533.5	93									
						539.9	76									
538.2	575.1															
		<b>SILTSTONES, MINOR LIMESTONES and CONGLOMERATES:</b> dark gray siltstones, generally calcareous but calcareous component decreasing down hole; occasional 10-20 cm. light gray medium grained limestone bed; first conglomerate 548.3-550.3m: quartz and black shale fragments set in gray calcareous matrix; speckled nature of siltstones due to lighter gray grains carbonate set in darker siliceous groundmass; 10 cm crinoidal (?) limestone bed 553.8 m. with 1-2 % pyrite; BCA consistent 60-65; occasional 5-10 mm. cream-white carb. veins coarsely crystalline; below 564 m. siltstones cut by network of fine														
		538.2	575.1	100												
					539.9	552.6	61									
						558.3	75									
						564.5	29									
						570.7	42									
						577	19									

Description		Core Recovery			RQD			Assays								
From	To	From	To	%	From	To	%	From	To							
587.3	598.0															
		...cont.... set in a dark siliceous groundmass with only very minor carb component; BCA 65; occasional 1-10 mm. qtz and qtz-carb veins; common greasy stylolitic structures containing abundant pyrite (eg) 594.0m; pyrite 0.5 % dissem in groundmass as euhedral clusters and discrete grains and occasionally as fine dissem in pebbles; core generally competent with low angled joint set 20-30 CA; some fracturing along stylolitic structures which are increasing in abundance with depth;														
598.0	617.3	598	617.3	100	602	614.4	60									
		<b>GRITS-SANDSTONES-CONGLOMERATES and CALCAREOUS SILTSTONE:</b> similar to unit above but with several 10-50 cm. units of light gray calcareous siltstone; 602.9 m.: 20 mm. breccia zone parallel bedding; stylolitic fracturing common, coated with greasy hematitic (?) material;														
617.3	622.0	617.3	622	100	620.8	626.4	29									
		<b>BROKEN and VEINED CALCAREOUS SILTSTONE and MINOR CONGLOMERATE:</b> similar to unit above but very broken, calcareous, and more veined and pyritic; (original core blocks were 0.5m. out, indicating core loss; however this was a marking error and there was no loss); medium gray siltstones generally calcareous; occasional narrow qtz pebble conglomerate beds; abundant carb - minor qtz. veins, ranging from microveins (<1mm) to 20mm. veins; 617.3: 20mm calcite breccia vein 35 CA with minor pyrite; 618.9: 50mm qtz-carb vein with large blebs pyrite-chalco (2-3 % sulfides); 621.6: 10mm black pug zone with 0.5 % coarse euhedral pyrite; 621.8: 10mm black pyritic pug zone;														

866077

Description		Core Recovery			RQD			Assays									
From	To		From	To	%	From	To	%	From	To							
622.0	624.2	<b>QUARTZ CARBONATE FAULT ZONE:</b> ( <i>Tasmania Reef</i> ): 622.0-622.3: milky white quartz vein, minor cream carbonate; HW contact 35-40 CA; qtz very fractured, minor fine grained pyrite, (arsenopy?) especially on fracture surfaces; 622.3-623.6 m.: quartz-carbonate-pyrite vein; cream colored carb and white qtz; 1-2 % pyrite as disseminations and large blebs and veinlets; core very broken; 623.6-624.2 m.: quartz vein; sharp 40 degree contact with qtz-carb. vein above; sharp 40 degree contact with unit below (FW); minor cream carbonate; 0.5-1 % pyrite as blebs and euhedral disseminations; core cut by thin qtz-carb veinlets but reasonably competent;	622	624.2	100				core from the reef intersection in B 20 was not assayed; a wedged hole B 20(A) was completed adjacent to B 20 and whole core from this reef intersection was assayed; therefore see log of B 20(A);								
624.2	625.7	<b>VEINED SILTSTONE and CONGLOMERATE:</b> light-dark gray siltstone and qtz pebble conglomerate cut by network <1mm. carb veins and 2-3 mm. qtz-carb veins; occasional thin (<5mm) soft shaley beds; minor dissem pyrite throughout and more concentrated on greasy (?hematitic) joints and stylolitic fractures;	624.2	625.7	100												
625.7	626.1	<b>QUARTZ-CARBONATE-PYRITE-CHALCOPYRITE VEIN:</b> sharp 40 degree HW and FW contacts; coarse grained white qtz-cream carb vein with some brecciation of carb; 2-3 % pyrite and 0.2-0.5 % chalco, both as blebs and thin veinlets throughout; core competent;	625.7	626.1	100												
626.1	638.9	<b>SILTSTONE-GRIT-CONGLOMERATE:</b> light gray siltstone, minor calcareous component; dark gray grits and qtz pebble conglomerates; Irregular patches of calcareous siltstone give core a mottled appearance in places; BCA 70;	626.1	638.9	100	626.4	632.5	57									
							638.9	45									

866078

Description		Core Recovery			RQD			Assays								
From	To	From	To	%	From	To	%	From	To							
626.1	638.9															
		....cont.... occasional qtz-carb veinlets with associated pyrite and minor chalco.; 0.5-1 % pyrite throughout as coarse dissem grains and aggregates; numerous stylolitic fractures with greasy hematitic (?) surfaces; core competent with most breaks on stylolitic surfaces or parallel to bedding in thin, soft light brown mudstone beds;														
638.9	646.4	638.9	646.4	100	638.9	644.7	53									
		<b>VEINED and BRECCIATED SANDSTONES and CONGLOMERATES: (fault zone?)</b> Interbedded dark gray sandstone and qtz pebble conglomerate; abundant qtz and qtz-carb veins ranging from network micro (<1mm) veinlets to diffuse veins up to 50 mm.; 10 cm. breccia zone 644.1m, and 646.2 m.(small faults?); 645.2-646.2 m: light brown micaceous siltstone with phyllitic texture and soft sediment slumping, with BCA varying 0-60; numerous stylolitic fractures coated with hematite?; pyrite 1-2 % throughout as coarse disseminations, aggregates and veinlets, especially in soft phyllitic beds and abundant in stylolites;														
646.4	661.8	646.4	661.8	100	650.8	656.9	43									
		<b>SILTSTONES and CONGLOMERATES:</b> Interbedded dark gray siltstones and qtz pebble conglomerates; occasional thin light brown phyllitic mudstone bed; siltstone speckled in places due to carb. component set in dark gray groundmass; network qtz and qtz-carb veins continues but not as abundant as in unit above; BCA 60-65; 0.5-1 % coarse pyrite as dissem and aggregates semi massive in stylolites; core competent, most fracturing along stylolites and parallel thin soft mudstone beds END of HOLE														

COMPANY: Beaconsfield Gold  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 21 (A)

Commenced:	04 Feb 94
Completed:	08 Feb 94
Logged By:	L.A.Newnham
Drilled By:	Dia.Drill Tas

Purpose of Hole
To obtain a second intersection of the Tasmania Reef immediately adjacent to B21, for the purposes of assaying the whole core, thereby leaving B21 undisturbed for further work;

Comments on Completion
B21(A) intersected the Tasmania Reef <0.5m from B21 and looked very similar to the latter. A well defined reef 2.8m drill width, 1.7m estimated true thickness and 2.0m horizontal width assayed 16 g/t Au; the reef samples were screen fire assayed and some difficulties were experienced with patchy fine gold in one sample; the reported value of 16g/t is considered conservative with an actual value possibly closer to 20g/t

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
B21(A)					HW: Its location is therefore considered to be the same as B21 over this interval

Length (m)
9.0

Hole Size	
To (m)	Size
	NG

Significant Core Loss Zones		
From	To	%Rec.
Nil		

Hole Condition on Completion
see log B 21.

Summary of Results

Depth		Recovery	Description	Assays							
From	To	%		Length	Au	Ag	Cu	Pb	Zn	As	S%
549.6	550.6	100	Reef HW siltstones, veined and with dissem. sulfides	1.0	0.106	<2	20	30	353	200	0.56
550.6	553.4	100	Tasmania Reef: well defined qtz-carb-sulfide fault zone	2.8	15.90	2	0.07%	0.03%	0.24%	1.64%	4.34
553.4	554.4	100	FW siltstones, qtz-carb veined with minor sulfides	1.0	1.33					2040	

080998

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B21(A)

Page No: 1

Description		Core Recovery			RQD			Assays								
From	To	From	To	%	From	To	%	From	To	Au	Ag	Cu	Pb	Zn	As	
547.5	550.6	547.5	550.6	100	547.5	550.6	30	549.6	550.6	0.106	<2	20	30	353	200	
<b>CALCAREOUS SILTSTONES:</b> gray calcareous siltstones; BCA 60; occasional 2-10mm shaley beds; common 1-2mm carbonate veins forming anastomosing network; 1-2% disseminated pyrite in siltstones, also as clusters in thin carbonate veins and abundant in shaley beds; core moderately broken (not as much as B21 - using 3m chrome tube as opposed to 6m non chromed tube); most fractures parallel to bedding along thin shale beds; very broken 550.4-550.6m (immediate reef HW)																
															S % :	0.56
550.6	553.4	550.6	553.4	100	550.6	553.4	25	550.6	551	16.22	2	667	102	1660	5700	
<b>QUARTZ-CARBONATE-SULFIDE FAULT            ZONE: (Tasmania Reef)</b> quartz carbonate vein with abundant pyrite and arsenopyrite and several large blocks or rafts of gray mineralised siltstone; HW and FW contacts very sharp- approx 40 CA; <b>550.6-551.0:</b> massive white quartz vein cut by a later network of thin qtz veins; qtz highly fractured; pyrite and arsenopyrite abundant; <b>551.0-552.0:</b> gray siltstone, intensely brecciated and cut by numerous quartz veins up to 2cm., and sparse later cream colored carb. veins to 5mm; difficult to determine if siltstone is fractured bed or large breccia fragment; pyrite and arsenopyrite common as disseminated grains, blebs, aggregates and massive veinlets; <b>552.0-552.6:</b> massive quartz vein with minor late stage carbonate veins; abundant pyrite as euhedral crystals, blebs, veinlets and arsenopyrite needles; <b>552.6-552.8:</b> carbonate-pyrite-arsenopyrite vein overprinting earlier quartz; some sphalerite and chalcopyrite; <b>552.8-553.4:</b> quartz-carb-sulfide-siltstone																
																S % :
								551	552	4.847	<2	226	338	925	13000	
															S % :	4.3
								552	552.6	34.28	2	310	112	790	5700	
															S % :	1.7
								552.6	552.8	30.44	10	5330	1020	16700	49000	
															S % :	15.1

866081



COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 21

Commenced:	07 Dec 93
Completed:	03 Feb 94
Logged By:	L.A.Newnham
Drilled By:	Dia.Drill Tas.

Purpose of Hole
To test the eastern end of the Tasmania Reef approximately 100 metres below the former mine workings, midway between previous drilling to the west and the projected eastern limit of the reef.

Comments on Completion
B21 intersected the Tasmania Reef where planned, approx. 550 m. beneath surface and 90m. east of B4B; the reef was a well defined qtz and qtz-carbonate-sulfide fault zone with very sharp walls; 2.8m drill width and estm. true width 1.7m., horiz. width 2.0m; B21 was retained whole for further test work and a second sample wedged hole B21(A) was drilled immediately adjacent to B21 and the whole core from B21(A) was assayed.

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	38736.4	484634.8	2041.2	-88.5	109

Length (m)
591.0

Hole Size	
To (m)	Size
6.0	PW
100.0	HW
174.6	HG
591.0	NG

Significant Core Loss Zones		
From	To	%Rec.
0.0	100.0	0
249	266.0	cave zone

Hole Condition on Completion
all steel casing removed from hole; 6.0m PVC PW casing left cemented in top of hole steel cap placed over top of hole;

Summary of Results

Depth		Recovery	Description	Assays							
From	To	%		Length	Au	Ag	Cu	Pb	Zn	As	S
core from B21 was not assayed; whole core from immediately adjacent B21(A) was assayed:											
B21(A) Results:											
549.8	550.6	100	HW siltstones, veined and with dissent. sulfides	1.0	0.106	<2	20	30	353	200	0.56
550.6	553.4	100	Tasmania Reef: well defined qtz-carb-sulfide fault zone	2.8	15.90	2	0.07%	0.03%	0.24%	1.64%	4.34%
553.4	554.4	100	PW siltstones, qtz-carb veined with minor sulfides	1.0	1.33					2040	

866083



COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B21

Page No: 1

Description		Core Recovery			RQD			Assays									
From	To		From	To	%	From	To	%	From	To							
0.0	12.0	PW tricone to 6.0 m., cased with PVC pipe; HW tricone to 12 m. in yellow clays (2 weathered limestone);	0	100	0	0	99.7	0									
12.0	100.0	<b>GRAPHITIC SHALES:</b> HW tricone; black cuttings from graphitic shales, and minor dark gray limestone beds;															
100.0	118.5	<b>GRAPHITIC SHALES and MINOR LIMESTONE:</b> graphitic shales, black-dark gray, soft; BCA variable but generally low 0-30; minor dark gray limestone beds; occasional thin (<1mm) calcite veining; 105.8m: 5 cm. qtz-carb. vein; 113.0m: qtz-carb vein rubble; pyrite 0-0.5% as streaks, blebs and bedding parallel veinlets; core moderately competent to 104m., then extremely broken, especially along graphitic bedding plane surfaces; present as rubble in some intervals; some core loss;	100	112.1	100												
			112.1	113	89												
			113	115.1	71												
			115.1	118.3	62												
						99.7	103.6	33									
						103.9	107.2	6									
						107.2	110.5	12									
						110.5	114.5	0									
						114.5	119.8	0									
118.5	187.5	<b>LIGHT GRAY LIMESTONE:</b> massive light gray limestone, sharp contact with unit above; significant carbonaceous component in some intervals resulting in darker coloration; stylolites abundant; BCA variable but typically 30-40; pervasive network of 1-10mm. wide white calcite veins, often discontinuous and plygmatically folded; minor pyrite (0.5%) as euhedral grains and aggregates, in stylolites, occasionally in calcite veins and within limestone proper; core broken to 122m., then very competent - many breaks are driller breaks; fracturing most common along bedding planes or stylolites; wide spaced jointing 5-15 CA; occasional narrow broken zones; 121 m: limestone crinoidal ?	118.3	120.7	56												
			120.7	123.8	77												
			123.8	126.4	81												
			126.4	187.5	100												
						119.8	125	44									
						125	129.3	35									
						129.3	133.8	53									
						133.8	147.1	76									
						147.1	151.6	40									
						151.6	156.1	62									
						156.1	160.2	76									
						160.2	165	58									
						165	174.3	46									
						174.3	180.6	40									
						180.6	187.5	20									

866085

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B21

Description		Core Recovery			RQD			Assays								
From	To		From	To	%	From	To	%	From	To						
118.5	187.5	....cont.... 172, 173.8 m.: coarse crystalline calcite veins 45 CA reduced to NQ at 174.6 m. limestones becoming darker with depth; 175.3 - 178.3: limestone breccia with dark gray limestone and several large siltstone fragments set in white calcite groundmass;														
187.5	202.0	<b>DARK GRAY LIMESTONE:</b> dark gray well bedded limestone cut by numerous thin 1-5 mm calcite veins typically at high angle to CA; BCA 35-40; 201.5: limestone breccia zone; black stylolites abundant; 0.5% pyrite as disseminations, blebs, veinlets both in limestone and calcite veinlets; core moderately broken, several joint directions, ranging from 10-70 CA, typically calcite coated, and occasionally drusy pyrite; core coated with brown mud deposited from circulating ground water;	187.5	202	100	187.5	193.3	33								
						193.3	204.4	20								
202.0	249.7	<b>LIGHTER GRAY LIMESTONE:</b> transition to lighter gray limestone cut by intense network of calcite veins 1-200 mm. thick; gradational with unit above; 202-204.8: zone massive white calcite veins; dark gray stylolites common; BCA variable 10-30; < 0.5% pyrite throughout as dissem., blebs and veinlets and abundant in stylolites; 215.9: 20cm. calcite-pyrite vein; core generally competent with many breaks being driller breaks; calcite coated joint sets 45, 70 CA; other fractures bedding parallel and along stylolites; Limestone-calcite vein breccia zones common; 241.8-245m: very broken puggy limestone rubble and limestone-calcite breccia material, some core loss;	202	238.5	100											
			238.5	243.7	83	204.4	210.9	78								
			243.7	245.7	90	210.9	216.9	43								
			245.7	249	100	216.9	229.8	60								
						229.8	242	45								
						242	249	31								

980998

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B21

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To						
249.7	265.4	<b>CAVERNOUS LIMESTONE:</b> numerous cavities up to 3m. between zones dark gray finely bedded broken and often puggy limestone; calcite veining up to 10cm common, often parallel to bedding and frequently containing blebs of fine pyrite; 254.4m: 3cm. massive fine grained pyrite followed by 30cm. cement; pyrite probably a cave deposit; 260.6m: 3cm. massive fine grained pyrite followed by cave filling silts and debris; 265.4m.: abrupt change from indurated cave sands to massive crystalline calcite; recoveries in this interval are very poor and core loss zones appeared from drill performance to be water filled caves;													
		249	251.1	38											
		251.1	252.2	73	249	265.7	10								
		252.2	254.4	64											
		254.4	259.5	10											
		259.5	260.6	18											
		260.6	262.4	17											
		262.4	265.5	26											
265.4	280.8	<b>CRYSTALLINE CALCITE and MINOR LIMESTONE:</b> very coarsely crystalline calcite, translucent in part and often with vuggy texture; appears to be secondary precipitation in cave; occasional 5-10 mm. fine grained pyrite beds and drusy pyrite on fractures and in solution voids; after 276.7m. well bedded light gray limestone interbedded with 10-20 cm. calcite zones with sawtooth upper surfaces; core broken but with good recoveries to 270m. then ground becomes significantly more competent towards base of cave system; this unit together with unit above indicates a significant cave system from 250 - 280m; BCA in basal limestones generally steep, approx 70;													
		265.5	267.2	88											
		267.2	270.2	93	265.7	278.5	12								
		270.2	280.8	100	278.5	284.4	58								
280.8	288.3	<b>LIMESTONE BRECCIA and LIMESTONE:</b> large blocks of light gray limestone brecciated and slumped in dark gray speckled calcareous matrix; possibly a zone of secondary collapse and recementing at the base of the cave system above;													
		280.8	288.3	100											
					284.4	297.3	69								

866087

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 21

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To						
288.3	368.0	288.3	368	100											
					297.3	315.9	48								
					315.9	328.8	73								
					328.8	335.1	86								
					335.1	347	52								
					347	362.1	64								
					362.1	368.4	82								

880998

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B21

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To						
368.0	430.0	368	430	100											
					368.4	381.2	74								
					381.2	393.3	61								
					393.3	399.2	85								
					399.2	405.5	76								
					405.5	417.9	65								
					417.9	424	77								
					424	430.1	56								

866089

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B21

Description		Core Recovery			RGD			Assays									
From	To		From	To	%	From	To	%	From	To							
430.0	490.0	<b>SILTSTONE and LIMESTONE:</b> gradational with unit above and boundary purely arbitrary to reflect dominance of siltstone over limestone; interbedded light gray calcareous and dark gray non calcareous siltstone with coarse grained crinoidal? limestone beds typically 10-20cm. thick; thin non calcareous shale-mudstone beds common; hematitic banding common in limestone; BCA consistent 40-45; occasional <5mm calcite veining; very minor fine grained disseminated pyrite, mainly in siltstone; core competent with many breaks being driller breaks; most fracturing along soft shaley partings and on high angled joints; fractures parallel to bedding often coated with clay or greasy hematite? unit becomes less calcareous and more fractured down hole; 459.9: 20cm. fossiliferous (crinoidal?/shell fragments?) <b>below 460:</b> 10-20mm. dark gray shale bands increasing; occasional 5-10mm calcite and qtz-carb. veins at high angle to bedding; limestone often hematitic; core generally competent but becoming somewhat more broken with depth with fractures along shaley beds and on stylolitic surfaces; increase in brittle fracturing with several wide spaced joint directions at high angles to bedding;	430	490	100												
						430.1	436.6	82									
						436.6	442.9	65									
						442.9	455.4	45									
						455.4	461.6	48									
						461.6	468	62									
						468	474.1	41									
						474.1	480.3	55									
						480.3	486.8	46									
						486.8	492.9	33									
490.0	550.7	<b>CALCAREOUS SILTSTONE:</b> gradational with unit above; light gray medium grained calcareous siltstone with occasional 5-10cm light gray limestone beds and dark gray non calcareous siltstone; several 5-20mm dark gray shale beds, often puggy; BCA consistent 50;	490	550.7	100												
						492.9	498.9	27									
						498.9	509.9	13									
						509.9	515.6	19									
						515.6	532.3	15									
						532.3	538.3	20									
						538.3	549.2	11									

866090







COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 22 A

Commenced:	17 March 94
Completed:	23 March 94
Logged By:	L.A. Newnham
Drilled By:	Dia. Drill Tas

Purpose of Hole
To gain an additional sample of the Tasmania Reef immediately adjacent to B22, for the purposes of future test work;

Comments on Completion
The geology intersected in B 22 A was very similar to B22, which was only about 20-30 cm away;

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	38735.5	484626.5	1482	-86.7	261

Length (m)
16.2

Hole Size	
To (m)	Size
all	N9

Significant Core Loss Zones		
From	To	%Rec.
nil		

Hole Condition on Completion
all rods were removed; only steel left in hole was Hall Rowe wedge;

Summary of Results

Depth		Recovery	Description	Assays							
From	To	%		Length	Au	Ag	Cu	Pb	Zn	As	S
B22A was not assayed; the results from B22B which was drilled immediately adjacent to B22 are as follows:											
564.0	567.0	100	quartz-carbonate-sulfide fault zone	3.0	29.9	7	0.33	<0.01	0.04	0.56	4.9
567.0	568.8	100	quartz and sulfide veined siltstone	1.8	11.8	<2	<0.01	<0.01	0.01	1.35	5.4
568.8	570.9	100	quartz-carbonate-sulfide fault zone	2.1	51.2	10.6	0.42	0.04	0.30	1.94	8.8
564.0	570.9	100	Tasmania Reef zone	6.9	31.6	6.5	0.27	0.01	0.01	1.19	6.2







COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 22B

Commenced:	26 March 94
Completed:	28 March 94
Logged By:	L.A. Newnham
Drilled By:	Dia. Dr. Tas

Purpose of Hole
to acquire an additional sample of the Tasmania Reef immediately adjacent to B 22 and B 22A for whole core assay purposes;

Comments on Completion
The Tasmania Reef and the adjacent FW Reef looked very similar to the corresponding intersections in B22 and B22A; The combined reefs and horse assayed 31.6g/t Au over an estimated true width of 4.4m., and an estimated horizontal width of 5.4 m.

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	38735.7	484626	1478	86.5	261

Length (m)
20.2

Hole Size	
To (m)	Size
all	NG

Significant Core Loss Zones		
From	To	%Rec.
nil		

Hole Condition on Completion
;see log B 22

Summary of Results

Depth		Recovery	Description	Assays							
From	To	%		Length	Au	Ag	Cu	Pb	Zn	As	S
564.0	567.0	100	quartz-carbonate sulfide fault zone	3.0	29.9	7	0.33	<0.01	0.04	0.56	4.9
567.0	568.8	100	quartz and sulfide veined siltstone	1.8	11.8	<2	<0.01	<0.01	0.01	1.35	5.4
568.8	570.9	100	quartz-carbonate-sulfide fault zone	2.1	51.2	10.6	0.42	0.04	0.30	1.94	8.8
564.0	570.9	100	Tasmania Reef zone	6.9	31.6	6.5	0.27	0.01	0.01	1.19	6.2

8660998

Description		Core Recovery			RQD			Assays								
From	To		From	To	%	From	To	%	From	To	Au	Ag	Cu	Pb	Zn	As
		B22B was wedged off B22 in the immediate reef HW of B22 in order to obtain a third intersection cut through the reef. It was planned that core from the reef in this hole would be assayed as whole core and results used to indicate approximate grades in B22 and B22A. Coring commenced at 554.5m:														
554.5	564.0	<b>SILTSTONE:</b> typical gray siltstone HW rocks, becoming broken and carbonaceous near the reef; similar to B22 and B22A; very broken and puggy on immediate 20cm. reef HW;	554.5	564	100				562.5	563.3	0.112	<2	10	165	77	<50
									563.3	564	0.614	<2	24	81	95	440
																%S
														562.5	563.3	0.15
														563.3	564	1.4
564.0	567.0	<b>QUARTZ-CARBONATE-SULFIDE FAULT: (Tasmania Reef):</b> HW very sharp at 45 CA; <b>564-564.4:</b> fractured white quartz vein with dark mineral in fractures; some cream carbonate veining; patches pyrite and arsenopyrite; several specs visible gold, abundant in top 20 cm; <b>564.4-564.8:</b> quartz-carbonate breccia zone with abundant pyrite, arsenopyrite and chalcopyrite; <b>564.8-565.1:</b> massive quartz vein with disseminated pyrite and arsenopyrite and several small flecks gold; <b>565.1-565.7:</b> very soft crumbly (altered) quartz carbonate pyrite zone; <b>565.7-566.3:</b> massive fractured white quartz vein; some pyrite and arsenopyrite and a few small grains gold; <b>566.3-567.0:</b> as above;  FW very sharp at 40CA;	564	567	100				564	564.4	63	8	1092	38	99	1510
									564.4	564.8	24.2	10	17400	173	1232	4920
									564.8	565.1	9.13	2	2400	22	262	630
									565.1	565.7	22.3	4	2766	54	669	7690
									565.7	566.3	11.4	<2	105	7	54	6220
									566.3	567	45.4	14	67	32	105	8220
																%S
														564	564.4	1.45
														564.4	564.8	10.9
														564.8	565.1	1.2
														565.1	565.7	9.15
														565.7	566.3	2.75
														566.3	567	3.1
567.0	568.8	<b>VEINED SILTSTONES:</b> siltstones veined with quartz-carbonate-pyrite-arsenopyrite veins, randomly orientated and	567	568.8	100				567	568	6.06	<2	78	11	146	11200
									568	568.8	19	<2	98	35	87	16400



COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 22

Commenced:	09 Feb 94
Completed:	17 Mar 94
Logged By:	L.A.Newnham
Drilled By:	Dia.Drill Tas

Purpose of Hole
To test the Tasmania Reef towards the eastern end approximately 150m, beneath the former workings, and down plunge of B 21

Comments on Completion
.B22 intersected two well developed reef structures, separated by a narrow strongly mineralised "horse" of siltstones; B22 was not assayed but in the adjacent B22B both the HW and FW reefs together with the horse carried high gold values and their combined intersection assayed 31.6g/t Au over a drill thickness of 6.9m, and an estimated true width of 4.4m, and an estimated horizontal width of 5.4m

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	38,736.4	484,634.8	2041.2	-88.5	109

Length (m)
593.0

Hole Size	
To (m)	Size
B22 wedged out of B21 at 180m	
593.0	NQ

Significant Core Loss Zones		
From	To	%Rec.
248.6	261.2	cave zone

Hole Condition on Completion
:B22A and B22B additional sample wedges were drilled off B22 through the Tasmania Reef; on completion of these wedges, all NQ, HQ and HW casing was removed from the hole; a six metre length of PW sized PVC was left cemented in the collar of the hole;

Summary of Results

Depth		Recovery	Description	Assays							
From	To	%		Length	Au	Ag	Cu	Pb	Zn	As	S
B22 was not assayed; the results from B22B which was drilled immediately adjacent to B22 are as follows:											
564.0	567.0	100	quartz-carbonate-sulfide fault zone	3.0	29.9	7	0.33	<0.01	0.04	0.56	4.9
567.0	568.8	100	quartz and sulfide veined siltstone	1.8	11.8	<2	<0.01	<0.01	0.01	1.35	5.4
568.8	570.9	100	quartz-carbonate-sulfide fault zone	2.1	51.2	10.6	0.42	0.04	0.30	1.94	8.8
564.0	570.9	100	Tasmania Reef zone	6.9	31.6	6.5	0.27	0.01	0.01	1.19	6.2

866101

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To						
185.0	252.5	<b>B22 was wedged out of B21 at 180m., with coring starting at 185m</b>  <b>LIMESTONE:</b> light gray limestone, with carbonaceous flecking and stylolites throughout; thin anastomosing calcite veining increasing with depth below 200m. see B21 for more detailed description of this unit; BCA 30-40; generally competent but occasional very broken zones; 0.5% pyrite as fine disseminations, small aggregates and occasional thin veinlets; below 246.5m., core becomes very broken and crumbly;													
		185	248.6	100											
		except navi cuts			185	191.1	74								
		248.6	253.5	90	203.5	226	68								
					226	231.8	57								
					231.8	243.6	49								
					243.6	248.6	42								
					248.6	255.5	29								
252.5	288.0	<b>CAVERNOUS LIMESTONE:</b> soft, light -dark gray cavernous limestone with abundant pyrite in secondary calcite beds and infilling cavities; vugs lined with coarse crystalline calcite and drusy pyrite; 258.8: 20cm massive pyrite replacing secondary calcite, including stalactites; 256.5-262: dark gray very decomposed puggy limestone and secondary calcite; 262-276.3: caves filled with very pure, very coarse calcite, often translucent; extremely soft and broken; some beds of coarse euhedral pyrite; 276.3-288: caves filled with calcareous black and gray carbonaceous silt, cave detritus, calcite, blocks of limestone; this is cave sediment and not Ordovician limestone;													
		253.5	256.5	84											
		256.5	258.9	50	255.5	262.6	17								
		258.9	261.2	78	262.6	268.5	47								
		261.2	288	100	268.5	273.5	0								
					273.5	285.2	18								
					285.2	291.3	52								
288.0	327.0	<b>LIMESTONE:</b> light gray limestone as above cave system; BCA 30; black carbonaceous material on bedding surfaces gives rock a streaky appearance; only sparse calcite veins; vugs and minor caves filled with coarse calcite, generally													
		288	327	100	291.3	303.9	73								
					303.9	309.6	51								
					309.6	315.9	73								
					315.9	322.1	61								
					322.1	328.2	88								

866102

DOWN HOLE SURVEY DATA

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 22

Depth (m)	Dip	Bearing (AMG)	Interval		Length (D)	Vertical Distance		Horizontal Distance		Co-ordinates			
			From	To		D. sin dip	R.L.	D. cos dip (HD)	Cumulative HD	N. distance HD. cos brg.	N. co-ordinate	E. distance HD. sin brg.	E. co-ordinate
COLLAR	0	0					2041.20		0.00		38,736.4		484,634.8
0	-88.5	109	0	53	53	52.98	1988.22	1.39	1.39	-0.45	38,735.9	1.31	484,636.1
106	-88.2	109	53	121	68	67.97	1920.25	2.08	3.46	-0.68	38,735.3	1.96	484,638.1
136	-88.4	95	121	153	32	31.99	1888.26	0.89	4.36	-0.08	38,735.2	0.89	484,639.0
170	-89.5	211	153	181.5	28.5	28.50	1859.76	0.25	4.61	-0.21	38,735.0	-0.13	484,638.8
193	-89.5	324	181.5	196.5	15	15.00	1844.76	0.13	4.74	0.11	38,735.1	-0.08	484,638.8
200	-88.3	347	196.5	209	12.5	12.49	1832.27	0.37	5.11	0.36	38,735.4	-0.08	484,638.7
218	-88.7	345	209	229	20	19.99	1812.27	0.45	5.56	0.44	38,735.9	-0.12	484,638.6
240	-89	330	229	252.5	23.5	23.50	1788.78	0.41	5.97	0.36	38,736.2	-0.21	484,638.4
265	-89	340	252.5	280	27.5	27.50	1761.28	0.48	6.45	0.45	38,736.7	-0.16	484,638.2
295	-89	307	280	310	30	30.00	1731.29	0.52	6.98	0.32	38,737.0	-0.42	484,637.8
325	-88	252	310	340	30	29.98	1701.31	1.05	8.02	-0.32	38,736.7	-1.00	484,636.8
355	-87.2	255	340	357.5	17.5	17.48	1683.83	0.85	8.88	-0.22	38,736.5	-0.83	484,636.0
360	-87.8	263	357.5	375	17.5	17.49	1666.34	0.67	9.55	-0.08	38,736.4	-0.67	484,635.3
390	-88	275	375	407.5	32.5	32.48	1633.86	1.13	10.68	0.10	38,736.5	-1.13	484,634.2
425	-87.5	275	407.5	438	30.5	30.47	1603.39	1.33	12.01	0.12	38,736.6	-1.33	484,632.8
451	-87	264	438	475	37	36.95	1566.44	1.94	13.95	-0.20	38,736.4	-1.93	484,630.9
499	-87	260	475	521	46	45.94	1520.50	2.41	16.36	-0.42	38,736.0	-2.37	484,628.5
543	-86.7	261	521	568	47	46.92	1473.58	2.71	19.06	-0.42	38,735.6	-2.67	484,625.9
593	-86.2	260	568	593	25	24.95	1448.63	1.66	20.72	-0.29	38,735.3	-1.63	484,624.2
593													

866103

COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B 22

Description		Core Recovery			RQD			Assays								
From	To	From	To	%	From	To	%	From	To							
327.0	379.0	288-327m. cont ..... rimmed with black stylolites; core very competent, many breaks being driller breaks; minor disseminated pyrite <0.5% throughout and occasionally as coarse blebs; core often coated with iron precipitated from ground water;														
		<b>MOTTLED LIMESTONE:</b>														
		light-dark gray mottled limestone, with some darker calcareous siltstone bands and thin 2-3mm greasy shale beds; limestone has a petal appearance; BCA consistent 45; sparse calcite veining; 0.5% fine disseminated pervasive pyrite;														
		<b>below 338m:</b> core quite broken along greasy joint surfaces and very thin shale bands; joints dominantly 10 CA and some steeper; low angled joints coated with calcite and euhedral pyrite;														
		<b>below 361m:</b> competency improves dramatically and many breaks are driller breaks; massive light gray limestone with occasional 5-10mm calcite veins; 0.5-1% disseminated pyrite, typically concentrated along greasy stylolitic surfaces; core coated with orange iron precipitate from ground water;														
					327	379	100									
					except for navi cut											
								328.2	334.4	61						
								334.4	340.1	53						
								340.1	345.1	10						
						345.1	350.6	33								
						350.6	361.9	39								
						estm of navi cut										
						361.9	374.5	78								
						374.5	380.7	60								
379.0	418.2	<b>BANDED LIMESTONE and CALCAREOUS SILTSTONE:</b>														
		gradational with unit above and 379m is purely arbitrary; light gray medium grained limestone interbedded with darker gray siltstone, generally calcareous and occasional thin <10mm shale beds, which all combine to give rock a mottled and banded appearance; widely spaced 5-15mm quartz and quartz-carbonate veins at high angle to CA; BCA consistent 40-45 CA;														
								380.7	386.9	77						
								386.9	399.3	93						
								399.3	405.5	81						
						405.5	411.9	93								
						411.9	418.1	71								

866104







COMPANY: Beaconsfield Gold N.L.  
 PROJECT: Beaconsfield Mine  
 HOLE NUMBER: B22

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To						
	540.0-564.2 cont...														
	coarser euhedral grains and aggregates; common on black greasy joint surfaces and pug zones (carbonaceous-hematite?); only minor pyrite in veins but common in siltstones adjacent to veins; brittle fracturing common along several joint and vein directions, and on shale-clay filled bedding surfaces;														
	below 555m. joint surfaces often coated with dark gray-black carbonaceous-hematite? material; bedding parallel pug zones 1-2 cm. wide becoming common; distortion of bedding also increasing below 560 m;														
	below 563m. core is very broken, rubble in places; pyrite as blebs and aggregates increasing to 2-3 %;														
54.2	566.9	564.2	566.9	100	565.6	570.8	50								
	<b>QUARTZ-CARBONATE-SULFIDE FAULT (Tasmania Reef HW):</b>				570.8	576.3	45								
	quartz carbonate sulfide fault zone with some visible gold;														
	HW and FW contacts very sharp at 40 CA;														
	564.2-564.5: massive, fractured white quartz vein, with fractures filled with quartz and carbonate; blebs and grains pyrite 0.5-1%; several small grains gold in the massive quartz;														
	564.5-565.0: quartz carbonate sulfide brecciated vein; semi massive sulfides associated with brecciated carbonate-mainly pyrite, chalco, arsenopyrite, sphalerite; neddle aspy is dominant sulfide in quartz rich zones; several isolated grains gold in qtz vein material;														
	565.0-565.3: massive white brecciated qtz vein with several veins and large blebs of semi massive chalco; 3-4% pyrite; qtz often has bluish color indicating possible fine grained arsenopyrite;														
	565.3-565.7: quartz carbonate sulfide vein with carbonate degraded into soft clayey														

B 22 was not assayed; whole core from the adjacent B.22B was assayed. see log of B.22B for details

866108

Description		Core Recovery			RQD			Assays							
From	To	From	To	%	From	To	%	From	To						
	564.2 - 566.9 cont....														
	material; abundant coarse pyrite in blebs and aggregates; minor chalc and arsenopyrite;														
	566.7-566.4: massive fractured qtz vein with fractures filled with sulfides and carbonate; 1-2% arsenopyrite in qtz as needles and clusters; pyrite as coarse aggregates 2-3%;														
	566.4-566.8: carbonate-pyrite vein with minor qtz and dissem. arsenopy;														
	566.8-566.9: fractured qtz vein with needle arsenopy 1-2%; several grains coarse gold with gold abundant in last 10mm;														
	reef only moderately broken, (compared with previous intersections) - mainly brecciation in carbonate rich zones and brittle fracturing in qtz;														
566.9	569.9 <b>VEINED and MINERALISED SILTSTONE:</b> dark gray siltstone, calcareous in part; network qtz-carbonate and carbonate veins 1-20 mm; 2-3 % coarse grained pyrite as disseminations, clusters and semi massive in thin carbonate veins; minor chalc and arsenopyrite; dark fine grained hematite? along joints and bedding planes;	566.9	569.9	100											
569.9	572.0 <b>QUARTZ-CARBONATE-SULFIDE FAULT ZONE (FW Tasmania Reef):</b> very sharp HW contact 40 CA; diffuse FW; 569.9-570.1: very soft friable carbonate-pyrite vein; 570.1-571.1: massive white fractured quartz vein; fractures filled with arsenopyrite, pyrite and carbonate; coarse aggregates pyrite 2-3%, semi massive in places; 571.1-571.4: qtz-carb-pyr-chalc vein; pyr-chalc semi massive as coarse blebs and veinlets; 571.4-572.0: qtz-carb vein; possibly a siltstone extensively fractured and totally	569.9	572	100											

866109



866111

# **APPENDIX 2**

## Central Mineralogical Services

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8 Bradshaw Avenue, Crafers, S.A. 5152  
Telephone (08) 370 9779 Fax (08) 370 9788  
International: Telephone + 618 370 9779 Fax + 618 370 9788

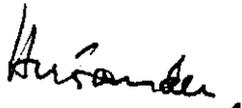


30 June 1994

Mr L Newnham  
Beaconsfield Project  
Allstate Explorations NL  
PO Box 58  
BEACONSFIELD TAS 7270

### REPORT CMS 94/5/12

YOUR REFERENCE: Order 13.5.94  
DATE RECEIVED: 17.5.94  
SAMPLE NO'S: B20, 21, 22  
SUBMITTED BY: L.A. Newnham  
WORK REQUESTED: Petrology, Mineragraphy

  
H.W. Fander, M.Sc.

REPORT CMS 94/5/12

BEACONSFIELD DRILL CORES, B20, B21, B22

Twenty-one drill core intersections were received for petrographic and mineragraphic study; eighteen polished thin sections and three thin sections were prepared and examined, and some carbonate stain tests were carried out to identify carbonate species.

Summary

The host rocks to the mineralisation are dominantly vein-quartz and ankerite, with occasional wall-rock fragments such as black shales, cherts and orthoquartzites.

All the rocks show varying effects of tectonism; the vein-quartz rocks generally show more severe effects because of their brittle, hard nature, whereas the ankeritic rocks tend to recrystallise more easily. Early formed sulphides pyrite and arsenopyrite are also severely microfractured and milled, and splinters are caught up in younger veins.

The mineralisation comprises early-formed pyrite and arsenopyrite, contemporaneous with the vein-quartz and preceding tectonism. There is a post-tectonic phase of mineralisation of base-metal sulphides, mainly chalcopyrite, with sphalerite, galena and tetrahedrite.

Gold occurs as minute inclusions ( up to 30 $\mu$  but mostly 1-10 $\mu$ ) in pyrite, and is also a post-tectonic mineral associated with base-metal sulphides (see photos); the earlier gold is pale, Ag-rich, and the later gold is dark, Ag-poor.

If the early-formed gold is associated only with pyrite and not with arsenopyrite, this would be a considerable environmental advantage; however, this needs to be verified by assaying an arsenopyrite concentrate (this can be produced by Superpanning if not by flotation).

**SAMPLE NO.:** B20/622.03m

**ROCK NAME:** Brecciated Vein Quartz

1. **PETROGRAPHY**

**Major Minerals** Coarsely-crystalline, strongly stressed vein-type quartz, traversed by thin breccia zones containing quartz splinters, ankerite fragments, and sulphides.

**Minor Minerals** Angular patches of ankerite, stressed and brecciated.

**Others** Sulphides (see below).

**Fabric/Textures** Fractured and stressed, with some recrystallisation of both quartz and ankerite. Thin breccia zones filled with crushed quartz and ankerite; sulphides also affected.

**Comments** Quartz-ankerite vein assemblage, fractured and sheared, followed by sulphide emplacement/deposition and further tectonism, involving the sulphides.

2. **MINERAGRAPY** Microfractured and splintered pyrite in breccia zones. Associated traces of chalcopyrite, rare sphalerite. No Au detected.

CENTRAL MINERALOGICAL SERVICES  
REPORT CMS 94/5/12 - 28 JUNE 1994  
ALLSTATE EXPLORATIONS NL

**SAMPLE NO.:** B20/622.63m

**ROCK NAME:** Ankerite Breccia

1. **PETROGRAPHY**

**Major Minerals** Irregular patches of coarsely-to finely-crystalline ankerite, extensively fractured, stressed and recrystallised; cut by a network of finer (remobilised) ankerite.

**Minor Minerals** Scattered patches of stressed quartz and small doubly-terminated quartz crystals, embedded in ankerite.

**Others** Sulphides (see below).

**Fabric/Textures** Extensive fracturing and crushing, with a network of recrystallised ankerite; original textures ranged from coarsely-crystalline (>1mm) to microgranular.

**Comments** Probably an ankerite-rich variant of the quartz-ankerite veins; increased mobility of the carbonate cause veining of quartz by carbonate - the two minerals were contemporaneous.

2. **MINERAGRAPHY** Scattered euhedral pyrite crystals, 20 $\mu$  - 400 $\mu$  but mostly <200 $\mu$ ; also small clusters. Swarms of very small arsenopyrite needles, 2-20 $\mu$  across and 20-50 $\mu$  long.

A few of the larger pyrite crystals are microfractured; some microfractures contain traces of galena, chalcopyrite as minute veinlets.

**SAMPLE NO.:** B20/623.65m

**ROCK NAME:** Breccia Vein Quartz

1. **PETROGRAPHY**

**Major Minerals** Coarsely-crystalline, typical polygonal-columnar vein-quartz, stressed and fractured, cut by thin breccia zones with recrystallised quartz.

**Minor Minerals** Angular, interstitial and cavity-filling patches of coarsely-crystalline ankerite, completely recrystallised in places to fine aggregates.

**Others** Small euhedral pyrite crystals, apparently unfractured, along and next to fractures and breccia zones.

**Fabric/Textures** Original quartz and ankerite generally 1-3mm but much is now much finer-grained. Two sets of breccia zones, at about 45°.

**Comments** Same history as higher intersections, with sulphide(s) postdating shearing/brecciation.

2. **MINERAGRAPHY** Because of low Au assay, no polished section was prepared.

**SAMPLE NO.:** B20/626.01m

**ROCK NAME:** Orthoquartzite/Mineralised Ankerite Vein (?)

1. **PETROGRAPHY**

**Major Minerals** Orthoquartzite has framework of rounded quartz grains rimmed with fine sericite, interstitial ultrafine carbon, quartz cement in optical continuity. Vein (?) is mosaic ankerite, with black shale inclusions. Contact is sheared.

**Minor Minerals** Quartz crystals in ankerite and flanking the vein. Contorted shreds of carbonaceous shale in vein. Fine chlorite.

**Others** Conspicuous sulphides - euhedral pyrite, chalcopyrite patches up to 2-3mm, pale sphalerite in chalcopyrite and in younger veinlets.

**Fabric/Textures** Orthoquartzite is well-cemented, stressed and microfractured. Extensive fracturing along vein-margin. Fractures/veinlets cutting the ankerite vein.

**Comments** The orthoquartzite was well-lithified prior to veining. Bulk of vein is unstressed, unfractured and has marble-like mosaic fabric; perhaps it is a sediment, not a vein? Sulphides may be younger.

2. **MINERAGRAPHY** —

**SAMPLE NO.:** B21/551.0m

**ROCK NAME:** Quartz-Ankerite-Sulphide Vein

1. **PETROGRAPHY**

**Major Minerals** Mosaic-quartz, granular/polygonal ankerite, abundant sulphides, with parallel zoned arrangement, incorporating lenses and platy fragments of silicified, carbonated micaceous siltstone.

**Minor Minerals** Siltstone fragments contain parallel wisps of carbon-pigmented sericite, also minor pyrite crystals.

**Others** Coarse pyrite appears microfractured and ankerite-veined. Sulphides - see below.

**Fabric/Textures** Coarser vein-quartz (crystals up to 10-15mm) is stressed. Textural relationships suggest that ankerite is younger than quartz and pyrite. Zones of microfracturing.

**Comments** The paragenesis seems to be different here, with sulphides predating ankerite, and far less shearing/brecciation.

2. **MINERAGRAPHY** Abundant pyrite as good crystals 20 $\mu$  to >1mm across, often forming much larger clusters; associated arsenopyrite, as smaller crystals (mostly <200 $\mu$ , down to 2 $\mu$ ). Pyrite extensively microfractured and microveined by sphalerite, chalcopyrite, galena. larger unstressed patches of sphalerite with intergrown and included chalcopyrite and tetrahedrite. These sulphides postdate the pyrite and arsenopyrite.

**SAMPLE NO.:** B21/551.5m

**ROCK NAME:** Carbonaceous Silty Shale

1. **PETROGRAPHY**

**Major Minerals** Indurated sediment ranges from dark carbonaceous shale with silty quartz to fine sandstone, all impregnated with fine ankerite. Cut by quartz veins; conspicuous sulphides throughout.

**Minor Minerals** Patches and crosscutting veinlets of clear ankerite and quartz-ankerite, both younger than main quartz veining phases.

**Others** Sulphides - see below.

**Fabric/Textures** The sediments have preferred fabric (bedding, induration, perhaps incipiently metamorphosed) and this fabric has partly governed the distribution of the quartz veins.

**Comments** The argillaceous sediment was brecciated, impregnated with ankerite, quartz-veined. Sulphides occur throughout but are most abundant in and near veins.

2. **MINERAGRAPHY** Pyrite and arsenopyrite as well-formed crystals up to 1mm, but most arsenopyrite is <100 $\mu$ . Larger crystals are microfractured and contain veinlets of galena and chalcopyrite. Sulphide grainsizes are down to <10 $\mu$ . Small trace of graphite occurs.

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ALLSTATE EXPLORATIONS NL

**SAMPLE NO.:** B21/551.95m

**ROCK NAME:** Brecciated Quartz Vein

1. **PETROGRAPHY**

**Major Minerals** Coarsely-crystalline interlocking quartz plates, strongly stressed, extensively fractured and with thin ankerite veins throughout, where ankerite partly replaces quartz.

**Minor Minerals** Small twisted shreds/wisps of dark carbonaceous sericite and chlorite. Sulphides occur sporadically in quartz.

**Others** Sulphides - see below.

**Fabric/Textures** Vein quartz was stressed and fractured, then ankerite-veined; there is evidence of further movement, with displacement of ankerite veins and some crushing of quartz and ankerite.

**Comments** Clear indication of sequence of events. Sulphides evidently pre-dated ankerite in past but some fine sulphides are younger, i.e. ?two generations. Wisps of micaceous material were probably shale.

2. **MINERAGRAPHY** Scattered pyrite and arsenopyrite, generally as small (<50 $\mu$ ) whole and crushed crystals; also larger, up to 700 $\mu$ , all microfractured. Traces of post-tectonic chalcopyrite.

**SAMPLE NO.:** B21/552.85m

**ROCK NAME:** Mineralised Breccia

1. **PETROGRAPHY**

**Major Minerals** Small and large angular to splintery fragments of stressed coarse vein quartz, orthoquartzite, mineralised quartz-vein material, ankerite and quartz-ankerite, cemented by crushed pyrite full of small rock fragments.

**Minor Minerals** Remobilised, recrystallised ankerite intergrown with pyrite cement (milled fragments).

**Others** Sulphides - see below.

**Fabric/Textures** Typical tectonic fabric; fragments were mineralised prior to brecciation, as sulphides (pyrite, arsenopyrite) are microfractured. Rock fragments show a variety of textures. Quartz is stressed.

**Comments** Clear evidence of two generations of sulphide emplacement. The breccia itself is of mixed provenance of vein quartz, ankerite and of wall-rocks.

2. **MINERAGRAPHY** Extensively microfractured, early-formed small and large crystals of pyrite and arsenopyrite, with networks of veinlets (mostly <5 $\mu$  wide) of galena, chalcopyrite, sphalerite and tetrahedrite. Also larger patches of low-Fe sphalerite, up to 1-5mm across, not fractured.

Assays given for B21 suggest a broad correlation between Cu/Zn/Pb and Au; Sb assays would fit the same pattern, i.e. the implication is that Au is genetically related to this post-tectonic Cu-Zn-Pb sulphide emplacement phase.

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**SAMPLE NO.:** B21/553.33m

**ROCK NAME:** Sheared, Veined Orthoquartzite

1. **PETROGRAPHY**

**Major Minerals** Original rock composed of a framework of fine-sand sized rounded quartz grains cemented by quartz with interstitial sericite and carbon pigment. Extensively sheared, recrystallised, with quartz and ankerite veins with sulphides.

**Minor Minerals** Replacive ankerite throughout the orthoquartzite. Younger crosscutting carbonate-filled microfractures in parallel swarms.

**Others** Sulphides - see below.

**Fabric/Textures** Some clastic textures still preserved in the rock, suggesting a uniform sediment. Complex tectonic history with two or more generations of veins.

**Comments** Original rock was a carbonaceous sandstone verging on siltstone. Thoroughly cemented and indurated prior to tectonism and yielding by brittle fracture.

2. **MINERAGRAPHY** Euhedral pyrite and arsenopyrite crystals occur throughout; pyrite is  $20\mu$ - $500\mu$ , with larger clusters, and arsenopyrite is  $<5\mu$ - $100\mu$ . Larger crystals are extensively microfractured. Small patches of chalcopyrite, sphalerite and tetrahedrite pervade the microfractured pyrite and arsenopyrite and form fine veinlets in them.

**SAMPLE NO.:** B21/553.6m

**ROCK NAME:** Micaceous, Dolomitic Sandstone

1. **PETROGRAPHY**

**Major Minerals** Framework of fine-sand sized subangular to subrounded quartz grains, small replacive dolomite rhombs, muscovite flakes, and quartz cement, interstitial carbonaceous matter occurs in places.

**Minor Minerals** Scattered, replacive pyrite crystals.

**Others** Crosscutting quartz and ankerite veinlets with associated sulphides; also veinlets of (?remobilised) carbonaceous matter.

**Fabric/Textures** Well-sorted/sized framework grains 0.08-0.15mm in size, just outside the silt range. Faint bedding indicated by parallel mica flakes. Very uniform.

**Comments** Unusual, patchy distribution of carbonaceous matter suggests that this might have been introduced after deposition. Dolomite is replacive, probably diagenetic or later.

2. **MINERAGRAPHY** —

**SAMPLE NO.:** B22/564.37m

**ROCK NAME:** Massive Vein Quartz

1. **PETROGRAPHY**

**Major Minerals** Coarsely-crystalline interlocking platy and columnar, stressed quartz. Cut by thin breccia zones containing small quartz fragments cemented by ankerite, with sulphides.

**Minor Minerals** Quartz contains small sericite aggregates.

**Others** Sulphides - see below.

**Fabric/Textures** Coarse vein-quartz fabric, but fairly extensively fractured; quartz is strongly stressed, partly recrystallised to smaller mosaics.

**Comments** Here the ankerite and associated fine sulphides are clearly younger than the quartz with coarse, microfractured sulphides.

2. **MINERAGRAPHY** Very minor sulphides. A few clusters of large pyrite crystals, microfractured and veined by chalcopyrite; smaller microfractured arsenopyrite crystals. Pyrite and arsenopyrite splinters occur in carbonate veinlets/breccia zones. Chalcopyrite is younger than the microfracturing.

**SAMPLE NO.:** B22/564.83m

**ROCK NAME:** Ankerite-Sulphide Rock (breccia)

1. **PETROGRAPHY**

**Major Minerals** Coarsely-to finely-crystalline ankerite and sulphides, stressed and fractured, and veined by finer-grained ankerite/sulphides.

**Minor Minerals** Scattered patches of mosaic quartz intergrown with sulphides.

**Others** Sulphides - see below.

**Fabric/Textures** Breccia fabric, with angular fragments of coarse ankerite, disrupted and veined aggregates of pyrite crystals. Coarse pyrite is marginally splintered.

**Comments** Originally composed of coarse ankerite and sulphides, extensively brecciated and veined/cemented by further ankerite and sulphides.

2. **MINERAGRAPHY** Abundant pyrite, as well-formed crystals up to 1.5mm and mostly >300 $\mu$ . Variably microfractured. Minor arsenopyrite 2 $\mu$ -100 $\mu$ , as good crystals associated with the pyrite. Chalcopyrite occupies microfractures in pyrite, and sometimes forms patches (not fractured) up to 1mm; trace sphalerite associated with chalcopyrite.

**SAMPLE NO.:** B22/565.05m

**ROCK NAME:** Mineralised, Brecciated Vein Quartz

1. **PETROGRAPHY**

**Major Minerals** Large interlocking plates of vein quartz and patches of coarsely-crystalline ankerite; both show marked stain-extinction. Extensive fracturing, recrystallisation, and veining by younger (?remobilised) ankerite.

**Minor Minerals** -

**Others** Sulphides - see below.

**Fabric/Textures** Extensive development of parallel fractures with cross-fractures, forming a network, with intensive brecciation of quartz in places. Some recrystallisation of quartz, ankerite.

**Comments** Quartz, ankerite and sulphides were emplaced together, then extensively fractured. Younger ankerite veinlets contain fine sulphides, as small splinters of pyrite, arsenopyrite.

2. **MINERAGRAPHY** Wide zones of chalcopyrite with embedded, microfractured pyrite; also, pyrite crystals and clusters elsewhere with interstitial chalcopyrite, associated tetrahedrite and galena. Very minor arsenopyrite.

Pale and dark **gold** occurs as small (1-20 $\mu$ ) inclusions in pyrite and chalcopyrite, in veinlets of chalcopyrite cutting pyrite, and rarely in gangue. Two generations of gold may be present.

**SAMPLE NO.:** B22/565.45m

**ROCK NAME:** Massive Ankerite

1. **PETROGRAPHY**

**Major Minerals** Mainly coarsely-crystalline ankerite, incorporating patches of porous, corroded calcite and crystals of growth-zoned vein-type quartz.

**Minor Minerals** -

**Others** Scattered sulphides - see below.

**Fabric/Textures** Coarse quartz shows marked zoning typical of vein quartz. The residual calcite is systematically corroded along cleavage-planes and shows progressive replacement by ankerite.

**Comments** The original rock was evidently calcitic, perhaps a calcite marble. The calcite may have been preferentially corroded much later since the sulphides are also tarnished (ankerite would be more resistant to corrosion).

2. **MINERAGRAPHY** Euhedral pyrite crystals, 10 $\mu$  - 1mm occur throughout. Very minor associated fine arsenopyrite (mostly <100 $\mu$ ). Small chalcopyrite patches, with associated traces of tetrahedrite.

**SAMPLE NO.:** B22/566.03m

**ROCK NAME:** Massive Vein Quartz

1. **PETROGRAPHY**

**Major Minerals** Dominantly very coarsely-crystalline vein quartz with sporadic patches of ankerite and ankerite-sulphides, and with fracture-fillings of ankerite.

**Minor Minerals** Small aggregates of sericite flakes in quartz.

**Others** Sulphides - see below.

**Fabric/Textures** The quartz is traversed by a series of parallel microfractures, with subsidiary grain-boundary microfractures, but the effects are *minimal, with no brecciation or recrystallisation.*

**Comments** Shows less tectonic disturbance than previous rocks. Evidence of two generations of ankerite, with sulphides associated with the earlier phase.

2. **MINERAGRAPHY** Sparse, scattered small arsenopyrite crystals (mostly <100 $\mu$ , down to 2 $\mu$ ), and pyrite as single crystals up to 1mm and as larger clusters. Traces of chalcopyrite occur in microfractures in arsenopyrite.

**SAMPLE NO.:** B22/566.50m

**ROCK NAME:** Massive Ankerite Rock

1. **PETROGRAPHY**

**Major Minerals** Interlocking stressed, platy, cloudy crystals of ankerite with scattered sulphides and minor quartz, traversed by veins of clear ankerite and fine quartz crystals.

**Minor Minerals** Ultrafine, unidentifiable inclusions in ankerite cause cloudy appearance.

**Others** Sulphides - see below.

**Fabric/Textures** Fairly coarsely-crystalline ankerite, showing strain-extinction but only minor tectonic effects. Sulphides are only minimally fractured.

**Comments** There is a clear, close association between ankerite and sulphides. The later ankerite veins are thought to represent recrystallisation of pre-existing material rather than introduction of new ankerite.

2. **MINERAGRAPHY** Well-formed pyrite and arsenopyrite crystals, 10-500 $\mu$ ; arsenopyrite is often microfractured, sometimes quite severely; chalcopyrite, sphalerite, galena and tetrahedrite occur as microfracture-filling veinlets in arsenopyrite, pyrite.

**Pale gold** (argentiferous) as 1 $\mu$  - 10 $\mu$  inclusions in pyrite; none was detected in arsenopyrite.

**SAMPLE NO.:** B22/566.80m

**ROCK NAME:** Massive Vein Quartz

1. **PETROGRAPHY**

**Major Minerals** Composed of large, platy, interlocking crystals of vein quartz, stressed and recrystallised along fracture zones.

**Minor Minerals** Small patches of ankerite. Sericite shreds in quartz.

**Others** Sulphides - see below.

**Fabric/Textures** Generally stressed, and traversed by more or less parallel thin fractures. Typical vein quartz fabric.

**Comments** Sparse sulphides appear to pre-date the fracturing.

2. **MINERAGRAPHY** Fracture zones contain fine fragments (crushed material) of pyrite, chalcopyrite and arsenopyrite. Isolated euhedral pyrite crystals in quartz, microfractured and veined by chalcopyrite, galena, sphalerite.

**Gold** is conspicuous as irregular patches adjacent to pyrite and filling microfractures in pyrite, as well as occurring as apparent inclusions unrelated to obvious microfractures. The gold is an Ag-poor, dark variety, and grains range in size from  $<2\mu$  to  $150 \times 500\mu$ . Some gold veinlets are accompanied by galena. It is believed that all the gold postdates the pyrite, and that "inclusions" are all related to fracturing (third dimension).

**SAMPLE NO.:** B22/569.98m

**ROCK NAME:** Ankerite-Quartz-Sulphide Vein

1. **PETROGRAPHY**

**Major Minerals** Coarse interlocking cloudy ankerite crystals enclosing and replacing porous, corroded coarse calcite patches; younger, clear ankerite with associated sulphides and minor quartz, also replacing calcite.

**Minor Minerals** Quartz is minor, associated with the sulphides.

**Others** Sulphides - see below.

**Fabric/Textures** Symmetrical zoning of quartz and sulphides flanking a core of coarse, cloudy ankerite. Sulphides extensively microfractured and milled along shear zones.

**Comments** Not known at what stage or how the calcite corroded - may have been part of the mineralising process (?acidic fluids), or selective corrosion as suggested for 565.45m.

2. **MINERAGRAPHY** Arsenopyrite and pyrite crystals, extensively microfractured; surrounded and penetrated by chalcopyrite, sphalerite, tetrahedrite and galena. Wide range of grainsizes, <2 $\mu$  - 500 $\mu$ .

Pale argentiferous **gold** as 1 $\mu$  - 30 $\mu$  irregular inclusions in pyrite.

**SAMPLE NO.:** B22/570.40m

**ROCK NAME:** Stressed, Fractured Vein Quartz

1. **PETROGRAPHY**

**Major Minerals** Very coarsely-crystalline vein quartz, severely stressed and fractured into large wedges and splinters, with some breccia patches and thin zones. Scattered sulphides.

**Minor Minerals** Occasional shreds of highly-contorted black shale. Small patches and veins of stressed ankerite. Rare calcite patches.

**Others** Sulphides - see below.

**Fabric/Textures** Strong deformation, especially shown by the quartz; sulphides are also affected but to a lesser extent. The calcite is porous and corroded.

**Comments** Quartz, sulphides and ankerite appear to be contemporaneous though traces of ankerite have been remobilised.

2. **MINERAGRAPHY** Scattered, microfractured pyrite and arsenopyrite crystals (pyrite up to 600 $\mu$ ) with much finer splinters (2-50 $\mu$ ) in breccia zones. Notable paucity of base-metal sulphides; minor trace chalcopyrite in pyrite microfractures.

Pale **gold** (but of variable colour) as 1-20 $\mu$  inclusions in pyrite and in microfractures.

**SAMPLE NO.:** B22/571.20m

**ROCK NAME:** Ankerite-Sulphide Rock

1. **PETROGRAPHY**

**Major Minerals** Mainly ankerite as medium-grained mosaics of stressed interlocking crystals, with haphazard zones of brecciation and recrystallisation. Abundant sulphides throughout; some are microfractured.

**Minor Minerals** Zones of fine/medium-grained quartz.

**Others** Sulphides - see below.

**Fabric/Textures** Some indication of compositional banding. Stress effects present but not so obvious because ankerite is easily recrystallised. Granular fabric.

**Comments** Notable fracturing of brittle pyrite, contrasting with the ankerite which has most likely recrystallised and healed.

2. **MINERAGRAPHY** Originally coarse-grained pyrite as massive aggregates, now extensively microfractured, disrupted, crushed; infiltrated by galena veinlets, also chalcopyrite and tetrahedrite and sphalerite. Large patches of (unfractured) chalcopyrite are common throughout, with galena and sphalerite inclusions. A few large patches (1-2mm) of sphalerite.

Pale **gold** as <10 $\mu$  subspherical inclusions in pyrite.

**SAMPLE NO.:** B22/571.40m

**ROCK NAME:** Breccia

1. **PETROGRAPHY**

**Major Minerals** Angular fragments of chert, vein-quartz, orthoquartzite, ankerite, in a semi-opaque matrix of ankerite, ultrafine sulphides and ?sericite.

**Minor Minerals** Younger crosscutting ankerite and sulphide veinlets.

**Others** Sulphides - see below.

**Fabric/Textures** Complex history of multiple brecciation, ankerite and sulphide emplacement, fracturing and veining; probably at least 3-4 stages.

**Comments** Incorporating fragments of chemical and clastic sediments as well as vein material, with overprinted ankerite, sulphides and ?sericite.

2. **MINERAGRAPHY** Very variable distribution, grainsizes and habits of pyrite and arsenopyrite in different fragments. Abundant microfractured and milled sulphides, including chalcopyrite, occurring interstitially in breccia matrix. Traces of sphalerite and galena. Some low-Fe sphalerite in late-stage ankerite veinlets. Possible second generation of fine (<20 $\mu$  across) arsenopyrite needles.

### PHOTOMICROGRAPHS

These were prepared to illustrate the modes of occurrence of the gold, and the microfracturing in the primary sulphides.

**No. 1 B22/565.05m** Magnification = 270x  
Gold inclusions (arrowed) in chalcopyrite; large spongy mass (left) contains fine galena.

**No. 2 B22/565.05m** Magnification = 270x  
Fine pale (Ag) gold inclusions in microfractured pyrite with chalcopyrite veinlets.

**No. 3 B22/565.05m** Magnification = 270x  
Dark gold replacing a pyrite crystal.

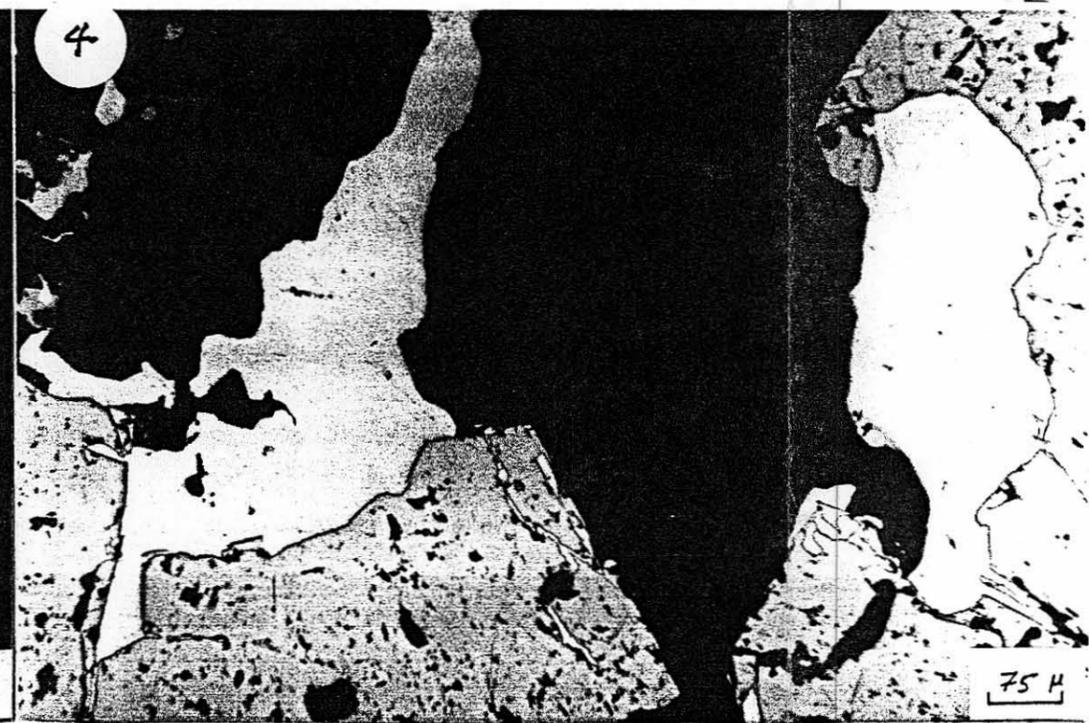
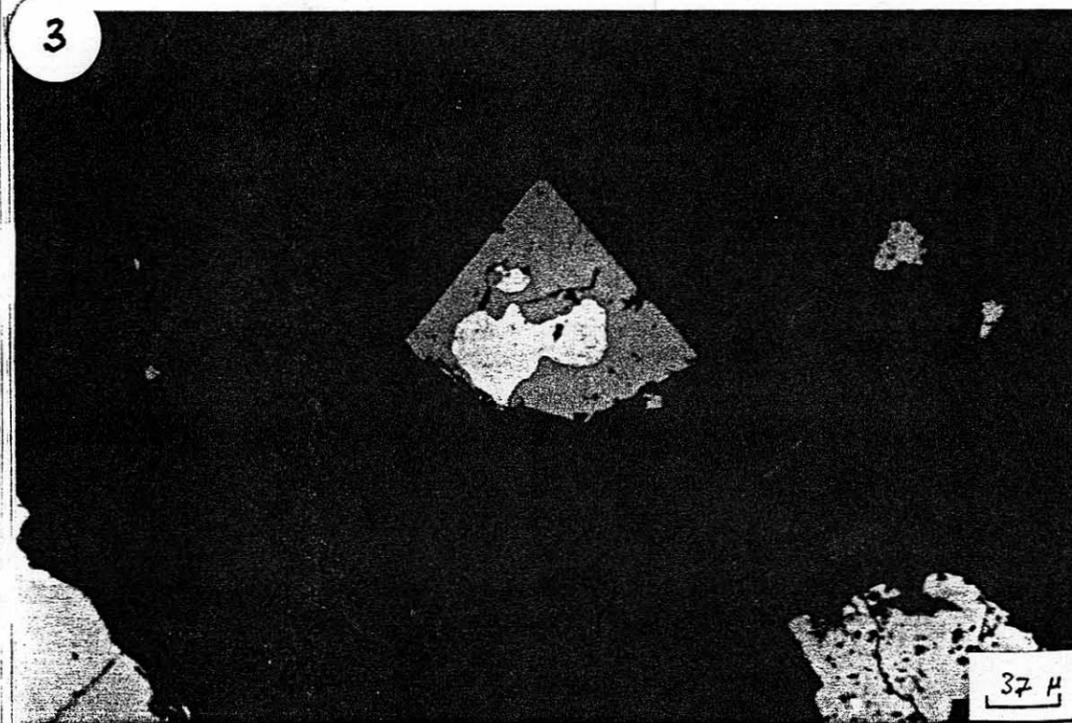
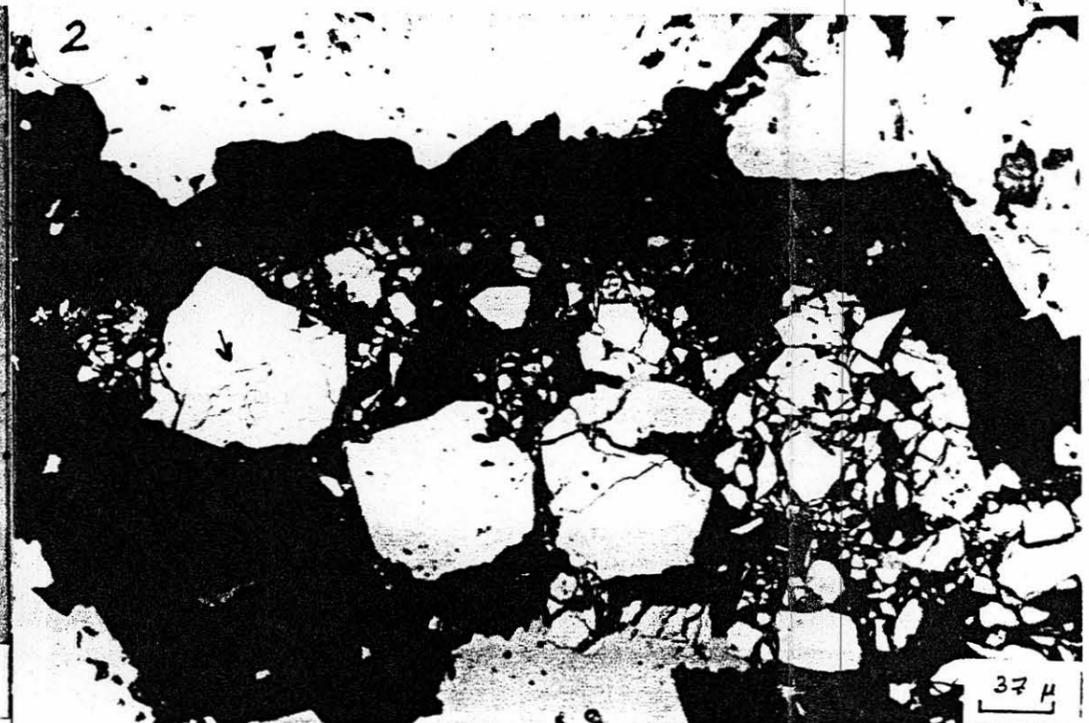
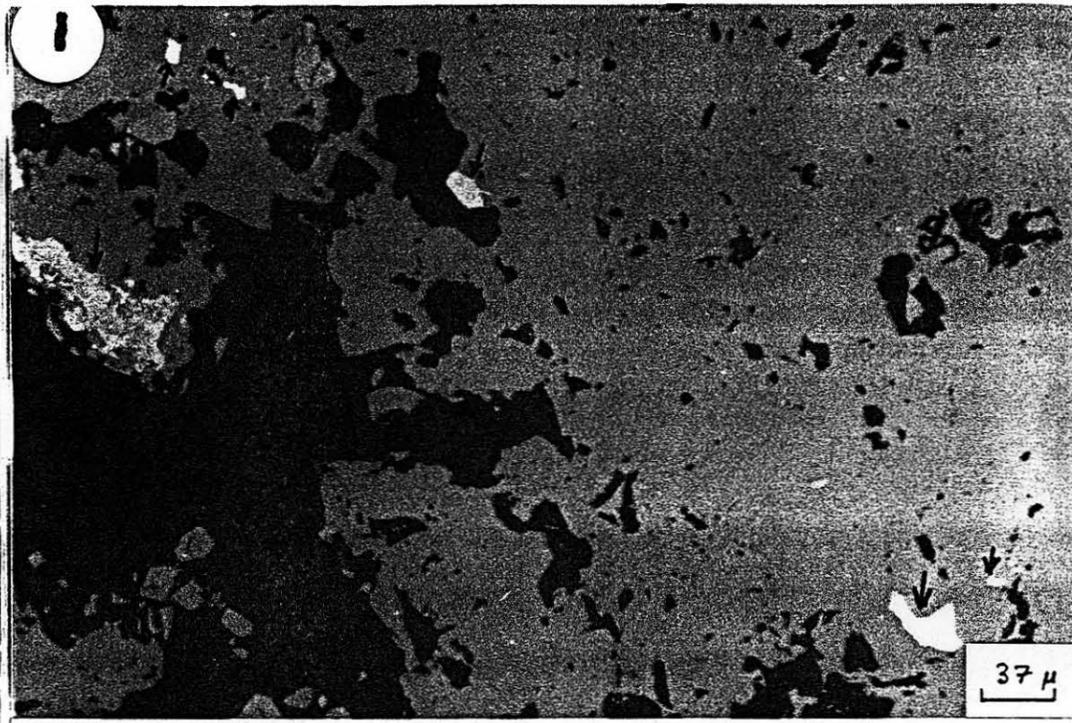
**No. 4 B22/566.8m** Magnification = 135x  
Coarse dark gold flanking and veining pyrite.

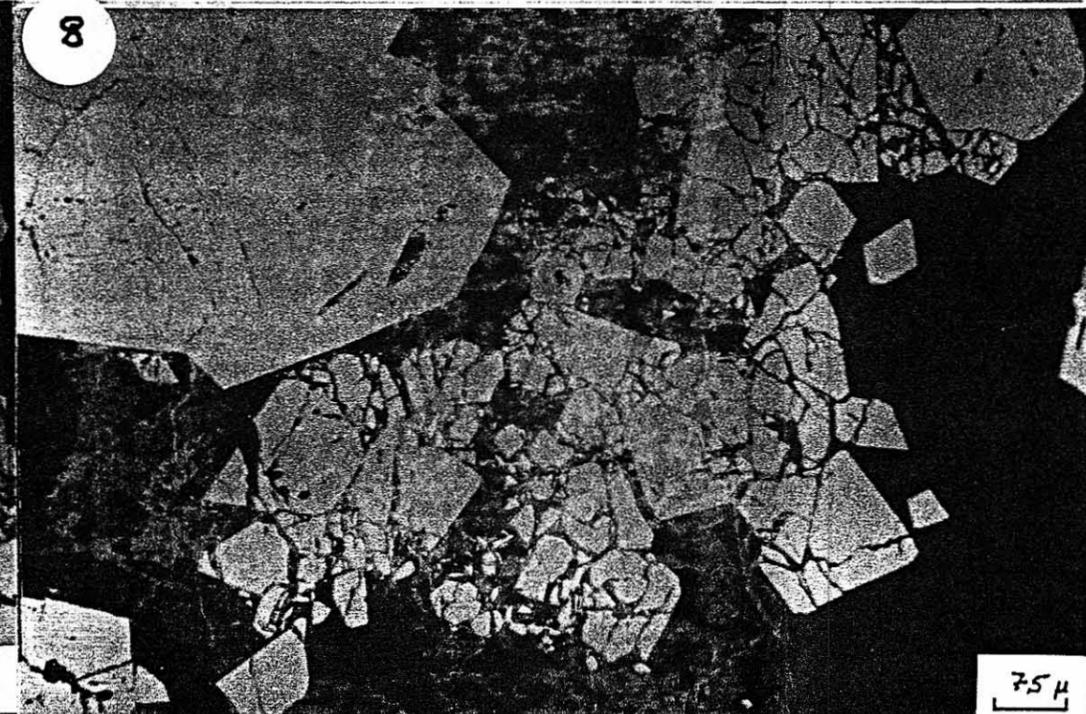
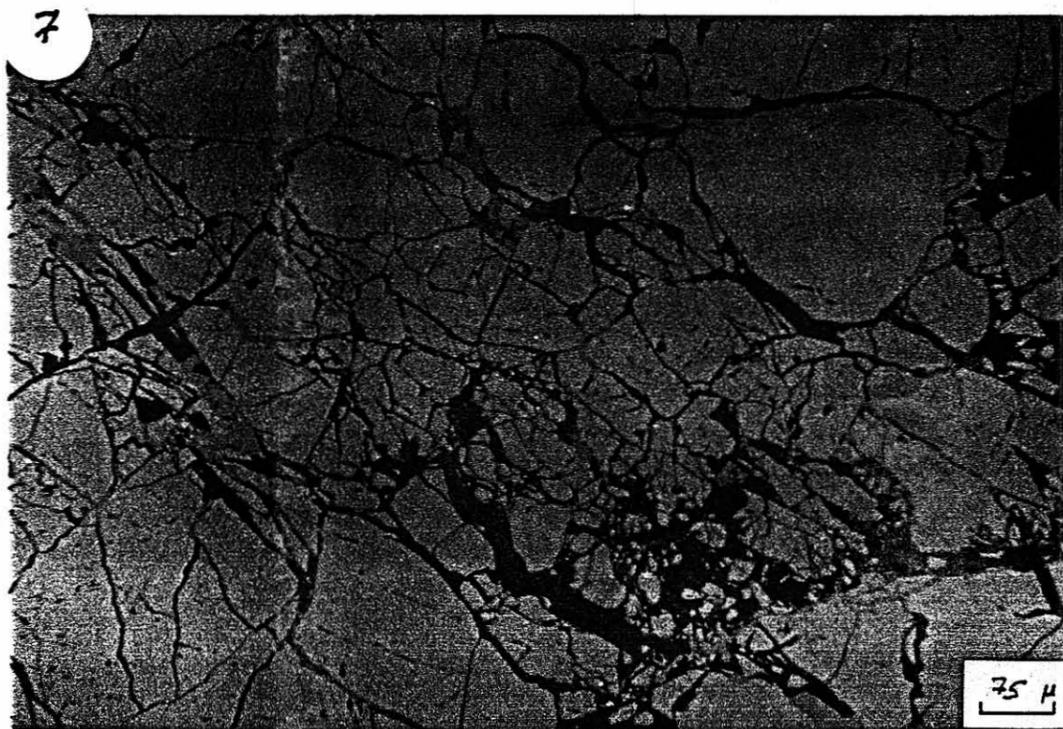
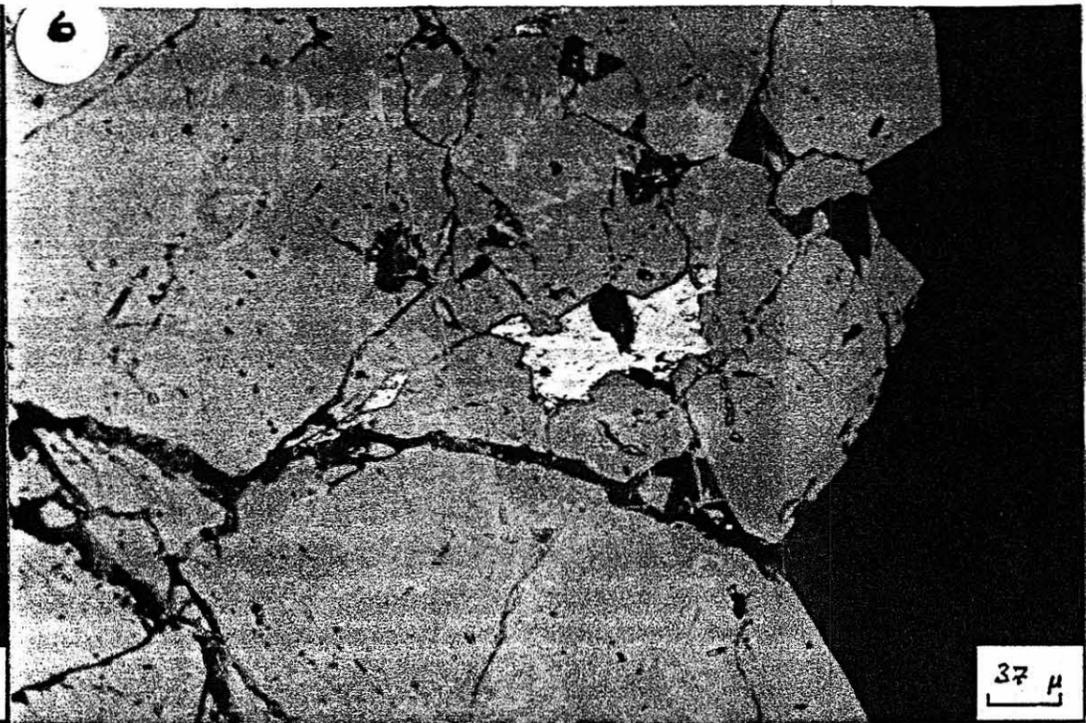
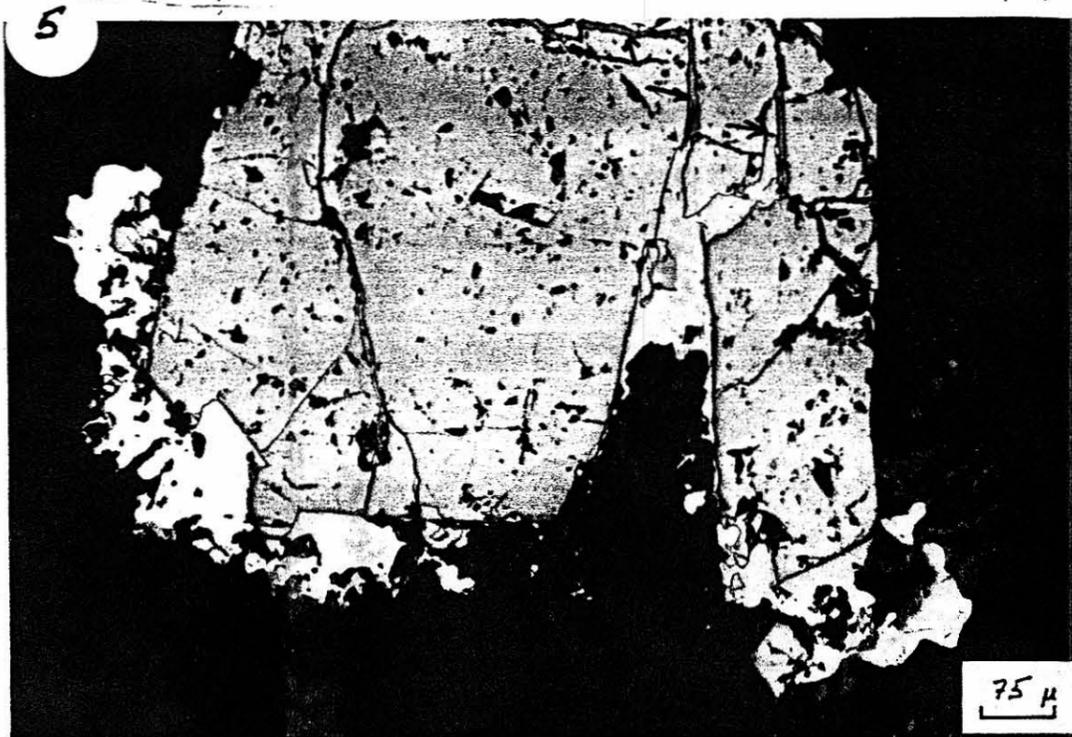
**No. 5 B22/566.8m** Magnification = 135x  
Coarse dark gold rimming pyrite and in veins associated with galena (arrowed).

**No. 6 B22/566.8m** Magnification = 270x  
Dark gold replacing pyrite along microfractures.

**No. 7 B22/566.50m** Magnification = 135x  
Extensively microfractured massive pyrite veined by chalcopyrite and sphalerite. Not pale Au inclusion (arrowed).

**No. 8 B22/571.20m** Magnification = 135x  
Showing preferential microfracturing of arsenopyrite (cream, with chalcopyrite veinlets) over pyrite (pale yellow).





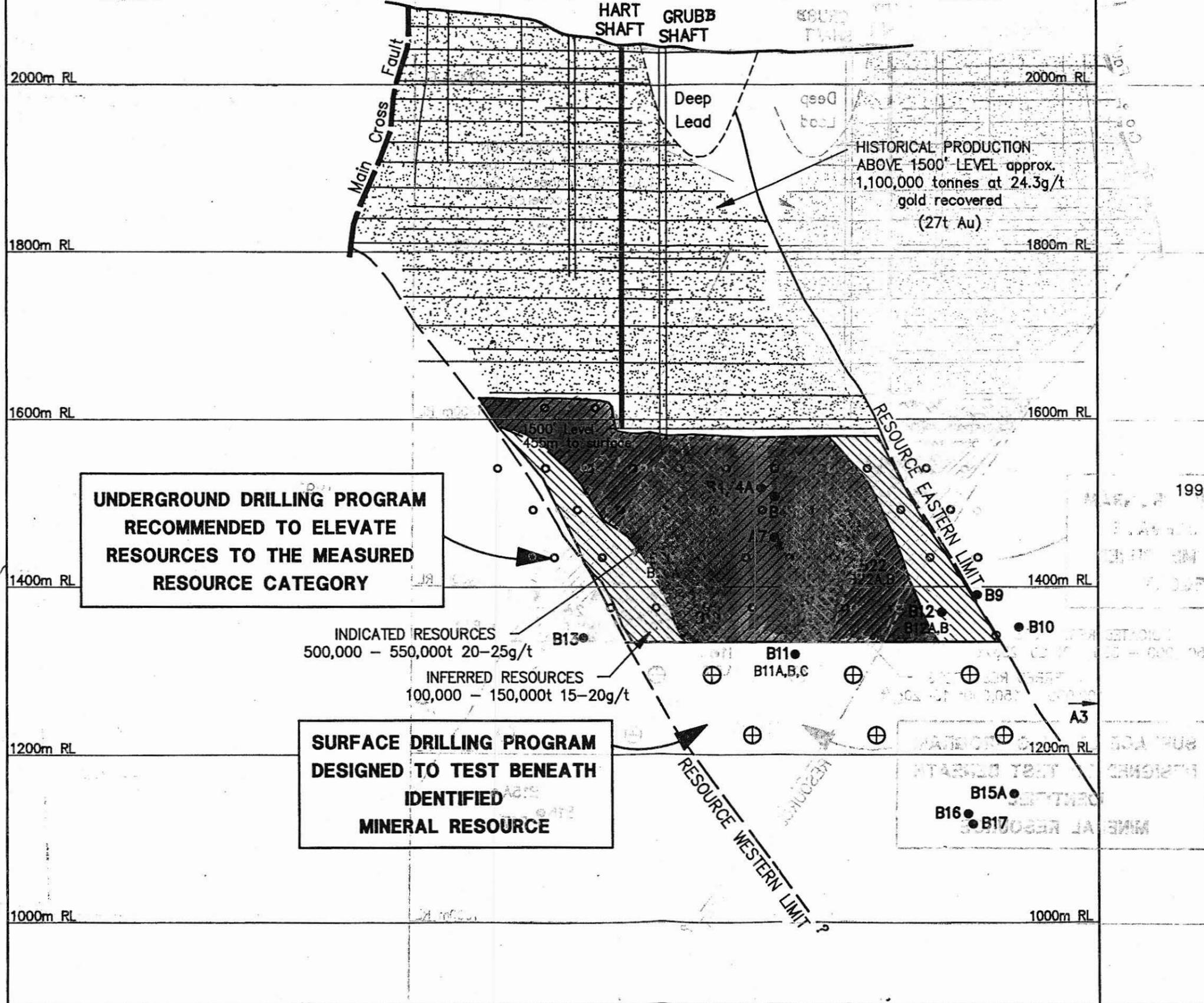
# BEACONSFIELD JOINT VENTURE LONGITUDINAL PROJECTION OF TASMANIA REEF

# 94-3627

LOOKING NORTH

WEST

EAST



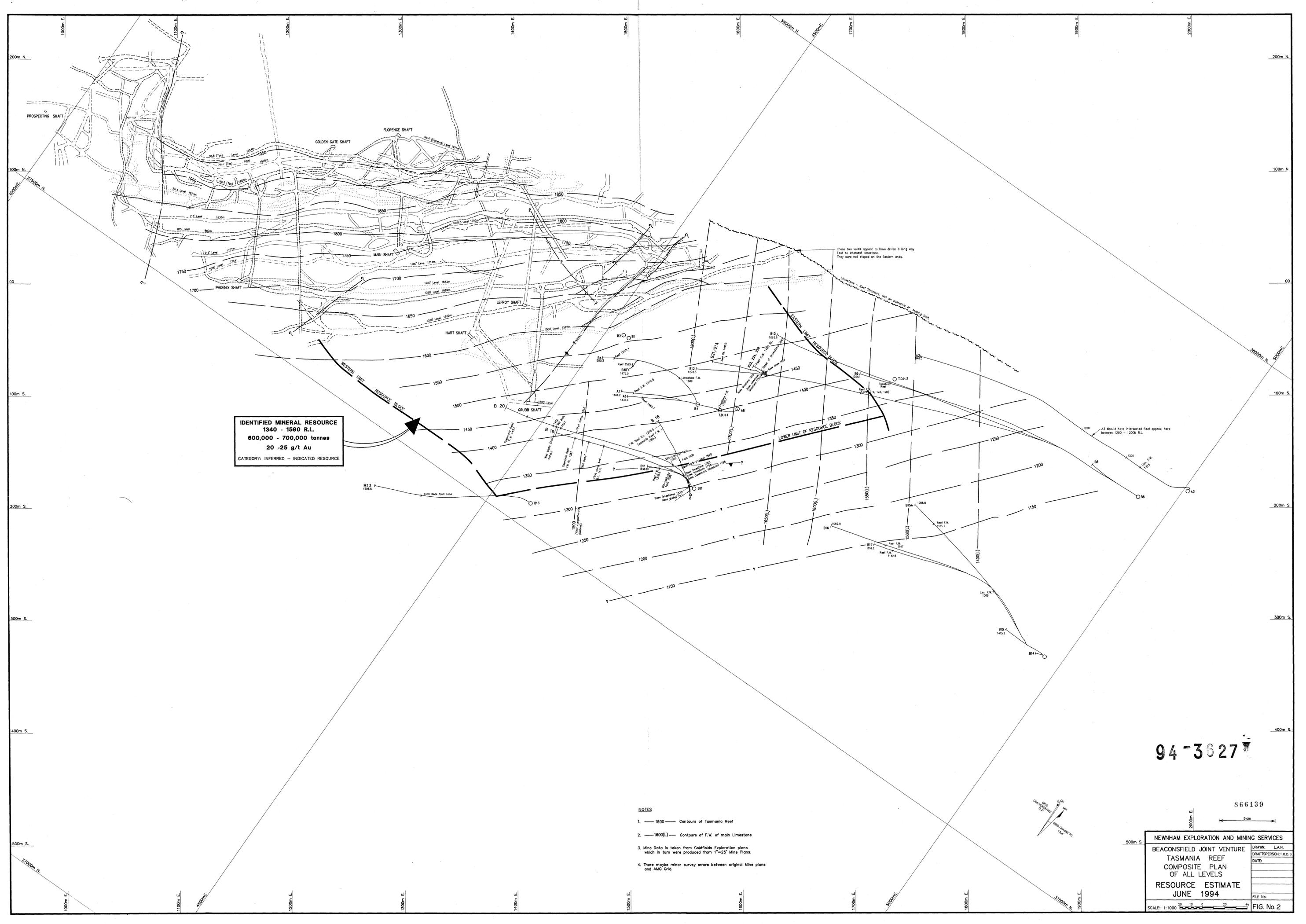
TASMANIA REEF DRILL INTERSECTIONS			
Hole	Width (m)		Uncut Gold Horiz. grades (g/t)
	True	Horiz.	
A6	1.4	1.6	12.9
A7	2.4	2.7	34.7
B4	3.1	3.6	117.8
	Incl. 0.3	0.4	904.8
B4A	4.1	4.7	66.6
B4B	3.2	3.7	25.7
B9	Reef position uncertain		
B10	4.8	5.6	1.9
B11	4.7	5.4	59.0
	Incl. 0.5	0.6	354.0
B11A	5.1	5.8	8.9
B11B	3.9	4.5	14.5
B11C	4.8	5.5	13.0
B12	2.7	3.1	1.5
B12A	3.5	4.0	3.7
B12B	4.1	4.7	8.2
B15A	1.4	1.7	9.2
B16	0.7	0.8	1.9
B17	0.6	0.7	0.4
B18	2.5	2.9	57.3
B19	2.6	3.0	21.9
B20A	1.4	1.7	6.5
B21A	1.7	2.0	15.9
B22B	4.4	5.4	31.6

5 cm

This map was drawn to accompany report titled  
"Beaconsfield Mine Joint Venture: 1993-94 Drilling Report  
and Tasmania Reef Mineral Resource Assessment"  
by L.A. Newham 30th June 1994.

866138

NEWHAM EXPLORATION AND MINING SERVICES	
BEACONSFIELD JOINT VENTURE	DRAWN: L.A.N.
TASMANIA REEF MINERAL RESOURCE ASSESSMENT 1994	DRAFTSPERSON: T.G.D.S.
	DATE: June 1994
	FILE No.
SCALE: 1:5000	0 100m
	FIG. No. 1



**IDENTIFIED MINERAL RESOURCE**  
 1340 - 1590 R.L.  
 600,000 - 700,000 tonnes  
 20 -25 g/t Au  
 CATEGORY: INFERRED - INDICATED RESOURCE

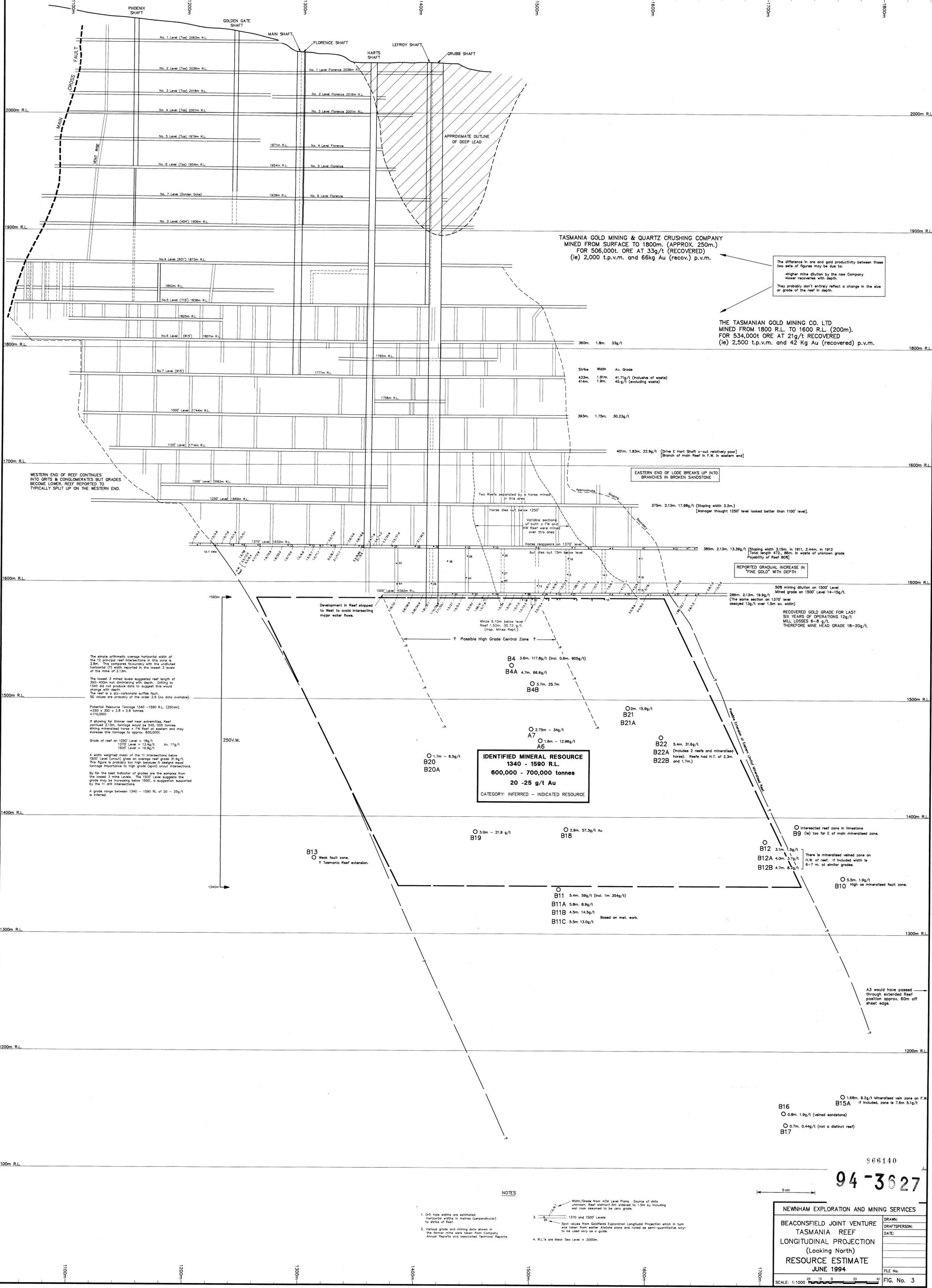
**NOTES**

1. — 1600 — Contours of Tasmania Reef
2. — 1600(L) — Contours of F.W. of main Limestone
3. Mine Data is taken from Goldfields Exploration plans which in turn were produced from 1"-25' Mine Plans.
4. There may be minor survey errors between original Mine plans and AMG Grid.

94-3627

866139

NEWNHAM EXPLORATION AND MINING SERVICES	
BEACONSFIELD JOINT VENTURE	
TASMANIA REEF	
COMPOSITE PLAN	
OF ALL LEVELS	
RESOURCE ESTIMATE	
JUNE 1994	
SCALE: 1:1000	FIG. No. 2



TASMANIA GOLD MINING & QUARTZ CRUSHING COMPANY  
 MINED FROM SURFACE TO 1800m (APPROX. 250m.)  
 FOR 506,000t ORE AT 33g/t (RECOVERED)  
 (ie) 2,000 t.p.v.m. and 66kg Au (recov.) p.v.m.

The difference in ore and gold productivity between these two sets of figures may be due to:  
 Higher mine dilution by the New Company  
 Lower recoveries with depth.  
 They probably don't entirely reflect a change in the size or grade of the reef in depth.

THE TASMANIAN GOLD MINING CO. LTD  
 MINED FROM 1800 R.L. TO 1600 R.L. (200m).  
 FOR 534,000t ORE AT 21g/t RECOVERED  
 (ie) 2,500 t.p.v.m. and 42 Kg Au (recovered) p.v.m.

Strike	Width	Av. Grade
433m.	1.91m.	41.7g/t (inclusive of waste)
414m.	1.9m.	45.9g/t (excluding waste)

393m. 1.75m. 30.23g/t

401m. 1.83m. 22.8g/t [Drive E Hart Shaft is-out relatively poor]  
 [Branch of main Reef in F.W. in eastern end]

EASTERN END OF LORE BREAKS UP INTO BRANCHES IN BROKEN SANDSTONE

375m. 2.13m. 17.98g/t (Stooping width 3.2m)  
 [Manager thought 1250' level looked better than 1100' level]

REPORTED GRADUAL INCREASE IN "FINE GOLD" WITH DEPTH

50% mining dilution on 1500' Level  
 Mined grade on 1500' Level 14-15g/t  
 (The same section on 1370' level assayed 13g/t over 1.5m av. width)

RECOVERED GOLD GRADE FOR LAST SIX YEARS OF OPERATIONS 12g/t  
 MILL LOSSES 6-8 g/t  
 THEREFORE MINE HEAD GRADE 18-20g/t

**IDENTIFIED MINERAL RESOURCE**  
 1340 - 1590 R.L.  
 600,000 - 700,000 tonnes  
 20 - 25 g/t Au  
 CATEGORY: INFERRED - INDICATED RESOURCE

The simple arithmetic average horizontal width of the 12 principal reef intersections in this zone is 2.8m. This compares favourably with the unweighted horizontal (Y) width reported in the lowest 3 levels of the mine of 2.3m.

The lowest 3 mined levels suggested reef length of 350-400m not diminishing with depth. Drilling to 1340 did not produce data to suggest the would change with depth.

The reef is a str-carbonate sulfide fault. 50 values are probably of the order 2.9 (no data available).

Potential Resource Tonnage 1340 - 1590 R.L. (250m) = 250 x 350 x 2.8 x 2.9 tonnes = 770,000t

If allowing for thinner reef near extremities, Reef confined to 13m, tonnage would be 540,000 tonnes. Mining mineralised horse = F.W. Reef at eastern end may increase this tonnage to approx. 600,000t.

Grade of reef on 1250' Level = 18g/t  
 1370' Level = 13.8g/t Av. 17g/t  
 1500' Level = 19.9g/t

A width weighted mean of the 11 intersections below 1500' level (unmin) gives an average reef grade 31.9g/t. This figure is probably too high because it assigns equal tonnage importance to high grade (spot) unmin intersections.

By far the best indicator of grades are the samples from the lowest 3 mine levels. The 1500' level suggests the grade may be increasing below 1500', a suggestion supported by the 11 drill intersections.

A grade range between 1340 - 1590 R.L. of 20 - 25g/t is inferred.

NOTES

1. Drill hole widths are estimated horizontal widths in metres (perpendicular) to strike of Reef.
2. Various grade and mining data shown in the former mine were taken from Company Annual Reports and associated Technical Reports.
3. Spot values from Goldfields Exploration Longitudinal Projection which in turn was taken from earlier Adelaide plans and noted as semi-quantitative only to be used only as a guide.
4. R.L.'s are Mean Sea Level + 2000m.

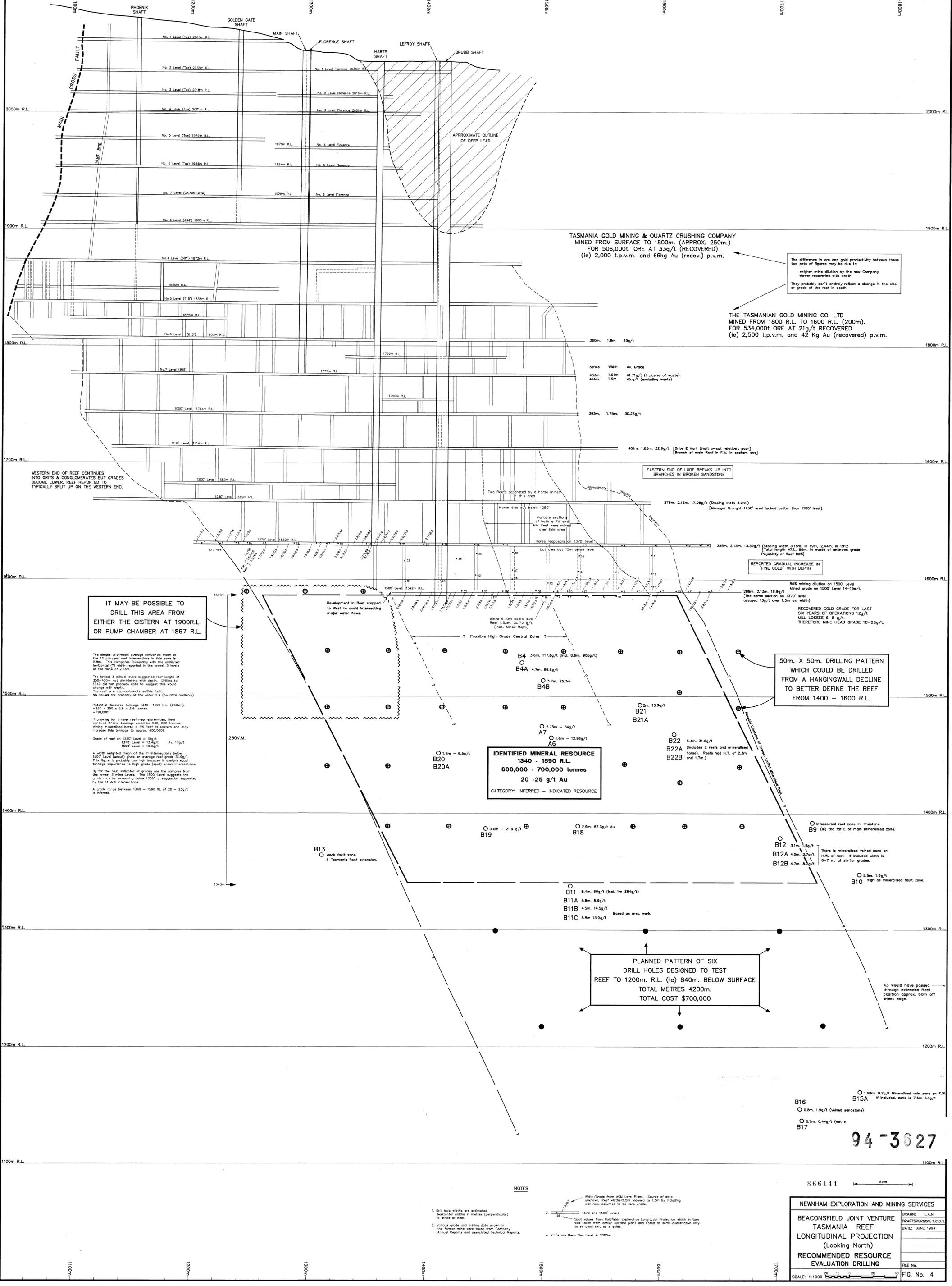
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NEWHAM EXPLORATION AND MINING SERVICES

BEACONSFIELD JOINT VENTURE  
 TASMANIA REEF  
 LONGITUDINAL PROJECTION  
 (Looking North)  
 RESOURCE ESTIMATE  
 JUNE 1994

SCALE: 1:1000

FIG. No. 3



TASMANIA GOLD MINING & QUARTZ CRUSHING COMPANY  
 MINED FROM SURFACE TO 1800m. (APPROX. 250m.)  
 FOR 506,000t ORE AT 33g/t (RECOVERED)  
 (ie) 2,000 t.p.v.m. and 66kg Au (recovered) p.v.m.

The difference in ore and gold productivity between these two sets of figures may be due to:  
 - higher mine dilution by the new Company  
 - lower recoveries with depth.  
 They probably don't entirely reflect a change in the size or grade of the reef in depth.

THE TASMANIAN GOLD MINING CO. LTD  
 MINED FROM 1800 R.L. TO 1600 R.L. (200m).  
 FOR 534,000t ORE AT 21g/t RECOVERED  
 (ie) 2,500 t.p.v.m. and 42 Kg Au (recovered) p.v.m.

Strike	Width	Av. Grade
433m	1.91m	41.71g/t (inclusive of waste)
414m	1.9m	45.5g/t (excluding waste)

393m. 1.75m. 30.23g/t

401m. 1.83m. 22.9g/t [Drive E Hart Shaft - out relatively poor]  
 [Branch of main Reef in F.W. in eastern end]

EASTERN END OF LOSE BREAKS UP INTO BRANCHES IN BROKEN SANDSTONE

375m. 2.13m. 17.98g/t (Stoping width 3.2m.)  
 [Manager thought 1250' level looked better than 1100' level]

REPORTED GRADUAL INCREASE IN "FINE GOLD" WITH DEPTH

50% mining dilution on 1500' Level  
 Mined grade on 1500' Level 14-15g/t

RECOVERED GOLD GRADE FOR LAST SIX YEARS OF OPERATIONS 12g/t  
 MILL LOSSES 6-8 g/t  
 THEREFORE MINE HEAD GRADE 18-20g/t

IT MAY BE POSSIBLE TO DRILL THIS AREA FROM EITHER THE CISTERN AT 1900R.L. OR PUMP CHAMBER AT 1867 R.L.

The simple arithmetic average horizontal width of the 12 principal reef intersections in this zone is 2.8m. This compares favourably with the calculated horizontal (H) width reported in the lowest 3 levels of the mine of 2.13m.

The lowest 3 mined levels suggested reef length of 300-400m not diminishing with depth. Drilling to 1340 did not produce data to suggest this would change with depth.

The reef is of quartz-carbonate sulfide fault. SG values are probably of the order 2.9 (no date available).

Potential Resource Tonnage 1340 - 1590 R.L. (250m) - 250 x 250 x 2.8 x 2.9 tonnes = 710,000t

If allowing for thinner reef near extremities, Reef confined to 1.1m, tonnage would be 540,000 tonnes. Mining mineralised horse = FW Reef at eastern end may increase this tonnage to approx. 600,000t.

Grade of reef on 1250' Level = 18g/t  
 1250' Level = 12.5g/t  
 1500' Level = 19.9g/t

A width weighted mean of the 11 intersections below 1200' Level (Lancet) gives an average reef grade 31.9g/t. This figure is probably too high because it assigns equal tonnage importance to high grade (spiral) mineral intersections.

By far the best indicator of grades are the samples from the lowest 3 mine levels. The 1500' Level suggests the grade may be increasing below 1500', a suggestion supported by the 11 drill intersections.

A grade range between 1340 - 1590 R.L. of 20 - 25g/t is inferred.

**IDENTIFIED MINERAL RESOURCE**  
 1340 - 1590 R.L.  
 600,000 - 700,000 tonnes  
 20 - 25 g/t Au  
 CATEGORY: INFERRED - INDICATED RESOURCE

50m. X 50m. DRILLING PATTERN WHICH COULD BE DRILLED FROM A HANGINGWALL DECLINE TO BETTER DEFINE THE REEF FROM 1400 - 1600 R.L.

PLANNED PATTERN OF SIX DRILL HOLES DESIGNED TO TEST REEF TO 1200m. R.L. (ie) 840m. BELOW SURFACE  
 TOTAL METRES 4200m.  
 TOTAL COST \$700,000

There is mineralised vein zone on H.W. of reef. If included width is 6-7 m. at similar grades.

High as mineralised fault zone.

Based on met. work.

A3 would have passed through extended Reef position approx. 60m off sheet edge.

B16 0.16m. 9.2g/t Mineralised vein zone on F.W. If included, zone is 7.6m 3.1g/t  
 B15A 0.8m. 1.9g/t (veined sandstone)  
 B17 0.7m. 0.44g/t (not c)

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NOTES

1. Drill hole widths are estimated horizontal widths in metres (perpendicular) to strike of Reef.
2. Various grade and mining data shown in the former mine were taken from Company Annual Reports and associated Technical Reports.
3. Spot values from Goldfields Exploration Longitudinal Projection which in turn were taken from earlier Allstate plans and noted as semi-quantitative only - to be used only as a guide.
4. R.L.'s are Mean Sea Level + 2000m.

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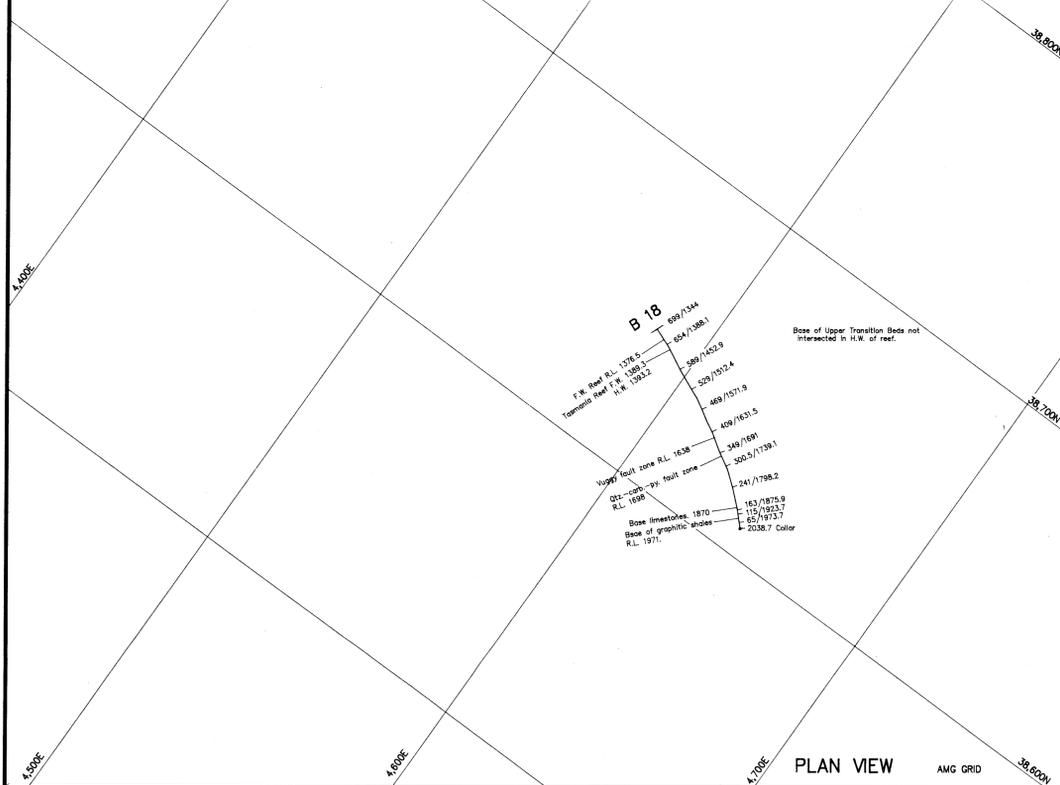
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NEWHAM EXPLORATION AND MINING SERVICES

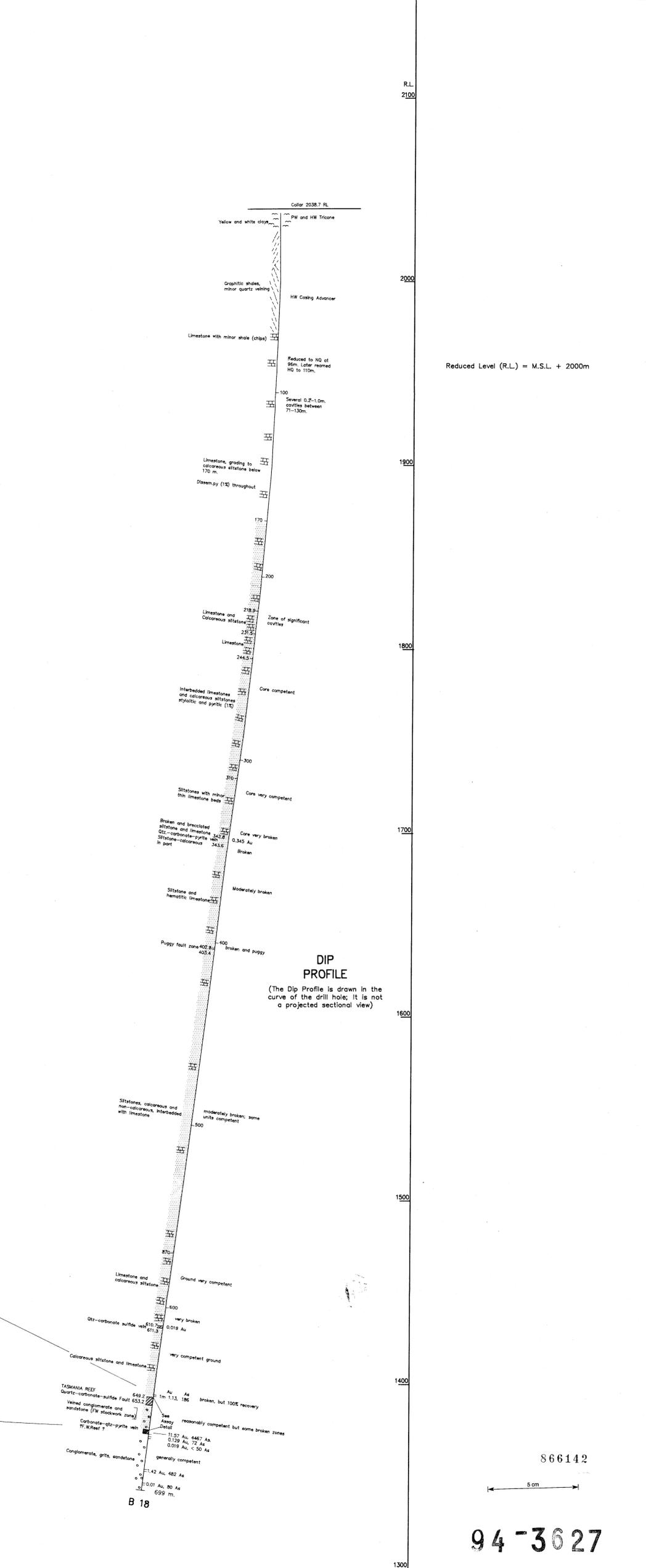
BEACONSFIELD JOINT VENTURE  
 TASMANIA REEF  
 LONGITUDINAL PROJECTION  
 (Looking North)  
 RECOMMENDED RESOURCE  
 EVALUATION DRILLING

SCALE: 1:1000

FIG. No. 4



PLAN VIEW  
AMG GRID



DIP PROFILE

(The Dip Profile is drawn in the curve of the drill hole; it is not a projected sectional view)

**TASMANIA REEF**  
4.0m 57.3 g/t Au, 20 Ag, 56.2 Cu, 1055 Pb (Drill hole thickness) 2307 Zn, 7781 As, 4.8 S  
Gold assay in Tasmania Reef ore  
Screen Fire Assays  
Gold assays elsewhere are Fire Assays on 50 g. sub-sample (see log for details).

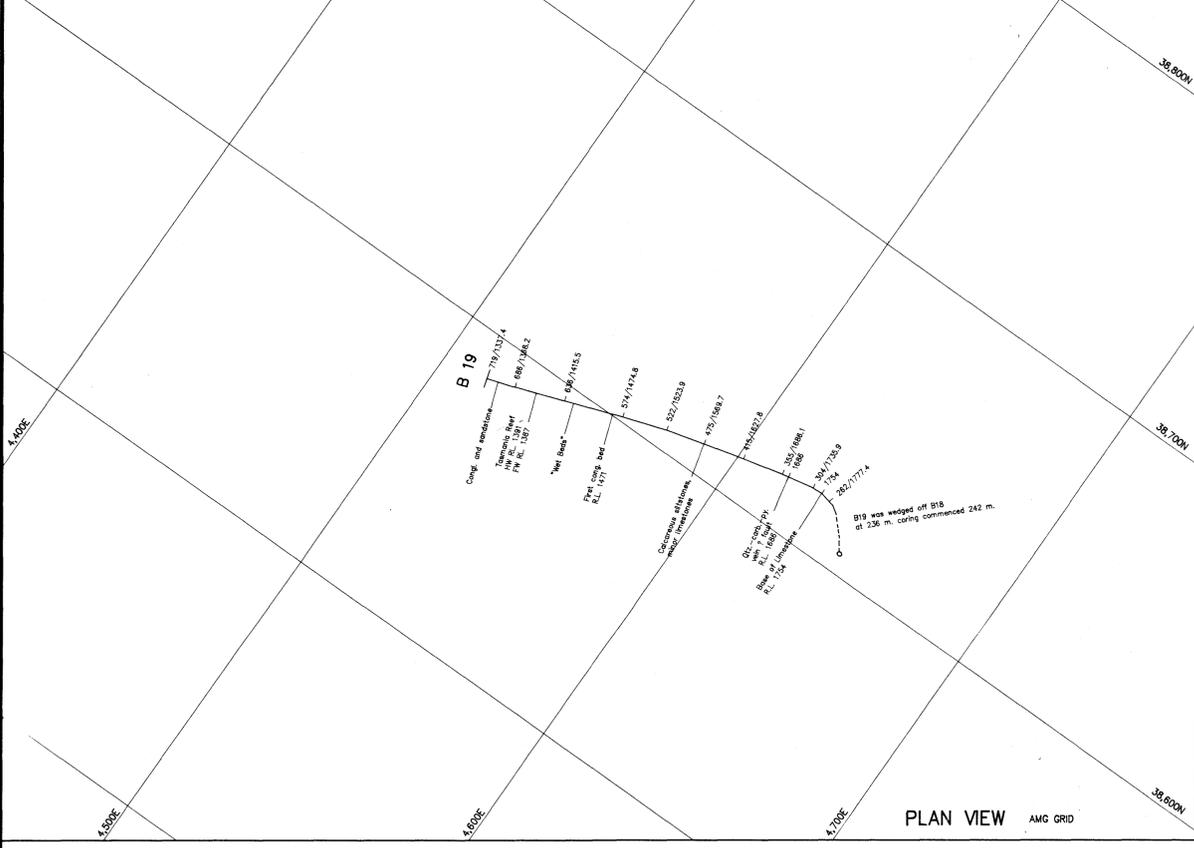
Interval (m)	Au	Ag	Cu	Pb	Zn	As
0-1.13	1.13					
1.13-106.6	106.6	28	851	1451	3189	186
106.6-141	141	16	958	1501	1644	4985
141-186.6	186.6	25	77	289	638	3097
186.6-25	25	354	1082	682	525	7528
25-0.328	0.328					19500
0.328-0.333	0.333					528
0.333-1.73	1.73					1,395
1.73-2.40	2.40					75
2.40-0.07	0.07					88
0.07-0.292	0.292					279
0.292-1.33	1.33					300
1.33-0.44	0.44					237
0.44-1.36	1.36					88
1.36-0.221	0.221					91
0.221-0.073	0.073					256
0.073-0.15	0.15					220
0.15-0.237	0.237					94
0.237-1.157	1.157	8				77
1.157-0.129	0.129					52
0.129-1832	1832	632	2045			91
1832-4467	4467					72

866142

5 cm

94-3627

NEWHAM EXPLORATION AND MINING SERVICES	
BEACONSFIELD JOINT VENTURE	DRAWN: L.A.N.
BEACONSFIELD MINE PROJECT	DRAFTSPERSON: T.G.O.S.
CORED DRILL HOLE	DATE: MAY '94
B 18	FILE No.
SCALE: 1:1000	FIG. No 5



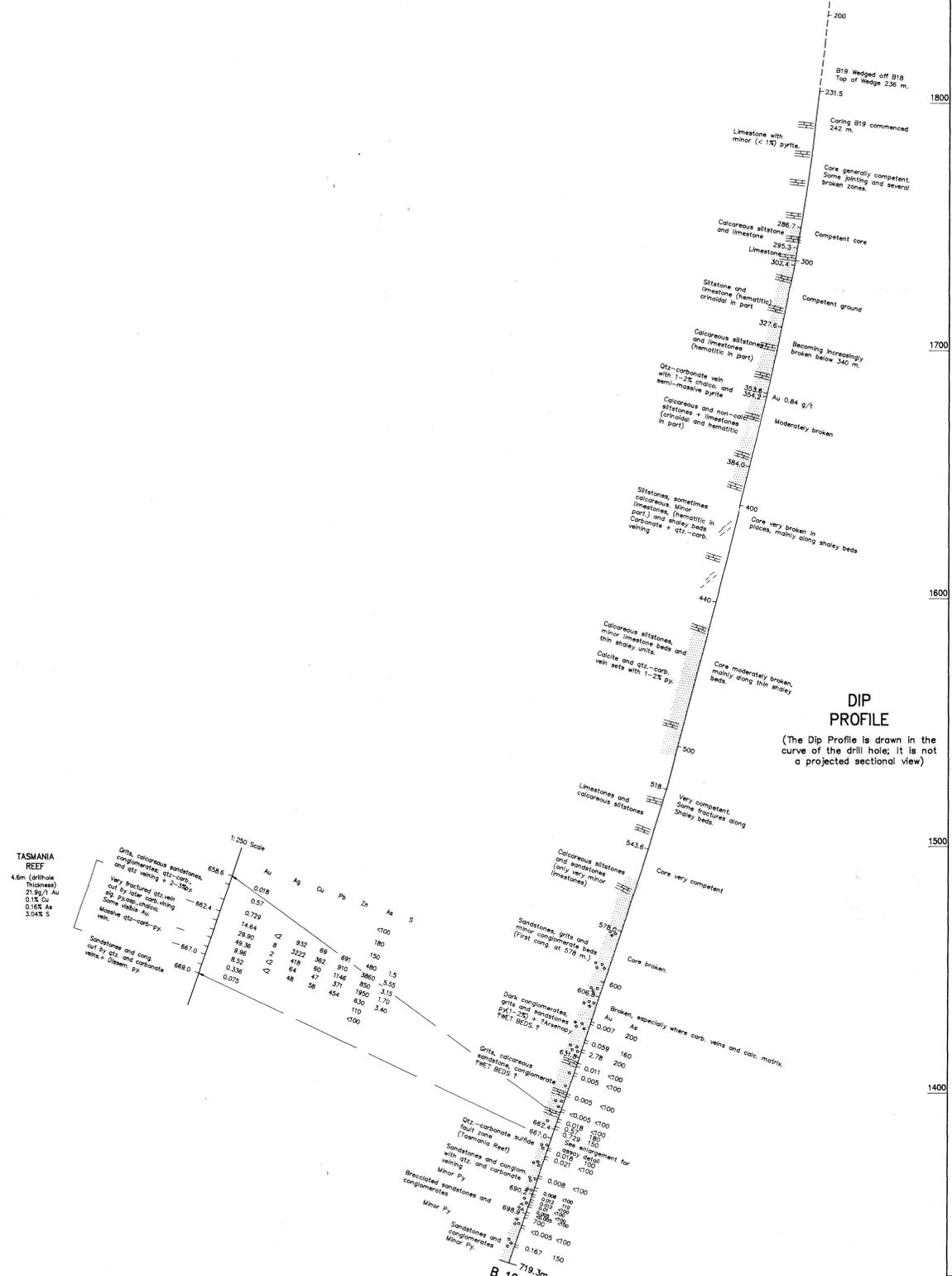
PLAN VIEW AMG GRID

R.L.  
2100

2000

1900

Reduced Level (R.L.) = M.S.L. + 2000m



DIP PROFILE

(The Dip Profile is drawn in the curve of the drill hole; it is not a projected sectional view)

1:250 Scale

Depth (m)	Au	Ag	Cu	Pb	Zn	As	S
658.6	0.018						<100
662.4	0.57						180
667.0	0.725						150
668.0	14.64						1.5
	79.90	8	932	89	891		3860
	49.96	2	3222	382	916		480
	8.52	2	418	60	1146		1800
	0.336		64	47	371		1900
	0.078		48	58	454		630
							110
							1.70
							110
							1.40
							<100

719.3m  
B 19

866143

5m

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NEWHAM EXPLORATION AND MINING SERVICES	
BEACONSFIELD JOINT VENTURE	DRAWN: L.A.N.
BEACONSFIELD MINE PROJECT	DRAFTSPERSON: T.G.O.S.
CORED DRILL HOLE	DATE: MAY '94
B 19	
	FILE No.
SCALE: 1:1000	FIG. No. 6

**NEWHAM EXPLORATION & MINING SERVICES**

**MICROFILMED**  
FICHE No. 013315-19

TASMANIA REEF  
BEACONSFIELD MINE  
**OPEN FILE**

*Proposed Drilling Program 1200-1400 R.L.*

*To Determine Scope For*

*Doubling Mineral Resource Potential*

Prepared for:

Beaconsfield Gold N.L.,  
1 Lindsay Street,  
INVERMAY, TAS. 7248

By:

L.A. Newham,  
P.O. Box 1002,  
DEVONPORT, TAS. 7310

Phone: (004) 28 2289  
Fax: (004) 28 2781

Date: January 1994

94-3627 Vol 3/4

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3. ANTICIPATED GEOLOGY	3
4. DRILLING STRATEGY	5
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6. TIMING	7
7. BUDGET	8
8. CONCLUSION	10

Fig 1 : Schematic Longitudinal Projection

Fig 2 : Drill Site Locations

Table 1 : Budget

**Maps:**

Map 1 : Plan of Proposed Holes 1 : 1,000 scale

Map 2 : Longitudinal Projection of Proposed Holes 1 : 1,000

## 1. SUMMARY

Results to date from the current drilling program, in combination with mine records, supports the view that the Tasmania Reef extends at least 200 vertical metres below the lowest level of previous mining.

Data suggests that over this interval 1400-1600 R.L., the Reef maintains similar size and grade characteristics to the upper mined areas which had a recovered capacity of approximately 62 Kg. gold/vertical metre.

If the final two holes in the current five hole program further support this concept, then the 1400-1600 R.L. interval may have an insitu mineral resource potential of 12-15 tonnes of gold.

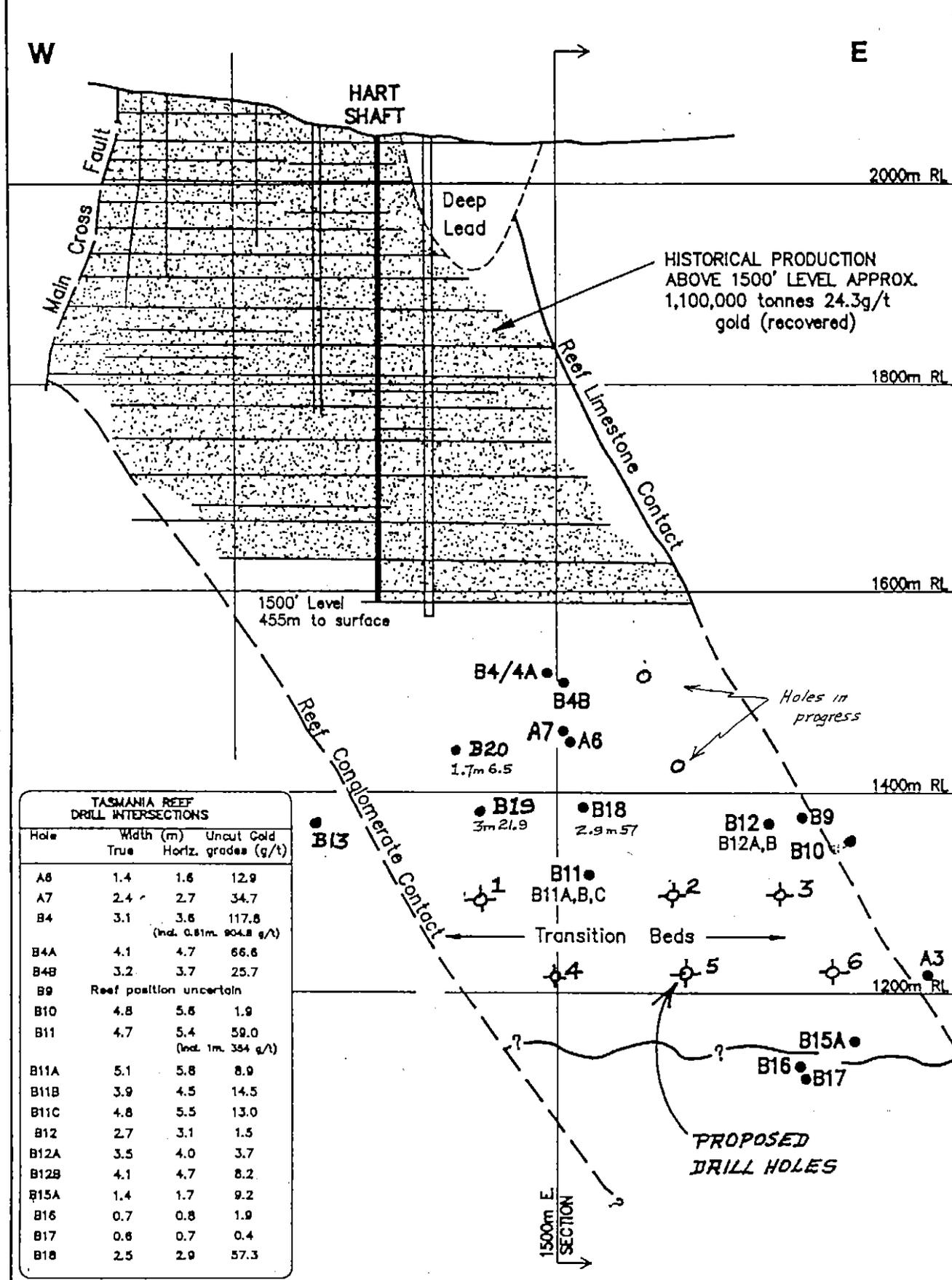
It follows that if the Reef continued with similar characteristics for a further 200 vertical metres between 1200-1400 R.L., then the resource potential might double to 25-30 tonnes gold, in the interval 450-850 vertical metres below surface.

This deeper potential (1200-1400 R.L.) could be initially evaluated by a six hole surface core drilling program totalling 4200 metres, with holes on a 80 vertical metre, 120 horizontal metre grid pattern.

Drilling from two sites, with one rig on six daylight shifts per week would take 12 months to complete at an all inclusive cost of approximately \$700,000.

# BEACONSFIELD GOLD JOINT VENTURE

## LONGITUDINAL PROJECTION OF TASMANIA REEF LOOKING NORTH



## 2. PROPOSED DRILL HOLES

It is proposed that six holes be drilled to further evaluate the resource potential between 1200-1400 R.L.

Accompanying drawings illustrate the plan and longitudinal projections of the holes.

The holes are spaced approximately 120 metres apart along strike and 80 vertical metres apart, which equates to 100 metres apart in the plane of the reef.

At this early planning stage, it is proposed that the two central and two western holes should be drilled from one site (Site A) and the two eastern holes from a second site (Site B).

The Site A parent hole would be 900-950 metres long, and each of the three daughter holes approximately 500 metres, giving a total of 2400 metres from Site A.

The Site B parent and one daughter would be of similar lengths giving a total of 1500 metres from Site B.

Allowing for second sample wedges on each hole, and the potential for unexpected FW mineralisation, **the total meterage would be approximately 4200 metres.**

### Drill Sites

Surface drill sites will always be a problem in Beaconsfield, and detailed design of the holes will be dependent on available areas.

Site A as shown is a vacant block with the Health Centre and Police Station to the north, school to the east and a residence to the south. If available, it is quite a good site, and therefore the aim should be to do maximum drilling from it (4 holes).

Site B is a real problem because of its proximity to the school and pre-school. Two options are shown on the accompanying plan: one in a private backyard which projects into the school grounds, and the other adjacent to the pre-school. Some survey work and discussions with residents and school groups will be required prior to making a final decision. Down hole geology and deviation patterns will be major factors influencing this decision.

### 3. ANTICIPATED GEOLOGY

Following completion of the first three holes of the current program, much has been learned both about the geological setting of the Tasmania Reef, and the drilling characteristics of the region.

When the final two holes in the program have been completed, a thorough redrafting and re-evaluation should be undertaken.

However, even at this early stage, some basic **geological observations** can be made which may be of value in assessing the resource and improving future drilling efficiency:

- (i) Holes B18, 19, 20 all obtained intersections of a well developed reef of a similar character (width, grade, mineralogy) to that previously mined.
- (ii) There is no obvious change in gross mineralogy with depth.
- (iii) The sedimentary sequence appears to be striking more easterly than contoured on existing plans. If so, and if the reef location is controlled by stratigraphy, then the reef may plunge more steeply than previously thought.

If the final two holes in the current program support this interpretation, then it means B9, B10 would have been just off the eastern limit of the reef, B15, 16, 17 **might** be closer to the eastern end of the reef, and the proposed holes may all have to move westerly.

- (iv) Previous conceptual thinking on reef controls appears to have been very rigid, especially with respect to the stratigraphic sequence. The main stratigraphic components viz. limestone, sandstone and conglomerate are not sharply defined but are rather gradational.

Hence the concept of the Tasmania Reef being strongly developed within a sandstone unit, and poorly developed both within the overlying limestone and underlying conglomerate, is very simplistic and possibly misleading when it comes to assessing deeper resource potential.

- (v) I have not yet recognised any stratigraphic unit which I would consider a reliable marker bed for the purposes of contouring.

The only possible exceptions to this are the upper most conglomerate unit (the first observed conglomerate in drill holes) and the calcareous cemented wet beds.

- (vi) The rocks in both the HW and FW of the reef are generally competent, with some stratigraphic units being excellent.

However, the Reef is generally very broken, particularly when the quartz component is high and the carbonate component correspondingly lower.

- (vii) Leaching of the limestone beds by ground water has produced large volumes of carbon dioxide.

It is clear that mine development of the reef to the west was influenced and restricted by anticipated water inflows. It is interesting to speculate to what extent development to the east was influenced by anticipated CO<sub>2</sub> inflows.

### **Anticipated Geology Site A**

The four holes planned from Site A should intersect geology similar to holes in the current program, but with more graphitic shales and sandstones near the collar.

Hopefully the parent hole will collar just west of the main cobble conglomerate - fault zone which gave so much trouble to earlier deep drilling programs.

### **Anticipated Geology Site B**

Site B holes will potentially encounter much more difficult geology associated with three previously recognised problems:

- (a) the stratigraphically conformable cobble - fault zone. This wide, mobile fault zone should be intersected higher in the hole than in the B8 and B14 sites, and it would be ideal to try and case it off with HW,
- (b) cavities in limestone, which can be substantial in the limestones east of the cobble fault,
- (c) deviation in the soft limestones east of the cobble fault can be massive and must be controlled.

Any deep drilling of the eastern side of the Tasmania Reef will encounter these three major problems. The main advantage we have is that the problems can be anticipated and therefore planned for.



SITE 21,22

HART SHAFT

SITE 18,19,20

SITE A

SITE B

866151  
Fig. 2.

#### 4. DRILLING STRATEGY

On the basis of drilling knowledge gained from the current and previous drilling programs, a drilling strategy for each site can be devised.

##### Site A

- collar vertical,
- tricone PW to approximately 50 metres and attempt to case with threaded PVC,
- tricone (with great care and restraint) HW to approximately 150 metres and case off with blank rod on bottom,
- core HQ to approximately 300 metres, or deeper if still in cavernous limestone zone, but no deeper than 400 metres,
- complete hole NQ, using 6 metre barrels if possible,
- obtain second sample cut through reef,
- wedge off parent with Hall-Rowe wedge (NQ).
- get maximum early deviation with navi drill as soon as possible after wedge,
- complete daughter holes as above.

##### Site B

- collar vertical,
- same as Site A, except if PW is spinning freely, take it as deep as possible and case with PVC,
- take HW to 150 metres if possible, or deeper if a cheaper steel casing can be found,
- HQ to at least 400 metres,
- complete hole NQ as for Site A,
- complete daughter hole as for Site A.

## 5. CONTRACTORS

Three contractors have been invited to tender:

- Diamond Drilling (Tas) Pty. Limited
- Pontil Pty. Limited
- Cherlor Air Drillers Pty. Limited

A copy of the letter to tender is attached.

The only Tasmania driller who has the capability to complete this program is the current contractor, Diamond Drilling (Tas).

Their main advantages are local drilling knowledge, known and proven crews and price.

Their main disadvantage is noisy bottom drive rig.

A top drive rig would potentially be both quieter and quicker. However, a top drive rig becomes expensive if only one shift per day can be drilled, because stand-by, delay, and meterage rates are adjusted up to compensate for non-drilling (idle equipment) hours.

The budget below is based on current costs and drilling progress. When detailed quotes are available, a detailed cost analysis will be undertaken.

There is every likelihood that both Cherlor and Pontil will not quote because of program location and drilling constraints.

## 6. TIMING

Based on drilling hours 7.00 a.m. - 6.00 p.m., six days per week, average progress of 80 metres per week is anticipated. This allows for all direction control and wedging operations.

Hence the 4200 metre program would take 52 weeks to complete.

If time was critical, and if a quieter rig was used, it may be possible to drill longer hours (eg) 6.00 a.m. - 10.00 p.m., and reduce the program duration to say nine months.

Alternatively two bottom drive single shift rigs could be used, although the noise factor could become a significant problem.

However, if the drilling program was to be undertaken in parallel with Hart Shaft dewatering and development, then it is difficult to see the advantage of reducing time.

Drilling at Beaconsfield is not difficult if ground problems are foreseen and the driller is experienced. In this context, shift drilling has some *significant* disadvantages. My strong recommendation would be to opt for one rig on one long shift per day, six days per week, unless time was a major factor.

## 7. BUDGET

A total budget of \$700,000 over a 12 month period is estimated for this program (Table 1).

**Drilling Contractor** - 4200 metres at \$125 per metre \$525,000

This all inclusive meterage rate is higher than the current program average of \$117, simply because the deeper the hole the more expensive per metre.

**Site Works** \$ 10,000

Security fence - erect, dismantle, using existing materials if possible (2 x \$1,000)

Mobile equipment hire (2 x \$1,500)

Rehabilitation (2 x \$500)

Concrete Pads (2 x \$2,000)

**Water and Power Supply** \$ 3,000

Water and power \$100 per month

Power connection \$800 per site

**Noise Reduction** \$ 8,000

Hay (2 x \$800)

Panels, huts estimated \$6,000

**Core Handling** \$ 17,000

Trays 500 metres HQ = 130 trays = \$1,700

3500 metres NQ = 600 trays = \$8,000

14 Racks = \$7,000

Bags, blocks, blades etc. = \$ 300

**Assaying** - 6 holes x 20 samples @ \$40 each \$ 5,000

**Petrology** - 30 samples @ \$100 each \$ 3,000

**Core Shed** - Quotes not yet available \$ 22,000

**Drafting, Reporting** \$ 5,000

One month's work to completely redraw essential plans

<b>Program Management</b>	\$ 78,000
---------------------------	-----------

Whilst every day is not always a full day, it is necessary to be on site most drilling days - \$6,500 per month.

Includes travel and accommodation

<b>Corporate and Joint Venture Costs</b>	\$24,000
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<b>BUDGET TOTAL</b>	<b>\$700,000</b>
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**Beaconsfield Gold Joint Venture**

<b>Item</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>Totals</b>
Drilling	35,000	40,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	525,000
Site Works	6,000							4,000					10,000
Water/power	1,000	100	100	100	100	100	100	1,000	100	100	100	100	3,000
Sound redn.	6,000							2,000					8,000
Core handling	2,000	1,000	2,000	1,000	2,000	1,000	2,000	1,000	2,000	1,000	1,000	1,000	17,000
Assaying			1,000		1,000		1,000			1,000		1,000	5,000
Petrology				1,000				1,000				1,000	3,000
Core Shed			22,000										22,000
Drafting												5,000	5,000
Management	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	78,000
Corp. & J/V	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	24,000
<b>TOTALS</b>	<b>58,500</b>	<b>49,600</b>	<b>78,600</b>	<b>55,600</b>	<b>56,600</b>	<b>54,600</b>	<b>56,600</b>	<b>62,500</b>	<b>55,600</b>	<b>55,600</b>	<b>54,600</b>	<b>61,600</b>	<b>700,000</b>

**Table 1: 1200-1400 RL Drilling Program Budget**

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## 8. CONCLUSION

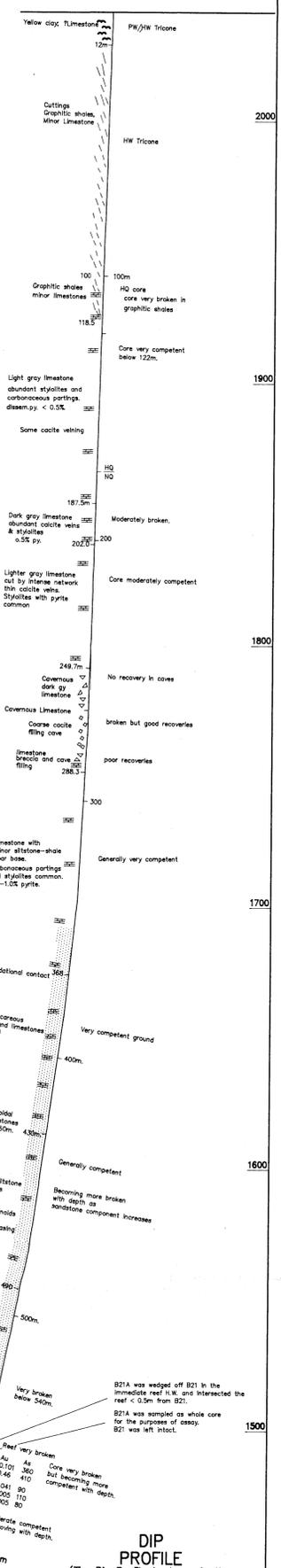
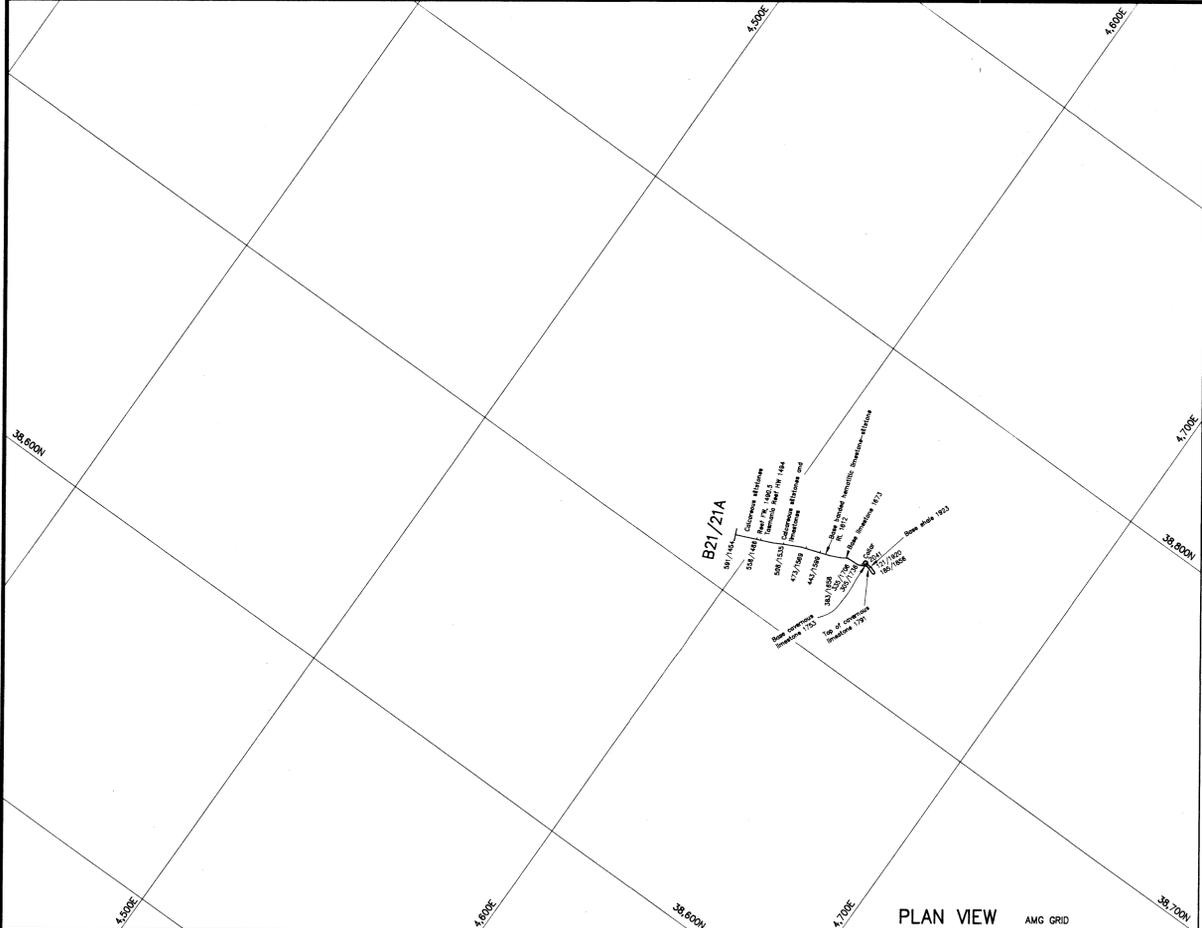
To date, results of the current drilling program suggests the Tasmania Reef extends at least 200 vertical metres beneath the lowest level of the former mine from 1400-1600 R.L. with no apparent change in characteristics.

The potential for the reef to continue a further 200 vertical metres from 1400-1200 R.L., thereby doubling the remaining mineral resource potential of the reef to 25-30 tonnes gold, could initially be tested by a six hole drilling program on a 100 x 120 metre pattern in the plane of the reef.

The program would cost a total of \$700,000 and take 12 months to complete with one rig on single shift.

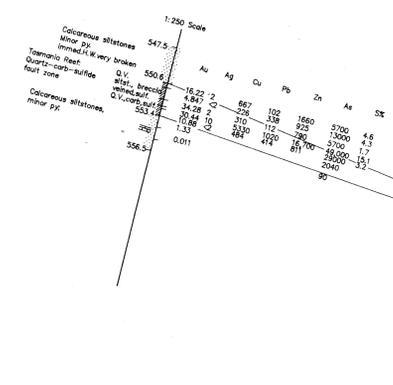
Quotations have been called from three drilling firms, all considered capable of completing the program. Provided the price is competitive, preference should be given to the local company who has performed well on the current contract, particularly if they can provide a quieter top drive rig.





Reduced Level (R.L.) = M.S.L. + 2000m

Tasmania Reef  
550.6-553.4m  
2.8m: 15.9 g/t Au  
2.0 Ag  
0.07 Cu  
0.03 Pb  
0.24 Zn  
1.64 As  
4.3 S  
ETT: 1.7m  
EHT: 2.0m



R.L.  
2100

2000

1900

1800

1700

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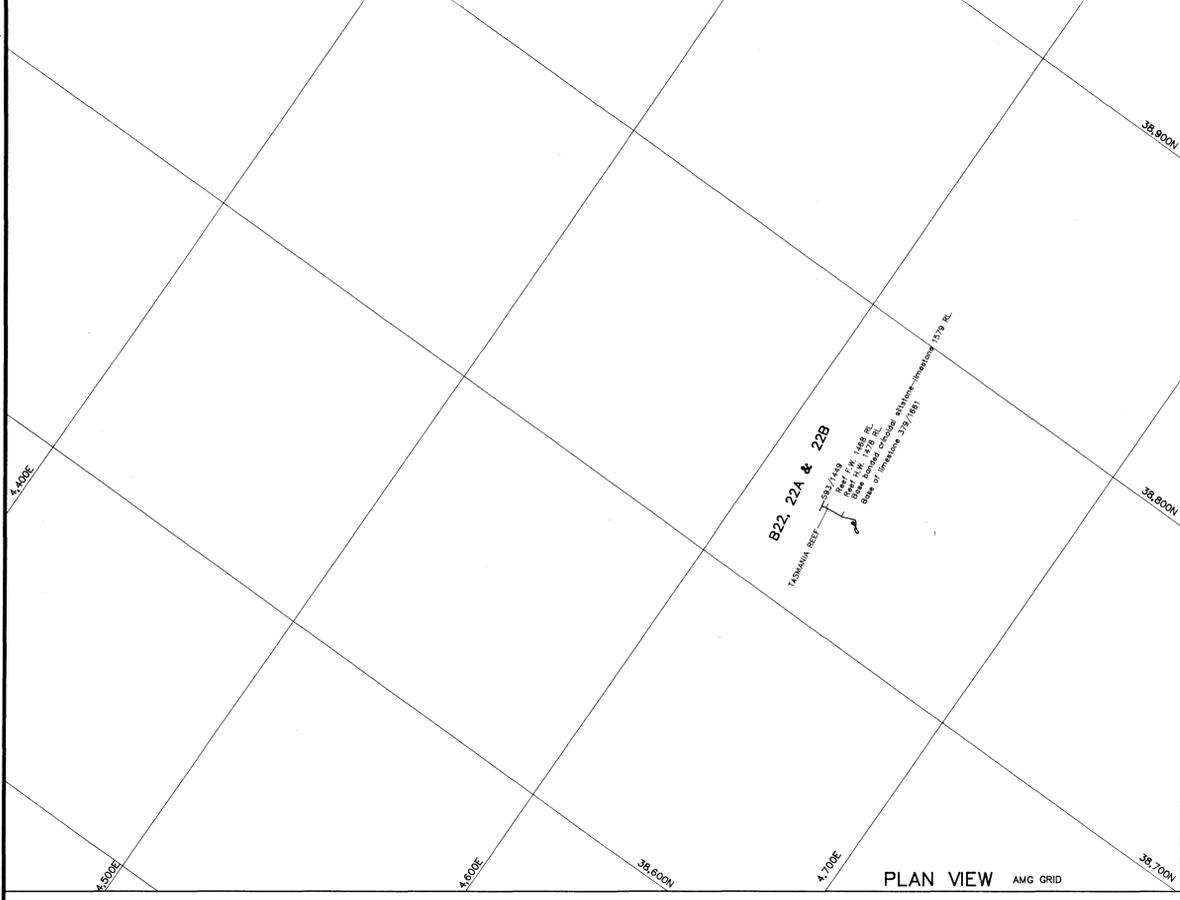
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94-3627

NEWHAM EXPLORATION AND MINING SERVICES	
BEACONSFIELD JOINT VENTURE	DRAWN: L.A.N.
BEACONSFIELD MINE PROJECT	DRAFTSPERSON: T.G.D.S.
CORED DRILL HOLE	DATE: MAY '94
B 21 and B 21A	FILE No.
SCALE: 1:1000	FIG. No. 8



R.L. 2100  
2000  
1900  
Reduced Level (R.L.) = M.S.L. + 2000m

**B22B**  
TASMANIA REEF ZONE  
564 - 570.9 M.  
6.9 m. 31.6 g/t Au  
6.5 g/t Ag  
0.27 Cu (%)  
0.01 Pb  
0.01 Zn  
1.19 As  
6.2 S

Consisting of:

564-567: 3.0 m. Reef  
29.9 Au  
7.0 Ag  
0.33 Cu  
<0.01 Pb  
0.04 Zn  
0.56 As  
4.90 S

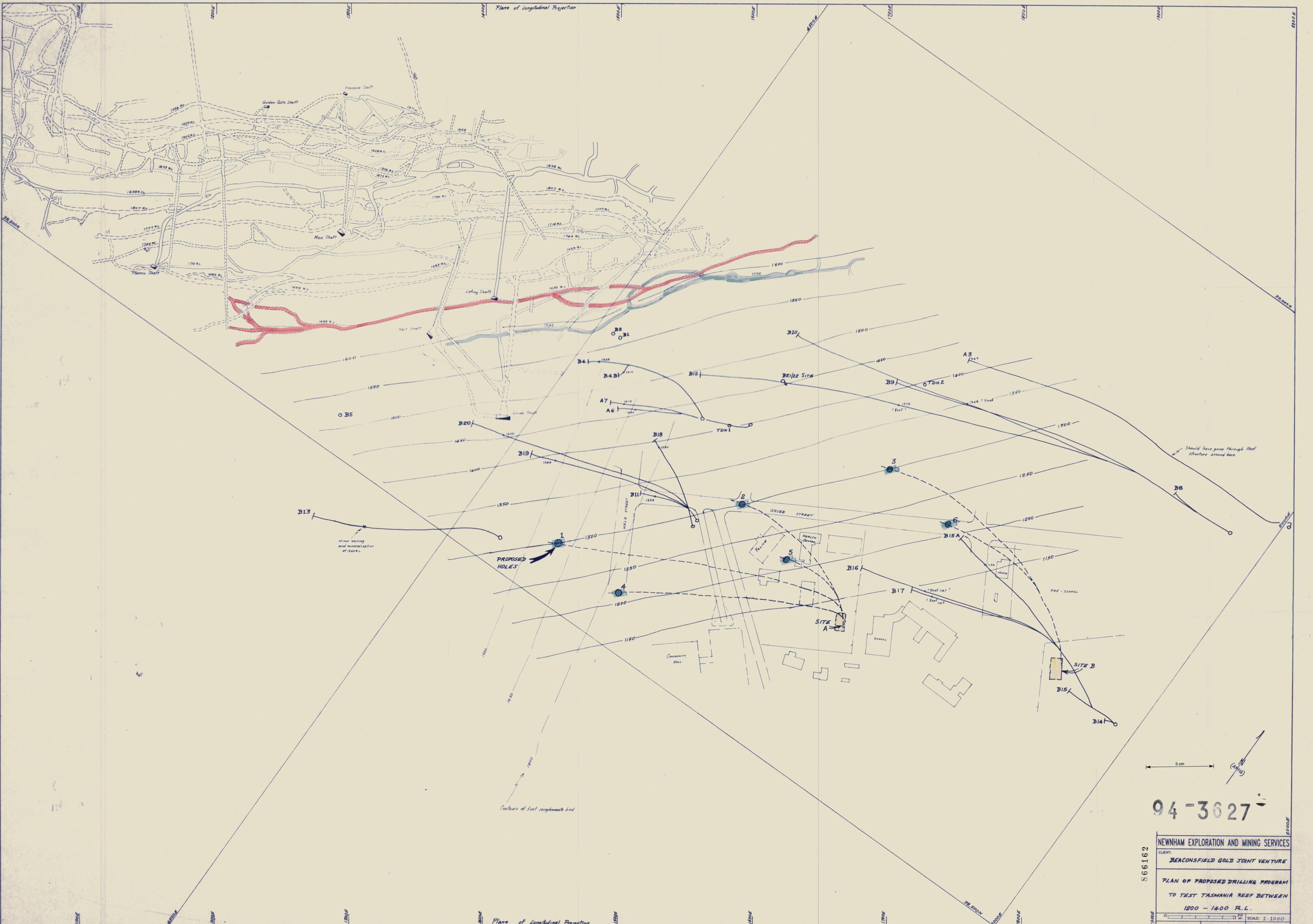
567-568.8: 1.8 m. veined siltstone  
11.8 Au  
<2 Ag  
<0.01 Cu  
<0.01 Pb  
0.01 Zn  
1.35 As  
5.4 S

568.8-570.9: 2.1 m. Reef  
51.2 Au  
10.6 Ag  
0.42 Cu  
0.04 Pb  
0.30 Zn  
1.84 As  
8.8 S

**B 22B**

554.5 m. 1:250

Depth (m)	Au	Ag	Cu	Pb	Zn	As	S
554.5	0.113	2	10	155	77	450	0.15
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4							



94-3627

NEWNHAM EXPLORATION AND MINING SERVICES  
 CLIENT: BEACONSFIELD GOLD JOINT VENTURE  
 PLAN OF PROPOSED DRILLING PROGRAM  
 TO TEST TASMANIA REEF BETWEEN  
 1200 - 1400 R.L.  
 SCALE: 1:1000  
 DRAWN: J. A. Newham DATE: January 1994 FIGURE:

866162

**OPEN FILE**

**MICROFILMED**  
FICHE No.013315-19

Vol 4/4 **EXPLORATION & MINING SERVICES**

**94-3827**

**E.L. 7/88**

**BEACONSFIELD AREA**

*District Exploration*

*Proposed Evaluation Program*

Prepared for:

Beaconsfield Gold N.L.  
1 Lindsay Street,  
INVERMAY, TAS. 7248

By:

L.A. Newnham,  
P.O. Box 1002,  
DEVONPORT, TAS. 7310



Phone: (004) 28 2289  
Fax: (004) 28 2781

Date: 20 January 1994

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Fig 1: Location Map

Map 1: Interpretative Geology and Evaluation Program

## 1. SUMMARY

Host rock stratigraphy and structural settings are probably the principal geological factors responsible for the formation of the Tasmania Reef at Beaconsfield.

Similar favourable stratigraphy and structural settings potentially continue north west of Beaconsfield into the northern half of E.L. 7/88, where this prospective geology is concealed beneath a cover of younger flat lying sediments of unknown thickness.

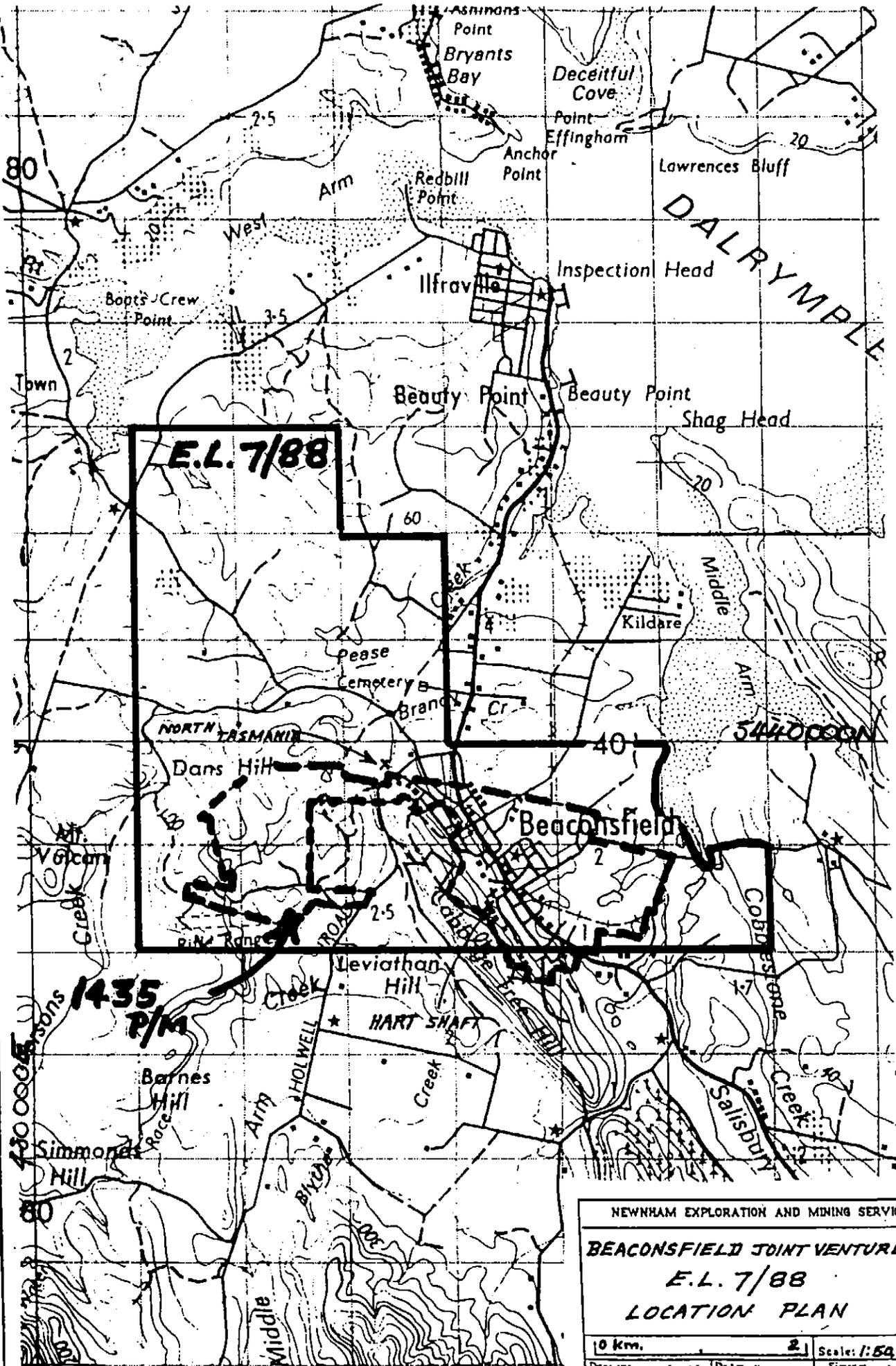
Due to the likely physical and chemical nature of Tasmania Reef analogues in this area, it is difficult, if not impossible, to search for them under such a cover by way of remote techniques such as geophysics.

The most effective exploration method is geological and geochemical mapping of the concealed bedrock by way of pattern RC or air core drilling.

Initial wide spaced fences of rotary or hammer holes are recommended to firstly establish the depth of cover rocks, secondly to define areas of prospective bedrock, and thirdly to gain some early bedrock geochemical data.

Samples should be assayed only for Au and As. Detailed follow up drilling could then be focused on areas assessed as potentially more prospective.

A first stage program of two fences of holes totalling 55 holes on 100 metre centres to a maximum depth of 50 metres as shown on the accompanying plan would cost an estimated \$70,000.



**E.L. 7/88**

DALRYMPLE

SANDY CREEK

Beaconsfield

HART SHAFT

1435 P/M

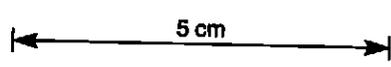
NEWNHAM EXPLORATION AND MINING SERVICES

**BEACONSFIELD JOINT VENTURE**

**E.L. 7/88**

**LOCATION PLAN**

0 Km.	2	Scale: 1:50,000
Drawn: L.A.N.	Date: Jan 94	Figure: 1



## 2. INTRODUCTION

The Tasmania Reef at Beaconsfield was a commercially very attractive ore deposit. It produced 27 tonnes Au at an average 62kg./vertical metre and an average grade 24g/t.

Consequently significant effort has been directed towards the location of similar deposits in the region. Discovery of the sub-economic Salisbury Hill deposit to the south and the North Tasmania deposit to the north of Beaconsfield were the closest that explorers have come to achieving this objective.

Such exploration has been restricted both by extensive areas of younger cover rocks to the north and east of Beaconsfield and by the somewhat poor understanding of geological factors which determined the formation of the Tasmania Reef.

The effect of these restrictions has been diminished with new exploration technologies and geological information and it is timely to reconsider district exploration for Tasmania Reef analogues.

Exploration Licence 7/88 was originally acquired with this longer term objective in mind. It covers an area of prospective ground to the north and north-west of Beaconsfield.

### 3. TASMANIA REEF

#### 3.1 Geological Setting

The Tasmania Reef is similar to a mega tension gash or kink structure developed between two major bedding parallel thrust structures which parallel the Tamar Suture or Lineament.

The Reef is best developed within a sequence of calcareous siltstones, grits and minor limestones collectively known as the Transition Beds, which presumably derive their name from the fact that they are transitional in composition between the underlying Cabbage Tree Conglomerate and the overlying Gordon Limestone.

The Reef appears to feather out in the Gordon Limestone and Cabbage Tree Conglomerate. However, it is debatable whether this is due to the deformation characteristics of these formations, or the fact that the ends of the reef (tension gash) as it approaches the two bounding thrust structures just happen to lie within these formations.

At least two generations of mineralisation are present in the reef:

- \* earlier quartz - arsenopyrite - chalcopyrite - pyrite - coarse (?) gold,
- \* later quartz - carbonate - pyrite - fine (?) gold.

No obvious changes in the physical nature, geological setting or chemistry of the Reef have been observed either down dip or along strike. The deepest Au - sulfide mineralisation has been recorded from 1100 vertical metres depth in B10. The proportion of the reef eroded away at surface is difficult to determine but it would seem reasonable to assume that Au-As-S mineralisation was deposited in fault structures at Beaconsfield over a vertical range of at least 1500 metres.

#### 3.2 Mineralisation Controls

The Beaconsfield Mine lies adjacent to a major crustal structure. This is probably the fundamental reason for the deposit being what it is. The Tamar Lineament transects eastern Tasmania, probably western Victoria, and some workers have interpreted it as continuing further northwards through the basement rocks of eastern Australia.

In Tasmania, it separates shallow water marine sediments of the west from contrasting deep water turbidites to the east. Together with adjacent subsidiary thrust structures, it has probably controlled and facilitated the introduction of Cambrian ultra basic rocks to the west of Beaconsfield, Devonian granitic plutons to the east and Jurassic dolerite extrusions.

A major structure such as the Tamar Lineament is not a single structure but rather a zone of major structural deformation. A number of significant thrust structures which parallel the main feature have been recognised in the Beaconsfield area. They result in the thrusting of Cambrian sediments over Ordovician sediments to the east and west of Beaconsfield. Horizontal movement on these thrusts has produced mega tension gashes or kink faults at right angles to the thrusts.

The Tasmania Reef and the North Tasmania Reef are two such structures and the Salisbury Hill deposit to the south may be a third. The Lefroy Field to the east of the Tamar Lineament may represent a group of similar reef structures within the turbidite sequence.

**With regional tectonics of this magnitude, it is reasonable to assume that Tasmania Reef structural analogues may exist to the north of Beaconsfield within E.L. 7/88.**

The source of gold at Beaconsfield is not clear. However, there are several possibilities, including:

- ultrabasics,
- deep seated granites east of the Tamar Structure,
- turbidites east of the Tamar Structure.

Au may have been transported in a sulfide rich vapour phase within a large convective cell driven by tectonic or Devonian magmatic heat associated with the Tamar Structure.

Precipitation of the auriferous fluids may have been controlled by the presence of reductant host rock chemistry.

The transition Beds and the Cabbage Tree Conglomerate both in the FW and HW of the Reef contain abundant stylolitic fractures which are carbon and/or hematite infilled. Pyrite is pervasive both within the stylolitic fractures and disseminated in the sediments.

These factors may have created a chemically reductant host rock environment conducive to the deposition of gold. By contrast, the Gordon Limestone (carbonate) carries less pyrite and may have been chemically less attractive to Au deposition.

**Stratigraphic sequences to the north of Beaconsfield with similar chemistry to those hosting the Tasmania Reef are therefore arguably favourable host rocks for gold deposition.**

#### 4. GEOLOGY NORTH OF BEACONSFIELD

The **North Tasmania Mine**, one kilometre north of the Tasmania Reef has correctly been regarded as a Tasmania Reef analogue, and for this reason has been considered prospective. The known reef structure is of a similar length to the Tasmania reef, but from surface to 200 vertical metres it is thin (<0.5m) and relatively low grade (?<5g/t).

There is no evidence to suggest it will get better or worse with depth. Only drilling can satisfactorily determine that. A drilling program to test the reef at depth was presented in the 1992-93 Annual Report on E.L. 7/88.

North of the North Tasmania Mine, exploration has been severely restricted by an extensive cover of Permian, Tertiary and Quaternary sediments and Jurassic dolerite.

Sporadic outcrops of Transition Beds and Cabbage Tree Conglomerates continue for one kilometre north-west of the North Tasmania Mine, then they disappear beneath cover rocks of unknown thickness. These outcrops were subjected to early prospecting by pitting and trenching.

Auger drilling and gravel quarrying suggests the extensive Tertiary quartz gravels to the immediate north of the North Tasmania are thin (<20m).

Airborne magnetic surveys and regional gravity studies define both the eastern boundary of an ultrabasic body which underlies the western portion of the E.L., and the Jurassic dolerite extrusion which covers a very small section of the north-east of the E.L.

The major thrust structures which lie east and west of the Tasmania Reef and parallel to the Tamar Lineament, probably extend to the north beneath the cover rocks. Cambrian sediments lie east and west respectively of these two structures.

It is therefore postulated that north of the North Tasmania Mine, there may be an area within E.L. 7/88 approximately 1-2 kilometres wide and 3-4 kilometres long which contains all the stratigraphic and structural elements considered important to the formation of Tasmania reef analogues, and which is concealed by younger sediments.

## 5. EXPLORATION STRATEGY

Geochemistry represents the most effective exploration method for reef structures similar to the Tasmania Reef, in particular Au and As bedrock geochemistry.

The wall rocks of the Tasmania Reef are As (and to a lesser extent Au) anomalous for 10-25 metres either side of the reef structure. Hence there is a geochemical halo approximately 30-50 metres wide, and this presents a realistic exploration target.

The most definitive method of exploring the area north of the North Tasmania Mine beneath cover rocks is with good quality auger/hammer drilling programs, having three fundamental objectives:

- (i) establish depth of cover rocks,
- (ii) define physical limits of Ordovician sediments,
- (iii) provide samples of Ordovician basement rocks for Au-As analysis.

The fact that the surface extension of the North Tasmania Mine was located with this approach attests to the effectiveness of the strategy.

Widely spaced holes on widely spaced fences would satisfy the first two of these objectives.

Results from this initial program could then be used to design follow up programs of closer spaced holes on closer lines over selected areas.

**Drilling should be with either an air core rig or a face sampling RC system.**

## 6. RECOMMENDED PROGRAM

An **initial program** of two widely spaced fences of vertical holes on 100 metre centres is recommended (Lines A. and B. on accompanying plan). Holes should be drilled to 50 metres maximum.

Exact location of holes would depend upon a more detailed investigation of cultural features such as tracks, fence lines etc. However, the lines should be orientated so as to cut the anticipated strike of both the reef structures and sedimentary formations at reasonably high angles.

The two proposed lines should establish the extent of Ordovician sediments and the depth of cover rocks in that section of E.L. 7/88 north of the North Tasmania Mine, as well as providing some limited but specific bedrock geochemical data.

Care would be required to differentiate between Ordovician and Permian sediments and their weathered derivatives.

This initial program involves 55 holes at 50 metres (maximum) each, say total 2500m. of RC or air core drilling. This would take 2-3 weeks to complete.

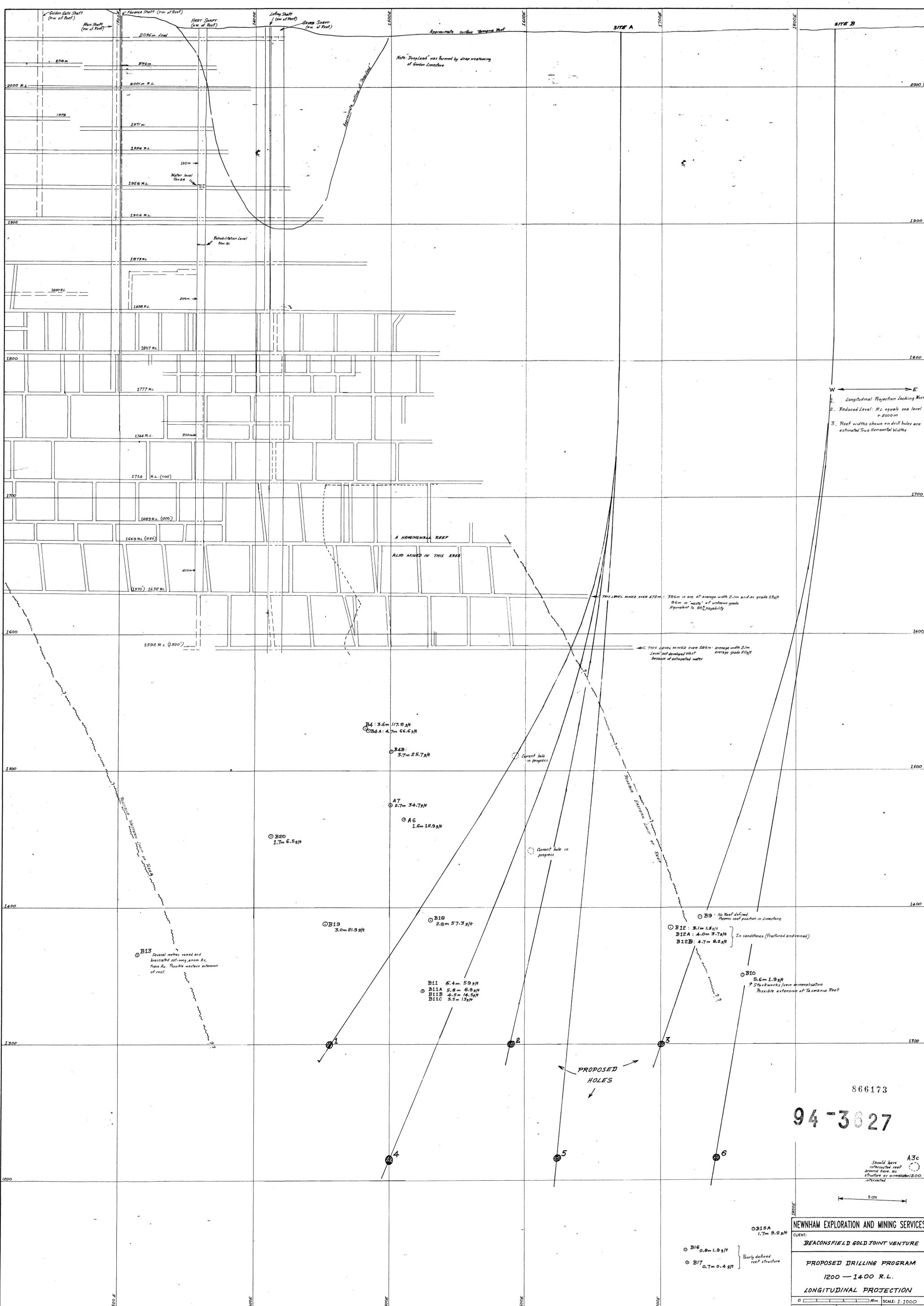
### Budget Summary

	\$
2500m. drilling at \$20/m	50,000
Sampling crew (2-3 weeks)	6,000
Design and evaluation (2 weeks)	3,000
Assaying 500 samples at \$14/sample	7,000
Field supplies	3,000
Contingencies	1,000
	<b>\$70,000</b>

It is always preferable to undertake RC/air core drilling in dry weather. The total program would take one month to complete.

**Follow up programs** of closer spaced holes would be guided by results of this initial program. Such holes would be designed to locate and define bedrock Au-As geochemical anomalies in areas selected on the basis of results from the initial program.

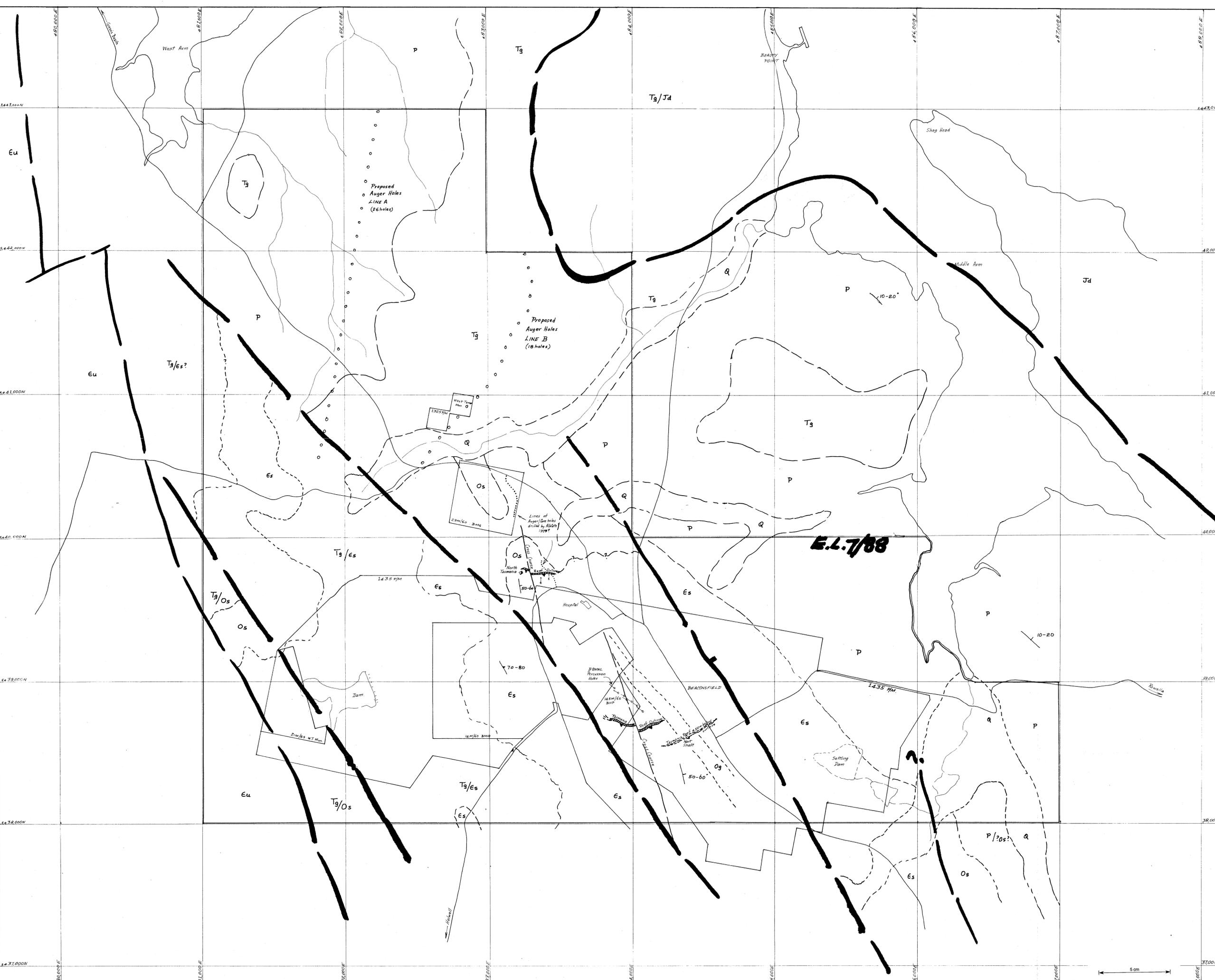
Should this follow up geochemical drilling successfully define attractive geochemical anomalies, a third phase of exploration involving core drilling would be required.



- W ← E
1. Longitudinal Projection Looking North
  2. Reduced Level: R.L. equals sea level + 2000m
  3. Reef widths shown on drill holes are estimated True Horizontal Widths

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94-3827

NEWMHAM EXPLORATION AND MINING SERVICES  
CLIENT: BEACONSFIELD GOLD JOINT VENTURE  
PROPOSED DRILLING PROGRAM  
1200 - 1400 R.L.  
LONGITUDINAL PROJECTION  
SCALE: 1:2000  
DRAWN: L.A. Newham DATE: Jan / 1994 FIGURE:



- Q Recent alluvium, mainly in drainage channels
- Tg Tertiary gravel, sand, ferruginous material
- Jd Jurassic Shale, Locally West of Tamar interpreted from aeromagnetics
- P Permian marine sediments - mudstones, sandstones, minor limestones
- Os Ordovician sediments - Gordon Limestone, Mena Sandstone (Transition Beds), Gabbage Tree Argillaceous
- Og Known Gordon Limestone
- Es Cambrian sediments - black shales and phyllites
- Eu Cambrian ultra basic (gabbroite)
- - - Minor Fault
- Inferred major structure

The simplified geological interpretation on this plan has been derived from various existing data sources including state geological maps, Aislake plans, aerial magnetic surveys, drill hole and mine data.

To further evaluate the potential of the concealed Ordovician sediments, west of Beaconsfield, to host primary gold deposits, it is recommended that initially two lines of RC drill holes, as shown, should be completed. Holes are spaced on 100m centres and should be approx 50m deep. In total 25 holes x 50m = 2750m.

Results of these holes could then be used to guide the direction of future exploration in the region.

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NEWHAM EXPLORATION AND MINING SERVICES  
 CLIENT: BEACONSFIELD GOLD JOINT VENTURE  
 EXPLORATION LICENCE 7/88  
 INTERPRETATIVE GEOLOGY  
 INITIAL EVALUATION PROGRAM  
 0m 1000m 1:20,000 SCALE: 1:20,000  
 DRAWN: L.A. NEWHAM DATE: January 1984 FIGURE: