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**THE ANNUAL REPORT ON**  
**EXPLORATION LICENCE 35/81**  
**LOW STONEY HEAD, TASMANIA.**  
**YEAR ENDING JUNE, 1986.**

OPEN FILE

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- 3 Back Creek, Tasmania.



1. INTRODUCTION

- 1.1 This report summarises exploration undertaken on E.L. 35/81, Low Stoney Head during the year ending June, 1986. General reconnaissance alluvial exploration was carried out along the Curries River upstream from the Beachford Road and on various creeks between Lefroy and Back Creek.
- 1.2 The exploration work involved the digging of a test pit at sites shown on Plate ~~1~~<sup>2</sup> using an excavator. Samples of alluvial wash encountered in the pits were treated in a test plant and further reduced by panning. The final concentrate was assayed in total for free gold.



2. FIELD PROCEDURES

2.1 The objective of the work was to determine whether any alluvial gold occurred along the Curries River and its tributaries upstream from the Beachford Road; along the various creeks between Lefroy and Back Creek.

2.2 Each pit is identified by one or two letters to designate the general area in which it occurs, followed by a number to identify the pit itself.

2.3 Almost all the pits were dug through the complete alluvial section, with only a few failing to terminate in positively identifiable bedrock, (Palaeozoic Mathinna Beds). However, in a number of pits bedrock was not encountered before the hole either failed due to inflow of ground water or the maximum reach of the excavation being achieved.

2.4 Generally the near surface alluvial layers comprise soil (0 - 0.3 metres thick) and then clays or sandy clays. This material contains no free gold and is included as overburden (symbol o/b used in the description of alluvial lithologies in Appendix 1). In digging the test pits, the overburden was stacked to one side of the pit and used to refill the hole after its completion.

2.5 The overburden is generally underlain by a light grey gravelly to sandy clay. However, each different lithology encountered was placed in a separate pile or dump at the discretion of the site Geologist. The depth to each varying lithology was measured using a tape measure lowered from the surface.



- 2.6 Each dump was identified by its hole number followed by a letter to identify the specific dump. The letter A was used for the deepest alluvial lithology, with B, C etc. used to identify progressively shallower lithologies. As most of the alluvial gold present is concentrated in the lowest 300 mm of wash, dump A is generally the most prospective and the one most often sampled and tested. In some instances very weathered bedrock difficult for the site Geologist to identify was labelled dump A. In such cases dump B was the most prospective. In other areas where the wash was either thicker or dump B material also appeared auriferous, samples from dump B as well as dump A were taken for testing. Details of lithologies encountered and depths reached are given in Appendix I.
- 2.7 Sample of prospective coarse alluvial wash were collected in cut down 200 litre drums. A measured 0.045 loose cubic metre was collected. Random samples were taken for checking on a weighbridge and generally found to have a net weight of 70 - 90 kg. A measured bank cubic metre of wash from one hole was also collected and weighed (approximately 2,000 kg). The samples tested are considered to be about 1/28 of a bank cubic metre.
- 2.8 The samples were carted by 4WD and trailer to Valken Mining Pty. Ltd. test plant at Lefroy. Each sample was separately wet screened to remove + 6mm material and the undersize passed over a Wilfry Table.



- 2.9 Of the original 70 - 90 kg sample, approximately half is + 6 mm. The remainder was concentrated on the table to about 2 kg sample. The table tails were periodically checked by panning for losses and the tails from the duplicate samples passed over a set of spirals, (hired from Vickers), to see if additional fine gold could be saved. The check panning indicated some fine gold losses (0.03 gms/cubic metre). The spiral concentrate retained 0.02 gms of gold per cubic metre of sample treated. The average of 0.025 gms/cubic metre represents about 5% of the grade of the average economic sample.
- 2.10 The 2 kg concentrate from each sample was panned down to a  $\frac{1}{2}$  kg sample and the panning tails kept and re-concentrated over the table as five separate samples. Panning losses captured on the second pass were found to be minimal. (Under 0.01 gms/cubic metre).
- 2.11 The  $\frac{1}{2}$  kg samples were bagged and forwarded to Maroochydore, where they were examined in a panning dish, further concentrated to 50 gram samples, dried, screened to remove + 2 mm gravel, weighed and re-bagged. Samples with more than 2 - 3 specs of visible gold were forwarded to Australian Laboratory Services in Brisbane for fire assay of the total concentrate. Poorer samples have been stored for assay later if so required. The Maroochydore panning tailings were collected and re-concentrated on a centrifical gold wheel. The concentrate of the panning losses was also check assayed.
- 2.12 The assay results of free gold obtained from the laboratory were multiplied by the weight of the dried concentrate to determine the amount of gold (in micro-grams) in the sample. This figure was further multiplied by 28 to determine the amount of gold (in micro-grams) per cubic metre.



2.13 It is possible that losses of gold (particularly fine gold) can occur in the sampling procedure used. However, the system of re-checking tailings etc. does minimise these losses. The assays of the various tailings concentrates show that the gold loss on the first pass and collected by the double checking comprises only 5% of the gold collected in the first pass. Losses of this order are considered low and similar to those normally occurring in an alluvial production plant.



### 3. ALLUVIAL GEOLOGY

3.1 The alluvial wash encountered is of 3 types.

- (a) A basal brown wash generally associated with ancient channels or terraces.
- (b) A younger light grey wash generally associated with alluvial ancient channels on the present day alluvial flood plain.
- (c) A darker grey finer gravel wash, thought to be the youngest present, and confined to the present day creek beds.

3.2 The brown wash comprises rounded cobbles and small boulders of quartz contained within a matrix of brown clay, silts, sands and finer gravel. This wash is most common within the ancient water courses situated away from the present water course (in leads or terraces). It also occurs within fossilised channels occurring below the present alluvial plain. However, it is generally discontinuous here, having been eroded by more recent streams.

3.3 The light grey wash is also generally coarse gravel comprising quartz cobbles and boulders in matrix of light grey quartz gravels, sands and clays. In many alluvial areas this wash is the basal alluvial section. However, where the older brown wash occurs, it tends to overlie it.

3.4 The variation in colour between these two types of wash is generally the result of differing clays in the matrix. The coarser grained particles of both wash types comprise quartz almost entirely. The grey wash is more common in areas of light green-grey weathered phyllite bedrock and the brown wash is often underlain by more ferruginous phyllites and slates.



- 3.5 The young dark grey wash is confined to recent creek beds. It is generally finer grained, with more angular quartz in a dark grey matrix. The dark colour coming from the washed soils content from the surrounding hillsides. A lot of the quartz in this wash comes from eroded Pleistocene gravel deposits which occur on the hill tops.
- 3.6 All different types of wash can be overlain by a light grey gravelly sandy clay section which can carry gold, but generally of insufficient quantities to justify its ultimate treatment.
- 3.7 In most alluvial areas the wash section is generally 0.7 - 1.0 metre thick, and is overlain by an average 1 - 2 metres of overburden. The overburden includes the gravelly clay and nearer surface mottled grey and brown clays and soils.
- 3.8 The bedrock is predominantly soft and highly cleaved Palaeozoic phyllite and slates. At times the bedrock grades to harder cleaved mudstones or siltstones. The bedrock is soft and most of the channels follow major shear zones. Consequently there are few meanders within the channels which would help to trap the alluvial gold. Some concentration of gold in stream confluences and in ponded areas is apparent.
- 3.9 However, the main concentrating mechanism at Lefroy has been the Tertiary Basalts, which were harder to erode than Palaeozoic rocks. The basalts have tended to pond the channels upstream from their contact, decreasing stream velocities and allowing deposition of the heavy minerals within the basal gravels.
- 3.10 Where the alluvial channels have eroded the basalt, good grades can still be obtained for some distance downstream, apparently concentrated at stream confluence and in areas of ponding, where the basalts were locally easier to erode.



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3.11 The Tertiary Basalts appear to post date the oldest brown wash channels, but appear to have predated both the grey wash channels. In the basalt area the wash tends to gradually contain more cobbles and boulders of basalt and less quartz. The wash tends to be darker brown as the matrix gradually contains a higher percentage of basaltic clays.

3.12 The oldest leads continue under the Tertiary basalt and gradually become deeper (deep leads). Such channels are expensive to explore and mine and hence have yet to be investigated. However, advances in drillhole mining of deep leads and in reverse circulation sampling may make such areas prospective once a cash flow has been achieved from shallower alluvial mining.



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#### 4. DATA PRESENTATION

4.1 A series of plans of the Lefroy/Back Creek gold fields have been prepared.

#### 4.2 Plan 1096/1

This is a 1:25,000 plan of E.L. 35/81 - Stoney Head. This plan shows the locations of E.L. 35/81 and of plans 1096/2 and 1096/3 upon which the location of the test pits are shown.

#### 4.3 Plan 1096/2

This is a 1:10,000 plan of the Lefroy gold field showing the location of reconnaissance lines of test pits dug on the Exploration Licence in Area W and AB - AE inclusive.

#### 4.4 Plan 1096/3

This is a 1:10,000 plan of the Back Creek Area showing the location of the reconnaissance lines of test pits AA, BB and BJ - BN inclusive, all of which were dug on the Exploration Licence.



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5. TEST HOLE RESULTS

5.1 Full details of the amount of free gold recovered from each of the samples tested are given in Table 1 below. The total amount of gold present is given in milligrams and the grade in gm/cubic metre.

TABLE 1 - GOLD ASSAY RESULTS

	Gold in Sample (milligrams)	Average Gold Grade gms/cubic metre
AA1-A	5.80	0.16
BB1-A	2.80	0.08
BB2-A	5.19	0.15
BB4-A	6.90	0.19

5.2 Other samples considered too low a grade to warrant assay were -

AB1-A, AC2-A

W3-A, W5-A

5.3 The best grades occur in the following areas -

(a) Moonlight Flat - Sample AA1-A

(b) Back Creek - Sample BB2-A, BB4-A



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APPENDIX I - TEST PIT RESULTS

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Hole AA1

0 - 1.3 o/b  
1.3 - 1.8 A : Grey fine wash  
1.8 - 2.5 Grey clay (weathered phyllite)  
2.5+ Br : Phyllite

Hole AA2

0 - 2.2 o/b  
2.2 - 3.2 Grey gravelly clay  
3.2+ Br : Phyllite

Hole AB1

0 - 3.0 o/b  
3.0 - 4.2 fine grey wash  
4.2+ Br : Phyllite

Hole AB2

0 - 2.15 o/b  
2.15 - 2.45 A : Grey sandy gravel  
2.45 - 4.0 A : Grey sandy gravel  
4.0+ Br : Slate

Hole AC1

0 - 2.7 o/b  
2.7+ Br : Phyllite

Hole AC2

0 - 1.5 o/b  
1.5 - 2.5 gravelly clay  
2.5 - 2.8 A : Grey wash  
2.8+ Br : Phyllite



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Hole AD1

0 - 1.0 o/b  
1.0 - 2.2 A : Grey clayey gravel and fine wash  
2.2+ Br : Phyllite

Hole AD2

0 - 2.8 o/b  
2.8+ Br : Phyllite

Hole AE1

0 - 4.2 o/b  
4.2 - 5.2+ Red brown basaltic clay

Hole AE2

0 - 2.5 o/b  
2.5 - 4.0 Grey clay with some gravel  
4.0+ Red brown basaltic clay

Hole AE3

0 - 2.3 o/b  
2.3 - 3.1 Mottled brown grey gravelly clay  
3.1 - 4.3+ Red brown basaltic clay

Hole BB1

0 - 2.8 o/b  
2.8 - 3.3 Coarse grey wash  
3.3+ Grey clay (weathered basalt)

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Hole BB2

0 - 0.9 o/b  
0.9 - 1.6 B : Hardpan (grey wash)  
1.6 - 2.4 A : Brown wash  
2.4 - 4.1 Brown basaltic clay  
4.1+ Weathered basalt

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Hole BB3

0 - 5.6 Basaltic clay  
5.6+ Grey basalt clay

Hole BB4

0 - 1.7 o/b  
1.7 - 2.2 A : Grey wash  
2.2+ Grey clay (Ext weathered basalt)

Hole BB5

0 - 1.4 o/b  
1.4 - 2.4 Brown wash  
2.4 - 3.4 Grey clay  
3.4 - 4.5+ Red brown clay (Ext weathered basalt)

Hole BB6

0 - 1.3 o/b  
1.3 - 1.6 Red brown wash  
1.6 - 3.8+ Brown grey clay (Ext weathered basalt)

Hole BB7

0 - 3.7 o/b  
3.7+ Weathered basalt



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Hole BB11

0 - 0.8 o/b  
0.8 - 1.4 Coarse brown wash  
1.4+ Br : Phyllite

Hole BB12

0 - 1.0 o/b  
1.0+ Br : Phyllite

Hole BB13

0 - 1.0 o/b  
1.0+ Br : Phyllite



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Hole BJ1

0 - 2.1 o/b  
2.1 - 3.2 A : Grey wash  
3.2+ Br

Hole BJ2

0 - 3.4 o/b  
3.4 - 3.8 Fine brown wash  
3.8 - 4.2 Mottled grey brown sandy gravelly clay  
4.2+ Br : Brown Phyllite

Hole BK1

0 - 1.5 o/b  
1.5 - 2.8 Grey clayey sand  
2.8 - 3.2 A : Fine grey wash  
3.2 - 4.2 White clay (weathered phyllite)  
4.2+ Br : Phyllite

Hole BK2

0 - 1.3 o/b  
1.3 - 2.4 Grey clayey sand  
2.4 - 2.8 Mottled grey brown wash  
2.8 - 4.4 Grey clay  
4.4+ Br : Brown Phyllite



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Hole BL1

0 - 1.0 o/b (Basaltic clay)  
1.0 - 1.4 Grey gravelly clay  
1.4 - 2.0 A : Brown and grey wash  
2.0 - 2.5 White clay (Weathered Phyllite)  
2.5+ Br : Phyllite

Hole BM1

0 - 1.25 o/b  
1.25 - 1.6 A : Brown grey wash  
1.6+ Br : Phyllite

Hole BM2

0 - 1.3 o/b  
1.3 - 1.6 A : Grey brown fine wash  
1.6+ Br : Phyllite

Hole BN1

0 - 1.4 o/b  
1.4 - 2.5 Grey gravelly sandy clay  
2.5 - 3.05 C : White gravelly clayey sand  
3.05 - 3.6 B : Brown gravelly clayey sand  
3.6 - 3.9 A : Grey sandy wash  
3.9 - 5.0 Grey clay (Weathered Phyllite)  
5.0+ Br : Phyllite

Hole BN2

0 - 2.2 o/b  
2.2 - 3.0 B : Grey gravelly sandy clay  
3.0 - 3.8 A : Grey brown wash  
3.8 - 4.3 Grey clay (Weathered Phyllite)  
4.3+ Br : Phyllite

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Hole W1

0 - 1.8 o/b  
1.8 - 2.2 A : Grey to brown clayey wash  
2.2+ Br : Mudstone

Hole W2

0 - 1.5 o/b  
1.5+ Br : Pebbly mudstone

Hole W3 (in centre of creek)

0 - 1.5 o/b  
1.5 - 2.45 Light grey to brown clayey sand  
2.45 - 2.8 A : Grey clayey wash  
2.8+ Br : Mudstone



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Hole W4

0 - 0.7 o/b  
0.7 - 1.4 A : Grey brown gravelly clay with thin wash  
1.4+ Br : Mudstone

Hole W5

0 - 0.2 o/b  
0.2 - 1.1 C : Grey sandy and dome fine gravel  
1.1 - 3.0 B : Mottled brown and grey clays  
3.0 - 4.8 A : Brown and grey mottled wash  
4.8+ Br : Mudstone

Hole W6

0 - 0.2 o/b  
0.2 - 1.2 B : Grey sandy clay with minor gravel  
1.2 - 3.3 A : Mottled brown and grey clay, some gravel  
3.3+ Br : Mudstone

Hole W7

0 - 0.3 o/b  
0.3 - 0.6 Brown silty sandy clay  
0.6 - 2.4 Brown grey sandy clay and gravel  
2.4 - 3.1 A : Brown, grey sandy clay and wash  
3.1+ Br : Mudstone

Hole W11

0 - 2.9 o/b (mottled brown and grey clay)  
2.9+ Br : Mudstone

Hole W12

0 - 2.9 o/b  
2.9 - 3.7 A : Grey brown clay wash  
3.7+ Br : Grey shale

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Hole W13

0 - 2.0 o/b  
2.0+ Br : Shale

Hole W14

0 - 1.2 o/b<sub>1</sub>  
1.2 - 2.1 A : Brown grey clayey gravel  
2.1+ Br : Mudstone

Hole W15

0 - 1.5 o/b  
1.5 - 2.5 A : Grey brown gravelly clay  
2.5+ BR : Mudstone

Hole W16

0 - 1.0 o/b  
1.0+ Br : Grey slate

Hole W21

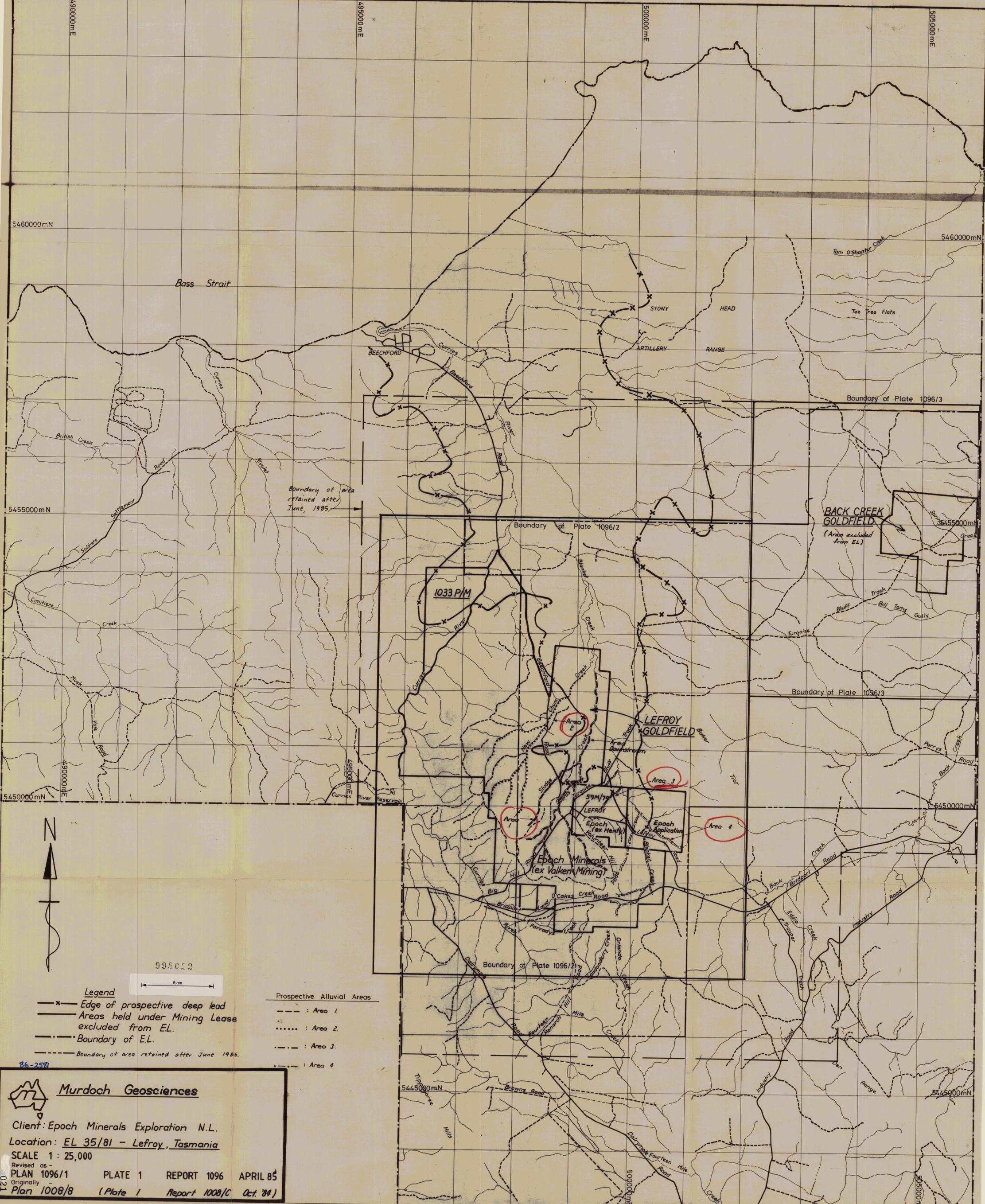
0 - 2.4 o/b  
2.4 - 3.1 A : Grey clay wash  
3.1+ Br : Weathered grey slate

Hole W22

0 - 3.9 o/b  
3.9+ Br : Weathered brown grey slate

Hole W23

0 - 1.2 o/b  
1.2 - 1.9 B : Grey wash  
1.9 - 2.1 Clay  
2.1 - 3.2 A : Grey wash  
3.2+ Br : Blue grey slate



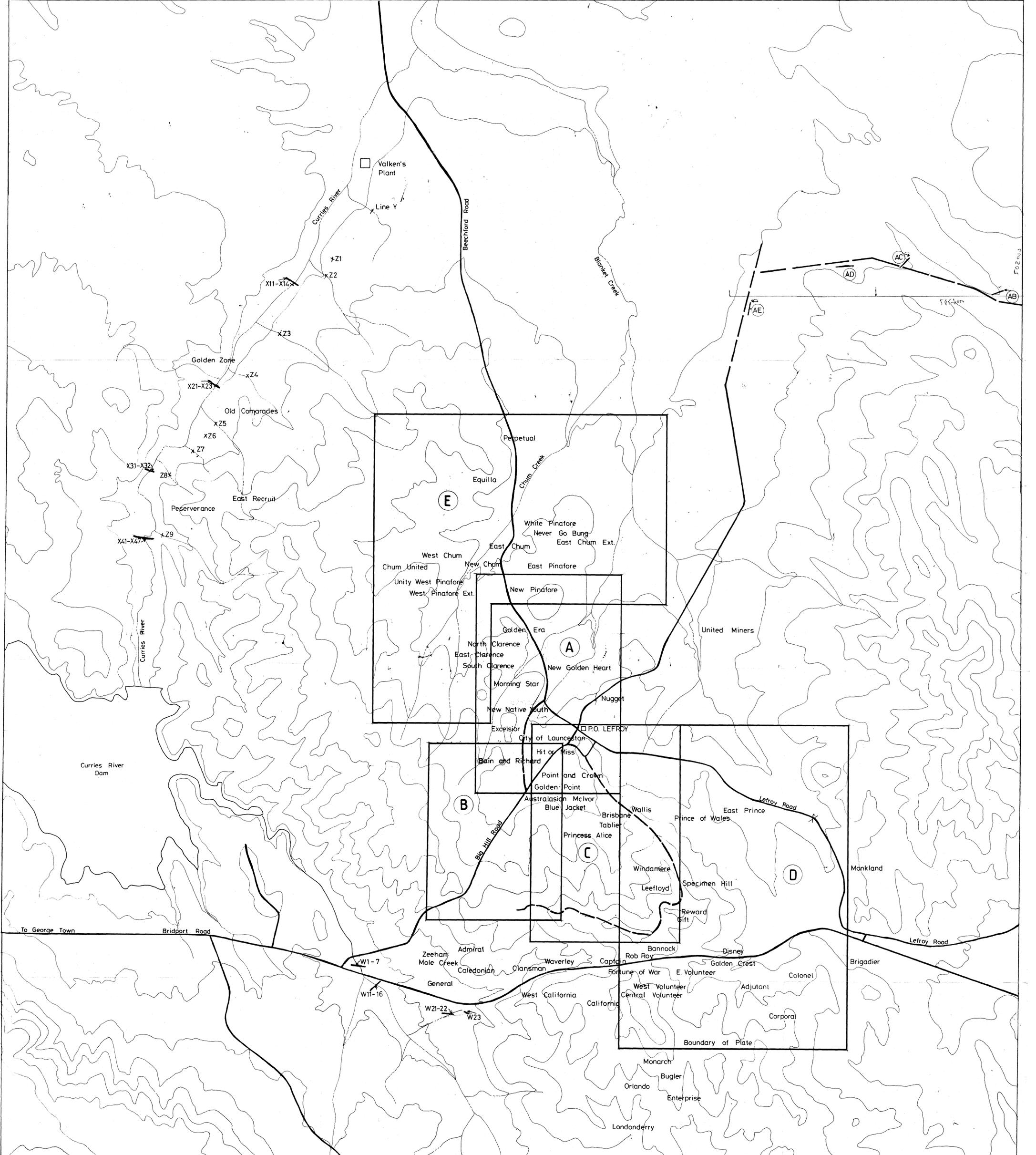
**Murdoch Geosciences**

Client: Epoch Minerals Exploration N.L.  
 Location: EL 35/81 - Lefroy, Tasmania  
 SCALE 1 : 25,000

Revised as - PLAN 1096/1 PLATE 1 REPORT 1096 APRIL 85  
 Originally Plan 1008/8 (Plate 1 Report 1008/C Oct. '84)

- Legend**
- x— Edge of prospective deep lead
  - Areas held under Mining Lease excluded from EL.
  - Boundary of E.L.
  - Boundary of area retained after June 1985.
- Prospective Alluvial Areas**
- : Area 1.
  - .... : Area 2.
  - : Area 3.
  - : Area 4.

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Detailed 1:2,000 Plans

- Plan (A) Area 1 : Lefroy Township (Sub Areas L, M, N, O, V)
- (B) Area 1 : Upper Sludge Creek (Areas N, P)
- (C) Area 1 : Golden Point (Area Q)
- (D) Area 2 : Upper Blanket Creek (Areas R, S, T, U)
- (E) Area 3 : Chum Creek and Lower Blanket Creek (Areas A, D, E, F, G, H, I, J, K, L)

— W1-7 : Lines of Test pits outside areas covered by Plans (A) to (E)

Princess Alice : Approx. location of known gold reefs



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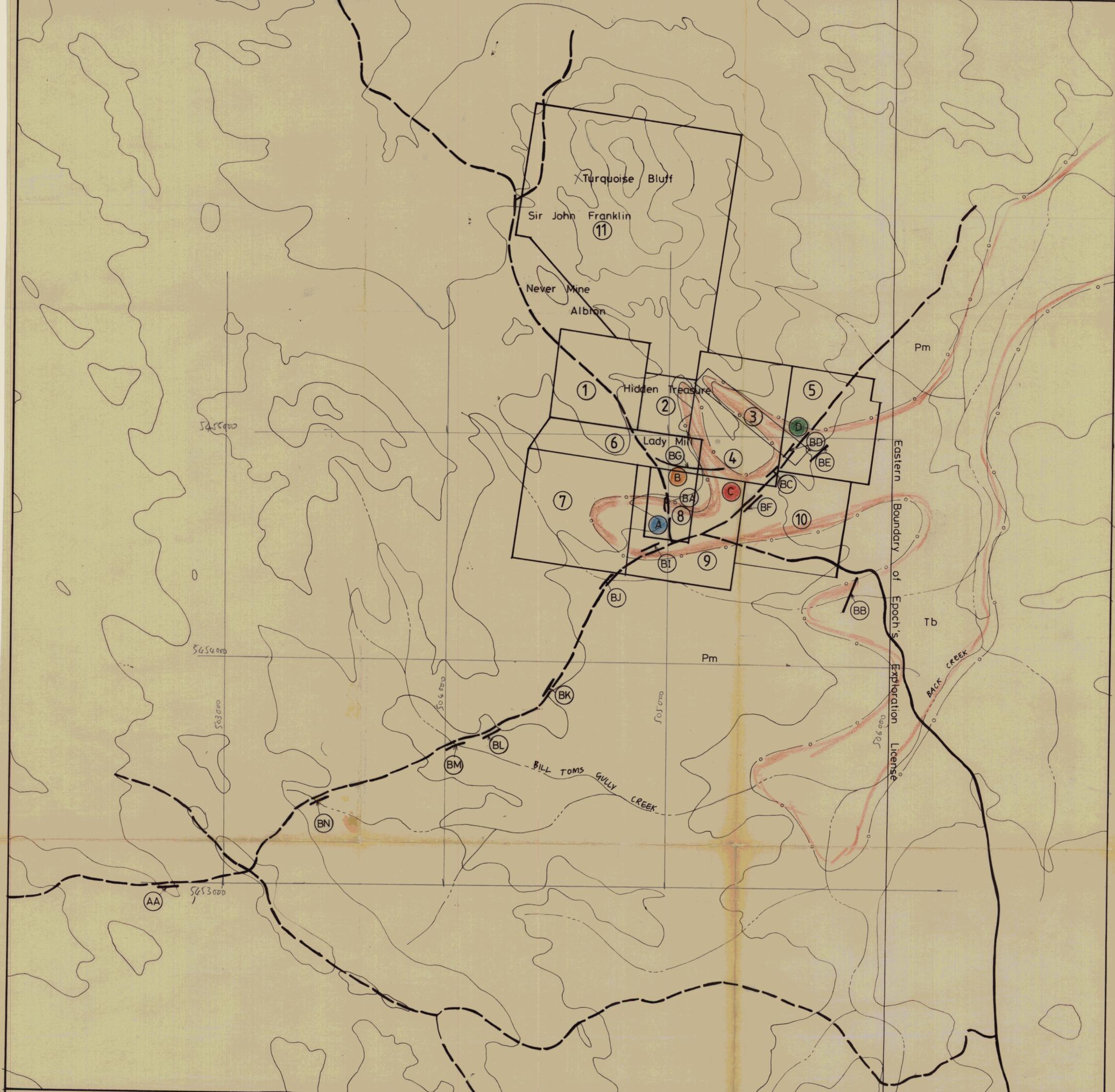
**MURDOCH GEOSCIENCES**

Client : Epoch Minerals Exploration NL  
Location : Lefroy Gold Field

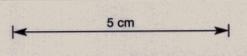
Scale 1 : 10,000

PLATE 1096 / 2

April 1985



TITLES (mining leases and prospecting claims)	LEADS
① IM Gregory	Ⓐ Cardigan
② J. Allchin	Ⓑ Blackmans Lead
③ 23M/83 R. Gregory & S. Mc Mahon	Ⓒ Red Lead
④ L. Gregory	Ⓓ White Lead
⑤ M. Gregory	'Albion' Known Reefs
⑥ Lukkorinen	ⒷⒶ—ⒷⒾ Reconnaissance Lines of Testpits
⑦ M. Gregory	—○— Approx. position of geological contact
⑧ 24M/83 P. Crawford	Tb Tertiary Basalt
⑨ P. Crawford	Pm Palaeozoic Mathinna Beds
⑩ N. Clarke	
⑪ G.E. Johnstone	



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**MURDOCH GEOSCIENCES**

Client : Epoch Minerals Exploration NL  
 Location : Back Creek, Tasmania.

Scale 1 : 10,000  
 PLATE 3 Report 1096 April 1985