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GOLD FIELDS EXPLORATION PTY. LIMITED

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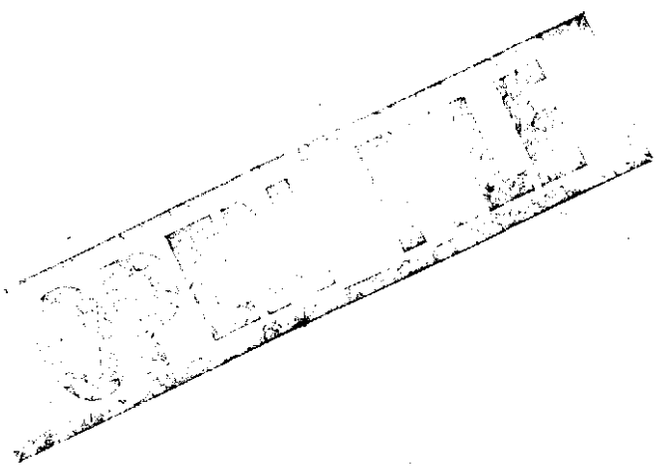
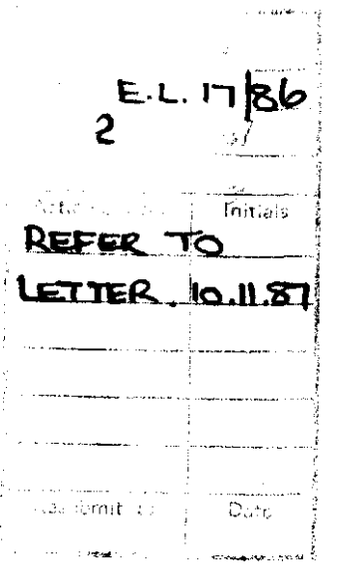
E.L. 17/86

BRANXHOLM AREA

ANNUAL REPORT FOR 1986/87





By: P.A. Roberts
Senior Regional Geologist

October, 1987.

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Report No. T/87/13

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GOLD FIELDS EXPLORATION PTY. LIMITED

854002

CONTENTS

		Page No.
SUMMARY		
1.	INTRODUCTION	1
2.	WORK COMPLETED 1986/87	1 - 2
3.	RECOMMENDED PROGRAM 1987/88	3

APPENDICES

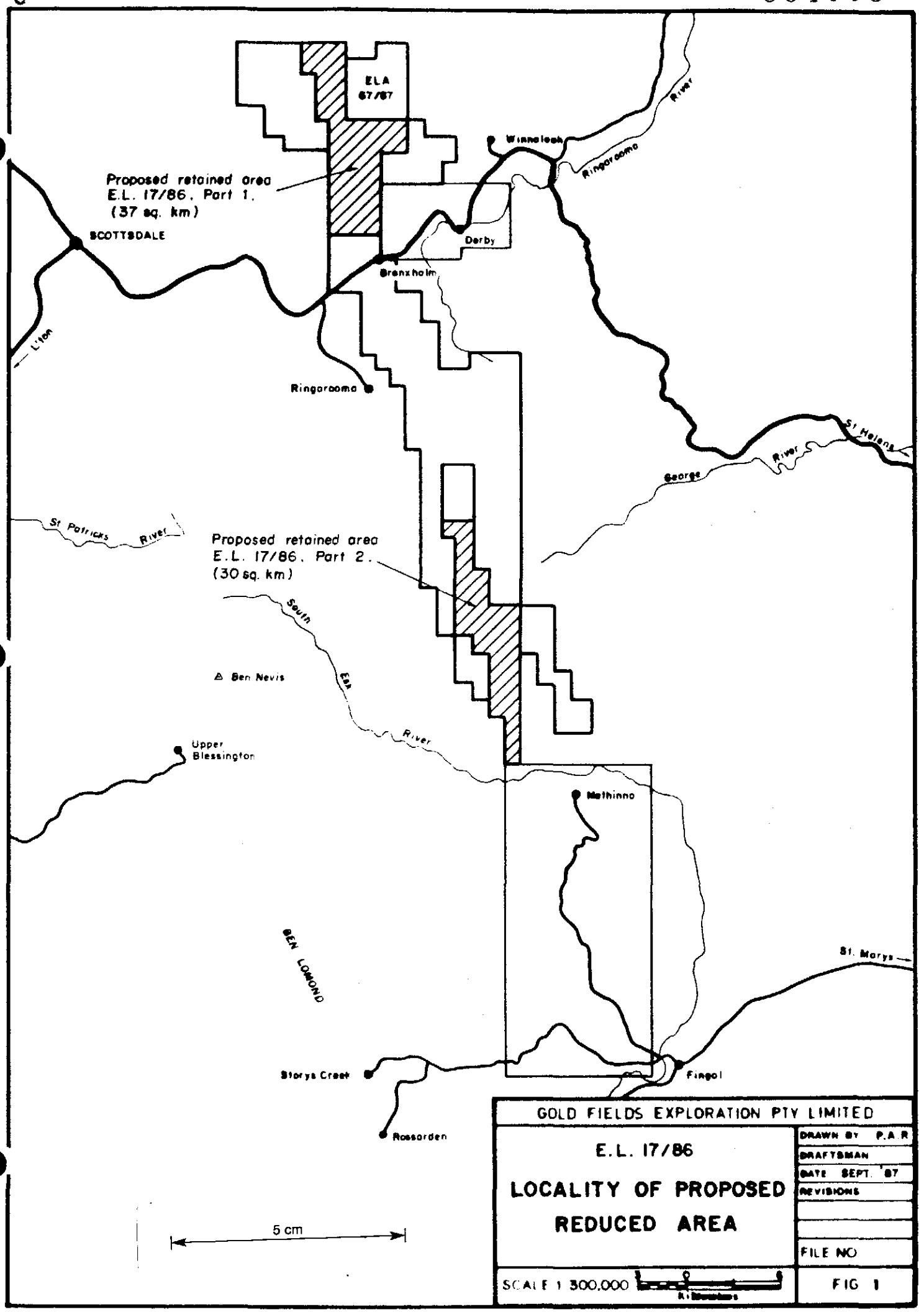
1. Expenditure and Budget Details

2. Report on Reconnaissance Mapping and Sampling of E.L. 17/86 by W. Herrmann, May, 1987.

3. Memorandum on preparation of Interpretive Geological Plans by W. Herrmann, October, 1987.

LIST OF FIGURES

1.	Locality plan, 1:300,000 (in text)		
2.	Interpretive Geology - Pearly Brook	1:25,000	
3.	Interpretive Geology - Pioneer	1:25,000	
4.	Interpretive Geology - Scottsdale	1:25,000	
5.	Interpretive Geology - Derby	1:25,000	
6.	Interpretive Geology - Ringarooma	1:25,000	
7.	Interpretive Geology - Victoria	1:25,000	
8.	Interpretive Geology - Saddleback	1:25,000	
9.	Detailed Geology - New River/ Alberton Area	1:10,000	- Missing


ELA 67/87
Proposed retained area E.L. 17/86. Part 1. (37 sq. km)
SCOTTSDALE
Winnaleah
Ringarooma River
Derby
Branxholm
Ringarooma
Lilydale
St Helens
George River
St Patricks River
Proposed retained area E.L. 17/86. Part 2. (30 sq. km)
South Esk River
Ben Nevis
Upper Blessington
Mathinna
Ben Lomond
St. Marys
Storys Creek
Fingal
Rossarden
5 cm
GOLD FIELDS EXPLORATION PTY LIMITED
E.L. 17/86
LOCALITY OF PROPOSED REDUCED AREA
DRAWN BY P.A.R
DRAFTSMAN
DATE SEPT. '87
REVISIONS
FILE NO
SCALE 1 300,000
FIG 1

GOLD FIELDS EXPLORATION PTY. LIMITED

SUMMARY

E.L. 17/86 was acquired in order to pursue a target of bulk mineable quartz vein stockwork mineralization in the northern part of the Mangana to Forester line of old gold fields in north-east Tasmania.

Work completed on this E.L. during February - March, 1987 by contract geologist W. Herrmann consisted of reconnaissance mapping and sampling of most of the old workings within the E.L. supplemented by limited regional mapping along road cut exposures.

Assessment of Herrmann's results identified the Golden Mara and Dan Valley areas as being of some exploration interest. As most of the rest of the E.L. is now considered less prospective, all but 67 sq. km was relinquished in September, 1987.

The following program is proposed in 1987/88:

(1) Costeaning, mapping and sampling in the vicinity of the Golden Mara workings.

(2) Mapping and sampling of old workings in the Dan Valley gold field.

Expenditure during 1986/87 amounted to $36,952. The above work proposals are expected to cost $10,000 in 1987/88.

1. INTRODUCTION

E.L. 17/86 is located north of Mathinna in north-east Tasmania. Until recently, this E.L. covered an area of 224 sq. km and extended from just north of Mathinna to Forester. In mid-September, application was made to reduce the E.L. in size to 67 sq. km in two blocks (Figure 1). This report, however, describes work completed on both the retained and relinquished sections of the E.L.

The original E.L. included parts of the Dan Valley and Alberton/New River gold fields as well as all of the Forester and Warrentina gold fields and the Mt. Paris tin field. The reduced E.L. still covers most of the known gold workings in the former E.L. apart from those at New River, however the Mt. Paris tin field has been relinquished in its entirety.

Geologically, the area consists of the Siluro-Devonian Mathinna Beds, a folded, turbiditic sequence of sandstones and shales, intruded by Upper Devonian granite of the Blue Tier batholith and overlain unconformably by Permian sediments, Tertiary sediments and basalt and Quaternary alluvium.

This area was acquired in 1986 to pursue a model of auriferous quartz vein stockwork mineralization in the Dan Valley to Forester line of old gold fields, particularly where there was evidence of a granite-related hydrothermal overprinting event. One particularly notable, and encouraging, feature of the area was the almost total lack of previous gold exploration there.

A total of $36,952 was spent on exploring the E.L. in 1986/87 (Appendix 1).

2. WORK COMPLETED 1986/87

As there had been virtually no modern exploration activity on the area, there was no requirement for a major compilation exercise before field work commenced. Nevertheless it was necessary to read reports on the old gold fields written in the late nineteenth and early twentieth centuries and to plot as accurately as possible the locations of the old mines on working plans. The maps prepared in the 1930's by F. Blake of the Tasmanian Mines Department were particularly useful in this regard.

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Contract geologist W. Herrmann was engaged in February and March 1987 to carry out the following program:

(1) Location, geological mapping and reconnaissance sampling of the accessible portions of all of the extant old gold workings.

(2) Limited regional mapping along road cut exposures to supplement the detailed mapping of workings in order to try and obtain an appreciation of the structural controls on the known gold mineralization.

The results of Herrmann's work are given in a comprehensive report which is attached as Appendix 2. Herrmann's report refers to two 1:25,000 geological plans each of which is a large map produced by splicing together a series of smaller standard sheets; the latter each consist of factual and interpretive geology and land tenure information plotted on Government 1:25,000 topographic map bases. Copies of the standard sheets are attached as Figures 2 to 8 and a copy of a more detailed 1:10,000 map of the New River and Alberton gold fields is attached as Figure 9. Notes on the preparation of the interpretive geological plans are given in Appendix 3. Detailed plans of many of the workings investigated are contained within Herrmann's text (Appendix 2).

The following conclusions can be drawn from Herrmann's work:-

(1) Although dense networks of veins are commonly observed adjacent to the known gold mineralized lodes, they are only rarely goldbearing. Consequently the potential for bulk mineable auriferous quartz vein stockwork mineralization is low in much of the E.L.

(2) Structural controls on the localization of gold mineralization are not clear, apart from the observation that the density of fold axes seems to be greater in the vicinity of the line of gold workings than it is to the west or east. This observation may be an artefact of greater exposure in the workings themselves relative to the surrounding countryside, however.

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In general, Herrmann obtained sufficient access into the old mines via adits and open cuts to get a reasonable idea of what was present. One notable exception to this was the Golden Mara workings, the largest gold producer in either the Warrentina or Forester fields (105 kg Au recorded). Although Herrmann did sample the one accessible adit (the East Volunteer), he was unable to map or sample all of the lodes because much of the mining was carried out via shaft access. Consequently, there remains some potential for the target bulk mineable mineralization there.

Herrmann carried out very little work in the Dan Valley gold field mainly because much of it either lies outside of the E.L. in the Mines Department's exempt area or is excluded from the E.L. because it is held under the extensive Mining Lease holdings of the Goldquest/Mineral Holdings Joint Venture.

3. RECOMMENDED PROGRAM 1987/88

The following work is proposed for 1987/88:

3.1 Golden Mara

As mentioned previously, the reconnaissance mapping and sampling work of Herrmann did not cover this prospect effectively because of the lack of exposure there. In order to overcome this problem, a limited program of costeaning over all of the known lodes is proposed. These costeans should then be mapped and channel sampled in order to establish if any auriferous quartz vein stockworking is present between the known lodes.

3.2 Dan Valley

Although most of this goldfield is held by other parties, a few workings within the ground held by R.G.C. have not been mapped and sampled. This should be done.

The above program should be carried out by an experienced contract geologist and is expected to cost approximately $10,000 (Appendix 1).

APPENDIX 1

Expenditure and Budget details.

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86 Expenditure to end September, 1987

	$
PERSONNEL	6,775
TRAVEL & ACCOMMODATION	1,387
CONSULTANTS & CONTRACTORS	19,361
ASSAYING	4,118
STORES & SUPPLIES	2,245
VEHICLES	1,159
LAND ACQUISITION	1,332
OFFICE COSTS	575
TOTAL	36,952

E.L. 17/86 Budget for 1987/88

	$
PERSONNEL	2,000
TRAVEL & ACCOMMODATION	500
CONSULTANTS & CONTRACTORS	5,000
ASSAYING	1,000
STORES & SUPPLIES	200
VEHICLES	400
LAND ACQUISITION	700
OFFICE COSTS	200
TOTAL	10,000

GOLD FIELDS EXPLORATION PTY. LIMITED

APPENDIX 2

Report on Reconnaissance Mapping and Sampling of E.L. 17/86 by W. Herrmann, May, 1985.

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REPORT ON RECONNAISSANCE MAPPING AND SAMPLING

OF EXPLORATION LICENCE 17/86

TASMANIA

MAY 1987

FOR: GOLDFIELDS EXPLORATION P/L
BOX 835, BURNIE, TASMANIA, 7320

BY: W. HERRMANN
R.S.D. 1066, DEVONPORT, 7310

11/5/87

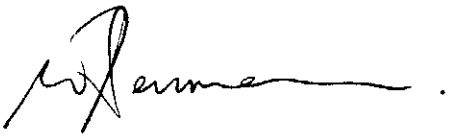

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TABLE OF CONTENTS

1.	INTRODUCTION		1.
2.	SUMMARY AND CONCLUSIONS		2.
3.	SCOPE AND METHOD OF THE PROGRAMME		5.
4.	FORESTER GOLDFIELD		8.
	4.1	Description Of Old Workings	8.
		4.1.1 Linton P.A. Mine	8.
		4.1.2. Forest King Gold Mine	10.
		4.1.3 Mt Horror Gold Mine	11.
		4.1.4 Imperial Mine	12.
		4.1.5 Malabar Workings	13.
	4.2	Forester District	14.
5.	WARRENTINNA GOLDFIELD		17.
	5.1	Description Of Old Workings	17.
		5.1.1 Dawn Of Peace	17.
		5.1.2 Golden King Reef	18.
		5.1.3 Pearce's and Rebel Reefs	19.
		5.1.4 Golden Crest Reef	19.
		5.1.5 Golden Mara Mine	20.
		5.1.6 Derby and North Mara Mines	25.
		5.1.7 Golden Dyke Prospect	27.
		5.1.8 Renown Reef	28.
		5.1.9 Gorge Creek Tungsten Prospect	31.
		5.1.10 Mt Horror Arsenopyrite Prospect	32.
		5.1.11 Kerrison's Mine	34.
	5.2	Warrentinna District	36.
6.	NEW RIVER - ALBERTON GOLDFIELD		38.
	6.1	Description Of Old Workings	39.
		6.1.1 Tiger Reef	39.
		6.1.2 Prendergast Reef	39.
		6.1.3 Central Ringarooma Reef	40.
		6.1.4 Mullunah Reef	41.
		6.1.5 Alberton, Forest King and Queen Reefs	42.
		6.1.6 Crown Prince Mine	43.
		6.1.7 Rosalind, Premier, Hannah and Strahan Adits	44.
		6.1.8 Mercury Mine - Point Workings Area	48.
		6.1.9 Long Struggle Area	51.
		6.1.10 Mt Victoria Mine	58.
		6.1.11 Esk Reef	63.
		6.1.12 South Star	63.
	6.2	New River - Alberton Overview	65

7. DAN VALLEY 70.

7.1 Revenue Mine 70.

7.2 General Geology 71.

8. REFERENCES 73.

9. APPENDICES 75.

Appendix I: Sample Records and Analytical Data Sheets (T7501 to T7690)

LIST OF PLANS

PLAN NO	TITLE	SCALE
1.	Geological Plan; Forester - Branxholm	1:25000
2.	Geological Plan; New River - Alberton - Dan Valley	1:25000
3.	Geological Plan; New River - Alberton Goldfield	1:10000

LIST OF FIGURES

Figure No	Title		Scale
1.	Forester Goldfield,	Linton P.A. Mine Plan	1:500 approx
2.	Forester Goldfield,	Mt Horror Gold Mine Plan	1:500
3.	Forester Goldfield,	Malabar Adit Plan	1:250
4.	Warrentina Goldfield,	Dawn of Peace Adit Plan	1:250
5.	Warrentina Goldfield,	Golden Mara, East Volunteer Adit Plan	1:1000
6.	Warrentina Goldfield,	Derby-North Mara Plan	1:5000
7.	Warrentina Goldfield,	Renown Adit Plan	1:500
8.	Warrentina Goldfield,	West Renown Adit Plan	1:500
9.	New River Goldfield,	Prendergast Upper Adit Plan	1:250
10.	New River Goldfield,	Central Ringarooma Reef Lower Adit Plan	1:500
11.	Alberton Goldfield,	Mullunah Adit Plan	1:250
12.	Alberton Goldfield,	Crown Prince Adit Plan	1:500
13.	Alberton Goldfield,	Rosalind Premier Adits Plan	1:500
14.	Alberton Goldfield,	Hannah Adit Plan	1:500
15.	Alberton Goldfield,	Strahan Adits Plan	1:500
16.	Alberton Goldfield,	Rosalind-Premier-Hannah Adits Speculative Long Section	1:1000
17.	Alberton Goldfield,	Mercury No 1 Adit Plan	1:250
18.	Alberton Goldfield,	Point Adits Plan	1:500
19.	Alberton Goldfield,	Ragged Youth Adit Plan	1:500
20.	Alberton Goldfield,	Cross Reef Adits, Plan	1:500
21.	Alberton Goldfield,	Long Struggle - Caxton Plan	1:500
22.	Alberton Goldfield,	Long Struggle Bore Holes Speculative SW-NE Section	1:500
23.	Alberton Goldfield,	Mt Victoria Mine Plan	1:500
24.	Alberton Goldfield,	Mt Victoria Mine Plan North Eastern Workings	1:500
25.	Alberton Goldfield,	Esk and South Star Plans	1:500
26.	Dan Valley Goldfield,	Revenue Adit Plan	1:500

1. INTRODUCTION

This report presents and discusses results of a reconnaissance geological mapping and rock sampling programme of Exploration Licence 17/86, undertaken on a contract basis for the licensee Goldfields Exploration Pty. Ltd.

The licence of about 224sq km area, is located in North Eastern Tasmania and embraces the old goldfields of the Forester, Warrentinna, New River, Alberton and Dan Valley districts.

The field work was carried out during February-March 1987.

2. SUMMARY AND CONCLUSIONS

As a reconnaissance phase of exploration for bulk mineable low to medium grade gold deposits in E.L. 17/86, a geological mapping and rock geochemical sampling programme has been undertaken with the objectives of:

1) Identifying structural controls on known mineralization.
2) Obtaining regional structural data to be used to predict favourable structural locations for mineralization.
3) Identifying areas of quartz vein stockwork mineralization or significant concentrations of reefs/lodes which might have potential for bulk mining for gold.

Objectives 1) and 2) have been only partially achieved. Several areas at Alberton Goldfield appear to have low to moderate potential for bulk mineable gold ore based on close proximity of several large high grade lodes.

In the Forester Goldfield, the known lodes are small, trend approximately East-West with steep dips and cross cut the bedding structures in the country rocks. The lodes occur in a fairly restricted area and may be spatially related to a change in minor fold trends from NNW to NNE. The small number and size of the lodes indicates a fairly low potential for bulk mineable deposits based on lode gold. Numerous quartz vein stringer systems occur in the area, particularly in sandstone country rocks. Most of these are essentially barren, the best bulk grades obtained were less than 0.1g/tAu and their prospectivity must be very low. No significant increase in stringer veining (or lode formation) was noted within the thermal metamorphic aureole of the nearby Blue Tier granitoid batholith.

In the Warrentinna area all the known reefs strike NNE to NE, are usually steeply dipping and (with one minor exception) cross cut the bedding structures in the enclosing country rocks. The structural control on the lodes is obscure but there are weak indications that the NNE trending "line" of workings occurs within a zone of NNE-SSW trending fold structures flanked to the East by an area of NNW trending folds.
The Golden Mara Mine area has by far the greatest concentration of lodes (7 lodes within 120m across strike) but an approximate calculation based on historic production data suggests bulk grades would be in the vicinity of only 0.4-0.5g/t.
Sampling of quartz stringer veining in the Warrentinna area failed to reveal significantly anomalous gold values.

At the New River-Alberton Goldfield the known lodes are principally oriented NW-NNW or NNE-NE. Bedding parallel and bedding cross-cutting lodes have been recognized in both orientations. The lodes appear to occur within a zone of tight folding westward of an area of more gentle folding. Within the zone of tight folding plunges are mainly NNW-N, shallow at the northern part of the goldfield and becoming progressively steeper southwards. It seems that areas with the greatest frequency of lodes (such as the Rosalind-Premier-Hannah Adits and Long Struggle) are characterized by presence of bedding parallel lodes although the structural or lithologic controls are not obvious.
The Rosalind-Premier-Hannah, Long Struggle and Mt Victoria Mine areas have been identified as having relatively close spacing of known gold rich reefs which might be bulked together to produce worthwhile grades. In the Rosalind and Mt Victoria areas, there are indications of localized zones of quartz stringer vein mineralization which could contribute upto about 0.5g/t gold.

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On a regional basis, no lithostratigraphic subdivisions of the Mathinna Beds have revealed themselves. Likewise, the (presumed structural) control causing the pronounced linear distribution of gold deposits from Mathinna to Forester remains a mystery.

From an exploration point of view, there is some prospectivity for bulk mineable deposits based on close proximity of several high grade lodes. Prospectivity for quartz stringer vein-stockwork deposits alone is very low.

The structural and other controls on localization of gold rich lodes and furthermore the controls on gold distribution within lodes, are not clear.
It is doubtful if these controls, were they to come to light, could be generally applied to exploration in these goldfields of complex geological structure and poor outcrop.

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3. SCOPE AND METHODS OF THE PROGRAMME

The exploration concept for E.L. 17/86 is that the known goldfields in the area have potential for bulk mineable gold deposits of two types:

1) quartz vein stockworks with low to moderate bulk grades
2) deposits based on close proximity of several gold rich quartz reefs or lodes which could produce acceptable grades when bulked together

or a combination of the two types.

The known goldfields all occur within a folded sequence of sandstones, siltstones and slates known as the "Mathinna Beds" with the great majority of individual reef prospects lying along a very narrow NNW trending zone from Mathinna to Forester. Some form of structural control is implicit in the known gold distribution.

This reconnaissance programme was undertaken with the objectives of:

1) Carrying out literature research to identify the location and significance of old gold workings.
2) Mapping of accessible workings and environs with the objective of identifying structural controls on known mineralization.
3) Sampling of accessible old workings with the objective of identifying any significantly auriferous quartz stringer vein systems or stockworks.
4) Structurally oriented reconnaissance mapping of the goldfields with a view to predicting favourable structural locations for mineralization.

The programme was carried out with approximately seven weeks of field work during February-March 1987.
It was found that geological outcrop is generally poor; the best sources of exposure being roadside cuttings and the old gold workings. Of the latter, the numerous adits proved to be most convenient for mapping and sampling; the shafts being effectively inaccessible with out special skills and gear and the shallower surface workings and stopes being generally so overgrown or collapsed as to present very little useful exposure.

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In many cases, adits provided the only geological exposure and fairly early in the programme we learned to select prospects for investigation on the basis of the presence of adits. Unfortunately, in too many cases, the adits themselves were only partly accessible; very often we found obstructive caving of an adit, just at the point where it intersected a drive or stope on a reef, to the stage where we began to suspect systematic sabotage.

In locating old workings we were greatly aided by the excellent plans of the Forester, Warrentinna, New River and Alberton goldfields compiled by Government Geologists F. Blake and P.B. Nye in 1934. By scaling distances and bearings between workings from these plans we could navigate confidently. The various Mines Department Mineral Lease Charts were also found to be surprisingly accurate and useful in relating old lease boundaries to roads etc.

Geological details of old workings were recorded in note form or plotted up directly on small plans mostly at 1:250 or 1:500 scale. These details are presented here as Figures 1-26.

Geological observations in reconnaissance mapping were plotted directly onto transparent overlays on 1:20000 colour Airphotos circa 1980-82. (Tas Lands; Job M3) and have been compiled at 1:25000 scale onto Plans 1 and 2 covering the area from Forester to Branxholm and Branxholm to Dan Valley respectively. An additional map (Plan 3) at 1:10000 scale shows the greater intensity of observations at the New River-Alberton Goldfield.

Rock chip samples were analysed for Au, Ag, As, Cu, Pb, Zn and Bi with selected samples also for Sn, W, Mo. Gold analyses were by Analab's Method 309 (Fire assay fusion/AAS of 30g. split).

Assay results and descriptions of samples are included as Appendix I. Sample locations are plotted on the small Figures (mine plans) or on the 1:25000 Plans 1 and 2, as appropriate.

I am grateful to Field Assistant Bob Walker of Port Sorell, for his staunch, interested and untiring assistance in geological mapping and particularly sampling.

4. FORESTER GOLDFIELD

The Forester Goldfield consists of a cluster of four small quartz reef prospects located about 3.5km North of Forester. Total production of gold is not accurately known but seems to have been around 900g. (Nye, 1923 and Nye, 1933).

An additional prospect known as Malabar from which production is unknown is located about 2km south east of Forester.

4.1 Description Of Old Workings

4.1.1 Linton P.A. Mine (Figure 1)

This prospect lies within Mining Lease 64M/79 held by G.I. Fisher. It was reported on in some detail by Nye, 1923.
The location and layout of the workings are illustrated in plans and sections on T.D.M. drawings: 664L/32 and 664Q/32.

There are three approximately east-west trending quartz lodes over a north-south interval of about 150m. The two northern lodes (Nos: 1 and 2) were the most important and had been explored by adits on two levels to a depth of about 40m. There has been considerable relatively recent (Post Airphotos: Jan, 1982) superficial earth moving by bulldozer and backhoe around the surface workings presumably by the present lessee who (according to anecdotal information) hauled "about 30 truck loads" of material to the mill sited on the property but it is not known if any gold was won from it.

We were unable to locate the portal of No 2 adit (although the partly filled air shaft to it still exists) but did map and sample No 1 and No 3 adits as well as useful surface exposures.

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GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86

FORESTER GOLDFIELD

LINTON P.A. MINE

PLAN

DRAWN BY : MT

DRAFTSMAN:

DATE 4:87

REVISIONS :

FILE NO.

FIG. 1

SCALE 1:500 (APPROX.)

5 cm

Chip channel sample 1·5 m. d. H.wall. Fe stained qtz veinlets <5 mm, 5-20/m

T7542 0·096 g/t.

T7544 0·03 g/t. Channel sample, sst ± intersecting qtz veinlets, < 2mm, 50-100/m.

NE 2 REEF

T7541 : 0·808 g/t Au. Reef 350 mm. Sandy quartz ± 2-3% diss Py, Asp, Cpy.

T7541

T7543 0·016 g/t Au Chip channel sample sst/slst ± qtz veins 5-50 mm, 10-15/m

T7523 *H.G. 0·33 g/t. veins only

Fault: 1m below No 1 A

Details of underground workings after S.T. ITHGOE, 1924.

Fault: 1·5 m, minor sst, slate

Quartz veinlets in qtz 3-10 mm, 15-20/m Chip channel sample.

T7540 <0·005 g/t.

massive sst.

3m. Chip channel Sample Qtz veinlets <10 mm/ 5-10/m

T7538 0·032 g/t Au.

COVED

sst, minor inter bedded slate, slst.

No 1 ADIT

T7536 1·01 g/t Au

T7537 0·912 g/t Au

No 1 REEF.

120-200 mm thick Sandy quartz with fine diss. Asp. Py.

Zone of Shear cleavage in slst.

T7539 0·968 g/t Au * H.G.

Reef: 250 mm milky quartz with 3% Py, Cpy, Asp.

interbedded slate, slst, sst

N

W E

bedding

clay

Cleavage apparently axial plane to small drag folds.

No 3 ADIT

Sst ± minor interbedded siltstone, slate.

No.3 REEF

A 12548

The No 1 lode trends about 280° with a dip of about 75° to the north. Where exposed in the adit and surface cut it consists of massive or broken grey and milky quartz with fine disseminated pyrite, galena and arsenopyrite totalling upto 3% volume in places. Three representative chip samples reported Au around 1g/t with anomalous Pb (3700), As (3670) and Ag (18g/t) in one sample.
The lode appears to represent some kind of small fault fissure cross cutting the host rocks which are tightly asymetrically folded (~ 20m wavelength) about NNW trending horizontal axes.

The No 2 lode exposed at surface in a small crosscut trench strikes about 80° and dips at 75° to the north and consists of upto 350mm thick massive-laminar smoky quartz with fine disseminated Py, AsPy and galena to about 2-3%vol. A grab sample of this exposure yielded 0.8g/t Au.

Nye, 1923 reports that a three ton trial parcel from the open cut on No 1 lode "bulked" about 60-75g/t and a similar sized parcel from No 2 lode averaged about 90g/t but concluded from his own sampling that there may be a shallow zone of secondary enrichment and that the overall grade on No 1 and 2 levels would be somewhat lower.

Quartz vein stringer networks of moderate to fairly high intensity are developed in several places around both lodes most commonly in sandstones and of variable but often regular orientation. (Common orientations are: sub-parallel to the main lodes, sub parallel to bedding in the host rocks and less commonly (as in No 1 adit) sub parallel to the N-NNW trending steep cleavage).

Representative chip channel samples across some of these zones returned Au assays ranging from < 0.008 to 0.096g/t.

T7543 representing a 5m E-W channel sample across a quartz stringer veined exposure about 5m south of No 2 lode contained 0.016g/t whilst T7623 representing quartz vein material only, from within the above zone, yielded 0.33g/tAu.
Nye (1923) also reports the existence of "several other small lodes or veins" exposed in the No 2 adits between No 1 and No 2 lodes. He quotes two assays of 4g/t and "trace" Au.

I conclude that there is fairly low potential for bulk mineable gold ore at this prospect.
Hypothetically, if we were to calculate the average grade of the ~ 60m "block" between No 1 and No 2 lodes (inclusive) on fairly optimistic figures:

No 1 + No 2 lode av. grade	@	50g/t	x	0.5m total width
Three additional veins	@	5 g/t	x	0.3m total width
Inter lode stringer veining	@	0.1g/t	x	59.2m total width

The overall bulk grade would be around 0.54g/t.

4.1.2. Forest King Gold Mine

This prospect is also located on Fisher's M.L. 64M/79 about 200m NW of the Linton P.A. No 1 adit.

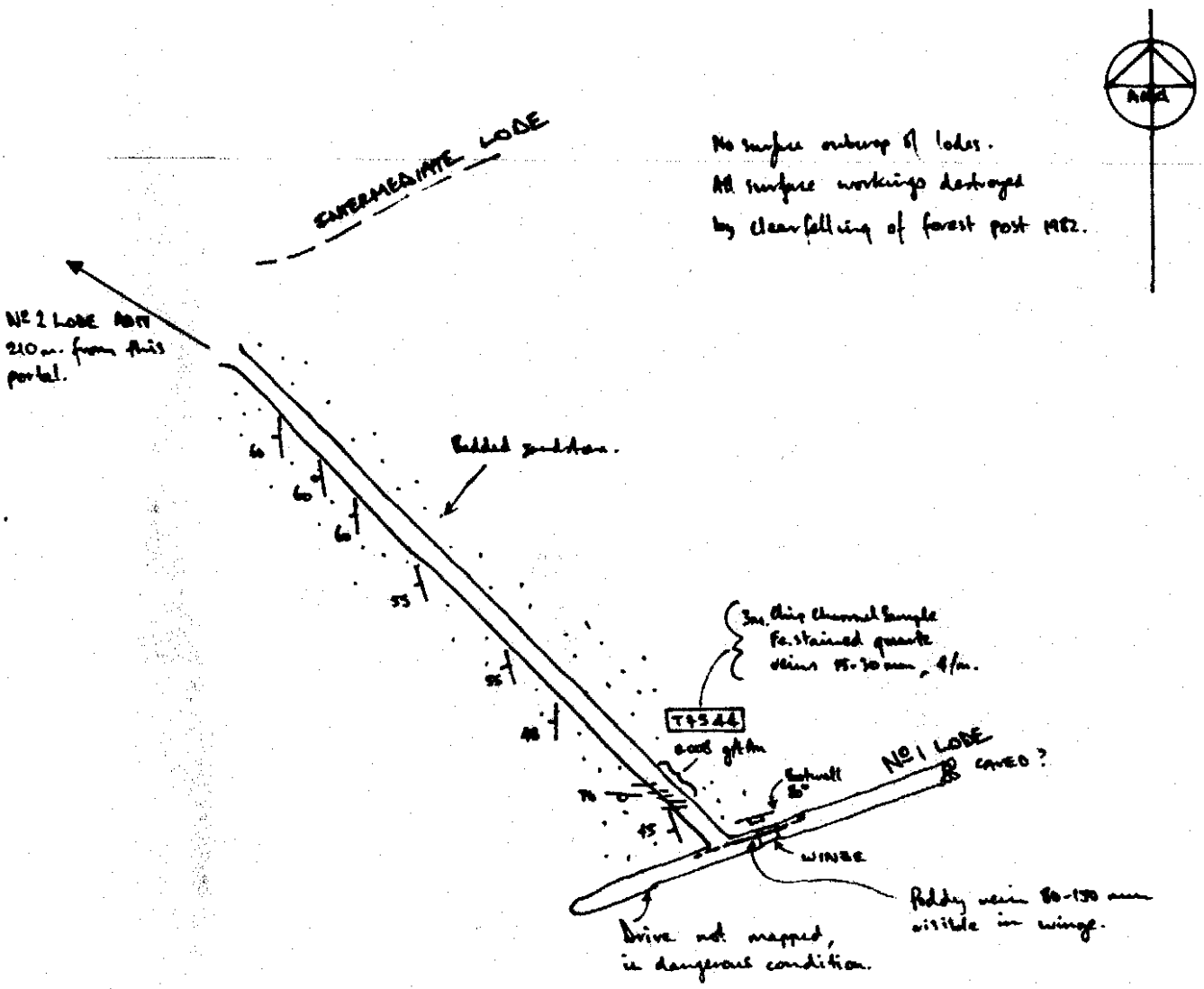
Our inspection of the locality revealed that about a 30m square area has been stripped of shallow overburden by bulldozer (post 1982) and that the shaft and trenches shown on 664Q/32 no longer exist. No signs of outcrop of a lode could be seen in the (partly rubble covered) bedrock of sandstone and grey silty-slate. Though there were occasional blocks (to 150mm) of smoky vein quartz with dark slaty included fragments amongst the rubble. A high graded grab sample of this material (T7535) indicated < 0.008g/tAu.

Nye (1923) reported a 75mm quartz vein with minor AsPy and galena trending 42° (AMG) and dipping 30° to NW and a separate "narrow formation with quartz veins" trending 82° and dipping north at a low angle.
Nye regarded these as unimportant.

4.1.3 Mt Horror Gold Mine

(Refer: TDM Drg No 664Q/32)

This prospect is located about 800m east of the Linton P.A. Mine in an area recently clearfelled and replanted to Eucalypt trees. The earthworks associated with these forestry operations has obliterated all surface workings and shafts but we were fortunately able to locate the partly collapsed portal of the adit to the No 1 lode (Fig. 2).
Otherwise the adit is in reasonable condition as far in as the drive on the No 1 lode which is in decidedly dangerous condition and was therefore not mapped. This drive appears to have caved about 15m ENE of the end of the adit at a position approximating to that of the shaft from surface shown on Blake's, (1934) plan 664Q/32.
An irregular quartz reef of about 80-150m thickness is visible in the east wall of the winze. It has a clean footwall trending 75° and dipping at 80° to the south.
Nye (1923) quotes gold grades of 19.01 and 7.53g/t Au for two samples (125mm and 75mm wide respectively) taken in the north-eastern drive. He notes that the vein petered out in a south westerly direction at 7.6m from the adit and at 12.2m in the north easterly direction. The vein also petered out in the winze at 4.6m below the level of the drive.



No 2 Lode adit collapsed.

Sample No T9545 : grab sample from dump.
1.81 g/t Au in quartz 1% disc. Py, Aspy

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86 FORESTER GOLDFIELD MT. HORROR GOLD MINE PLAN	DRAWN BY : AJK DRAFTSMAN: DATE 4 : 89 REVISIONS : FILE NO
SCALE 1:500 (0 5 10 15 Metres)	FIG. 2

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Country rocks in the adit are thickly bedded sandstones striking north to north north westerly and dipping and facing consistently at about 50-60° to the west.

Near the inner end of the adit (43-46m) there is a 3m zone containing about 12 milky quartz veins in the range 15-30mm wide trending around 95°/70° south ie subparallel to the No 1 lode. A chip channel sample representative of this interval returned an assay of only 0.008g/tAu.

No other exposure of the lodes now exists. However we obtained a grab sample of vein quartz with disseminated AsPy and Py from a small dump in the vicinity of No 2 lode adit which assayed 1.81g/tAu.

Nye (1923) indicates that the Intermediate and No 2 lodes trend around 70-85°(AMG) with high dips to the south.

4.1.4. Imperial Mine

This prospect was described by Nye, 1933.
It is supposed (TDM Drg No 664Q/32) to be located about 300m south east of the portal of the Mt Horror No 1 lode adit portal. We searched the locality, now covered by fairly mature Radiata Pine plantation, without success and must conclude that the former workings consisting of some trenches, two shafts and an adit have not survived the forest management practices.

However, Nye states the main reef to have been traced for some 30m with a strike of about 70°, dipping 75-80° to the south with a thickness averaging 150-220mm.
Two trial crushings (of ten tons each) gave average gold content of about 23g/t.

4.1.5 Malabar Workings (Figure 3)

I have not been able to discover any written references to this prospect, located about 2km south east of Forester. Our only known previous work is depicted in Blake's 1934 Plan No 664J/32.

The prospect is located in an area of Radiata Pine plantation at present in the process of being clear felled. Despite the forestry work, we had little trouble in locating the workings consisting of several partly filled shafts and an adit. There is now absolutely no surface outcrop of the vein or host rocks and surprisingly little quartz vein float or rubble.
Blake's plan shows a vein (traced for about 80 metres of undefined width) striking about 345° and dipping fairly shallowly (45°?) to the west.
Our exploration of the adit (evidently lengthened since Blake's survey) showed the host rocks to consist of well bedded siltstone and lesser sandstone striking about 350° and dipping 50-60° to the west. This would suggest that the vein was nearly bedding parallel.
Blake's plan seems to show the trace of a vein along the east wall of the adit from near the portal to just beyond the eastern cross cut but I regret that this was not apparent to me.
The only evidence of mineralization was a zone of weak quartz stringers (≤ 5mm, <5/m) towards the inner end of the adit but a 2.7m channel sample representing this zone (T7565) returned an assay of <0.008g/tAu.

The nature of the main vein remains partly obscure but seems likely to have been more or less parallel to the plan of bedding in the enclosing sediments.

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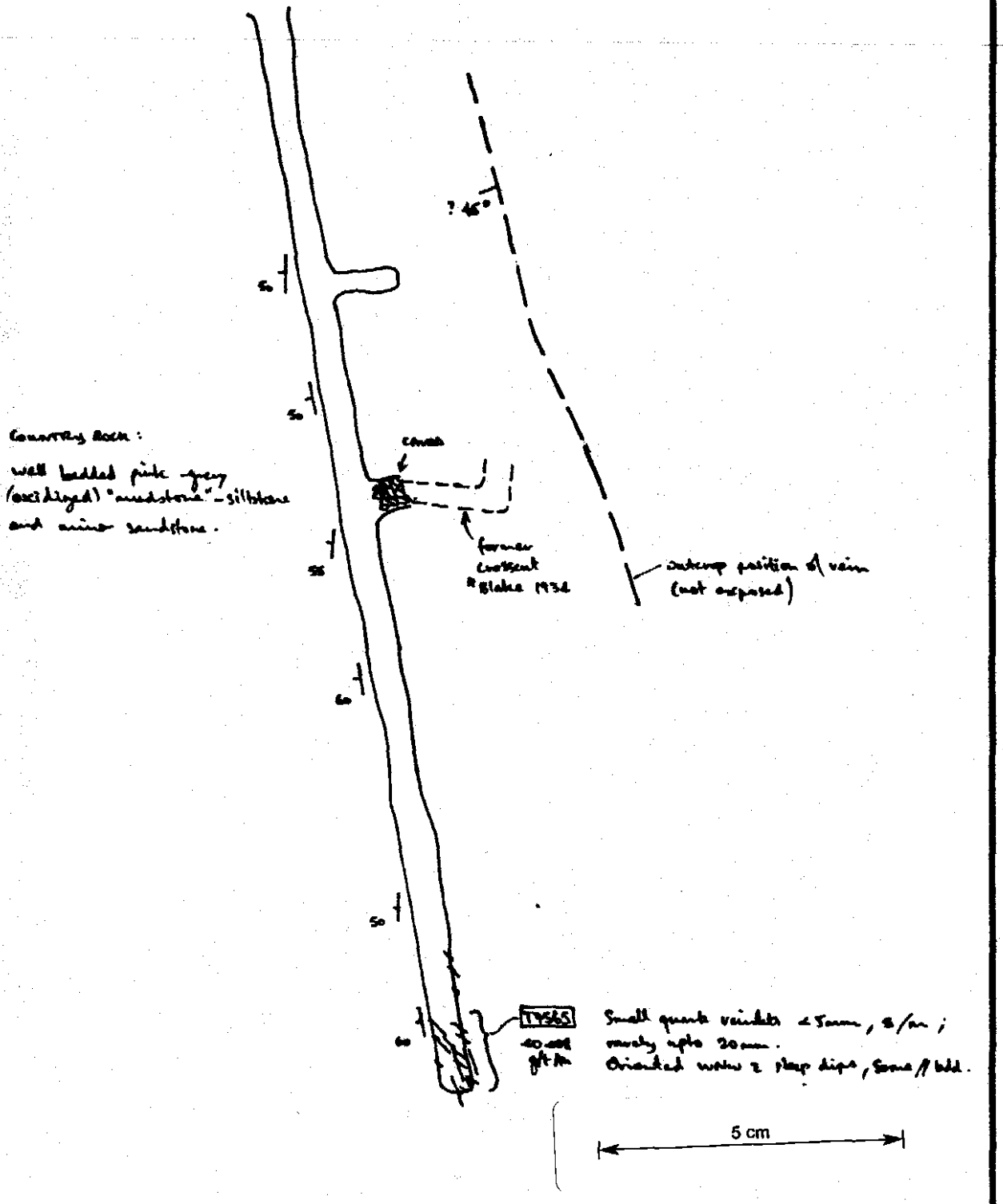

GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 19/86 FORESTER GOLDFIELD MALABAR ADIT PLAN	DRAWN BY : A.J. DRAFTSMAN: DATE 4 : 89 REVISIONS : FILE NO.
SCALE 1:250 (0 2.5 5.0 7.5 Metres)	FIG. 3

A 12548

4.2 Forester District

Host rocks to mineralization in the Forester Goldfield and environs are sandstones and interbedded sandstone-siltstone-slate of the 'Mathinna Beds'. Within about 1.5km horizontally from the contacts of granitoid batholiths to NE and SW, the sediments are recognizably thermally metamorphosed converted to "spotted" siltstones and hornfels. The Mt Horror Gold Mine and Imperial Mine actually lie within the metamorphic aureole of the adjacent (Blue Tier) batholith. This is not particularly evident in the Mt Horror No 1 lode adit where the wall rocks are all sandstones which are less (megascopically) obviously affected by the metamorphism.

In general sandstones and finer sediments occur in approximately equal abundance and no lithostratigraphic sub divisions have been recognized.

In the area west and south of the Linton P.A. Mine, the rocks have a general NNW trend and appear to be fairly tightly folded, with steep dips, about semi-horizontal axes on a wavelength of perhaps 500-700m. This assessment of fold intensity is dependent on fairly limited roadside outcrops. In the Linton P.A. No 1 Adit, fold wavelengths appear to be around 20m.
In the area east and north of Linton, by contrast, the rocks are tightly folded about NNE trending axes perhaps with a slight NNE plunge.
This observation is not apparent in the (admittedly rather sparse) bedding measurements in the wider region shown on the 1:50,000 RINGAROOMA Geological Sheet, and may suggest a particular local structure affecting the localization of quartz reefs at Forester Goldfield.

Another feature of possible but obscure significance is the presence of anomalous east-west strike trends to the north west and south east of the Linton area. These do not fit easily into the pattern of semi horizontal NNW and NNE folds and may represent a form of dextral wrench or drag folding along a zone trending approximately 330° through the Linton Mine.

All the major reefs in the Forester Goldfield strike close to east-west and might be regarded as occurring in an east-west "corridor" of perhaps 500m width.
On the other hand, it is perhaps significant that the main lodes of the Linton-Forest King group are north dipping whilst those of the Imperial-Mt Horror-Burrows group dip to the south. These may represent separate groups of lodes arranged en echelon in two narrow NW to NNW trending zones. Nye's (1923) report suggests a quite limited lateral and depth extent of the lodes, particularly Mt Horror No 1. I am unable to definitely conclude on the structural control of the Forester lodes but suspect that they might represent en echelon tensional openings related to the postulated NNW dextral drag zone.
It may be noteworthy that three quartz veins of significant thickness but more or less northerly strike sample in the Forester district (T7501, 7503, 7687) all assayed < 0.008g/tAu.

In several roadside exposures around the Forester area we noted significant presence of quartz stringer vein systems, particularly in sandstones.
Systematic channel sampling of the six most promising localities (See Appendix I: T7502, T7509-15, T7516-20, T7521-24, T7525-26 and T7546-49) showed that in all but one locality, the bulk grade was < 0.008g/tAu.

Samples T7525 over 1.5m width and T7526 over 3m width returned 0.176 and 0.032g/tAu with 31g/tAg in the former. A subsequent reexamination of this outcrop revealed a single larger vein (70-100mm thick trending 290/50N?) within the interval of T7525. A high grade sample of this larger vein (T7622) returned 0.15g/tAu and 48g/tAg. This vein I consider akin to the main lodes previously worked at Forester and may represent a north western extension of the postulated Imperial-Mt Horror-Burrows "zone" of en echelon veins.

The quartz stringer vein type mineralization at Forester generally appears unpromising for bulk low grade gold deposits. Most of the stringer systems appear essentially devoid of gold and the best bulk grades obtained (at Linton P.A. Mine) from this style of mineralization were less than 0.1g/t Au.

5. WARRENTINA GOLDFIELD

The Warrentina Goldfield is here taken to include about a dozen old mines and prospects lying within a narrow north trending zone from the Dawn of Peace a few kilometres NW of Branxholm to Mt Horror.

This field is also very poorly documented and the only known technical reports are those of Blake, 1934 (Golden Mara), McIntosh-Reid, 1925 (Mt Horror Arsenopyrite Prospect) and Nye, 1926 (Dawn of Peace Mine).

However Blake's excellent plans and sections (664 A/32 to 664 G/32, 664 K/32, 664 M,N/32 and 664 P/32) show the locations and some details of most of the known prospects.

Production figures for most of the smaller mines are unknown but it seems that the Golden Mara area was by far the greatest producer with (recorded) 3367oz 15dwt 13grs (104.75kg) in the period 1892-1921. (Blake, 1934).

5.1 Description Of Old Workings

5.1.1 Dawn of Peace (Figure 4)

This prospect is located on "Eungella", the property of Mr Bruce Davey. Blake's 1934 plan 664K/32 shows the layout of the workings and Nye (1926) describes the geology. Figure 4 (this report) shows the plan of the southern adit which is safely accessible only as far as the drive/stope on lode.
Most of the surface shafts and trenches have been partly filled and did not yield any useful observations.

In the southern adit (Fig 4), the host rocks are interbedded sandstone, siltstone and slate trending about 025° dipping steeply to east and west indicating a tight anticlinal hinge about 2m east of the lode position. The only "lode" visible at the end of the adit is a 1cm vein of milky quartz within a narrow sheared/puggy zone parallel to the bedding. Nye (1926) records that north of the main shaft to adit level the "reef was represented by a few inches of quartz in a band of black slates" but in the shaft

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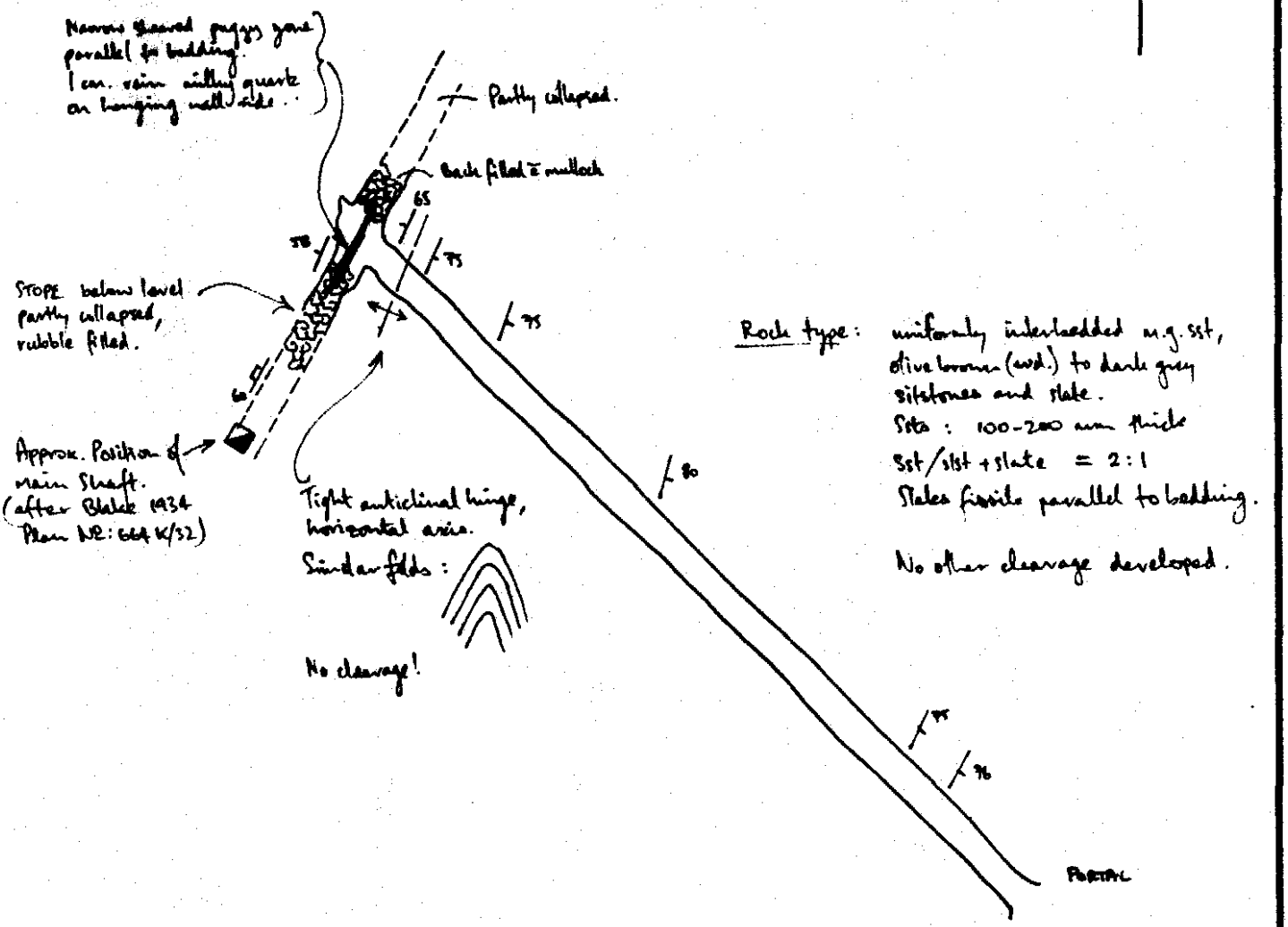

GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86 WARRENTINA GOLDFIELD DAWN OF PEACE ADIT PLAN	DRAWN BY : A.J. DRAFTSMAN: DATE 4:87 REVISIONS : FILE NO.
SCALE 1:250 (0 2.5 5 Metres)	FIG. 4

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and to the south it represents a fissure vein parallel to the strike of the bedding but with a dip of 85° to the east, ie: cutting across the steep westerly dip of the bedding at a low angle.
Nye quoted production of six tons of quartz from the southern shaft and adit for a return of one ounce per ton (~ 183.6g).

It appears to represent a narrow fissure vein perhaps a fault, petering out northwards where it becomes parallel to bedding.
Nye recommended further exploration to the south and in depth below the position of the shaft. According to Mr. Davey, his grandfather carried out underhand stoping of the lode south of the adit during the late 1920's and reportedly produced sufficient gold to manufacture a ring for each of the three daughters of the family.

My inspection indicated negligible quartz stringer veining in the adit and as the lode itself appears to be narrow, irregular, impersistent, outlying and alone, the prospectivity here seems to be low.

5.1.2. Golden King Reef

This prospect is situated on the property of Mr. Ken Brown, "Benego" about 2km north of Branxholm.
Blake's 1934 Plan 664 E/32 shows a NE trending reef about 20m in length with four shafts to maximum depth about 27m over a strike interval of 75m. The shafts have been filled by the farmer and there is no useful surface exposure.
According to Mr. Brown, there is an adit driven south westward from Whiskey Creek between Warrentina Road and the railway.
However, the landholder on that side, Mr. I. Edwards of Branxholm, knows nothing of an adit and doubts its' existence, as do I.

5.1.3 Pearce's and Rebel Reefs

These are located on the property of Mr and Mrs R. Beggs of Branxholm.
Blake's 1934 Plan No 664E/32 shows two probably separate NE striking reefs with a few shafts to maximum depth about 21m.
The south western reef (Pearce's) appears to dip at 80° to the SE cross cutting the host rock bedding which dips at 45° to SW.
(from 664E/32)

Due to the landholders' mild distress on hearing our intentions and the fact that the shafts were mostly filled even prior to 1934, we did not proceed with an examination of the workings confident that there is little or no useful exposure.

5.1.4. Golden Crest Reef

This working is located about 500m ENE of the Rebel Reef on the southern edge of the cleared strip along the HEC Power Transmission Line on land shown as Crown Land on Derby 1:25 000 Map but apparently now belonging to Mr I. Edwards of Branxholm.

We searched the area and succeeded in locating the north-south trench shown on Blake's (1934) Plan No 664E/32 but of the several shafts and stope there remains no trace as these are situated on the HEC cleared strip.
There is no surface outcrop and very little quartz vein material in float.
664E/32 shows an ENE striking reef over about 50m length with a dip (at the western end) of 60°S, apparently cross cutting the sedimentary bedding dipping steeply to WSW in the railway cutting nearby.

5.1.5. Golden Mara Mine (Figure 5)

This mine area is located west of the Warrentina Road on State Forest land covered by native forest regrowth, in places with a thick undergrowth of blackberries which virtually cover some of the numerous open shafts, making it a very dangerous environment for the unwary walker.

Blake's (1934) Plan No 664E/32 shows no less than seven reefs trending NNE or NE over an across strike interval of about 120m and strike length of perhaps 250m.
According to Blake (1934) the area produced at least 104.75kg of gold, about two thirds of which appears to have come from the Coronella Reef and much of the remainder from Branxholm and Little Branxholm Reefs. Overall average grade of treated ore was about 34g/t.

Blake reported that:

> "The veins strike in two general directions viz. north and north east and appear to largely follow lines of weakness in the form of tension and shear fractures respectively. In places, particularly towards the west of the zone, veins in the shear fractures junction with others in the tensional openings. Near the intersection of the two systems ore shoots have been produced".

Although there is an abundance of shafts and open stopes in the Golden Mara area, none of these are now safely accessible and, in any case, are mostly partly filled with rubbish and overgrown with moss etc so that very little useful information, can be gained from inspection of the surface workings. There is hardly any surface outcrop of either lodes or country rocks and even the dumps are generally so overgrown that it is difficult to ascertain the character of the mullock.

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GOLD FIELDS EXPLORATION PTY. LIMITED

DRAWN BY : AJT
DRAFTSMAN:
DATE 4:87
REVISIONS :

E.L. 17/86

WARRENTINA GOLDFIELD
GOLDEN MARA MINE
EAST VOLUNTEER ADIT PLAN

FILE NO.

FIG. 5

SCALE 1:1000

5 cm

CORONELLA Shaft from surface

LITTLE BRANKHOLM REEF

4m. Chip sample
Milky qtz veins <5mm,
5-10/m. Irregular.
0.12 g/t Au

T7594

STOPED OVERHEAD 5-10 m.
LODE not visible
Much mullock on floor

T7595

4m. chip sample
Cmay sst. ± subord. slst/slate
± few narrow qtz veinlets
5-10/ m.
0.15 g/t Au

T7593

0.8 m. Chip sample across
"lode" of sheared sst/slate
Qtz veins to 30mm wide
// to shear planes, some
cross cutting. Overall ~20/80%
8.32 (5.48) g/t Au

T7592

T7618

1.5 m. chip sample across
face. Includes 1m. wide
sheared zone with intense
sub-parallel qtz veining
~ 5-10% vol. in qtz.
0.41 g/t Au

T7620

H.L. sample of 300 mm qtz
reef. Milky quartz with
traces pyrite, AsPy.
0.07 g/t Au

T7619

H.L. sample over 4m. length
of bedding parallel quartz
vein 5-15 mm in slate
host. 0.03 g/t Au

BRANKHOLM REEF

T7621

T7616

1.2 m. chip sample across face.
Brecciated/sheared sandstone-slate
± numerous discontinuous veins,
lenses (boudins?) of milky and
sooty quartz aligned with shear
planes. Quartz ~ 30% of vol.
0.31 (0.22) g/t Au

T7617

H.L. sample of 150 mm
quartz reef. Milky qtz
± traces Py, AsPy
3.29 g/t Au

Chip sample over 4 m zone
grey flinty slst/slate ±
(locally) pyrite stringers
and narrow <15 mm
quartz veinlets. (Py ca 0.1%)
0.55 g/t Au

1m. Chip sample across face.
150 mm. broken grey quartz
vein ± dirt. Py. on
Hanging wall. Footwall indistinct
± strongly sheared slate, sub-//
quartz veins and flat pebbly
milky quartz sooty veins.
Quartz ~ 20% vol.
0.22 g/t Au

COUNTRY ROCK : Interbedded sst, slst, slate.
Slates fissile // to bedding

plunge : 40°

PORTAL

EAST VOLUNTEER ADIT.

WARRENTINA ROAD

A 12548

Bayley's Adit from the south west, is blocked by a collapse just in from the portal.

The East Volunteer Adit, commencing just west of Warrentinna Road, was also partly blocked at the portal damming back the water to a depth of about 0.8m. Arrangements were made to drain the adit and we subsequently mapped and sampled it. The results are depicted in Fig 5.

Both Branxholm and Little Branxholm reefs at this level are represented by approximately 1m wide zones of intensely brecciated and sheared sandstone and slate with 10-30% quartz as veins subparallel to shear planes; irregular, discontinous and cross cutting veins and pods and lenses of quartz lying parallel to shear planes. The latter appear to represent dismembered slices of previously massive quartz veins. The general impression is of quartz-infilled fault fissures with (probably several) reactivations of movement leading to brecciation of the vein material as well as the immediate wall rocks.

Our chip channel samples across these "lode formations" in the faces of the drives on both reefs returned assays in the range 0.22 to 0.41g/tAu. A sample over 0.8m width across the back of the drive on Little Branxholm about 4m south of the winze returned 8.32g/tAu which was re-assayed for a result of 5.68g/tAu.

Blake (1934) records that, during the years 1898-1900, the East Volunteer Gold Mining Company produced from the Branxholm and Little Branxholm reefs "principally by way of (the) adit 96 tons of quartz for a yield of 100½oz giving an average grade of about 32g/tAu".

Obviously the stoping carried out on Little Branxholm on the north side of the adit must have been of better grades than those we obtained. The short extent of driving and lack of stoping on Branxholm reef at adit level suggests that most of the quoted production was obtained from Little Branxholm.

A third lode occurs in the adit between Branxholm and Little Branxholm Reefs, striking at 10°, dipping 60° east with width in the range 150-300mm. This is of somewhat more massive character, consisting of brecciated sandstone with infilling of milky, sometimes vughy, quartz between well defined walls. Quartz constitutes 60-90% of the lode. Our samples (T7619, 7620) returned assays of 3.49 and 0.07g/tAu respectively. This may represent one of Blake's north trending "tensional fractures".

Quartz stringer vein mineralization is generally not well developed along the adit except immediately adjacent to the main lodes. On the hangingwall side of the Branxholm Reef and on both walls of Little Branxholm Reef are zones a few metres wide containing milky quartz stringers generally of less than 10mm thickness and intensity about 5-10 veins per metre. In the zone adjacent to Branxholm Reef the stringer veins trend about 060°/70° subparallel to the main lode and are associated with patchy pyrite (to 0.1% of volume) as disseminations, stringers and joint coatings in flinty siltstone and slate.
A 4m chip sample across this zone (T7621) yielded 0.55g/tAu.
4m chip samples into both walls of Little Branxholm Reef (T7594, 7595) returned assays of 0.13 and 0.15g/tAu.

The stringer veining diminishes rapidly in intensity within 5-10m of the main lodes but nevertheless some further systematic chip sampling along the walls of the adit may be justified in view of the results obtained.

Sedimentary layering of the interbedded sandstones, siltstones and slates along the East Volunteer Adit mainly strike NNW with moderate to steep westerly dips.
Two styles of folding appear to be superimposed upon the general westerly dipping trend:

i) Very broad, open flexures or folds about axes plunging moderately to WSW. These are locally somewhat more intensely appressed just south of the Branxholm Reef.

ii) Minor, tight, asymmetric sinistral folds plunging at about 40° to S-SSW.

No axial plane or other cleavage was recognized in relationship to these folds; the slates generally are fissile parallel to bedding. The relationship of folding to lode formation is not clear. The tight (Category ii) folds might be related to sinistral wrench movement along the (lode) fault fissures but the sense of movement along these is not established.

The potential for large tonnage gold mineralization based on stringer veining seems fairly low. However, the relatively close juxtaposition of seven reefs which have been worked in the past for grades averaging 34g/t Au invites the possiblity of bulk mining to win the gold in the reefs.

A"rubbery figures" (but fairly generous) calculation based on data from Blake (1934) as well as our own sampling in East Volunteer as follows for the "block" of ground from Branxholm to Ascot Reefs:

Branxholm Reef:	1m	at	10g/t
Unnamed Reef (T7619)	0.2m	at	4g/t
Little Branxholm Reef	1m	at	10g/t
Riley's Reef	0.2m	at	20g/t?
Blue Reef	0.1m	at	20g/t?
Coronella Reef	0.2m	at	46g/t
Ascot Reef	1.2m	at	10.7g/t

over a total NW width of 120m gives an average of 0.41g/t.

If we add in a rather unrealistic hypothetical 5m wide zone of stringer mineralization carrying 0.5g/tAu, adjacent to each of the seven reefs.
(ie Seven stringer zones of 5m at 0.5g/t)
the overall average grade could be increased to 0.55g/tAu - still approximately an order of magnitude below likely economic grade.

5.1.6. Derby and North Mara Mines (Figure 6)

Our only reference to these prospects is from Nye (1931) who, in a two paragraph note on the Warrentinna Goldfield, states:
"The Derby Mine was the most successful and though crushings were small, several small dividends were paid. Operations continued for a long time but without any further success".
Nevertheless the area seems to have been overlooked by the otherwise impressively thorough Frank Blake in compiling his 1934 Plans of the Goldfields. No!

With the aid of an old Warrentinna Mineral Lease Chart, we were able to plot the approximate location east of Warrentinna Road about half way between Golden Mara and Golden Dyke workings, and soon succeeded in locating the workings.
Figure 6 is a sketch plan depicting the approximate layout of the workings.

These consist of several short adits, shafts (at least two of which are of appreciable depths) and numerous shallow open stopes and trenches along a narrow north trending zone of about 800m strike length.
As usual, the surface workings are in a partly filled and moss grown condition and the outcrop is virtually non-existent so that it is difficult to assess the nature and distribution of the lodes.

In the Derby area there are two recognizable mineralized lodes. The western lode consists of an 0.8m wide massive milky quartz vein with minor disseminated arsenopyrite trending 030/60W in massive sandstone. Stoping has been carried out on this reef for several tens of metres but our chip sample (T7556) returned only 0.12g/tAu.

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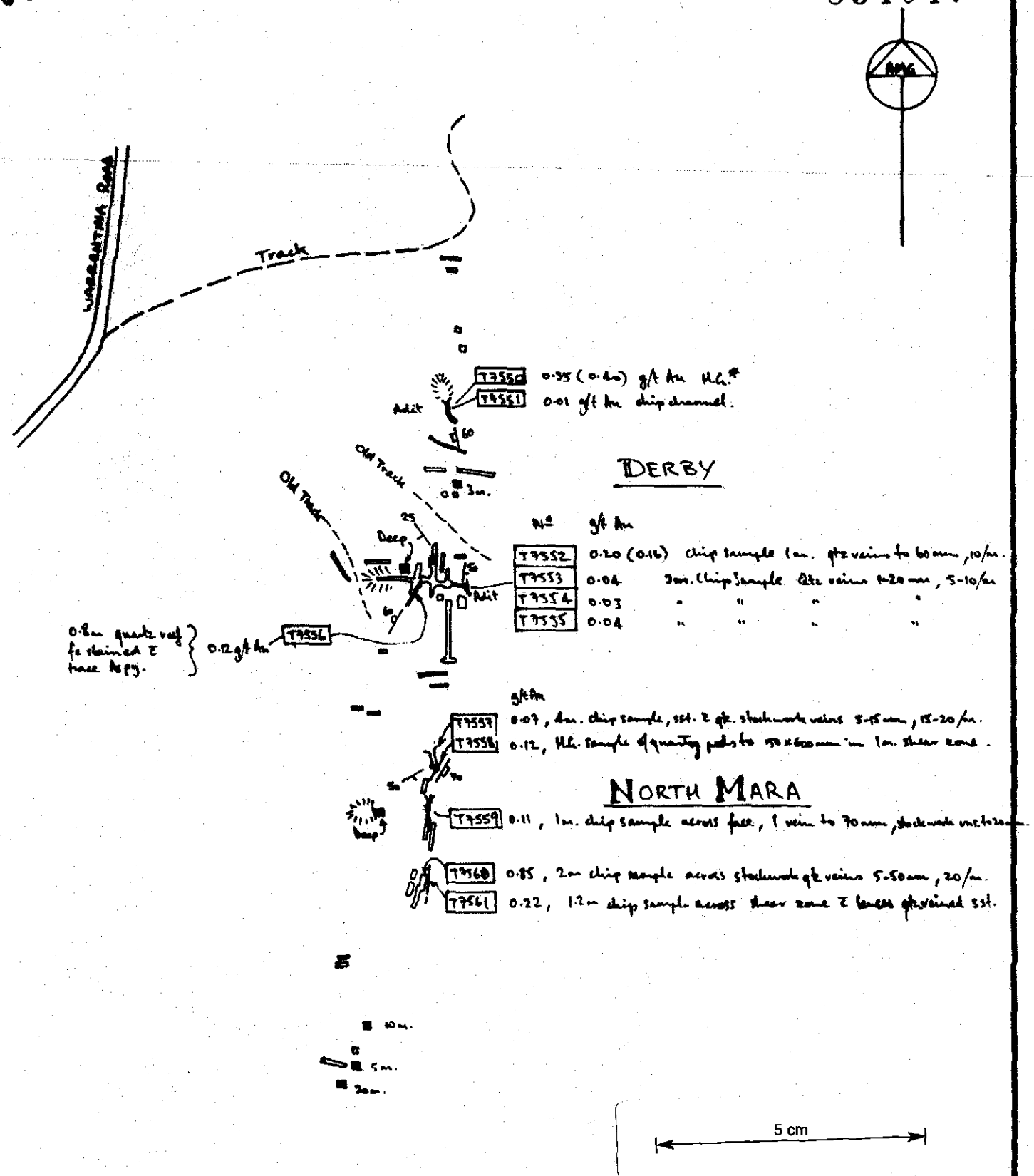

GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86	DRAWN BY : W.H
WARRENTINA GOLDFIELD	DRAFTSMAN:
DERBY – NORTH MARA	DATE 4:87
PLAN.	REVISIONS :
	FILE NO.
SCALE 1:5000 0 50 100 150 Metres	FIG. 6

A 12548

Thirty or forty metres east of this position at the end of a short easterly driven adit there is a one metre wide zone of quartz stringers (10mm, 10/m) between north trending steep dipping shear zones. A discontinous milky quartz vein to 60mm lies within the puggy wall at the eastern side of this zone. Our sample (T7552) returned 0.2 (0.16)g/t Au over the one metre width. Three channel samples over 3m each across lower intensity quartz stringer veining westward from the T7552 zone returned values of 0.04, 0103 and 0.04g/tAu.

At North Mara we were able to obtain several samples from a series of short adits and shallow open stopes.
T7557 is representative of a 4m section of moderately intense quartz stringer veining (< 5 to 15mm, 15-20/m) in thick bedded sandstones. It assayed at only 0.07g/tAu. Immediately east of this stringer zone is a slaty shear zone trending 030/70E which contains several large (150x600mm) lenses of grey flinty quartz probably representing dismembered slices of massive vein quartz in a reactivated fault fissure. A high graded sample of these siliceous lenses returned 0.12g/tAu.

A few tens of metres to the south another short adit was driven along a fracture zone trending 010° in massive sandstone containing a single vein upto 70mm thick on the east wall with a coarse stockwork of quartz veins (4-20mm, ~20/m) over about 1m of exposure into the west wall. A 1m chip sample across this zone in the end face returned 0.11g/tAu.

At the southern most open stopes there occurs a similar situation to that in T7557, 7558. Massive sandstone with a strong stockwork of variably oriented quartz veins (5-50mm, > 20/m) occurs immediately west of a gungy slaty sheared/breccia zone trending 05°/75E which contains small and large lenses of silicified-quartz veined sandstone. The exposure allowed a 2m chip sample across the stockwork zone (T7560) which assayed 0.85g/tAu and a 1.2m chip sample across sheared slate with siliceous lenses (T7561) which assayed 0.22g/tAu.

The 0.85g/tAu in T7560 is a somewhat interesting result and it is a pity that there is not more cross cutting exposure in which we could assess the full width of this stockwork mineralization. However, the indications from elsewhere in the Derby-North Mara area suggest that the quartz stringer vein mineralization generally carries bulk grades of 0.1g/t and has low prospectivity. The lodes as observed are mostly weakly mineralized fault fissures akin to the shear fractures described by Blake (1934) at the Golden Mara Mine albeit of a generally more northerly trend. With the present poor exposure and lack of historic data it is difficult to easily determine if there is a significant concentration of large lodes. The (old) Warrentinna Mineral Chart (E8) indicates at least two subparallel north trending lodes.
At any rate, the low grades obtained in our samples of the lodes do not indicate potential for bulk mining for reef gold.

5.1.7 Golden Dyke Prospect

This prospect is located just east of Warrentinna Road opposite the Forester Road junction, on property owned by Mr Jeff Carins. Blake's (1934) Plan 664F/32 shows several shallow shafts and trenches over strike lengths of about 120m on two NNE trending lines about 200m apart. These lines of workings appear to represent separate lodes or reefs probably dipping to the west.

I spoke with Mr Carins about a visit to the workings and was received with caution, he indicated no particular opposition to a reconnaissance but strong objection to subsequent mining. He informed me that the shafts had been filled and the area was at that time under cultivation for a cereal crop. In sight of these facts and our experience of lack of worthwhile exposure in such cases elsewhere on the field, I did not think the area to be worth a surface reconnaissance.

5.1.8 Renown Reef (Figures 7 and 8)

The Renown Reef is located on the property of Mr Malcolm Carins near the western headwaters of Linton Creek.
Blake's (1934) Plan No 664F/32 shows a north east trending reef dipping at 40° NW driven on for about 70m from a cross cutting adit with a vertical shaft and surface stope at the southern end.
I am not aware of any previous technical report on this mine.

Mr Carins informed me that in recent times (upto about four or five years ago) the adit had been cleaned out by the late local forester and part time prospector Mr Tony Stonjek. Apparently Stonjek had put in tram rails, cleaned out the adit, had got "a few colours" and had just reached the main point of collapse (presumably the drive or stope on the reef) when he contracted cancer and died shortly thereafter. Carins said that Stonjek had traced a former mine manager, then living in Melbourne, and had learned from him that "the Renown area had produced four or five thousand ounces of gold".

We visited the adit and the results of our inspection are shown in Figure 7.
Unfortunately the adit is blocked at 61m from the portal, probably at the position of a former drive or stope on the reef. No reef or lode formation is now exposed. The country rocks are thinly bedded oxidized siltstone and slate with subordinate yellow sandstone.

050

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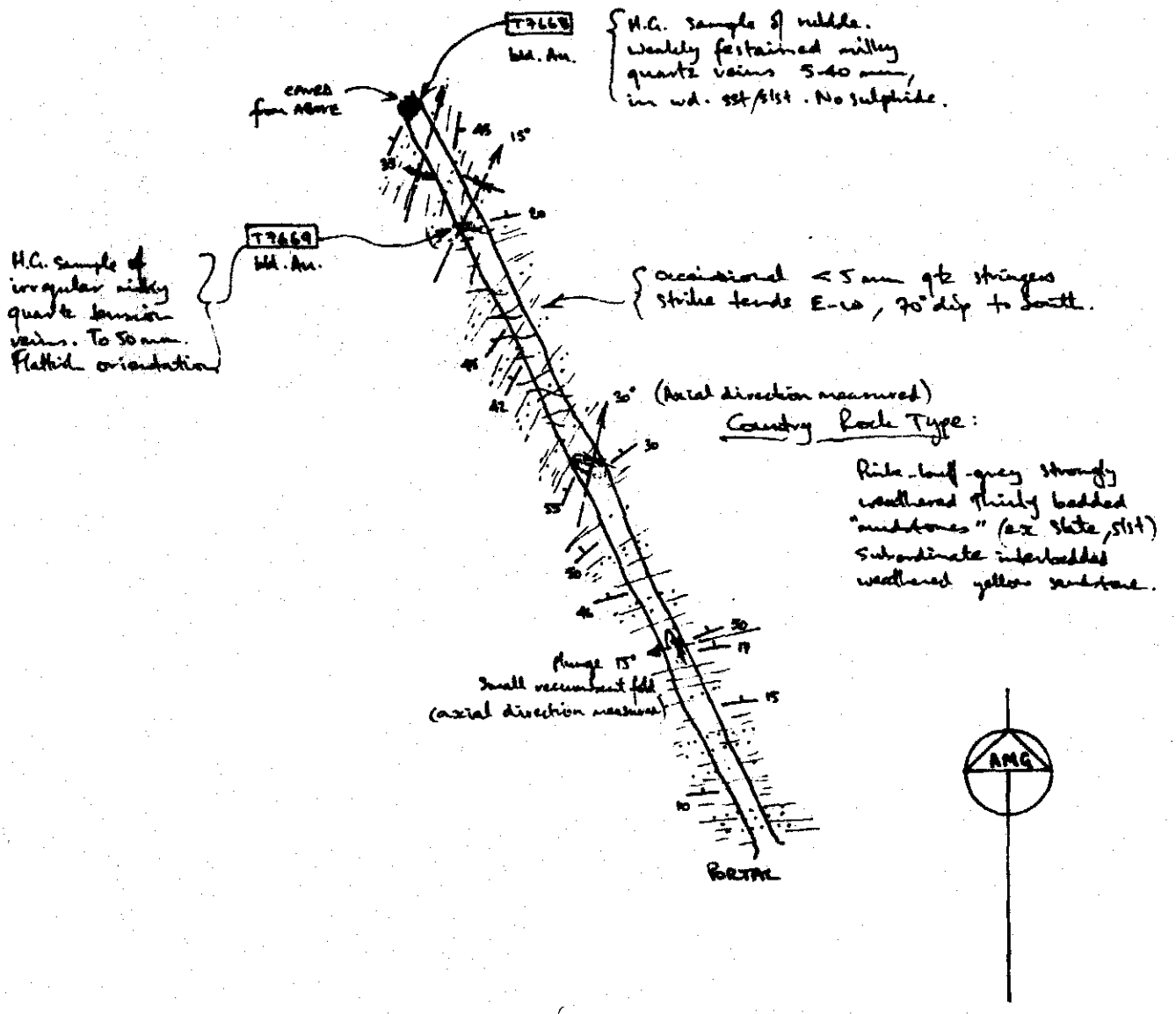
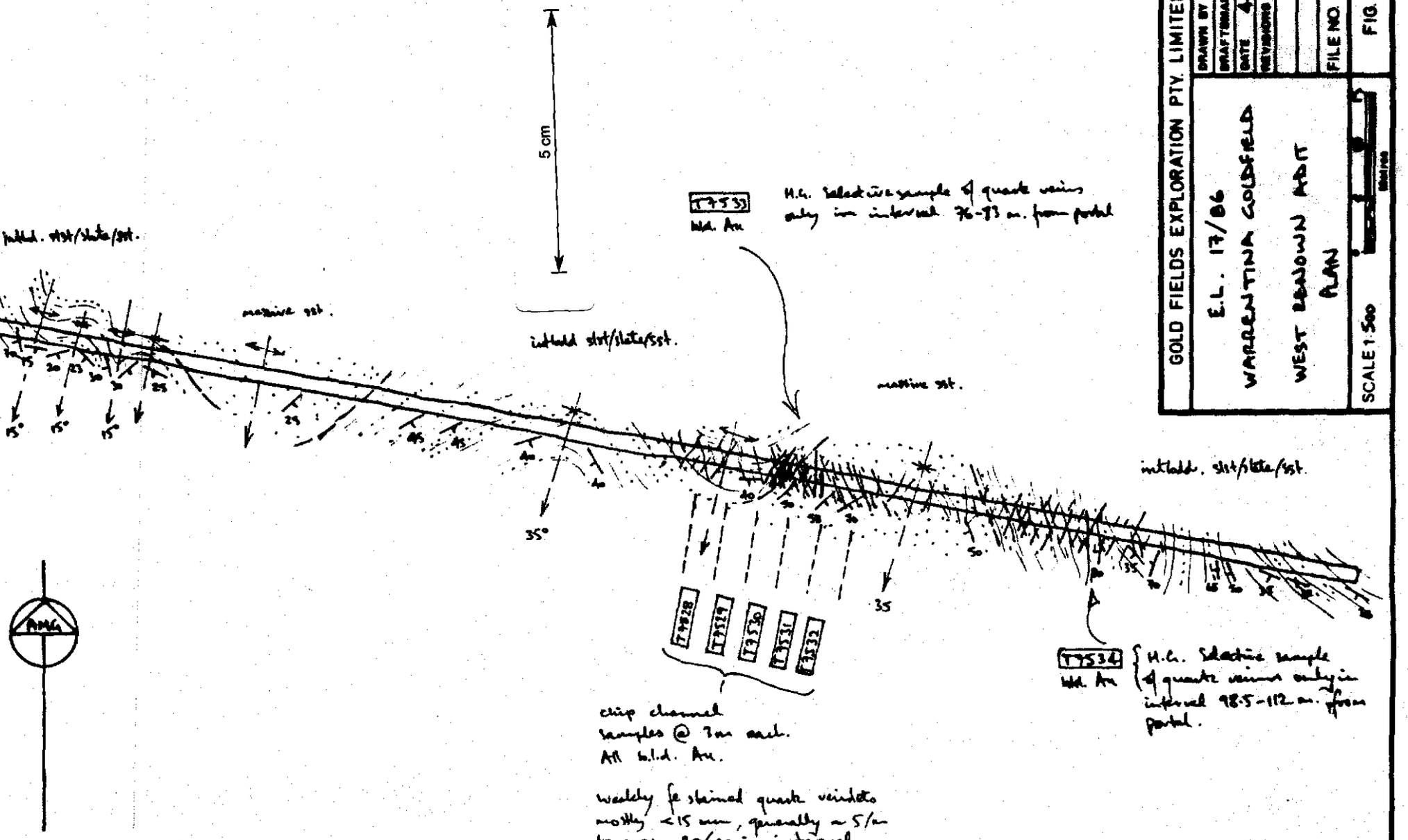


GOLD FIELDS EXPLORATION PTY. LIMITED		
E.L. 17/86 WARRENTINA GOLDFIELD RENOWN ADIT PLAN.		DRAWN BY : A. DRAFTSMAN: DATE 4.88 REVISIONS : FILE NO.
SCALE 1:500	0 5 10 15 Metres	FIG. 7

A 12548

854052



051

A 12548

They generally dip at moderate to low angles to the NW but sudden dip steepness changes in the first half of the adit are due to small recumbent synformal folds, presumably overturned from the north west. An (inferred) synclinal fold at about 53m from the portal appears to be upright. (The definition of this fold is dependent on only a single SE dipping bedding measurement.)
The unusual recumbent folds in company with the apparent low 40°NW dip of the reef (Blake, Plan 664F/32) suggest an element of thrusting in this area.
Quartz stringer veining is not well developed in the adit.
Grab samples of irregular milky quartz tension veins at 51m from the portal and of similar material picked from the collapsed mullock at the bitter end of the adit assayed $<$ 0.008g/tAu.

About 900m WNW of the Renown Workings and 50m south of the junction of Connor's Road with Warrentinna Road there is an adit driven eastward at road level. I have called this the West Renown Adit and the geological details derived from our inspection are shown on Figure 8.
The country rocks here are massive sandstone and interbedded sandstone-siltstone-slate which generally dip moderately to the south and are folded about broad, open folds with shallow to moderate plunges to the south and variable wavelength from about 10m to 40m.

No stoping or driving has been carried out, it seems to have been a prospecting adit only.
A weak to moderate intensity of quartz stringer veining is locally present especially within or near the contacts of massive sandstone units. The veins are mostly <15mm thick and average intensity about 5 to maximum 20 per metre.
Our chip samples over a 15m section of this style of veining all assayed $<$ 0.008g/tAu as did high grade selective samples of the vein material only.

053

Mr Carins directed us to another adit located about 300m ENE of the West Renown Adit.
Upon inspection we found it had been driven about 25m in a south easterly direction with three longish crosscuts. The wall rock is unconsolidated gravelly-cobbly-bouldery conglomerate representing Tertiary alluvium preserved by the layer of Tertiary basalt which caps the ridge in the Renown area. The conglomerate cobbles are mainly of weathered sedimentary rocks (ex 'Mathinna Beds') but much of the matrix is gritty clay-rich gravel which may have been derived from a granitoid source. Although most of the drives and adit are wholly within 'conglomerate', weathered white sandstone with rare quartz veinlets is here and there exposed near the sole of the tunnels suggesting that the level is close to the bedrock surface.
We collected a sample of about 5kg of finer gravelly material from the adit wall at a point just before the second NE cross cut and about 1m above the supposed bedrock. We later washed this sample and recovered:
1 flake of gold (1.5mm dia.)
1 tiny speck of gold
and several grains of cassitterite (?)

Judging from Blake's (1934) Plan 664F/32, this "deep lead" which I would guess to be about 20m thick has been prospected by about half a dozen other workings (mainly shafts) over an east-west strike of about 800m.

According to Mr Carins, at the time his family moved to this property 30 or 40 years ago, there were numerous prospecting holes on the alluvium of the Boobyalla River immediately adjacent to the north and it was said that "a man with pick, shovel and dish could make thirty bob a day".

Indications are that the quartz stringer vein mineralization in the Renown area is not auriferous.
The Renown Reef itself is now inaccessible and not easily assessed though it would appear to have been a fairly small show on an isolated reef and I find the anecdotal report of a yield of "four or five thousand ounces" incredible.
The sub-basaltic alluvial lead may have some prospectivity.
A very "rubbery" calculation based on our one flake of alluvial gold of approximately 1.5 x 1.5 x 0.10mm of S.G. 19 in a 5kg sample gives a yield of about 0.86g/tAu.

5.1.9. Gorge Creek Tungsten Prospect.

We found this prospect accidentally whilst navigating towards the Mt Horror Arsenopyrite Prospect. It is situated on Gorge Creek about 1km north of Connor's Road.

The workings consist of a couple of small open cuts and fairly extensive area of shallow overburden removal. A few tens of metres to the south east are the remains of a mill. The airphotos (M3) indicated that some workings existed prior to Oct 1980 but that much of the superficial earthmoving was carried out between then and Jan 1982.
The country rocks are dominated by massive meta sandstone with subordinate grey spotted hornfels and laminated siltstones which generally dip WSW at moderate angle. Mineralization consists of coarse bladed wolframite and subordinate arsenopyrite, pyrite and chalcopyrite in milky to clear quartz veins. The veins are generally fairly thick in the range 20-120mm, fairly widely spaced (generally <1 per metre) and commonly dip at less than 45° to the NW (which is approximately parallel to the Renown Reef). No intense stockwork-type veining was observed. Wolframite bearing veins have been exposed over an east-west distance of perhaps 150m.

055

Our samples T7677 and 7678 are high graded from a small dump near the open cut on the east side of the creek and from outcrop in a small pit 10m south of above, respectively.

They assayed	W%	Aug/t	Bi(ppm)	As(ppm)
T7677	3.98	1.21	1400	400
T7678	0.86	0.35	410	13

Sn and Cu were barely anomalous and Mo and Ag were below limit of detection.
Occurring within the contact metamorphic aureole of the Blue Tier Batholith these tungsten-bismuth rich veins are almost certainly granitoid related. The presence of gold suggests a granitoid source (for gold) or at least some remobilization of gold by granitoid related hydrothermal systems.
The apparent absence of intense stockwork veining at the prospect suggests a low prospectivity for both gold and tungsten.

5.1.10 Mt Horror Arsenopyrite Prospect

This prospect is located about 1.5km south of the peak of Mt Horror. The prospect is briefly described by McIntosh Reid (1925) and the layout of workings shown by Blake (1934) Plan No 664N/32.

The (apparently single) lode has been traced in a few trenches and short adits for a strike length of about 500 metres. According to McIntosh-Reid "the main ore body is well exposed in a deep trench and shallow pit on Dutton's 10 acre block....
The body as exposed in the trench is 8 feet in width....."

During our brief examination, we located this trench but found it to be so overgrown with moss and partly filled with rubbish that we could get no useful information from it.

The southern adit is driven on about 085° for three metres from the portal. Just within the portal there is a deep (≥ 1m) hole or winze in the floor. Because of this, we could not gain access to the inner end of the adit and could not observe the east wall of the lode. Country rock around the portal is hard grey silicified sandstone with numerous siliceous patches and stringers of fresh arsenopyrite and minor pyrite. The west wall of the lode is not clearly defined but there appears to be a gradual diminishing intensity to minor quartz stringers just west of the portal.
Sample T7684 is a representative chip sample over 1.2m, inwards from the portal. It assayed 3.85%As, 15g/tAg, 0.19g/tAu and 145ppm Sn, < 10ppmW and 130ppm Bi.
Sample T7685 is high graded sample of the dump material at this adit and assayed 9.55%As, 9g/tAg 0.41g/tAu, 79ppmSn, 0.26%W and 190ppmBi.

At the western adit the rocks are somewhat fractured grey siliceous meta siltstone and sandstone without significant mineralization in the adit itself.
However, the approach to the portal is of similar rather more brecciated rocks with patchy milky quartz veins and grey cherty silicification. A 3m chip sample across this veined and silicified zone, comprising perhaps 10% quartz by volume (T7683) assayed at only 350ppmAs, 0.01g/tAu, 81ppmSn and 36ppmW.

I consider that it is "off" the lode but the Sn, W content suggests a related style of mineralization.
The northern adit was driven in a NW direction for 3.5m through thinly bedded grey meta siltstone and spotted fine sandstones which strike 355-005° and dip at 56-70° to the west. The arsenic lode is exposed in the end face but the adit has penetrated only about 0.5m of the lode and ends within the lode.

The lode consists of grey vitreous to fine compact granular quartz (some included silicified quartzite?) with scattered blebs of arsenopyrite and pyrite in the ratio of about 2:1 and total sulphides estimated at about 5%. Some sections show a fine angular brecciated fabric suggestive of brecciation and re silicification of early quartz vein material. Sulphides appear to be associated with both phases.
The east wall of the lode is very sharp and planar oriented at 035°/80E.
A chip sample representative of the 0.5m section of lode exposed (T7686) assayed 1.55%As, 6g/tAg, 0.33g/tAu, 28ppmSn and W, Mo, Bi all below detection.

Due to the lack of exposure, particularly of good cross sections, it is difficult to assess the gold potential of this lode. Although large, the assay results (both our own and McIntosh-Reids) indicate gold values to be low.
The trends of both bedding and the lode seem analogous to those observed in the East Volunteer Adit at Golden Mara Mine.

5.1.11 Kerrison's Mine

This working is located on the property of Mr Bill Payne about 4km NNW of Derby township. The only reference we have to it is Blake's (1934) Plan No 664P/32 showing the layout of workings. This shows a couple of short adits, several shafts and numerous open stopes and trenches over a general east-west trending zone of about 200m.

Mr Payne, who was initially cautious about our application for permission to inspect the workings, told us that he had taken considerable trouble and expense to fill the shafts and trenches but that the "tunnels" were still in existence and inhabited by "badgers" (which were known to become "stroppy" if disturbed).

We decided to risk it and made a visit to the prospect. Unfortunately we were only able to locate one collapsed adit (probably the lower one) and several shallow holes and depressions undoubtedly representing infilled former shafts etc. The area is generally rather overgrown with blackberries but we made a thorough search which yielded zero geological information and confirmed that Mr Payne's environmental rehabilitation had been successful in that respect.

There is no useful outcrop or surface float.

5.2 Warrentinna District

In the Warrentinna area as at Forester, the country rocks are sandstone and interbedded sandstone-siltstone-slate of the "Mathinna Beds" and no lithostratigraphic subdivisions are recognizable.

The trend of the Goldfield from Dawn of Peace to Renown is NNE and within this zone bedding strikes are predominantly NNW to NNE and dips moderate to steep to the west. Minor folds, inferred and observed, have an axial trend of about 20° and shallow to moderate plunges to the south.

By contrast, outcrops along the north eastern railway to the east of this zone, infer NNW trending fold axes. Unfortunately, reconnaissance in the Kamona Ridge-Morris Ridge area west of Warrentinna revealed virtually no outcrops.

Reference to the Ringarooma 1:50000 Geological Sheet suggests that the zone of NNE axial trends extends SSW of Dawn of Peace to the Billycock Hill area.

This change in fold trend from NNW to NNE is analogous to the situation at Forester Goldfield although in that case the boundary line seems to have a NW direction whereas at Warrentinna the zone appears to be NNE parallel to the line of gold prospects. The significance of these observations, as structural controls for gold mineralization, is not clear to me.

All the known reefs in the Warrentinna Goldfield strike NNE or NE, are usually steeply dipping and crosscut the bedding (although, at Dawn of Peace, the northern part of the reef swings into parallelism with the bedding and peters out).

The Renown Reef and wolframite bearing veins at Gorge Creek Tungsten Prospect are anomalous in having only moderate NW dips.

The most significant concentration of gold bearing lodes occurs at Golden Mara but even that locality is unlikely to produce economic grades for a bulk mining venture.
The structural controls on mineralization are at present inadequately understood, and the general degree of outcrop probably insufficient, to allow prediction of additional areas of closely concentrated lodes.

Quartz stringer vein mineralization was observed at several localities in and around the goldfield, most often associated with sandstone units, but systematic chip channel sampling and high grade sampling of veins only failed to indicate anomalous gold in any case.
Some of these samples (T7507, 7508, 7533) reported anomalous Mo (to 58ppm) but I am suspicious of the accuracy of those results.
Quartz stringer zones upto a few metres wide and carrying gold in the range 0.13-0.55g/t were observed immediately adjacent to the main lodes intersected in the East Volunteer Adit. The narrow widths and close spatial association to the major gold lodes suggest this tyle of mineralization is unlilkely to provide bulk mineable ore.

6. NEW RIVER - ALBERTON GOLDFIELD

In the New River-Alberton Goldfield numerous auriferous lodes and old workings occur in a narrow NNW trending zone of about 8km strike length, along the eastern side of the Dorset River Valley and along the ridge between the Dorset and New Rivers. It is no doubt continuous southward with the Dan Valley Goldfield, covered in the intervening Mathinna Plains-Una Plain area by Permian Sediments.

Most of the area is within State Forest, covered by light native forest, locally overgrown with blackberry thickets particularly along the Dorset River. Some of the northern most workings are on private land.

The layout of the lodes and workings is accurately depicted on a series of five plans (I, II, III, IV, V) at scale of 2½chains/inch prepared by Nye and Blake in 1934. These plans have been our fundamental means of locating prospects on the ground.

Previous technical reports on the field by Mines Department geologists include:
Twelvetrees 1904; Hills 5/1923; Hills 10/1923; Blake 1933; Blake 1938; Hughes 6/1952 and Hughes 8/1952.

McOnie (1983) (Table 10.1) quotes recorded production figures for the field totalling 21,577.5 ounces of gold. (671.125kg)

6.1 Description Of Old Workings

6.1.1 Tiger Reef

This prospect is/was located on the property of Mr Jacobs. The area is now under pasture but our careful search revealed the portal of the adit all but blocked by earth and old tree stumps with only a rabbit hole sized entrance remaining (which we did not attempt). The stopes (shown by Blake and Nye 1934, Plan I) are likewise filled but there is a small remnant of a mullock dump at the position of the middle stope. A high graded grab sample of milky-smoky vein quartz with minor arsenopyrite (T7653) from this mullock assayed 1.39g/tAu.

Blake (1933) describes the workings in detail indicating that the reef had a NE strike and steep SE dip, was traceable over about 100m length and ranged in thickness from 50-500mm.
Hills (1923) reported an output of 100 tons yielding 1oz/ton.

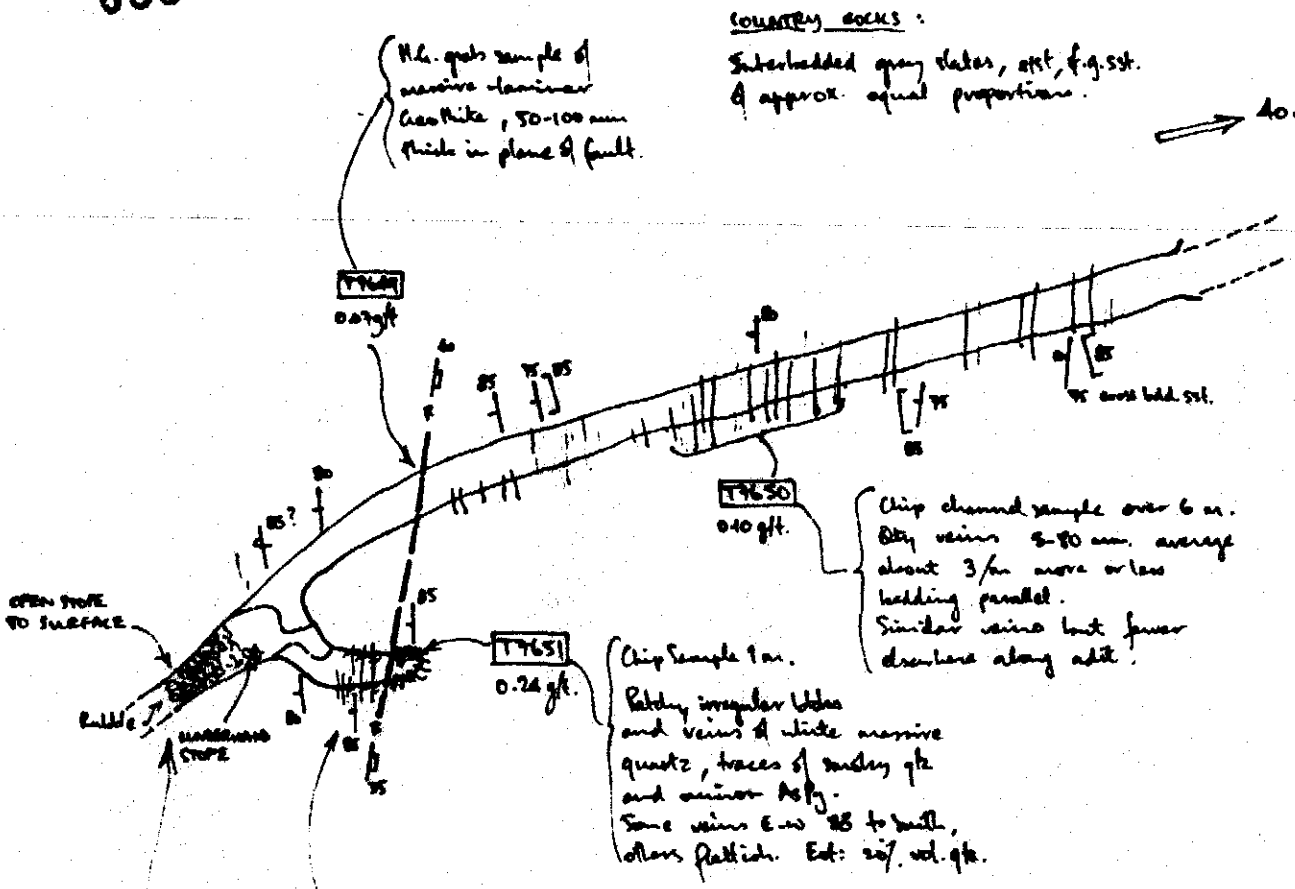
6.1.2. Prendergast Mine (Figure 9)

The Prendergast Mine area is now thickly overgrown with blackberries rendering examination of the surface workings very difficult. We located both adits; the lower one is blocked but we were able to map the upper adit; details shown in Figure 9.
Unfortunately the main lode which trends NE and dips 80° SE has been largely stoped away at the end of the adit and is no longer visible.
The country rocks are interbedded slate-siltstone and fine sandstone dipping steeply west.

Occasional bedding parallel minor quartz veins occur along the adit. A 6m channel sample (T7650) over the most intense zone yielded 0.1g/tAu.

063

854064



NOTES: Main lode not visible in Stope.
Blakes' 1934 Plan Shows Stopes trending ENE to NE with 80° dip to SE.

T7652 : 43.33 (44.00) g/t Au
H.G. grab sample of smoky quartz with visible fine gold and minor AsPy. From rubbish heap about 30 m. NE of this adit portal (but above level of lower adit.)

General area thickly overgrown with blackberries, surface workings not examined.

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86. NEW RIVER GOLDFIELD PRENDERGAST UPPER ADIT PLAN	DRAWN BY : DRAFTSMAN: DATE : 4 : 87 REVISIONS : FILE NO.
SCALE 1:250 (0 2.5 5.0 7.5 Metres)	FIG. 9

A 12548

A grab sample (T7649) of massive-laminar "geothite" 50-100mm thick, occupying a shallow east dipping fault plane assayed only 0.07g/tAu but 1.3%As suggesting that arsenic is fairly mobile in the weathering zone and may be a useful pathfinder element (providing secondary dispersion haloes) for geochemical exploration.

Hills (1923) reported that the main lode had an average width of "about 3 feet" and "the average yield on the ore produced was between 20-25 dwts/ton" (30.6-38.3g/t) with a total yield of approximately £18,000.
Blake (1933) mentions two Mines Department Boreholes (No's 3 and 4) which intersected the lode at about 55m depth but indicated only a "trace" of gold.

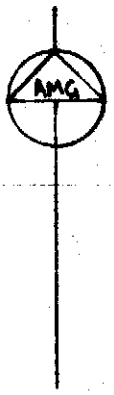
6.1.3. Central Ringarooma Reef

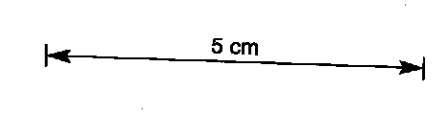
This reef was not described by Blake (1933) but Blake and Nye (1934) Plan No 1, show a NE trending reef dipping at 75° to NW, developed by two adits and a shaft with some open stopes.
Hills (1923) throws us into confusion by describing a "Central Lode" (under the "Donovan's-Lode Group" which includes the nearby Prendergast, Crest and Pennefather's lodes) which he reports to strike at 313°(M) and dip SW at 70° and developed by two adits.

However, we managed to locate some workings as depicted by Blake and Nye (1934). The upper adit is inaccessible due to an underhand stope at least 10m deep in the floor of the approach to the portal. The trend of the reef here appears to have been about 50°(AMG) dipping 70°NW with a (stoped) width of 0.3-0.6m.
Our plan of the lower adit is presented in Figure 10. Unfortunately the adit is caved at 57m, presumably just before the position of the reef.

065

854066





GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86 NEW RIVER GOLDFIELD. CENTRAL RINGAROOMA REEF LOWER ADIT PLAN	DRAWN BY : LM. DRAFTSMAN: DATE 4.87 REVISIONS : FILE NO.
SCALE 1:500 (10 Metres)	FIG. 10

A 12548

066

The country rocks are interbedded sandstone-siltstone-slate with steep dips W - NNW and ENE implying a tight synclinal hinge, which however is not evident, about half way along the adit. Tight, crumpled folds just west of this position are asymmetric with short west dipping limbs and shallow NNW plunge. The steeply dipping cleavage is approximately parallel to this direction.

Minor quartz stringer veining dominantly of steep westerly and easterly dip occurs along the adit. The best development near the inner end of the adit was chip sampled over two consecutive 5m intervals (T7673, 7674) but yielded disappointing results of 0.03 and 0.05g/tAu.

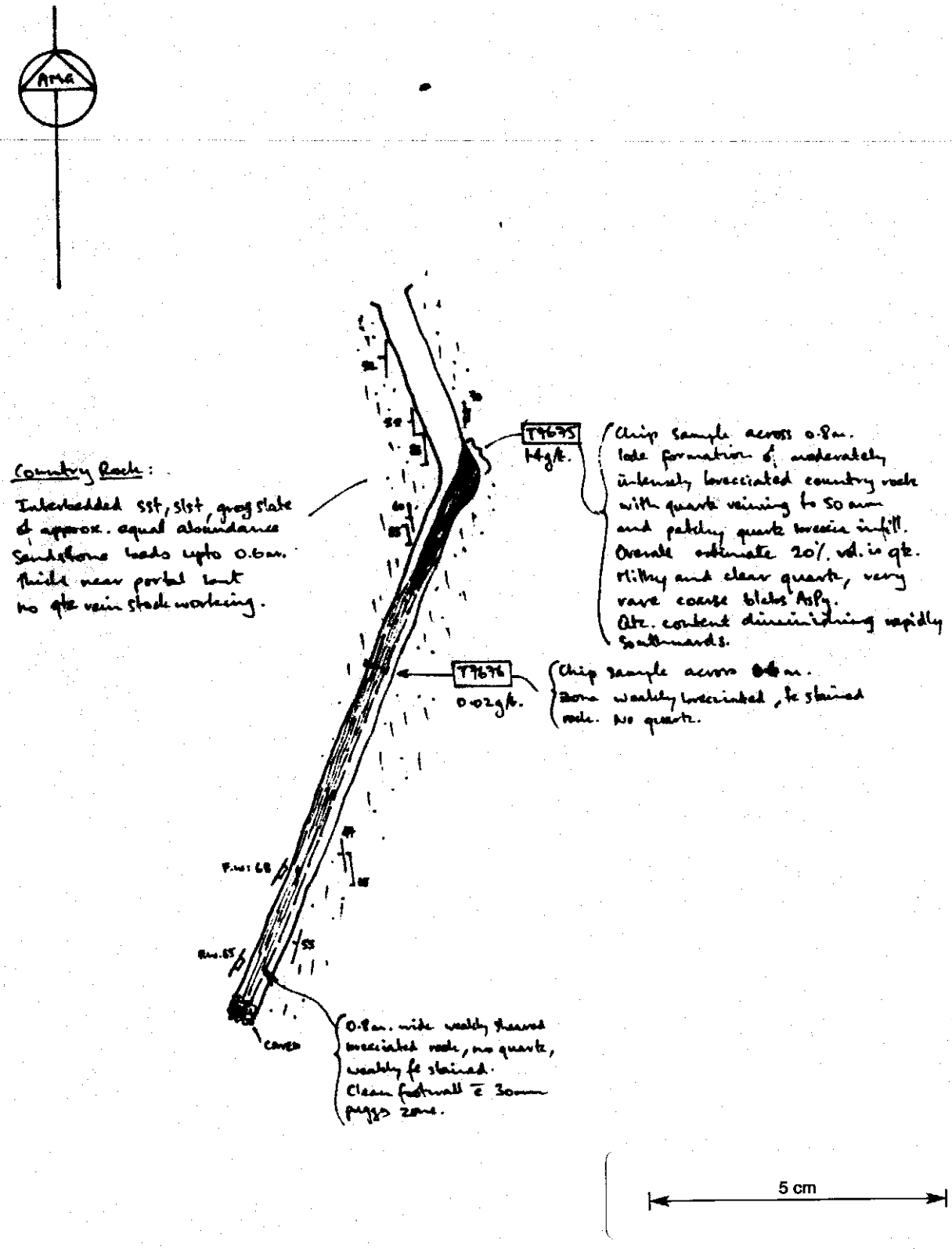
6.1.4. Mullunah Reef (Figure 11)

Figure 11 illustrates the geological details at the Mullunah Adit.

The lode exposed near the bend in the adit is about 0.8m wide consisting of brecciated country rocks with subparallel (to footwall) quartz veins to 50mm and irregular patches of quartz infilling breccia matrix. The full width of the lode may not be exposed, about 20% of the brecciated zone is of quartz but this diminishes rapidly southward along the lode. It is evidently a fault fissure inconsistently mineralized.
Samples T7675 from the bend and T7676 from about 9m further south tell the story with 1.4 and 0.02g/tAu respectively.

The quartz reef evidently makes again further south as Twelvetrees (1904) reports two shafts (presumably at about the "fallen stopes" depicted by Blake & Nye, 1934) one of which produced 15 or 20 tons at 1½oz/ton.

854068



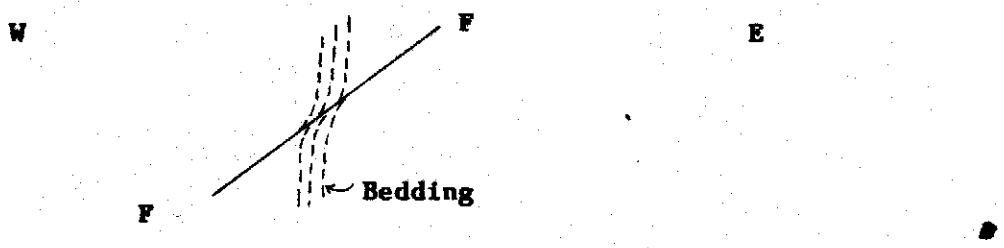
GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86 ALBERTON GOLDFIELD. MULLUNAH ADIT PLAN	DRAWN BY : [illegible] DRAFTSMAN: DATE 4:87 REVISIONS : FILE NO.
SCALE 1: 250 (0 2.5 5.0 7.5 Metres)	FIG. 11

A 12548

6.1.5 Alberton, Forest King and Queen Reefs

Most of the workings in this group are now inaccessible and did not provide much geological information.

However an inspection of the Lower Adit on Alberton No 2 Reef indicated that the lode at this point occupied a somewhat undulose fault fracture zone 50-200mm wide, striking 50° and dipping at 80° SE. The wall rocks are interbedded sandstone-siltstone-dark slate orientated at 00°/70°W in the footwall and 010°/75°W in the hanging wall. Slight bending of the bedding planes within 0.5m of the fault plane (especially in the hanging wall) suggests an east side southward and downward movement.



The lode consists of fractured milky quartz, clayey pug and some discontinous pods or massive veins of smoky quartz with upto 2% arsenopyrite, most notably against the footwall in "swells" in the lode course.
Sample T7644 with 0.2g/tAu and 0.39%As is representative of the full width of lode at the only point where we could reach the stoped out back of the working.
Into the footwall of the lode are occasional quartz veins of two types:

1) sigmoidal tension veins, milky quartz, E-W strike, flattish 20° dip to north, upto 600mm long x 70mm thick, often confined to sandstone beds.

2) subordinate thin milky quartz veins (< 20mm) sub parallel to bedding, mostly within or adjacent to slaty units.

069

A grab sample of the quartz from these vein types assayed 0.31g/tAu. This does not offer much prospectivity for these low intensity stringer and tension vein systems but does again indicate (as in Prendergast upper adit) that this style of veining is weakly auriferous, in contrast to many of the Forester and Warrentinna stringer veins which were quite barren.

The Alberton No 1 and No 2 lodes are possible north and south parts of a single lode. The presence of the sub parallel Forest King and Queen Reefs within 80-90m to the south east indicates an unusual concentration of lodes, with the possibility of more in between. Although the early prospectors have carried out some cross trenching, no cross cut drives are shown by Blake and Nye (1934). Hills (1923) reports average gold grades for the three known lodes in the range 5-20dwts/ton (7.65-30.6g/t) and widths upto 1.1m so the area may bear consideration for the "bulk mining of several reefs together" type target.

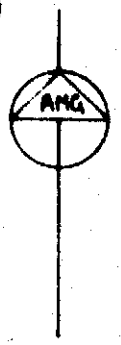
6.1.6. Crown Prince Mine (Figure 12)

The Crown Prince Mine is located on the eastern fringe of the goldfield near the Mt Victoria Road.
McOnie (1983) summarizing Twelvetrees (1900) mentions a shaft to 27m on 27.5g/tAu rock, but at a depth of 30m the vein widened to 1.8m and was reported to be of poor quality.

The results of our investigation of the adit are presented in Figure 12. The adit is driven SSW through shallow NW dipping interbedded siltstone-sandstone and massive sandstone for 118m before intersecting the NE striking, SE dipping lode formation. The lode is in a fault fissure, consisting of 0.8-1.8m wide zone of intensely brecciated and quartz veined sandstone with upto 5% disseminated arsenopyrite, contained within fairly clean puggy walls. Our channel sample (T7648) across 1.8m width of lode assayed 0.49g/tAu and 1.2%As.

854071

070



Interbedded pale grey f.g. sst. and grey slaty siltstone, sst. gradually increasing down sequence (ie: ⇩)

SHAFT

T7646 Hd Au.

H.G. Sample 6 veins only. Milky quartz veins, < 20 mm average 2/m. trending Steep ENE

T7647 0.18g/t.

H.G. sample @ 50-100 mm. smoky quartz vein ± 2% AsPy on Footwall of "lode."
Sometimes milky lenses quartz in medial zone in areas of swells.

T7648 0.49 g/t.

Chip channel sample across back over 1.8m. in "lode" consisting of brecciated intensely qtz veined sst. Qtz mostly milky, some smoky ± AsPy. Persistent 50 mm. smoky qtz vein ± AsPy on F.wall. H.wall side locally very poggy ± upto 5% disseminated AsPy.

Thick bedded - massive f.g. sst, very minor slaty interbeds.

0.2m. wide amygdaloidal mafic dyke.

5 cm

End face: 0.8m. Zone bx sst. ± abundant irregular milky qtz veining. Clean poggy walls.

T7647 0.18 g/t

F.W 65°

H.W: 65°

Rubble pile

WATER

Lode 1.8m. bx zone, clean walls, cohesive milky qtz veins, some smoky qtz ± upto 5% AsPy.

T7648 0.49 g/t Au 1.20% As

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86

ALBERTON GOLDFIELD

CROWN PRINCE ADIT PLAN

DRAWN BY : AJK.
DRAFTSMAN:
DATE 4:87
REVISIONS :
FILE NO

SCALE 1:500

Metres

FIG. 12.

A 12548

A 0.2m wide weathered basaltic dyke is intersected in the adit at about 90m from the portal. This is oriented 70°/70°SE essentially parallel to the lode of which the footwall trends 60°/65°SE. Blake and Nye (1934) Plan No II, show another (similar?) dyke of similar trend on the Mt Victoria Road about 300m to the NW.

Within the first half of the adit there are many spaced, narrow, planar milky quartz veins (mostly $<$ 20mm, usually 1-2 per metre) of remarkably regular steep dip to the ENE and apparently spatially related to the contact between interbedded sandstones-siltstones and the underlying more massive sandstones. A high graded sample of material from some of these veins assayed at $<$ 0.008g/tAu.

The gold potential of the observed "stringer" veins at Crown Prince seems to be negligible.
The local prevalence of SE dipping dykes and mineralized fault fissures suggests that this has been a popular orientation for brittle yielding of the rocks in the Crown Prince-Alberton Reef area and that additional lodes may occur between and beyond these two prospects.

6.1.7 Rosalind, Premier, Hannah and Strahan Adits
(Figures 13, 14 and 15)

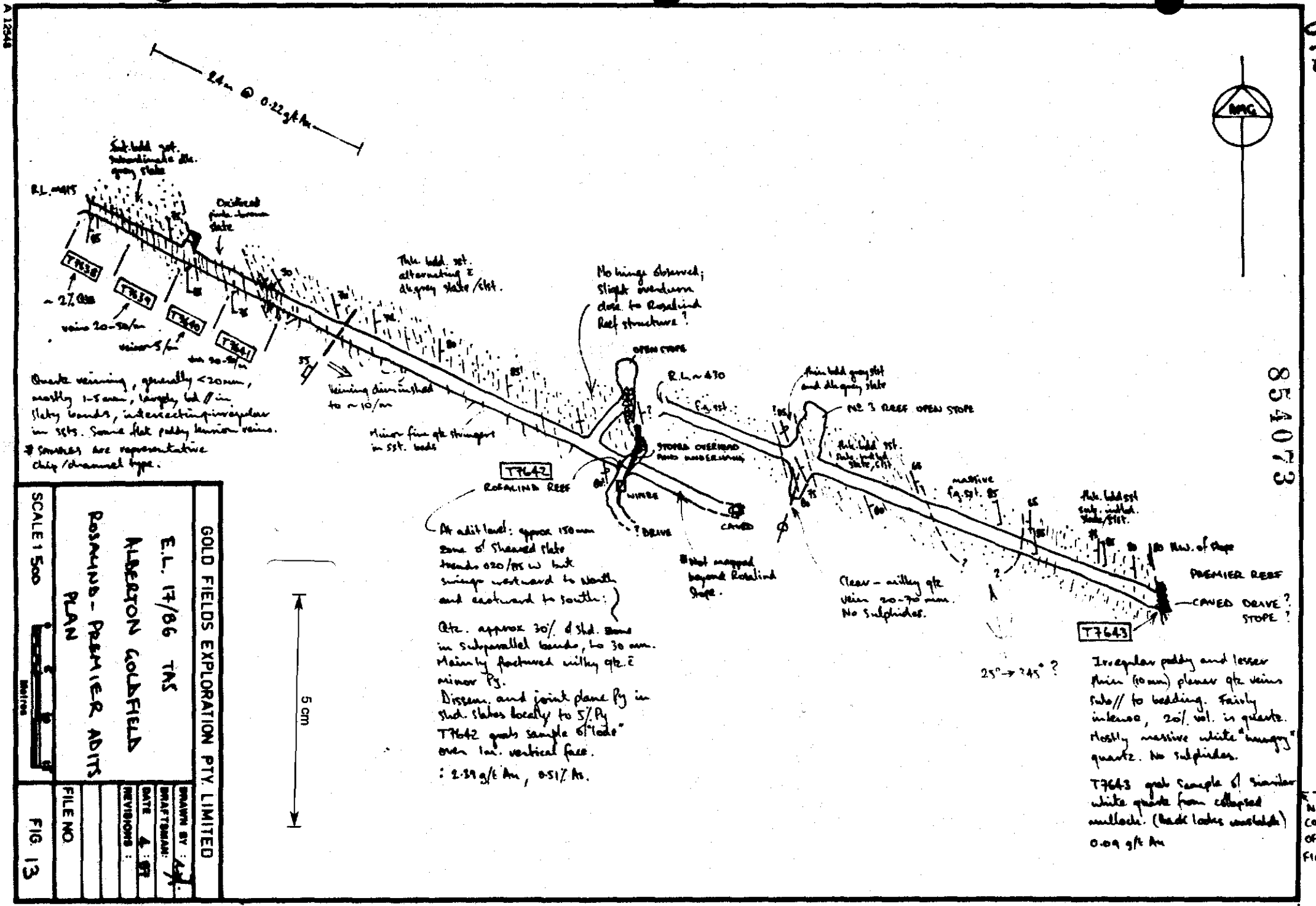
These five adits all occur over a WNW trending zone a few hundred metres long and were apparently all developed by the Ringarooma United Gold Mining Company which according to McOnie (1983) produced at least 4282oz and possibly as much as 8974oz from this vicinity.

Figures 13, 14 and 15
Illustrate the geological details observed in the adits.

A 12548

072

8507073



GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86 TAS

ALBERTON GOLDFIELD

ROSALIND - PREMIER ADITS

PLAN

SCALE 1:500

Metres

FIG. 13

FILE NO.

REVISIONS :

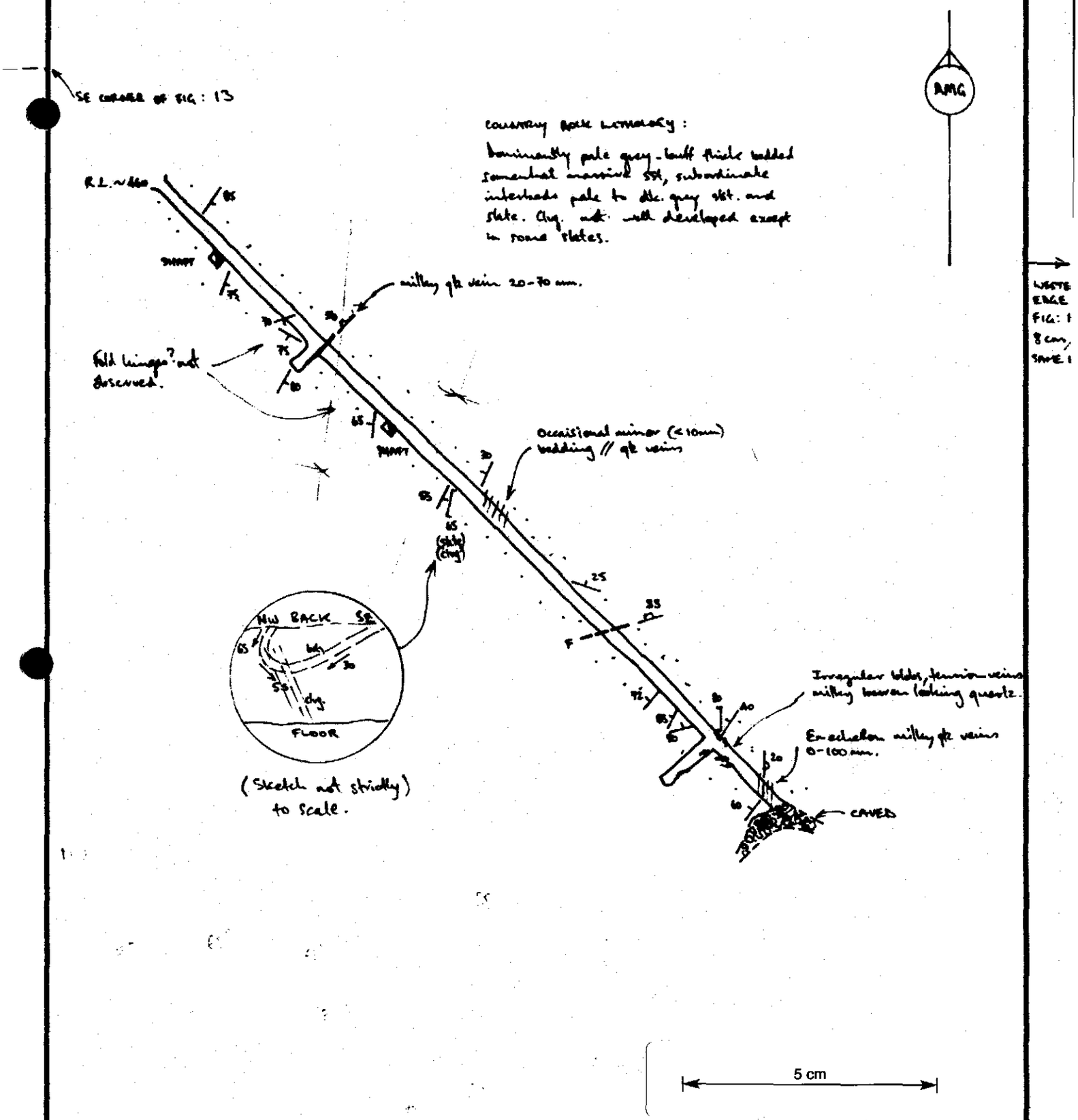
DATE

DRAFTSMAN

DRAWN BY

073

854074

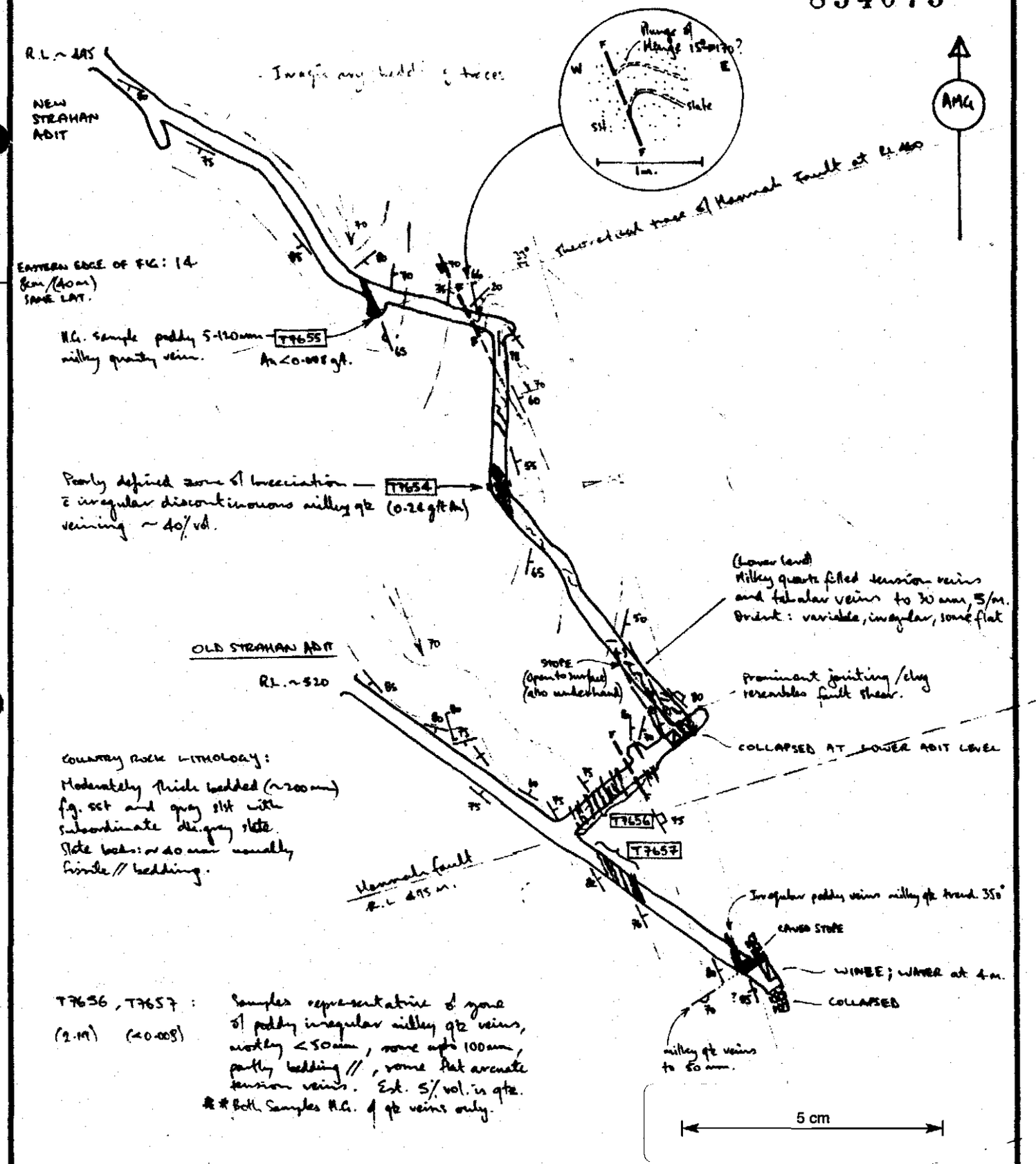


GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86 TAS. ALBERTON GOLDFIELD HANNAH ADIT PLAN	DRAWN BY: [illegible] DRAFTSMAN: DATE 4:87 REVISIONS: FILE NO.
SCALE 1:500 (0 5 10 15 Metres)	FIG. 14

A 12548

074

854075



GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86 TAS ALBERTON GOLDFIELD STRAHAN ADITS PLAN	DRAWN BY : DRAFTSMAN: DATE 4:87 REVISIONS : FILE NO.
SCALE 1: 500 Metres	FIG. 15

A 12548

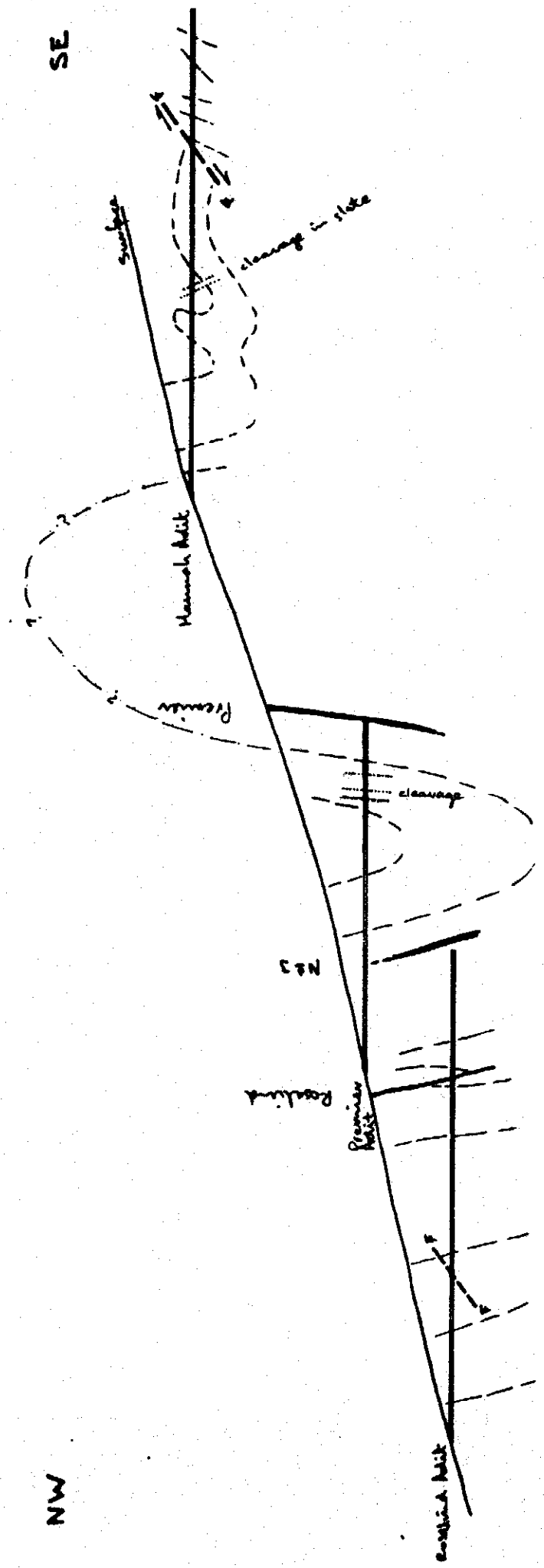
Bedding in the Rosalind Adits and the first part of the Premier Adit dips steeply to ENE but in the latter part of Premier Adit the dips are to the west inferring a synclinal axis plunging at about 25° to 345° although this was not observable due to the massive nature of the sandstone at the critical interval.

The Premier Reef (not observed due to cave-in) appears to be pretty well bedding parallel and perhaps also the Rosalind Reef which however appears to have some north easterly offsets.(Blake & Nye, 1934, Plan III). The No 3 Reef is not well exposed at the Premier Adit level but according to Hills (1923) has a strike of 320° (magnetic) and definite easterly dip in the lower levels which would also accord with the bedding orientation.
The No 3 and Premier lodes are about equidistant from the inferred synclinal axis and I see a possibility that these two are opposite limbs of an inverted saddle reef. Indeed Hills (1923) stated that the No 3 Reef "junctions with the Premier lode at its southern end" although he considered it to be a fault fissure lode.

In the first part of the Hannah Adit, bedding dips are again easterly, implying an anticlinal hinge somewhere between Premier Reef and the Hannah portal. Further in dips are mainly north westerly, both shallow and steep and at least one, semi recumbent, synclinal fold is apparent (Fig 14). This overturned fold may be related to possible reverse movement on a shallow NW dipping fault observed in the Hannah Adit. A similarly oriented fault was mapped in the Rosalind Adit 30m in from the portal. The geological cross section might resemble Figure 16.

In the Strahan Adits, nearby to the east, structure is also quite complicated with bedding in both tight and open folds mostly plunging very steeply to SSE in contrast to the relatively shallow northerly plunges inferred in the other adits.

854077



GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86
ABERDEEN GOLDFIELD
ROTATION - PREMIER - HANNAH ADITS
SPECULATIVE LONG SECTION

DRAWN BY : WJ
DRAFTSMAN:
DATE 4 : 87
REVISIONS :

FILE NO.

SCALE 1: 1000 (0 10 20 Metres)

FIG. 16

A 12548

Some small scale "drag" folding is associated with a steep NE dipping fault at about 45m in from the portal of the (lower) New Strahan Adit. The "drag" fold axis plunges at 15° to 170° and the deflection of the bedding suggests a reverse (east side up) sense of displacement on the fault. This fault may be connected with the Strahan Reef which has a similar orientation and (again) seems to be at least partly parallel to bedding.

No doubt, some of the structural complexities could be elucidated if the workings were in a better condition. The (lowest) Long Adit which is now inaccessible would be particularly useful. Blake and Nye (1934) Plan III, show at least four bedding dip reversals in the Long Adit between the portal and the Rosalind Reef (approx. 300m) which together with the folds observed or inferred in the other adits, identifies this as an area of unusually close folding.

Our sampling of major reefs and quartz veins in the Rosalind, Premier and Strahan Adits (as well as sampling by Roberts (1986) in the Hannah Adit) revealed nothing of particular interest mainly due to the fact that not much of the original producing reefs remains or is accessible today. Figures reported by Hills (1923) and McOnie (1983) indicate average grades upto and better than 1oz/ton.

This area seems to have some potential for the bulk mining of the multiple reef gold type target. There is/was reasonable concentration of large lodes carrying good grades of gold. Many of these appear to be bedding parallel and some may be saddles. Hills (1923) mentions the Soft Spur Lodes just north of Rosalind as being six lodes in close proximity, upto 0.3m in width, 8m in length and with yields upto 5oz/ton.

Also the Bank Lodes southeast of Premier, were a group of four lodes of "indefinite developments of quartz..... constituting partial saddles" with average gold grades of several ounces/ton.
About 100m ENE of Premier Reef are/were the Cake and Plum Pudding lodes which Hills described as being close together, "fillings of joint or bedding planes" and averaging 1oz/ton gold.

Hills and the geologists of those days regarded the bedding parallel reefs as being of subordinate interest to the fault fissure lodes which could be expected to have greater strike and depth persistence. The lack of persistence would be less of a problem for bulk mining methods if intensity of veining and grade were good enough.
The presently available structural information is insufficient to predict where the greatest concentrations of bedding veins/saddles might be located. However, the local prevalence of bedding parallel lodes in a zone of apparently close folding suggests a connection.

A possible "sweetener" in the bulk mining target is the local presence of quartz vein stringer systems carrying anomalous gold.
The best development occurs over the first 24m of the Rosalind Adit where quartz stringers mostly in the range 1-5mm but upto 20mm thick, occur in intensity upto 50/metre. They are largely bedding parallel in the slaty beds and irregular-intersecting in sandstone units. Our chip samples T7638,39,40,41 over 6m intervals each, progressing inwards from the portal, assayed 0.02, 0.21, 0.53 and 0.10. g/t gold respectively, giving an average of 0.22g/t over 24m which includes a zone of 12m @ 0.37g/t.

Similar partly bedding parallel, stringer/tension veining was observed in the Old Strahan Adit. A (high graded) sample of quartz veins only over an 8m width in T7656 assayed 2.19g/tAu. As the veins constitute an estimated 5% of the interval the bulk grade would come down to around 0.11g/t. Curiously, T7657 a high graded sample of the veins presumably in the same zone, a few metres south east of T7656, assayed < 0.008g/tAu.

6.1.8 Mercury Mine - Point Workings Area(Figures,17,18)

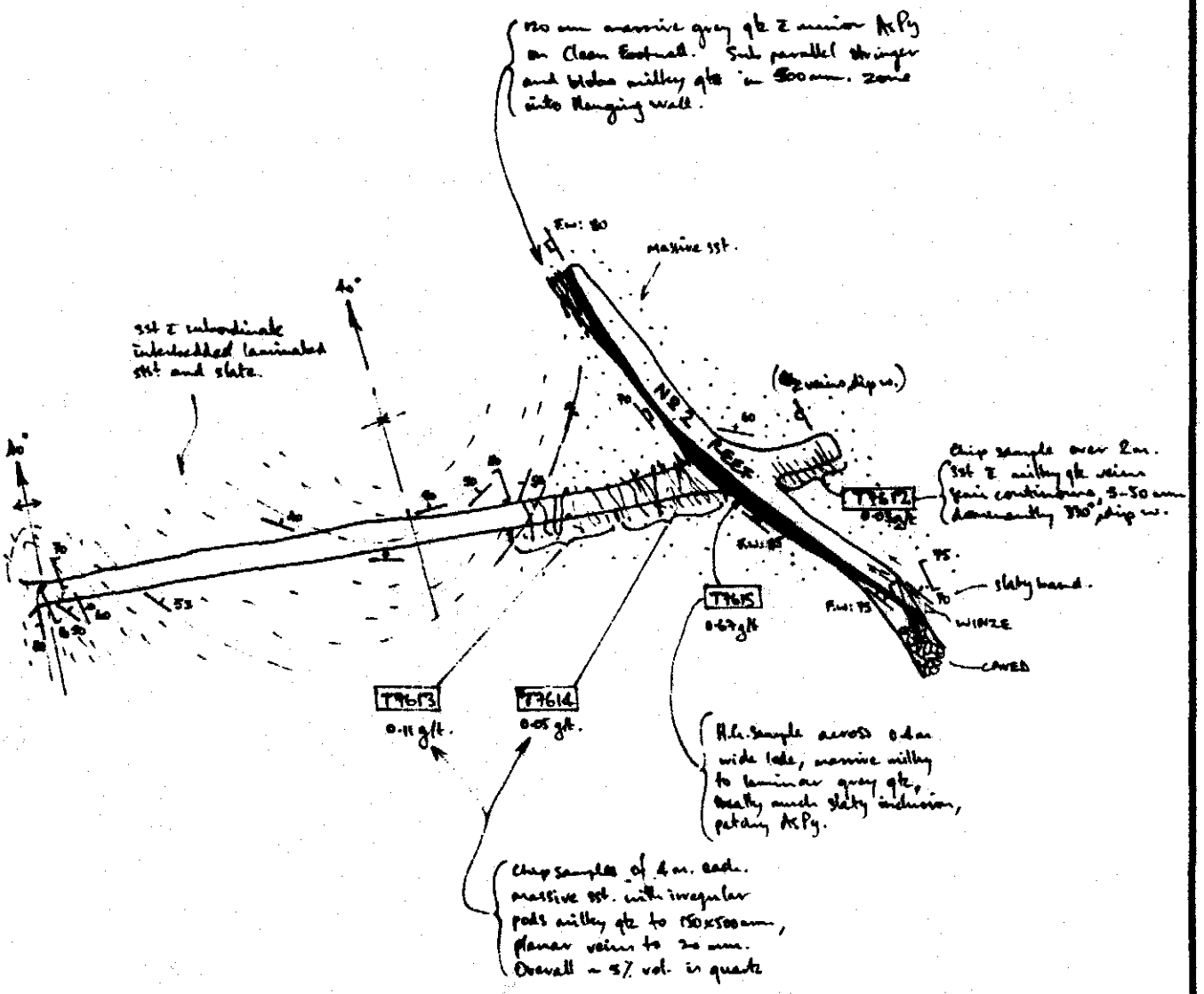
Our reconnaissance of the Mercury area found that the No 2 Adit was partly flooded and the timber sets in decayed condition. We made an attempt to drain the water intending to return later for an inspection. However time on the day did not allow this and a second opportunity did not arise.
We could not locate the lower No 3 Adit.

Our inspection of No 1 Adit revealed the geological information shown in Figure 17.
The No 2 reef as exposed north of the winze trends NW with a steep NE dip and is this semi conformable with bedding on the east side of the lode. Immediately west of the lode the country rock is massive sandstone in which I could find no confident bedding observations but further westward interbedded sandstone-siltstone-slate are folded about moderately NNW plunging axes.
The folds are upright and open to very tight.
Locally developed slaty cleavage seems to be more or less parallel to the axial plane of the tight folds near the portal.

Variable dip orientations in the No 2 Adit (Shown by Blake and Nye 1934, Plan IV), a 48° NNE dip in Mercury Creek below the mine (Plan 3, this report) and variable dips in the Point Adits (Fig 18) indicate fairly close folding in this area as at Rosalind etc.

One chip sample taken across the No 2 lode of 0.4m (T7615) assayed at 0.67g/tAu but Hills (1923) quoted values of upto 3-5oz/ton with an average of 1oz/ton.

854081

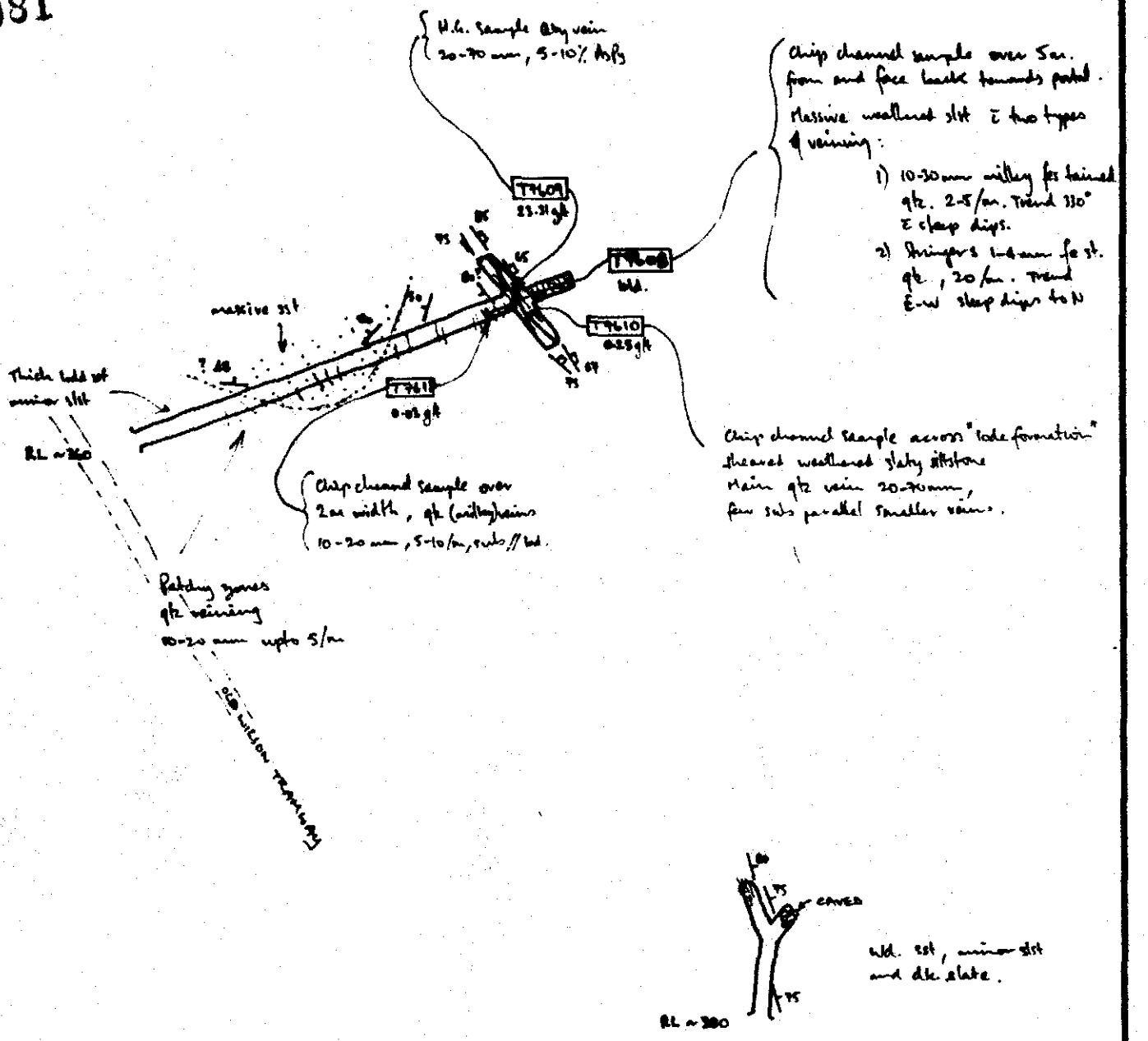


GOLD FIELDS EXPLORATION PTY. LIMITED		
E.L. 17/86 ALBERTON GOLDFIELD. MERCURY No 1 ADIT PLAN		DRAWN BY : DRAFTSMAN: DATE 4 : 87 REVISIONS : FILE NO.
SCALE 1:250	2.5 0 2.5 Metres	FIG. 17

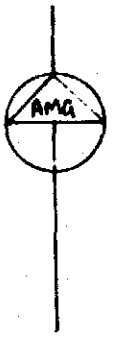
A 12548

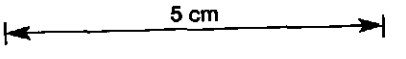
081

854082



wld. sst, minor slst and dk slate.





GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86

ALBERTON GOLDFIELD

POINT ADITS PLAN

DRAWN BY :

DRAFTSMAN:

DATE 4:87

REVISIONS :

FILE NO.

SCALE 1: 500

FIG. 18

A 12548

A fairly strong quartz stringer system with planar veins to 20mm and poddy discontinous veins upto 150mm, containing upto 5% quartz overall, occurs in the sandstone adjacent to both walls of the lode.
Our chip samples T7612 over 2m eastward from the lode and T7614, T7613 over 4m each consecutively westward from the lode, assayed 0.03, 0.05 and 0.11g/tAu respectively. Sampling by Roberts (1986) showed that the interval 8-14m westward from the lode contained less than the detection limit of gold. This weakly auriferous stringer mineralization is spatially related to the main lode and confined within massive sandstones.

Figure 18 depicts the geology observed in the Point Adits about 300m SW of the Mercury Mine.
In the northern (lower) adit the country rocks are indicate an open NNW Plunging synclinal fold with the NW-NNW trending lode cutting across or subparallel to its eastern limb in an arrangement analogous to the Mercury No 2 lode.
In the Southern Point Adit the bedding dips steeply ENE and although the lode is not now exposed Hill's (1923) strike 322° (magnetic) and dip 75°E suggests it is parallel to the bedding here.
One (high graded) sample (T7609) of the 20-70mm wide Point Reef over the northern adit assayed 23.31g/t and a chip sample (T7610) across the 0.7m weakly sheared zone parallel to and hosting the reef gave 0.25g/tAu. Hills (1923) refers to very rich values near the surface in the shafts ("17oz of gold from one bucketful of ore").
Weak stringer quartz veining in the northern adit, chip-channel sampled over 5m interval eastward of the lode (T7608) and 2m westward of the lode (T7611) returned <0.008 and 0.03g/tAu respectively.

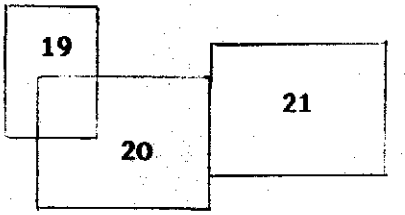
083

The stringer type mineralization in the Mercury-Point area does not offer much prospectivity on it's own, being of restricted (?) extent and low grade.

However the apparent close folding and probably partly bedding parallel lodes (Hills, 1923 considered that most of the other lodes in this vicinity (Frog, Reform and Boundary) were not of the fault fissure type) suggests that the structural control of mineralization and prospectivity may be similar to that of the Rosalind etc. area. (Section 6.1.7)

6.1.9 Long Struggle Area (Figures 19, 20, 21, 22)

The workings we visited in this area include Ragged Youth, Cross Reef, Long Struggle and Caxton No 1 and No 2 Reefs.
The information gained is shown on Figures 19,20,21 which adjoin as follows:



In the Ragged Youth adit the country rocks, dominated by fine siltstone and slate have a shallow westerly dip west of the lode and shallow easterly dip east of the lode which trends NNE with a steep easterly dip and is therefore clearly cross cutting.
The lode formation here consists of a 70-300mm wide zone of sheared slate with upto 50% of quartz as broken irregular pods and narrow laminar veins parallel to the walls. We obtained values in the range 1.86 to 55.17g/tAu (T7596-99) consistent with the grades previously reported by Twelvetrees (1904) of 34dwts/ton diminishing to 17-18 dwts/ton and Hills (1923) of 12oz gold from 14 tons of quartz.
Twelvetrees (1904) mentioned a total yield of 250-300 ounces of gold from this lode.
Significantly, the exclusively fine grained slaty rocks in the adit contain only very occasional quartz stringer veins.

In the adjacent Cross Reef Lower Adit the country rock is dominantly thick bedded sandstone with minor thin interbedded siltstone and dark grey slate. The bedding has a moderate to shallow dip consistently northwestwards over the 142m length of the adit.

085

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AMG

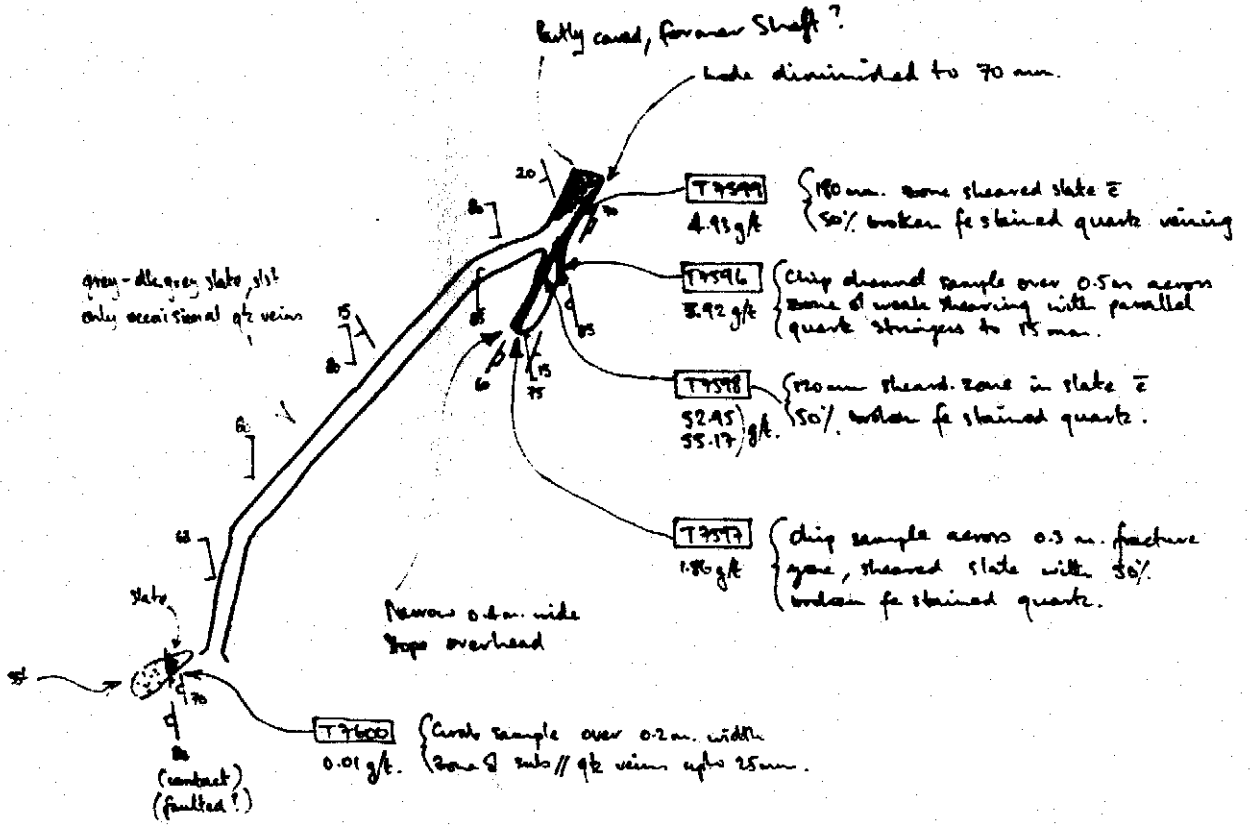
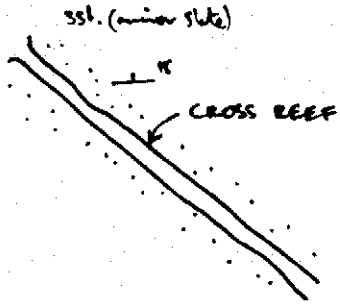


FIG: 20, NW CORNER

5 cm



OVERLAPS FIG:

GOLD FIELDS EXPLORATION PTY. LIMITED		
E.L. 17/86 ALBERTON GOLDFIELD RAGGED YOUTH ADIT PLAN		DRAWN BY : AK. DRAFTSMAN: DATE 4:87 REVISIONS : FILE NO.
SCALE 1:500	5 0 10 15 Metres	FIG. 19

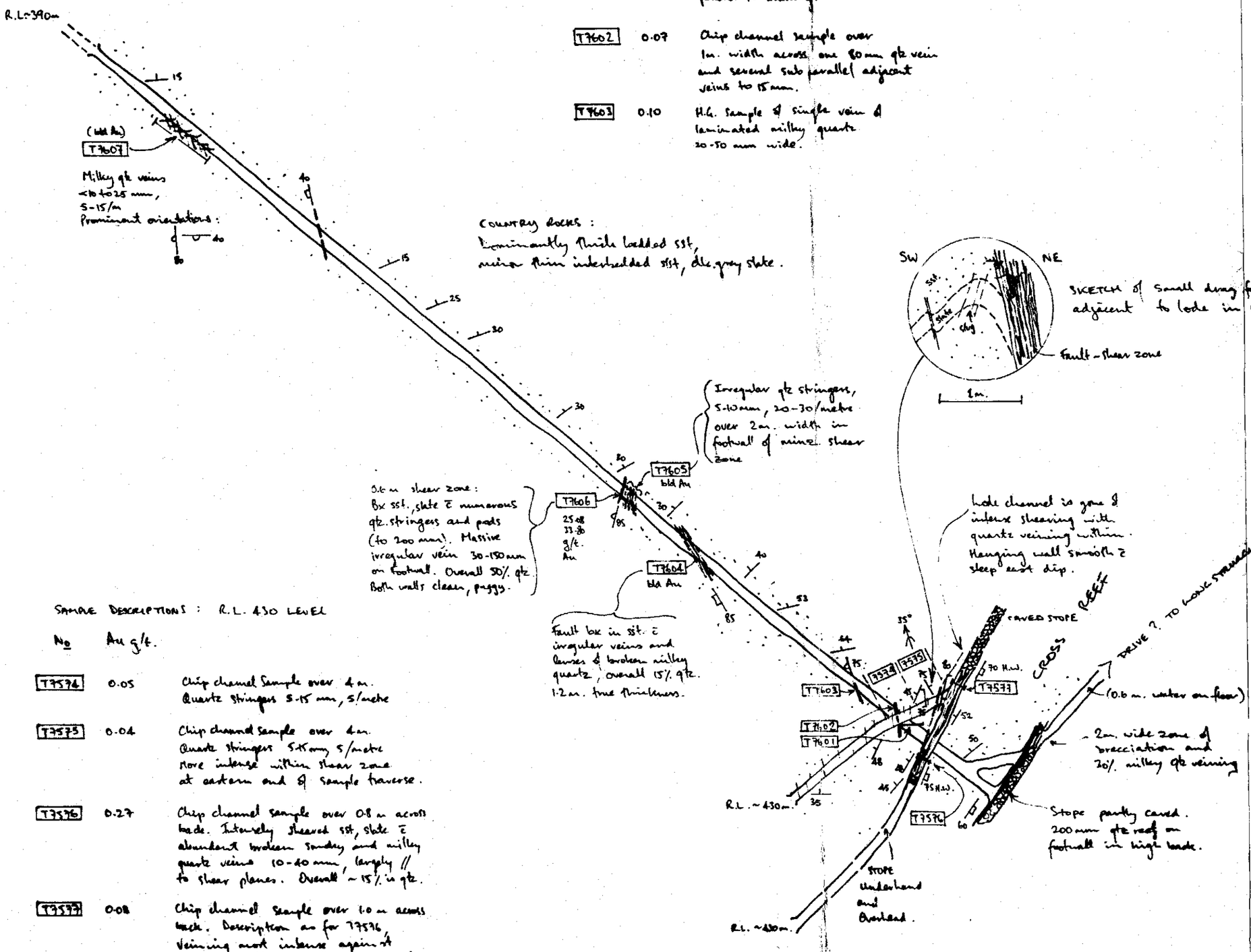
A 12548

OVERLAPS WITH FIG:

854087 086

SAMPLE DESCRIPTIONS : R.L. 390 LEVEL :

	No	Au g/t	
	T7601	1.79	40mm laminated qtz vein, parallel to bedding.
	T7602	0.07	Chip channel sample over 1m. width across one 80 mm qtz vein and several sub parallel adjacent veins to 15 mm.
	T7603	0.10	H.G. sample of single vein of laminated milky quartz 20-50 mm wide.



COUNTRY ROCKS :
Dominantly thinly bedded sst, minor thin interbedded sltst, dk. grey slate.

SKETCH of small drag fold adjacent to lode in Upper Adit.

SAMPLE DESCRIPTIONS : R.L. 430 LEVEL

No	Au g/t.	
T7574	0.05	Chip channel Sample over 4 m. Quartz stringers 5-15 mm, 5/metre
T7575	0.04	Chip channel sample over 4 m. Quartz stringers 5-15 mm, 5/metre More intense within shear zone at eastern end of sample traverse.
T7576	0.27	Chip channel sample over 0.8 m across back. Intensely sheared sst, slate & abundant broken sandy and milky quartz veins 10-40 mm, largely // to shear planes. Overall ~15% in qtz.
T7577	0.08	Chip channel sample over 1.0 m across back. Description as for T7576, veining more intense against hanging wall. Overall ~ 15-20% in qtz.

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86
ALBERTON GOLDFIELD
CROSS REEF ADITS
PLAN.

DRAWN BY : A.J.
DRAFTSMAN:
DATE 4.93
REVISIONS :
FILE NO.

SCALE 1:500 (0 5 10 15 Metres)

FIG. 20

A 12548

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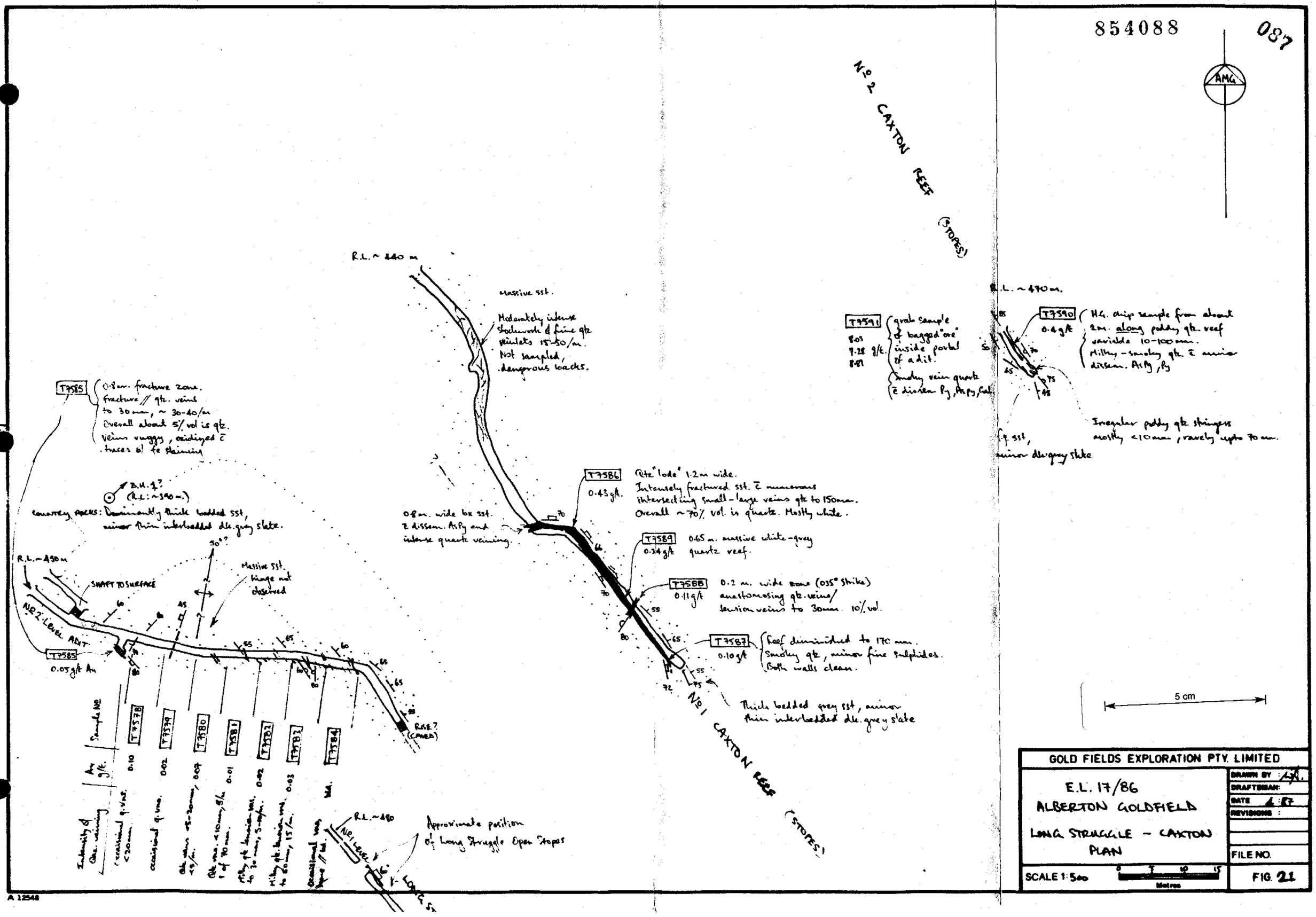
087



GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86
ALBERTON GOLDFIELD
LONG STRUGGLE - CAXTON PLAN

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DRAFTSMAN:
DATE 4.87
REVISIONS:
FILE NO.

SCALE 1:500 — 0 5 10 15 Metres

FIG. 21

A 12548

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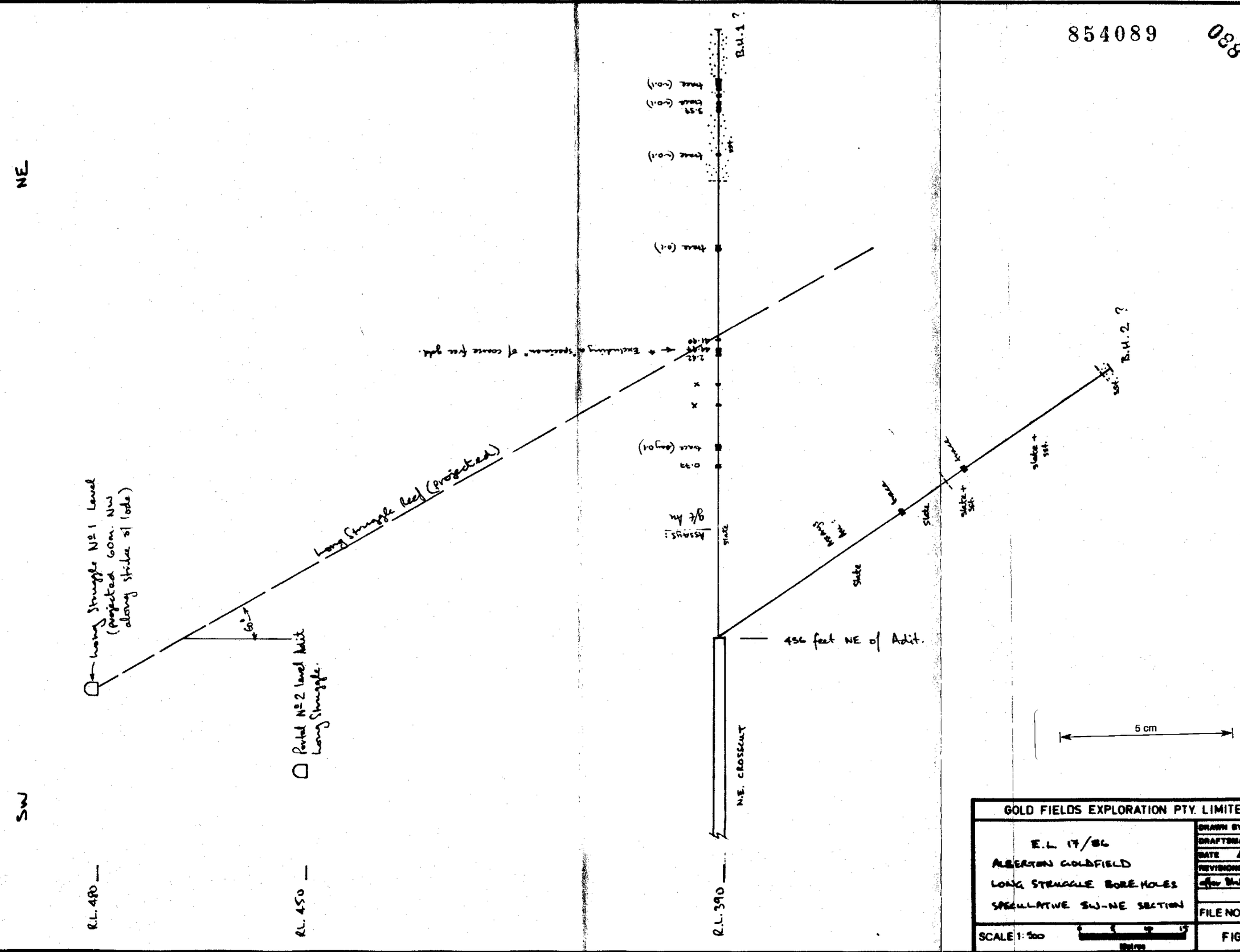


GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86
ALBERTON GOLDFIELD
LONG STRUGGLE BOREHOLES
SPECULATIVE SW-NE SECTION

DRAWN BY :
DRAFTSMAN:
DATE 4 : 87
REVISIONS :
after Blake, 1938

FILE NO.

SCALE 1:500

FIG. 22

A 12548

The Cross Reef bears NE sub parallel to the strike of the bedding but with a steep SE dip and is clearly cross cutting. The "reef" consists of a zone of intense brecciation and shearing upto 2m wide containing upto 30% quartz and I am in accord with Hill's (1923) interpretation of it as a fault fissure lode. A small anticlinal drag (?) fold in the footwall of the lode on the upper adit level suggests an eastside down and southwestward sense of displacement along the lode-fault.

Our chip channel samples across the lode at the upper adit level (T7576, 7577) assayed only 0.27 and 0.03g/tAu. In the lower adit, the lode had been stoped out overhead and was inaccessible whilst at the short ENE crosscut the back in lode looked so unstable I was afraid to touch it with a hammer. Hills (1923) gave an average grade of about 27dwts/ton (41.3g/t)Au.
A sample (T7606) representative of an 0.6m wide NNE trending lode (brecciated/sheared country rock with upto 50% quartz as veins and irregular blobs) at 83m in from the lower adit portal assayed at 25.08g/t with re assay at 33.8g/tAu. This lode was not driven on and seems to have been overlooked by the earlier prospectors.

Interestingly, a 2m wide zone of fairly strong stringer veining immediately east of this lode, sampled in T7605 assayed at $<$ 0.008 g/tAu. Furthermore, chip sample T7604 across a 1.2m wide fault fissure type lode with 15% quartz trending 335°/85°W at 93m from the portal also assayed at $<$ 0.008g/tAu, high-lighting the unpredictability of gold distribution.

Several other zones of quartz stringer veining we sampled in both upper and lower levels returned low values in the range $<$ 0.008-0.05 g/tAu leading me to the conclusion that the stringer mineralization in this vicinity offers no prospectivity.

The Long Struggle Reef has been stoped to surface over most of its known length (100m). The stopes indicate a dip of about 60° to the NE which as recognized by Hills (1923) is parallel to the bedding here.
In the first part of the No 2 Level Adit (Figure 21) the bedding dips to the NW, somewhat steeper but more or less consistent with the orientation close to the Cross Reef. Further in, however, the bedding dips consistently NE at 55-65° inferring a moderately north plunging anticlinal fold with it's axis around about 28m from the portal. The rock here is massive sandstone and I could find no trace of a fold hinge which, however, must surely exist (unless the west dipping fault observed just west of the postulated fold axis has been the means of juxtaposing opposite dips?)

Twelvetrees (1904) stated that this level had been driven easterly for 200ft (61m) and then 88 ft (27m) southeasterly on the lode line and he was disappointed that the easterly cross cut had not been extended further because the southeast drive had "only picked up the reef-quartz in approaching the end".

This southeast drive is now only about 10m in length being blocked by caving from above, possibly at the position of a rise, so we were not able to observe the lode.
Hills (1923) reported it to be of varying thickness, averaging 0.3-0.4m and about 30dwts/ton (46g/t)Au.
Patchy quartz stringer veining (partly parallel to bedding) and tension veining (mostly NE strike, sub vertical) of low to moderate intensity occurs along the eastern cross cut. We chip sampled the interval 18-53m from the portal in seven 5m sections (T7578-84) which returned assays in the range $<$0.008 to 0.10g/tAu (which, incidentally, have little correlation to the estimated intensity of veining).

Blake (1938) briefly presented the results of a three hole drilling program carried out by the Tas. Dept. of Mines at Long Struggle in 1937. The location of the holes is in some doubt.
Of the No 1 Borehole, Blake's report states:
"This hole was horizontal and located in end of north-easterly cross cut at 456 feet from main (lower) adit cross cut.
It was directed in a southeasterly direction to intersect the northern extension of Long Struggle Reef".
The "southeasterly direction" must surely be a typographical error since the reef has a south easterly strike. I'm uncertain whether the "main (lower) adit cross cut" refers to the No 2 level adit at Long Struggle (R.L.~450m, Figure 21) or the lower adit to the Cross Reef (R.L.~390m Fig 20) but I suspect it means the latter.The latter does have a north east drive at the end (can we trust Blake's typist?) though you would hardly call it a cross cut since it runs sub parallel to the bedding and the Cross Reef.
We did not investigate this drive for three reasons:

1) dangerously unstable looking back where the drive crosses the Cross Reef.
2) 0.6m deep water clouded with a heavy colloidal suspension obscuring the floor.
3) it was not charted by Blake and Nye (1934) Plan IV and might contain hidden pitfalls.

A distance of 456 feet NE of the end of the main adit (R.L.~390m) would give a position about 20m NE of and 60m below the portal of the No 2 level Adit at Long Struggle which seems like a pretty fair place to site a horizontal, northeasterly bearing hole designed to test the northern extension of Long Struggle Reef (Fig 22).
However, I'm again thrown into confusion by the location of Borehole 2 stated to have "commenced from the same position as No 1 and, with the object of cutting Long Struggle Reef at a greater depth, It was depressed at an angle of 55°". No bearing was given but presumably it would also be northeast.
At an angle of 55° it would be drilling almost parallel to the dip of the reef.

If my speculative geological section (Figure 22) has the boreholes in the correct positions, then the high grade intersections in Borehole 1 are spot on target and Borehole 2 never had a chance of success.

McOnie (1983) calculated the weighted average of the gold values given for Borehole 1 in the interval 81-266 feet to be 1.26g/t over 56m. Unfortunately McOnie fell foul of another of the ambiguities in Blake's (1938) report and his weighted average value is incorrect. The assay results table for Borehole 1 reads in part as follows:

	Gold			Silver		
	oz.	dwt.	grs.	oz.	dwt.	grs
First half 136' to 138'	0	0	19	0	0	15
Latter half136' to 138'	3	4	12	0	3	18

with a note at the bottom explaining:

"A specimen from midway between 136 feet and 138 feet showing coarse free gold was excluded from the sample and not assayed".

McOnie (1983) has, quite reasonably, not noticed this trick of quoting two values for the interval 136-138' and has put into his calculation 2' at 19grs and 2' at 3oz 4dwts 12grs.
Taking the assay table strictly literally (does one dare?) and calculating for one foot each at those grades, the weighted average gold value for the interval 81-266 feet (56.4m) falls to 0.72 g/t.

In the entire (assayed intervals of the) hole there are only four lode formations carrying greater than 1g/tAu. Three of these are within one 8' (2.44m) section which runs at weighted average 15.26g/tAu situated exactly at the expected position of the Long Struggle Reef and the other is a 2'1" (0.63m) lode carrying 3.57g/t Au located 33m east of the above.

My interpretation is that at this northern extension the Long Struggle Reef has split up into three tracks (not all that surprising as it is known to parallel the bedding) still carrying good gold over an (apparent) overall width of 2.44m (cf: Cross Reef at 2m; Premier Lode upto 1.83m (Mills, 1923); Crown Prince upto 1.8m.). The 0.63m lode with 3.57g/tAu is a separate formation. The weighted average value is really carried by the "Long Struggle - north extension lodes"; if the 0.63m at 3.57g/t is left out of the calculation the weighted average drops only slightly to 0.68g/tAu.

McOnie's (1983) statement that Borehole 1 "intersected at least 12 veins ranging in width from 0.15m to 1.5m and ranging in gold content from 0.8g/t to 98.7g/t" implies that all of the 12 veins carry gold which would significantly boost the bulk grade.
The hole did intersect 12 lodes; 13 if one counts the "slate and quartz" in the interval 110'6" - 111'1". Twelve intervals (more or less corresponding to the lodes) were assayed. Of these twelve assayed intervals, two carried "nil" gold, five had a "trace" and five carried gold ranging from 0.77g/t to 49.97g/t.
Of the latter five, only two carried greater than 5g/tAu.

The Caxton No 1 Reef lies near parallel to and about 30m north eastward of the Long Struggle Reef. Only the lower level adit is now accessible,the two upper levels (Twelvetrees, 1904) having been converted to open stopes.
In the inner part of the lower adit (Fig 21) the lode (variable in width from 1.2m down to 0.17m) parallels the strike of the bedding in the enclosing sandstone and very nearly the dip also but is perhaps a few degrees steeper, to the NE. At the inner end, the narrowed lode swings away slightly westward of bedding strike.
At the bend in the adit at about 43m from the portal the lode takes a pronounced turn westward with a 70° dip northwards and disappears into the westwall of the drive. Unfortunately the country rock here is extremely massive and I was unable to determine whether this bend in the lode follows the bedding and represents a saddle reef.

The bend is rather too far east to correlate with the anticlinal axis inferred in the Long Struggle No 2 Level Adit but could conceivably represent a minor flexure on the limb of this fold. If the Caxton No 1 lode straightens out and swings back to north westerly strike to the north west of the observed bend then it could very well represent the 0.63m lode carrying 3.57g/tAu intersected near the end of the Long Struggle Borehole No 1.

Our several chip samples across the Caxton lode in the adit (T7586-89) carried gold in the range 0.1 to 0.43g/t which probably explains why stoping has not been carried out this far north.
Twelvetrees (1904) reported average grades of 10 to 17dwts/ton from the upper level stopes.
A fairly strong network of quartz stringer veins (15-50 per metre) occurs in massive sandstone over the interval 10-30m in from the portal but I was not game to sample it for fear of disturbing the unstable looking back.

At the upper (SE) end of the No 2 Caxton Reef about 70m northeast of No 1 the former is exposed in a short adit driven on the lode. (Fig 21) The enclosing country rocks dip at moderate angles to the north east. The rather poddy and discontinous lode has a subparallel NNW strike but much steeper dip mostly to the NE and must cut across the bedding.
A sample from the lode in the back (T7590) gave us 0.4g/tAu whilst another grab sample of reef quartz in a number (perhaps 15?) of partly decomposed sacks stacked along one wall of the adit returned values (in three re assays) in the range 7.28 to 8.81g/t Au.

The north easterly dip of bedding here invites one to believe that there has been no change of dip direction in the 120m or so between here and the inferred anticlinal axis in the Long Struggle No 2 Level Adit implying that folding hereabouts is relatively broad and open.

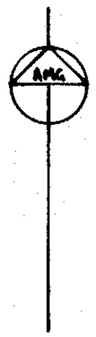
However, the normally reliable Blake & Nye (1934, Plan IV) show westerly dips in the gully about 10 and 40m downstream and also about 50m upstream from the No 2 Caxton Reef. If these are correct then north trending anticlinal axes occur at intervals of 100m or so.

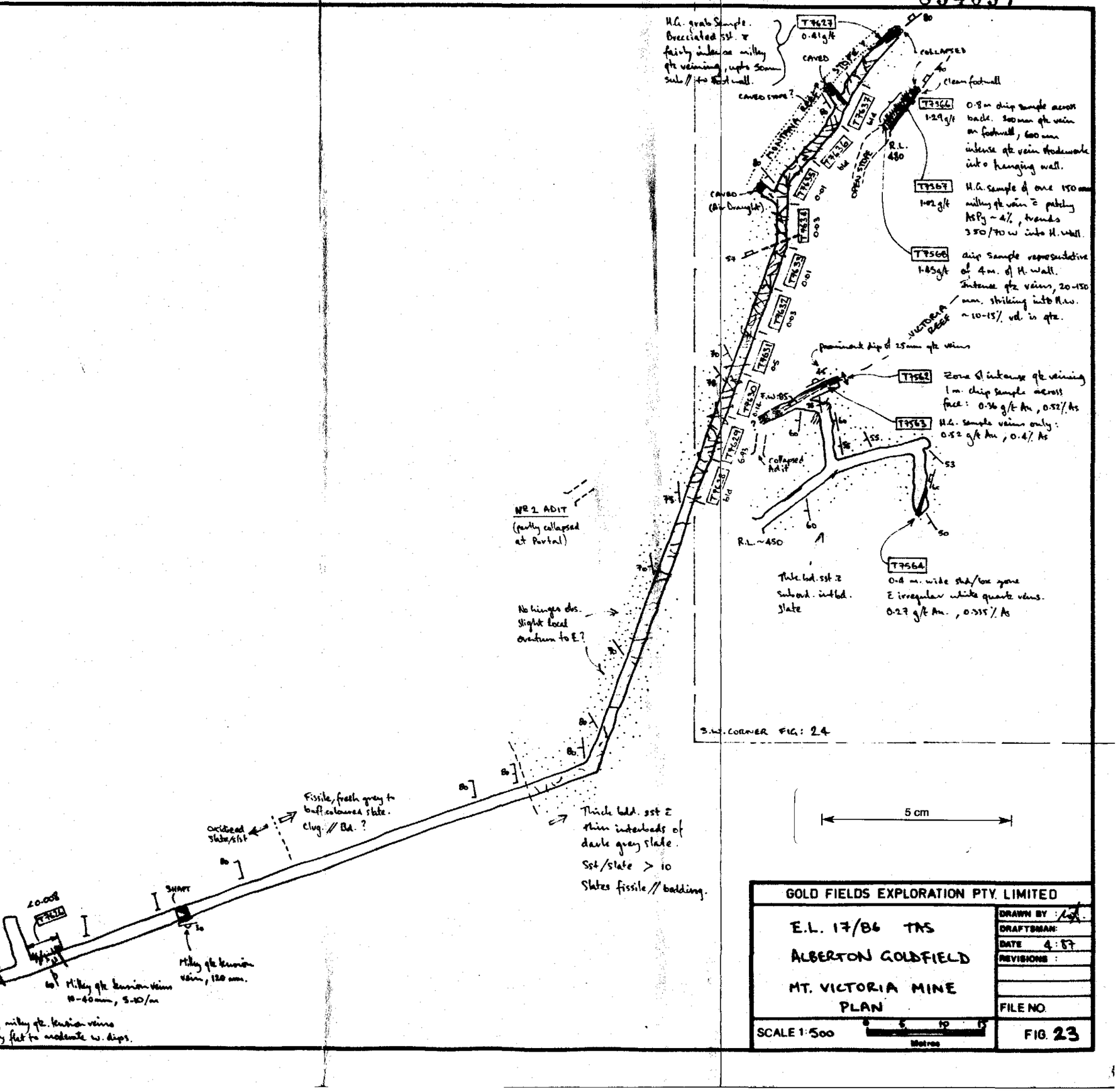
The Long Struggle area compares with the Rosalind-Premier etc area in containing a fairly high frequency of (known) gold rich reefs and may therefore be prospective for a bulk mineable resource. As in the Rosalind area, a number of the reefs are parallel to bedding in the enclosing country rocks, suggesting that greater intensity of reef development occurred where the deformation stress conditions caused dilation or shearing along bedding planes. This would be of obvious exploration significance but unfortunately the particular structural setting is not yet clear. Furthermore, it is clear (for instance in the Long Struggle Bore Holes 1 and 2) that a high frequency of lode formations does not necessarily indicate a high frequency of gold rich lodes for which the controlling factors are even more obsure.
Our investigations in this area have not indicated significant potential for quartz stringer-stockwork type mineralization.

6.1.10 Mt Victoria Mine (Figures 23,24)

This mine was one of the major producers of the Alberton Goldfield with a recorded production of 5128 ounces of gold apparently from ore of about 26.7g/t average grade. (McOnie, 1983, Table 10.1)

There are two major parallel lodes (Montana and Victoria, see Figures 23,24) striking NE, dipping 70°-80° to the NW and separated by an across strike distance of about 25m.





GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86 TAS ALBERTON GOLDFIELD MT. VICTORIA MINE PLAN	DRAWN BY : DRAFTSMAN: DATE 4:87 REVISIONS : FILE NO.
SCALE 1:500 (0 5 10 15 Metres)	FIG. 23

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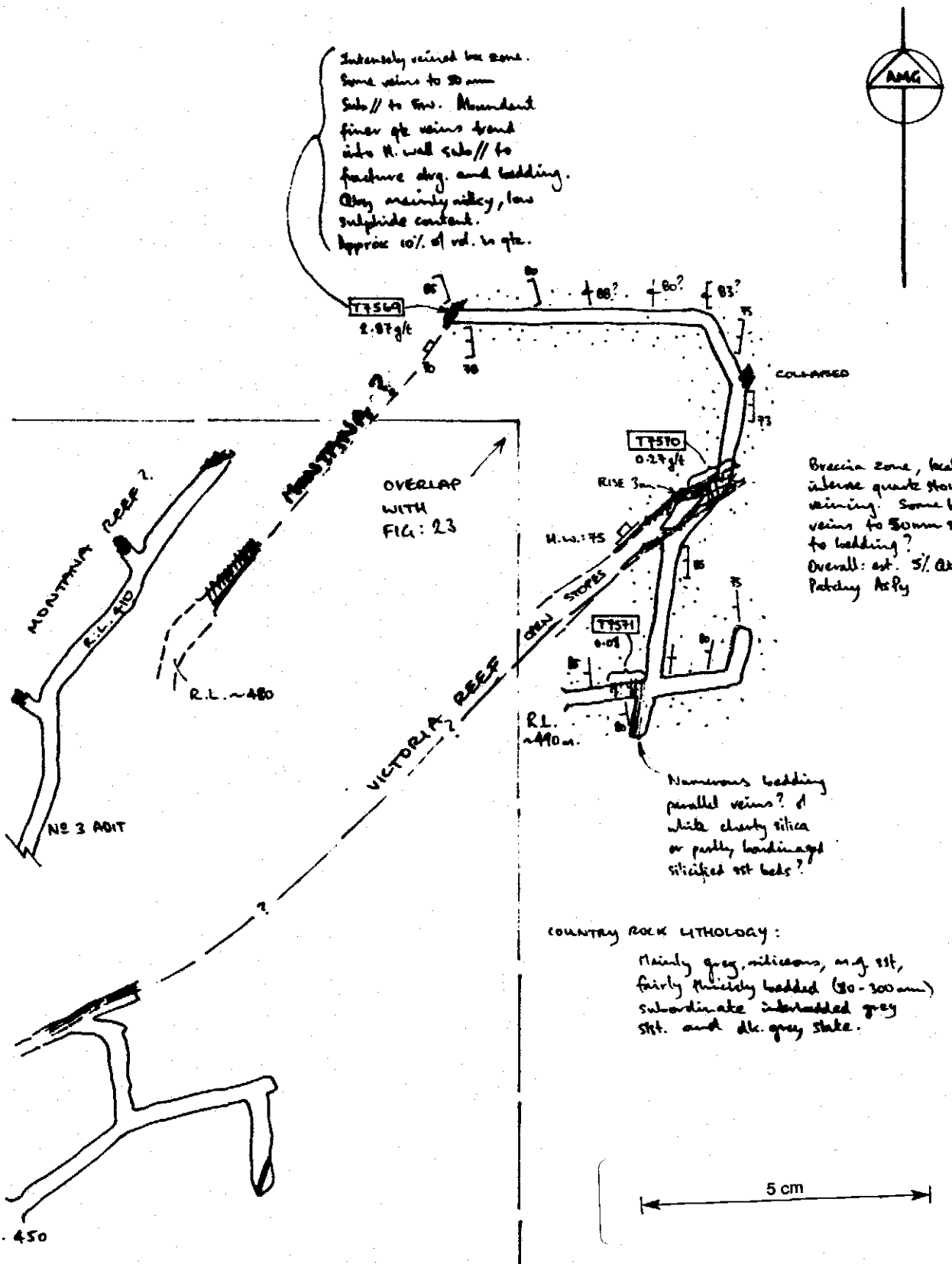

COUNTRY ROCK LITHOLOGY:

Mainly grey, micaceous, m-g sst, fairly thickly bedded (30 - 300 mm) subordinate interbedded grey slst. and dk. grey slate.

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86 TAS.

ALBERTON GOLDFIELD

MT. VICTORIA MINE PLAN

NORTH EASTERN WORKINGS

DRAWN BY:

DRAFTSMAN:

DATE 4:87

REVISIONS :

FILE NO.

SCALE 1:500

Metres

FIG. 24

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Blake and Nye (1934, Plan IV) show a "Central Reef" subparallel and between the above two reefs. I do not think we encountered the Central Reef in our underground inspections and was unable to obtain a copy of Twelvetree's (1900) report which would no doubt throw some light on the matter.

The Montana Reef as exposed in the upper adit (R.L.~480m) trends 040°/dips 70°NW and is at least 0.8m wide consisting of an 0.2m thick vein of fractured milky quartz on the foot wall and 0.6m of intensely brecciated country rock with intense network of quartz veins mostly striking at 340°/70°W into the hanging wall for an unknown distance. Our chip sample (T7568) over 4m of this hanging wall assayed 1.45 (check 1.07)g/tAu which is interesting but not surprising in that this material appears to form part of a fault fissure type lode channel. It is a pity that no cross cut exists in which we might have observed the extent of this heavy veining into the hanging wall (and the foot wall?)

On the No 3 Adit Level, approximately 70m below the upper adit, two crosscuts and the end of the adit all presumably leading into a drive or stope on Montana Reef are now collapsed and we could not get a look at the reef.
From the upper north eastern adit (R.L.~490m, Figure 24) the northerly drive which crosses the Victoria Reef and then swings westerly, ends in a lode formation trending 35°/70°NW and of similar character to that described above from the Montana upper adit. This lode is probably the northward extension of the Montana. Our sample of the face (T7569) gave a grade of 2.57 (check 2.87)g/tAu which was evidently insufficient to entice the earlier prospectors to carry the drive on through the lode. The foot wall is fairly sharp with a few quartz stringers within about 0.5m of the foot wall but none further back.

This same level crosses the Victoria Reef just northeast of the main open stopes. In the drive the reef is represented by a zone of strong shearing and brecciation some 2-3m in thickness with discontinuous quartz veins to 50mm carrying some arsenopyrite and strong network of fine intersecting quartz stringers. About 5% of the volume would be quartz. Our sample T7570 assayed only 0.27g/tAu. The same type of formation is exposed in the partly caved drive along the lode at the R.L.~ 450m level (Figure 23) where our representative chip sample (T7562) over 1m width assayed 0.36g/tAu.

So it seems that the formerly productive part of the Victoria Reef was confined at these levels between the two exposures just described, a plan distance of 60m. Hills (1923) stated that the length of the lode varied from 30m to 90m according to the depth and that the width varied from a "few inches to 5 feet". The average grade seems to have been around 24g/tAu.

The results of our systematic chip sampling along the No 3 Adit (T7629) suggest that the Victoria Reef "makes" again at this level although I did not notice it and the old timers did not develop it there.

In the upper adits mineralization is virtually confined to the lode courses and stringer veining in the country rocks is very minor. In the No 3 adit, however, the entire length of the tunnel beyond about 112m from the portal carries a moderate to high intensity of quartz stringer veining in sandstone country rocks. The subordinate interbedded dark grey slate bands usually do not have quartz stringers. The stringer veins are mostly in the range 1-5mm thick but not uncommonly upto 15mm composed of clear to milky quartz often with minor arsenopyrite and pyrite. Lesser pyrite also occurs as fine disseminated euhedra in the sandstone country rock.

My estimate is for bulk sulphide content to be around 0.1% of volume. Orientation of the stringers is highly variable and in the more intensely veined areas they are randomly intersecting. Some of the larger (>10mm) veins seem to have preference for flattish or east-west striking/semi vertical orientations.

The walls are rather mucky and its difficult to get a good estimate of vein intensity which is locally rather variable; my guess is that intensity is in the range 20-60 veinlets/m from 160m to the end of the adit. Intensity seems to be somewhat lower in the interval 112-160m from the portal but this is really rather subjective.

Our samples (T7628-T7637) of this stringer veining were taken in consecutive 6m lengths in the interval 160-220m from the portal. Due to the very hard sandstone country rock it was difficult to get a good channel sample and so the samples actually consist of numerous chips which are hopefully representative of the intervals. Assays from the 60m interval thus sampled ranged (from < 0.008 to 6.93g/tAu (Figure 23) with only three intervals above 0.1g/t. The 6.93g/t value is from a section pretty well on strike with the Victoria Reef and although I didn't recognize it in mapping the No3 adit I am convinced that this high value is related to a south west continuation of the reef. The two 6m sections immediately north of this went 0.14 and 0.50g/tAu but further north the values are negligible.

The 18m interval from 166-184m from the portal averages 2.52g/tAu which is the best result we have encountered in our sampling of quartz vein stringer systems.

Judging by some of the material on the mullock dump the lower No 4 adit also contains some similar stringer mineralization. (T7572 and T7573 are grab samples of stringer veined sandstone from No 3 and No 4 adit mullock dumps containing 2.98 and 2.08g/tAu respectively.) Unfortunately, we could not locate the No 4 adit entrance.

This strong stringer mineralization in the lower adits is in marked, but not obviously explicable, contrast to the situation in the upper adits where stringer veining is virtually absent in identical country rocks.

The Montana and Victoria Reefs appear to be of the fault fissure type cutting across the bedding of the country rocks. Bedding in the area is generally steep to the west and south west. There are occasional steep easterly dips in the No 3 adit and the upper (north eastern) adit but in no case could any trace of fold hinges be discerned and I am of the suspicion that these represent local slight easterly overturnings.
There is slight flattening of the westerly dip to 50° in the R.L.~ 450m adit but whether this indicates a dip reversal (fold) in the area of no exposure between here and the upper adit or merely an inflection on the general westerly dip, is uncertain.
Although it is imperfectly understood the structure of the country rocks at Mt Victoria Mine does not seem to very well match the apparent pattern of open north plunging folds inferred or observed in the Long Struggle-Mercury area.

The occurrence of three known reefs within a 25m width at Mt Victoria Mine makes it a contender for the bulk mining of reef gold type target with the possibility of localized quartz stringer mineralization to boost the bulk grade. A fourth lode was cut in the eastern arm of the R.L.~450m level and there could be several more to the NW or SE of the developed lodes.

6.1.11 Esk Reef

The Esk workings are located about 1.4km south of the Mt Victoria Mine. According to the orientation of the open stope (Figure 25) and Hills (1923) the reef trends ESE and dips to the north. Twelvetrees (1904) reported that the reef in the stope was not more than 100m wide and the average value seems to have been unpayable at less than about 15g/tAu.

During our inspection I could find no trace of a reef in the eastern end face of the stope and the adit below is caved at about the point where it met the lode. Close to the caved end in the adit is a rather spurry, discontinous quartz vein with patchy arsenopyrite trending at about 60°, subvertical with width upto 80mm. A representative chip sample, of the vein only, gave an assay value of 7.23g/t.

Country rock in the adit is massive slaty siltstone not carrying any quartz stringer veins. At the stope above, the country rock is massive sandstone. On the hanging wall of the stope is a locally developed fairly strong quartz stringer network of veins in the range 1-5mm, 30-50/m and sub parallel to prominent joints oriented 100°/20°N. Our chip channel sample over 0.5m width (T7659) assayed at 0.03g/tAu.

6.1.12 South Star

The South Star prospect is located about 400m south west of the Esk Mine.

I was particularly interested to see it because Hills (1923) reported the presence, adjacent to the main lode, of "a zone of gash veins in the country rock some of which carry good gold", although he did not consider "that this stockwork would ever be workable".

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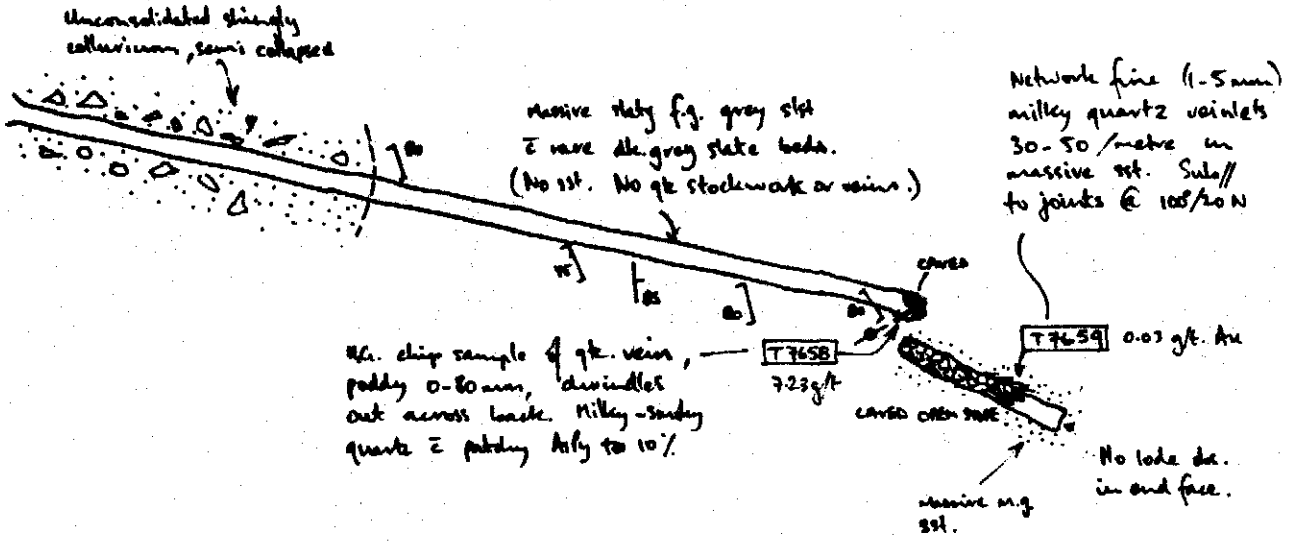

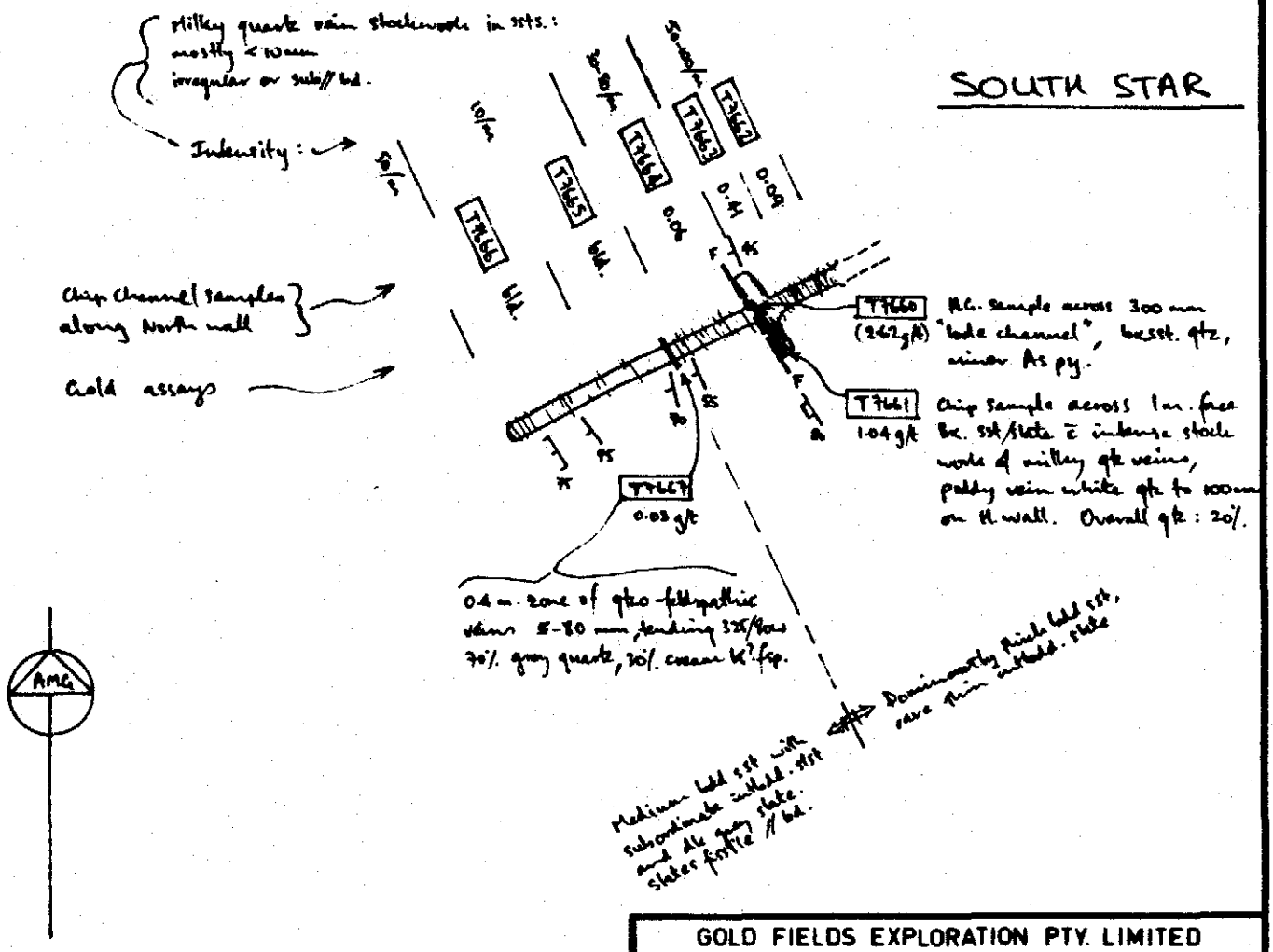

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GOLD FIELDS EXPLORATION PTY. LIMITED	
EL. 17/86 ALBERTON GOLDFIELD ESK AND SOUTH STAR PLANS	DRAWN BY : DRAFTSMAN: DATE 4:87 REVISIONS : FILE NO.
SCALE 1: 500 (0 5 10 15 Metres)	FIG. 25

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Figure 25 shows the geological details from the adit. The main lode appears to be of the fault fissure variety with a sharp hanging wall striking NNW with steep westerly dip. The lode consists of brecciated sandstone with much semi parallel and irregular-poddy milky quartz veining in a zone about 1m wide in the southeast cuddy, dwindling away in the northwest cuddy. Two chip samples across this lode (T7660, T7661) assayed 2.62 and 1.04g/t respectively.

The country rock is sandstone with minor interbedded siltstone and dark slate (increasing inwards) striking NNW parallel to the lode but with a flatter (45-75°) westerly dip.
Strong stringer quartz veining exists in the walls particularly from the portal to about 12m in and again at the end of the adit. Veins are mostly < 10mm thick of irregular orientation or sub parallel to bedding, and occur in intensity upto 50-100/m.
We chip sampled the entire 25.5m length of the adit in five sections (T7662-7666) but only one of these assayed at over 0.1g/tAu.
This was T7663 in the interval 3-6m from portal which has probably picked up a bit of the foot wall of the main lode to account for its assay of 0.41g/t.
I have no doubt that some of the stringers, as Hills (1923) states, "carry good gold" but the indications of bulk grade away from the main lode are unpromising .
A high graded sample (T7667) of weathered quartz-feldspar veins within an 0.4m wide zone at 12m from the portal assayed at 0.03g/tAu and Sn, W, Mo below detection limits.

6.2. New River - Alberton Overview

As evident from Plan 3 most of our structural information is derived from accessible adits from South Star to Prendergast, from a short section of outcrop along Alberton Road and fairly continous outcrop on the Mt Victoria Road.

Along Mt Victoria Road, bedding dips are predominantly westerly; fairly steep near the belt of gold prospects but with a remarkable shallowing of dip in the area south eastward from Crown Prince Mine. A few easterly dips suggest the presence of a couple of fairly close spaced shallow NNW plunging fold axes centred about 700m east of Crown Prince, but south of there the dips and facings are consistently moderate and westerly. Within a few hundred metres of the Permian (?) unconformity on the north flank of Mt Victoria shallow to moderate easterly dip and facing indicate a broad, open anticlinal hinge plunging at very shallow angle to the south. The cleavage, generally not very pronounced, appears to be more or less parallel to the strike of the axial planes of these NNW and SSE (?) plunging folds and the sense of bedding cleavage intersections in both areas is sympathetic to the direction of plunge.

Along the line of the goldfield from Prendergast to the Rosalind-Strahan area bedding dips are steep (mostly $\geq 60^{\circ}$) and appear to be folded about shallow NNW - N plunging folds (which are, unfortunately, mostly inferred). Indications in the Rosalind area are that folding is tight with a wavelength of 100m or thereabouts and in the Hannah adit the folds are slightly overturned adjacent to a shallow NW dipping fault. In contrast, in the Strahan adits tight minor folds are observed to plunge shallowly to steeply to the SSE but some of this deformation may relate to "drag" on a steep NE dipping fault which appears to have had a "reverse" sense of displacement.

Further south, in the Mercury-Point workings, bedding outlines folds plunging at about 40° to the NNW and again there is evidence that frequency of folds is high and that locally developed cleavage is approximately axial.

At the Long Struggle area fold plunge is also northerly. My observations suggest a broad anticlinal fold but some additional bedding measurements by Blake and Nye (1934, Plan IV) suggest close folding of wavelength about 100m.
South of here, the structural observations are too few to outline the fold pattern but the generally steep dips in the Mt Victoria, Esk and South Star workings tend to imply close folding.
Along the Alberton Road section dips are predominantly steep to the west with a few easterly dips indicating tight assymetrical folds about axes plunging at low angles to the SSW.

To summarize these observations, the gold bearing lodes appear to occur:

(a) Westward of an area of broad folding characterized by moderate bedding dips and gentle plunge to SSE and NNW.
(b) Within a zone of tight folding principally about axes plunging NNW - N, at shallow angles in the northern part of the field and progressively becoming steeper southwards.
(c) Eastward of an area of tight assymetric folding (short east dipping limbs) about shallow SSW plunging axes.

I am cautious about over interpreting these factors, in the belief that the observations are too few, the "gaps" too great and the area mapped too small.
I have been unable to recognize any significant lithostratigraphic subdivisions within the host rocks to elucidate the structural pattern.

Based on the exposure at the Spur running northward from the Cash's Falls area (3km east of the goldfield) Hills (1923) recognized a stratigraphic succession comprising black slates (at the base) followed by yellow argillaceous sandstones overlain in turn by grey slates interbedded with quartzites and sandstones, succeeded by sandstones and quartzites with narrow beds of light grey slate which are finally overlain by feldspathic sandstones.

Hills considered that the goldfield occupied a single well developed anticline which exposed the lower black slate member which was supposed to host the most important lodes. The anticline described by Hills (1923) had a general NNW trend with slight bends between 330° and 345° (magnetic). He noted that the greater intensity of lodes occured near the position of the bends in the anticline. However, Hills' maps showing very few bedding measurements are unconvincing. They do not take into account the apparent close folding which has since been observed.
Hills suggested a structural-genetic link between the existence of a west dipping double thrust fault (exposed below Cash's Falls and pictured by Threader, 1967; Figure 34) which he thought may have acted as a channel way for the reef mineralizing solutions and separated a relatively undeformed block of country east of the faults from a more deformed overthrust block in which the controlling anticlinal fold was formed.

I think this is a simplistic explanation based on too few structural observations but the conceptual similarity of Hill's cross section (Plan IV, 1923) and my Figure 16 is interesting.
I think it is likely that fold development has been associated with at least minor thrust faulting.

The known lodes have rather variable orientations but mainly NW-NNW and NNE-NE. Fault fissure type (cross cutting) and bedding parallel lodes of both orientations are present.
I suspect that the two styles are structurally related perhaps along the lines of Hill's (1972) Figure VIII-40,A (after Stillwell, 1917-19).
The bedding parallel lodes are probably related to bedding plane slip rather than to dilation as in saddle reef development.
This implies that interbedding of variably competent rock types (which is common) as well as fold style and intensity are important controls on lode formation.

I have noted an apparent correlation of the prescence of bedding parallel lodes and the areas of greater vein intensity which may be of exploration significance if the structural controls were established. There are several areas in the New River-Alberton Goldfield, notably the Rosalind-Premier etc group, Long Struggle and Mt Victoria Mine areas; where a known relatively close spacing of gold rich reefs suggests potential for "bulk mining of several reefs together" type target.

On a cautionary note for exploration though, it must be pointed out that not all the lodes are auriferous, gold distribution in the lodes is very inconsistent and the lodes are notoriously variable in thickness.
For these reasons and lack of complete grade/width data I am unable to confidently calculate possible bulk grades for some of these more prospective areas.
Nevertheless I would estimate that bulk grades approaching one, or perhaps two, grams/tonne gold once existed over widths of several tens of metres at the three designated mines.

In the Rosalind and Mt Victoria areas our sampling indicated potential for at least localized zones of quartz stringer vein mineralization which could contribute upto 0.5g/t gold. Elsewhere, however, quartz stringer veining, though quite widespread, generally carries < 0.1g/t Au.

110

7. DAN VALLEY GOLDFIELD

This lies south of the Alberton Goldfield representing that part of the goldfield belt lying between the Una Plain and the South Esk River.

We spent only two days in reconnaissance mapping and seeking out mine workings in the Dan Valley.
Most of the area is now State Forest, substantially planted with Radiata Pine. There is a good network of forestry roads which in places provide good geological exposure in roadside cuttings and I suspect that a fairly good geological structural map could be produced from a patient search for exposure.
On the other hand, mining here seems to have been carried out largely by way of shafts and less by adits which elsewhere have been the main stay of geological exposure.
We successfully located and attempted to map the Revenue Adit but could not find the Bright Star Workings which appear to have been obliterated by forestry operations.

7.1 Revenue Adit

(See Figure 26)

The Revenue Prospect is located in an area of young Radiata Pine plantation but despite the obvious surface disturbance related to forestry operations, the adit is still in good condition.

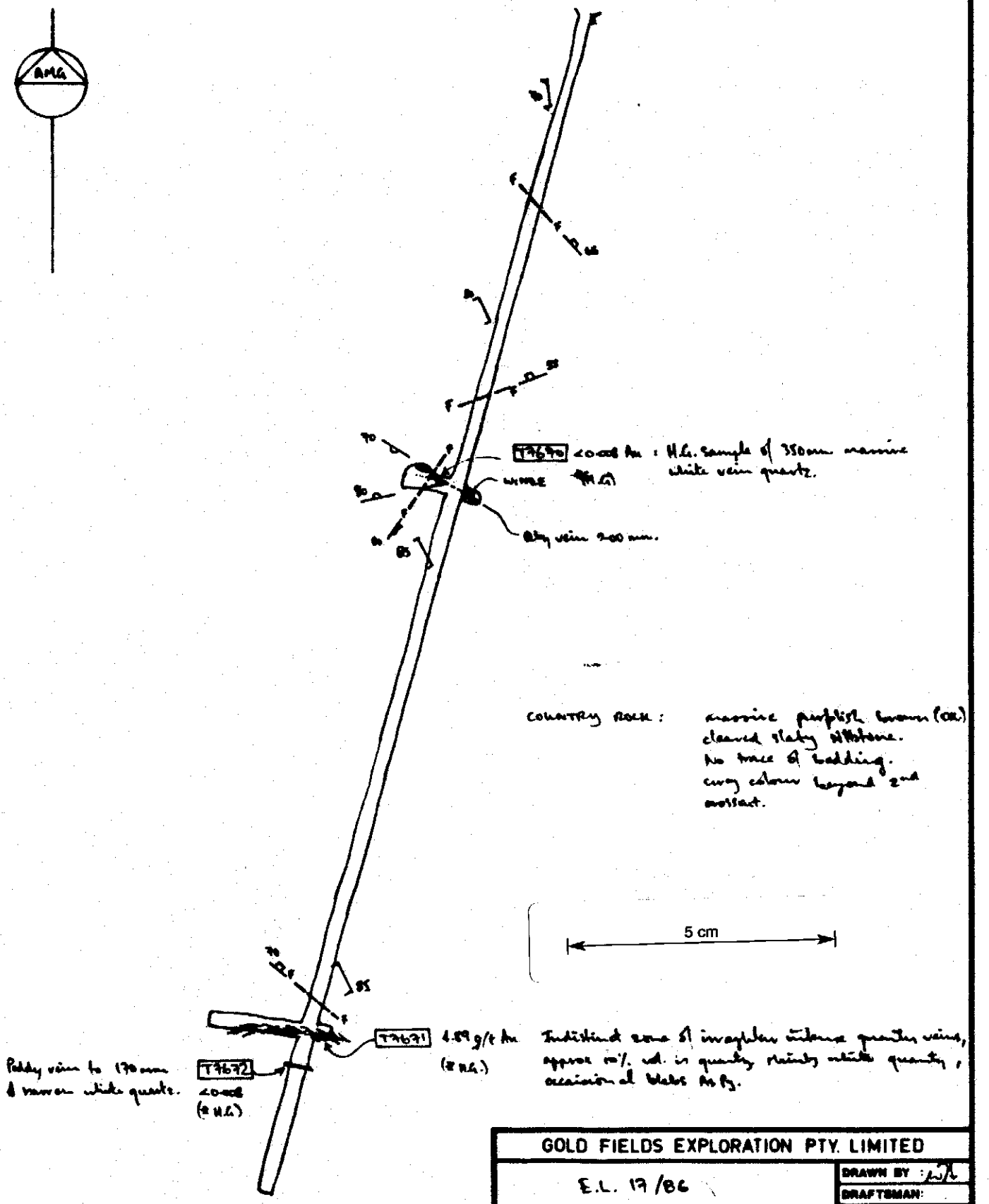
The adit is driven SSW for 114m and is in slate all the way.
Upto about 95m from the portal the slate is oxidized with a pinkish-purplish-brown colour uniformly cleaved but with out a trace of fine scale bedding laminations.
Beyond the second cross cut drive the slate is fresher and of dark grey colour. Cleavage strikes uniformly NNW with very steep westerly dips.
There are very few quartz stringers - an observation no doubt reflecting rock competency factors.

Our grab sample of a 350mm massive milky quartz vein in the first cross cut drive just west of the adit assayed <0.008g/tAu (T7670) although Hughes (1947) reports a value of 2.36g/tAu from this vein at the end of the eastern cuddy over the winze.
The lode formation in the second cross cut drive is very indefinate and irregular. Irregular, poddy discontinous veins of mainly white quartz with occasional blebs of arsenopyrite occur over a width of at least 1m but there are not clear walls to the zone. Veins range upto 100mm thick and are of highly variable orientation from north to west and steep to flat dips. Quartz constitutes about 10% of the back of the cross cut and the southern wall.
A high graded sample only of the quartz veins, (T7671) assayed 4.89g/t although Hughes (1947) got no gold out of it.
Hughes (1947) reported that initial surface mining of 18 tons of quartz from a reef 1.2-1.5m wide yielded an average of 40.05g/t. Production from the adit, however, yielded an average of less than 6g/tAu.

7.2 Dan Valley - General Geology

Along the Mathinna Plains Road descending eastward from the level country around Mt Saddle back, outcrops of sandstone and interbedded sandstone-siltstone-slate indicate bedding dips are mostly steep to the west with a few measurements inferring broad folds plunging at moderate to steep angles to the N-NNW.
Below the Weise Road turn off there is over a kilometre of near continuous outcrop of oxidized pink-purplish-brown slate which is quite massive but uniformly well cleaved. Cleavage trends NNW-NW and the dip of cleavage is very steep mostly to the west. The same massive rock type occurs in the Revenue Adit. Further down interbedded and massive sandstones again appear in the outcrops and indicate a steep WSW dip. The whole section could well be generally west dipping with minor parasitic folds locally developed.

854113



GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L. 17/86 DAN VALLEY GOLDFIELD REVENUE ADIT PLAN	DRAWN BY : [illegible] DRAFTSMAN: DATE 4 : 87 REVISIONS : FILE NO.
SCALE 1: 500 (0 5 10 15 Metres)	FIG. 26

A 12548

I would expect the broad zone of massive slate to constitute a useful "marker bed"; I have not observed any rocks of such distinctive character elsewhere on the Goldfields.

Further south in the Lady Mary - Golden Horseshoe area a mixture of sandstone, slate and interbedded sandstone-siltstone-slate are exposed and although the evidence is incomplete there are indications of two fold trends:

1) a very broad, open NW trending syncline somewhere between Lady Mary and Golden Horseshoe.
2) a somewhat tighter (?) ENE trending anticline-syncline couple west of Lady Mary. The cleavage, which one might expect to be more or less axial to the NW trending folds, cuts across almost at right angles to the strike of bedding.
   This is the best evidence I've come across for "cross folding" but it depends on only <u>one</u> southerly dip of 31°.

Obviously I have insufficient mapping to begin structural interpretations but the following points can be made:

i) Cleavage in this (Dan Valley) appears to be more consistently and strongly developed than on the goldfields to the north.
ii) The presence of an apparently thick, distinctive unit of massive slate may provide a valuable marker for structural interpretation.
iii) The close network of forestry roads can be expected to provide relatively good geological exposure.

As in the other goldfields, we observed a number of localities where quartz stringer veining was developed, particularly in sandstones. We chip channel sampled a few of these (T7679-82) but the assays were mostly < 0.008g/tAu with a maximum of 0.01g/t in T7681

Having seen practically nothing of the known gold lodes in the Dan Valley nor having seriously assessed the previous literature, I would not like to comment on the general prospectivity for the target type mineralization.

8. **REFERENCE**

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APPENDICES

Appendix I: Sample Records and Analytical Data Sheets (T7501 - 7690)

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: HERRMANN / R. WALKER

PROJECT: EL. 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: NAMLABS DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: Rep. No. 95.1.08.4238 DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES ppm									
				Cu	Pb	Zn	Ag	Bi	As	Au	Sn	W	Mo
T7501	FORESTER GOLDFIELD	M/Photo M3 RS-15	1.2 m wide (oxidised) Qtz vein, 340°/85 E, with patchy massive goethite.	35	85	45	<0.5	<10	380	<0.008			
T7502	"	"	800 m. west of Trig Hill. 1 m. sample along road cutting. Spotted mudstone + 9 Qtz veins 10-40 mm. tending 310°/80°SW	35	75	30	<0.5	<10	5	"	5	<10	4
T7503	"	"	300-400 mm. Qtz vein in sandy mudstone. Vein 05°/65 W. No sulphides	<5	5	5	<0.5	<10	5	<0.008			
T7504	WARRENTINA GOLDFIELD	M3-R8-62	Warrentina Road. Qtz veins 2-10 mm striking 065°/65°S. intensity 10/m. 1.5m. Sample width.	20	40	20	<0.5	<10	17	<0.008			
[redacted]													
T7505	WARRENTINA	M3-R8-62	Qtz veins 1-30 mm, 10/m. Semi vertical strikes 340° and 90°. Sample vein only	10	20	20	<0.5	<10	90	<0.008			
T7506	"	"	Warren Road. 2.5 m. wide channel sample, Qtz veins 1-50 mm, 5-10/m.	15	35	20	<0.5	<10	7	<0.008			
T7507	"	"	Warrentina Road. 1 m. wide silicified intensely qtz veinlatted breccia zone, sub-parallel to bedding in SSTs.	30	30	30	<0.5	<10	210	0.008	<3	19	35

95.1.08.4238

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANNLABS COLLECTED BY: W. HERRMANN, R. WALKER DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: № 95.1.08.4238 DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION		ANALYSES ppm									
					Cu	Pb	Zn	Ag	Bi	As	Au	Sn	W	Mo
T7508	WARRENTINNA	M3-R3E-62	0.8 m. Sample along Railway Cutting Qtz veins 1-15mm, 20/m in Sst. bed.		15	25	20	<0.5	<10	23	<0.008	<3	13	26
T7509	FORESTER	M3-R5-15	Chip/channel Samples; Qtz veins in Sst.	0-2 m	15	35	25	<0.5	<10	3	<0.008			
T7510	"	"	2-10 mm, rarely	2-4 m	10	20	10	<0.5	10	18	<0.008			
T7511	"	"	upto 40 mm	4-6 m	15	15	15	<0.5	<10	7	<0.008			
T7512	"	"	"	6-8 m	15	15	10	<0.5	<10	3	<0.008			
T7513	"	"	"	8-10 m	15	10	10	<0.5	10	11	<0.008			
T7514	"	"	"	10-14 m	10	25	30	<0.5	<10	9	<0.008			
T7515	"	"	"	14-18 m	15	35	50	<0.5	<10	7	<0.008	5	<10	
														8 5 4 1 1 6 9
T7516	"	"	Chip/Channel Samples	0-2 m	<5	20	5	<0.5	<10	1	<0.008			
T7517	"	"	wd. Sst. & network of	2-4 m	<5	15	5	<0.5	<10	1	<0.008			
T7518	"	"	Sandy-milky qtz veins	4-6 m	<5	25	10	<0.5	10	1	<0.008			
T7519	"	"	2-200 mm.	6-8 m	<5	25	10	<0.5	<10	1	<0.008			
T7520	"	"		8-10 m	<5	15	10	<0.5	<10	1	<0.008	4	<10	<2
T7521	"	"	Chip/channel Samples, wd.	0-3 m	10	20	20	<0.5	<10	3	<0.008			
T7522	"	"	Sst. & 10-15/m. <5 mm	3-6 m	15	10	21	<0.5	10	4	<0.008			
T7523	"	"	Qtz veinlets. Road cutting	6-9 m	20	20	25	<0.5	10	4	<0.008			
T7524	"	"	12 m. width.	9-12 m	15	20	35	<0.5	<10	4	<0.008			

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY: W. HERRMANN / R. WALKER

1:250,000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE DISPATCHED: DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM								
				Cu	Pb	Zn	Ag	Bi	As	Au	Au Rpt	Mo
T7525	FORESTER	M3-R5-15	Chip/channel Sample 1.5 m. Sst. c 2 mm Qtz stringers, 10/m.	30	140	20	31·0	<10	4200	0·176		16
T7526	"	"	chip/Channel Samples 3 m. Sst c 2-4 mm Qtz stringers 10/15/m.	<5	10	10	<0·5	<10	100	0·032		
T7527	WAPPENTINA	GOLDEN MARA	Bayley's Shaft, Mullock Sample; Grey Sst. c qtz veinlets 2-5 mm, ~40/m.	10	30	45	<0·5	10	400	0·296		
T7528	WAPPENTINA	PENDAWN	(Western Adit) 3 m. chip Sample South wall 69-72 m. from portal.	25	35	40	<0·5	<10	27	<0·008		
T7529	"	"	72-75 m from portal	30	40	75	<0·5	<10	22	<0·008		85
T7530	"	"	75-78 m " "	30	60	50	<0·5	<10	31	<0·008		41
T7531	"	"	78-81 m " "	15	45	25	<0·5	<10	11	<0·008		20
T7532	"	"	81-84 m " "	20	30	45	<0·5	<10	13	<0·008		
T7533	WAPPENTINA	PENDAWN	Western Adit: Selective sample of milky Qtz veins in interval 76-83 m.	<5	5	10	<0·5	<10	5	<0008	<0·008	58
T7534	"	"	Western Adit. Selective Sample of Qtz veins in interval 98.5-112m, NW wall.	10	<5	20	<0·5	<10	7	<0·008		
											Sn	W
										T7525	18	<10
										T7533	<3	<10

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY:

PROJECT: PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM Cu	Pb	Zn	Ag	Bi	As	Au	Au Rpt		Mo
T7535	FORESTER	Forest King	Vein Qtz, bluish smoky colour, dark slaty inclusions, rubble in small bulldozer cut.	<5	30	10	<0.5	<10	180	<0.008			
T7536	FORESTER	LINTON P.A.	No 1 Adit. No 1 Reef. 27.5-26.5 m from Portal 120 mm. Qtz. tending 300°/72N	15	245	25	<0.5	<10	1230	1.010			
T7537	"	"	No 1 Adit. No 1 Reef 24.5 m. from portal 200 mm. grey Qtz, dusty Aspy	25	615	30	<0.5	<10	1870	0.912	0.904		
T7538	"	"	No 1 Adit Chip channel sample Nth wall 20.5-23.5 m from Portal. Narrow (< 10 mm) qtz stringers, 5-10/m	30	45	45	<0.5	<10	270	0.032			
											Sn	W	
T7539	"	"	No 1 Reef: Surface Trench. 250 mm milky Qtz ~ 3% Py, Aspy, Galena.	20	3700	315	18.0	20	3670	0.968	3	<10	6
T7540	"	"	Chip Channel Sample of sst. c 3-10 mm Qtz veinlets, 15-20/m. West of Cross Course.	10	55	10	<0.5	<10	79	<0.008	5	<10	2
T7541	"	"	No 2 Reef: Crab sample in trench Smoky quartz vein 350 mm wide, dusty Py, Asp, galena total 2-3%.	5	360	45	1.0	<10	4150	0.808			
T7542	"	"	Chip Channel Sample 1.5 m. into Hanging Wall (Nth) of No 2 reef adjacent T7541 Fine fe stained Qtz veinlets, 5-20/m.	20	55	30	<0.5	<10	530	0.096			

854121

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: W. HERRMANN, R. WALKER.

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250,000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.4238 DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM Cu	Pb	Zn	Ag	Bi	As	Au	AuChk
T7543	FORESTER	LINTON P.A.	Chip Channel Sample over 5 m (E-W) Qtz veins 5-50 mm, 10-15/m. About 5 m. South (footwall) of No 2 Reef.	5	15	10	<0.5	<10	93	0.016	
T7544	FORESTER	MT. HORROR Au	~~[illegible]~~. No 1 Reef. 3 m chip channel sample off SW wall of adit 43-46 m from portal Qtz veins 15-30 mm (12) No Sulphides	20	15	60	<0.5	<10	84	0.008	
T7545	"	MT. HORROR Au	No 2 Lode. Crab Sample vein Qtz c̄ diseam Py, AsPy < 1% from small dump near caved adit.	<5	5	10	<0.5	<10	920	1.810	
T7546	FORESTER	Linton Road	Chip Channel Sample 0-4 m	40	40	35	<0.5	<10	90	<0.008	
T7547			Road Cutting (West to East.) 4-8 m	25	40	35	<0.5	<10	19	<0.008	
T7548			Wd. Sandstone and mudstone 8-12 m	50	45	50	<0.5	<10	62	<0.008	
T7549			with ferruginous veinlets 12-16 m and minor qtz veinlets.	25	40	35	<0.5	30	49	<0.008	<0.008
T7550	WARRENTINA	Derby, Nth Adit	Selected (High Graded) Sample of Qtz veins to 5mm forming ladders in 150mm wide zone.	30	30	15	<0.5	<10	450	.350	.400
T7551	"	Derby, Nth Adit	Representative chip/channel across back, down E. wall bx, shd. mudst, wd. slate occas. fe st. Qtz vns < 5mm.	50	35	25	<0.5	<10	200	.010	
T7552	WARRENTINA	DERBY 2nd Adit	70 mm wide shear zone c̄ qtz, and narrow sub parallel qtz veins < 10 mm, 10/m, 11-12 m from port	115	45	50	<0.5	<10	65	.200	.160

854122

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: W. HERRMANN, R. WALKER

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250,000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04293 DATE RECEIVED:

A1986

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM Cu	Pb	Zn	Ag	Bi	As	Au	AuChk	Mo
T7553	WARRENTINA	DERBY 2nd Adit	Chip sample 2-5 m. from portal (South wall) Mudstone + sst. c̄ fe st. Qtz vns 1-20 mm/5-10/m.	40	40	50	<0.5	<10	43	0.040		
T7554	"	"	Chip Sample 5-8 m from portal As above.	35	30	60	<0.5	<10	44	0.030		
T7555	"	"	Chip Sample 8-11 m. from portal Lithology as above.	45	30	55	<0.5	<10	67	0.040		
T7556	WARRENTINA	DERBY	Chip sample across 800 mm. Qtz Reef. Mainly milky patchy, fe stain. Some fresh c̄ dusty 1% AsPy.	30	70	45	<0.5	<10	2000	0.120		2
T7557	WARRENTINA	NTH. MARA. N. ADIT.	Channel Sample 0-4 m. along east wall. Massive sst. stockwork Qtz veins 5-15 mm, 15-20/m	55	35	50	<0.5	<10	290	0.070		
T7558	"	"	Selective sample of boudin like Qtz pods (to 600x150 mm) parallel foliation in 1 m. shear.	30	65	65	<0.5	<10	1800	0.120		
T7559	WARRENTINA	NTH. MARA. S. ADIT.	Chip/channel over 1 m. width across face. Stockwork vns. to 20 mm, ~20/m. One of 70 mm	45	65	20	<0.5	<10	150	0.110	0.130	
T7560	WARRENTINA	NTH. MARA. OPEN STOPE	Chip/channel sample 2 m. width. Stockwork milky Qtz veins, fe stained, 5-50 mm, ~20/m	40	25	30	<0.5	<10	180	0.850		
T7561	"	"	Sample representative of 1.2 m. wide fault zone c̄ pods of intensely qtz. veined silic. sandstone.	55	25	65	<0.5	<10	450	0.220		
T7562	ALBERTON	MT. VICTORIA. NO. 2 EAST ADIT.	Chip/channel Sample across 1 m. wide face. Zone of intense Qtz vein stockwork.	30	60	30	<0.5	<10	5200	0.360		
T7563	"	"	High Grade sample of veins to 30 mm. from above zone of vein stockwork.	30	30	70	<0.5	<10	4000	0.520		<2

Nº	Sn	W
T7556	<3	<10
T7563	4	<10

854123

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: W. HERRMANN, R. WALKER

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250,000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04293 DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM								
				Cu	Pb	Zn	Ag	Bi	As	Au	Au Chk	Mo
T7564	ALBERTON	MT. VICTORIA	High Graded (Selective) sample across 0.4 m.	40	60	245	<0.5	<10	3350	0.270		
		No 2 EAST ADIT.	breccia zone ± irregular milling Qtz veining.									
T7565	FORESTER	MARABAR	Chip/channel Sample 42-44.7 m. from portal.	15	20	15	<0.5	<10	44	<0.008		<2
		ADIT.	Intrbd. sst/slate ± stringer qtz vns. 5-20mm, 5/m.									
T7566	ALBERTON	MT. VICTORIA.	Chip sample 800 mm. across beds, 5 m from portal	15	75	5	<0.5	<10	350	1.290		
			200 mm. massive qtz, 600 mm intense silicific. 30% qtz.									
T7567	"	"	High graded sample of 150 mm. milling qtz vein	15	50	5	<0.5	<10	7500	1.020		
			± patchy ~4% AsPy. 1 m. from portal.									
T7568			Chip channel sample 1 m. NW wall of adit.	20	60	15	<0.5	<10	2700	1.070	1.450	
			Numerous Qtz veins 20-150 mm, 10/-15% of wall.									
T7569	ALBERTON MT. VICTORIA.	ADIT E	Chip channel across and face in CENTRAL REEF?	35	50	10	<0.5	<10	2700	2.570	2.870	
		VICTORIA REEF	Brecciated sst/slate Qtz stringers 1-20 mm, 5-10% vol.									
T7570	"	"	Representative High graded sample of 3 m.	45	75	75	<0.5	<10	3550	0.270		
			along VICTORIA REEF.									
T7571	"	ADIT E	Chip/channel over 3 m. NW wall adj. cuddy.	50	20	50	<0.5	<10	330	0.080		
			Numerous "sheeted" bdg// veins or silicified sst beds?									
T7572	ALBERTON	MT. VICTORIA.	Grab Sample Mullocks Dump. (Representative)	10	560	30	3.0	<10	18000	2.980	3.080	2
		No 3 ADIT	Sst ± milling qtz veins <10 mm, 50/m, [redacted] AsPy									
T7573	"	MT. VICTORIA	Grab Sample representative of Mullocks Dump.	15	300	20	<0.5	10	8450	2.080		
		No 4 ADIT.	Sst ± Qtz veining ext. 30/m. AsPy, Cal, Py.									
T7574	ALBERTON	CROSS REEF	Chip Channel, west wall 15-19 m from Portal.	15	5	25	<0.5	<10	390	0.050		
		SOUTHERN ADIT.	Qtz stringers 5-15 mm, 5/m									

No.	Sn	W
T7565	<3	<10
T7572	<3	<10

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: W. HERRMANN / R. WALKER

PROJECT: E4/7/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95·1·08·04293 DATE RECEIVED:

A199F

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES ppm									
				Cu	Pb	Zn	Ag	Bi	As	Au	Sn	W	Mo
T7575	ALBERTON	GROSS REEF Southern Adit	West wall, Chip/channel 19-23 [redacted] m. from portal	50	20	40	<0·5	<10	690	0·040			
			Qtz stringers 5-15 mm, ~ 5/m.										
T7576	ALBERTON	"	Sample across back, about 2m. NNE of winze.	20	<5	45	<0·5	<10	1200	0·270	3	<10	2
			800 mm wide shear zone ~ 15% Qtz veining.										
T7577	"	"	Chip sample across back, 1m width fractured	10	<5	20	<0·5	<10	740	0·030			
			sandstone/slate ± 15-20% vol Qtz veinning										
T7578	ALBERTON	LONG STRUGGLE LWR ADIT	Chip Sample 18-23 m from portal	30	30	55	<0·5	<10	290	0·100			
			Sst. minor slates, occasional qtz veins to 20mm										
T7579	"	"	Chip sample 23-28m from portal	40	25	55	<0·5	10	205	0·020			
			Narrow sst. Occasional qtz veins.										
T7580	"	"	Chip sample 28-33 m.	25	30	60	<0·5	20	310	0·070			
			Qtz veins <5 mm, <5/m.										
T7581	"	"	Chip sample 33-38 m.	30	25	60	<0·5	<10	110	0·010			
			Qtz veins <10 mm, ~5/m. 1 @ 70 mm										
T7582	"	"	Chip sample 38-43 m.	30	20	65	<0·5	<10	120	0·020			
			Milky qtz (ferrous) veins to 30 mm, 5-10/m.										
T7583			Chip Sample 43-48 m.	30	15	75	<0·5	10	140	0·030			
			Milky qtz (ferrous) veins to 50 mm, upto 15/m										
T7584			Chip Sample 48-53 m.	30	20	80	<0·5	<10	260	<0·008			
			Only occasional Qtz stringers, ferrous veins.										

85-1125

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: W. HERRMANN, R. WALKER

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250,000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04293 DATE RECEIVED:

A199

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM Cu	Pb	Zn	Ag	Bi	As	Au	AuChk	Au(1)
T7585	ALBERTON	LONG STRUGGLE LOW ADIT.	Chip Sample 0.8 m. wide, back of cuddy. Qtz. veins to 30 mm, 30-40/m ~5% vol.	15	<5	20	<0.5	<10	280	0.050		
T7586	"	CAXTON Nº 1 Lower Adit	Chip sample across 1.2 m. lode. Fractured sst. numerous veins to 150 mm. ~70% Qtz.	15	<5	15	<0.5	<10	6300	0.430		
T7587	"	"	H.G. sample across 170 mm wide Qtz Reef. White-smoky grey Qtz, minor fine sulph.	10	25	25	<0.5	10	1350	0.100		
T7588	"	"	Chip sample 200 mm wide Qtz stringer zone Trending 035° Anastomosing veins to 30 mm ~10% of zone	15	15	25	<0.5	10	1200	0.110		
T7589	"	"	Chip sample 650 mm. wide Qtz reef. White + grey quartz. Massive	10	50	15	<0.5	<10	7900	0.340	0.330	(Mo) 4
T7590	ALBERTON	CAXTON Nº 2 ADIT	Chip sample along poddy Qtz vein over 2 m. of strike. Vein variable 10-100 mm. Minor Py, Aspy, Galena	15	30	25	<0.5	<10	3650	0.400		
T7591	"	"	Grab sample of bagged ore in adit. Vein Qtz c̄ dissem Py, Aspy, Galena.	30	1350	615	2.0	20	7700	8.030	7.280	8.810
T7592	WARRENTINA GOLDEN MARA	East Volunteer Adit	Chip sample across 1.5 m face. South face Little Brankholm Reef. Shear zone c̄ 5-10% Qtz.	40	30	125	<0.5	<10	110	0.410		
T7593	"	"	Chip sample across back of drive, 800 mm Little Brankholm Reef. Shd. sst c̄ 20% Qtz.	45	60	200	"	"	1600	8.320	5.68	Mo <2
T7594	"	"	Chip channel sample over 4 m. interval into west wall of Lit. Brankholm Reef. Qtz stringers <5 mm, 5-10/m.	20	<5	65	"	"	340	0.13		

Nº	Sn	W
T7589	<3	<10
T7593	5	<10

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: E.L 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS COLLECTED BY: W. HERRMANN & R. WALKER

1:250.000 SHEET: HALLS CREEK TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1-08.04309 DATE DISPATCHED: DATE RECEIVED:

A199F

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM								
				Cu	Pb	Zn	Ag	Bi	As	Au	Au Check	Mo
T7595	ARGENTINA GOLDEN MAID	East Volunteer Adit.	Chip channel over 4 m. into East wall of Lit. Boundary Reef Qtz Stringers 5-10/m.	35	<5	85	<0.5	<10	270	0.15		
T7596	ALBERTON	Ragged Youth Adit	Chip channel Sample 500 mm width, weak shearing ≈ // Qtz stringers to 15 mm	40	"	30	"	"	18500	5.49	5.92	
T7597	"	"	Chip channel Sample 300 mm width brecciated slate approx 50% Qtz veins.	20	350	30	3.0	"	15000	1.86		4
T7598	"	"	120 mm. fault fracture zone, sheared slate ≈ approx 50% broken fe stained qtz.	40	125	30	11.0	"	24500	52.95	55.17	
T7599	"	"	180 mm. sheared slate fracture zone, broken grey fe stained qtz ~ 50%.	15	155	25	<0.5	"	14500	4.93		
T7600	"	"	Chip sample across 200 mm stringer zone in o/c just sw. of portal.	30	<5	55	"	"	400	0.01		
T7601	ALBERTON	CROSS REEF Lower Adit	Crush sample laminated Qtz vein 40 mm wide. Parallel to bedding. 127 m. from Portal.	100	60	55	"	"	650	1.79		
T7602	"	" (126 m)	Chip channel sample over 1 m. width across Qtz vein to 80 mm, several sub // adjacent stringers to 15 mm	10	<5	95	"	"	390	0.07		80
T7603	"	"	High grade grab sample of 20-50 mm wide laminated milky qtz. 119 m from portal	5	< 5	35	"	"	100	0.10		45

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

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PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04309 DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM							
				Cu	Pb	Zn	Ag	Bi	As	Au	Au CHK
T7604	ALBERTON	CROSS REEF Lower Adit	Chip channel sample over 1.2 m. (true thickness) 95-97 m from portal. Fault fracture zone, minor quartz	15	<5	60	<0.5	<10	38	<0.008	
T7605	"	"	Chip channel sample 83-85 m from portal across stringer zone in footwall of fault fissure lode at 83 m. Qtz stringers 5-10mm 20-30/m.	<5	<5	25	"	"	27	<0.008	0.01
T7606	"	"	High grade representative sample of 0.6m wide fault fissure reef at 83 m. from portal	10	125	80	"	"	3400	25.08	33.80
T7607	"	"	Chip sample 11-19 m. from portal Milky qtz veins to 25mm (mostly < 10 mm) 5-15/m. in massive sandstones	15	<5	30	"	"	90	<0.008	
T7608	ALBERTON	POINT Lower Adit	Chip channel sample over 5 m. from cross cut to end of Adit. Massive mudst/silt stringer veinlets, fg stained < 4mm, 20/m and 10-30 mm about 5/m.	25	<5	30	"	"	80	<0.008	
T7609	"	"	High graded sample of main Qtz reef: 20-70 mm in back of main drive Milky to grey massive Qtz. 5-10% Asply	20	320	20	4.0	"	31500	23.31	18.43
T7610	"	"	Representative chip channell sample over 700 mm width of "lode course" over main adit.	20	<5	90	<0.5	"	1350	0.25	

8541128

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

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PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04309 DATE RECEIVED:

A1996

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES ppm								
				Cu	Pb	Zn	Ag	Bi	As	Au		Mo
T7611	ALBERTON	POINT, L. ADIT	Chip channel sample, south wall 29.5-31.5m from portal. Sst/sltst/minor dk grey slate, milky qtz veins 10-20mm, 5-10/m.	15	<5	20	<0.5	<10	260	0.03		
T7612	ALBERTON	HERRMANN NO1 ADIT.	2m. chip/channel sample from corner of crosscut drive (on lode) to end of main adit. Occasional qtz stringers 5-50mm in Sst.	25	<5	75	"	"	430	0.03		
T7613	"	"	Chip sample SW wall adit 19.2-21.2m from portal. Massive sst with irregular pods milky qtz. to 150x300mm, planar veins to 20mm. Overall estimate ~5% quartz/vol.	20	<5	65	"	"	630	0.11		
T7614	"	"	Chip sample W wall 21.2-25.2m. Lithologies as above.	10	<5	45	"	"	640	0.05		
T7615	"	"	High grade representative sample across 400mm wide milky quartz reef, patchy Arsenopyrite. In drive on lode just south of main adit.	<5	<5	15	"	"	3050	0.67		21

8541129

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: W. HERRMANN R. WALKER

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04309 DATE RECEIVED:

A1996

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM Cu	Pb	Zn	Ag	Bi	As	Au	Au Check
T7616	WARRENTINA GOLDEN MARA	East Volunteer Adit.	Big Brancholm reef. 1.2 m. chip channel sample across face of eastern cross cut drive. Brecciated slate/sst "boudinaged" qtz veins to 50x200 mm, Overall 30% quartz	30	<5	95	<0.5	<10	410	0.31	0.22
T7617	"	"	Big Brancholm Reef. 1.0 m. chip channel across face of western drive. Fault bx. slate/sst c̄ broken grey qtz reef to 150mm, also milky qtz tension gashes. Overall 20% Qty.	45	<5	40	"	"	630	0.22	
T7618	"	"	5-15 mm Qty vein in black slate bed (20-70 mm) at 276-280 m from portal. Sample high graded qtz vein only.	25	<5	120	"	"	110	0.03	
T7619	"	"	243.5 m from portal west wall 180 mm. wide lode formation, bx sst c̄ irregular milky qtz veining ~ 60% Quartz! traces of Pyrite and Arsenopyrite	10	530	445	5.0	"	1050	3.49	
T7620	"	"	247-248 m from portal East wall, same lode as in 7619, here 300 mm, 80% Qty.	<5	<5	50	<0.5	"	510	0.07	
T7621	"	"	Chip channel sample 206-210 m from portal Flinty slate, local diss and stringer Py (<0.1% overall) Qty stringers <10 mm, 10/m	40	25	75	"	"	700	0.55	

854130

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: E.L. 17/86 PROSPECT:
1:250,000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP

SAMPLE STORAGE REQ'D:
SAMPLE PREP. REQ'D:

LABORATORY: ANALABS
ANALYSIS REQ'D: 95.1.08.0439

COLLECTED BY: W. HERRMANN, R. WALKER
DATE DISPATCHED:
DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM								
				Cu	Pb	Zn	Ag	Bi	As	Au		
T7622	FORESTER	M3-R5-15	H.G. sample of sandy quartz, 70-100 Mesh with moderate fe staining and traces of dark metallic mineral (resembling cassiterite?). At northern end of channel sample T7525 with high Ag, As, Au.	30	115	10	48	<10	5350	0.15		
T7623	FORESTER	LINTON P.A.	H.G. sample selective of veins sampled in channel sample T7543 (0.016 Au)	<5	<5	<5	<0.5	"	100	0.02	0.33	
T7624	"	"	Chip channel sample over 6 m (N-S) of bleached sst with numerous small < 2mm intersecting qtz veinlets 50-100/m. A few impersistent veins 5-25 mm. 6 m. North of NO 2 Lode	5	<5	10	"	"	100	0.03		

8054131

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: W. HERRMANN, R. WALKER

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250,000 SHEET: LAUNCESTON TYPE OF SAMPLE: ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04383 DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM Cu	Pb	Zn	Ag	Bi	As	Au		
T7625	ALBERTON	MT. VICTORIA No 3 ADIT.	H.G. Sample of milky Quartz veins in interval 37-40 m. from portal.	25	<5	40	<0.5	<10	260	<0.008		
T7626	"	"	Chip sample 44-48 m. representative of zone of qtz veins 10-40 mm, 5-10/m.	35	"	60	"	"	400	"		
T7627	"	"	Crab sample (H.G.) brecciated sst. c̄ fairly intense milky qtz veining, veins upto 50 mm. sub // to main reef.	15	80	35	"	"	1100	0.41		
T7628	"	"	Chip sample 160-166 m from portal. sst. c̄ stockwork qtz veinlets	15	<5	40	"	"	370	<0.008		
T7629	"	"	Chip sample 166-172 m. sst c̄ stockwork qtz veinlets	20	15	50	"	"	5300	6.93		
T7630			Chip sample 172-178 m Sst c̄ Qtz stkwork	10	<5	25	"	"	5800	0.14		
T7631			Chip sample 178-184 m "	20	5	45	"	"	3300	0.50		
T7632			Chip Sample 184-190 m "	15	<5	45	"	"	1200	0.03		

854132

GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

PROJECT: EL. 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: Rock Chips SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04383 DATE RECEIVED:

COLLECTED BY: W. HERRMANN R. WALKER

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM								
				Cu	Pb	Zn	Ag	Bi	As	Au	Au Check	
T7633	AUSTRALTON	MT. VICTORIA No 3 ADIT.	Chip Sample 190-196 m. Sst & qtz vein Stockwork	20	<5	70	<0.5	<10	510	0.01		
T7634	"	"	" 196-202 m "	30	"	60	"	"	350	0.03		
T7635	"	"	" 202-208 m "	25	"	95	"	"	270	<0.008	0.01	
T7636	"	"	" 208-214 m "	15	"	30	"	"	240	<0.008		
T7637	"	"	" 214-220 m "	20	"	50	"	"	370	<0.008		
T7638	"	ROSALIND ADIT	Chip Sample 0-6 m. Sst/slate & 2% Qtz veins	20	<5	50	"	"	180	0.02		
T7639	"	"	" 6-12 m. Abundant bdd // veinlets <5mm, 20-50/m	20	<5	40	"	"	510	0.21		
T7640	"	"	" 12-18 m Qtz veinlets // clay // bdd. <15 mm, ~ 5/m.	25	<5	55	"	"	640	0.53		
T7641	"	"	" 18-24 m. Qtz veinlets, irregular, 1-5 mm, 20-50/m	25	<5	50	"	"	300	0.10		
T7642	"	"	Grab Sample of Rosalind Reef: 150 mm wide zone of sheared slate with fractured milky quartz ~ 30% and minor Pyrite.	20	<5	45	"	"	5100	2.39		

805413

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANSPLAB COLLECTED BY: W. HERRMANN, R. WALKER, CO

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: Rock Chip SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1-08.04383 DATE DISPATCHED: DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM								
				Cu	Pb	Zn	Ag	Bi	As	Au	Au Check	Mo
T7645	ALBERTON	PREMIER ADIT	Grab sample from mullocks in caved (stope?) at end of adit. (H.G.) Massive white qtz.	10	60	5	<0.5	<10	270	0.09		
T7646	ALBERTON	ALBERTON No 2 REEF Southern Stope	H.G. Sample representative of 50-200 mm wide clayey fissure with fractured milky and smoky quartz, 2% AsPy	20	<5	10	"	"	3900	0.20	0.19	
T7647	"	"	H.G. Sample of milky tension veins (to 70 mm) and thin lod. // planar qtz veins.	20	<5	15	"	"	520	0.31		
T7648	"	CROWN PRINCE ADIT.	H.G. Sample of milky qtz veins <20 mm, average 2/m. trending NNW, steep ENE dip. In interval 34-42 m. from portal.	20	<5	15	"	"	36	<0.008		
T7649	"	"	H.G. Sample of 50-100 mm smoky quartz vein ± 2% AsPy, on footwall of main lode.	25	"	5	"	"	4700	0.18		
T7650	"	"	Chip Channel sample over 1.8 m. across back of drive in "lode" consisting of brecciated intensely quartz veined sst. Qtz mostly milky, minor smoky ± AsPy. Upto 5% disseminated AsPy in sst.	15	<5	50	"	"	12000	0.49	Sn 3 W <10	<2

005413

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

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1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: Rock Chip SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 9J.1.08.04-383 DATE RECEIVED:

A1996

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM							
				Cu	Pb	Zn	Ag	Bi	As	Au	Au Check
T7649	NEW RIVER	PRENDERGAST UPPER ADIT.	H.G. grab sample of massive quartzite on Fault Plane. 50-100 mm. Rusty.	45	<5	750	<0.5	<10	13000	0.07	
T7650	"	"	Chip channel sample over 6 m. (12-18 m. Portal) Qtz veins 5-80 mm, 3/m, // to bedding.	30	"	60	"	"	1000	0.10	
T7651	"	"	Chip sample over 1m. Patchy irregular pods and veins massive white quartz, minor smoky quartz with AsPy. Above fault plane in cuddy south of Stopes.	15	"	70	"	"	1800	0.24	
T7652	"	PRENDERGAST	H.G. samples from mullock dump 30. m. NE of upper Adit Portal (from upper Adit ?) Smoky quartz with AsPy and visible gold.	10	145	70	3.0	"	2000	43.33	44.00
T7653	"	TIGER REEF	H.G. Sample lumps of milky quartz with laminar zones of smoky quartz with disem. AsPy. AsPy 1-2% overall. From mullock at Tiger Reef Central Stope (filled)	10	<5	10	<0.5	"	3100	1.39	
T7654	ALBERTON	NEW STRAHAN ADIT.	Poorly defined zone of brecciation 1 m. wide upto 40% irregular quartz veining.	15	30	40	"	"	1100	0.24	0.24

8541135

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

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PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS. DATE DISPATCHED:

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A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM								
				Cu	Pb	Zn	Ag	Bi	As	Au	Sn	W	Mo
T7655	ALBERTON	NEW STRAHAN ADIT	H.G Sample of patchy 5-120 mm Qtz vein	10	<5	10	<0.5	<10	24	<0.008			
T7656	"	OLD STRAHAN ADIT	H.G. samples of Qtz veins over 8 m. interval. Patchy irregular quartz veins mostly <50 mm. parallel to bedding or flatdish.	20	"	30	"	"	280	2.19			
T7657	"	"	As above, H.G. sample veins only, 5 m interval	15	<5	10	"	"	29	<0.008			
T7658	"	ESK ADIT	H.G. Chip sample of quartz vein 0-80 mm. Milky and smoky quartz ± patchy AsPy to 10%	20	<5	20	"	"	4000	7.23			
T7659	"	ESK STOPE	H.G. Sample of fine 1-5mm milky quartz veinlets in sandstone, 30-50/m. North wall of surface stope.	20	<5	25	"	"	960	0.03			
T7660	"	SOUTH STAR	H.G. Sample across 0.3 m. lode of bx. sst. ± quartz veining, minor AsPy.	25	40	20	1.0	"	13500	2.62	3	<10	<2
T7661	"	"	Chip sample across 1.0 m. face. Bx. sst/slate ± intense stockwork milky qtz veins, & patchy vein to 100 mm. Overall 20% Qtz	20	<5	20	<0.5	"	950	1.04			
T7662	"	"	Chip channel sample 0-3m. NW wall. Milky qtz veins <10 mm, 50-100/m. in sandstone.	15	<5	25	"	"	530	0.09			

8541136

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

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PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANALABS. DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: Rock Chips. SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04383 DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM									
				Cu	Pb	Zn	Ag	Bi	As	Au ppb	Sn	W	Mo
T7663	Anberton	South Star Adit.	Chip Sample 3-6 m. Nth wall. Qty veinlets 50-100/m. in Sst. Probably includes part of main lode.	15	<5	30	<0.5	<10	790	0.41			
T7664	"	"	Chip Sample 6-12 m. Nth wall. Qty Veinlets 30-50/m. in Sst.	25	<5	35	"	"	440	0.06			
T7665	"	"	Chip Sample 12-18 m. " Qty veinlets 10/m in Sst/interbed slst, slate	25	<5	55	"	"	42	<0.008			
T7666	"	"	Chip Sample 18-25.5 m. Qty veinlets in Sst ~10/m.	25	<5	65	"	"	61	<0.008			
T7667	"	"	H.G. Sample of Quartz-Feldspar veins 5-80 mm in 0.4 m. zone. 70% Q 30% Fs.	30	<5	25	"	"	72	0.03	<3	<10	<2
T7668	Warrentina	Renown Eastern Adit	H.G. Sample of weakly Fe stained Milky Qtz veins 5-40 mm in wd. sst/slst. caved from above at end of adit.	35	<5	25	"	"	48	<0.008			
T7669	"	"	H.G. Sample of irregular milky qtz tension veins to 50 mm., flattish orientation	20	<5	30	"	"	18	<0.008			

8 SEP 1993

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

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A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES PPM Cu	Pb	Zn	Ag	Bi	As	Au	Au Chk		Mo
T7670	DAN VALLEY	REVENUE ADIT	H.G. Sample of massive white "buck" quartz vein to 350 mm, cuddy adjacent to winge	10	<5	5	<0.5	<10	310	<0.008			
T7671	"	"	H.G. Sample of white vein quartz from south wall of east cross cut. Minor AsPy. Veins poddy upto 100 mm. in zone at least 1 m. wide. No clear walls. ~10% Qtz	15	25	30	<0.5	10	2500	4.89			
T7672	"	"	H.G. sample poddy qtz vein upto 170 mm. tending 280°/80N. white qtz. No sulphides	<5	<5	40	<0.5	10	240	<0.008	<0.008		
T7673	ALBERTON	CENTRAL RING-AROOMA. LOWER ADIT	Chip channel sample over 5m. Poddy milky qtz veins 5-15 mm, 10/m.	<5	10	55	"	<10	170	0.03			
T7674	"	"	Chip channel sample over 5m. adj 7673 Lithologies as above.	30	25	45	"	"	350	0.05			
T7675	"	MULLUNAH ADIT	Chip sample across 0.8 m. lode formation. Brecciated sst, slate with quartz veining and qtz infill to about 20%. Rare AsPy.	5	<5	35	"	"	1300	1.40			∞
T7676	"	"	Chip sample across 0.6 m. weakly brecciated sst, slst, slate; no quartz. Along strike of lode.	20	50	40	"	"	240	0.02			∞
											Sn	W	
T7677	WARRENTINA	Mt. Hower Tungsten Prospect	H.G. sample vein quartz from small dump. Milky to "glassy" quartz, scattered coarse wolframite and lesser AsPy, Py, Cpy.	80	<5	10	<0.5	1400	400	1.21	9	3.98%	<2

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: W. HERRMANN, R. WALKER

PROJECT: EL 17/86 PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: ANAMAG. DATE DISPATCHED:

1:250,000 SHEET: LAUNCESTON TYPE OF SAMPLE: Rock chip. SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04383 DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES ppm									
				Cu	Pb	Zn	Ag	Bi	As	Au	Sn	W	Mo
T7678	WARRENTINNA	MT. HORROR TUNGSTEN PROSPECT	H.G. sample of quartz veins to 100mm. containing wolframite, minor AsPy, Py, Cpy	20	<5	10	<0.5	410	13	0.35	18	[illegible]	<2
T7679	DAN VALLEY.	Near ETON HILL	Grab sample of patchy irregular white-clear weakly fe stained quartzy veins in sst.	10	<5	15	<0.5	<10	14	<0.008	Au Chk <0.008		
Photo: M3-19E-123													
T7680	"	ETON ROAD	H.G. sample of milky qtz veins in sst. Generally 50-150 mm, // to cleavage. (335°)	<5	<5	10	<0.5	20	23	<0.008			
T7681	"	ETON ROAD.	Sample of stockwork quartz veining in sandstones, veinlets <5 mm upto 50%/m	10	15	30	<0.5	10	280	0.01			
T7682	"	GOLDEN HORSHOE (Road Cutting)	Grab sample representative of quartz vein stockwork, generally <10mm upto 50%/m in thinly bedded sst.	<5	<5	15	"	<10	10	<0.008			
T7683	WARRENTINNA	MT. HORROR ARSENIC PROSPECT Lower Adit	Chip sample over 3m. west from portal Brecciated slst, sst with patchy milky quartz veins and grey flinty silicification. No sulphides. Quartz about 10%.	10	30	15	<0.5	20	350	0.01	81	36	<2
T7684	"	" Southern Adit	Chip Sample over 1.2 m. from portal inwards. Brecciated/veined grey siliceous quartzite, Minor quartz veining, contains 10% coarse AsPy, minor Py.	300	25	10	15.0	130	3.85%	0.190	145	<10	<2

GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: W. HERRMAN & R. WITTNER

PROJECT: EL 17/86 PROSPECT:

SAMPLE STORAGE REQ'D: LABORATORY: ANALABS DATE DISPATCHED:

1:250.000 SHEET: LAUNCESTON TYPE OF SAMPLE: Rock Chips SAMPLE PREP. REQ'D: ANALYSIS REQ'D: 95.1.08.04383 DATE RECEIVED:

A1996

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES									
				Cu	Pb	Zn	Ag	Bi	As	Au	Sn	W	Mo
T7685	WAPPENTINA.	MT. HOPKINS ARSENIC PROSPECT Southern Adit	H.G. Sample from Dump. Brecciated/silicified/quartz veined quartzite 10-20% AsPy, minor Py.	115	<5	5	9.0	190	9.55%	0.41	79	2640	<2
T7686	"	Mt. Horror Adit Northern Adit	chip sample of face of adit, represents about 500 mm. thickness of lode Cavy compact to vitreous quartz, scattered blebs AsPy and Py (ratio about 2:1) Total sulphide ~5%	550	345	15	6.0	<10	1.55%	0.33	28	<10	<2
T7687	FORESTER	M3-R5-15 Arinpluto. Williamhill Road	H.G. Sample of 80 mm qtz vein in massive sst. Mostly milky, patches smoky, weak limonite staining.	10	20	10	<0.5	<10	310	<0.008			
T7688	Ken Brown's	BOONDOCKS PROSPECT.	H.G. Vuggy, milky vein quartz, small angular inclusions (breccia frags) of pale grey micaceous sandstone.	20	35	20	<0.5	<10	230	<0.008	3	<10	<2
T7689	"	"	H.G. as for T7688	20	25	15	<0.5	<10	260	<0.008			
T7690	"	"	Brown gritty clay. Frags of partly weathered pink-creamy feldspar, flakes of mica; ex granitic?	15	30	10	<0.5	<10	64	<0.008			

00 541 140

APPENDIX 3

Memorandum on preparation of Interpretive Geological Plans by W. Herrmann October, 1987.

MEMORANDUM

TO: Paul Roberts (Goldfields Exploration, Burnie, Tas.)

FROM: W. Herrmann (Contract Geologist, RSD 1066, Devonport, 7310

DATE: 27/10/87

SUBJECT: **E.L. 17/86, INTERPRETATIVE GEOLOGICAL PLANS.**

The 1:25 000 Interpretative Geology Plans have been prepared from a combination of my own fairly restricted mapping of March-April this year and a number of other sources including Threader (1967), McClenaghan et al (1982) and Groves et al (1977).

Geological boundaries and structural data from these additional sources have been transposed onto the seven 1:25 000 base plans covering E.L. 17/86 by the use of the Plan-Variograph machine at Goldfield's Burnie Office.

The axial traces of the major folds shown are mostly inferred from bedding dip reversals and only a few have been observed in the field.

Obviously the principal axial trend is NNW to N with sub horizontal plunges in both directions but perhaps more commonly to the north.

In a few places notably the southern part of Dan Valley, from Billycock Hill NNE through Warrentinna and also at the Forester Goldfield, there are anomalous NNE to NE and even easterly trends which are difficult to interpret given the available evidence and outcrop.
The known goldfields do not seem to have any particular spatial association with these areas of NNE to E trend.

At the Forester, Warrentinna and Alberton Goldfields, the available structural observations ostensibly suggest locally higher frequency of fold axes (zones of "close" folding) as also noted at Mathinna. At Alberton and Warrentinna the "smaller" (observed) folds have moderate to very steep plunges in both (more or less) northerly and southerly directions rather at variance with the shallow plunges inferred from the major regional folds. However, I am very hesitant to ascribe much significance to this as I consider the apparent fold intensity may be largely outcrop dependent. That is the smaller variably plunging folds may exist elsewhere but have simply not been recognized away from the near continuous exposure available in some of the underground workings of the goldfields.

As far as I am aware Threader's (of 1967) is the most recent serious attempt to relate the distribution of auriferous lodes to the regional structure and his work seems to be largely based on the occurrences in the Mathinna Goldfield. Threader appeared to consider that the deformation and structures in which gold lodes were precipitated at Mathinna were localized by a major NNW sinistral wrench fault known as the "Main Slide". He suggests that this fault extends for over 50 miles and has been an important control on gold mineralization in the adjacent goldfields.

However, Threader presents little direct evidence for the presence or importance of such a structure elsewhere than at Mathinna and his discussion concerning development of kink bands and etc and their implications of faulting are difficult to follow.

For the possible benefit of future workers who may come to grapple with the problem of structural control on the northeast goldfields, I have summarized relevant structural details from Threader (1967), Groves et al (1977) and McClenaghan (1982) as follows:

THREADER (1967) "Geology of the Mangana-Waterhouse Goldfields".

Mathinna Beds comprise lutite and upper arenite succession:

Arenites	2000ft	Siluro-Devonian?
Lutites	3000ft	Ordovician?

No clear boundary, gradual increase in turbidite activity (greywackes) upwards. Transitional zone between the two units of about 100ft thickness where lutites and arenites in equal abundance.

Major fold structures: wavelength of approx 2 miles (deducted from map)

Smaller scale folds presumed to be "plications" on the limbs.

Cleavage directions (stereographic maxima) are generally slightly ($\sim 10^{\circ}$) inclined to deduced axial plane of folds - casual ? or component of rotational stress?

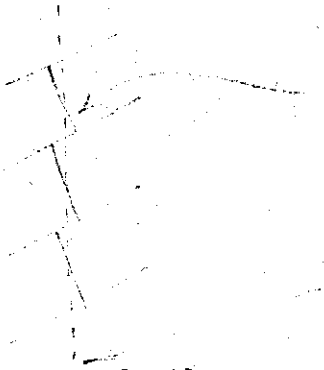
Mathinna Goldfield: Main Slide:

200ft wide zone of shearing and sporadic mineralization strike $\sim 165^{\circ}$ (T) dip 70° west. Principal lodes were in footwall (E) and ended abruptly in contact with this fault. But fault is pre lodes.

Threader's Sequence of Deformation:

- NNW folding, development of axial plane cleavage.
- Development of kink bands due to stress parallel to cleavage?
- Sinistral wrench movement on strike slip fault (Main Slide) parallel to fold axes/cleavage, movement concurrent and post folding.
  (East side North)

- Dextral NE shearing/faulting causing swings in cleavage, offsets in fold axes, en echelon? distribution of goldfields as below:



trend of individual goldfield = 140°M

overall trend of all goldfields = 150°M

Figs 42, 43!

Main Slide: Mathinna (New Golden Gate) P.126 Threader

160-270ft thick, several gouge filled shear (fault) zones with contorted ground between them. Overall trend 320°M dip 70°SW. Proved over 1000' strike, 1600' depth. Associated lodes are N-S, vertical.

Threader's opinion: Finucane's zone of close folding marks the Main Slide, ie main zone of weakness.

At Jubilee, NE trending fault with gold lodes, indicates pre mineralization movement on NE as well as NW trends.

Mathinna G.F. on upfaulted block, Mangana, Alberton, Dan Valley in river valleys, therefore major shear zone (c.f. Main Slide) not recognised in these areas because obscured by flood plain.

Considers that similar NNW parallel faults (to Main Slide) account for adjacent mineralized areas in Mathinna field and together form a major shear zone, linear for over 50 miles. Probably a wrench fault.

- no evidence of displacement
- but presence supported by arcuate folds (??) kink banding and linear form?

McCLENAGHAN et al (1982)

"Geology of Ringarooma-Boobyalla Area".
Geol. Survey of Tasmania, Bulletin 61.

Mathinna Beds possibly 350m thick in the Ringarooma-Lyndhurst tract.
Only the psammitic/pelitic sequence has been recognized.
(no pelitic as in Launceston, Pipers River)
Fossil plant fragments from Warrentinna Siding suggest
Early Devonian age. Graptolites at Back Creek indicate
Early Ordovician age.

Structure

Ringarooma-Lyndhurst tract

- fold trends NNE to NNW, open to tight, plunges shallow northerly or southerly, vergence is easterly, some folds have conical form.
  These folds and NW trending cleavage subsequently buckled around easterly trending axial surfaces and steeply plunging hinges prior to granite emplacement.

- Cleavage generally discordant to fold axial surfaces, suggesting that direction of folds controlled by pre existing structures oblique to the main flattening (compressional) direction.

(In Gladstone-Boobyalla tract cleavage is regionally concordant to fold axes with only local discordance.)

Three sub areas: (in Ringarooma-Lyndhurst tract)

1. - Branxholm-Mt Paris-Rattler Hill N-S strikes, steep W dips, vergence east?

2. - NNE from Billycock Hill - Warrentinna bedding trends NNE, dips steep, narrow hinge zones (2 measured fold axes shallow-moderate plunge SSW) cleavage oblique to fold axes, cleavage regionally subvertical,easterly vergence indicated by preference for westerly dips.

3. - Derby-Mt Horror-Lyndhurst.
bedding trends diffuse, predominantly N but also NNW and NNE, folds cylindroidal, steep dips, tight hinges, vergence to east.
Early cleavage sub vertical.

(P133) Variations in statistical trends possibly due to regional (pre granite) buckling about E-ESE axial surfaces and steep axes. (all early cleavages are steep)

In the Boobyalla (1:50 000) Quadrangle the sequence of deformation/granite intrusion seems to be:

1. Folding and cleavage formation in Mathinna Beds.

2. Intrusion of granodiorite.

3. Intrusion of granites, adamellite.

4. Flattening producing NNW-NW grain foliation in granitoids.

5. Conjugate Shearing (in granites, granodiorite) NW sinistral, NE dextral components.

6.7.8. Intrusion of further granitoids.

9. Tensional phase (s) producing long NE fractures and shorter NW and E-W fractures. (in granites, allowing dyke intrusions)
Further granitoid porphyry intrusions.

10. Flattening producing phenocryst foliations in post(5) granitoids.
Formation of crenulation cleavage in Mathinna Beds.

GROVES et al (1977) "The Blue Tier Batholith"
Geol. Survey. Tasmania, Bulletin 55

P.16

Mathinna Beds: Structure

Faults and fractures important in controlling mineralized lodes. Generally subdivided:

- long persistent fractures subparallel to NNW fold trends.

- smaller less persistent tension fractures of variable orientation but generally normal to fold axes.

These fracture systems appear to be related to folding and predate the granite intrusions which have been influenced in shape by the fracture directions.

REFERENCES

Groves, D.I. Cocker, J.D. Jennings, D.J.	1977	"The Blue Tier Batholith" Bulletin 55. Geol. Survey of Tasmania.
McClenaghan, M.P. et al	1982	"Geology of the Ringarooma-Boobyalla Area". Bulletin 61. Geol. Survey of Tasmania.
Threader, V.M.	1967	"The Geology of the Mangana-Waterhouse Goldfields" unpublished M.Sc. Thesis. University of Tasmania.

RELINQUISHED E.L. 17/86 BOUNDARY

RETAINED E.L. 17/86 BOUNDARY

CROWN LAND

STATE FOREST

FOREST KING

CLINTON

IMPERIAL

MT. HORROR Au

FISHER 64M/79

49M/84

MALABAR

PLANTATION

FORESTER

TRIG HILL

Dsg

Dsa

SDsm

SDs

Dba

Ts + Qa

PROJECTION: Mapping Division, Lands Department, Hobart 1982.
ACCURACY: Horizontal: 90% of well defined detail is within 12.5 metres of true position. Vertical: 90% of elevations are within 5 metres. These accuracies may not be achieved in areas of dense vegetation.
RELIABILITY: Topographic detail compiled from aerial photography flown 1981 with field verification February 1982.
NOMENCLATURE: Topographic names have been approved by the Nomenclature Board of Tasmania.
PUBLIC RIGHT OF WAY: Roads or tracks on this map do not necessarily indicate a public right of way.
To assist in correcting future editions of this map users noting errors and omissions are invited to write to the Director of Mapping, GPO Box 44A, Hobart Tasmania, 7001.

PROJECTION: Universal Transverse Mercator (UTM).
HORIZONTAL DATUM: Australian Geodetic Datum 1966.
VERTICAL DATUM: Australian Height Datum (Tasmania) - excepting offshore islands whose datum is mean sea level.
GRID: 1000 metre intervals of the Universal Transverse Mercator Grid, Zone 55 (Australian Map Grid). Australian National Spheroid. Grid values are shown at foot of the south west corner of the map.
CONTOUR INTERVAL: 10 metres with 50 metre index contours.

WORLD GEODETIC SYSTEM 1972: To convert co-ordinates from this system to Australian Geodetic Datum 1966, increase the value of latitudes by 0.1" and decrease the value of longitudes by 0.1". To obtain heights derive the satellite heights by [illegible] metres.

MAGNETIC VARIATION: True, Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for 1987 and moves easterly about 0.1° every two years.

Built up area with commercial centre
Roads maintained for continuous public use: Primary road: Route number; Secondary road: Route number
Roads of restricted use or access: Minor road: Route number; Other roads: Bridge
Walking track: Bridge
Railway: Station
Light railway
Power transmission line and pylon positions
Building: Feature of special interest: Rain: Mine
Post office: Police station: Fire station: School
Caravan park: Camping ground
Rubbish disposal area: Cemetery
Trigonometric station: Spot elevation
Contour with value: Depression contour
Quarry or open cut mine
Broken rocks surface
Dense forest: Medium forest
Low dense vegetation: Distinctive grass
Orchard: Pine plantation
Windbreak
Swamp: Land subject to flooding
Waterfall: Rapids
Indefinite shoreline or floodbank: Levee
Tidal rocks or ledge: Offshore rock
Lighthouse: Exposed wreck
Sand: Tidal reef
Sandy coastal flat: Tidal flat
Jetty: Launching ramp

SCALE 1:25000

BOUNDARIES shown on this map are NOT authoritative. For full particulars please consult the Registrar General's Department or the Lands Department.
Property and land parcel boundaries are shown as at July 1982.
Areas within gridformed towns in excl. than ten hectares are not depicted. To give a land parcel reference prefix parcel number with municipal number.
Municipality name
Municipality number
Municipality boundary
Ward name
Ward boundary
Town boundary
Reserve boundary
Property boundary: Land parcel boundary and number

MEAN [illegible] DECLINATION
J F M A M J J A S O N D

UNIVERSAL GRID REFERENCE

GRID ZONE DESIGNATION: 100,000 METRE SQUARE IDENTIFICATION
To give a standard reference to the nearest 100 metres:
State name and number of this map.
Locate two VERTICAL grid lines to the left of point and read large figures only to either the top or bottom margin e.g.
Estimate tenths from grid line to point e.g.
Locate two HORIZONTAL grid lines below the point and read large figures only to either the left or right margin e.g.
Estimate tenths from grid line to point e.g.
To give full grid reference: prefix with Grid Zone Designation and 100,000 metre Square Identification letters e.g.

INDEX TO ADJOINING MAPS
East Sandy Point
BRIDPORT 5246
OXBERRY 5446
MONARCH 5646
Bridport
BOWOOD 5245
PEARLY BROOK 5445
PIONEER 5845
Pioneer
Hermit
NAROWLA 5244
Narawla
SCOTTSDALE 5444
DERBY 5644
Branxholm

GEOLOGICAL LEGEND

QUATERNARY — Qa — River alluvium

TERTIARY
- Ts — Sub-basaltic gravels, sands, muds
- Tb — Basalt

JURASSIC — Jdl — Dolerite

PERMIAN — P — Sandstone and conglomerate

LATE DEVONIAN TO EARLY CARBONIFEROUS
- Dsa Dba — Granite - adamellite
- Dsg Dbg — Biotite - hornblende Granodiorite
  - Ds: Scottsdale Batholith
  - Db: Blue Tier Batholith

ORDOVICIAN TO DEVONIAN ?
- SDsm — Contact Metamorphosed Mathinna Beds
- SDs — Mathinna Beds: Turbiditic sequence of quartzwacke, siltstone, mudstone, shale

NOTE: Original coloured paper copies of 1:25,000 and 1:10,000 Outcrop Geology Plans show sedimentary lithotypes of Mathinna Beds by colour code

GEOLOGICAL SYMBOLS
(Generally as per BMR System, 1963
Ref: Field Geologists Manual, AIMM. Monograph No.9)

- 60 — Dip/Strike of sedimentary layering
- 60 — Dip/Strike of sedimentary layering with Younging direction indicated
- 70 — Dip/Strike of cleavage
- 15 — Direction and plunge of tectonic fold axis
- Fault. Teeth on underthrust block indicating direction of dip of fault plane

854150

5 cm

149

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86 87-2735

PEARLY BROOK SHEET

INTERPRETIVE GEOLOGY AND OLD MINE WORKINGS

DRAWN BY	W.H.
DRAFTSMAN	T.G.D.S.
DATE	Sep. '87
REVISIONS	
CHECKED	
FILE NO.	

SCALE 1:25,000 — 500 0 500 1000 METRES

FIG. 2

RETAINED E.L. 17/86 BOUNDARY

GEOLOGICAL LEGEND

QUATERNARY	Qa	River alluvium	
TERTIARY	Ts	Sub-basaltic gravels, sands, muds	
	Tb	Basalt	
JURASSIC	Jdl	Dolerite	
PERMIAN	P	Sandstone and conglomerate	
LATE DEVONIAN TO EARLY CARBONIFEROUS	Dsa Dba	Granite - adamellite	Ds: Scottsdale Batholith
	Dbs Dbb	Biotite - hornblende Granodiorite	Db: Blue Tier Batholith
ORDOVICIAN TO DEVONIAN ?	SDsm	Contact Metamorphosed Mathinna Beds	
	SDs	Mathinna Beds: Turbiditic sequence of quartzwacke, siltstone, mudstone, shale	

NOTE: Original coloured paper copies of 1:25,000 and 1:10,000 Outcrop Geology Plans show sedimentary lithotypes of Mathinna Beds by colour code

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(Generally as per BMR System, 1963
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- 70 — Dip/Strike of cleavage
- 15 — Direction and plunge of tectonic fold axis
- Fault. Teeth on underthrust block indicating direction of dip of fault plane

PROJECTION: Universal Transverse Mercator (UTM)
HORIZONTAL DATUM: Australian Geodetic Datum 1966
VERTICAL DATUM: Australian Height Datum (Tasmania) excepting offshore islands whose datum is mean sea level
GRID: 1000 metre intervals of the Universal Transverse Mercator Grid: Zone 55 (Australian Map Grid). Australian National Spheroid
Grid values are shown in full at the south west corner of the map.
CONTOUR INTERVAL: 10 metres with 50 metre index contours

WORLD GEODETIC SYSTEM 1972: To convert co-ordinates from this system to Australian Geodetic Datum 1966, increase the value of latitudes by 5.3" and decrease the value of longitudes by 4.1". To obtain height decrease satellite heights by 2 metres.

MAGNETIC VARIATION: True Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for 1982 and moves easterly about 0.1° every two years.

© TASMANIAN GOVERNMENT 1982

PRODUCTION: Mapping Division, Lands Department, Hobart 1982
ACCURACY: Horizontal: 80% of well defined detail is within 12.5 metres of true position
Vertical: 90% of elevations are within 5 metres. These accuracies may not be achieved in areas of dense vegetation
RELIABILITY: Topographic detail compiled from aerial photography flown 1981 with field verification 1982
NOMENCLATURE: Topographic names have been approved by the Nomenclature Board of Tasmania.
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Built-up area with commercial centre
Reads maintained for continuous public use — Primary road: Route number; Secondary road: Route number
Roads of restricted use or access — Minor road: Route number; Other roads: Bridge; Vehicular track: Gate
Walking track: Bridge
Railway: Station
Light railway
Power transmission line and pylon positions
Building: Feature of special interest: Ruin: Mine
Post office: Police station: Fire station: School

SCALE 1:25 000
1 millimetre represents 25 metres

Caravan park: Camping ground
Rubbish disposal area: Cemetery
Trigonometric station: Spot elevation
Contour with value: Depression contour
Quarry or open cut mine
Broken rocky surface
Dense forest: Medium forest
Low dense vegetation: Distinctive grass
Orchard: Pine plantation
Windbreak
Swamp: Land subject to flooding
Waterfall: Rapids
Indefinite shoreline or floodbank: Levee
Tidal rocks or ledge: Offshore rock
Lighthouse: Exposed wreck
Sand: Tidal reef
Saline coastal flat: Tidal flats
Jetty: Launching ramp

BOUNDARIES shown on this map are NOT authoritative. For full particulars please consult the Registrar General's Department or the Lands Department.
Property and land parcel boundaries are shown as at March 1982.
Areas within proclaimed towns or less than two hectares are not depicted. To give a land parcel reference prefix parcel number with municipal number.

Municipality name
Municipality number
Municipality boundary
Ward name
Ward boundary
Town boundary
Reserve boundary
Property boundary. Land parcel boundary and number

MEAN TEMPERATURE RAINFALL
J F M A M J J A S O N D

UNIVERSAL GRID REFERENCE
GRID ZONE DESIGNATION: 55G
100 000 METRE SQUARE IDENTIFICATION: EQ
1 To give a standard reference to the nearest 100 metres
2 Locate first VERTICAL grid line to the left of point and read large figures only in either the top or bottom margin e.g. 81
Estimate tenths from grid line to point: e.g. 3
3 Locate first HORIZONTAL grid line below the point and read large figures only in either the left or right margin e.g. 53
Estimate tenths from grid line to point: e.g. 4
SAMPLE POINT: 815534
To give full grid reference, prefix with Grid Zone Designation and 100 000 metre Square Identification letters e.g. 55GEQ815534

INDEX TO ADJOINING MAPS
Waterhouse
OXBERRY 5444 | MONARCH 5646 | GLADSTONE 5846
PEARLY BROOK 5445 | PIONEER 5845 Printed | LANKA 5845
SCOTTSDALE 5444 | DERBY 5644 | SPURRS RIVULET 5844
Branxholm

854151

5 cm

150

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86 87-2735

PIONEER SHEET

INTERPRETIVE GEOLOGY AND OLD MINE WORKINGS

SCALE 1:25,000 — 500 0 500 1000 METRES

DRAWN BY	W.H.
DRAFTSMAN	T.G.D.S.
DATE	Sep. '87
REVISIONS	
CHECKED	
FILE NO.	

FIG. 3

RELINQUISHED E.L. 17/86 BOUNDARY

RETAINED E.L. BOUNDARY

STATE FOREST

SCOTTSDALE

KAMONA PLANTATION

WARRENTINNA PLANTATION

DAWN OF PEACE

Dsg

Ts + Qa

Tb

PROJECTION: Mapping Division Lands Department Hobart 1982
ACCURACY: Horizontal: 90% of well defined detail is within 12.5 metres of true position. Vertical: 90% of elevations are within 5 metres. These accuracies may not be achieved in areas of dense vegetation.
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TASMANIAN GOVERNMENT

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VERTICAL DATUM: Australian Height Datum (Tasmania) : excepting offshore islands whose datum is mean sea level.
GRID: 1000 metre intervals of the Universal Transverse Mercator Grid, Zone 55 (Australian Map Grid). Australian National Spheroid. Grid values are shown in full at the south-west corner of the map.
CONTOUR INTERVAL: 10 metres with 50 metre index contours.

WORLD GEODETIC SYSTEM 1972: To convert co-ordinates from this system to Australian Geodetic Datum 1966: increase the value of latitudes by 3 " and decrease the value of longitudes by 3 ". To obtain heights decrease satellite heights by 1 metres.

MAGNETIC VARIATION: True Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for 1982 and moves easterly about 0.1° every two years.

GRID CONVERGENCE 1.5°

MAGNETIC VARIATION 11.9°

Built up area with commercial centre
Primary road: Route number
Secondary road: Route number
Minor road: Route number
Other roads: Bridge
Vehicular track: Gate
Roads maintained for continuous public use
Roads of restricted use or access
Walking track: Bridge
Railway: Station
Light railway
Power transmission line and pylon position
Building: Feature of special interest: Ruin, Mine
Post office: Police station: Fire station: School
Caravan park: Camping ground
Rubbish disposal area: Cemetery
Trigonometric station: Spot elevation
Contour with value: Depression contour
Quarry or open cut mine
Broken rocky surface
Dense forest: Medium forest
Low dense vegetation: Distinctive grass
Orchard, Pine plantation

SCALE 1:25 000

Windbreak
Swamp: Land subject to flooding
Waterfall: Rapids
Indefinite shoreline or Floodbank: Levee
Tidal rocks or ledge: Offshore rock
Lighthouse: Exposed wreck
Sand: Tidal reef
Saline coastal flat: Tidal flats
Jetty: Launching ramp

BOUNDARIES shown on this map are NOT authoritative. For full particulars please consult the Registrar General's Department or the Lands Department.
Property and land parcel boundaries are shown as at November 1982.
Areas within proclaimed towns or less than two hectares are not depicted. To give a land parcel reference prefix parcel number with municipal number.

Municipality name
Municipality number
Municipality boundary
Ward name
Ward boundary
Town boundary
Reserve boundary
Property boundary: Land parcel boundary and number

MEAN TEMPERATURE RANGE (°C)
J F M A M J J A S O N D

UNIVERSAL GRID REFERENCE

GRID ZONE DESIGNATION for 100 km METRE SQUARE IDENTIFICATION: 55G MD

To give a standard reference to the nearest 100 metres:
1. State name and number of this map.
2. Locate from VERTICAL grid line to the left of point and read large figures, rule in within the top or bottom margin e.g. 41
Estimate tenths from grid line to point e.g. 7
3. Locate from HORIZONTAL grid line below the point and read large figures, rule in within the left or right margin e.g. 61
Estimate tenths from grid line to point e.g. 6
EASTH 1 NORTH 1 KM Grid Intervals 473416
To give full grid reference: prefix with Grid Zone Designation and 100 000 metre Square Identification letters e.g. 55GMD473416

INDEX TO ADJOINING MAPS

SOWOOD 5245
PEARLY BROOK 5445
PIONEER 5645
NABOWLA 5246
SCOTTSDALE 5444
DERBY 5644
LISLE 5243
SPRINGWATER 5443
RINGAROOMA 5643

GEOLOGICAL LEGEND

QUATERNARY — Qa — River alluvium

TERTIARY — Ts — Sub-basaltic gravels, sands, muds
Tb — Basalt

JURASSIC — Jdl — Dolerite

PERMIAN — P — Sandstone and conglomerate

LATE DEVONIAN TO EARLY CARBONIFEROUS — Dsg — Granite - adamellite
Dbg — Biotite - hornblende Granodiorite
Ds: Scottsdale Batholith
Db: Blue Tier Batholith

ORDOVICIAN TO DEVONIAN ? — SDsm — Contact Metamorphosed Mathinna Beds
SDs — Mathinna Beds: Turbiditic sequence of quartzwacke, siltstone, mudstone, shale

NOTE: Original coloured paper copies of 1:25,000 and 1:10,000 Outcrop Geology Plans show sedimentary lithotypes of Mathinna Beds by colour code

GEOLOGICAL SYMBOLS
(Generally as per BMR System, 1963
Ref: Field Geologists Manual, AIMM. Monograph No.9)

60 — Dip/Strike of sedimentary layering
60 — Dip/Strike of sedimentary layering with Younging direction indicated
70 — Dip/Strike of cleavage
15 — Direction and plunge of tectonic fold axis
Fault. Teeth on underthrust block indicating direction of dip of fault plane

854152

5 cm

151

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86
87-2735
SCOTTSDALE SHEET

INTERPRETIVE GEOLOGY AND OLD MINE WORKINGS

DRAWN BY : W.H.
DRAFTSMAN : T.G.D.S.
DATE : Sep. '87
REVISIONS :
CHECKED :
FILE NO.

SCALE 1: 25,000 — 500 0 500 1000 METRES

FIG. 4

RETAINED E.L. 17/86 BOUNDARY

RELINQUISHED E.L. 17/86 BOUNDARY

RELINQUISHED

STATE FOREST

CROWN LAND

WARRENTINNA PLANTATION

BRANXHOLM

WINNALEAH

DERBY

KERRISON'S

BENNETT 35M/77 36M/77

WEST RENOWN

RENOWN No 1

GOLD DYKE

DERBY

NORTH MARA

GOLDEN MARA

BAILEYS ADIT

EAST VOLUNTEER ADIT

GOLDEN CREST

PEARCES REEF

GOLDEN KING

33M/85

16M/80 27M/80 41M/77 7M/87 46M/85 40M/77

6M/80 7M/80 8M/80 18M/81 4M/72

SDs SDsm Tb Ts + Qa Qa Dba Dbg

Ardea Hill Josephs Hill Gravs Hill Murrays Lookout Cascade Dam Mutual Hill Kent Hill Glaucester Hill Frame Hill Moonna Hill Weld Hill Jubilee Hill Emu Hill York Hill Garibaldi Hill

Constance Creek Hardmans Hill Fraser Creek Frasers Flats Valley Creek Ringarooma River Ringarooma Creek Bluff Creek Cascade Creek Blackstone Creek Pinnacle Creek Ringarooma Dam Frame Dam

PROJECTION: Mapping Division, Lands Department, Hobart 1982.
ACCURACY: Horizontal: 90% of well defined detail is within 125 metres of true position. Vertical: 90% of elevations are within 5 metres. These accuracies may not be achieved in areas of dense vegetation.
RELIABILITY: Topographic detail compiled from aerial photography flown 1981 with field verification 1982.
NOMENCLATURE: Topographic names have been approved by the Nomenclature Board of Tasmania.
PUBLIC RIGHT OF WAY: Roads or tracks on this map do not necessarily indicate a public right of way.
To assist in correcting future editions of this map, users noting errors and omissions are invited to write to the Director of Mapping, GPO Box 44A, Hobart, Tasmania, 7001.

PROJECTION: Universal Transverse Mercator (UTM)
HORIZONTAL DATUM: Australian Geodetic Datum 1966
VERTICAL DATUM: Australian Height Datum (Tasmania) excepting offshore islands whose datum is mean sea level.
GRID: 1000 metre intervals of the Universal Tranverse Mercator Grid, Zone 55 (Australian Map Grid). Australian National Spheroid. Grid values are shown in full at the south-west corner of the map.
CONTOUR INTERVAL: 10 metres with 50 metre index contours.
WORLD GEODETIC SYSTEM 1972: To convert co-ordinates from this system to Australian Geodetic Datum 1966, increase the value of latitudes by 5.3 and decrease the value of longitudes by 4.7". To obtain heights decrease satellite heights by 7 metres.
MAGNETIC VARIATION: True, Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for 1982 and moves easterly about 0.1° every two years.

GRID CONVERGENCE 0.5°
GRID MAGNETIC ANGLE 11.5°

Built up area with commercial centre
Roads maintained for continuous public use — Primary road, Route number; Secondary road, Route number; Minor road, Route number
Roads of restricted use or access — Other roads, Bridge
Walking track, Bridge
Railway, Station
Light railway
Power transmission line and pylon positions
Building, Feature of special interest, Ruin, Mine
Post office, Police station, Fire station, School

Caravan park, Camping ground
Rubbish disposal area, Cemetery
Trigonometric station, Spot elevation
Contour with value, Depression contour
Quarry or open cut mine
Broken rocky surface
Dense forest, Medium forest
Low dense vegetation, Distinctive grass
Orchard, Pine plantation

SCALE 1:25 000
millimetre represents 25 metres

Windbreak
Swamp, Land subject to flooding
Waterfall, Rapids
Indefinite shoreline or floodbank, Levee
Tidal rocks or ledge, Offshore rock
Lighthouse, Exposed wreck
Sand, Tidal reef
Saltpan, coastal flat, Tidal flats
Jetty, Launching ramp

BOUNDARIES shown on this map are NOT authoritative. For full particulars please consult the Registrar General's Department or the Lands Department.
Property and land parcel boundaries are shown as at October 1982.
Areas within proclaimed towns or less than two hectares are not depicted. To give a land parcel reference, prefix parcel number with municipal number.

Municipality name
Municipality number
Municipality boundary
Ward name
Ward boundary
Town boundary
Reserve boundary
Property boundary, Land parcel boundary and number — 0371

MEAN TEMPERATURE RAINFALL
Station SCOTTSDALE (AWS) 1500 Elevation 180m
For temperatures at higher elevations see Lapse Rate Information
J F M A M J J A S O N D

UNIVERSAL GRID REFERENCE

GRID ZONE DESIGNATION 100 000 METRE SQUARE IDENTIFICATION — 55E ED

To give a standard reference to the nearest 100 metres:
1. State name and number of this map
2. Locate first VERTICAL grid line to the left of point and read large figures only in either the top or bottom margin e.g. 70 (Eastings)
Estimate tenths from grid line to point e.g. 4
3. Locate first HORIZONTAL grid line below the point and read large figures only in either the left or right margin e.g. 44 (Northings)
Estimate tenths from grid line to point e.g. 9
EXAMPLE POINT: Mutual Hill — 704447
To give full grid reference, prefix with Grid Zone Designation and 100 000 metre Square Identification letters e.g. 55GE0704447

INDEX TO ADJOINING MAPS

PEARLY BROOK 5445 | PIONEER 5845 | LANKA 5845
SCOTTSDALE 5444 | DERBY 5844 | SPURRS RIVULET 5844
SPRINGFIELD 5443 | RINGAROOMA 5843 | BLUE TIER 5843

GEOLOGICAL LEGEND

QUATERNARY — Qa — River alluvium
TERTIARY — Ts — Sub-basaltic gravels, sands, muds
TERTIARY — Tb — Basalt
JURASSIC — Jdl — Dolerite
PERMIAN — P — Sandstone and conglomerate
LATE DEVONIAN TO EARLY CARBONIFEROUS — Dsa Dba — Granite - adamellite
LATE DEVONIAN TO EARLY CARBONIFEROUS — Dsa Dbg — Biotite - hornblende Granodiorite
Ds : Scottsdale Batholith
Db : Blue Tier Batholith

ORDOVICIAN TO DEVONIAN ? — SDsm — Contact Metamorphosed Mathinna Beds
ORDOVICIAN TO DEVONIAN ? — SDs — Mathinna Beds: Turbiditic sequence of quartzwacke, siltstone, mudstone, shale

NOTE: Original coloured paper copies of 1:25,000 and 1:10,000 Outcrop Geology Plans show sedimentary lithotypes of Mathinna Beds by colour code

GEOLOGICAL SYMBOLS
(Generally as per BMR System, 1963
Ref: Field Geologists Manual, AIMM. Monograph No. 9)

60 — Dip/Strike of sedimentary layering
60 — Dip/Strike of sedimentary layering with Younging direction indicated
70 — Dip/Strike of cleavage
15 — Direction and plunge of tectonic fold axis
Fault. Teeth on underthrust block indicating direction of dip of fault plane

854153

5 cm

7182

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86 87-2735

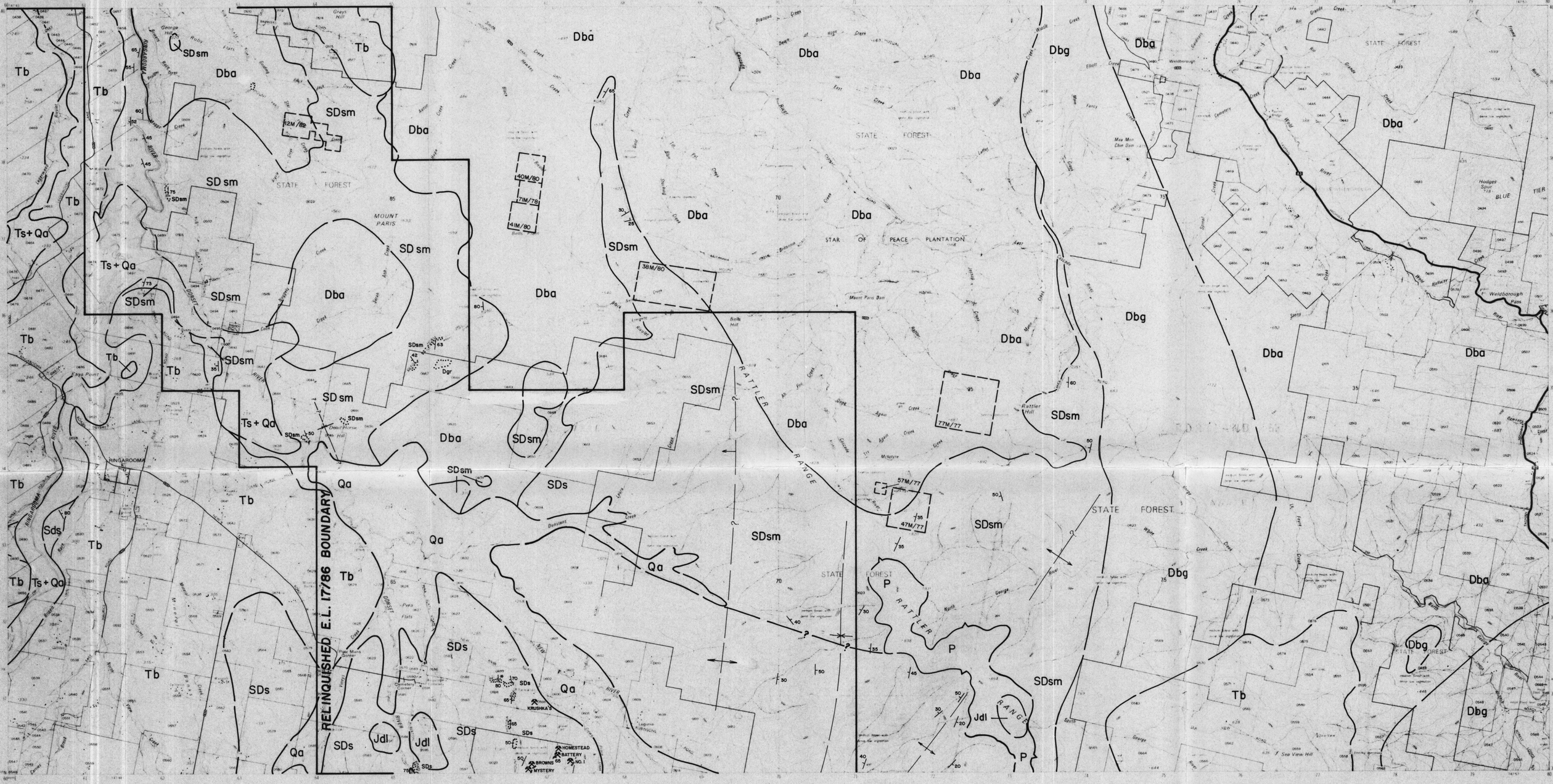
DERBY SHEET

INTERPRETIVE GEOLOGY AND OLD MINE WORKINGS

SCALE 1: 25,000 — 500 0 500 1000 METRES

DRAWN BY : W.H.
DRAFTSMAN : T.G.D.S.
DATE : Sep. '87
REVISIONS :
CHECKED :
FILE NO.

FIG. 5



PRODUCTION: Mapping Division, Lands Department, Hobart 1982
ACCURACY: Horizontal: 90% of well defined detail is within 12.5 metres of true position. Vertical: 90% of elevations are within 5 metres. These accuracies may not be achieved in areas of dense vegetation
RELIABILITY: Topographic detail compiled from aerial photographs flown 1981 with field verification 1982
NOMENCLATURE: Topographic names have been approved by the Nomenclature Board of Tasmania
PUBLIC RIGHT OF WAY: Roads or tracks on this map do not necessarily indicate a public right of way.
To assist in correcting future editions of this map, users noting errors and omissions are invited to write to the Director of Mapping, GPO Box 44A, Hobart Tasmania, 7001

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PROJECTION: Universal Transverse Mercator (UTM)
HORIZONTAL DATUM: Australian Geodetic Datum 1966
VERTICAL DATUM: Australian Height Datum (Tasmania) - excepting offshore islands whose datum is mean sea level
GRID: 1000 metre intervals of the Universal Transverse Mercator Grid. Zone 55 (Australian Map Grid). Australian National Spheroid. Grid values are shown in full at the south-west corner of the map.
CONTOUR INTERVAL: 10 metres with 50 metre index contours

WORLD GEODETIC SYSTEM 1972: To convert co-ordinates from this system to Australian Geodetic Datum 1966, increase the value of latitudes by 5.3" and decrease the value of longitudes by 4.2". To obtain heights decrease satellite heights by 2 metres.

MAGNETIC VARIATION: True Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for 1982 and moves easterly about 0.1° every two years

GRID ZONE DESIGNATION
GRID MAGNETIC ANGLE

Built up area with commercial centre
Roads maintained for continuous public use
Roads of restricted use or access
Walking track, Bridge
Railway, Station
Light railway
Power transmission line and pylon positions
Building, Feature of special interest, Ruin, Mine
Post office, Police station, Fire station, School
Primary road, Route number
Secondary road, Route number
Minor road, Route number
Other roads, Bridge
Vehicular track, Gate

Caravan park, Camping ground
Rubbish disposal area, Cemetery
Trigonometric station, Spot elevation
Contour with value, Depression contour
Quarry or open cut mine
Broken rocky surface
Dense forest, Medium forest
Low dense vegetation, Distinctive grass
Orchard, Pine plantation
Windbreak
Swamp, Land subject to flooding
Waterfall, Rapids
Indefinite shoreline or floodbank, Levee
Total rocks or ledge, Offshore rock
Lighthouse, Exposed wreck
Sand, Tidal reef
Saline coastal flat, Tidal flats
Jetty, Launching ramp

SCALE 1:25 000
Kilometres represents 25 metres

BOUNDARIES shown on this map are NOT authoritative. For full particulars please contact the Registrar General's Department or the Lands Department
Property and land parcel boundaries are shown as at March 1982
Areas within proclaimed towns, or less than two hectares are not depicted. To give a land parcel reference, prefix parcel number with municipal number

Municipality name
Municipality number
Municipality boundary
Ward name
Ward boundary
Town boundary
Reserve boundary
Property boundary. Land parcel boundary and number

GEOLOGICAL LEGEND

QUATERNARY	Qa	River alluvium	
TERTIARY	Ts	Sub-basaltic gravels, sands, muds	
	Tb	Basalt	
JURASSIC	Jdl	Dolerite	
PERMIAN	P	Sandstone and conglomerate	
LATE DEVONIAN TO EARLY CARBONIFEROUS	Dsa Dba	Granite - adamellite	Da: Scottsdale Batholith
	Dsg Dbg	Biotite - hornblende Granodiorite	Db: Blue Tier Batholith
ORDOVICIAN TO DEVONIAN ?	SDsm	Contact Metamorphosed Mathinna Beds	
	SDs	Mathinna Beds: Turbiditic sequence of quartzwacke, siltstone, mudstone, shale	

NOTE: Original coloured paper copies of 1:25,000 and 1:10,000 Outcrop Geology Plans show sedimentary lithotypes of Mathinna Beds by colour code

GEOLOGICAL SYMBOLS

(Generally as per BMR System, 1963
Ref: Field Geologists Manual, AIMM. Monograph No. 9)

- Dip/Strike of sedimentary layering
- Dip/Strike of sedimentary layering with Younging direction indicated
- Dip/Strike of cleavage
- Direction and plunge of tectonic fold axis
- Fault. Teeth on underthrust block indicating direction of dip of fault plane

MEAN TEMPERATURE RANGE (°C)
J F M A M J J A S O N D

UNIVERSAL GRID REFERENCE

GRID ZONE DESIGNATION 55 (55000 METRE SQUARE GRID IDENTIFICATION)

To give a standard reference to the nearest 100 metres
1. State name and number of this map
2. Locate first VERTICAL grid line to the left of point and read large figures only in either the top or bottom margin e.g. 73
Estimate tenths from grid line to point e.g. 3
3. Locate first HORIZONTAL grid line below the point and read large figures only in either the left or right margin e.g. 48
Estimate tenths from grid line to point e.g. 6
EXAMPLE POINT: 733148
To give full grid reference, prefix with Grid Zone Designation and 100 000 metre Square Identification letters e.g. 55GE733148

INDEX TO ADJOINING MAPS
Harrisville, Scottsdale 5444, Derby 5644, Spurrs Rivulet 5844, Branxholm, Springfield 5443, Ringarooma 5643, Blue Tier 5843, Mount Maurice 5442, Mount Victoria 5642, Pyengana 5842, St He

GOVERNMENT PRINTER, TASMANIA

854154

5 cm

GOLD FIELDS EXPLORATION PTY LIMITED

E.L. 17/86 87·2735
RINGAROOMA SHEET

INTERPRETIVE GEOLOGY AND OLD MINE WORKINGS

SCALE 1: 25,000 (500 0 500 1000 METRES)

DRAWN BY: W.H.
DRAFTSMAN: T.G.D.S.
DATE: Sep. '87
REVISIONS:
CHECKED:
FILE NO.

FIG. 6

RELINQUISHED E.L. 17/86 BOUNDARY

RETAINED E.L. 17/86 BOUNDARY

E.L. 23/82 BOUNDARY

STATE FOREST

MOUNT VICTORIA FOREST RESERVE

ST COLUMBA FALLS STATE RESERVE

CROWN LAND

RECLAIMED TOWN OF ALBERTON

MATHINNA PLAINS

Cottons Plain

West Pyengana

Blackboy Plain

EDWARDS PEAK

MOUNT YOUNG PLANTATION

PROJECTION: Mapping Division. Lands Department, Hobart. 1985.
ACCURACY: Horizontal: 90% of well defined detail is within 12.5 metres of true position.
Vertical: 90% of elevations are within 5 metres. These accuracies may not be achieved in areas of dense vegetation
RELIABILITY: Topography compiled from aerial photography flown 1983 with field verification. 1985.
NOMENCLATURE: Place names have been approved by the Nomenclature Board of Tasmania
PUBLIC RIGHT OF WAY: Roads on this map do not necessarily indicate a public right of way.
REVISION: A five yearly revision cycle is intended for this series. Users noting errors and omissions are invited to write to the Director of Mapping, GPO Box 44A, Hobart, Tasmania, 7001
© TASMANIAN GOVERNMENT 1985

PROJECTION: Universal Transverse Mercator (UTM)
HORIZONTAL DATUM: Australian Geodetic Datum 1966
VERTICAL DATUM: Australian Height Datum (Tasmania) - elevations excepting offshore islands whose datum is mean sea level
GRID: 1000 metres intervals of the Universal Transverse Mercator Grid, Zone 56 (Australian Map Grid). Australian National Spheroid. Grid values are shown in full at the south west corner of the map
CONTOUR INTERVAL: 10 metres with 50 metre index contours
WORLD GEODETIC SYSTEM 1972: To convert co-ordinates from this system to Australian Geodetic Datum 1966: increase the value of latitudes by 5.2" equivalent to 164 metres, and decrease the value of longitudes by 4.7" equivalent to 98 metres. To obtain heights decrease satellite heights by 2 metres.
MAGNETIC VARIATION: True, Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for 1985 and moves easterly about 0.1° every two years

GRID CONVERGENCE 19° — GN — 7½ MIN — GRID-MAGNETIC ANGLE 14.2°

Residential area; Commercial buildings
Roads maintained for continuous public use: Primary road with route number; Secondary road with route number; Minor road with route number; Other road
Roads of restricted use or access: Other roads with bridge; Vehicular track with gate
Walking track or horse trail (approximate position) with bridge
Railway with station; Places entered in National Estate Register
Power transmission line and pylon positions
Building; Feature of historic or special interest; Ruin; Mine
Post office; Police station; Fire station; School

1000 750 500 0 metres

SCALE 1:25 000
1 millimetre on the map represents 25 metres on the ground
1 0 1 2 3 4 kilometres

Caravan park; Camping ground; Public toilets
Disposal area; Information centre; Cemetery
Picnic area; Trig station beacon; Spot elevation
Contour with value; Depression contour
Quarry, pit or open cut mine
Rock scree; Broken rocky surface
Dense forest; Medium forest
Low dense vegetation; Distinctive grass
Orchard; Pine plantation
Eucalypt plantation; Submerged trees
Swamp
Windbreak
Wet area; Subject to flooding
Waterfall; Rapids
Indefinite shoreline or floodbank; Levee
Tidal rocks or ledge; Offshore rock
Navigation light or lighthouse; Exposed wreck
Sand; Tidal reef
Saline coastal flat; Tidal flats
Jetty; Launching ramp

BOUNDARIES shown on this map are NOT authoritative. For full particulars please consult the Registrar-General's Division. Law Department, or the Survey Division. Lands Department. Areas within proclaimed towns or less than two hectares may not be depicted. Boundaries of Crown Land (including Reserves) extend to low water mark. To give a land parcel reference, prefix parcel number with municipal number. To use this number to gain title or survey information please consult the Mapping Division. Property and parcel boundaries are shown as at July 1985.
Municipality name and number
Municipality boundary
Ward name
Ward boundary
Town boundary; Other administrative boundaries
Reserve boundary; Vinculum or joining symbol
Property boundary. Land parcel boundary and number
Boundary location uncertain or indefinite

MEAN TEMPERATURE RAINFALL
J F M A M J J A S O N D

UNIVERSAL GRID REFERENCE

	Easting	Northing
GRID ZONE DESIGNATION 100 000 METRE SQUARE IDENTIFICATION	556	EQ
To give a standard reference to the nearest 100 metres:		
1 State name and number of this map		
2 Locate first VERTICAL grid line to the left of point and read large figures only in either the top or bottom margin e.g.	70	
Estimate tenths from grid line to point: e.g.	7	
3 Locate first HORIZONTAL grid line below the point and read large figures only in either the left or right margin e.g.		23
Estimate tenths from grid line to point: e.g.		7
SAMPLE POINT: a 1213 MOUNT VICTORIA	702237	
To give full grid reference prefix with Grid Zone Designation and 100 000 metre Square Identification letters e.g.	556EQ702237	

INDEX TO ADJOINING MAPS

SPRINGFIELD 5443	RINGAROOMA 5643	BLUE TIER 5643
MAURICE 5442	VICTORIA 5642	PYENGANA 5842
BEN NEVIS 5441	SADDLEBACK Upper Esk 5641	BRILLIANT 5841

GEOLOGICAL LEGEND

QUATERNARY	Qa	River alluvium	
TERTIARY	Ts	Sub-basaltic gravels, sands, muds	
	Tb	Basalt	
JURASSIC	Jdl	Dolerite	
PERMIAN	P	Sandstone and conglomerate	
LATE DEVONIAN TO EARLY CARBONIFEROUS	Dsa Dba	Granite - adamellite	Da: Scottsdale Batholith
	Dsa Dbg	Biotite - hornblende Granodiorite	Db: Blue Tier Batholith
ORDOVICIAN TO DEVONIAN ?	SDsm	Contact Metamorphosed Mathinna Beds	
	SDs	Mathinna Beds: Turbiditic sequence of quartzwacke, siltstone, mudstone, shale	

NOTE: Original coloured paper copies of 1:25,000 and 1:10,000 Outcrop Geology Plans show sedimentary lithotypes of Mathinna Beds by colour code

GEOLOGICAL SYMBOLS
(Generally as per BMR System, 1963
Ref: Field Geologists Manual, AIMM. Monograph No.9)

60 Dip/Strike of sedimentary layering
60 Dip/Strike of sedimentary layering with Younging direction indicated
70 Dip/Strike of cleavage
15 Direction and plunge of tectonic fold axis
Fault. Teeth on underthrust block indicating direction of dip of fault plane

854155

5 cm

7184

GOLD FIELDS EXPLORATION PTY. LIMITED

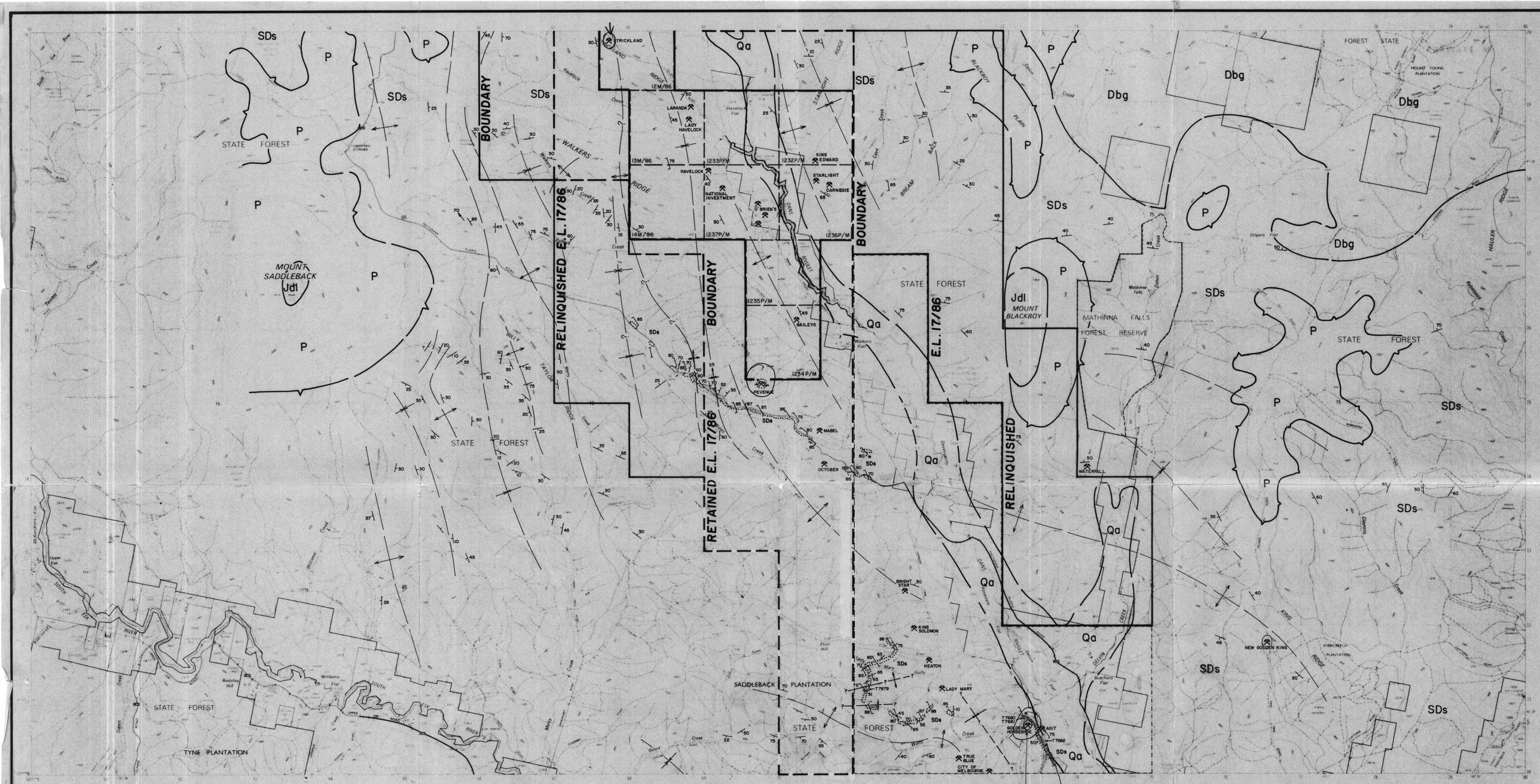
E.L. 17/86
87-2735
VICTORIA SHEET

INTERPRETIVE GEOLOGY AND OLD MINE WORKINGS

SCALE 1: 25,000 — 500 0 500 1000 METRES

DRAWN BY : W.H.
DRAFTSMAN : T.G.D.S.
DATE : Sep. '87
REVISIONS :
CHECKED :
FILE NO.

FIG. 7



PROJECTION: Universal Transverse Mercator (UTM).
HORIZONTAL DATUM: Australian Geodetic Datum 1966.
VERTICAL DATUM: Australian Height Datum (Tasmania) accepting offshore islands whose datum is mean sea level.
GRID: 1000 metre intervals of the Universal Transverse Mercator Grid Zone 55 (Australian Map Grid). Australian National Spheroid. Grid values are shown in full at the south west corner of the map.
CONTOUR INTERVAL: 10 metres with 50 metre index contours.
WORLD GEODETIC SYSTEM 1972: To convert co-ordinates from this system to Australian Geodetic Datum 1966: increase the value of latitudes by 5.7", equivalent to 164 metres, and decrease the value of longitudes by 4.2", equivalent to 96 metres. To obtain heights decrease satellite heights by 2 metres.
MAGNETIC VARIATION: True, Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for 1986 and moves easterly about 0.1° every two years.

PRODUCTION: Mapping Division, Lands Department, Hobart, 1986.
ACCURACY: Horizontal: 90% of well defined detail is within 12.5 metres of true position. Vertical: 90% of elevations are within 5 metres. These accuracies may not be achieved in areas of dense vegetation.
RELIABILITY: Topography compiled from aerial photography flown 1982 with field verification 1985.
NOMENCLATURE: Place names have been approved by the Nomenclature Board of Tasmania.
PUBLIC RIGHT OF WAY: Roads on this map do not necessarily indicate a public right of way.
REVISION: A five yearly revision cycle is intended for this series. Users noting errors and omissions are invited to write to the Director of Mapping, GPO Box 44A, Hobart, Tasmania 7001.

© TASMANIAN GOVERNMENT 1986

GRID CONVERGENCE 0°
GRID MAGNETIC ANGLE 14°

Residential area. Commercial buildings
Primary road with route number
Roads maintained for continuous public use: Secondary road with route number
Minor road with route number
Other road
Roads of restricted use or access: Other roads with bridge
Vehicular track with gate
Walking track or horse trail (approximate position) with bridge
Railway with station. Places entered in National Estate Register
Power transmission line and pylon positions
Building. Feature of historic or special interest. Ruin. Mine
Post office. Police station. Fire station. School

1000 750 500 0 metres

SCALE 1:25,000
1 millimetre on the map represents 25 metres on the ground

Caravan park. Camping ground. Public toilets
Disposal area. Information centre. Cemetery
Picnic area. Trig station beacon. Spot elevation
Contour with value. Depression contour
Quarry, pit or open cut mine
Rock scree. Broken rocky surface
Dense forest. Medium forest
Low dense vegetation. Distinctive grass
Orchard. Pine plantation
Eucalypt plantation. Submerged trees
Swamp
Windbreak
Wetlands. Subject to flooding
Waterfall. Rapids
Indefinite shoreline or floodbank. Levee
Tidal rocks or ledge. Offshore rock
Navigation light or lighthouse. Exposed wreck
Spit. Tidal reef
Saline coastal flat. Tidal flats
Jetty. Launching ramp

BOUNDARIES shown on this map are NOT authoritative. For full particulars please consult the Registrar-General's Division, Law Department, or the Survey Division, Lands Department. Areas within proclaimed towns or less than two hectares may not be depicted. Boundaries of Crown Land (including Reserves) extend to low water mark. To give a land parcel reference: prefix parcel number with municipal number. To use this number to plan title or survey information please consult the Mapping Division. Property and parcel boundaries are shown as at September 1985.
Municipality name and number
Municipality boundary
Ward name
Ward boundary
Town boundary. Other administrative boundaries
Reserve boundary. Vinculum or jennie symbol
Property boundary. Land parcel boundary and number
Boundary location uncertain or indefinite

MEAN TEMPERATURE RANGE (°C)
MEAN RAINFALL (mm)
J F M A M J J A S O N D

UNIVERSAL GRID REFERENCE
GRID ZONE DESIGNATION: 55G
100 000 METRE SQUARE IDENTIFICATION: EQ
To give a standard reference to the nearest 100 metres:
1. State name and number of this map.
2. Locate first VERTICAL grid line to the left of point and read large figures only in either the top or bottom margin e.g. 83
Estimate tenths from grid line to point: e.g. 4
3. Locate first HORIZONTAL grid line below the point and read large figures only in either the left or right margin e.g. 16
Estimate tenths from grid line to point: e.g. 6
SAMPLE POINT 147° SADDLEBACK & 12ML 634156
To give full grid reference: prefix with Grid Zone Designation and 100 000 metre Square Identification letters e.g. 55GEQ634166

INDEX TO ADJOINING MAPS
MAURICE 5442
VICTORIA 5642
Pyengana 5842
PYENGANA 5842
BEN NEVIS 5441
SADDLEBACK 5641
BRILLIANT 5841
DUBLIN 5440
Mathinna 5640
MATHINNA 5640
DUBLIN TOWN 5840

GEOLOGICAL LEGEND

QUATERNARY — Qa — River alluvium
TERTIARY — Ts — Sub-basaltic gravels, sands, muds
TERTIARY — Tb — Basalt
JURASSIC — Jdl — Dolerite
PERMIAN — P — Sandstone and conglomerate
LATE DEVONIAN TO EARLY CARBONIFEROUS — Dsg, Dbg — Granite - adamellite
LATE DEVONIAN TO EARLY CARBONIFEROUS — Dsg, Dbg — Biotite - hornblende Granodiorite
Da: Scottsdale Batholith
Db: Blue Tier Batholith
ORDOVICIAN TO DEVONIAN ? — SDsm — Contact Metamorphosed Mathinna Beds
ORDOVICIAN TO DEVONIAN ? — SDs — Mathinna Beds: Turbiditic sequence of quartzwacke, siltstone, mudstone, shale

NOTE: Original coloured paper copies of 1:25,000 and 1:10,000 Outcrop Geology Plans show sedimentary lithotypes of Mathinna Beds by colour code.

GEOLOGICAL SYMBOLS

(Generally as per BMR System, 1963
Ref: Field Geologists Manual, AIMM. Monograph No.9)

60 — Dip/Strike of sedimentary layering
60 — Dip/Strike of sedimentary layering with Younging direction indicated
70 — Dip/Strike of cleavage
15 — Direction and plunge of tectonic fold axis
Fault. Teeth on underthrust block indicating direction of dip of fault plane

854156
5 cm
7195

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86
87-2735
SADDLEBACK SHEET

INTERPRETIVE GEOLOGY AND OLD MINE WORKINGS

DRAWN BY: W.H.
DRAFTSMAN: T.G.D.S.
DATE: Sep. '87
REVISIONS:
CHECKED:
FILE NO.

SCALE 1:25,000 — 500 0 500 1000 METRES

FIG. 8

E.L. 17/86

E.L. 23/82

5 65 000mE
5 66 000mE
5 67 000mE
5 68 000mE
5 69 000mE
5 70 000mE

64 31 000mN
64 30 000mN
64 29 000mN
64 28 000mN
64 27 000mN
64 26 000mN
64 25 000mN
64 24 000mN

NEW RIVER ROAD
DORSET ALBERTON ROAD
VICTORIA MOUNT ROAD
RIVER
Long Struggle Creek
Ragged Youth Creek
Garden Creek

PRENDERGAST
PENNEFATHER
CENTRAL RINGAROOMA
MULLUNAH
ALBERTON
FOREST KING
QUEEN
CROWN PRINCE
ROSALIND
PREMIER
NEW STRAHAN
OLD STRAHAN
HANNAH
MERCURY
POINT
RAGGED YOUTH
CAXTON
CROSS
LONG STRUGGLE
MT VICTORIA
ESK
SOUTH STAR

Jdl?
Jdl
SDss
SDsl

GEOLOGICAL LEGEND

JURASSIC	Jdl	Dolerite
PERMIAN	P	Sandstone and conglomerate
EARLY ORDOVICIAN TO EARLY DEVONIAN	SDss	Dominantly massive or thick bedded sandstone
	SDsl	Interbedded sandstone, siltstone and slate

GEOLOGICAL SYMBOLS

(Generally as per BMR System, 1963
Ref Field Geologists Manual, AIMM Monograph No 9)

- Dip/Strike of sedimentary layering
- Dip/Strike of sedimentary layering with Youngung direction indicated
- Dip/Strike of cleavage
- Direction and plunge of tectonic fold axis
- Fault Teeth on underthrust block indicating direction of dip of fault plane
- Major quarty vein or lode

854157

BOTTOM CENTRE MICROFILMED FICHE No. 4 -

7196

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 17/86
NEW RIVER - ALBERTON
87-2735

GEOLOGICAL PLAN

DRAWN BY : WH
DRAFTSMAN: TG.DS
DATE : Sept '87
REVISIONS :
FILE NO.

SCALE 1:10,000 200 0 200 400 METRES

FIG. 9