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CRA EXPLORATION PTY.LIMITED.

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DEPT. OF MINES				
REF. No. 8499/84				

DILSTON EL 38/82

EXPLORATION REPORT FOR THE YEAR ENDING 12TH AUGUST, 1984.

OPEN FILE

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Date: 20th July, 1984.

Submitted To: T.W. DICKSON



Copies: CRAE Canberra
CRAE Hobart
Mines Department, Hobart

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INTRODUCTION

EL 38/82 covers an area of 475 sqr km in northern Tasmania immediately east of the Tamar River. The main town in the area is Lilydale, and the southern boundary of the licence is \approx 10km north of Launceston.

Drainage is effected by the north flowing Pipers and Tamar rivers, and the south flowing Patricks River.

The major physiographic feature is a partly dissected dolerite plateau covering \approx 50% of the EL. Adjacent to and beneath this plateau are Parmeener Super Group rocks which lie unconformably over basement Mathinna Beds in the north and east of the EL.

EL 38/82 covers parts of the Pipers River and Launceston 1:63 360 scale geological sheets, published by the Geological Survey of Tasmania.

Access to the area north of the dolerite plateau is provided by numerous public roads, and the field work consisted of traverses along these roads.

3.

EXPLORATION OBJECTIVES

CRAE Pty. Ltd. require a black coal deposit with the following characteristics:

1. An in situ resource of 50 million tonnes
2. Individual coal seam widths of $\geq 1.0\text{m}$
3. A depth of overburden sufficiently thin to allow extraction by open pit mining. In practise this effectively means a maximum thickness of overburden of $\leq 50\text{m}$.

COAL POTENTIALA. LOWER FRESHWATER SEQUENCE OF THE PARMEENNER SUPER GROUP.1. Distribution and Lithologies

The Lower Freshwater Sequence (LFW) is represented in the area by litho-correlates of the Liffey Sandstone/Group, and crop out north of the Dismal Range, south through Turners Marsh and Lilydale to Patersonia (Figure 1).

Longman (1966) and Marshall (1969) recorded \approx 45m of Liffey Group correlates, consisting of quartz (+feldspar) sandstone, with minor shale (variably micaceous and carbonaceous) bands.

Possibly in broad agreeance with the Liffey Group in EL 39/82, the upper section of LFW rocks in EL 38/82 seems to contain more carbonaceous material except that the top unit (EL38/82) is a worm cast, feldspathic quartz sandstone.

Field exposures of LFW rocks concur with the presence of shale bands \leq 1m thick, but the occurrence of purple siltstone and relict carbonaceous fragments in a micaceous quartz sandstone near Patersonia hint at oxidizing conditions not conducive to the preservation of organic matter.

A similar occurrence of purple shale was recorded to the north by Gee and Legge (1974), in the Tippogoree Hills.

2. Coal Potential

The relevant features of the LFW Sequence are contained in the Appendix, with the main factors influencing the coal potential as follows:

(a). Thickness of the LFW Sequence

5.

- (b). Thickness of the included lutites
- (c). The nature and size of the faunizone hiatus
- (d). The inferred palaeogeography.

The LFW sequence in EL 38/82 is \approx 45m thick, with a cumulative shale thickness of \approx 1m, and the presence of oil shales (0.2 - 1.0m thick) in the Lilydale area combine to suggest a moderate coal potential for the area.

However, numerous water bores (W.L. Matthews, pers. comm.) between Turners Marsh and Lilydale did not encounter coal.

The extent of the marine depositional hiatus in the area has not been determined, but the condensed lower marine section (lying on the NE Tasmania plate), and the possibly different depositional environment(s) may combine to render the faunizone hiatus model invalid.

The likely palaeo-environment was probably an alluvial plain/upper delta plain, interspersed with shallow lakes in which oil shales formed.

The potential for this regime to promote the growth of coal swamps is not known, but if developed, may have been located marginal to the oil shales.

The total (dolerite free) area of LFW rocks beneath marine sediments (of Permian Super Group) is \approx 30 sq. km.

B. UPPER FRESHWATER SEQUENCE OF THE PARMENTER SUPER GROUP

1. PERMIAN

(a). Distribution and Lithologies

Lithocorrelates of the Clog Tom Sandstone occur near Mt. George (north of EL 38/82), and probably between the Dismal Range and Browns Hill.

Near Mt. George, Gee and Legge (1974) described a carbonaceous mudstone as "resembling a cannel coal", whereas to the south, Longman (1966) recorded a 6m section of feldspathic sandstone and micaceous shale devoid of carbonaceous matter.

(b). Coal Potential

Although correlates of the Clog Tom Sandstone in the west and south of the state (and ? at Mt. George) host coal, the extent of this unit in the EL is ≈ 12 sqr km and thus precludes the need for further work on it.

2. TRIASSIC

Triassic rocks in the EL consist of both quartz and quartz - feldspar sandstones, with minor shale horizons.

At the northern end of the Dismal Range, a succession of feldspathic quartz sandstone with minor carbonaceous mudstone resembles the Rsf(lower) unit of S.M. Forsyth (pers. comm.), but the potential occurrence of younger units (with their superior coal potential), stripped of dolerite cover, appears remote.

Elsewhere, the Triassic sediments resemble the Ross Sandstone from the Midlands of the state, and consequently have a zero coal potential.

7.

4. CONCLUSIONS AND RECOMMENDATIONS

1. The Lower Freshwater Sequence rocks in EL 38/32 occur in an undefined, and only partially tested marine depositional hiatus over the NE Tasmania plate.
2. Although a moderate coal potential may be inferred for these rocks, the combination of slight to major contrasts with rocks of similar age west of the Tamar Fracture System, generates an indeterminate coal potential based on available data.
3. In the event that a facies change to coal swamp conditions occurs west of the oil shale occurrences, the area of dolerite free LFW rocks of 25 sqr km would require a single coal seam to be 1.5m thick.
4. The Upper Freshwater Sequence rocks in the EL have a zero coal potential within the defined parameters of a coal resource.
5. It is recommended that any further work on the LFW rocks in EL 38/82 be done in conjunction with further work in EL 39/82.

5. REFERENCES

- Gee, R.D. and Legge, P.J., 1974: Beaconsfield; Explan. Rep. Geol. Surv. Tas.
- Longman, M.J. 1966: Launceston; Explan. Rep. Geol. Surv. Tas.
- Marshall, B., 1969: Pipers River; Explan. Rep. Geol. Surv. Tas.
- Summons, T.G. (1984): The Lower Freshwater Sequence of the Parmeener Super Group, Tasmania
CRAE Report 12767.

6. KEYWORDS

Coal Sub Bituminous, Permian, Reconnaissance

7. LOCATION

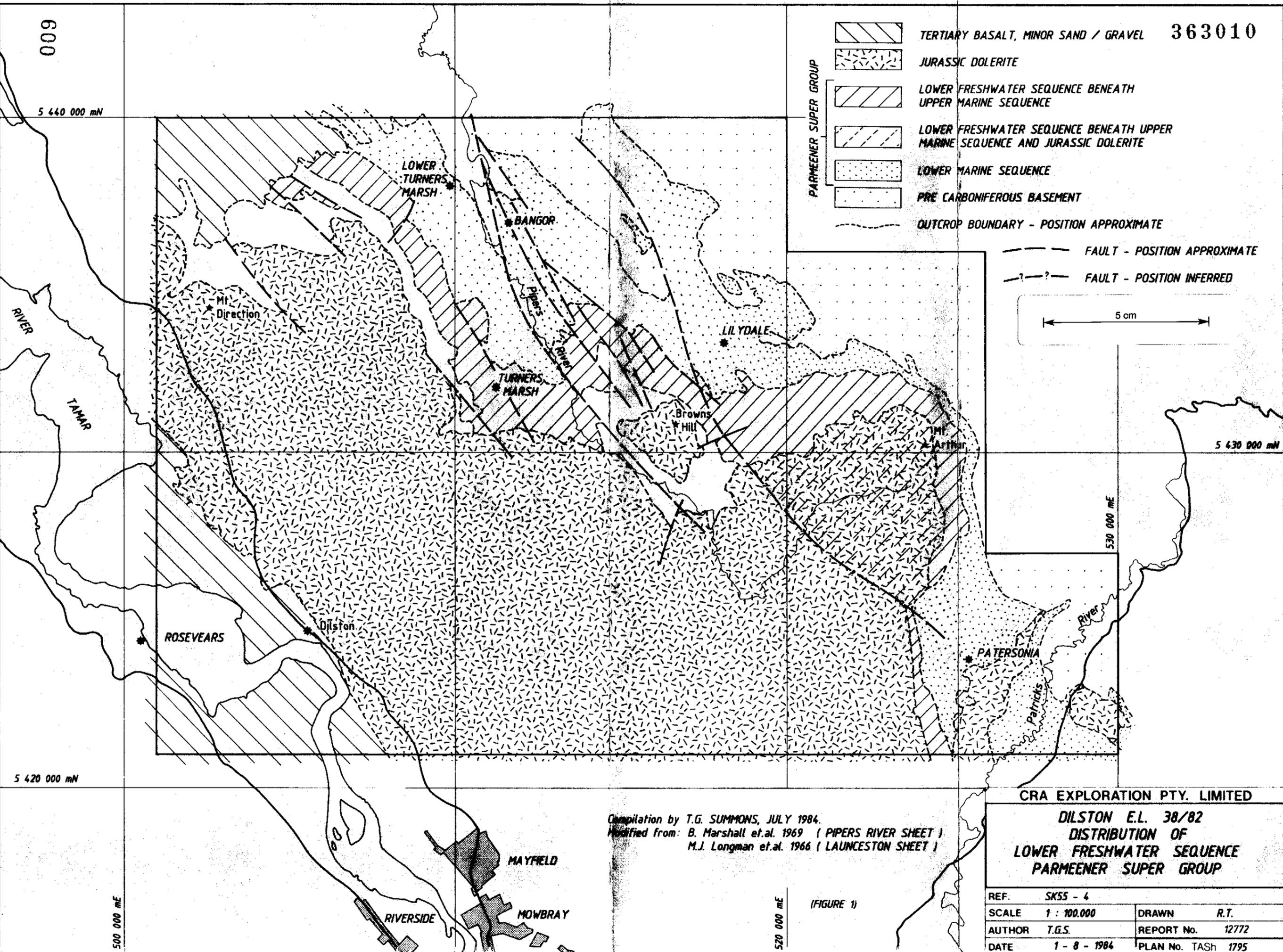
Launceston SK55-4

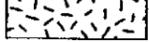
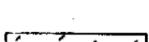
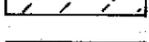
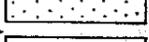
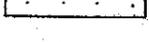
8. LIST OF PLANS

1. Dilston EL 38/82 Distribution of Lower Freshwater Sequence Parmeener Super Group TASH 1795
2. Dilston EL 38/82 Distribution of Upper Freshwater Sequence Parmeener Super Group TASH 1796

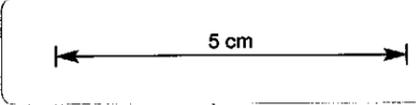
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5 440 000 mN



-  TERTIARY BASALT, MINOR SAND / GRAVEL 363010
-  JURASSIC DOLERITE
-  LOWER FRESHWATER SEQUENCE BENEATH UPPER MARINE SEQUENCE
-  LOWER FRESHWATER SEQUENCE BENEATH UPPER MARINE SEQUENCE AND JURASSIC DOLERITE
-  LOWER MARINE SEQUENCE
-  PRE CARBONIFEROUS BASEMENT
-  OUTCROP BOUNDARY - POSITION APPROXIMATE

-  FAULT - POSITION APPROXIMATE
-  FAULT - POSITION INFERRED



5 430 000 mN

530 000 mE

5 420 000 mN

500 000 mE

520 000 mE

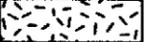
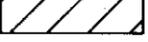
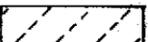
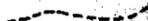
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 Modified from: B. Marshall et.al. 1969 (PIPERS RIVER SHEET)
 M.J. Longman et.al. 1966 (LAUNCESTON SHEET)

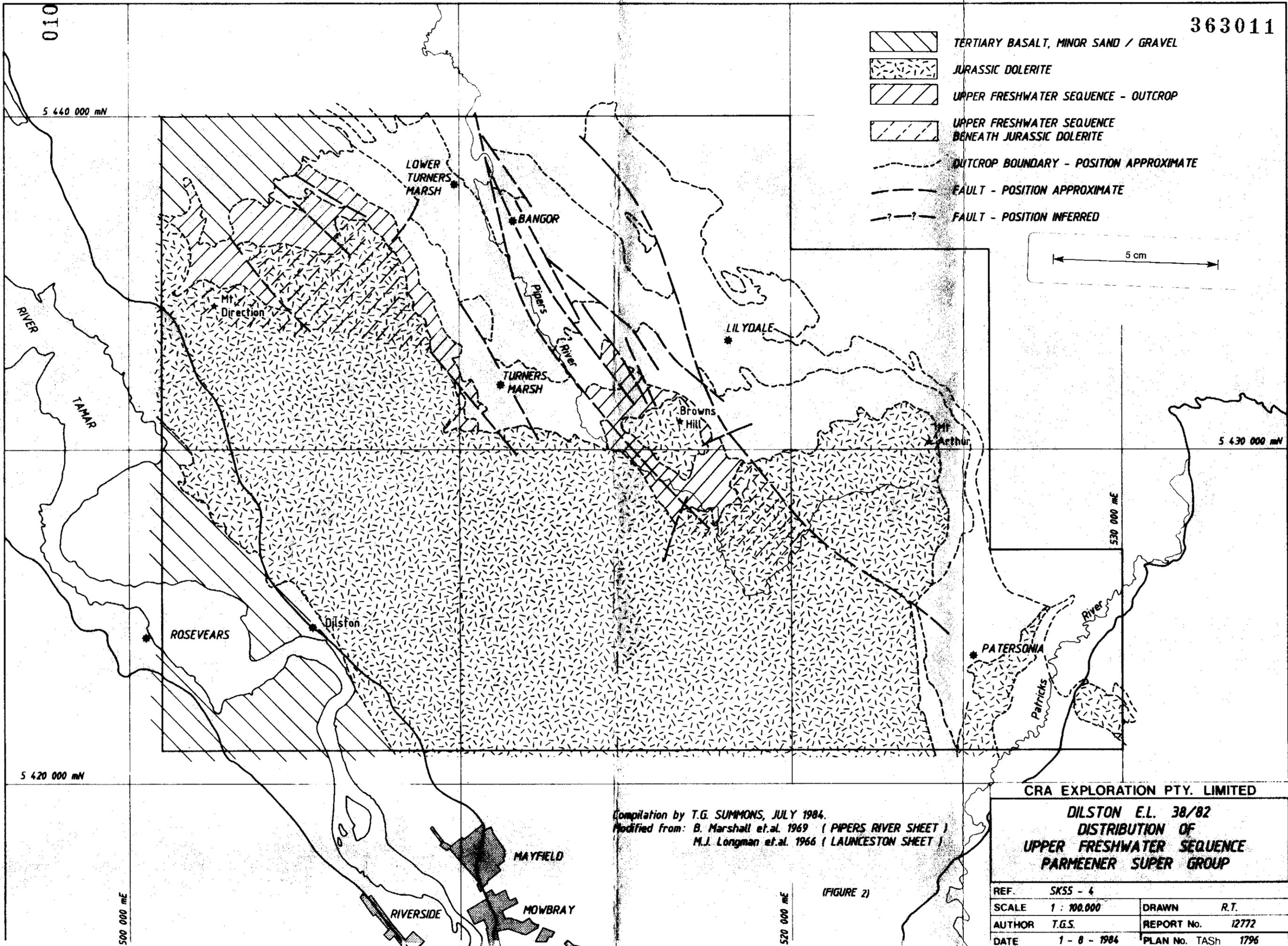
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**DILSTON E.L. 38/82
 DISTRIBUTION OF
 LOWER FRESHWATER SEQUENCE
 PARMEENER SUPER GROUP**

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SCALE	1 : 100,000	REPORT No.	12772
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DATE	1 - 8 - 1984		

(FIGURE 1)

-  TERTIARY BASALT, MINOR SAND / GRAVEL
-  JURASSIC DOLERITE
-  UPPER FRESHWATER SEQUENCE - OUTCROP
-  UPPER FRESHWATER SEQUENCE BENEATH JURASSIC DOLERITE
-  OUTCROP BOUNDARY - POSITION APPROXIMATE
-  FAULT - POSITION APPROXIMATE
-  FAULT - POSITION INFERRED



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 Modified from: B. Marshall et.al. 1969 (PIPERS RIVER SHEET)
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(FIGURE 2)