

## 5. Further investigations at the Sandfly Coal Mine, Kaoota.

V.M. Threader

In November 1970, a report on diamond drilling at the Sandfly Coal Mine, Kaoota was prepared (Threader, 1973). In this report the state of the mine workings and the results of diamond drilling by the Department of Mines were discussed. Two alternative programmes of work were outlined in the report; the first was to work the remaining block of coal between the No. 2 and No. 3 adits, in which BH2 was drilled, and the second was to gain access to the downfaulted block of coal. The first alternative was rejected by the owners on the grounds that most of the coal in this block of approximately 3.5 ha (equivalent to 30 500 t for a 0.75 m seam) is soft, and therefore both inferior in quality and difficult to mine.

The second alternative was therefore adopted and adit No. 4 was commenced on the downthrown side of the fault. Mining was reported on in June 1971 and the adit was again examined in February 1972 when the situation was as shown in the cross-section of this adit (fig. 7). The frequency of faulting in this adit appears to be due to the presence of a fault zone, at least 60 m in width, on the west side of the main fault. The alternatives open to the mine owner are to persevere with No. 4 adit until the fault zone is passed or to abandon the adit and open up a new area.

## PROPOSED DIAMOND DRILLING

The continuation of adit No. 4 necessitates diamond drilling ahead of the face in order to determine whether the additional work required to make the heading safe is warranted. Two drill holes (No. 3 and 4) were proposed at distances of 30 and 60 m ahead of the adit in the original direction. The depths to the coal were estimated to be 40 m and 55 m, the relative positions of which are shown in Figure 7.

Regarding the second alternative of opening up new areas, it is known that the seam crops out along its strike in both directions outside the lease area. The geology of the northern extension of the seam is too poorly documented to warrant any investigation. The southern extension of the seam was the subject of a report by Hughes (1948) who proposed a drilling programme of 12 holes to prospect the Sandfly seam.

Initially however, three holes would be an adequate basis for commencement of mining in this area. The depths of holes 5, 6 and 7 were estimated to be 76 m, 30 m and 30 m respectively to intersect the Sandfly seam. The position of the proposed bore holes is shown in Figure 8.

## RESULTS OF PAST AND PRESENT DIAMOND DRILLING

The No. 7 workings and Barkers adit were prospects on the Sandfly seam but the Wallsend Coal mine worked a different seam which is approximately 120 m above the Sandfly seam and is of inferior quality. The relative positions of the two seams, mine workings, faults and Department of Mines bore holes drilled around 1900 are shown in cross-sections AA' and DD' (fig. 9). Graphic sections of the bore hole logs are shown in Figure 10 to illustrate inferred seam correlations. The Wallsend seam was not intersected in any of the bore holes and it is doubtful whether either bore hole C or D intersected a complete section of the Sandfly seam.

Three bore holes of the proposed diamond drilling programme were completed; the drill hole logs and coal analyses are given below. Graphic sections of the logs of BH5 and BH7 are given in Figure 11.

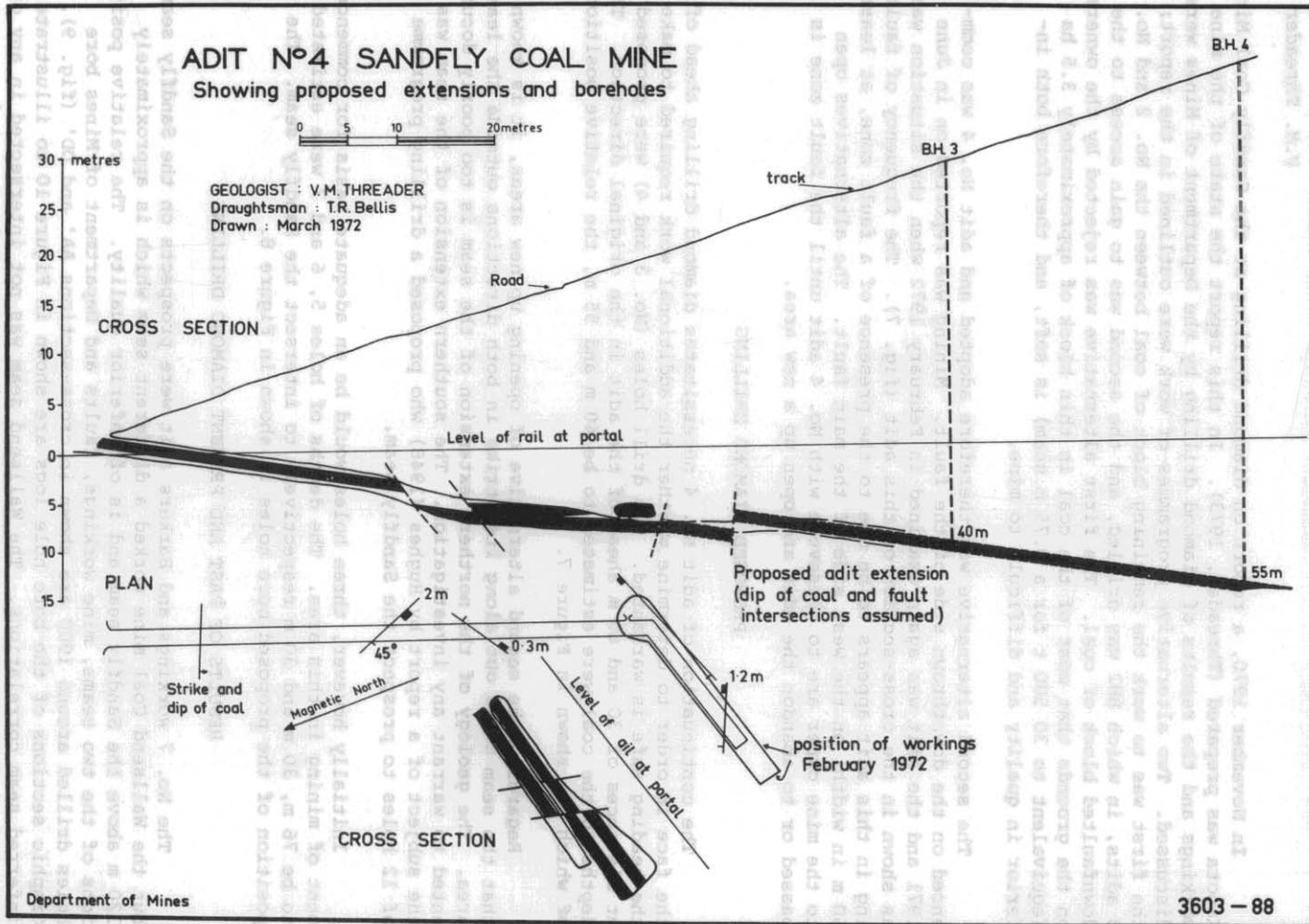


Figure 7.

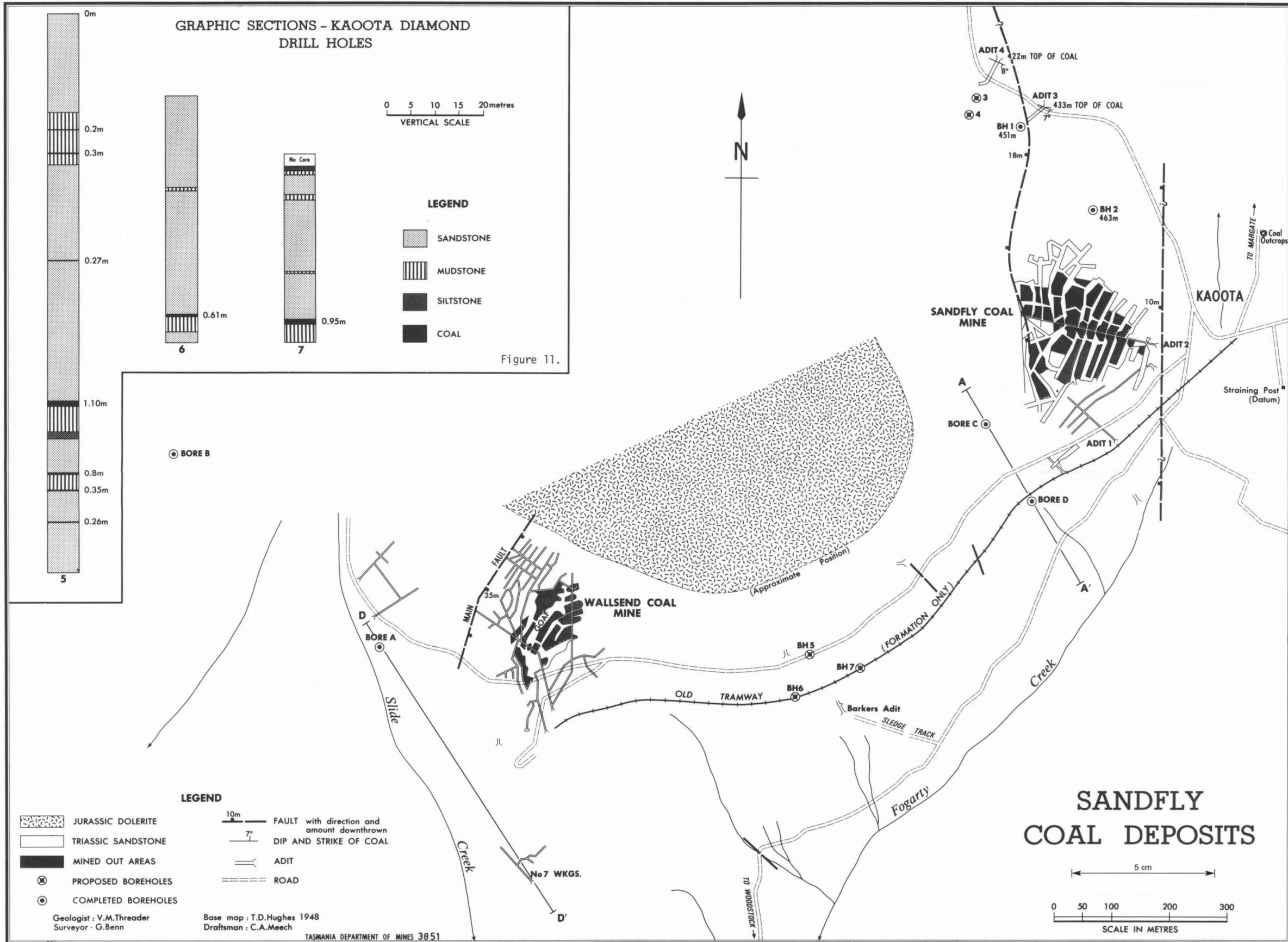


Figure 8.

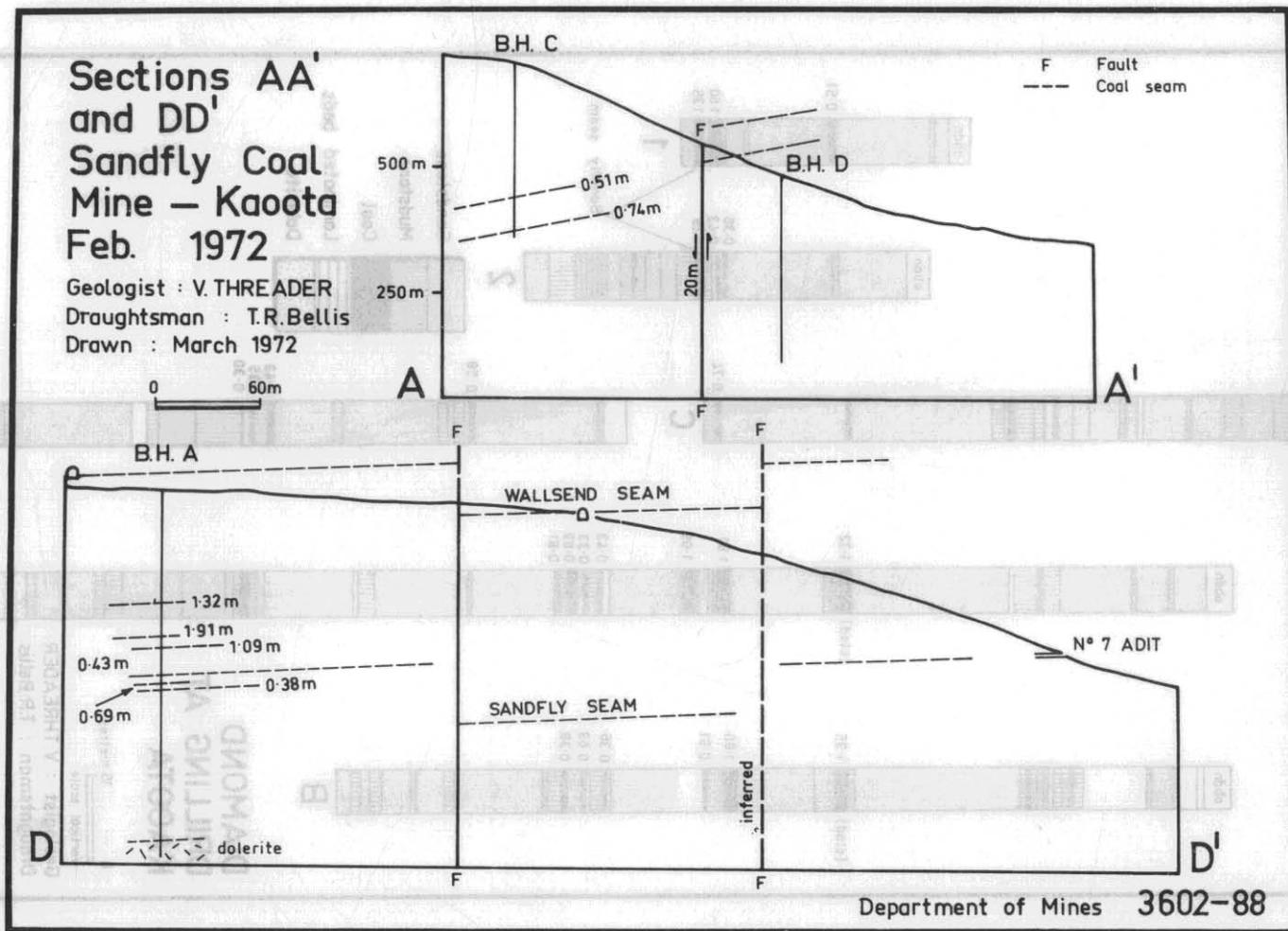


Figure 9.

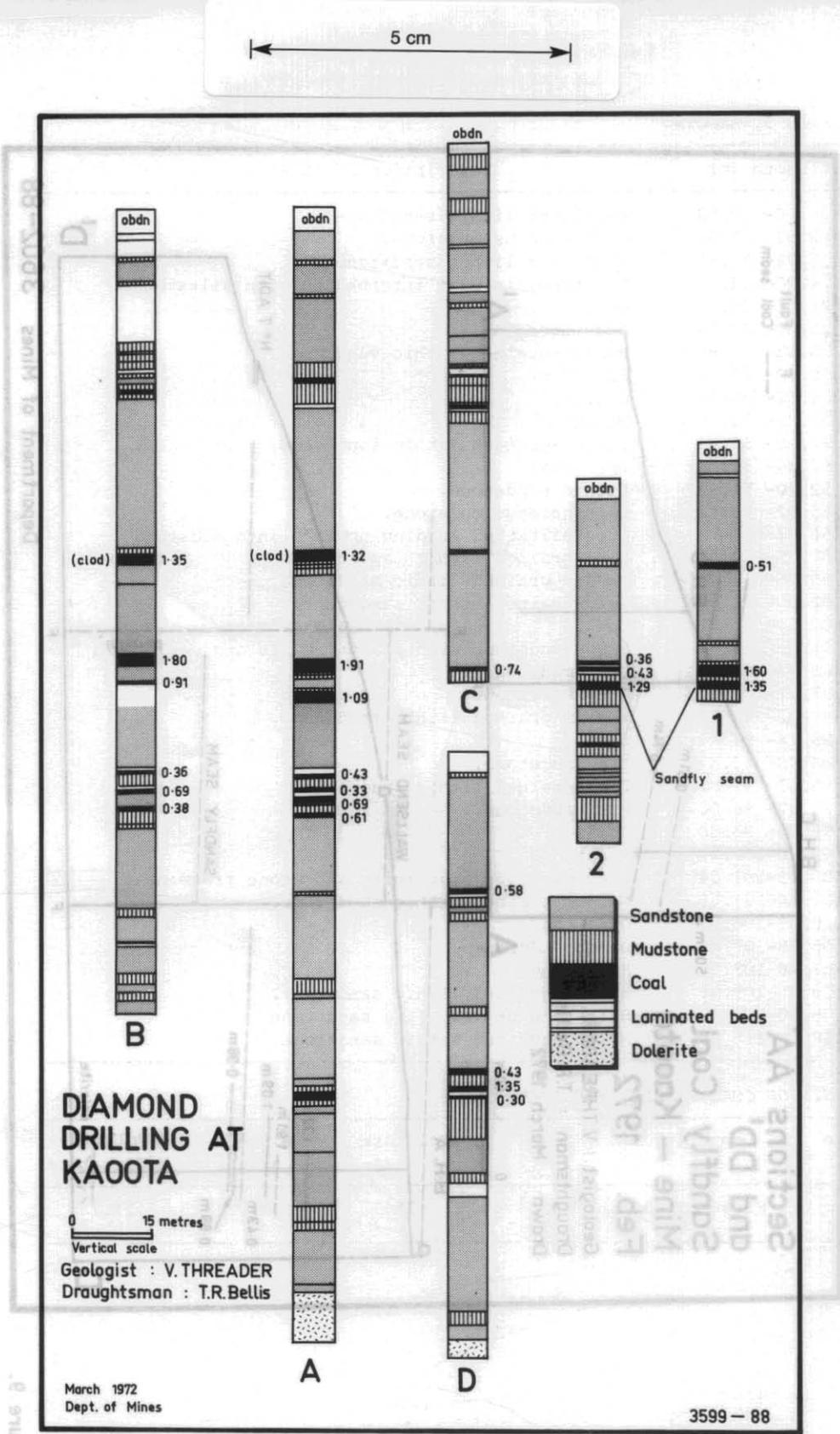


Figure 10.

BORE HOLE 5, KAOOTA.

Depth (m)	Description of strata
0- 0.53	Weathered lithic sandstone.
0.53- 0.92	Carbonaceous mudstone.
0.92- 22.90	Weathered lithic sandstone.
22.90- 24.80	Mudstone, in part interbedded with siltstone.
24.80- 25.00	Coal.
25.00- 28.33	Mudstone.
28.33- 28.62	Medium-grained lithic sandstone.
28.62- 29.52	Siltstone.
29.52- 29.82	Coal.
29.82- 32.20	Mudstone.
32.20- 52.44	Medium-grained lithic sandstone.
52.44- 52.70	Dull coal.
52.70- 55.92	Lithic sandstone.
55.92- 56.47	Carbonaceous mudstone.
56.47- 57.75	Grey siltstone grading upwards into mudstone.
57.75- 59.95	Fine-grained lithic sandstone.
59.95- 82.00	Medium-grained lithic sandstone.
82.00- 82.69	Fine-grained lithic sandstone.
82.69- 84.21	Coal.
84.21- 85.77	Black mudstone with plant fossils and coal band.
85.77- 87.77	Grey mudstone.
87.77- 89.32	Grey siltstone.
89.32- 93.74	Medium-grained lithic sandstone.
93.74- 94.48	Coal.
94.48- 95.57	Grey mudstone.
95.57- 95.87	Fine-grained lithic sandstone.
95.87- 98.00	Grey mudstone.
98.00- 98.30	Coal.
98.30-100.95	Mudstone
100.95-101.84	Grey mudstone containing sandstone fragments.
101.84-106.65	Medium-grained lithic sandstone.
106.65-106.98	Dull coal.
106.98-107.48	Black mudstone
107.48-108.85	Siltstone.
108.85-109.90	Medium-grained lithic sandstone.
109.90-110.28	Siltstone or very fine sandstone.
110.28-118.28	Medium-grained lithic sandstone.

ANALYSIS OF COAL SAMPLE FROM BORE HOLE 5

Sample	Depth (m)	Ash %	Moisture %	Fixed Carbon	% Volatile Hydrocarbon
1	82.48-83.43	17.5	5.6	49.7	27.7

## BORE HOLE 6, KAOOTA.

Depth (m)	Description of strata
0-19.15	Coarse-grained lithic sandstone with clay pellet conglomerate.
19.15-19.92	Grey mudstone with carbonaceous top.
19.92-21.38	Bonded siltstone and sandstone.
21.38-21.82	Fine-grained banded sandstone.
21.82-23.07	Fine-grained lithic sandstone.
23.07-23.48	Medium- to coarse-grained lithic sandstone.
23.48-26.92	Calcareous at bottom.
26.92-45.04	Coarse-grained lithic sandstone.
45.04-45.69	Coal.
45.69-45.74	Band.
45.74-45.86	Coal.
45.86-46.06	Carbonaceous mudstone.
46.06-47.88	Grey mudstone.
50.05-51.66	Grey lithic sandstone.

## ANALYSIS OF COAL SAMPLE FROM BORE HOLE 6

Sample	Depth (m)	Ash %	Moisture %	Calorific value (kJ/kg)	% Volatile Hydrocarbon
1	45.04-45.86	29.5	-	24 800	18.0

## BORE HOLE 7, KAOOTA

Depth (m)	Description of strata
2.82- 3.02	Fine-grained sandstone or siltstone.
3.02- 3.22	Banded sandstone.
3.22- 3.55	Fine-grained sandstone or siltstone.
3.55- 4.30	As above with bands and lenses of sandstone.
4.30- 8.40	Medium-grained lithic sandstone.
8.40- 8.94	Black shale.
8.94- 9.56	Grey mudstone.
9.56- 9.66	Transition.
9.66-24.86	Medium-grained lithic sandstone.
24.86-24.93	Grey mudstone.
24.93-31.26	Medium-grained grey lithic sandstone.
31.26-31.82	As above with mudstone fragments.
31.82-33.74	Medium-grained grey lithic sandstone.
33.74-33.84	Grey mudstone.
33.84-33.92	Soft coal.
33.92-34.13	Coal.
34.13-34.21	Sandstone.
34.21-34.98	Coal.
34.98-38.05	Grey mudstone.

## ANALYSIS OF COAL SAMPLE FROM BORE HOLE 7

Sample	Depth (m)	Ash %	Moisture %	Calorific value (kJ/kg)	% Volatile Hydrocarbon
1	33.84-34.98	42.8	-	-	14.6

A cross section through Barkers adit, BH7 and BH5 is shown in Figure 12 and illustrates the location of the coal seams in this area. The main seam has an average thickness of 0.75 m and has a sandstone roof and floor. A narrow band of mudstone overlies the coal in BH7 but the upper seam present in BH1 and 2 (Threader, 1973) and in the old workings was not found in these holes. The seam is inferior in quality to that intersected in previous drilling, having a higher volatile and ash content.

#### CONCLUSIONS

Reserves of coal in the rectangular area bounded by the three bore holes (5, 6 and 7) and Barkers adit would be 12 200 t of which an estimated 6100 would be extractable. This tonnage represents three years supply at the current rates of extraction (41 t/week).

Additional reserves could be proved by drilling pairs of holes adjacent to this area. As the seam is only 0.75 m in thickness, with a sandstone floor and roof, mining the coal is a doubtful economic proposition.

#### REFERENCES

- HUGHES, T.D. 1948. Low volatile coal in the Sandfly district. *Unpubl.Rep. Dep.Mines Tasm.* 1948:1-3.
- THREADER, V.M. 1973. Diamond drilling at the Sandfly coal mine, Kaoota. *Tech.Rep.Dep.Mines Tasm.* 15:40-43.

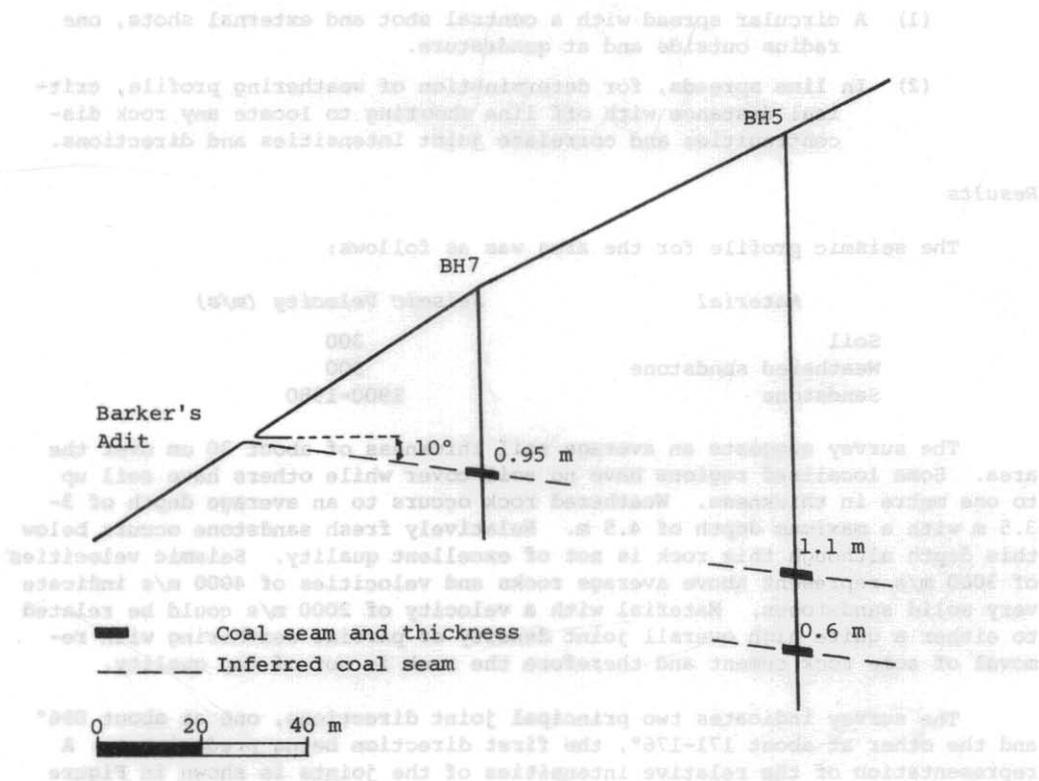


Figure 12. Cross section through Barkers Adit.