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REPORT ON THE SURFACE GEOLOGICAL MAPPING OF  
THE EASTERN EXTENSION OF EXPLORATION LICENCE  
11/67.

STOREYS CREEK - ROSSARDEN AREA, TASMANIA.

by

E. ESHUYS

JANUARY, 1969.

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## 1. ABSTRACT.

This report covers the results of the surface geological mapping of a ½ mile strip adjoining E.L. 11/67 to the East. E.L. 11/67 was mapped by J. Linden early 1968.

For the purpose of continuity the style of this report and the mapping techniques used are similar to those of J. Linden.

No mineralized veining was observed in surface outcrop in this area, but of some interest is an area within which extensive country quartz veining occurs. This area "lines up" along strike with the Lutwyche Fracture Zone and lies some 1½ miles to E.S.E. of the known easterly extremity of Lutwyche.

There are no records of previously discovered mineralization. No evidence of there being any old prospects present in the area was observed.

## 2. INTRODUCTION.

It was originally intended to map along E-W traverses lines at ¼ mile intervals. The steep terrain made this difficult in terms of positioning and traversing.

Outcrop locations were plotted from enlarged aerial photographs at a scale of ¼ mile to the inch. As the area covered the central portion of the photo errors are minimal.

All bearings were taken by a Brunton Compass and refer to magnetic north. They have a possible error of  $\pm 1^\circ$  and inclinations of bedding and cleavage were measured with a  $2\frac{1}{2}^\circ$  accuracy.

The numbering of the location sheet (Sheet I) refers to the numbering in the field note book.

## 3. STRATIGRAPHY.

### (a) Mathinna Group

#### ( i ) Lithology -

The stratigraphy as outlined in detail in Hopwood and Collins (1967) report and Linden (1968) was adopted for the Mathinna metasediments.

The Mathinna metasediments consists of a series of interbedded quartzites psammopelites and pelites. These may vary in thickness along and across strike. The average thickness of the slate beds is 3-4 inches.

There is no distinguishable marker horizon within the sequence, and it is not possible to follow any particular bed along strike for any distance.

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(ii) Metamorphism -

Contact metamorphism is restricted to the Mathinna metasediments outcropping in the Aberfoyle Rivulet to the south. The rocks in this area appeared to be silicified and were mapped as quartzites.

Metamorphic effects were also observed as spotting within the pelitic and psammopelitic beds. Spotting appeared to be randomly distributed throughout the area. Spotting within the pelitic horizons at some locations was found to be more intense in close proximity to country quartz veining. As suggested by Linden (1968) the presence of chlorite within the pelitic horizons suggests that the grade of regional metamorphism is low.

(iii) Structures -

The bedding plane strikes tend to vary from  $290^{\circ}$ - $350^{\circ}$ . In the southern portion of the Aberfoyle rivulet the strike is closer to  $300^{\circ}$ .

The beds in general are dipping steeply at  $65-85^{\circ}$  to the S.W. but in the region of Sawpit Creek there is a tendency for the beds to flatten and dip readings of  $20-30^{\circ}$  S.W. are common.

Slaty cleavage is well developed in the pelitic horizons and was found to be always dipping more steeply than the bedding. All cleavage strike readings were found to be at a greater bearing than the corresponding bedding strike direction. The strike of the cleavage may vary up  $40^{\circ}$  towards the north.

(b) Ben Lomond Granite -

The Ben Lomond Granite is confined to the Southern portion of the area. In the traverse over the granite it appeared as a uniform and coarse grained rock, the main mineral constituents being quartz, feldspar and biotite.

In close proximity to the Mathinna-Granite contact several feldspar porphyry dykes of a width of 9" were observed.

The contact itself is characterized by the absence of a chilled margin in the granite, the granite being coarse grained as it is further to the west. This suggests a faulted contact but no other evidence was observed to substantiate this.

(c) Permian Sediments -

The Permian sediments unconformably overlie the Mathinna sediments in this area. See Fig. I.



Their outcrop distribution is limited to the tops of the ridges. In general a sharp change in slope accompanies the contact between the rocks.

The Permian beds are horizontal or near horizontal and are subdivided into five major lithological units as described in Linden's report (1968).

As found by Linden, the distribution of the Permian as mapped by the writer differs from that mapped by Blisset. This could be explained by the writer's more detailed study of the particular area.

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4. STRUCTURAL GEOLOGY.

(a) Folding -

No sedimentary structures were observed to make conclusions in respect to overturning. As it is believed that in general there has been only one main phase of folding in the area, it is possible to use the cleavage-bedding criteria for "wayupwardness." In the southern half of the area, shallow dips of the beds associated with steeply dipping slate cleavage planes suggests that the beds are the right way up. See Fig. 2.

(b) Faulting -

A fault contact is postulated for the Mathinna granite contact in the Aberfoyle Rivulet area.

No other evidence of faulting was observed except for areas of intense country quartz veining as shown on Plan 3.

5. QUARTZ VEINING AND MINERALIZATION.

Country quartz was observed in several localities (see Plan 3). In general it was pod like and discontinuous or consisted of a number of sub parallel ragged veins varying in width from  $\frac{1}{2}$ -3 inches. These were also discontinuous, none of them being more than 10 ft long.

No mineralized quartz veining was observed although limonite stained quartz float was found in several localities. This float was not found in any great abundance at any of the localities as drawn on Plan 3.

Minor quartz veining was also observed within the pelitic horizons. These were unmineralized and did not exceed 1 inch in width.

Quartz veining was also observed along the contact of the Permian and Mathinna at locality 209.

6. INTERPRETATION.

The writer has found that the area mapped conforms with the interpretation as given by J. Linden (1968) except for some detail as mentioned.

Although no mineralized veining was observed on the surface, the occurrence of mineralization at depth cannot be ruled out. If an analogy can be drawn between the Lutwyche fracture zone and the minor fracture zone in Sawpit Creek it is possible that the country quartz veining on the surface may be associated with mineralized veining at depth.

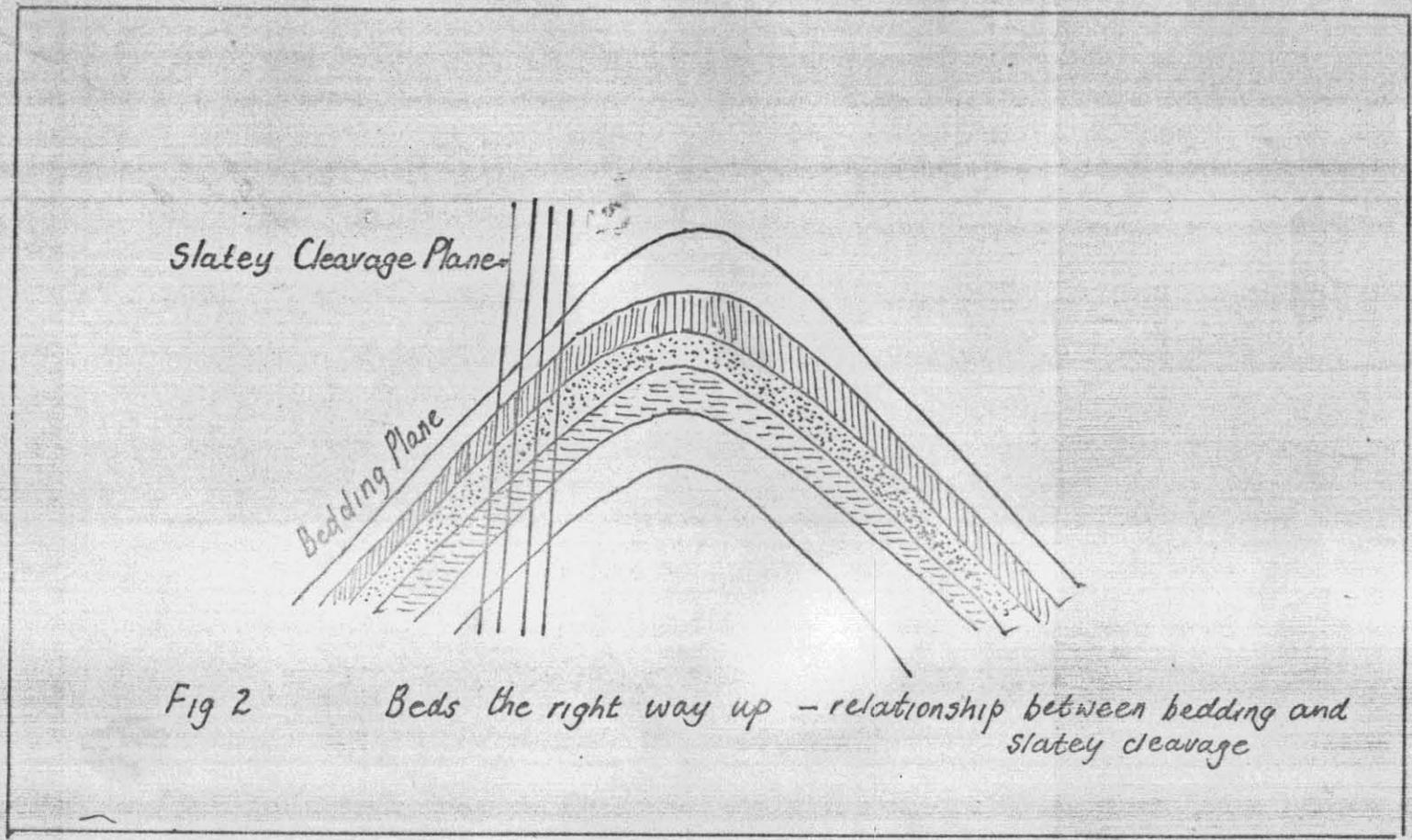


Fig 2 Beds the right way up - relationship between bedding and slatey cleavage

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Style of folding within Mathinna metasediments  
at location 90 Plan 1

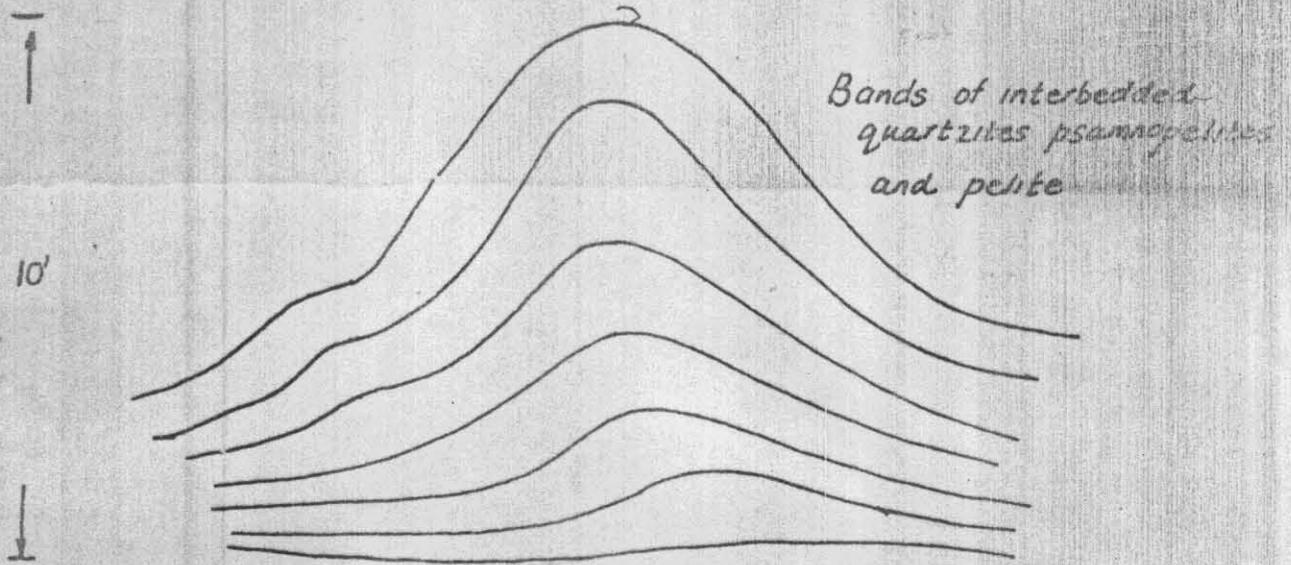


Fig 3a

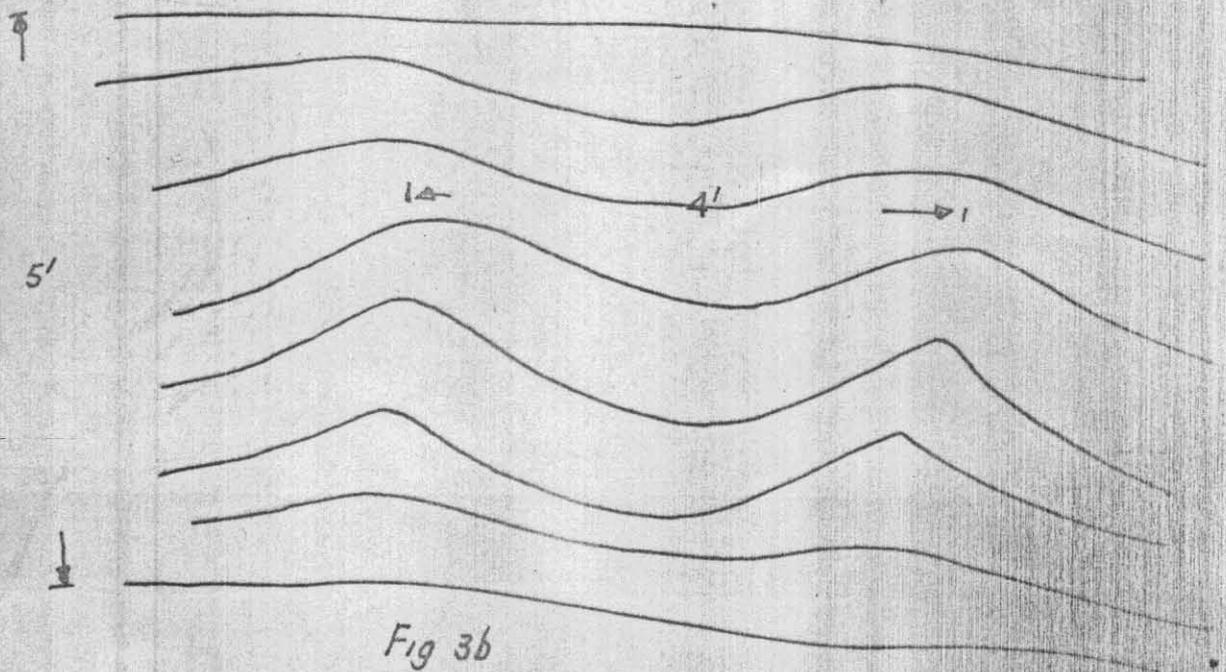
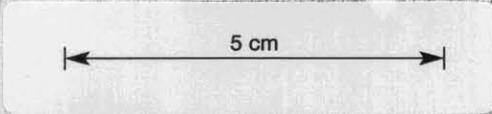


Fig 3b



7. CONCLUSION.

No evidence of mineralized quartz veining was observed while mapping the area, extension of the Lutwyche line of fracturing as proposed, does hold some interest.

Geochemical sampling may help to give clues as to the possibility of mineralization at depth.

8. RECOMMENDATIONS.

It is proposed that stream sediment samples be collected in Sawpit Creek downstream from location 102. Stream sediment samples should also be collected in Burnt Gully Creek, downstream from location 50, to test for possible mineralization under the Permian cover.

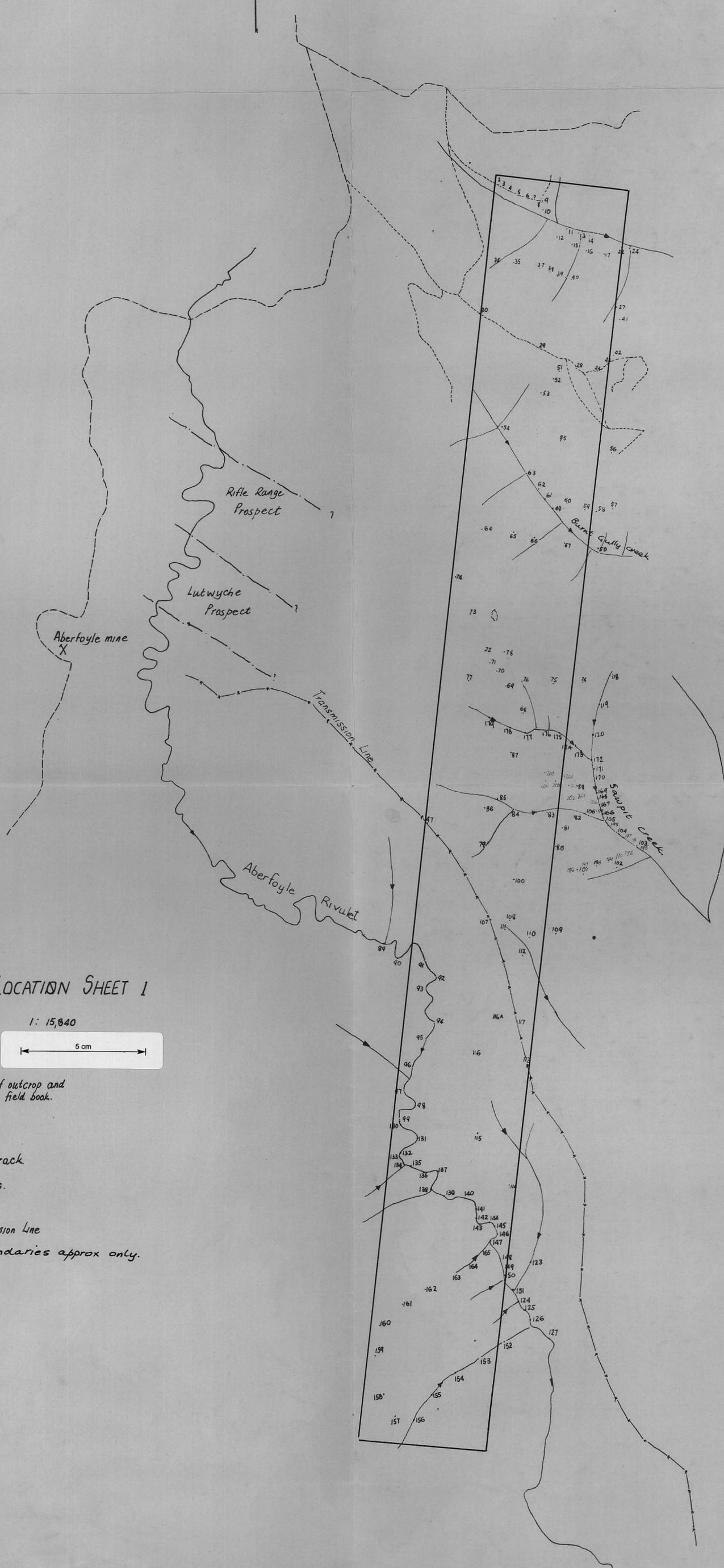
ACKNOWLEDGEMENTS - To Mr. Krummei, Senior Geologist, Aberfoyle for his close supervision and help.

## References -

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|---------------------|------|--|
| Blisset, A.H.,      | 1959 | Geology of the Rossarden - Storeys Creek District Geological Survey Bulletin No.46.  |
| Linden, J.,         | 1968 | Report on Surface Geological Investigation of E.L. 11/67 (Unpublished Company Report).   |
| Hopwood and Collins | 1967 | Report on the Stratigraphic Sequence and Structure of the Metasedimentary Rocks at Storeys Creek Tasmania. (Unpublished Company Report). |

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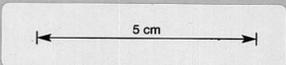
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### OUTCROP LOCATION SHEET 1

Scale 1" = 1/4 mile 1:15,840

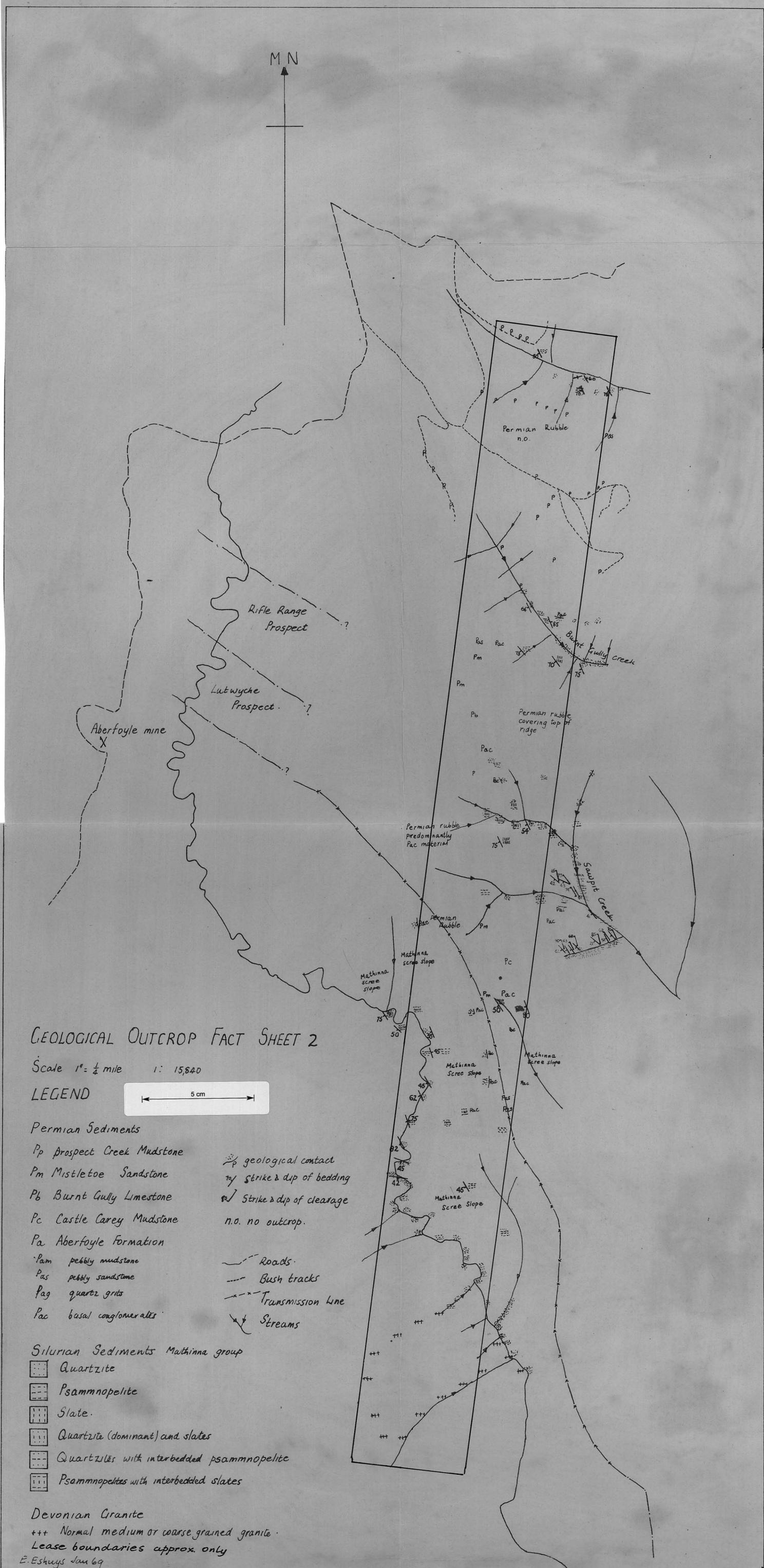
#### LEGEND



- location of outcrop and number in field book.
- Road
- - - Bush track
- ↘ Streams.
- Transmission Line
- Lease boundaries approx only.

E. Eshuis.  
17th Jan

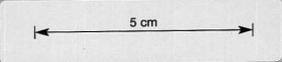
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GEOLOGICAL OUTCROP FACT SHEET 2

Scale 1" = 1/4 mile 1: 15,840

LEGEND



Permian Sediments

- Pp prospect Creek Mudstone
- Pm Mistletoe Sandstone
- Pb Burnt Gully Limestone
- Pc Castle Carey Mudstone
- Pa Aberfoyle Formation
- Pam pebbly mudstone
- Pas pebbly sandstone
- Pag quartz grits
- Pac basal conglomerates

- geological contact
- strike & dip of bedding
- strike & dip of cleavage
- n.o. no outcrop.

- Roads
- Bush tracks
- Transmission Line
- Streams

Silurian Sediments Mathinna group

- Quartzite
- Psammopelite
- Slate
- Quartzite (dominant) and slates
- Quartzites with interbedded psammopelite
- Psammopelites with interbedded slates

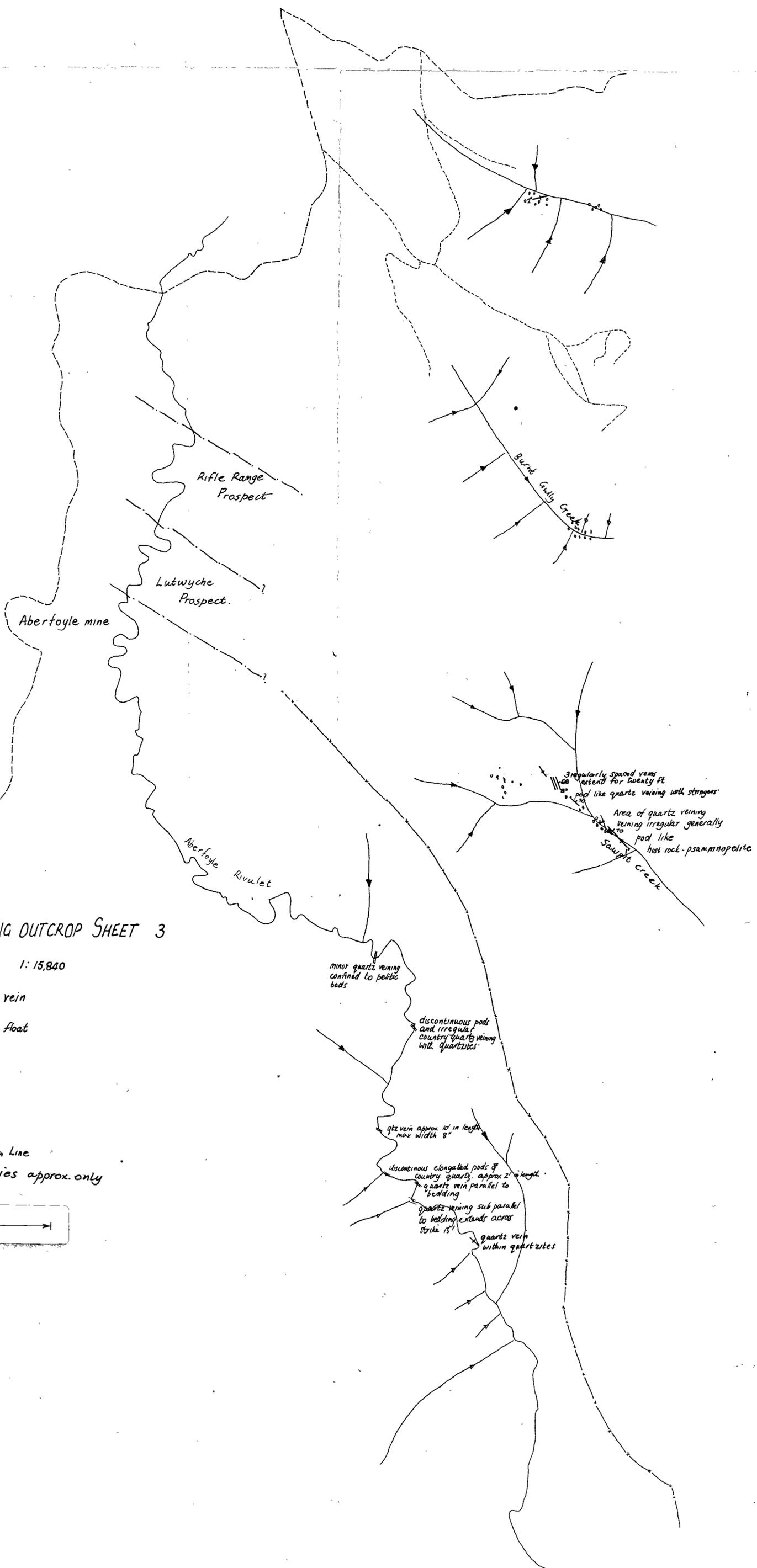
Devonian Granite

- +++ Normal medium or coarse grained granite

Lease boundaries approx. only

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M ↑ N

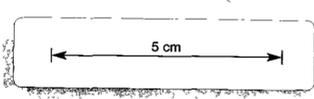


### QUARTZ VEINING OUTCROP SHEET 3

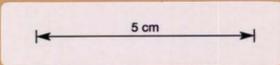
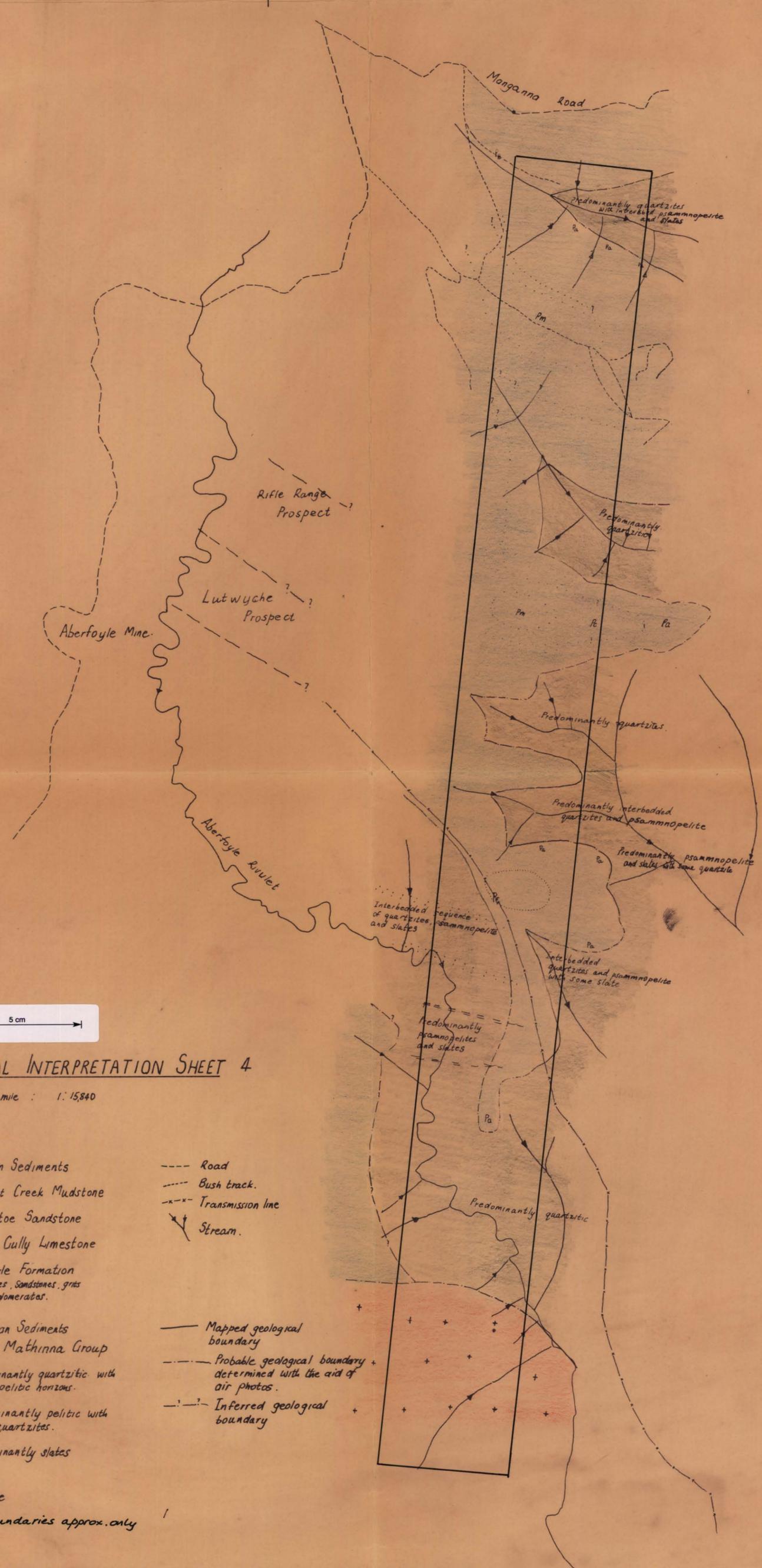
Scale 1" = 1/4 mile 1:15,840

- ↘ dip and strike of vein with width
- ⊙ prominent quartz float

- road
- - - Bush track
- ↘ Streams
- - - - Transmission Line
- Lease boundaries approx. only



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**GEOLOGICAL INTERPRETATION SHEET 4**

Scale 1" = 1/4 mile : 1:15,840

**LEGEND**

- Permian Sediments
  - Pp Prospect Creek Mudstone
  - Pm Mistletoe Sandstone
  - Pb Burnt Gully Limestone
  - Pa Aberfoyle Formation mudstones, sandstones, grits and conglomerates.
  
  - ?Silurian Sediments The Mathinna Group
  - Predominantly quartzitic with minor pelitic horizons.
  - Predominantly pelitic with minor quartzites.
  - Predominantly slates
  
  - Granite
- Lease boundaries approx. only

- Road
- - - Bush track.
- x-x- Transmission line
- ↘ ↙ Stream.
  
- Mapped geological boundary
- - - Probable geological boundary determined with the aid of air photos.
- · - · - Inferred geological boundary

Mapped and drawn E.ESHUYS Jan '69