

# OPEN FILE

EXPLORATION LICENCE 5447, FINNISS RIVER, N.T.

FINAL REPORT

Prepared for HOWDAH PTY. LTD.

by

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## 1. INTRODUCTION.

Exploration Licence 5447 includes an area of approximately 174 square kilometres, near Finnis River Homestead, located some 50 kilometres southwest of Darwin (Figure 1).

The Licence was granted to Howdah Pty Ltd for a six year term commencing 6th October 1987. It was surrendered in November 1989.

The area of the Licence lies across the boundary of 1:100,000 scale map sheets Bynoe(5072) and Fog Bay(4972). The country is low lying and consists of alluvial plains and paludal estuarine plains, along the Finnis River and its tributaries in the south, and gently undulating soil-covered terrain overlying mainly granite in the north. Outcrop of bedrock formations is very scarce.

Vegetation consists of monsoonal woodlands and grasslands (savannah). Cattle raising has been the main land usage around Finnis River. Access is provided by unsealed tracks and roads associated with Finnis River Station and with recent freehold sub-division in the district. Many tracks are temporarily unusable during the wet season.

Howdah's exploration interest was primarily in possible alluvial tin-tantalum deposits in the central-north part of the area. Work carried out included a review of literature on the geology and mineralisation of the district, the preparation of access tracks and the drilling of water bores. It was concluded that due to the unfavourable economic climate, particularly the depressed prices for tin and tantalum, the company was not justified in pursuing further exploration and the area was surrendered.

## 2. GEOLOGY.

The area has been mapped by the Northern Territory Geological Survey at 1:100,000 scale, and published in the 1:100,000 Geological Map Series and Explanatory Notes Bynoe(5072) 1985 and Fog Bay (4972) 1986. Figure 4 shows the relevant portion of these maps.

In terms of its regional geological setting the EL lies to the west of the Pine Creek Geosyncline, in a belt off high grade metamorphic rocks and granitoid rocks known as the Litchfield Province. This Province is at the northern end of a major transcontinental zone of faulting and deformation extending southwest to link with the Halls Creek Mobile Belt (Figure 3).

Within the Licence area exposures are very few and bedrock geology is largely interpreted from drillholes and aeromagnetic data. Apart from the various superficial deposits rocks known to occur in the area include the Mesozoic Bathurst Island Formation, the Proterozoic Welltree Metamorphics (including Sweets Member), and the Two Sisters Granite.

The Bathurst Island Formation underlies much of the northwestern portion of the Licence area and consists of a thin section (- 10m) of sub-horizontal Lower Cretaceous marine claystone, sandstone and basal conglomerate resting unconformably on the Proterozoics.

The Two Sisters Granite forms basement in the east-central part of the area, being part of a regional batholith of granite, adamellite, granodiorite and minor porphyritic granite. Pegmatites are common and sometimes contain tourmaline and garnet. Radiometric age dating shows the granites to be Early Proterozoic from 1870 to 1800 Ma.

Welltree Metamorphics, consisting of quartzofeldspathic schists and gneiss, underlie the east of the area. In the west is an unnamed series of gneisses, amphibolites and minor quartz and carbonate. Sweets Member occurs centrally as relatively small inliers in the granites and

Welltree Metamorphics where it is indicated by magnetic anomalies. It consists of gneiss, amphibolite, graphitic gneiss, marble and calc silicates. The unnamed gneisses west of Tom Turners Fault may be older than the Welltree Metamorphics further east. Both were metamorphosed to amphibolite/upper greenschist facies during the Pine Creek orogen at about 1800 Ma.

### 3. PREVIOUS WORK IN THE AREA.

In addition to the geological surveys noted above, the NTGS has conducted airborne magnetic and radiometric surveys which are published as 1:100,000 scale sheets. Figure 5 shows a portion of the magnetic intensity contour map covering the EL area.

Company exploration has been mainly for uranium, and was conducted in the 1972 to 1982 period by Australian Oil & Gas Minerals Pty Ltd, and Idemitsu Uranium Exploration Australia Pty Ltd. A number of exploratory holes were drilled by these companies within the EL area at locations shown on the geological maps (Figure 4).

A number of holes were also drilled by the Northern Territory Geological Survey.

### 4. WORK CARRIED OUT BY HOWDAH PTY LTD.

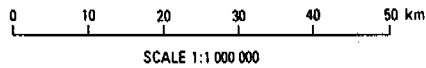
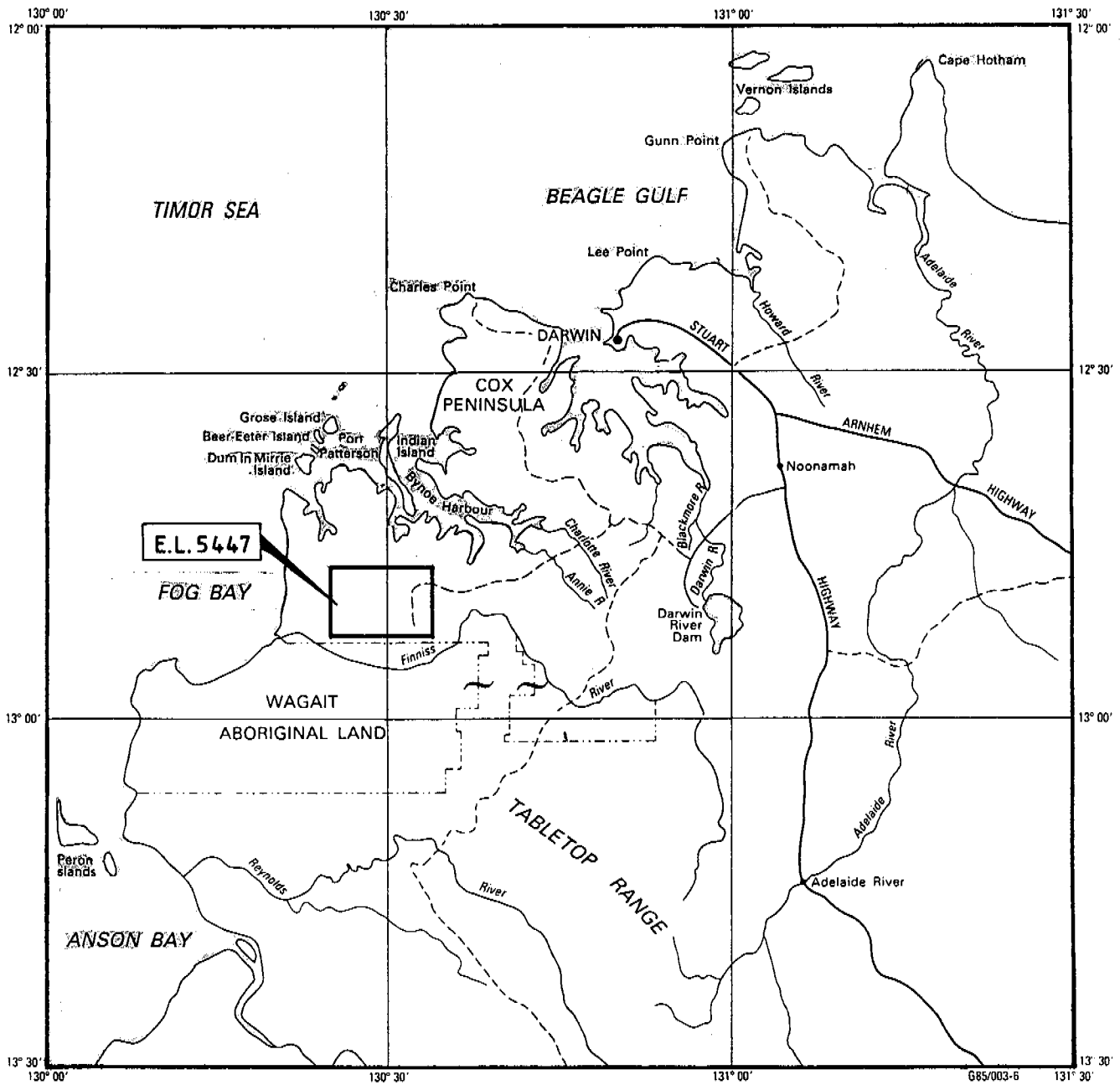
During the first year of the Licence Howdah contracted two water bores to be drilled by Bynoe Drilling at  $12^{\circ}48'$ ,  $130^{\circ}30'$ , for the purpose of obtaining water for a washing plant to treat bulk samples from the alluvial Sn/Ta deposits. Tracks were also constructed to provide access to the deposits for bulk sampling. Unfortunately insufficient water was obtained from the bores to proceed with the washing plant.

No further exploration work was undertaken during the second year of the Licence.

Total expenditures during the term of the Licence were approximately \$17,500.

**5. CONCLUSIONS.**

Taking into account the poor current market for tin and tantalum, the difficulties involved in exploring in such a poorly exposed region, and the problems in finding sufficient water for a bulk testing facility, it is concluded that continued exploration by Howdah in EL5447 is not warranted at the present time.

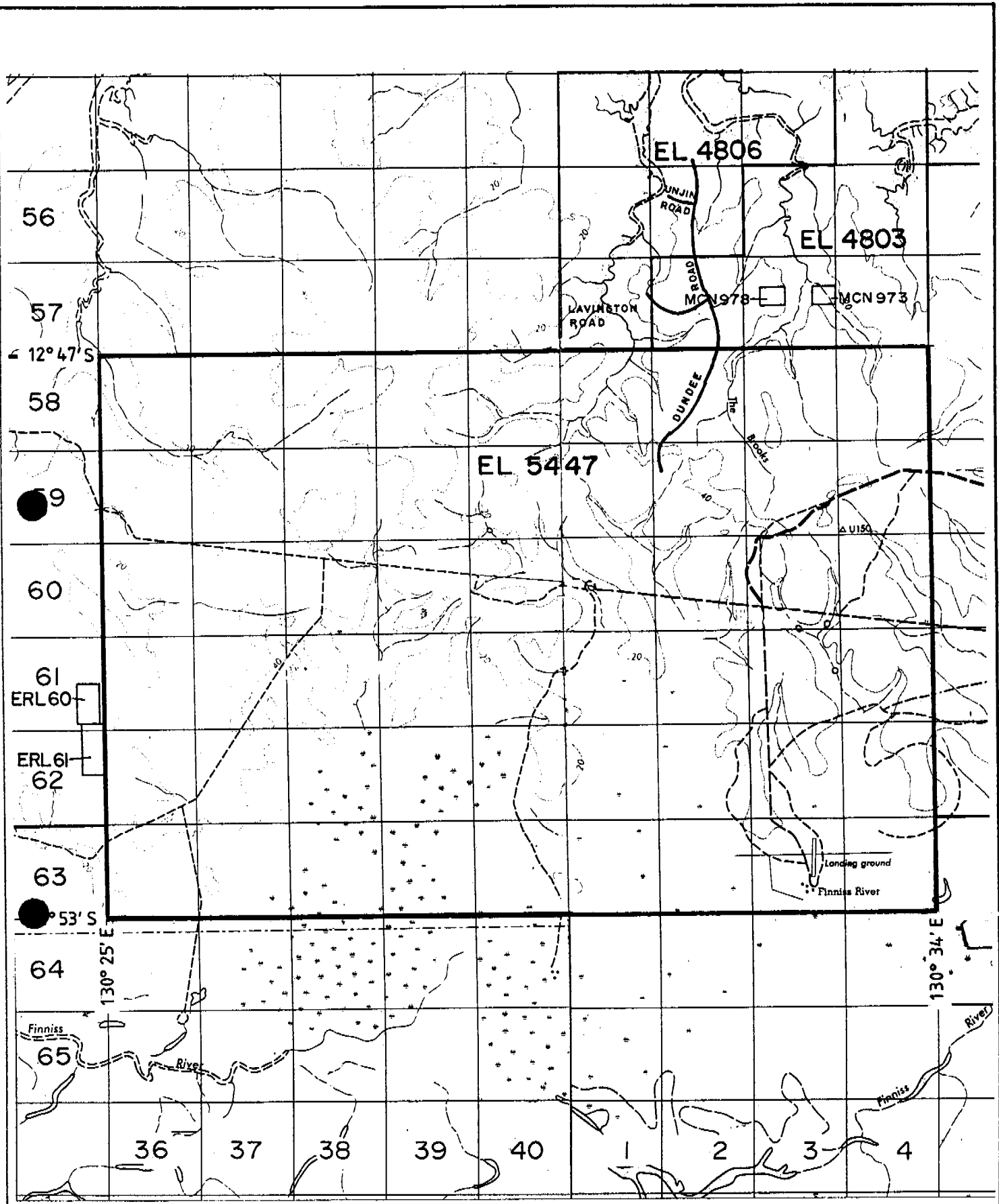


HOWDAH PTY. LTD.

EL 5447

LOCALITY MAP

Fig. 1



Map Ref's.: FOG BAY 7/6, BYNOE 8/4.

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Scale 1:100,000

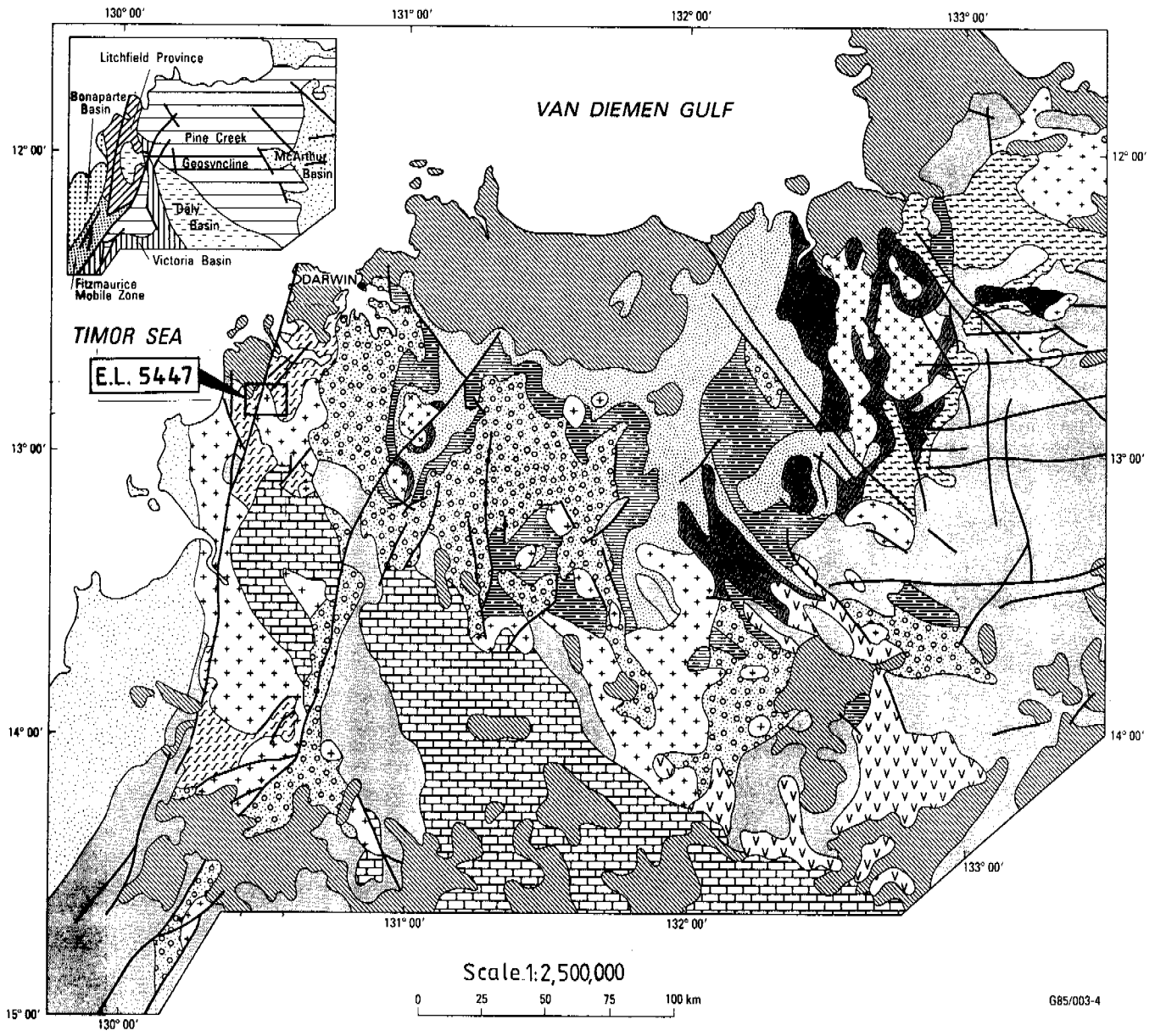
EL 5447



TENEMENT MAP

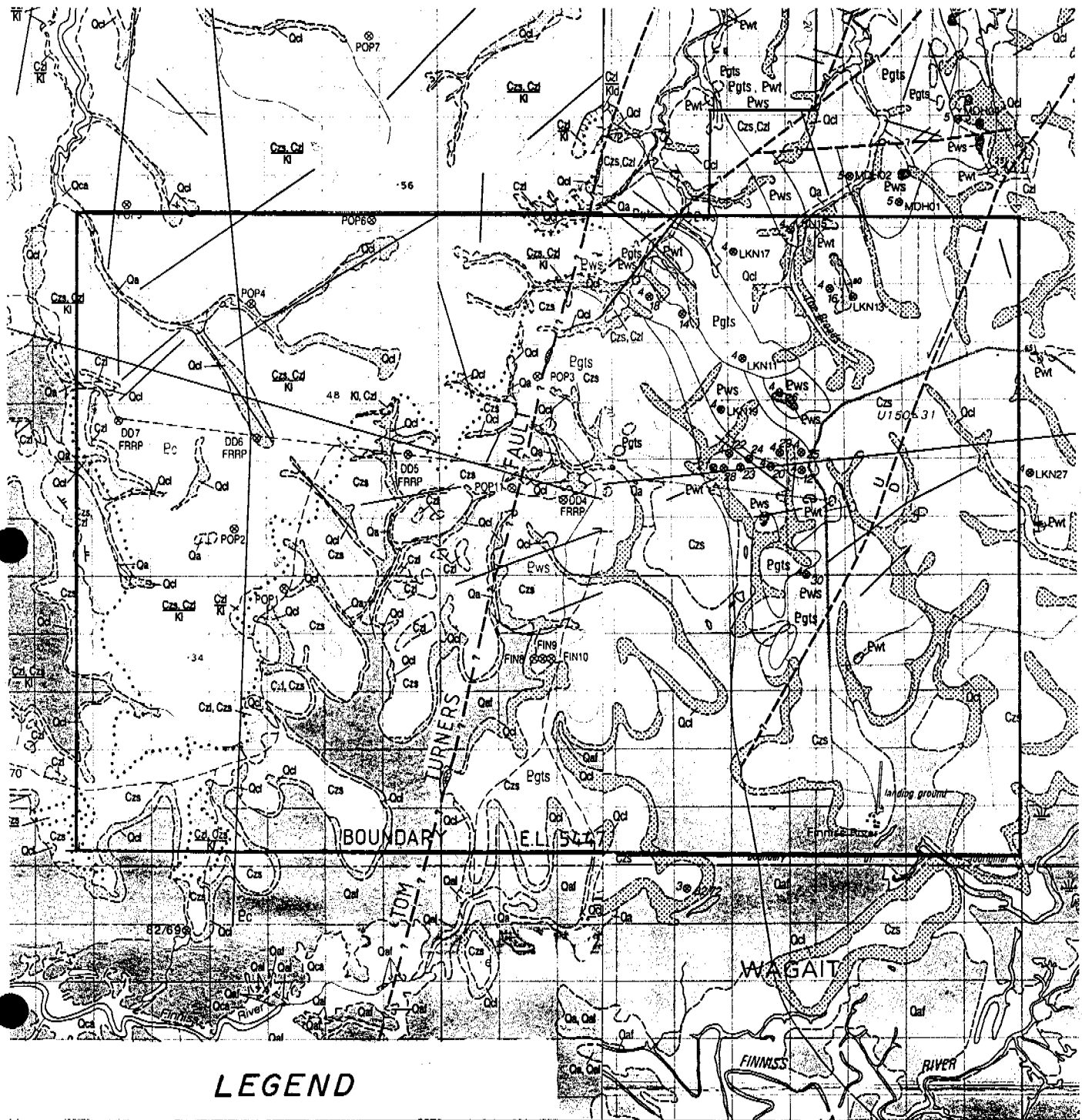
Fig. 2





- |  |                                   |  |  |
|--|-----------------------------------|--|--|
|  | CRETACEOUS                        |  | Myra Falls Metamorphics, Nourlangie Schist |
|  | PERMIAN                           |  | Finniss River Group                        |
|  | CAMBRIAN-ORDOVICIAN               |  | South Alligator Group                      |
|  | MIDDLE PROTEROZOIC                |  | Mount Partridge Group                      |
|  | EARLY PROTEROZOIC                 |  | Namoon and Kakadu groups, Cahill Formation |
|  | Edith River and El Sherana groups |  | ARCHAEOAN                                  |
|  | Granite                           |  | Geologic boundary                          |
|  | Litchfield Province metamorphics  |  | Fault                                      |

HOWDAH PTY. LTD.  
 EL 5447  
 REGIONAL GEOLOGY  
 Fig. 3



**LEGEND**

**CAINOZOIC**

- Qa Alluvium.
- Qcl Colluvium.
- Qaf Black clay soil.
- Czs Sand & clay soils.
- Czl Laterite.

**MEZOZOIC**

- KI Bathurst Island Formation.

**PROTEROZOIC**

- Egts Two Sisters Granite.
- Pwt Welltree Metamorphics.
- Pws Sweets Member.

SCALE 1:100,000

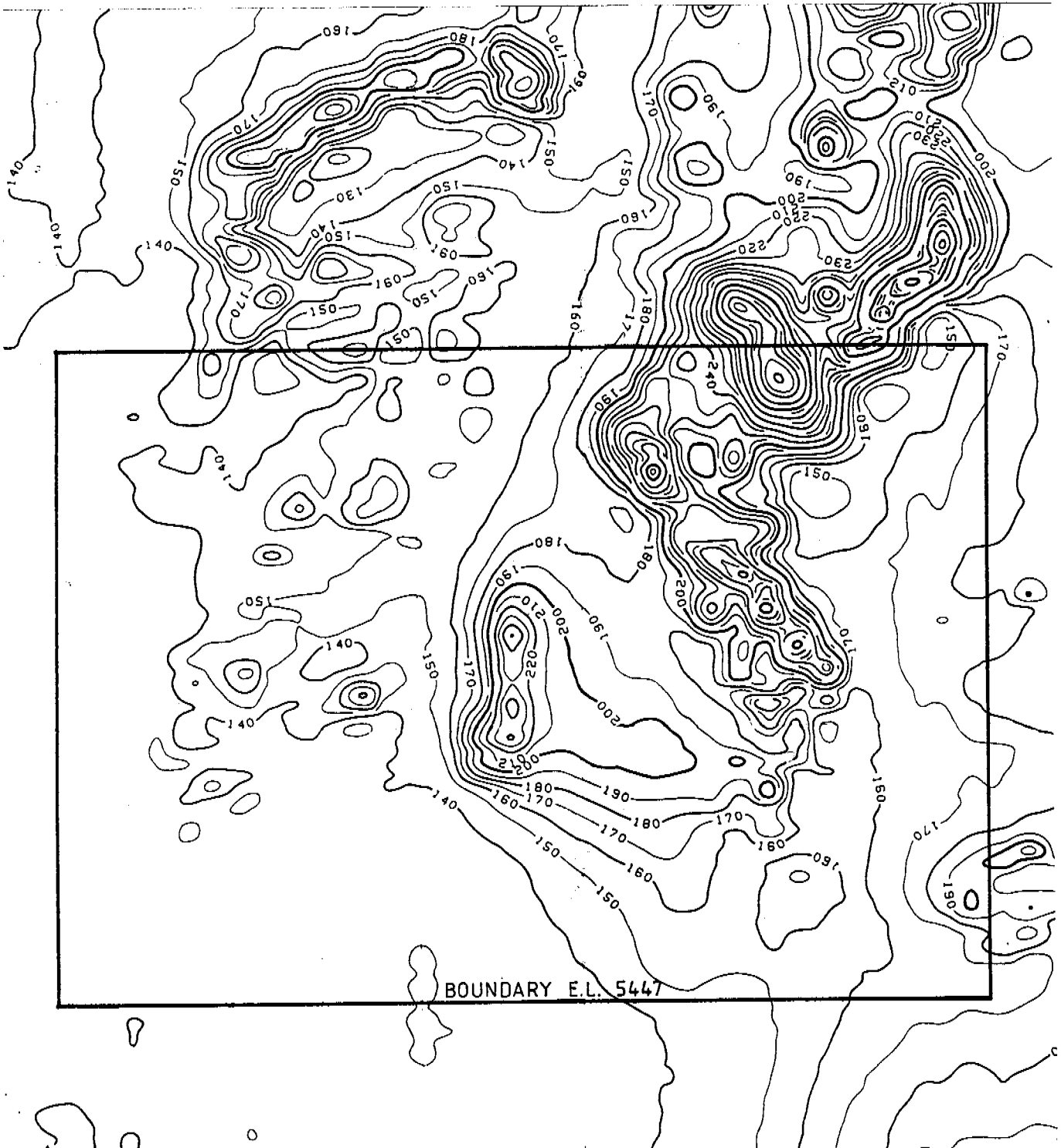


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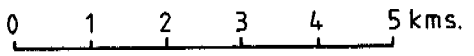
GEOLOGY

Fig. 4



BOUNDARY E.L. 5447

SCALE 1:100,000



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MAGNETIC INTENSITY CONTOURS

Fig 5