COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

RECORD No. 1962 / 122

FLYNNS AREA GEOPHYSICAL SURVEY, NEAR RUM JUNGLE, N.T. 1961

by

A. Douglas

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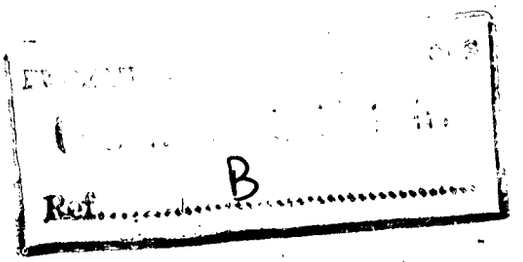

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SUMMARY

Radiometric and electromagnetic surveys over Flynns Area, a portion of the Rum Jungle uranium field, were made as part of the 1961 programme of uranium prospecting in the Rum Jungle district.

The radiometric surveys confirmed previous work in the area and outlined several new anomalies. The significance of all the anomalies is not clear. Recent shallow auger-drilling suggests that the radio-activity is restricted to a thin surface layer.

The electromagnetic survey outlined no anomalies of interest.

1. INTRODUCTION

During 1961, geophysical surveys were made by the Bureau of Mineral Resources, with the approval of the Australian Atomic Energy Commission, along the edge of a quartz-breccia outcrop that lies to the west of the township of Batchelor, N.T. Airborne scintillograph surveys had previously outlined several radioactive anomalies close to this margin, and the 1961 surveys were carried out in an attempt to locate any uranium ore bodies with which these anomalies might be associated.

The geophysical methods used, the electro-magnetic and radiometric methods, have been discussed by Daly (1962) with particular reference to their application to the search for uranium in the Rum Jungle district. No further discussion of these methods is given here.

Daly (1962) also discussed the main results for the surveys for the whole length of the margin investigated. This Record deals with the detailed results of one section of the margin, namely Flynns area.

Flynns area lies about two miles north-west of Batchelor in the valley of Rum Jungle Creek (Plate 1). It is bordered to the north by the North Australian Railway and to the south by the quartz-breccia ridge. The area is accessible from both the Batchelor/Rum Jungle Creek South road and Batchelor/Rum Jungle Siding road. Flynns Homestead lies within the survey area.

Prior to the 1961 geophysical survey, little work had been done on Flynns area. Territory Enterprises Pty Ltd had investigated a radiometric anomaly over an outcrop of lateritic rock at the western end of the area. A very intense anomaly, named the Rum Jungle Laterites anomaly, was outlined; surface samples assayed 3 lb/ton U_3O_8. This work was followed by some drilling which did not reveal significant uranium mineralisation at depth.

As a result of the 1961 geophysical survey a programme of shallow auger-drilling was carried out by the Bureau of Mineral Resources at Flynns area. These holes were logged geologically and radiometrically and samples were analysed for zinc, copper, and lead. The results of this survey are described in full by Ruxton and Shields (in preparation).

2. OPERATIONS

The baseline for the geophysical grid of the Power Line area was turned through 45 degrees at Traverse 52E and extended for 6600 ft across Flynns area. Traverses ranging in length from 700 ft to 2400 ft were surveyed at right angles to this baseline and pegged at 50-ft intervals. In general the spacing between traverses was 200 ft but over part of the area a 400-ft spacing was used. Several small parts of the area were covered by more detailed grids. The main features of the geophysical grid are shown on Plate 2, and the detailed grids on Plates 4 and 5.

The whole area was surveyed using electromagnetic (Slingram) and radiometric methods and the results are shown on Plates 2 to 5.

3. GEOPHYSICAL RESULTS

Electromagnetic results

The Slingram results show little of interest. The real-component contour plans are virtually featureless and the imaginary-component results only show a few, very weak, anomalies. A zone of these weak anomalies extends from 14W to 12E at about 37N, and probably continues

through to the anomaly centred at 48E/30.5N. However, this cannot be confirmed as the intervening area was not investigated. The line of anomalies could indicate some structural feature along the valley of Rum Jungle Creek, but there is no geological evidence to support this.

A weak anomaly centred at 10E/21N is probably associated with a bed of carbonaceous shale outlined by auguer-drilling (Ruxton and Shields, in preparation).

None of the anomalies discussed above seem to warrant any further investigation. There is no evidence that they are related to economic uranium deposits.

Radiometric results

The radiometric results are shown on Plate 2; details of individual anomalies are shown on Plates 4 and 5. Three main anomalous areas were outlined, viz. Easticks and Geolsec anomalies (Plate 5) and Rum Jungle Laterites anomaly (Plate 4).

The Rum Jungle Laterites anomaly extends from 1W/30N to 12W/36.5N. At its eastern end the anomaly is very intense, exceeding 0.30 mr/hr (or more than 20-times-background) over an area of about 6000 sq.ft. These results are essentially the same as those obtained earlier by Territory Enterprises Pty Ltd (TEP).

There is no previous record of the irregular anomaly outlined between Traverses 8E and 18E and extending from 18N to 22N. Easticks anomaly, as this anomaly has been termed, has very restricted areas of high intensity that lie within a broader area in which the radioactivity is only slightly above background.

The Geolsec anomaly, which lies between Traverses 22E and 28E and extends from 12N to 22N, is similar in form to Easticks anomaly; it is irregular and the regions of high intensity are very localised.

The significance of these radiometric anomalies is not clear. Drilling carried out by TEP at the Rum Jungle Laterites has failed to reveal any mineralisation at depth, and the results of recent shallow auger-drilling indicate that the radioactive materials are restricted to a layer close to the surface.

At Easticks and Geolsec anomalies only shallow auger-drilling has been done. Several holes at Easticks anomaly showed radioactivity increasing with depth, but there is no evidence from the 1961 geophysical survey results to suggest that Easticks anomaly is connected with uranium mineralisation at depth.

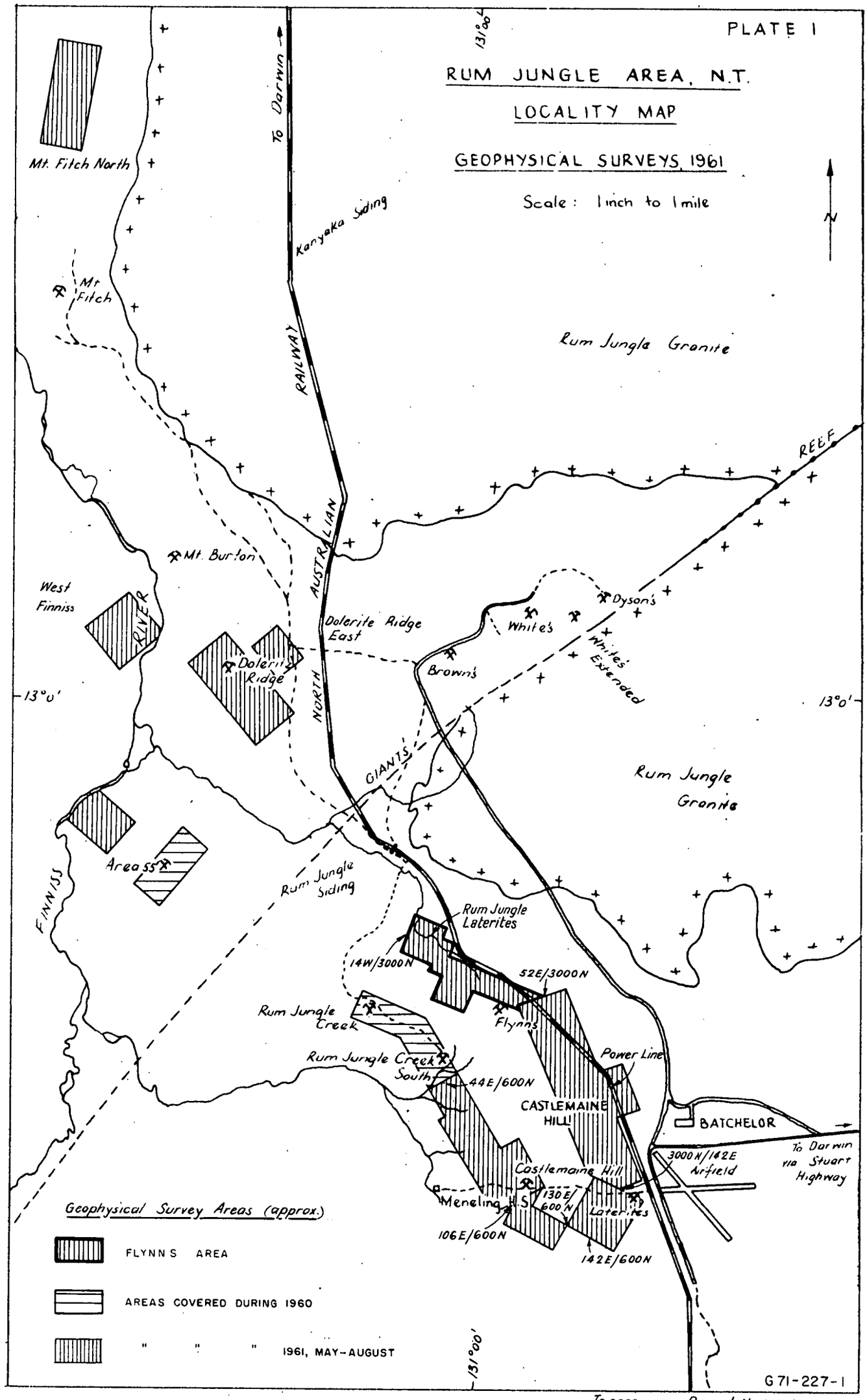
4. CONCLUSIONS

No intense electromagnetic anomalies were outlined at Flynns area and it is thus unlikely that important deposits of sulphide minerals occur within the area. The survey has not provided any targets on which testing can be recommended, either for uranium or base metals.

No suggestion can be made as to the significance of the radiometric anomalies. This will be discussed by Ruxton and Shields (in preparation) when the results from the shallow auger-drilling have been assessed.

5. REFERENCES

DALY, J.	1962	Rum Jungle district, Northern Territory. Introductory report on geophysical surveys 1960-61. Bur. Min. Resour. Aust. Record 1962/27.
RUXTON, B.P. and SHIELDS, J.W.	-	Geochemical and radiometric surveys Rum Jungle, NT 1961. Bur. Min. Resour. Aust. Record (in preparation).



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Flynns Area

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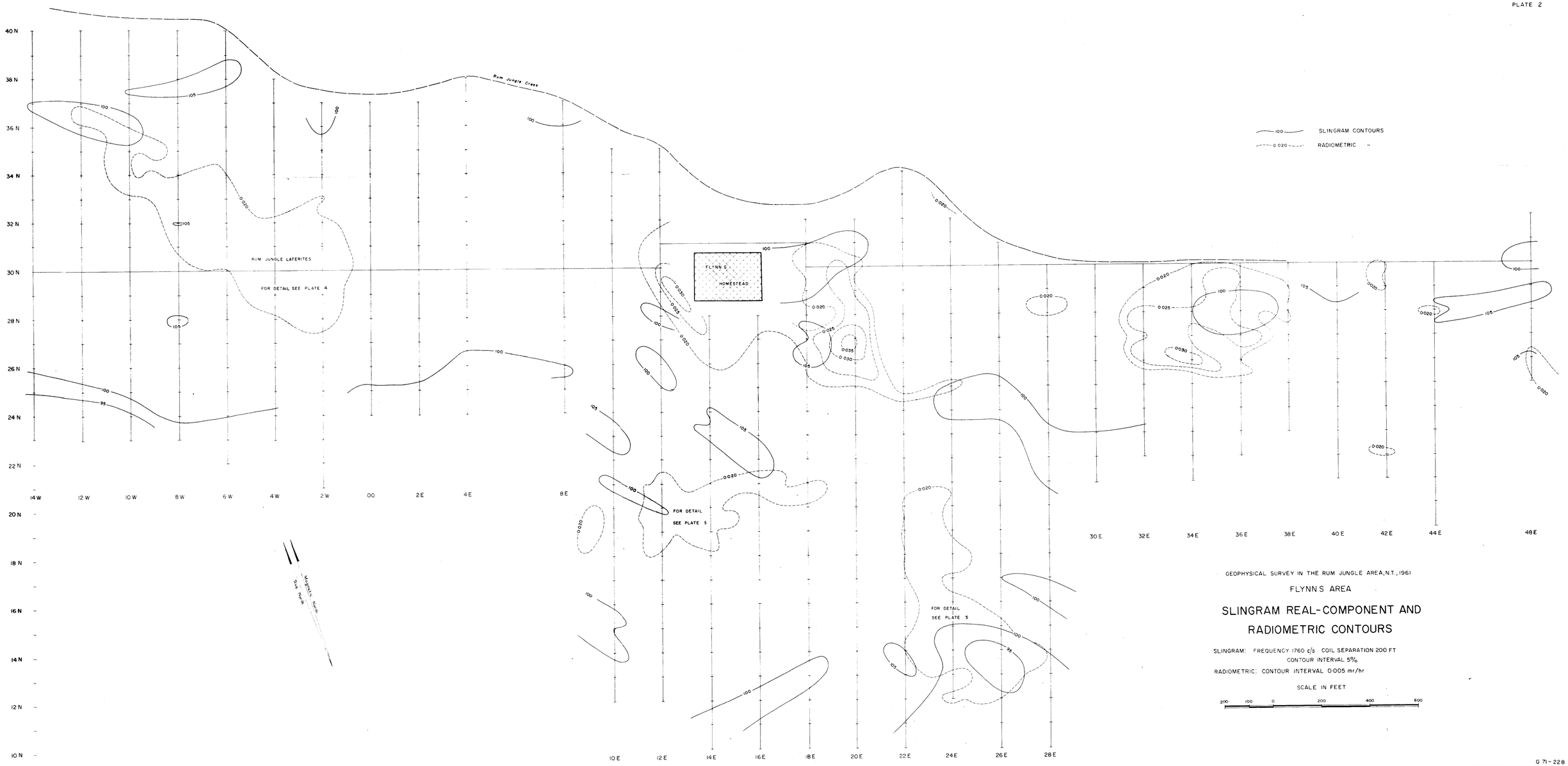

GEOPHYSICAL SURVEY IN THE RUM JUNGLE AREA, N.T., 1961

FLYNN'S AREA

SLINGRAM REAL-COMPONENT AND RADIOMETRIC CONTOURS

SLINGRAM: FREQUENCY 1760 c/s COIL SEPARATION 200 FT
CONTOUR INTERVAL 5%

RADIOMETRIC: CONTOUR INTERVAL 0·005 mr/hr

SCALE IN FEET

200 100 0 200 400 600

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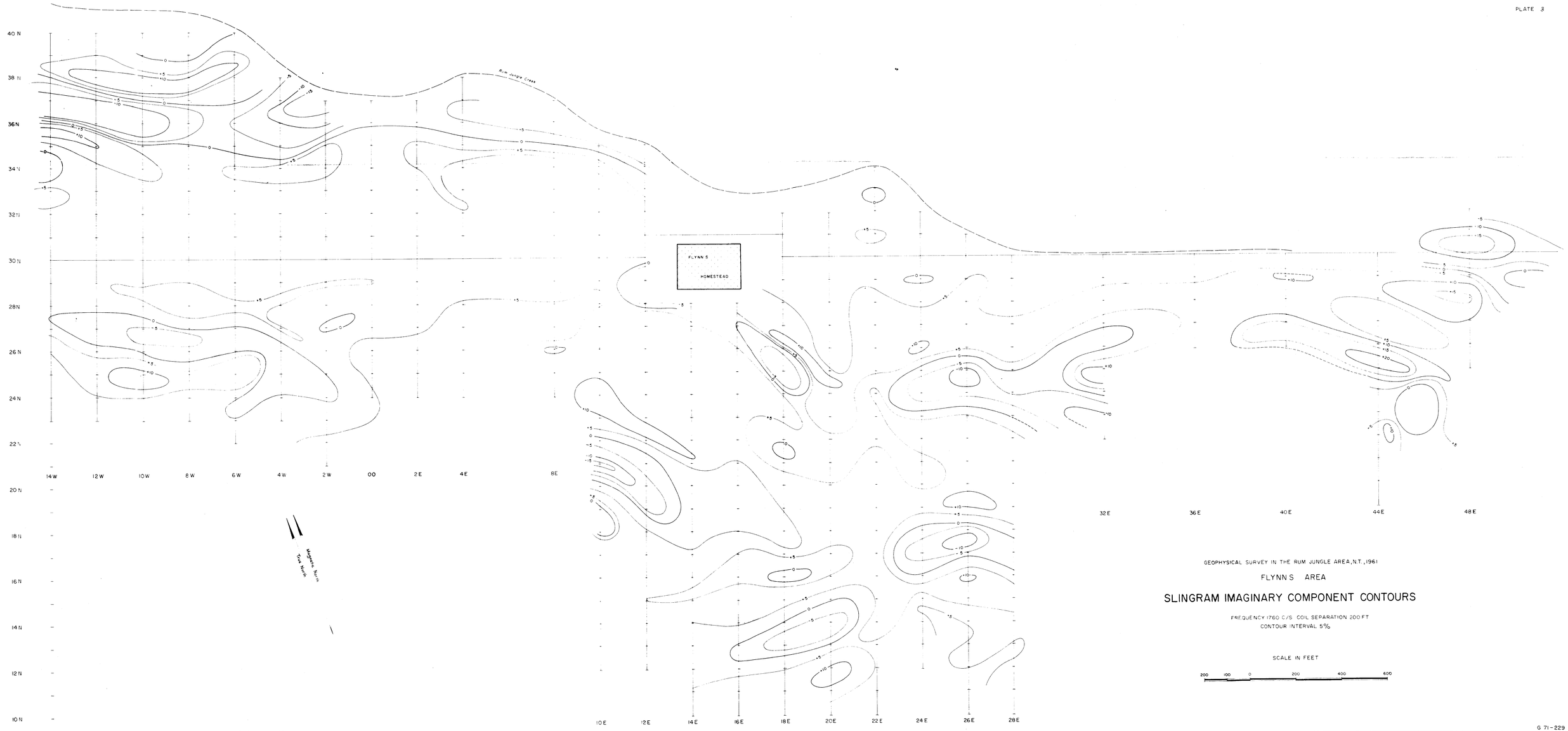
To accompany Record No. 1962/122 5107-GP



GEOPHYSICAL SURVEY IN THE RUM JUNGLE AREA, N.T., 1961

FLYNN S AREA

SLINGRAM IMAGINARY COMPONENT CONTOURS

FREQUENCY 1760 C/S COIL SEPARATION 200 FT
CONTOUR INTERVAL 5%

SCALE IN FEET

200 100 0 200 400 600

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To accompany Record No 1962/122

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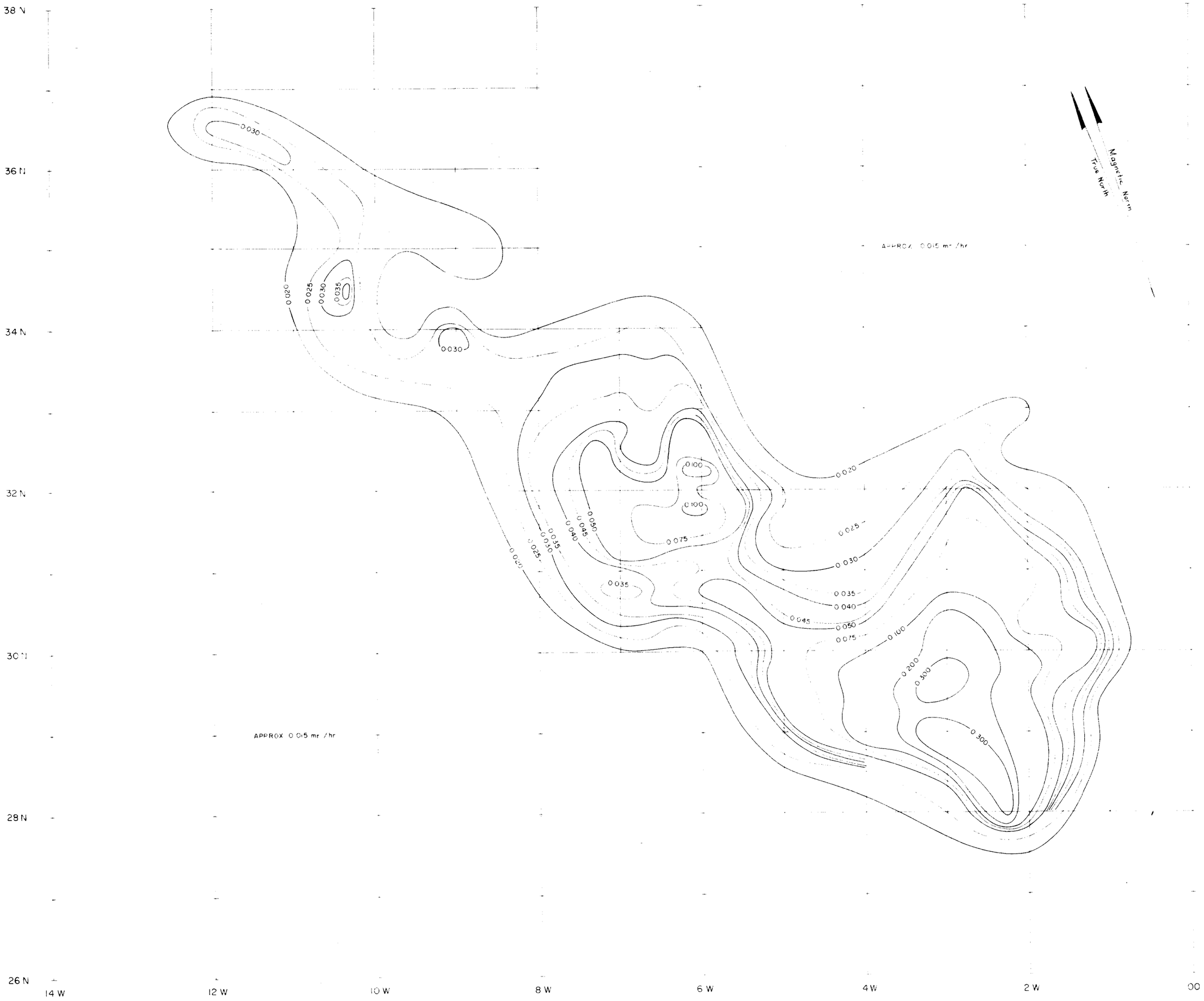
PLATE 4



SCALE IN FEET

100 50 0 100 200 300

GEOPHYSICAL SURVEY IN THE RUM JUNGLE AREA, N.T., 1961

FLYNN'S AREA

(RUM JUNGLE LATERITES)

DETAILED RADIOMETRIC CONTOURS

CONTOUR INTERVALS 0·005, 0·025, 0·1 mr/hr

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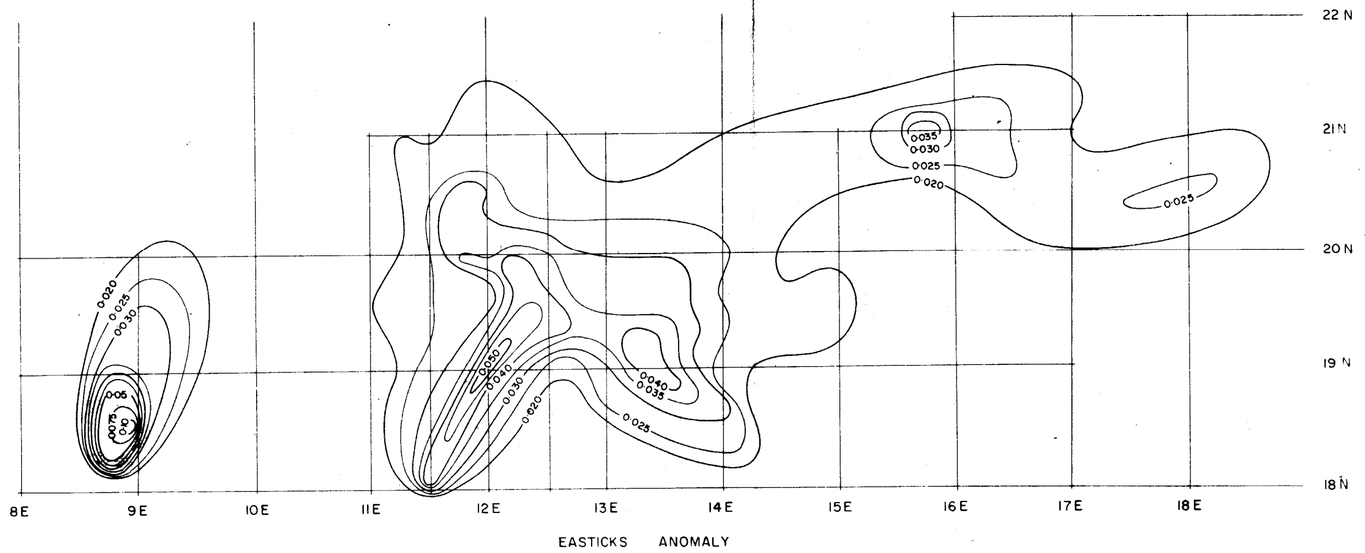
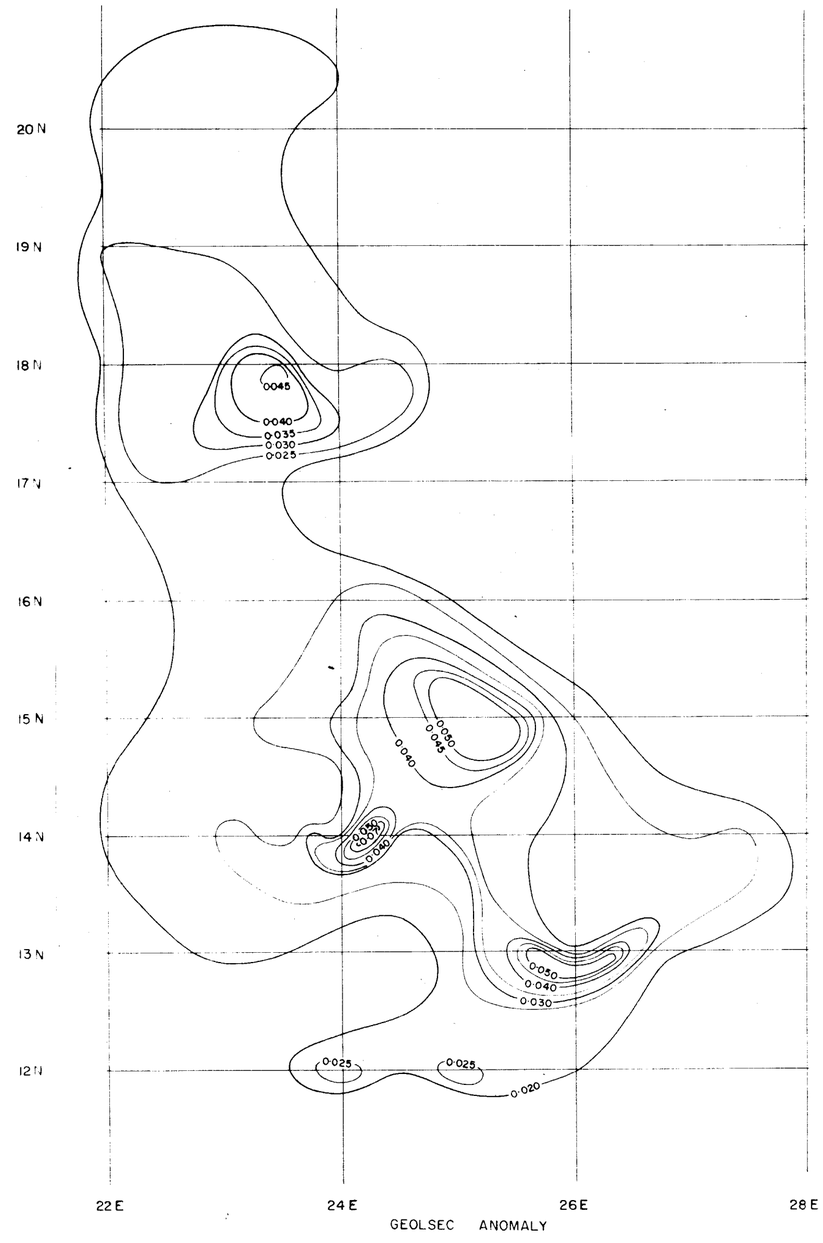
To accompany Record No 1962/122 S105 GP



EASTICKS ANOMALY



GEOLSEC ANOMALY

GEOPHYSICAL SURVEY IN THE RUM JUNGLE AREA, N.T., 1961

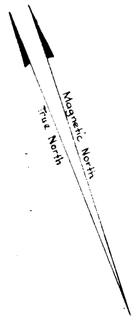
FLYNN S AREA

DETAILED RADIOMETRIC CONTOURS

CONTOUR INTERVAL 0·005 mr /hr

SCALE IN FEET

100 50 0 100 200 300



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To accompany Record No 1962/122

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