

# CLOSED FILE

CRA EXPLORATION PTY LTD

EL 6117 BUNDEY RIVER, N.T

ANNUAL REPORT  
PERIOD ENDING 27th. SEPTEMBER, 1989

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Accepted by : W.H.Johnston .....

Date : September, 1989

Copies to : N.T. Department of Mines and Energy  
: CRAE Library, Canberra  
: CRAE Library, Darwin

Map Reference

Report No.

SF 53-10 Alcoota  
SF 53-11 Huckitta

16011

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CR89/781

CONTENTS

|                                 | PAGE |
|---------------------------------|------|
| 1. SUMMARY AND CONCLUSION       | 1    |
| 2. INTRODUCTION                 | 1    |
| 3. DRAINAGE GRAVEL SAMPLING     | 2    |
| 4. PHOTO-ANOMALY FOLLOW UP      | 3    |
| 5. AIR PHOTO SURVEY             | 4    |
| 6. RECONNAISSANCE LOAM SAMPLING | 4    |
| 7. REFERENCES                   | 4    |
| 8. KEY WORDS                    | 5    |
| 9. LOCATION                     | 5    |
| 10. LIST OF PLANS               | 5    |

APPENDIX 1 INDICATOR MINERAL SAMPLING DATA

## 1. Summary and Conclusions

In the period to the end of the first year of tenure of EL 6117, a total of 54 reconnaissance and infill/follow-up drainage gravel samples were collected and processed for the detection of kimberlitic indicator minerals and microdiamonds. Chromites were reported from 16 drainage gravel samples collected from the northern part of the tenement. The chromites appear to be shedding from a source hosted by the Devonian Dulcie Sandstone.

Six air-photo anomalies were ground investigated but no evidence of kimberlitic intrusions was found.

A black & white air-photography survey was flown over the tenement area in anticipation of a detailed aeromagnetic survey aimed at the detection of kimberlitic bodies concealed by surficial deposits of sand drift and alluvium.

The aeromagnetic survey was deferred in favour of a reconnaissance loam sampling program over the areas with no effective drainage. A total of 69 reconnaissance loam samples were collected and forwarded to CRAE's Belmont laboratory to be processed for the detection of kimberlite indicator minerals and microdiamonds. The results are awaited.

## 2. INTRODUCTION

Bunday River EL 6117, comprising 494 blocks (approx 1570 sq km), is located on the south-west margin of the Georgina Basin about 200 km NE of Alice Springs (see plan NTd 4693). The EL Application was lodged on 6th. May 1988, and was granted on 28th. September 1988. Title to EL 6117 was secured to enable exploration for diamondiferous kimberlites.

The geology of the tenement area is described by Freeman and Woyzbun (1986). Outcrop in EL 6117 is dominated in the central part by sandstone hills comprised of Devonian Dulcie Sandstone. Low rounded hills comprised of limestone, dolostone and sandstone of the Cambro-Ordovician Tomahawk Beds occur in the extreme NE and SW parts of EL 6117. Quaternary deposits of aeolian sand and alluvial soil are extensive within EL 6117.

Drainage within the tenement area is only developed in the vicinity of bedrock outcrop in the northern and southern parts of EL 6117, and in the vicinity of the Bunday River.

### 3. Drainage Gravel Sampling

Collection of drainage gravel samples was undertaken in two stages, each helicopter supported. The samples were forwarded to CRAE's Belmont laboratory for kimberlitic indicator mineral and microdiamond observation. The sample site locations are shown on plan NTd 4809 and the analytical results are tabulated in Appendix 1.

A total of 34 reconnaissance drainage gravel samples were collected during the first phase of sampling (821- and 13133- series). Two samples, 821620 and 821621, from adjacent tributaries of the Bunday River in the extreme south of EL 6117 reported two chromites and three chromites respectively. The chromites in sample 821620 and 821621 are considered to be derived from ultramafic bodies in the Arunta Complex to the south of EL 6117 (see Harvey, 1983).

An additional four samples from the northern part of EL 6117 reported positive results as follows :

Samples 1313337 and 1313340, from creeks to the east of Bunday River, reported one chromite and three chromites respectively.

Samples 1313341 and 1313347, from creeks to the west of Bunday River, reported two chromites and one chromite respectively.

The positive results from the northern part of EL 6117 were followed up during the second phase of drainage gravel sampling. A total of 20 samples were collected, comprising 17 infill samples and four repeat samples of the previous positive results. Twelve samples from the second phase of drainage gravel sampling reported positive results as follows :

13 chromites in sample 1313123, a repeat of sample 1313347, and three chromites in sample 1313124, from a creek to the immediate west of 1313347.

One chromite in sample 1313131, a repeat of 1313341, two chromites in sample 1313130 taken 3 km upstream from 1313341, and two chromites in sample 1313129 from a creek to the immediate north of 1313130.

Ten chromites and one microilmenite in sample 1313132, and seven chromites in sample 1313133, taken 1 km and 4 km respectively upstream from 1313340.

Five chromites in sample 1313134, and eight chromites in sample 1313135, both from a creek system to the immediate west of 1313133.

Two chromites in sample 1313137 from a creek to the immediate south-west of 1313133.

Seven chromites in sample 1313138, and four chromites in sample 1313139 taken 300 m and 3 km respectively upstream from 1313337.

5

### 3. Drainage Gravel Sampling Cont.

The positive results from the northern part of EL 6117 can be grouped into three clusters. The largest cluster consists of nine anomalous samples from four adjacent creeks situated to the east of Bunday River. Two small clusters are situated to the west of Bunday River and consist of four anomalous samples from two adjacent creeks and three anomalous samples from two adjacent creeks. The chromites are interpreted to be shedding from a source hosted by the Dulcie Sandstone.

### 4. Photo-Anomaly Follow up

Air-photo interpretation was carried out on black and white 1:80 000 RC 9 photography flown in 1970. Anomaly selection was aimed at the recognition of any surface features possibly representing the expression of kimberlite intrusions.

Six anomalous photofeatures were noted in the tenement area. Loam samples were collected from the features as follows :

- Sample 1313119 - taken from a 300m x 800m oval depression with relatively dense tree cover.
- Sample 1313120 - taken from a 600m wide irregular shaped depression with relatively thin vegetation cover.
- Sample 1313276 - taken from a 400m x 1000m depression with relatively dense tree cover.
- Sample 1313278 - taken from a 300m wide circular depression with relatively thin vegetation cover.
- Sample 1313281 - taken from a 400 m wide circular depression with relatively thin vegetation cover
- Sample 1313283 - taken from a 600m long oval depression with relatively dense tree cover.

Field investigation of the photo-features found no evidence to suggest that any of the features were the surface expressions of kimberlite intrusions. The six loam samples reported negative for kimberlite indicators and microdiamonds.

6

## 5. Air-Photo Survey

A black and white air-photography survey was flown over EL 6117 in anticipation of a detailed aeromagnetic survey aimed at the detection of kimberlite intrusions concealed by Quaternary sediments.

The survey was flown by Kevron Aerial Surveys over the area shown on plan NTd 4732. Two sets of photographs were prepared, one at 1:80 000 scale with 80 % overlap between frames and one set of 1:25 000 scale enlargements of every fourth exposure.

## 6. Reconnaissance Loam Sampling

The aeromagnetic survey was deferred in favour of a helicopter supported program of reconnaissance loam sampling over the areas with extensive deposits of Quaternary sediments. A total of 69 loam samples were collected on a 4km x 4km grid at a density of one sample per 16 sq km. The samples were forwarded to CRAE's Belmont laboratory to be processed for the detection of kimberlite indicator minerals and microdiamonds and the results are awaited.

## 7. References

- Freeman, M.J. and Woyzbun      1986 : 1:250 000 Geological Map Series  
Explanatory Notes, Huckitta SF 53-11
- Harvey, B.E.      1983 : MacDonald Downs EL 2789, Final Report 6.9.83  
CRAE Report No 130388

8. Keywords

Carbonate, diamonds, diamond indicators, Palaeozoic, Quaternary, sampling-drainage, sampling-soil, sandstone

9. Location

Huckitta SF 53-11, Alcoota SF 53-10 (MacDonald Downs 5953, Utopia 5853)

10. List of Plans

| <u>Plan No.</u> | <u>Title</u>                              | <u>Scale</u> |
|-----------------|---|--------------|
| NTd 4693        | EL 6117 Bunday River Location Plan        | 1:250 000    |
| NTd 4732        | Bunday River Survey                       | 1:250 000    |
| NTd 4809        | EL 6117 Bunday River Sample Location Plan | 1:100 000    |

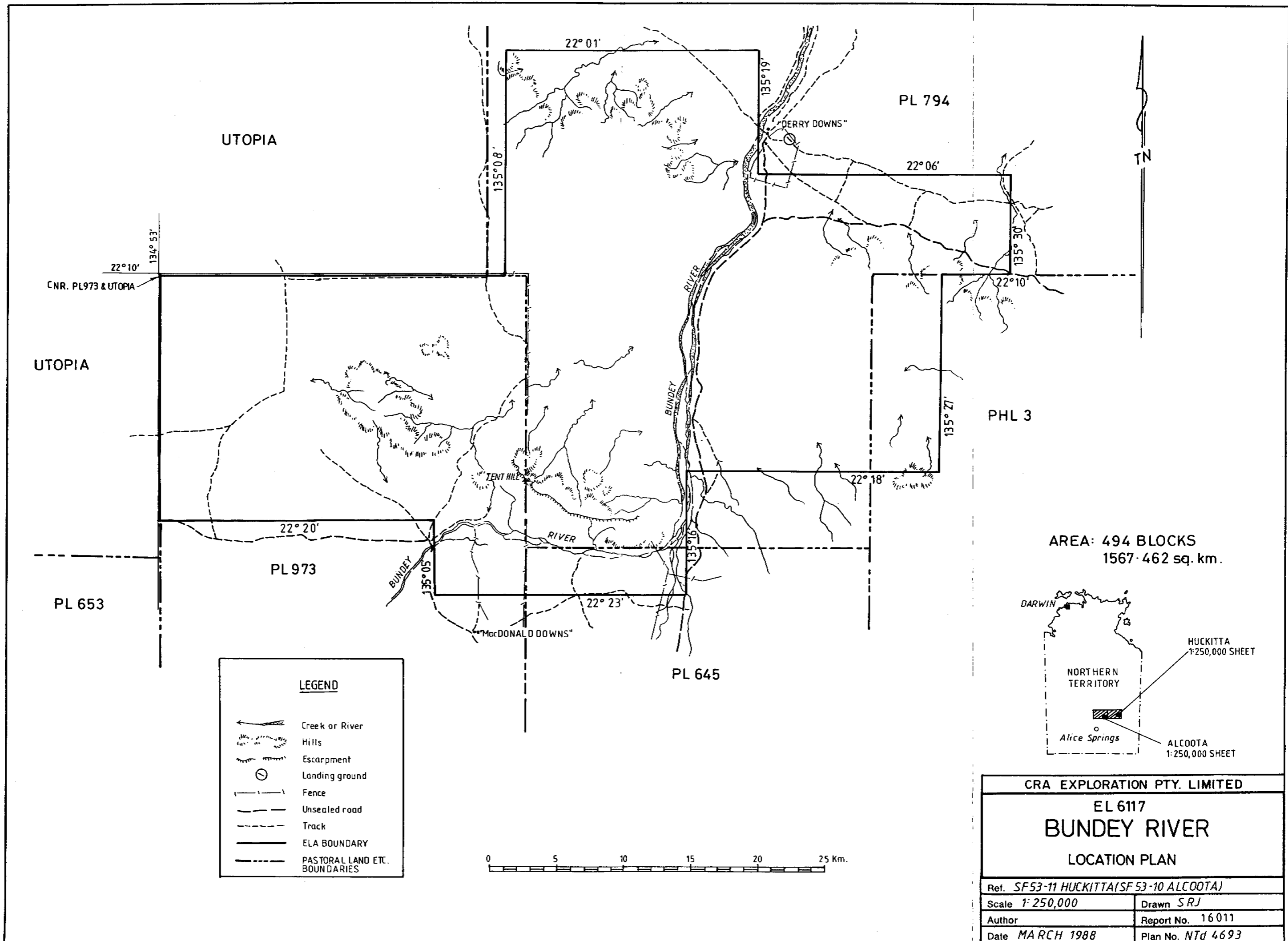
APPENDIX I

INDICATOR MINERAL SAMPLING DATA



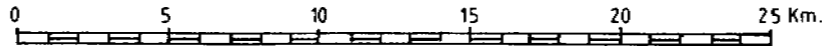
| Sample no. | CHROM | PICRO | MICRO |
|------------|-------|-------|-------|
| 1313119    | 0     | 0     | 0     |
| 1313120    | 0     | 0     | 0     |
| 1313121    | 0     | 0     | 0     |
| 1313123    | 13    | 0     | 0     |
| 1313124    | 3     | 0     | 0     |
| 1313125    | 0     | 0     | 0     |
| 1313126    | 0     | 0     | 0     |
| 1313129    | 2     | 0     | 0     |
| 1313130    | 2     | 0     | 0     |
| 1313131    | 1     | 0     | 0     |
| 1313132    | 10    | 1     | 0     |
| 1313133    | 7     | 0     | 0     |
| 1313134    | 5     | 0     | 0     |
| 1313135    | 8     | 0     | 0     |
| 1313137    | 2     | 0     | 0     |
| 1313138    | 7     | 0     | 0     |
| 1313139    | 4     | 0     | 0     |
| 1313140    | 0     | 0     | 0     |
| 1313141    | 0     | 0     | 0     |
| 1313142    | 0     | 0     | 0     |
| 1313143    | 0     | 0     | 0     |
| 1313145    | 0     | 0     | 0     |
| 1313276    | 0     | 0     | 0     |
| 1313278    | 0     | 0     | 0     |
| 1313281    | 0     | 0     | 0     |
| 1313283    | 0     | 0     | 0     |
| 1313333    | 0     | 0     | 0     |
| 1313337    | 1     | 0     | 0     |
| 1313339    | 0     | 0     | 0     |
| 1313340    | 3     | 0     | 0     |
| 1313341    | 2     | 0     | 0     |
| 1313342    | 0     | 0     | 0     |
| 1313343    | 0     | 0     | 0     |
| 1313344    | 0     | 0     | 0     |
| 1313345    | 0     | 0     | 0     |
| 1313346    | 0     | 0     | 0     |
| 1313347    | 1     | 0     | 0     |
| 1313348    | 0     | 0     | 0     |
| 1313350    | 0     | 0     | 0     |
| 821602     | 0     | 0     | 0     |

| Sample no. | CHROM | PICRO | MICRO |
|------------|-------|-------|-------|
| 821603     | 0     | 0     | 0     |
| 821604     | 0     | 0     | 0     |
| 821605     | 0     | 0     | 0     |
| 821606     | 0     | 0     | 0     |
| 821607     | 0     | 0     | 0     |
| 821608     | 0     | 0     | 0     |
| 821609     | 0     | 0     | 0     |
| 821610     | 0     | 0     | 0     |
| 821611     | 0     | 0     | 0     |
| 821612     | 0     | 0     | 0     |
| 821613     | 0     | 0     | 0     |
| 821614     | 0     | 0     | 0     |
| 821615     | 0     | 0     | 0     |
| 821616     | 0     | 0     | 0     |
| 821617     | 0     | 0     | 0     |
| 821618     | 0     | 0     | 0     |
| 821619     | 0     | 0     | 0     |
| 821620     | 2     | 0     | 0     |
| 821621     | 3     | 0     | 0     |
| 821623     | 0     | 0     | 0     |

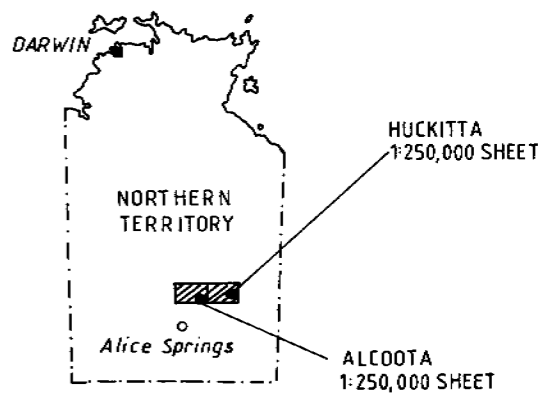


**LEGEND**

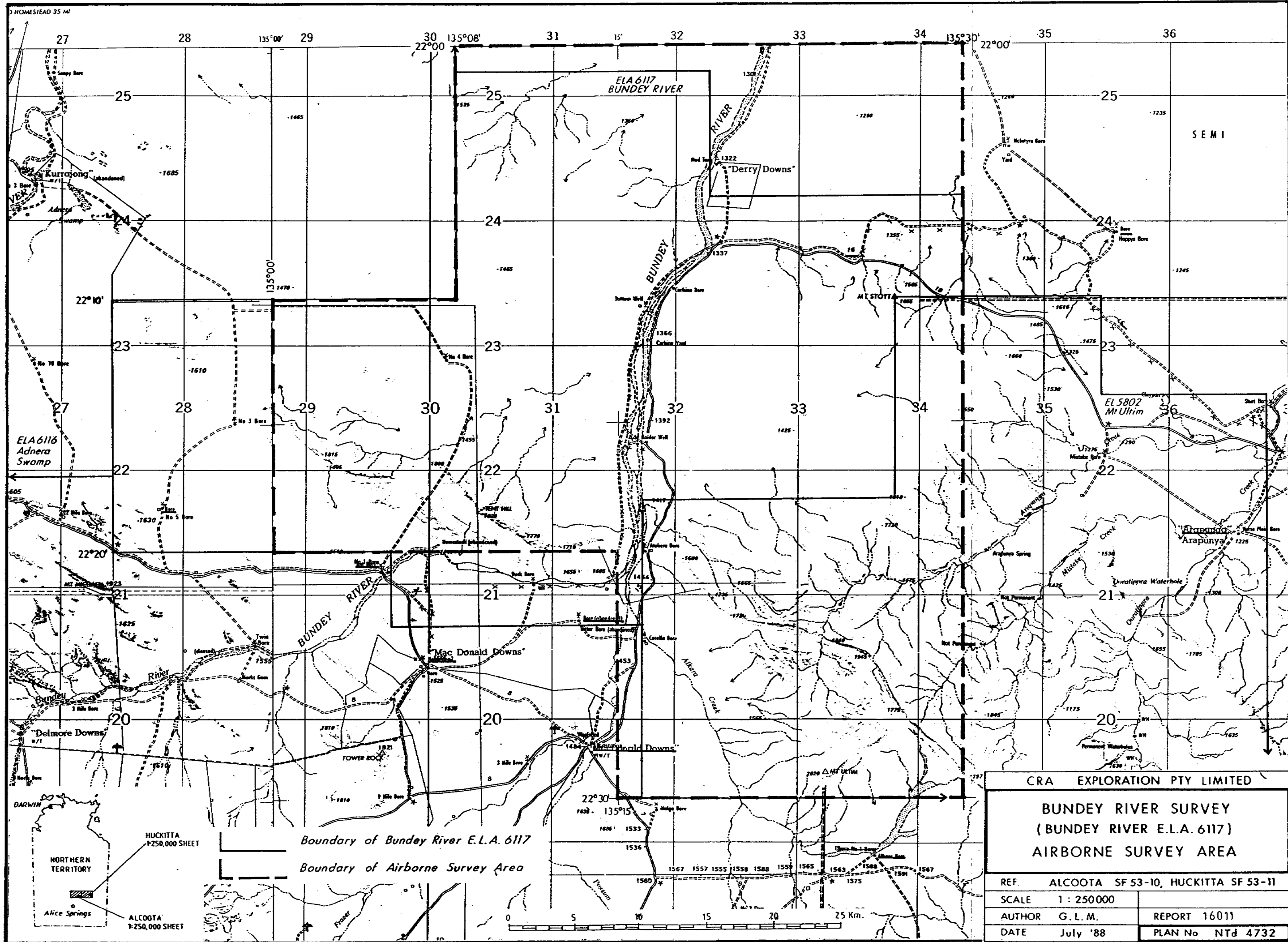
- Creek or River
- Hills
- Escarpment
- Landing ground
- Fence
- Unsealed road
- Track
- ELA BOUNDARY
- PASTORAL LAND ETC. BOUNDARIES



AREA: 494 BLOCKS  
1567.462 sq. km.



|   |                   |
|---|-------------------|
| <b>CRA EXPLORATION PTY. LIMITED</b>     |                   |
| <b>EL 6117</b>                          |                   |
| <b>BUNDEY RIVER</b>                     |                   |
| <b>LOCATION PLAN</b>                    |                   |
| Ref. SF53-11 HUCKITTA(SF 53-10 ALCOOTA) |                   |
| Scale 1:250,000                         | Drawn SRJ         |
| Author                                  | Report No. 16011  |
| Date MARCH 1988                         | Plan No. NTd 4693 |

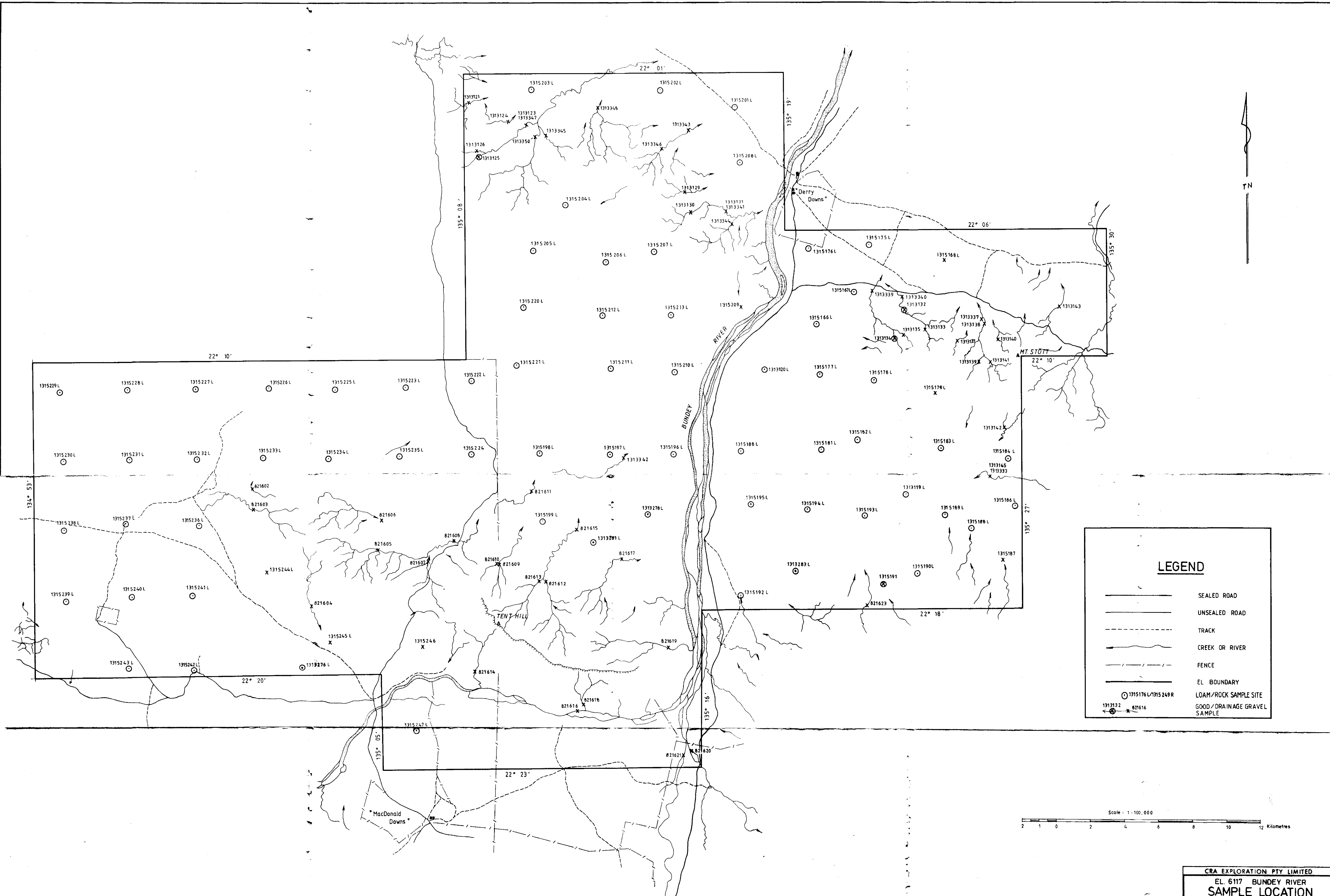


|   |                                     |
|---|-------------------------------------|
| CRA EXPLORATION PTY LIMITED   |                                     |
| <b>BUNDEY RIVER SURVEY</b><br>(BUNDEY RIVER E.L.A. 6117)<br><b>AIRBORNE SURVEY AREA</b> |                                     |
| REF.  | ALCOOTA SF 53-10, HUCKITTA SF 53-11 |
| SCALE   | 1 : 250000                          |
| AUTHOR  | G. L. M.                            |
| DATE  | July '88                            |
|   | REPORT 16011                        |
|   | PLAN No NTd 4732                    |

Boundary of Bunday River E.L.A. 6117  
 Boundary of Airborne Survey Area

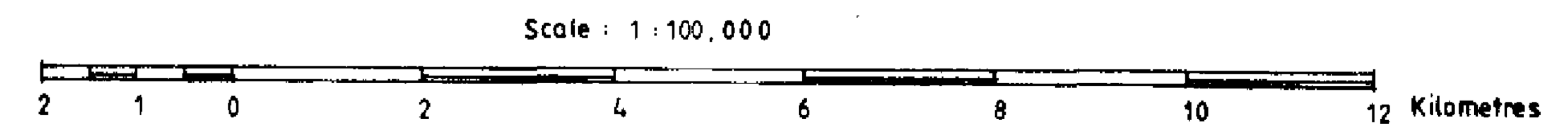
DARWIN  
 Alice Springs  
 HUCKITTA  
 1:250,000 SHEET  
 ALCOOTA  
 1:250,000 SHEET  
 NORTHERN TERRITORY





**LEGEND**

- SEALED ROAD
- UNSEALED ROAD
- TRACK
- CREEK OR RIVER
- FENCE
- EL. BOUNDARY
- 1315176 L/1315249 R LOAM/ROCK SAMPLE SITE
- 821616 GOOD/ DRAINAGE GRAVEL SAMPLE



|  |                  |
|--|------------------|
| <b>CRA EXPLORATION PTY LIMITED</b>             |                  |
| EL. 6117 BUNDEY RIVER                          |                  |
| <b>SAMPLE LOCATION PLAN</b>                    |                  |
| REFERENCE SF 53-11 HUCKITTA (SF 53-10 ALCOOTA) |                  |
| SCALE 1:100,000                                | DATE AUG. 1989   |
| AUTHOR   | REPORT T6011     |
| DRAWN S R J                                    | PLAN No NTG 4809 |