

CRA Exploration Pty. Ltd.

OPEN FILE

EL 4551 MANTUNGULA CREEK, N.T.

FINAL REPORT
PERIOD TO 8 MAY, 1985

Submitted by : I. C. Colliver

Accepted by : W. H. Johnston

Date : August, 1985

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

Map Reference

Report number

SD 53-15 Mount Youngs
SE 53-2 Tanumbirini
SE 53-3 Bauhinia Downs

130507

The contents of this report remain the property of
CRA Exploration Pty. Ltd. and may not be published
in whole or in part nor used in a company
prospectus without written consent of the Company.

NORTHERN TERRITORY
GEOLOGICAL SURVEY

CR 85 / 182 A

CONTENTS

1. SUMMARY	Page 3
2. ASSESSMENT	3
3. INTRODUCTION	3
4. DRAINAGE GRAVEL SAMPLING	4
5. REFERENCES	6
6. KEYWORDS	6
7. LOCATION	6
8. LIST OF PLANS	7

Appendix 1 Indicator Mineral Sampling Data

1.0 SUMMARY

In the first year of tenure of Mantungula Creek EL 4551, relatively high density reconnaissance drainage gravel sampling was completed over the area and samples processed for detection of kimberlitic indicator minerals and microdiamonds.

Kimberlitic indicator mineral reports were uniformly negative; single microdiamonds were reported in two samples.

Follow-up drainage sampling failed to upgrade reconnaissance results.

Loam sampling of two aeromagnetic anomalies and one photofeature, ground recovered as possible diatreme expressions, resulted in detection of one microdiamond unaccompanied by other kimberlitic indicators.

2.0 ASSESSMENT

Some 140 samples have been collected in the 1622 sq km area of EL 4551, giving an overall sample density of better than 1 per 12 sq km. No kimberlitic indicators, other than scattered single microdiamonds, have been detected by relatively high density reconnaissance and locally high density follow-up sampling.

In the absence of any significant dispersion of kimberlitic indicators, the area is considered unprospective for outcropping or drift concealed kimberlite diatremes.

3.0 INTRODUCTION

Mantungula Creek EL Application 4551 was lodged on 9 March 1984 for an area of 493 blocks (about 1622 square km) and was granted on 20 June 1984 (Plan NTd 3311). Recommended relinquishment of title was followed by surrender of EL 4551 with effect 8 May 1985.

The area was taken up for exploration for diamondiferous kimberlites by way of drainage gravel sampling for detection of kimberlitic indicator minerals.

EL 4542 covers a tract of generally lightly wooded speargrass country, drained by dendritic tributary systems of the north flowing Cox and Limmen Bight Rivers.

The north-central part of the EL area is underlain by a shallow basinal section of Cambrian Bukalara Sandstone and Cox Formation siltstones and sandstones, which laps to the east and southwest onto folded and fault segmented sections of Precambrian rocks.

In the southeastern part of the EL area, northwest trending strike ridges of Precambrian Roper Group sandstones are invested by drift sand and pallid-lateritized remnants of a Cretaceous sedimentary sheet which formerly blanketed the Cobanbirini Syncline area to the south.

4.0 DRAINAGE GRAVEL SAMPLING

Collection of drainage gravel samples was undertaken in three passes. All samples were forwarded to the CRAE Belmont laboratory for kimberlitic indicator mineral observation. Processing for microdiamonds was undertaken for samples from the first two passes, but not for the third, due to an unmanageable sample backlog at the laboratory.

Sample locations are shown on Plan NTd 4006.

Sampling data and results are tabulated in Appendix 1 and discussed below.

4.1 First pass: Reconnaissance drainage sampling

In helicopter supported reconnaissance sampling, (30) -2mm sieved drainage sediment samples (964-, 965- and 966- series numbers) were collected in the southern part of the EL 4551 area. Samples were taken from heavy mineral accumulation (trap) sites where available, in a pattern aimed at a sampling density of 1 per 20 sq km, peripheral to adjacent EL 4211.

Kimberlitic indicator mineral reports were negative; a single microdiamond was reported in sample 965564 from a Cox River tributary draining from the EL 4211 area.

4.2 Second pass: Infill and Follow-up Sampling

A second program of helicopter supported drainage sampling was undertaken to extend sampling coverage over the whole of the area of EL 4551. 97 -2mm sieved drainage trap site gravel samples (1080- and 1081- series numbers) were collected, giving an infilled sample density of about 1 per 12 sq km overall.

Kimberlitic indicator mineral reports were negative; a single microdiamond was reported in sample 1080453 from a Limmen Bight River tributary in the southeastern sector of the EL area. High density follow-up sampling of the Cox River tributary with a microdiamond reported from first pass sampling, gave only negative results.

From data of a detailed, low level, airborne magnetic and radiometric survey of adjacent EL 4211 (Colliver, 1984) two magnetic features on the common boundary with EL 4551 were selected for investigation as possible diatreme responses. "Loam" samples 1081844, 1081845, each bulking about 100kg of shallowly scraped deflated surficial soil, were collected over the ground recovered interpreted source centres of these features.

Kimberlitic indicator mineral reports were negative; one microdiamond was reported in sample 1081844.

4.3 Third pass: Infill and Follow-up Sampling

Seven additional -2mm sieved drainage trap site gravel samples (1082- and 1083- series numbers) were collected to further infill drainage sampling coverage and to follow up the report of a microdiamond in second pass sample 1080453. Reports for follow-up samples 1082923, 1082929 have not been received; the remainder reported negative for kimberlitic indicators.

Loam samples 641779-781 were taken from a ground recovered photocircular feature, selected for investigation because of proximity to the drainage catchment of sample 1080453. Kimberlitic indicator mineral reports were negative.

5.0 REFERENCES

- Colliver, I.C. 1984: Broadmere EL 4211
Annual Report Year Ending 7 June 1984
CRAE Report 130428
- Paine, A.G.L. 1963: Tanumbirini, N.T.
BMR 1:250 000 Geological Series
Explanatory Notes
- Plumb, K.A. &
Paine, A.G.L. 1964: Mount Young, N.T.
BMR 1:250 000 Geological Series
Explanatory Notes
- Smith, J.W. 1964: Bauhinia Downs, N.T.
BMR 1:250 000 Geological Series
Explanatory Notes

6.0 KEYWORDS

Diamonds, diamond indicators, sampling-drainage,
sampling-soil

7.0 LOCATION

SD 53-15 Mount Young	(5966 Mantungula)
SE 53-3 Bauhinia Downs	(5965 Bauhinia Downs)
SE 53-2 Tanumbirini	(5865 Tanumbirini)

8.0 LIST OF PLANS

Plan No -----	Title -----	Scale -----
NTd 3311	Location plan Mantungula Creek EL 4551	1:250 000
NTd 4006	Mantungula Creek EL 4551 Sample location plan	1:100 000

Appendix 1

INDICATOR MINERAL SAMPLING DATA

INDICATOR MINERAL SAMPLING RESULTS -----

LABELS LEGEND -----

EASTAMG

A.M.G. COORDINATES (ZONE 53)

NORTHAMG

SAMTYPE

1 = DRAINAGE "GRAVEL", 2 = LOAM, 3 = ROCK

SAMKG

SAMPLE WEIGHT (kg)

MICROD

NUMBER OF MICRODIAMONDS RECOVERED

IND1

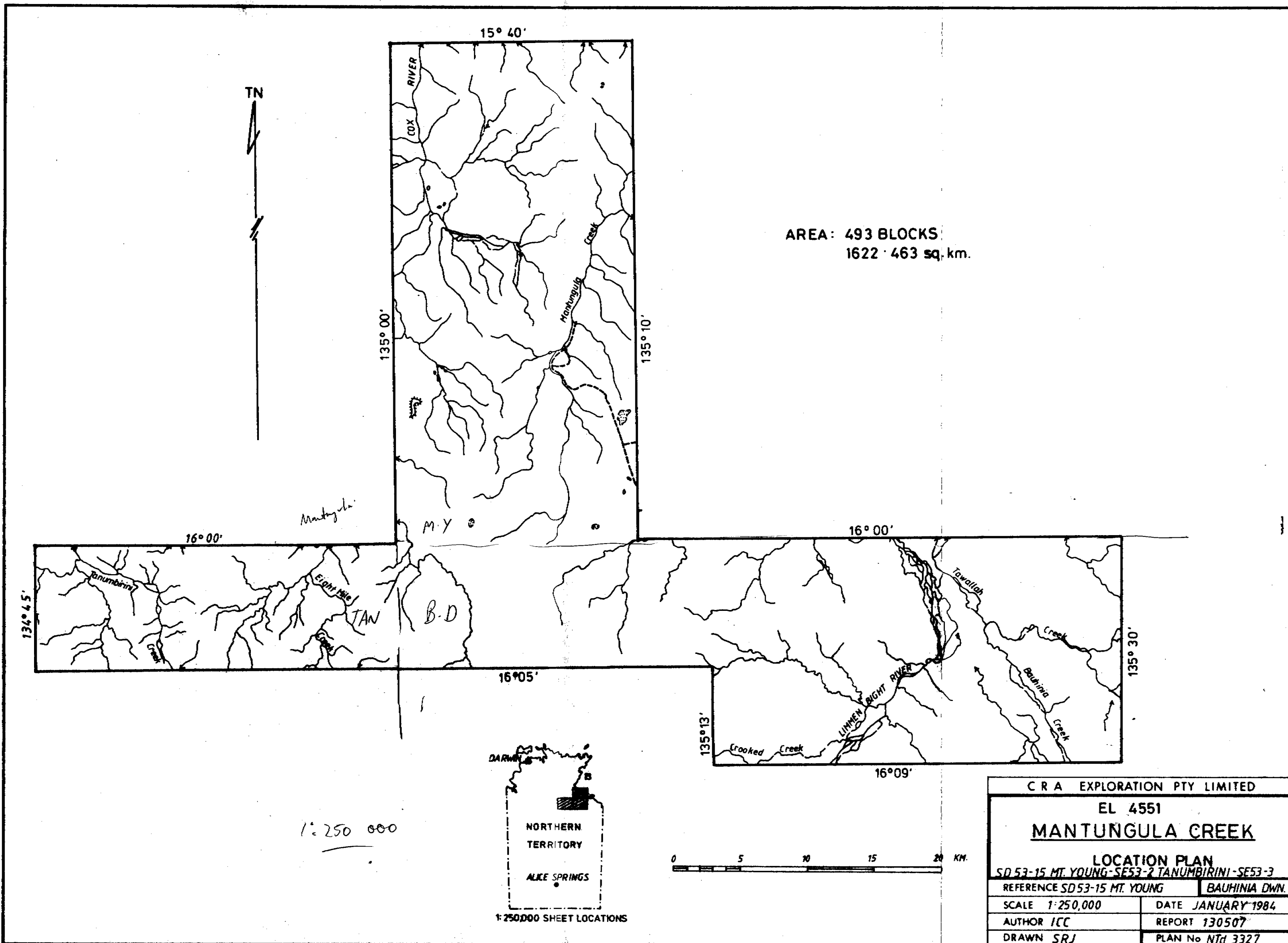
KIMBERLITIC INDICATOR MINERAL GRAINS OBSERVED

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	IND1	MICROD
-----	-----	-----	-----	-----	-----
964817	547400	8223700	1	0	0
964818	540200	8222100	1	0	0
965551	478800	8225300	1	0	0
965561	501100	8230200	1	0	0
965562	495500	8221800	1	0	0
965563	503900	8228900	1	0	0
965564	505400	8224100	1	0	1
965565	528400	8230300	1	0	0
965566	516700	8230600	1	0	0
965567	513200	8229000	1	0	0
965568	530800	8221200	1	0	0
965569	527200	8222200	1	0	0
965579	493900	8228600	1	0	0
965580	492900	8228500	1	0	0
965581	492900	8228500	1	0	0
965582	490400	8226800	1	0	0
965583	494700	8222800	1	0	0
965585	520300	8231100	1	0	0
965586	517200	8230600	1	0	0
966851	530900	8215100	1	0	0
966852	526100	8214400	1	0	0
966893	534500	8218600	1	0	0
966903	537700	8216800	1	0	0
966967	539000	8221700	1	0	0
966968	539000	8221700	1	0	0

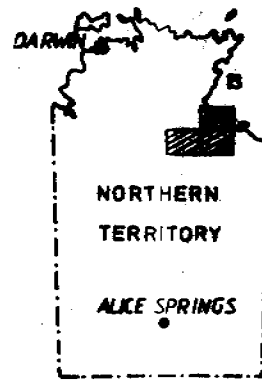
SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	IND1	MICROD
-----	-----	-----	-----	-----	-----
966975	476500	8229700	1	0	0
966983	540200	8228600	1	0	0
966984	540200	8228600	1	0	0
966990	476700	8230300	1	0	0
966991	483200	8222400	1	0	0
1080349	517000	8255700	1	0	0
1080351	578100	8259200	1	0	0
1080352	514100	8250400	1	0	0
1080365	516600	8255300	1	0	0
1080366	517000	8258500	1	0	0
1080367	517900	8259300	1	0	0
1080368	514200	8249700	1	0	0
1080370	504400	8224300	1	0	0
1080379	505600	8224200	1	0	0
1080385	505400	8224300	1	0	0
1080386	505600	8224200	1	0	0
1080387	504600	8223600	1	0	0
1080388	505200	8222300	1	0	0
1080389	504900	8222400	1	0	0
1080390	504900	8222400	1	0	0
1080391	505300	8225800	1	0	0
1080392	505500	8225900	1	0	0
1080395	503200	8222600	1	0	0
1080399	500900	8229400	1	0	0
1080400	500700	8230100	1	0	0
1080401	504300	8221900	1	0	0
1080404	501700	8228900	1	0	0
1080405	511900	8227800	1	0	0
1080406	512500	8227900	1	0	0
1080407	516700	8227600	1	0	0
1080408	526500	8229700	1	0	0
1080409	525900	8227300	1	0	0
1080410	523600	8225800	1	0	0
1080427	520200	8228700	1	0	0
1080428	517000	8226700	1	0	0
1080433	516200	8227600	1	0	0
1080441	526800	8222600	1	0	0
1080442	538100	8221800	1	0	0
1080443	538800	8219800	1	0	0
1080444	538400	8219200	1	0	0
1080451	516500	8227700	1	0	0
1080452	520100	8228300	1	0	0
1080453	527100	8227000	1	0	1
1080454	526100	8222800	1	0	
1080455	526800	8222200	1	0	
1080456	534300	8218900	1	0	0
1080457	539400	8220900	1	0	0

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	IND1	MICROD
-----	-----	-----	-----	-----	-----
1080560	540300	8228600	1	0	0
1080561	531000	8230100	1	0	0
1080572	531000	8230100	1	0	0
1080573	502000	8259300	1	0	0
1080574	502000	8259300	1	0	0
1080575	502700	8261000	1	0	0
1080576	502300	8266000	1	0	0
1080578	509700	8252800	1	0	0
1080579	509700	8252800	1	0	0
1080582	511700	8245100	1	0	0
1080583	510500	8242000	1	0	
1080584	501100	8246100	1	0	0
1080585	503600	8241800	1	0	0
1080586	510100	8239100	1	0	
1080587	509900	8237100	1	0	0
1080588	503800	8254500	1	0	0
1080589	509200	8259700	1	0	0
1080590	506200	8259200	1	0	0
1080595	475100	8228900	1	0	0
1080597	502000	8254200	1	0	0
1080598	508800	8258900	1	0	0
1080599	508600	8258300	1	0	0
1080600	502800	8254800	1	0	0
1080602	543700	8223300	1	0	0
1080603	503000	8259200	1	0	0
1080604	502200	8268000	1	0	0
1080606	509300	8252500	1	0	0
1080616	477200	8228500	1	0	0
1080617	477400	8228400	1	0	0
1080618	512200	8232800	1	0	
1080619	512000	8236700	1	0	
1080620	504200	8250000	1	0	
1080621	505600	8259300	1	0	0
1080622	502000	8265100	1	0	0
1080624	513900	8246900	1	0	0
1080625	512400	8243200	1	0	0
1080626	503700	8244100	1	0	0
1080627	500600	8246100	1	0	0
1080628	503300	8242100	1	0	0
1080629	509300	8239300	1	0	0
1080630	512400	8232700	1	0	0
1080631	513300	8240400	1	0	0
1080632	512800	8240500	1	0	0
1080633	501100	8254600	1	0	0
1080634	510000	8265800	1	0	0
1080677	496700	8225300	1	0	0
1080682	493900	8222300	1	0	0

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	IND1	MICROD
-----	-----	-----	-----	-----	-----
1081828	479500	8229400	1	0	0
1081829	479500	8229400	1	0	0
1081830	482600	8227100	1		
1081831	478500	8225600	1	0	0
1081832	479000	8225000	1	0	0
1081833	478400	8224700	1	0	0
1081834	478700	8222800	1	0	0
1081844	510800	8220800	2	0	1
1081845	509800	8220800	2	0	0
1082509	534300	8219600	1	0	
1082510	534300	8219600	1	0	
1082922	529900	8223000			
1082923	527100	8227400			
1082929	527100	8227400			
1083062	490300	8227300	1	0	
1083068	489800	8227900	1	0	
1083070	500200	8250800	1	0	
641779	522900	8222400	2	0	0
641780	522900	8222400	2	0	0
641781	522900	8222400	2	0	0



AREA: 493 BLOCKS
1622.463 sq. km.



1:250,000 SHEET LOCATIONS



C R A EXPLORATION PTY LIMITED	
EL 4551	
MANTUNGULA CREEK	
LOCATION PLAN	
SD 53-15 MT. YOUNG-SE53-2 TANUMBIRINI-SE53-3	
REFERENCE SD 53-15 MT. YOUNG	BAUHINIA DWN.
SCALE 1:250,000	DATE JANUARY 1984
AUTHOR ICC	REPORT 130507
DRAWN SRJ	PLAN No NTd 3327