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CRA Exploration Pty. Ltd.

EL 4546 CHARLEY CREEK, N.T.

FINAL REPORT
PERIOD TO 8 MAY, 1985

Submitted by : I. C. Colliver

Accepted by : W. H. Johnston

Date : July, 1985

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

Map Reference

Report number

SD 53-14 Hodgson Downs

130508

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NORTHERN TERRITORY
GEOLOGICAL SURVEY

6285/179A

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Appendix 1 Indicator Mineral Sampling Data

1.0 SUMMARY

In the first year of tenure of Charley Creek EL 4546, reconnaissance density drainage gravel sampling was completed over the area and samples processed for detection of kimberlitic indicator minerals.

Chromite grains were reported in ten samples from Hodgson River tributaries, in a scattering through the western and south-central sectors of the EL area. No other kimberlitic indicators were detected.

2.0 ASSESSMENT

No systematic dispersion pattern is recognised in the distribution of reported (non-kimberlitic) chromites, but there is a loose correlation with widespread outcrop representation in the EL area of Cambrian Nutwood Downs Volcanics. A mafic phase of this suite is considered the probable source.

3.0 INTRODUCTION

Charley Creek EL Application 4546 was lodged on 9 March 1984 for an area of 450 blocks (about 1482 square km) and was granted on 20 June 1984 (Plan NTd 3335). Recommended relinquishment of title was followed by surrender of EL 4546 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 4546 covers a tract of generally lightly wooded, undulating spearsgrass country, with a relatively well developed dendritic drainage by tributaries of the north flowing Hodgson River.

The western half of the EL area is underlain by a Cambrian Nutwood Downs Volcanics suite of massive and amygdaloidal basalt/andesite, volcanoclastics and derivative sediments, exposed by erosion of a formerly overlying sheet of Tertiary lateritised Lower Cretaceous sandstone and pallid calcareous to porcellaneous siltstone.

Dipping shallowly westward under the Nutwood Downs Volcanics section, a sheet of (Cambrian) Bukalara sandstone is exposed in the east-central sector.

In the far northeastern sector of the EL area, erosion of the Cretaceous sheet has superimposed northeast flowing tributaries of the Arnold River on an open folded section of Precambrian Roper Group sandy sediments.

Stands of dense lancewood grow on remnant Cretaceous outliers throughout the area.

4.0 DRAINAGE GRAVEL SAMPLING

In a helicopter supported reconnaissance sampling program completed in field season 1984, 70 -2mm sieved drainage sediment samples (1082- series numbers) were collected in the EL 4546 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.

Samples were forwarded to the CRAE Belmont laboratory for processing for kimberlitic indicator mineral observation. Due to an unmanageable backlog at the laboratory, processing of samples for detection of microdiamonds was not undertaken.

Sample locations are shown on plan NTd 3760.

Sampling data and results are tabulated in Appendix 1.

Chromite grains were reported in the following samples from Hodgson River tributaries in the northeastern and south-central sectors of the EL area:

sample 1082703 (1 grain),
sample 1082714 (2 grains),
sample 1082731 (2 grains),
sample 1082749 (12 grains),
sample 1082750 (1 grain),
sample 1082755 (2 grains),
sample 1082758 (1 grain),
sample 1082762 (1 grain),
sample 1082775 (1 grain),
sample 1082836 (2 grains)

No other kimberlitic indicators were observed.

5.0 REFERENCES

Dunn, P.R. 1963: Hodgeson Downs, N.T.
 BMR 1:250 000 Geological Series
 Explanatory Notes

6.0 KEYWORDS

Diamonds, basalt, volcanics, sandstone, diamond indicators,
 airborne, sampling-drainage

7.0 LOCATION

Hodgeson Downs SD 53-14 (Nutwood 5766)

8.0 LIST OF PLANS

Plan No -----	Title -----	Scale -----
NTd 3335	Location Plan Charley Creek EL 4546	1:250 000
NTd 3760	Charley Creek EL 4546 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

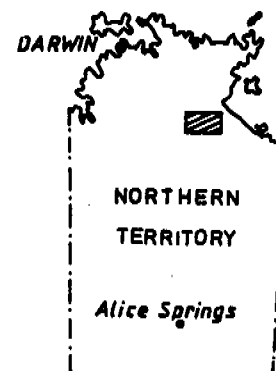
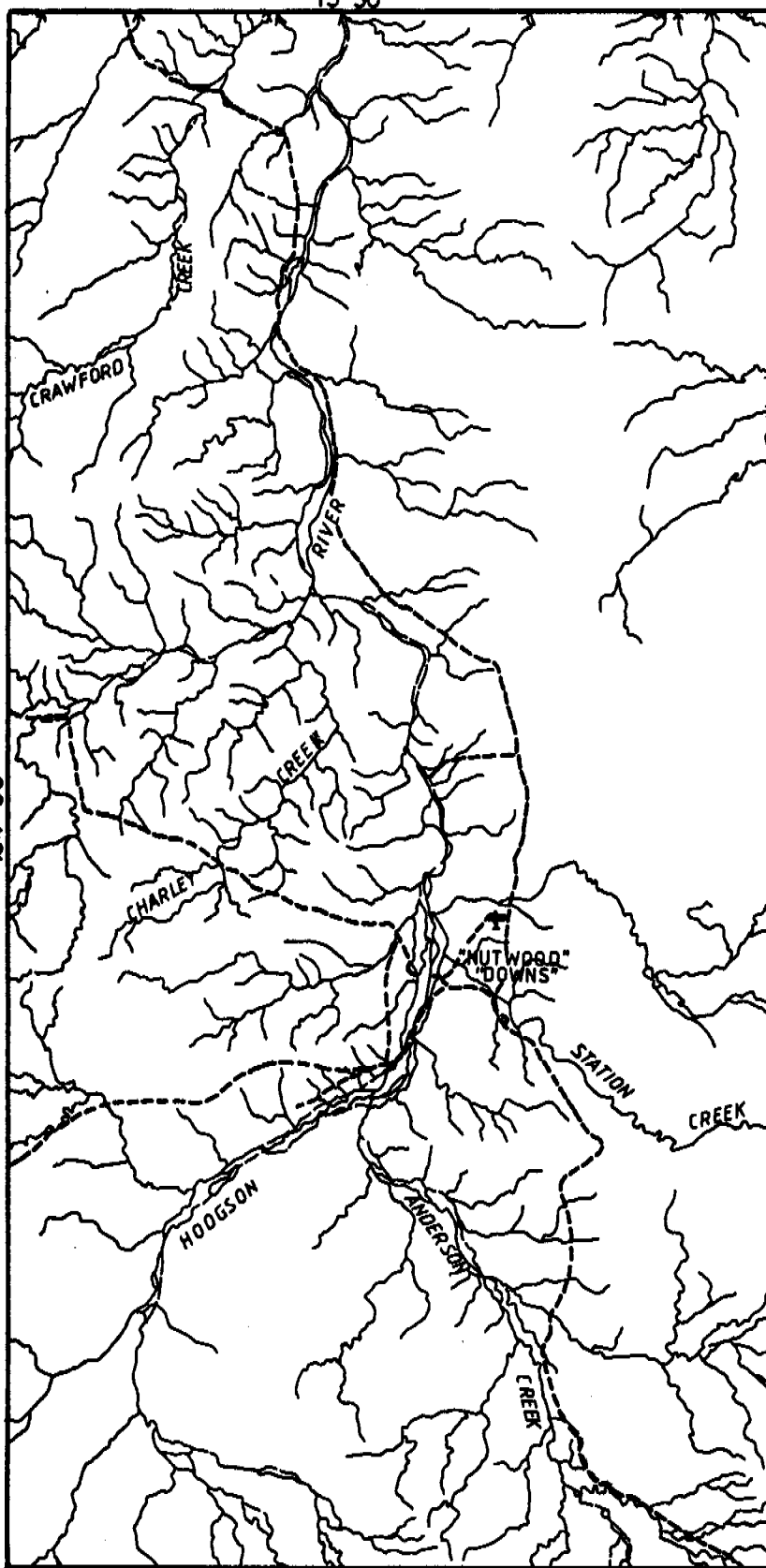
NUMBER OF MICRODIAMONDS RECOVERED

IND1

KIMBERLITIC INDICATOR MINERAL GRAINS OBSERVED
(1.CR = CHROMITE)

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	IND1	MICROD
-----	-----	-----	-----	-----	-----
1082683	397600	8236400	1	0	
1082684	394300	8237800	1	0	
1082685	400700	8232900	1	0	
1082686	403800	8232400	1	0	
1082687	413300	8233500	1	0	
1082688	416600	8231900	1	0	
1082689	410600	8238400	1	0	
1082690	415200	8238500	1	0	
1082697	394300	8236900	1	0	
1082698	398800	8234000	1	0	
1082699	400400	8232800	1	0	
1082700	412800	8233500	1	0	
1082701	414000	8233800	1	0	
1082702	412000	8235800	1	0	
1082703	412000	8239100	1	1.CR	
1082704	405600	8240800	1	0	
1082705	405500	8247000	1	0	
1082706	398600	8244400	1	0	
1082707	398300	8242300	1	0	
1082708	405500	8248300	1	0	
1082709	416200	8246000	1	0	
1082711	407000	8243900	1	0	
1082712	399000	8235300	1	0	
1082713	397600	8238800	1	0	
1082714	408000	8248200	1	2.CR	
1082715	412200	8256000	1	0	
1082730	394300	8256700	1	0	

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	IND1	MICROD
-----	-----	-----	-----	-----	-----
1082731	393700	8260600	1	2.CR	
1082732	394700	8261500	1	0	
1082735	395500	8248000	1	0	
1082740	394800	8256500	1	0	
1082745	393300	8271400	1	0	
1082748	395300	8282400	1	0	
1082749	409900	8251400	1	12.CR	
1082750	406800	8254200	1	1.CR	
1082751	392700	8271700	1	0	
1082752	393200	8278600	1	0	
1082754	395100	8282700	1	0	
1082755	408700	8254800	1	2.CR	
1082756	403600	8251700	1	0	
1082757	402400	8258600	1	0	
1082758	403400	8263000	1	1.CR	
1082759	397600	8263100	1	0	
1082760	402500	8264600	1	0	
1082761	404000	8265600	1	0	
1082772	407800	8258300	1	1.CR	
1082773	402500	8262400	1	0	
1082774	399600	8262200	1	0	
1082775	398200	8263800	1	1.CR	
1082776	397200	8263500	1	0	
1082777	405300	8265400	1	0	
1082778	404500	8270500	1	0	
1082834	403600	8273400	1	0	
1082835	402200	8273200	1	0	
1082836	401200	8273700	1	2.CR	
1082845	412000	8272800	1	0	
1082881	419500	8273400	1	0	
1082883	417000	8283600	1	0	
1082884	417000	8283600	1	0	
1082886	405300	8285700	1	0	
1082887	403100	8277300	1	0	
1082888	406900	8277800	1	0	
1082889	406900	8277600	1	0	
1082892	419250	8271400	1	0	
1082898	405000	8282700	1	0	
1082899	399600	8282600	1	0	
1082900	404800	8280700	1	0	



1:250,000 SHEET LOCATION

AREA: 450 BLOCKS
1482.3 sq.km.



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EL 4546
CHARLEY CREEK
LOCALITY PLAN

REFERENCE SD53 -14 HODGSON DOWNS

SCALE 1:250,000

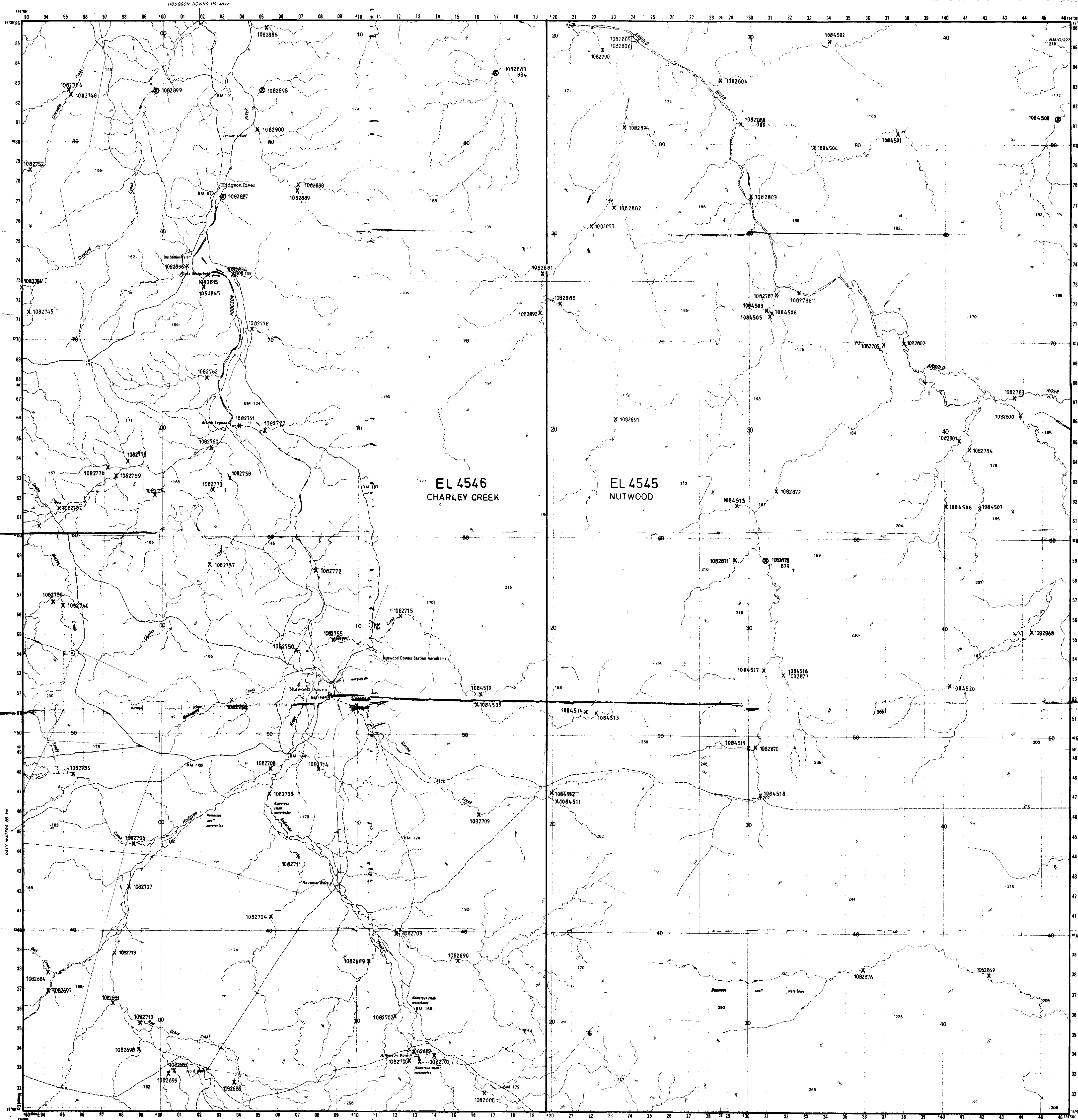
DATE JANUARY 1984

AUTHOR ICC

REPORT 130508

DRAWN SRJ

PLAN No NTd 3335



EL 4546
CHARLEY CREEK

EL 4545
NUTWOOD

SCALE 1:100 000

BLACK NUMBERED GRID LINES ARE 1 000 METRE INTERVALS OF THE AUSTRALIAN MAP GRID. ZONE 53.
GRID VALUES ARE SHOWN IN FULL ONLY AT THE SOUTH WEST CORNER OF THE MAP.
HORIZONTAL DATUM: AUSTRALIAN GEODETIC DATUM 1986
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM 1986
TRANSVERSE MERCATOR PROJECTION
CONTOUR INTERVAL 20 METRES
ELEVATIONS IN METRES

LEGEND

X DRAINAGE SAMPLE
GOOD SITE

PRODUCED BY the Division of National Mapping under the direction of the Minister for Minerals and Energy, as part of the National Mapping Programme.
PRINTED BY the Division of National Mapping, Canberra, 1975.
DISTRIBUTED BY the Department of Minerals and Energy.
MAP ACCURACY: The average accuracy of this map is 2.5 metres in the horizontal position of well defined detail and 2.5 metres in elevation.
MAP RELIABILITY: Topographic information shown on this map is correct to 1975.
ROAD CLASSIFICATION: Roads are classified according to their intended function as part of the national road system.

GRID REFERENCE	
TO GIVE A UNIQUE REFERENCE ON THIS SHEET TO NEAREST TWO METRES	
EXAMPLE: The smaller figure of any grid number shown on the map is the full co-ordinate. Use ONLY the larger figure of the grid number, e.g. 100 000	
SAMPLE POINT:	100 000
1. Quote this 1:100 000 map sheet.	5766
2. Locate the VERTICAL grid line to LEFT of point and read LARGE figure (labeling the line either on the top or bottom margin, or on the line itself).	08
3. Estimate tenths from grid line to point.	42
4. Locate the HORIZONTAL grid line and read LARGE figure (labeling the line on the left or right margin, or on the line itself).	42
5. Estimate tenths from grid line to point.	42
SAMPLE REFERENCE	5766 084242

Built-up area: National route marker	
Principal road and highway: Cutting	
Secondary road: Embankment	
Minor road: Road bridge	
Vehicular track	
Bar: Cattle grid	
Railway: multiple track: Station, Railway bridge	
Railway: single track: Railway tunnel	
Light railway or tramway	
Power transmission line	

Fence: Levee or bank	
Mine: Windmill: Yard: Quarry	
Building: Church: Ruin: Drive-in theatre	
Trip station: Bench mark: Spot elevation	
Cliff: Contour with value: Depression contour	
Forest: dense: medium: scattered	
Scrub: dense: medium: scattered	
Tropical rainforest: Pine plantation	
Orchard: plantation or vineyard: Mangrove	
Windbreak	

Lake: perennial: Stream: perennial	
Lake: intermittent: Stream: intermittent	
Lake: mainly dry: Stream: mainly dry	
Swamp: perennial: intermittent	
Land subject to inundation: Rice field	
Bore or well: Spring: Tank or small dam	
Breakwater: Pier: Wharf	
Wreck: exposed: Lighthouse	
Rock: bare or wash: Foreshore flat: Sand	
Reef: Rock ledge	

GRID CONVERGENCE: 8.2"
GRID MAGNETIC ANGLE 4.3"
TRUE NORTH, GRID NORTH AND MAGNETIC NORTH ARE SHOWN. DIAGONALLY NORTH IS CORRECT FOR 1975 AND MOVES BY LESS THAN 0.1° IN TEN YEARS

CRA EXPLORATION PTY LIMITED	
EL 4545 NUTWOOD EL 4546 CHARLEY CREEK	
SAMPLE LOCATION PLAN	
REFERENCE SD53-14 HODGSON DOWNS	DATE JUNE 1985
SCALE 1:100,000	REPORT 130508
AUTHOR ICC	PLAN No. NTD 3760
DRAWN SRJ	

NUTWOOD
SHEET 5766
NORTHERN TERRITORY
EDITION 1