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REF. No.				

THE SHELL COMPANY OF AUSTRALIA LIMITED

METALS DIVISION

E.L. 7/74 - MOINA

Progress Report on Exploration During the Period

1/7/82 to 30/6/83

**MICROFILMED**

Author : W.D. Smyth

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Distribution :

1. Department of Mines
2. Comalco Exploration
3. BXHE/AHO
4. BXH/Devonport

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D/MZ 01/307	Wattle Valley Grid - Line 400 E - Profiles
D/MZ 01/308	Black Bluff Area - Grid Location - Geology
D/MZ 01/296	Upper Winterbrook Grid - Soil Geochemistry
D/MZ 01/295	Upper Winterbrook Grid - Soil Geochemistry
D/MZ 01/294	Upper Winterbrook Grid - Soil Geochemistry
D/MZ 01/287	Jean Brook Grid - Soil Geochemistry
D/MZ 01/286	Upper Winterbrook Grid - Soil Geochemistry
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D/MZ 01/284	Jean Brook Grid - Soil Geochemistry
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D/MZ 01/268	Upper Winterbrook Grid - Ground Magnetics

SUMMARY

The Shell Company of Australia Limited has now earned a 78% interest in E.L. 7/74 which has been reduced in area from 405 sq km to 181 sq km.

Within the reduced licence investigations have been centred on two areas, the Wattle Valley grid and the Black Bluff - Smith's Plains area.

Percussion and diamond drilling failed to locate significant mineralization at Wattle Valley and no further work is recommended for the grid. Geological and geochemical investigation of an extended Winterbrook grid system in the Black Bluff - Smith's Plains area failed to locate an area of significant potential.

Future work will be concentrated on the assessment of the Cambrian volcanics.

1.0 INTRODUCTION

This report covers all investigations on the reduced area of E.L. 7/74, Moina from 1st July, 1982 to 30th June, 1983. This licence is part of the Moina Joint Venture area in partnership with Comalco Limited. Comalco Limited have ceased contributing and now hold a 22% equity in this Joint Venture.

A total of \$92,200 has been spent on this licence in the previous financial year.

The licence area has been reduced from 405 sq km to 181 sq km. This reduces the expenditure commitment to \$90,500 per year.

2.0 LOCATION

The licence now consists of three separate areas. The north west Block is centred on Moina and the Winterbrook - Smith's Plains Area, the central block includes Tin Spur, Lorinna and Dove River areas and the eastern block includes the Liena - Mersey River area. (Fig. 1).

3.0 PREVIOUS INVESTIGATIONS

A comprehensive list of previous investigators was included in Smyth, W.D., 1981. E.L. 7/74 Moina Progress Report on Exploration during the period 1/1/80 to 30/7/81. Shell Co. of Aust. Ltd., Metals Div. Unpubl. Rep. No.08.1062.

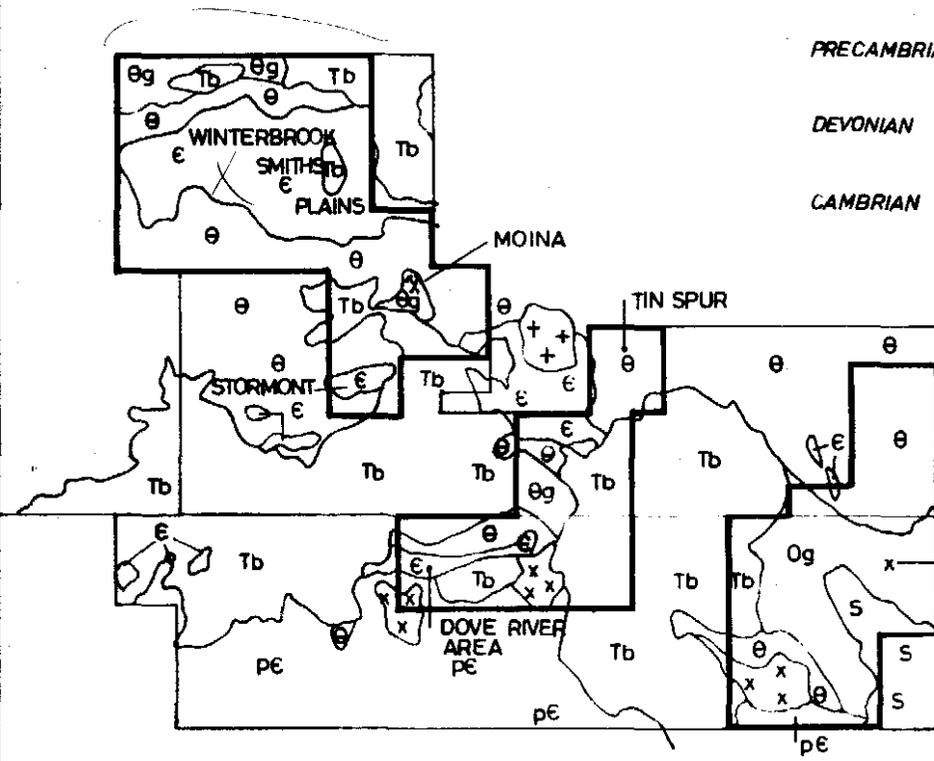
Work since that date has been included in two other reports:-

Smyth, W.D., 1982. E.L. 7/74 Moina. Progress Report on Exploration during the period 31/7/81 to 30/6/82. Shell Co. of Aust. Ltd. Unpubl. Rep. No. 08.1066.



**LEGEND**

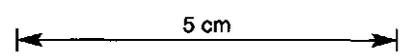
TERTIARY	Tb	BASALT
	S	POST SILURIAN
ORDVICIAN	θg	GORDON LIMESTONES
	θ	MOINA SANDSTONE/ ROLAND CONGLOMERATE
CAMBRIAN	ε	VOLCANICS AND SEDIMENTS
PRECAMBRIAN	pε	SCHISTS PHYLITE
DEVONIAN	+ +	GRANITE
CAMBRIAN	x x	GRANITE
	[Outline]	ORIGINAL E.L. BOUNDARY
	[Thick Outline]	AREA RETAINED



5 400 000 N

WATTLE VALLEY

*1:2.5 sh*



The Shell Company of Australia Limited METALS DIVISION	
<b>E.L. 7 74 MOINA REDUCED LICENCE</b> Fig 1	
Scale 1:250 000	
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ01/302
DATE 29-7-83	AUTHOR W.D.S.
DRAWN J.L.L.	OFFICE D'PORT

440 000 E

Smyth, W.D., 1983. E.L. 7/74 Moina. Relinquished Areas.  
Report on Areas Relinquished at 18/1/83. Shell Co. of  
Aust. Ltd., Metals Div. Unpubl. Rep. No. 08.1263.

4.0 REGIONAL GEOLOGY OF RETAINED BLOCKS

The north-west block is located on the St. Valentines - Sheffield - Middlesex 1 inch to 1 mile geological sheets. It includes Cambrian volcanics overlain by Ordovician Owen Conglomerate, Moina Sandstone and Gordon Limestone. The latter unit includes the Moina fluorite - magnetite deposit.

The central block is located on the Middlesex and Sheffield 1 inch to 1 mile geological sheets. A similar sequence to that is the north-west block with possible Cambrian? granites intruding the Precambrian basement in the south of the block. This includes the Tin Spur - Devonian prospects and the Five Mile Rise Au - Pb veins.

The eastern block consists of a Cambrian granite overlain by Ordovician Moina Sandstone and Gordon Limestone. The Wattle Valley Grid is located in this block.

5.0 INVESTIGATIONS COMPLETED

5.1 WATTLE VALLEY GRID

This anomaly is a Pb Zn soil geochemical anomaly located in Gordon Limestone. IP, max-min EM and gravity anomalies were found to coincide with soil geochemical anomalies (Refer Progress Report on Exploration during the Period 31/7/81 - 30/6/82).

5.1.1 Percussion/Diamond Drilling

One percussion drillhole WV 1 was collared at 00m E 50m N and a percussion-diamond drill hole WV 2 located at 400m W 170m S. (Refer Plans D/MZ 01/240, 307).

Samples from the percussion drillhole WV 1 gave anomalous base metal values throughout the length of the hole. The highest value was 2m at 270 ppm Pb, 1400 ppm Zn, 8 ppm Cd, 165 ppm Mn in fine grained limestone.

Results from WV 2 were also elevated over most of the hole with a highest value of 195 ppm Pb, 940 ppm Zn, 6 ppm Cd, 410 ppm Mn over 1.55m. (Refer Appendix 1 - Drillhole Logs).

Petrographic descriptions confirm the presence of sphalerite, possibly syngenetic, in chalcedonic layers. The host rock is a carbonaceous lime-wackestone/mudstone showing preconsolidated folding and recrystallization. It is partly dolomitized. (Refer Appendix 2 - Petrographic Reports).

5.1.2 Conclusions & Recommendations

The major geochemical and geophysical targets have been drill tested. The high background Pb, Zn values in the limestone within the area explain the soil geochemical anomalies. The carbonaceous nature of the limestone possibly accounts for the electrical geophysical anomalies and the karstic limestone may explain variations in the gravity field.

No other significant targets are present. It is recommended that no further work be done on this anomaly.

5.2 BLACK BLUFF - SMITH'S PLAINS

Gridding has continued within this area. A strike length of approximately 6.3 km of Cambrian volcanics has now been covered in the north of the area. The grid covers a zone approximately one kilometer wide at 200m spacings, south from the contact with the Ordovician Owen Conglomerate. (Refer Plan D/MZ 01/308).

5.2.1 Geology

The area covered contains mainly quartz porphyritic and quartz-feldspar porphyritic extrusive and intrusive rocks trending north east. A minor tuff component is also present and ranges from fine grained to agglomeratic. Minor trachyte intrusives are located throughout the zone. Two major zones of sericite alteration have been located, both of which are coincident with fault controlled shear zones at the eastern and western extremities of the gridded area. Some sericitic alteration is common throughout the area. Minor chloritic alteration is generally associated with mafic minerals and some epidote alteration was noted associated with the trachytic rocks. No major zones of silicification nor pyrite rich zones have been located. (Refer Appendix 3 - Petrographic Reports).

5.2.2 Geochemistry

Soil sampling ("C" horizon) along the grid lines at 50m spacings has failed to locate any significant geochemical anomaly. (Refer Plans D/MZ 01/296, 295, 294, 287, 286, 285, 284, 283, 282). Elevated values of Cu, Ni, Co are useful in outlining areas of trachyte.

5.2.3 Geophysics

Ground magnetic surveys have been done over most of the grid as several of the rock types contain appreciable magnetite. This outlined the trachyte and also appear to locate the magnetite rich porphyries and tuffs. (Refer Plan D/MZ 01/268).

5.2.4 Conclusions & Recommendations

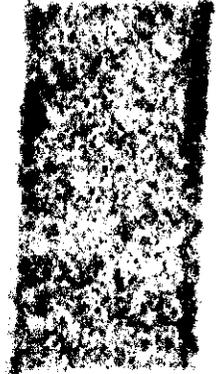
No areas of potential mineralization were recognized. Areas of outcrop are limited and most mapping was done from float which can be unreliable. Chips from soil sampling appear to fit in with magnetic trends better than the float geology.

No further work is recommended at this stage on the Winterbrook side of the volcanics. Further work should be carried out at the Mt. Jacob grid and surrounding area. This should initially consist of a geological investigation of the Mt. Jacob area and the diamond drill holes drilled by Comalco. Further geochemical/geophysical assessment would depend upon this investigation.

6.0 . CONCLUSIONS & RECOMMENDATIONS

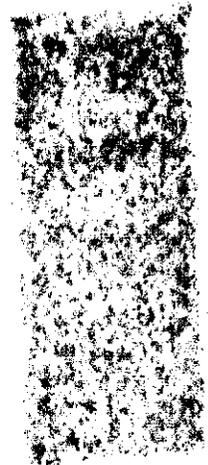
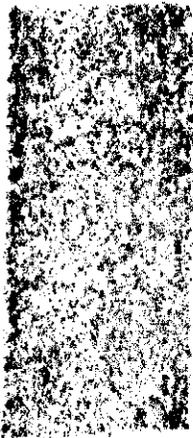
No suitable targets for follow up work were located during the year. Emphasis has now swung from investigation of magnetic anomalies (potential skarns) to investigation of the Cambrian volcanics (potential massive sulphides). Future work will continue this trend.

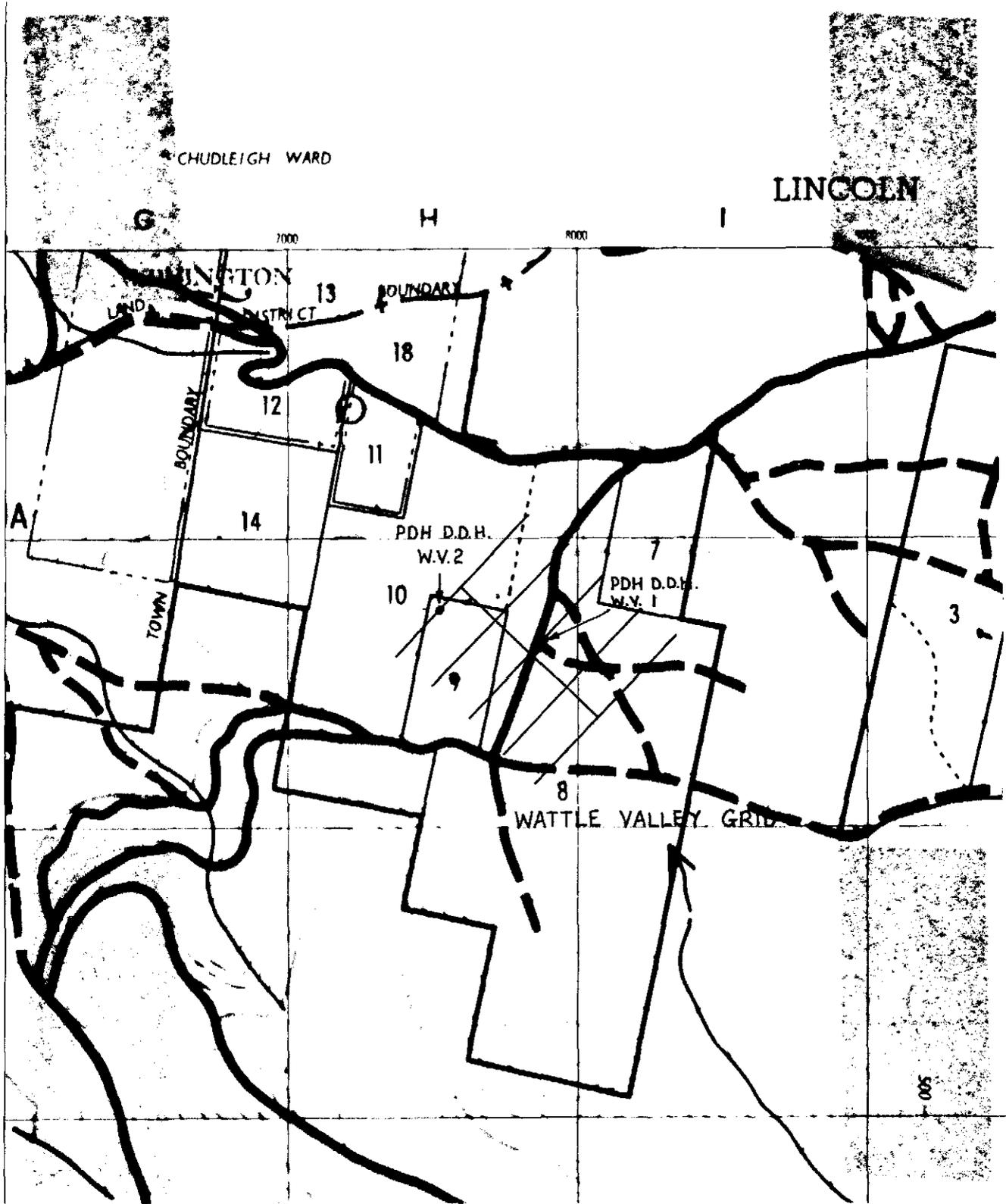
Work will concentrate on the Mt. Jacob area of Cambrian volcanics and other windows of Cambrian volcanics within the Moina Licence.



APPENDIX 1

Drillhole Logs





# DRILL LOG SHEET

PROJECT : MOINA

Hole No : WV 1

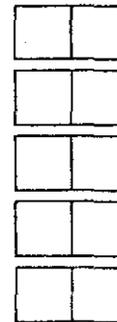
COLLAR CO-ORDINATES : 00E 50N

LOCATION CODE : MZ 01

COLLAR R.L. : .....

LOCATION : <u>WATTLE VALLEY GRID</u>	DATE STARTED	22-11-82	HOLE SIZE		FROM	TO	TOTAL	CORE STORAGE
	DATE FINISHED	22-11-82	NON CORE	O	O	50m		NO OF TRAYS
	TOTAL DEPTH	50m						SAMPLE STORAGE
HOLE SURVEY DATA			LOGGED BY	D. SIMPSON	CORE			ASSAY LAB.
INSTRUMENT :			CONTRACTOR	OVERLAND DRILLING CO.				ASSAY REPORTS
DEPTH	INSTRUMENT		ACID ETCH		REMARKS	RIG	SCOUT	
	INCL.	AZ.	INCL.	AZ.		DRILL CREW		
COLLAR	90°	-						MIN. & PET. REPORTS

GRAPHIC / LETTER SYMBOL LOGGING KEY



STRUCTURE / ALTERATION CODE

- B BEDDING
- J JOINTING
- C CLEAVAGE
- F FOLIATION
- sh SHEARING
- q QUARTZ VEINS
- O OXIDATION

DRILLING SUMMARY : From 0-4m probably contaminated (high Ni, Co) however high Pb, Zn values occur throughout the section.

508017







APPENDIX 2

Petrographic Reports - Wattle Valley

**Central Mineralogical Services**

39 Beulah Road  
Norwood, S.A. 5067  
Telephone 42 5659

Mr. W.D. Smyth  
Exploration Geologist  
The Shell Co. of Aust. Ltd.  
Metals Division  
P.O. Box 860  
DEVONPORT / TAS. 7310

7th January, 1983

REPORT CMS 82/12/26

YOUR REFERENCE:	Sample Despatch No. 4309/MZ01/WDS/163
DATE RECEIVED:	17th December, 1982
SAMPLE NOS.:	920, 921
SUBMITTED BY:	W.D. Smyth
WORK REQUESTED:	Petrology

*H.W. Fander*  
H.W. Fander, M. Sc.

## SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No. CMS 82/12/26 Date Received: 17.12.1982Reference Sample Despatch No. 4309/MZ01/WDS/163Sample No. 920Nature of Sample: D.D. CoreDESCRIPTION SECTION No. 44892

a. Hand Specimen:

b. Microscopic:

920 (T.S. 44892) Calcite stain test positive.

This is a carbonaceous limestone with minor sphalerite, possibly of syngenetic origin; the rock is quite strongly folded and partly recrystallized, which may have occurred before lithification.

The rock consists partly of massive crystalline calcite with embedded chalcedonic annular (or atoll-shaped) bodies of organic origin, possibly corals. This passes into a calcitic mud with embedded dolomite rhombs and carbonaceous matter, and the contact between the two is marked by a chalcedony layer and fibrous calcite, with thin carbonaceous films. The calcitic mud is finely bedded. The two rock types are intermingled in places, due to pre-consolidation movement and brecciation.

Sphalerite occurs as pale crystals in chalcedonic layers in the massive calcite; it is fractured and is believed to pre-date the pre-lithification movements, thus suggesting a syngenetic origin. A Mississippi-Valley style of mineralisation may be involved.

H.W. Fander, M. Sc.

## IDENTIFICATION

920

Carbonaceous Limestone  
with Sphalerite

## CENTRAL MINERALOGICAL SERVICES PTY. LTD.

Date 7th January, 1983

## SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No. CMS 82/12/26 Date Received: 17.12.1982Reference Sample Despatch No. 4309/MZ01/WDS/163Sample No. 921Nature of Sample: D.D. CoreDESCRIPTION SECTION No. 44893

## a. Hand Specimen:

## b. Microscopic:

921 (T.S. 44893) Calcite stain test positive.

This is a carbonaceous, dolomitic limestone which shows pre-consolidation folding; it resembles 920 in many features, but is not mineralised, and the massive calcite (with fossils) is absent.

Part of the rock consists of very fine calcite mud with silt-sized clastic quartz grains; this is finely bedded or laminated. It makes a sharp contact with a calcareous dolostone composed of small dolomite rhombs in a carbonaceous, calcitic fine cement. At the contact, there is a thin zone of rock laced with numerous carbonaceous veinlets, and a selvedge of fibrous calcite. The contact itself clearly represents a fold, and is repeated in a layer of carbonaceous material and streaks of calcitic mud embedded in the dolostone. The textural and structural relationships of the two rock types indicate that folding occurred prior to lithification. No fossils were detected.

H.W. Fander, M. Sc.

## IDENTIFICATION

921

Carbonaceous

Dolomitic Limestone

APPENDIX 3

Petrographic Reports - Winterbrook

# Central Mineralogical Services

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39 Beulah Road  
Norwood, S.A. 5067  
Telephone 42 5659

Mr. W.D. Smyth  
Exploration Geologist  
The Shell Co. of Aust. Ltd.  
Metals Division  
P.O. Box 860  
DEVONPORT / TAS. 7310

14th September, 1982

REPORT CMS 82/9/4

YOUR REFERENCE:	Sample Despatch No. 4147/MZ01/WDS/151
DATE RECEIVED:	6th September, 1982
SAMPLE NOS.:	VW 1 - VW 8
SUBMITTED BY:	W.D. Smyth
WORK REQUESTED:	Petrology

*H.W. Fander*  
H.W. Fander, M. Sc.

REPORT CMS 82/9/4Petrology of Samples VW 1 - VW 8

Eight rock samples were received for petrological examination; thin-sections were prepared, and offcuts were subjected to potash stain tests to aid identification and interpretation. The rocks are briefly described in the accompanying table.

Summary

All the rocks are volcanic, and include tuffs, lavas and a tuff lava<sup>?</sup> (i.e. a lava with fine pyroclastic components).

With the exception of VW 3 and VW 7, the rocks are of rhyolitic composition, contrasting with most of the Mt. Read Volcanics which tend to be dacitic to andesitic, and the rocks are reminiscent of those at Mt. Lyell. VW 3 and VW 7 are trachytes, consisting almost entirely of feldspars; their fabrics suggest that they are minor intrusives.

Several of the rocks contain appreciable amounts of magnetite and would be recognisable for magnetic anomalies.

A postmagmatic phase of carbonate formation is recognisable in several rocks and may possibly be associated with traces of sulphides, though oxidation has obliterated any direct evidence of sulphides.

H.W. Fander, M. Sc.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Central Mineralogical Service. Comments
W 1 T.S. 3480)	<u>Rhyolitic Tuff Lava</u> . Phenocrysts of quartz and argillised feldspar in devitrified, argillised groundmass; bands of quartz, albite, sanidine fragments in lava matrix.	Banding due to pyroclastic materials; fine flow-banding.	Leucoxenised oxide opaques. Irregular carbonate patches.	Appears to be a rhyolitic lava with bands/lenses of pyroclastic components enveloped by lava.
W 2	<u>Brecciated Rhyolitic Lava</u> . Scattered whole and fragmented phenocrysts of quartz, albite, K-feldspar; devitrified glassy groundmass, fragmented in places.	Excellent fine flow-banding, deformed and brecciated. Phenocrysts up to 2 mm.	Carbonate aggregates in phenocrysts and groundmass; trace chlorite.	Possibly genetically related to VW 1. Originally a largely glassy rock apart from phenocrysts.
W 3	<u>Porphyritic Trachyte</u> . Dominantly small sub-hedral fresh albite crystals with a few quartz crystals, in a fine K-feldspar groundmass with chlorite.	Closely packed crystals, scarce groundmass. No flow-features. ?intrusive.	Relatively conspicuous magnetite throughout. Chloritised.	Appears to be a feldspathic cumulate rock, possibly a differentiate; fabric not typical of minor intrusives.
W 4	<u>Rhyolitic Lithic-Crystal Tuff</u> . Irregular, angular fragments of quartz, altered glassy rhyolite, felsite, sericitised feldspars, in fine sericite matrix.	Poorly-sorted/sized, weakly bedded (sub-parallel long axes of grains).	A few tuff fragments. Magnetite. Finely granular leucoxene.	May have been welded, but sericitisation of matrix has obliterated evidence. Rhyolitic sources.
W 5	<u>Porphyritic Rhyolite</u> . Stressed and fragmented phenocrysts of quartz and albite, in a semi-schistose fine sericitic groundmass.	Phenocrysts abundant, up to 3 mm, but extensively fractured. Sheared.	Leucoxenised oxide opaques. Small goethite pseudomorphs after ?pyrite. Barite veinlets.	Possibly a Mt. Lyell-type Read volcanic. Probably extrusive, but shearing, alteration have obscured details.
W 6	<u>Porphyritic Rhyolite</u> . Stressed, fragmented phenocrysts of quartz, extensively sericitised albite, in semi-schistose fine sericite-quartz groundmass.	Most phenocrysts < 1 mm, and larger ones fragmented. Shearing overprinted on flow-banding.	Leucoxenised oxides. Limonitised fine carbonate. Oxidised ?sulphides.	Resembles VW 5; mildly sheared, altered, featureless. Rock may have been sodic, verging on dacite
W 7	<u>Porphyritic Trachyte</u> . Small subrandomly orientated albite phenocrysts set in fine K-feldspar groundmass; conspicuous magnetite.	Random fabric, lacking the usual "trachytic" texture; ?intrusive.	Goethite pseudomorphs after carbonate rhombs.	Almost entirely feldspathic composition. Appreciably magnetic. Carbonate was postmagmatic, ?sideritic.
W 8 T.S. 3487)	<u>Rhyolitic Tuff</u> . Large crystals, fragments of quartz, albite, and volcanic material (potassic rhyolitic lava), set in matrix of fine devitrified shards.	General preferred orientation; probably welded or sintered. Coarse-grained.	Goethite pseudomorphs after carbonate (?siderite) rhombs. Sericite.	Host rock material evidently sodic with contrasting potash-rich lava lenses. Excellent shard textures in matrix.



400 S  
300 S  
200 S  
100 S  
00

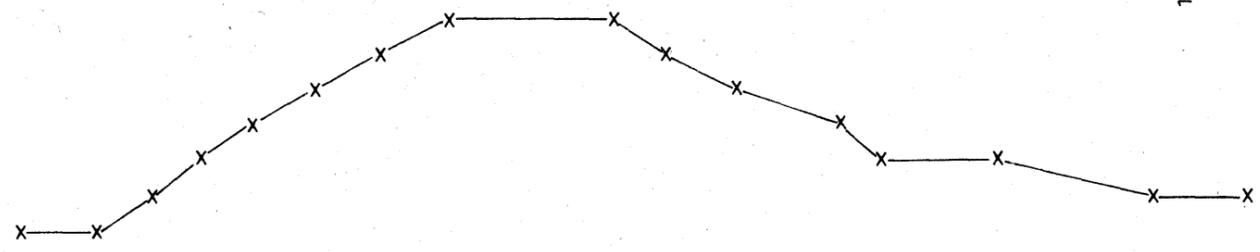
The Shell Company of Australia Limited  
METALS DIVISION

E.L. 7/74 MOINA  
WATTLE VALLEY GRID  
LINE 400m W  
PROFILES

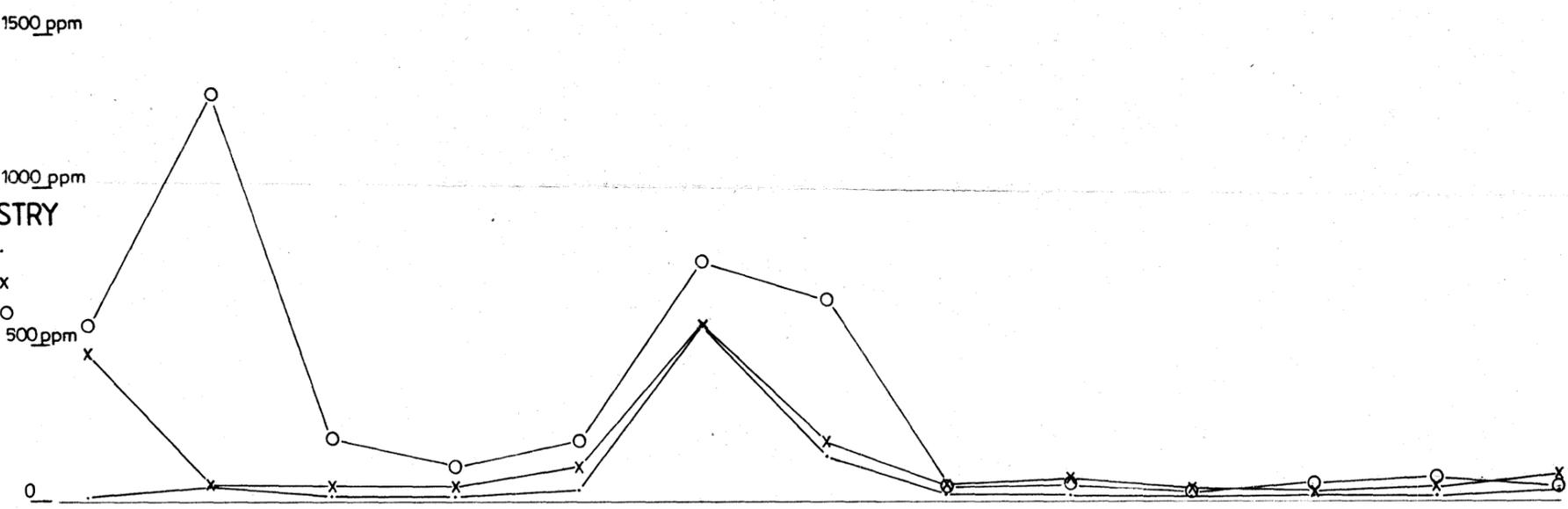
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AUTHOR	W.D.S.	DRAWN	J.L.L.
OFFICE	DEVONPORT	REP.No.	
DRG.No.	D/MZ01/307	FIG.No.	

508030  
83-2046

**GRAVITY**  
TERRAIN CORRECTED  
BOUGUER DENS.  
= 2.70  
— 112.6  
— 112.5  
— 112.4  
— 112.3  
— 112.2  
— 112.1  
— 112.0 Mgal



**GEOCHEMISTRY**  
Pb ———  
Zn X—X—  
Mn O—O—  
1500 ppm  
1000 ppm  
500 ppm  
0



PDH WV2

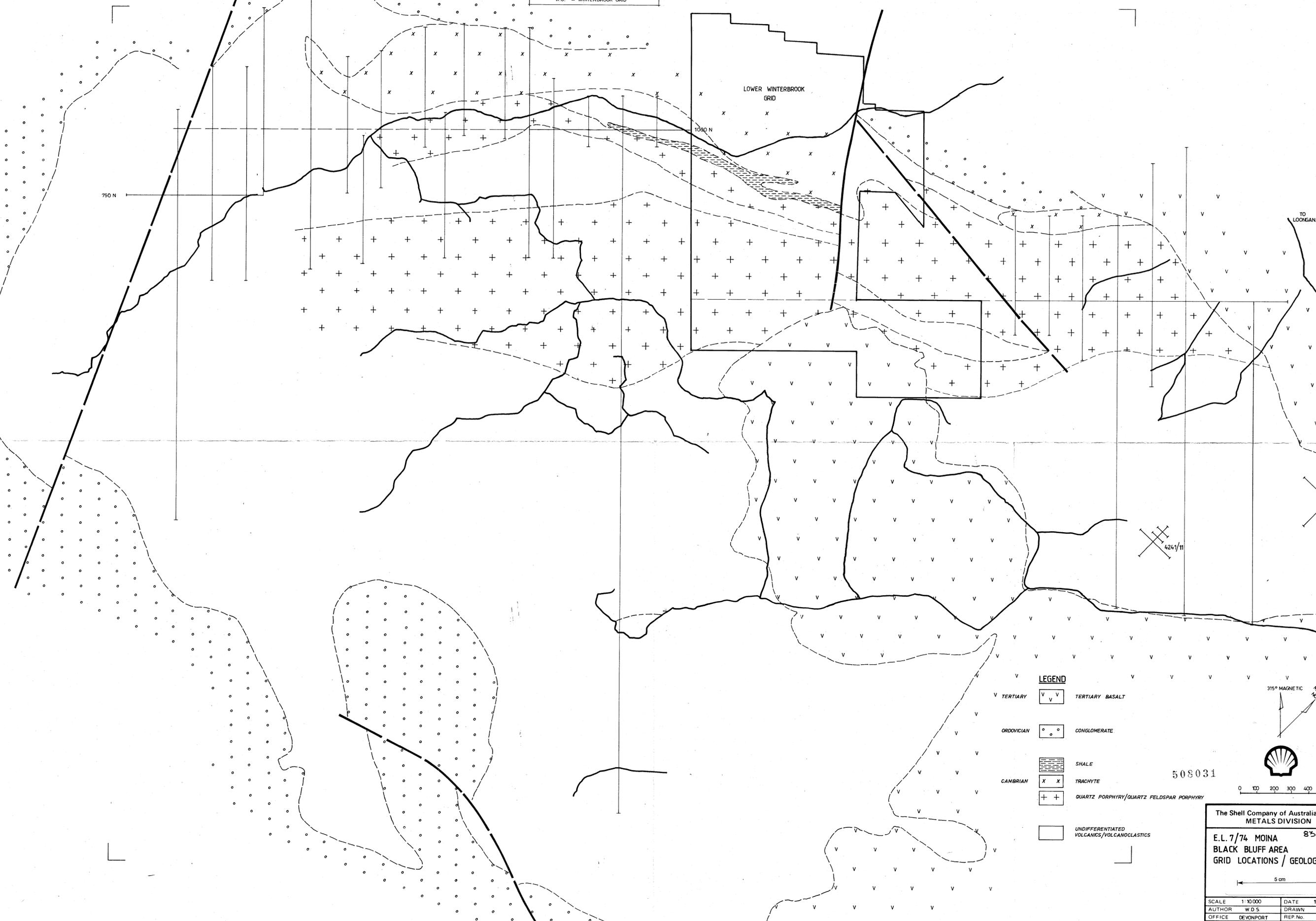
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	6	10	30	50		6	10	34	60
	8	12	34	55		8	16	36	65
	6	12	32	65		8	16	24	48
	8	16	50	140		6	14	44	120
	6	12	34	95		6	16	55	260
	6	20	80	460		6	18	75	360
	8	18	80	360		6	14	42	120
	6	16	65	190		8	10	20	65
	12	18	50	210		8	10	14	50
	10	8	16	80		8	10	14	50
	6	6	38	200		6	12	44	190
	6	12	42	200		8	8	36	180
	8	10	42	260		6	8	42	200
	6	10	195	940		4	8	14	360
	4	8	70	420		6	8	85	570
	6	10	32	110					
						6	10	16	26
	6	10	12	28					
						10	8	80	600
	6	6	70	250					
						6	4	16	70
	6	8	12	38					

5 cm

3400 W 3000 W 2700 W 2300 W 1900 W 1700 W (U.W.G.) 1600 W (U.W.G.) 1700 W (W.G.) 1300 W 900 W 1000 E 1400 E 2000 E 2400 E

NOTE: 1600 W (U.W.G.) INCORRECTLY LOCATED  
 U.W.G. = UPPER WINTERBROOK GRID  
 W.G. = WINTERBROOK GRID

LOWER WINTERBROOK GRID



**LEGEND**

- TERTIARY TERTIARY BASALT
- ORDOVICIAN CONGLOMERATE
- CAMBRIAN SHALE
- TRACHYTE
- QUARTZ PORPHYRY/QUARTZ FELDSPAR PORPHYRY
- UNDIFFERENTIATED VOLCANICS/VOLCANOCLASTICS

508031

315° MAGNETIC NORTH

0 100 200 300 400 500 m

The Shell Company of Australia Limited  
 METALS DIVISION

E.L. 7/74 MOINA 85-2046  
 BLACK BLUFF AREA  
 GRID LOCATIONS / GEOLOGY

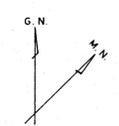
5 cm

SCALE 1:10000	DATE 13-10-83
AUTHOR W.D.S.	DRAWN J.L.L.
OFFICE DEVONPORT	REP No.
ENCL No.	DRG No. D/MZ01/308

1800 S  
 1600 S  
 2000 S  
 2400 S  
 2600 S  
 2800 S

4 12  
 16 <4  
 10 18  
 38 6  
 12 14  
 85 10  
 16 24  
 60 8  
 16 18  
 32 <4  
 12 24  
 20 8  
 12 26  
 48 8  
 12 14  
 38 4  
 6 34  
 24 6  
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 16 6  
 2 20  
 28 6

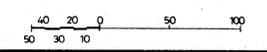
1800 S  
 1600 S  
 2000 S  
 2400 S  
 2600 S  
 2800 S



Cu | Pb  
 Zn | Ni  
 Analyses in p.p.m.



508032

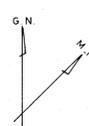


The Shell Company of Australia Limited METALS DIVISION	
E.L. 7/74 MOINA 83-2046	
BLACK BLUFF AREA	
UPPER WINTER BROOK /	
WINTER BROOK GRID	
SOIL GEOCHEMISTRY	
Cu, Pb, Zn, Ni.	
SCALE 1:2500	DATE 21-6-83
AUTHOR W.D.S.	DRAWN J.L.L.
OFFICE DEVONPORT	REP No.
ENCL No.	ORG No. D/MZ01/296

5 cm

1300  
 12 36  
 48 12  
 6 18  
 38 <4  
 12 20  
 36 6  
 10 20  
 36 6  
 10 20  
 40 4  
 12 16  
 38 6  
 10 20  
 32 6  
 8 20  
 26 4  
 4 16  
 34 <4  
 <2 10  
 12 <4  
 10 12  
 30 6  
 14 22  
 50 12  
 12 18  
 24 <4  
 <2 8  
 6 <4  
 <2 22  
 10 <4  
 4 20  
 22 4  
 2 14  
 20 <4  
 <2 12  
 14 <4  
 <2 6  
 6 <4  
 <2 6  
 12 <4  
 4 18  
 28 <4  
 6 18  
 28 <4  
 10 26  
 26 6  
 8 22  
 18 <4  
 10 22  
 46 6  
 14 18  
 44 6  
 14 14  
 34 6  
 4 12  
 16 <4

250 S  
 400 S  
 600 S  
 800 S  
 1000 S  
 1200 S  
 1400 S  
 1600 S



Cu | Pb  
 Zn | Ni  
 Analyses in ppm.

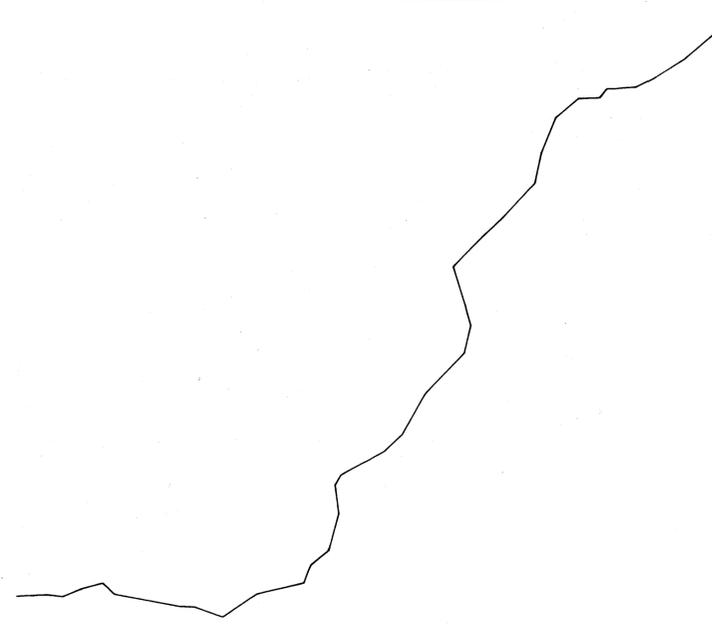


508033



5 cm

The Shell Company of Australia Limited METALS DIVISION			
E.L. 7/74 MOINA		83-2046	
BLACK BLUFF AREA UPPER WINTER BROOK / WINTER BROOK GRID SOIL GEOCHEMISTRY Cu, Pb, Zn, Ni.			
SCALE	1:2500	DATE	1-6-83
AUTHOR	W.D.S.	DRAWN	J.L.L.
OFFICE	DEVONPORT	REP. No.	
ENCL. No.		DRG. No.	D/MZ01/295



34.00 N  
 8 10  
 60 6  
 4 12  
 30 8  
 4 10  
 28 4  
 6 8  
 28 4  
 10 8  
 48 12  
 38 10  
 46 12  
 2 10  
 10 6  
 6 14  
 18 10  
 4 6  
 12 4  
 8 18  
 28 6  
 8 20  
 42 8  
 6 12  
 20 8  
 16 20  
 65 10  
 6 10  
 18 6  
 20 20  
 60 18  
 10 30  
 10 12  
 10 24  
 65 10  
 8 120  
 100 12  
 8 95  
 22 10  
 20 115  
 30 14  
 24 120  
 105 14  
 14 100  
 60 12  
 2 6  
 14 6  
 4 4  
 6 6  
 4 12  
 10 6

00 N  
 200 S  
 400 S  
 600 S  
 800 S  
 1000 S

Cu Pb  
 Zn Ni  
 Analyses in p.p.m

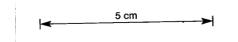
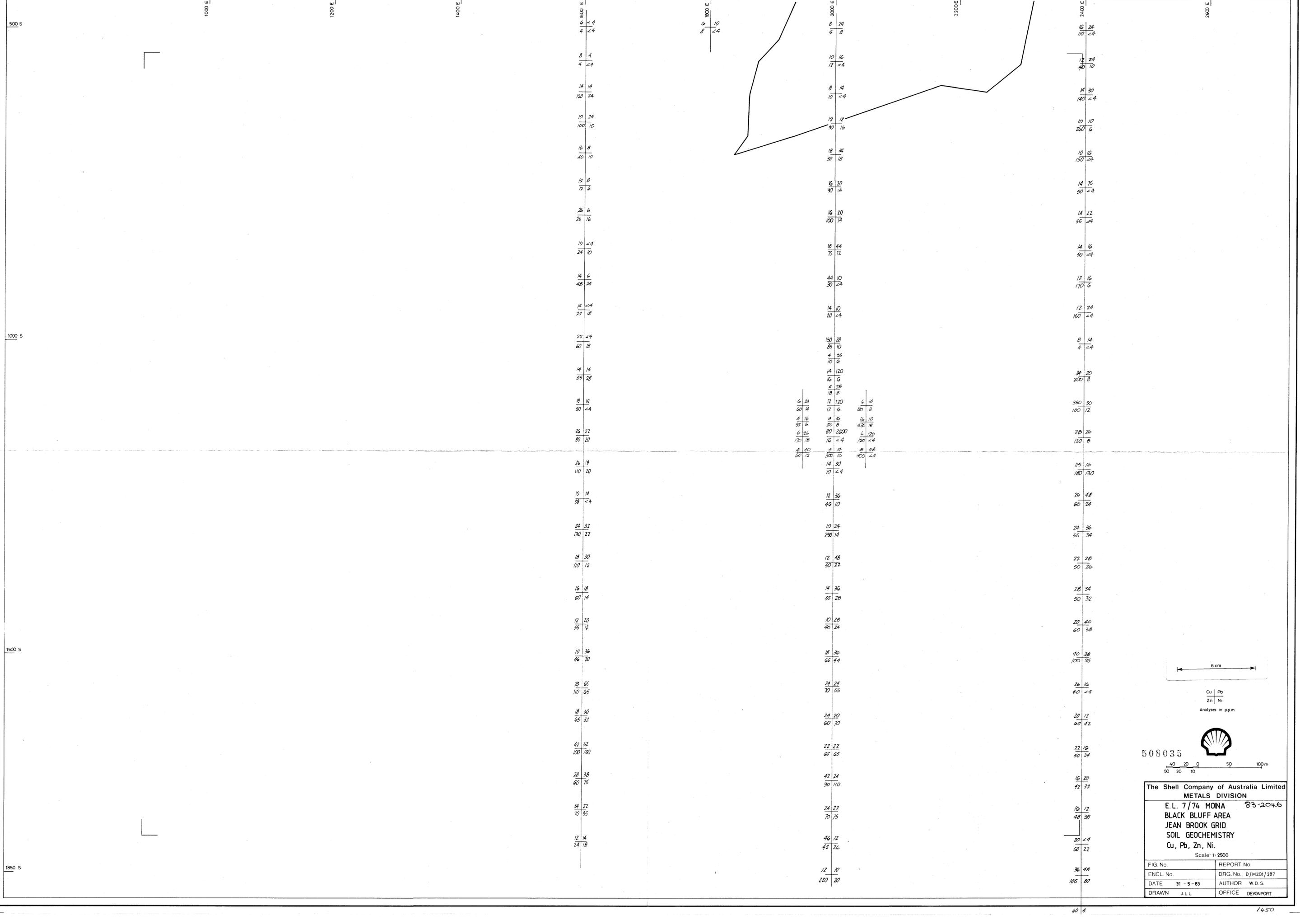


508034

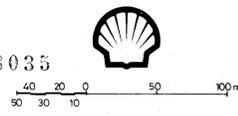


The Shell Company of Australia Limited METALS DIVISION	
E.L. 7/74 MOINA 83-2046	
BLACK BLUFF AREA	
UPPER WINTER BROOK GRID	
SOIL GEOCHEMISTRY	
Cu, Pb, Zn, Ni.	
SCALE 1:2500	DATE 1-6-83
AUTHOR WDS	DRAWN J.L.L.
OFFICE DEVONPORT	REP No.
ENCL No.	ENCL No. D/M201/294

5 cm

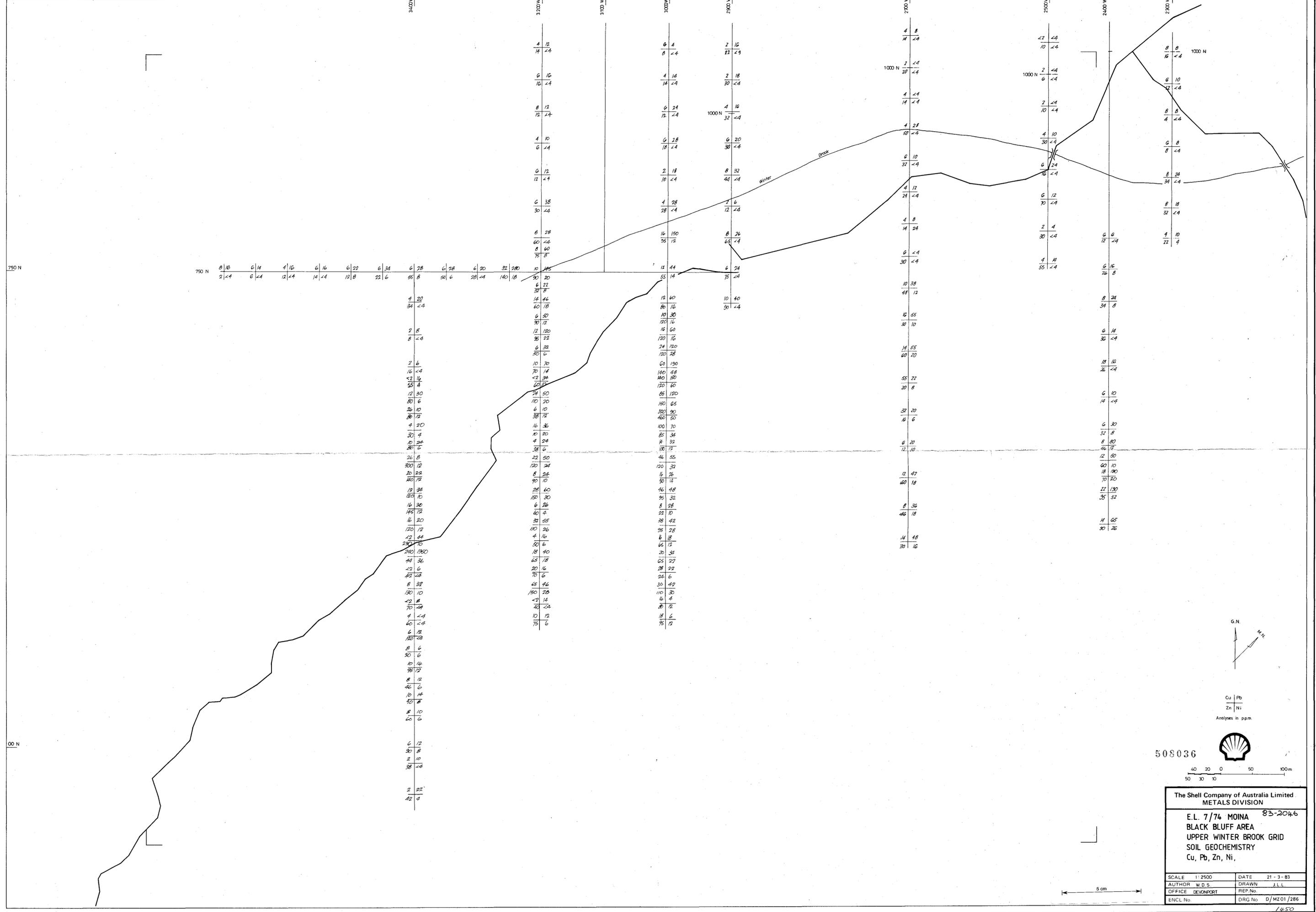


Cu | Pb  
Zn | Ni  
Analyses in ppm



508035

The Shell Company of Australia Limited METALS DIVISION	
E.L. 7/74 MOINA 83-2046	
BLACK BLUFF AREA	
JEAN BROOK GRID	
SOIL GEOCHEMISTRY	
Cu, Pb, Zn, Ni.	
Scale: 1:2500	
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/M201/287
DATE 21-5-83	AUTHOR W.D.S.
DRAWN J.L.L.	OFFICE DEVONPORT



750 N

00 N

750 N

8 18

2 14

6 14

6 14

4 16

12 14

6 16

14 14

6 22

12 18

6 34

22 6

6 28

55 8

6 28

50 6

6 20

28 14

32 28

140 18

10 12

30 20

6 22

38 18

4 20

34 14

2 8

8 14

2 6

14 14

12 16

42 16

55 8

55 8

12 30

80 6

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

8 18

2 14

6 14

6 14

4 16

12 14

6 16

14 14

6 22

12 18

6 34

22 6

6 28

55 8

6 28

50 6

6 20

28 14

32 28

140 18

10 12

30 20

6 22

38 18

4 20

34 14

2 8

8 14

2 6

14 14

12 16

42 16

55 8

55 8

12 30

80 6

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

8 18

2 14

6 14

6 14

4 16

12 14

6 16

14 14

6 22

12 18

6 34

22 6

6 28

55 8

6 28

50 6

6 20

28 14

32 28

140 18

10 12

30 20

6 22

38 18

4 20

34 14

2 8

8 14

2 6

14 14

12 16

42 16

55 8

55 8

12 30

80 6

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

4 20

10 20

10 20

110 20

26 10

80 12

8 18

2 14

6 14

6 14

4 16

12 14

6 16

14 14

6 22

12 18

6 34

22 6

6 28

55 8

6 28

50 6

6 20

28 14

32 28

140 18

10 12

30 20

6 22

38 18

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2 8

8 14

2 6

14 14

12 16

42 16

55 8

55 8

12 30

80 6

26 10

80 12

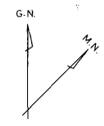
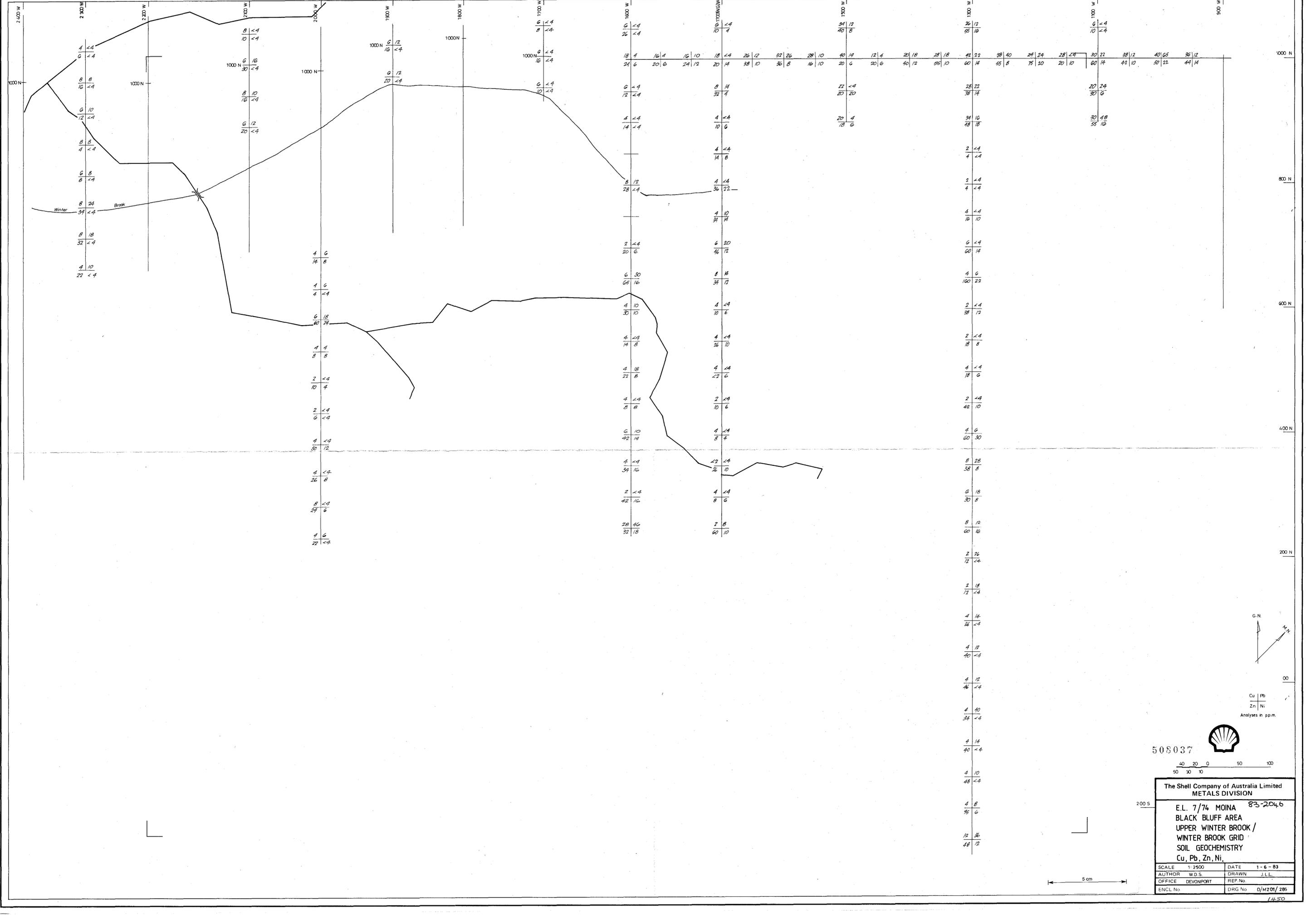
4 20

10 20

10 20

110 20

26 10



Cu Pb  
Zn Ni  
Analyses in ppm.

508037

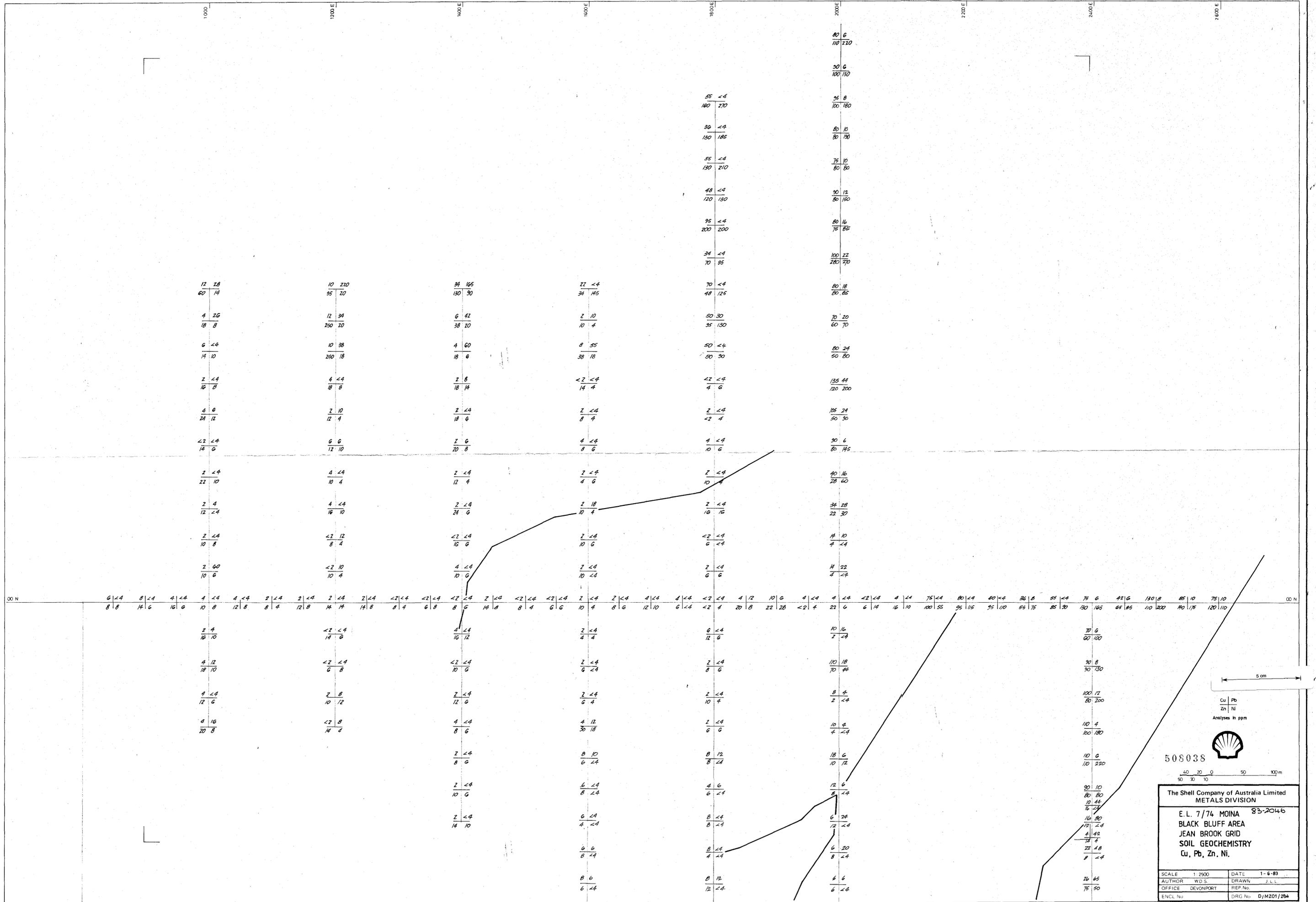


The Shell Company of Australia Limited  
METALS DIVISION

E.L. 7/74 MOINA 83-2046  
BLACK BLUFF AREA  
UPPER WINTER BROOK/  
WINTER BROOK GRID  
SOIL GEOCHEMISTRY  
Cu, Pb, Zn, Ni.

SCALE	1:2500	DATE	1-6-83
AUTHOR	W.D.S.	DRAWN	J.L.L.
OFFICE	DEVONPORT	REF No.	
ENCL No.		DRG No.	D/MZ01/285

5 cm



00 N 6 <4 8 <4 4 <4 4 <4 4 <4 2 <4 2 <4 2 <4 2 <4 <2 <4 <2 <4 <2 <4 2 <4 2 <4 4 <4 4 <4 <2 <4 4 <4 4 <4 <2 <4 4 <4 4 <4 75 <4 80 <4 80 <4 36 <4 55 <4 85 <4 75 <4 42 <4 130 <4 85 <4 10 <4 75 <4 100 N

5 cm

Cu Pb  
Zn Ni  
Analyses in ppm



508038

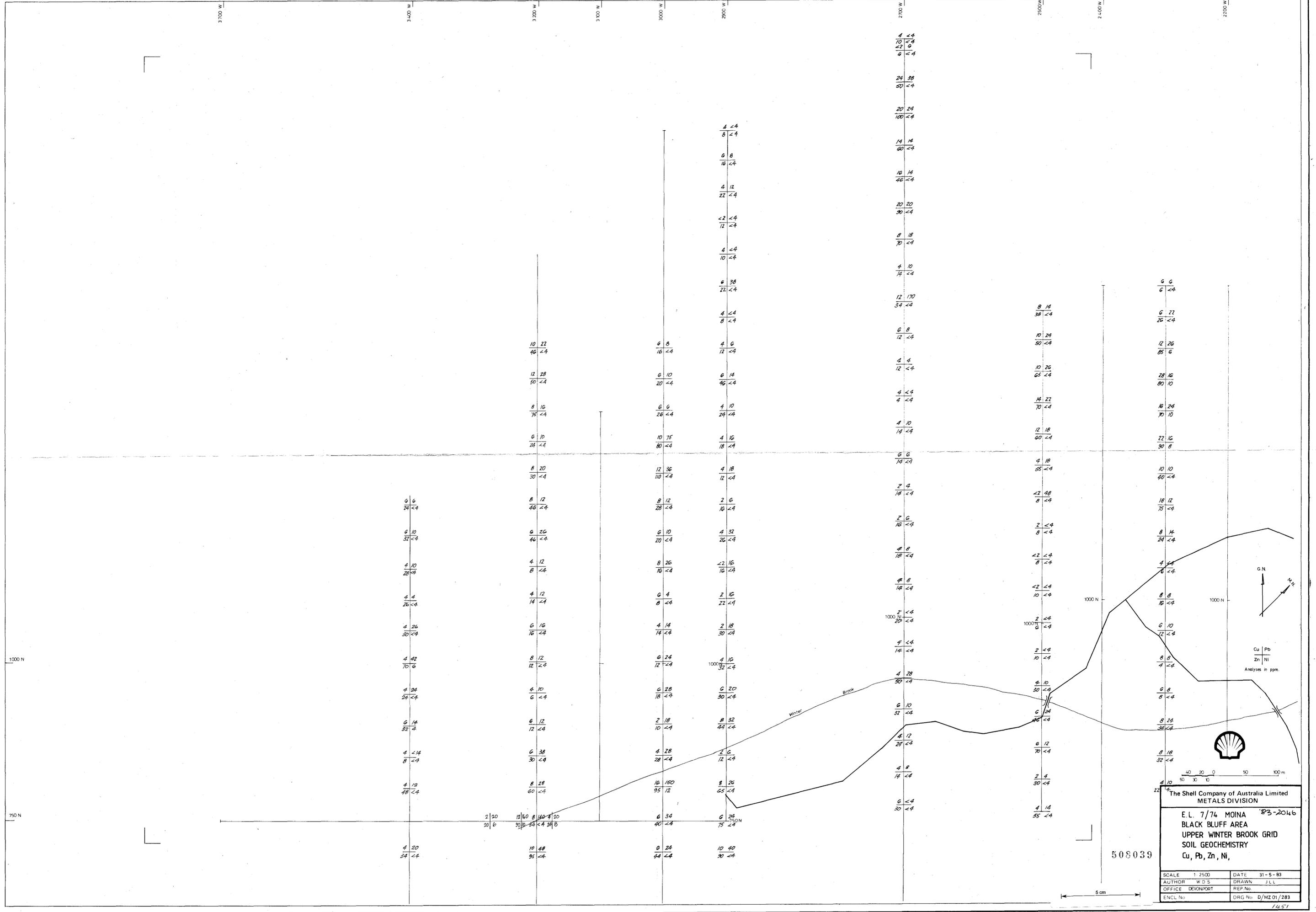
40 20 0 50 100m

The Shell Company of Australia Limited  
METALS DIVISION

E.L. 7/74 MOINA 83-2046  
BLACK BLUFF AREA  
JEAN BROOK GRID  
SOIL GEOCHEMISTRY  
Cu, Pb, Zn, Ni.

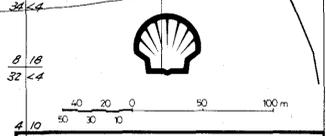
SCALE	1:2500	DATE	1-6-83
AUTHOR	WD S.	DRAWN	J.L.L.
OFFICE	DEVONPORT	REP. No.	
ENCL. No.		DRG. No.	D/MZ01/204

1/45



G.N.  
M.N.

Cu Pb  
Zn Ni  
Analysis in ppm.

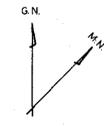
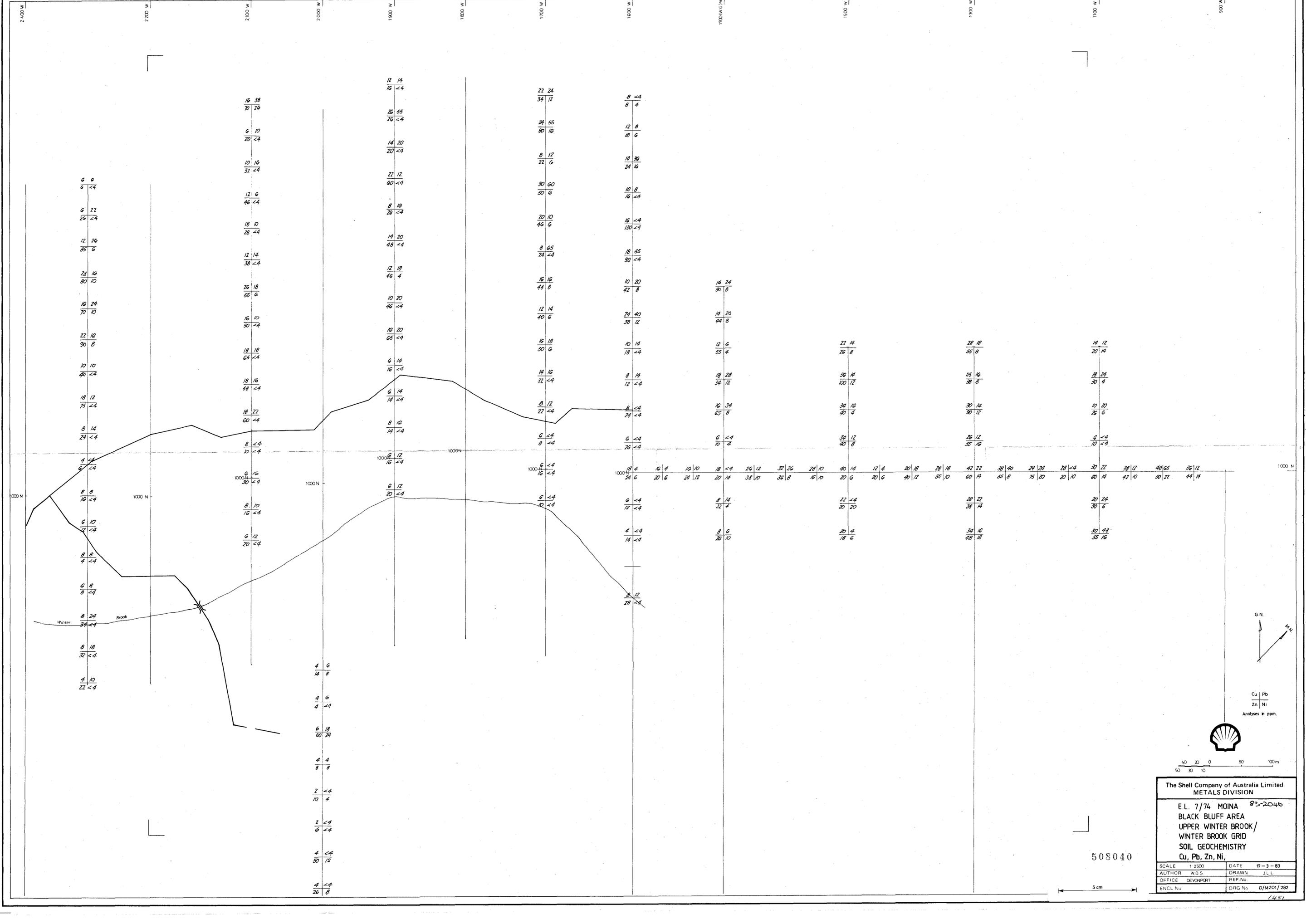


508039

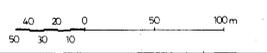
The Shell Company of Australia Limited  
METALS DIVISION

E.L. 7/74 MOINA 83-2046  
BLACK BLUFF AREA  
UPPER WINTER BROOK GRID  
SOIL GEOCHEMISTRY  
Cu, Pb, Zn, Ni,

SCALE 1:2500	DATE 31-5-83
AUTHOR W D S	DRAWN J L L
OFFICE DEVONPORT	REP. No.
ENCL No.	DRG No. D/MZ 01/283



Cu | Pb  
Zn | Ni  
Analyses in ppm.

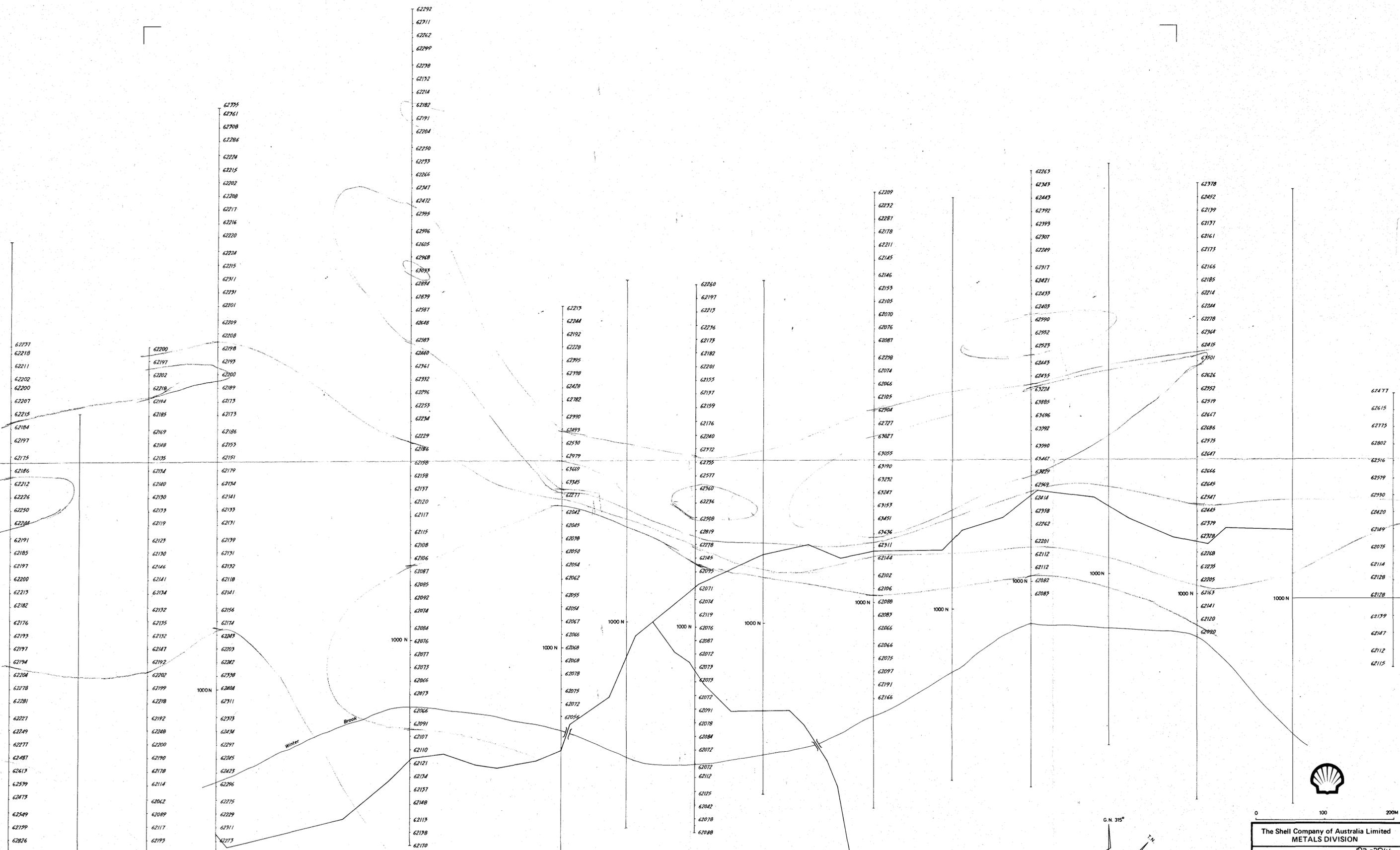


The Shell Company of Australia Limited METALS DIVISION	
E.L. 7/74 MOINA 82-2046	
BLACK BLUFF AREA UPPER WINTER BROOK / WINTER BROOK GRID SOIL GEOCHEMISTRY Cu, Pb, Zn, Ni.	
SCALE 1:2500	DATE 17-3-83
AUTHOR W.D.S.	DRAWN J.L.L.
OFFICE DEVONPORT	REP No.
ENCL No.	DRG No. D/M201/282

508040

5 cm

3 200 W 3 100 W 3 000 W 2 900 W 2 800 W 2 700 W 2 600 W 2 500 W 2 400 W 2 300 W 2 200 W 2 100 W 2 000 W 1 900 W 1 800 W 1 700 W 1 600 W 1700010 W



The Shell Company of Australia Limited  
METALS DIVISION

E.L. 7/74 MOINA  
UPPER WINTER BROOK GRID  
GROUND MAGNETICS

508041

SCALE 1:2500	DATE 15-9-82
AUTHOR W.D. SMYTH	DRAWN H.L.S.
OFFICE DEVONPORT	REP No.
ENCL No.	DRG No D/MZ01/268