ROEBUCK RESOURCES N.L.

TENNANT CREEK PROJECT

EXPLORATION LICENCE 5329,

JUBILEE NORTH WEST

Tennant Creek, Northern Territory

FINAL EXPLORATION REPORT

SEPTEMBER, 1991

by

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K. Fox and Associates

Technical Report No. 233

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Exploration Licence 5329 comprising two graticular blocks was granted to Roebuck Resources N.L. on 17th September, 1987. In late 1989 the eastern graticular block was relinquished to satisfy Department of Mines and Energy conditions. The remaining block has since been relinquished.

During the period 1988 to 1990 inclusive Exploration Licence 5329 was included in a joint venture whereby Metana Minerals N.L. was responsible for its exploration, and for meeting all DME work commitments

Early aeromagnetic interpretation suggested that the northern and southern margins of the EL were underlain by Warramunga Group sediments while the central section of the tenement was underlain by magnetically featureless rocks interpreted to be probable porphyries.

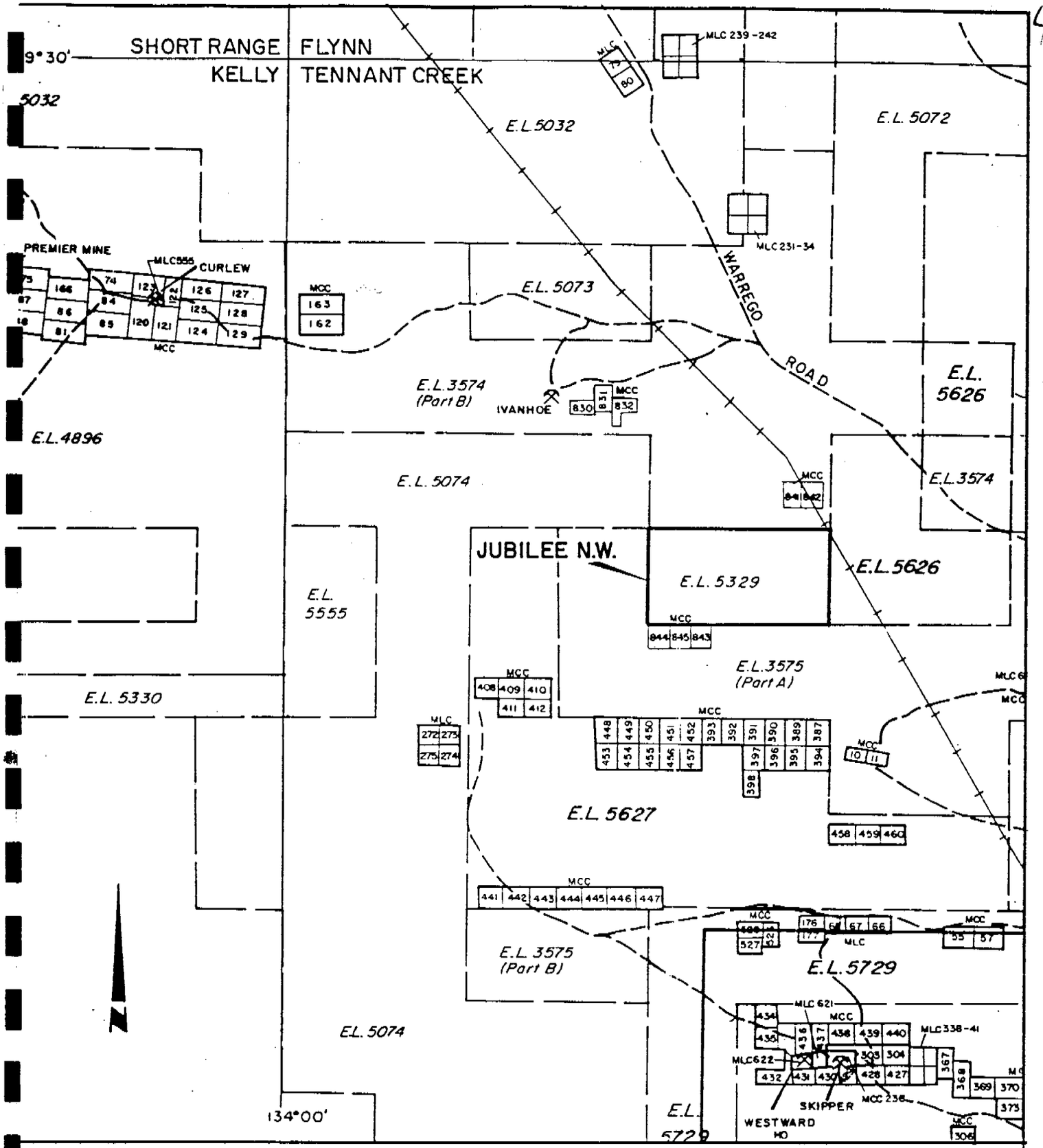
Landsat and photointerpretation indicated a number of possibly fault related lineaments. The most regionally significant of these is major west-north-west trending lineament along the southern EL margin, which may represent a zone of major shearing. This zone is parallel to, and about 3 kilometres south-south-west of the "Mary Lane shear zone".

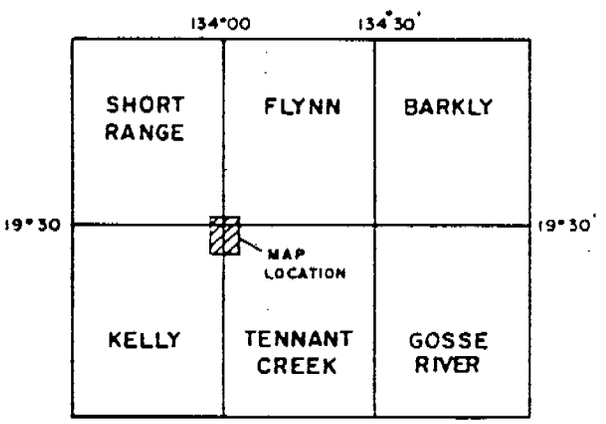
Two north south lines about 1.75 kilometres apart were soil sampled at 50 metres spacings. A possible weak anomaly was indicated on the easternmost line which is located along a fence line.

A line of bedrock geochemical vacuum drill holes was completed along the above mentioned fence line. Bottom of hole samples were analysed for Gold in ppb, and bismuth, copper, lead and zinc in ppm. No significantly anomalous results.

Following surrender of the eastern graticular block the western block was retained pending the results of a bedrock geochemical vacuum drilling over a magnetic anomaly in claims immediately adjacent to the west and held by Metana. This programme which included reverse circulation percussion drilling to investigate the target failed to encounter any significant mineralisation.

No further exploration expenditure could be justified on this EL.





NATIONAL 1:100000 SHEET INDEX

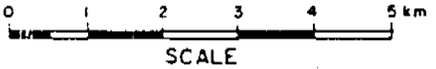


FIGURE No 1

TENNANT CREEK PROJECT

JUBILEE N.W.
EL 5329

LOCATION PLAN

Scale: 1:100000	Date: NOV. 1988	Plan N° MI07-43

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1. INTRODUCTION

Exploration Licence 5329 was located about 10 kilometres west- north-west of the town of Tennant Creek. It originally comprised two graticular blocks with a total area of about 6.3 square kilometres (see Figure No. 1).

Access can best be gained to the prospect area by travelling north and north-west along the sealed Stuart Highway and Warrego Road for about 15.5 kilometres, and thence for 1.5 kilometres westwards along the old sealed Ivanhoe Mine access road. From this point a track runs south-east and south for about 6.2 kilometres via Ivanhoe Dam to the prospect.

The Exploration Licence was granted to Roebuck Resources N.L. on the 17th September, 1987. All exploration up to August, 1990 was conducted by Metana Minerals N.L. under a joint venture agreement.

In November, 1989, in order to comply with the requirements of the Northern Territory Department of Mines and Energy, the E.L. area was reduced by 50 percent by the relinquishment of the eastern graticular block. E.L. 5329 was finally relinqiushed in 1991.

3. WORK COMPLETED

Initial geological mapping by the writer in mid-1988 resulted in the conclusion that no rocks cropped out in the E.L. area.

Photointerpretation was completed by the writer in late 1988 and modified to include landsat image observations in 1989.

Shortly afterward two north - south lines spaced about 1.75 kilometres apart were soil sampled at 50 metres intervals (see Figure No. 4). A total of 72 samples were taken. These samples averaging two kilograms in weight were collected primarily for "orientation" purposes and they were analysed for gold by:

a) Aqua Regia/GTA analysis (a carbon rod finish technique)

b) Bulk Cyanide Leach method.

Metana purchased airborne geophysical data over the area from Austirex International Limited. The aeromagnetic interpretation presented on Figure No. 3 of this report was prepared by G. Steemson of Metana in late 1988 or early 1989.

In September, 1989 a total of 38 bedrock geochemical vacuum drill hole samples were collected along the north - south fence line on the eastern graticular block which was previously soil sampled (the eastern soil sample line). These holes were spaced 50 metres apart (see Figure No. 5) and bottom of hole samples were logged and analysed for gold in ppb, and bismuth, copper, lead, and zinc in ppm.

In late 1990, following a reappraisal of the exploration potential of the remaining graticular block it was concluded that no further expenditure could be justified. The E.L. was subsequently relinquished.

3. GEOLOGY

A regional geological interpretation of the Tennant Creek area is presented as Figure No. 2 of this report. It should be noted that major discrepancies exist between this and interpetations resulting from more recent mapping.

Although no rocks crop out within the E.L. 5329 area, outcropping siltstones and minor ironstone about 800 metres south of the tenement; anomalously high magnetics immediately south of the western E.L. boundary; and a west-north-west magnetically high trend within the north-eastern part of the tenement suggest that the underlying rocks are Warramunga Group sediments.

The bedrock geochemical survey indicated that Warramunga Group turbiditic sediments do underlie both the northern and southern parts of the E.L. area, and that the central part of the prospect is underlain by quartz-felspar porphyry which is probably intrusive. The porphyry is frequently quartz veined, but is only occasionally chloritic or haematitic.

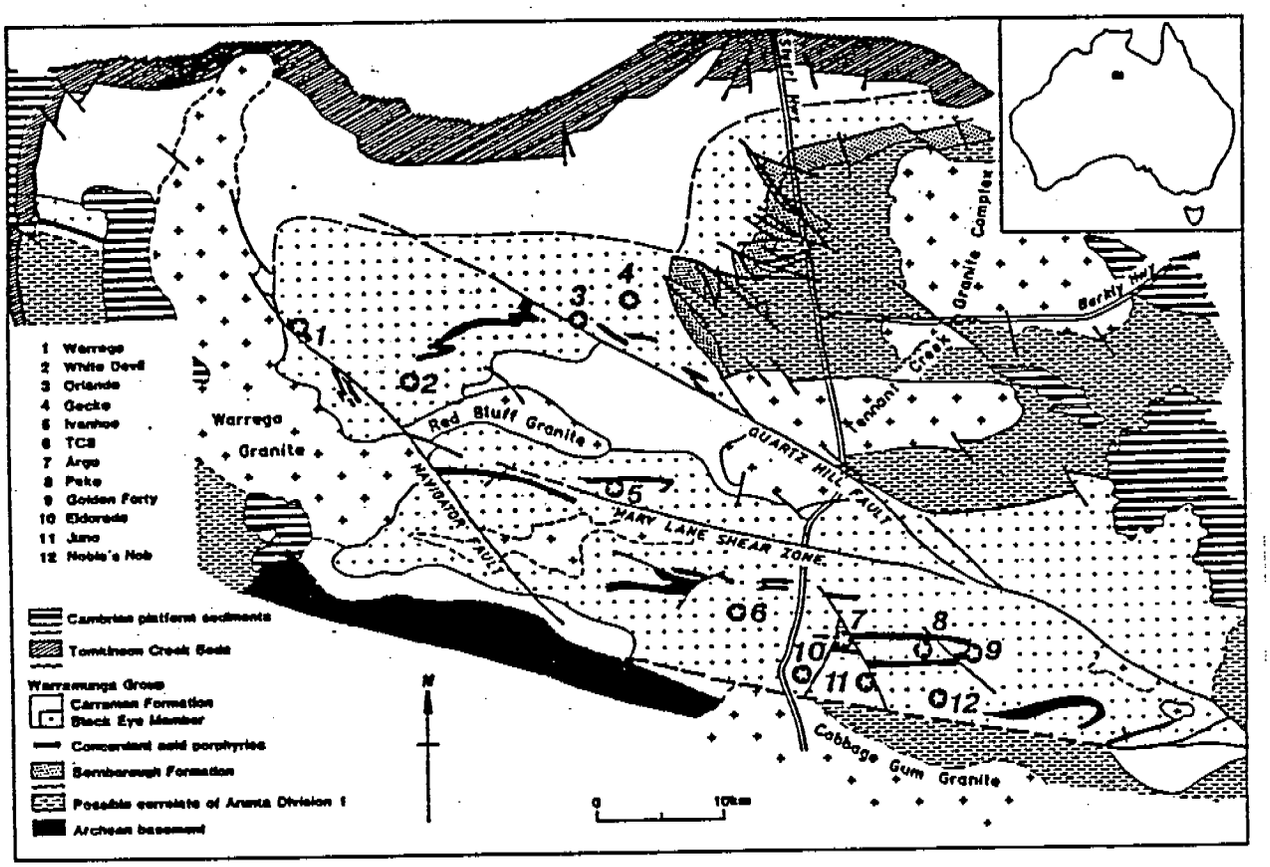


Figure 2: GEOLOGY OF THE TENNANT CREEK MINERAL FIELD.

Adapted from Le Messurier et al., in press.

4. EXPLORATION RESULTS

4.1. Aeromagnetic interpretation

In 1988, Metana Minerals N.L. the joint venture operator in the exploration of Exploration Licence 5329 purchased airborne geophysical data over the whole Tennant Creek Goldfield area from Austirex International Limited. The airborne survey including both aeromagnetic and radiometric data was carried out in June and July, 1984 on north - south flight lines 200 metres apart. East - west tie lines were spaced 4 kilometres apart. The magnetic data were acquired using a proton precession magnetometer with a resolution of 0.1nT. The cycle rate was 0.5 seconds resulting in a sample interval of 30 metres.

In late 1988 or early 1989, G. Steemson of Metana completed an aeromagnetic interpretation of the E.L. area which is presented as Figure No. 3 of this report.

This aeromagnetic interpretation concluded that north-west trending magnetic beds in the north and south of the E.L. were Warramunga Group sediments and that an area of "magnetic quiescence" in the centre might be due to granitic rocks.

4.2. Soil geochemistry

Soil samples were taken along two north - south lines traversing the E.L. width and spaced about 1.75 kilometres apart. A total of 72 samples averaging about 2 kilograms in weight were collected and were analysed for gold using the bulk cyanide leach method of gold extraction.

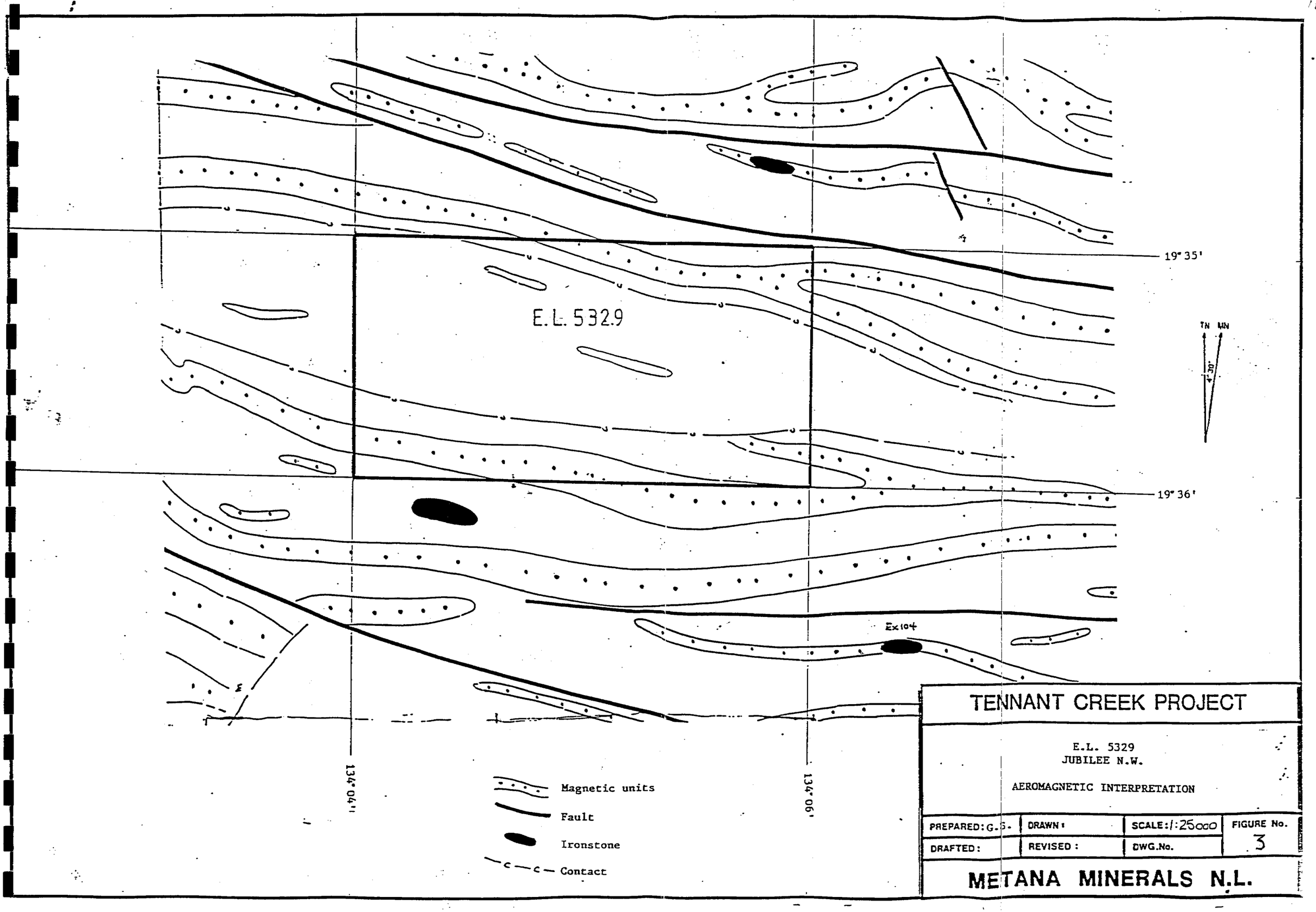
A 200 grams split of each sample was taken and was submitted for analysis by the aqua regia/GTA method.

The highest value returned by the latter method was 2 ppb against a background of 0 ppb gold; i.e. the results were not anomalous.

The bulk cyanide leach sample analyses were more variable. The highest gold results were two adjacent sample values of 10.2 and 10.4 ppb against a mean background (calculated from 72 results) of 3.28 ppb.

This was one of Metana's first forays into BLEG sampling and analysis. A. H. Eeles (1989) stated that "it is considered that the Bulk Cyanide Leach results must be treated with caution as they may be due to analytical error".

It is presumed that Eeles consulted the Metana laboratory and geochemist before making this statement. The very high background value does tend to support the conclusion.



TENNANT CREEK PROJECT

E.L. 5329
JUBILEE N.W.

AEROMAGNETIC INTERPRETATION

PREPARED: G.S.	DRAWN:	SCALE: 1:25000	FIGURE No.
DRAFTED:	REVISED:	DWG.No.	3

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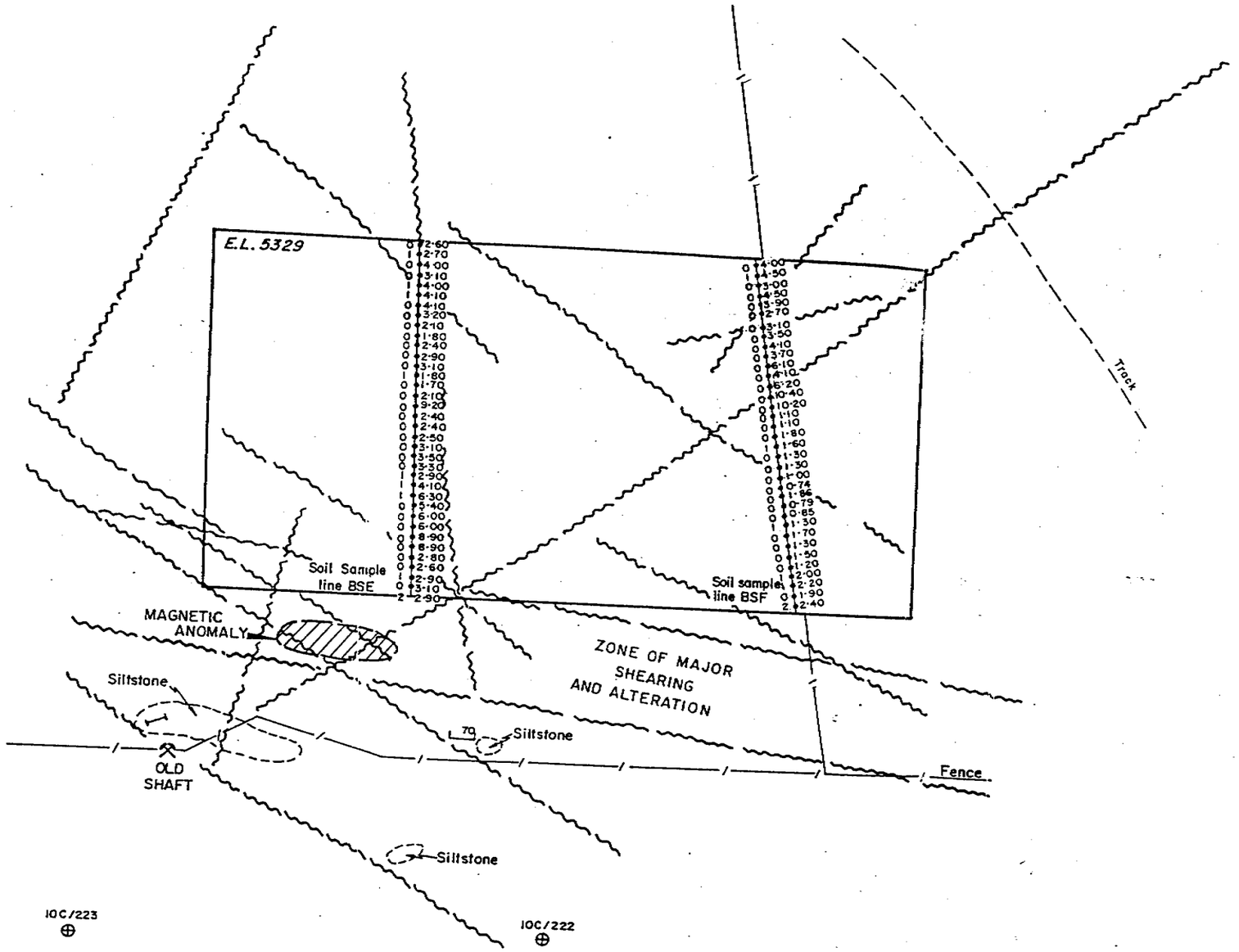

REFERENCE

- Outcrop boundary
- Vertical cleavage
- Dipping cleavage
- Photo-lineament
- 1:25000 photo centre

SOIL RESULTS

GTA ppb | 4·50 Bulk Cyanide Leach ppb

N

0 1 2km

SCALE 1:25000

FIGURE No. 4

TENNANT CREEK PROJECT

ROEBUCK RESOURCES J.V.
E.L.5329

OUTCROP AND PHOTOGEOLOGY

SCALE:	PREPARED: K.Fox	DATE: OCT 1988	DWG.No.
1:25000	DRAFTED: E.R.S.	REVISED: NOV	M107-11

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4.3. Bedrock geochemistry

In September, 1989 a line of bedrock geochemical vacuum holes was drilled along the north - south fence line which had previously been the location for the eastern soil sample line.

A total of 38 holes each 3 or 4 metres in depth were drilled and bottom of hole samples were submitted for analyses for gold in ppb, and bismuth, copper, lead, and zinc in ppm. The hole locations are plotted on Figure No. 5 of this report and the only gold value to exceed 2 ppb (7 ppb) is also plotted. No anomalous base metal values were recorded.

The hole locations and geochemical results are listed on the following page - page 7; together with abbreviated bedrock descriptions. The abreviations used are as follows:

p. - porphyry

q. - quartz

f. - felspar

silt. - siltstone

chl. - chloritic

hc. - haematitic

Mn. - manganese stained

sh. - sheared

v. - veined

fe. - ferruginous

LOCATION		ANALYSES					DESCRIPTION
NORTHING metres	EASTING metres	Au ppb	Bi ppm	Cu ppm	Pb ppm	Zn ppm	
5,800	10,000	0	0	7	0	0	hc.silt. or p
5,850	"	0	0	7	0	1	hc. f.p.
5,900	"	0	0	8	0	4	f.p.
5,950	"	0	0	16	0	6	f.p.
6,000	"	1	0	14	0	12	fe.f.p. + he.
6,050	"	0	0	9	0	7	q.f.p. + q.v.
6,100	"	1	3	16	0	12	sh.he.p + q.he.v
6,120	"	0	0	24	0	18	fe.p.
6,150	"	1	0	9	0	5	sh.he.p.
6,200	"	1	0	13	0	6	fe.p.
6,250	"	0	1	12	0	10	fe.p., q.v.Mn.
6,300	"	0	0	10	0	7	fe.sh.q.f.p.Mn
6,350	"	0	0	14	0	9	fe.q.f.p., q.v.
6,400	"	0	0	16	0	11	sh.q.f.p.
6,450	"	0	0	13	0	15	fe.p.
6,500	"	1	0	10	0	7	f.p.
6,550	"	0	0	10	0	2	sh.fe.f.p., q.v.
6,600	"	0	0	11	0	0	f.p.
6,650	"	0	1	13	0	8	fe.chl.f.p.
6,700	"	1	0	14	0	8	f.p.
6,750	"	0	0	16	0	8	fe.p. + q.v.
6,800	"	0	0	14	0	8	fe.f.p.
6,850	"	0	0	17	0	8	f.p.
6,900	"	0	0	21	0	12	sh.he.p. + q.v.
6,950	"	0	0	19	0	9	sh.fe.p. + q.v.
7,000	"	0	0	16	0	12	fe.chl.sh.p. + q.v.
7,050	"	0	0	28	0	19	sh.p. + q.v.
7,090	"	0	0	27	0	13	sh.fe.silt + q.he.v.
7,100	"	1	0	17	0	8	sh.fe.silt + q.he.v.
7,110	"	0	0	18	0	9	sh.silt. + q.he.v.
7,150	"	0	0	18	0	7	sh.fe.silt + q.v.
7,200	"	0	0	15	0	5	sh.fe.silt + q.v.
7,250	"	7	0	17	0	12	silt. + q.v.
7,300	"	0	0	21	0	14	silt. + q.v.
7,350	"	0	0	19	0	11	silt. fe.
7,400	"	0	0	15	0	8	fe.lat.silt.
7,450	"	0	0	17	0	6	fe.sh.silt. + q.v.
7,500	"	0	0	26	0	16	fe.sh.silt + q.v.

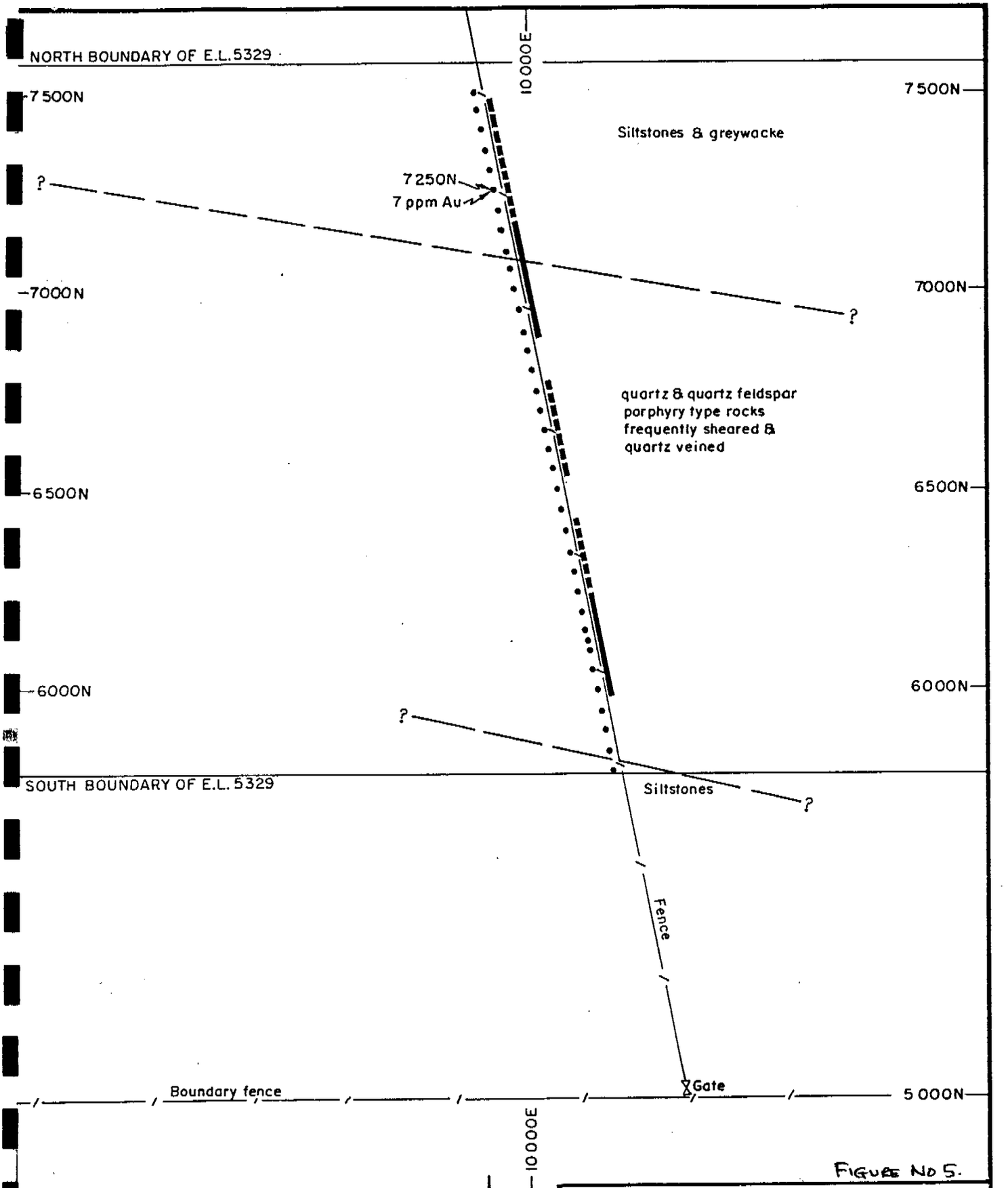

FIGURE NO 5.

REFERENCE

- Geological contact – interpreted
- Vacuum drill holes
- Zone of intense quartz veining
- Zone of scattered quartz veining

0 100 200 400 600 800 1000 m

SCALE 1:12,500

TENNANT CREEK PROJECT

JUBILEE N.W. E.L.5329

BEDROCK GEOCHEMICAL VACUUM HOLE SAMPLE LOCATIONS

Scale. 1:12 500	Date. NOV. 1989	Plan N°. MI07-42

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5. TOTAL EXPENDITURES

		$
Expenditure by Roebuck Resources N.L. prior to commencement of joint venture with Metana Minerals N.L.	-	2,393.00
Expenditure by Metana Minerals N.L. during joint venture and Roebuck Resources N.L. since J.V. termination.		
Legal fees and stamp duty	-	4.14
Tenement fees, rents and rates	-	112.50
Hire	-	7.27
Operating costs	-	102.69
Repairs and maintenance	-	43.15
Accomodation, hotels and meals	-	72.54
Freight and cartage	-	173.36
Stores and consumables	-	105.47
Travelling expenses	-	165.00
Aerial photography	-	629.63
Vacuum drilling - 250 metres at $ 4.50	-	1,125.00
Sample analyses and preparation:		
Aqua regia/GTA - 72 at $ 10	-	720.00
Bulk leach gold extraction - 72 at $ 15	-	1,080.00
Bedrock geochemical samples	-	1,728.88
Field assistant time - 6 days at $ 90	-	540.00
Geologists time (field and office)	-	3,778.11
Geophysical data	-	1,111.11
Geophysical interpretation	-	1,219.56
Labour operating	-	59.57
Motor vehicle hire - 5 days at $ 100	-	500.00
Fuel - 165 km. at $0.75	-	123.75
Drafting	-	175.00
Overheads - 10%	-	1,357.67
TOTAL EXPENDITURES	-	$ 17,327.40

6. REFERENCES

Eeles, A.H., 1989 - Exploration Licence 5329, Jubilee NW, Tennant Creek, Northern Territory, summary report on exploration for the period 17th September, 1988 to 1st March, 1989: Metana Minerals N.L. Report No. 1989/119, March, 1989.

Fox, K., 1988 - Tennant Creek, Exploration Licence 5329, project progress report for the year ending 17th September, 1988: Metana Minerals N.L. Report No. 1988/160.

Fox, K., 1989 - Metana Minerals N.L./Roebuck Resources N.L. Tennant Creek Joint Venture, Exploration Licence 5329, Jubilee North West, Tennant Creek, Northern Territory, exploration progress and E.L. reduction report, November 1989: Metana Minerals N.L. Report No. 1989/275.