14-5.

NORTHERN GOLD N.L.
EL 4736

Partial Relinquishment Report

OPEN FILE

Compiled by
ALLAN RONK
Northern Gold N.L.
October, 1988

PARTIAL RELINQUISHMENT EL 4736

List of Appendices

List of Plans

EL 4736 - PARTIAL RELINQUISHMENT

1.0 Summary

EL 4736 is located about 45 kilometers southeast of Adelaide River and surrounds the Cosmopolitan Howley Gold Mine.

Northern Gold commenced hard rock exploration in the EL in March 1988. Soil sampling comprised of orientation traverses and several regional stream sediment sampling programmes were completed. Other work included prospecting and aerial geophysics.

Based on results obtained to date, the area included in this report has been relinquished.

EL 4736 - PARTIAL RELINQUISHMENT

2.0 Conclusions

Prospecting and sampling results indicate a very weak anomaly is present near the western side of the relinquished area. This anomaly did not have sufficient priority to warrant additional work under the present exploration programme.

The regional stream sediment sampling programmes proved useful to assist in identifying areas for relinquishment under the requirements of the Mining Act.

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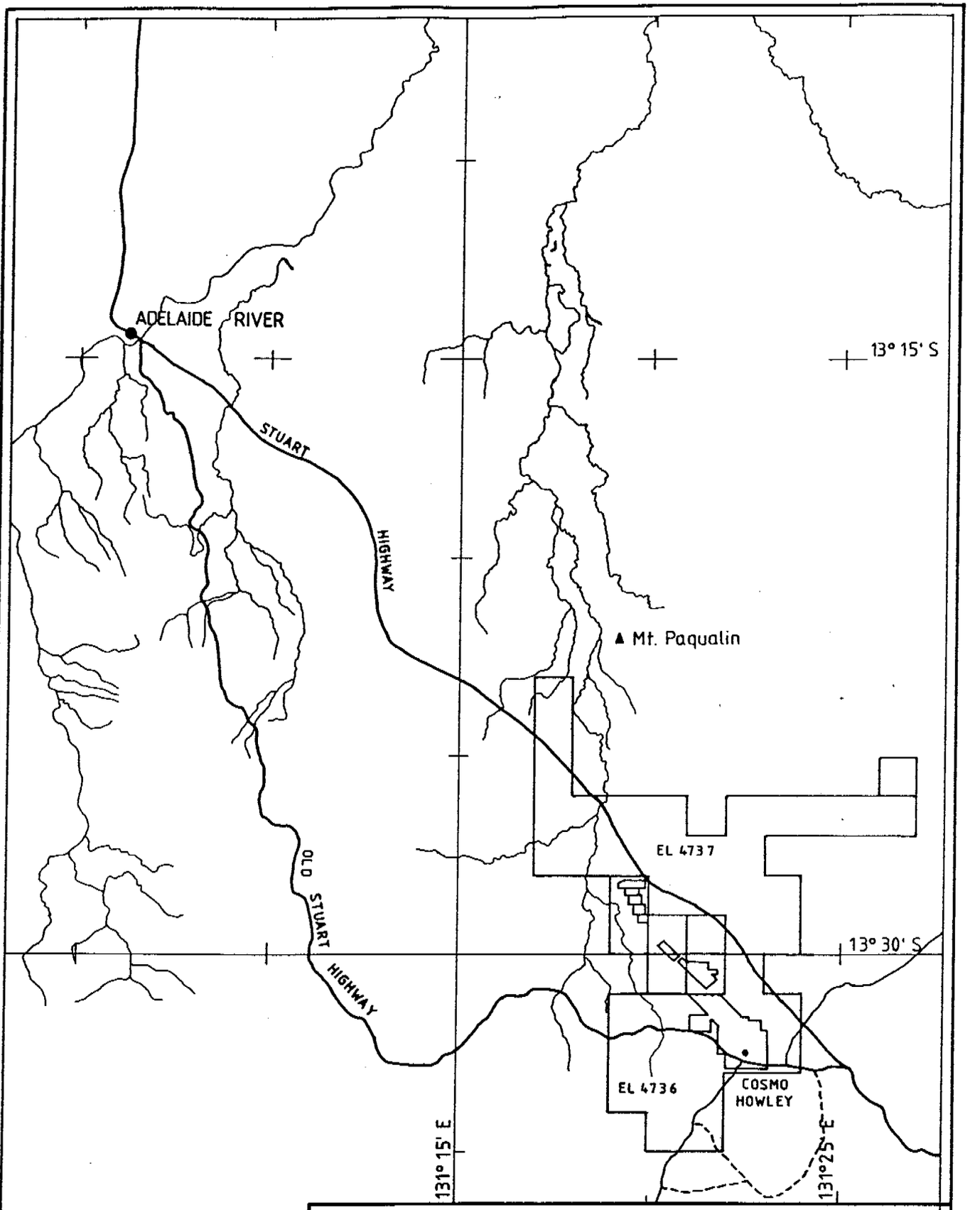
3.0 Introduction

EL 4736 is located approximately 45 kilometers south east of Adelaide River (See figure 1). The EL covers 16 graticular. Blocks and includes two small mineral claims held by Northern Gold and about 600 hectares held by Dominion Gold Mines NL.

A compulsory relinquishment in the area was due by 30 June 1988 and was accomplished by relinquishing 7 of the graticular blocks. Details of these changes are shown in figure 2.

Northern Gold commenced hardrock exploration in the EL in March 1988 which included orientation geochemical soil sampling traverses and regional stream sediment sampling programmes.

This report contains information extracted from the EL 4736 Annual Report for the period ending 30 June 1988 compiled by R. McKensie.



Northern Gold N.L.

Scale 1:250 000	Compiled by	Date December '87
	Drawn by R.M.	No.

TENEMENT LOCATION MAP

FIG 1

EL 4736 - RELINQUISHMENT REPORT

4.0 Geology

Sediments of the Proterozoic South Alligator and Finnis River Groups outcrop in the area of EL4736. A minor amount of Cretaceous Petrel Formation is present.

Rocks of the Burrell Creek Formation dominate in the area with some Mount Bonnie Formation exposed in the most eastern block relinquished.

To the western side, weak gold mineralization is associated with minor quartz veining. Copper mineralization was observed in two pits.

A more complete presentation of the geology and mineralization in the area is given by Nicholson and Eupene (1984).

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5.0 1987 - 1988 Work Programme

During the 12 months to 30 June 1988, Northern Gold has undertaken the following activities on areas covered by this report.

5.1 Review of all Pre-existing Data

During this exercise all pre-existing data and reports were reviewed, maps showing current tenement status were drafted, and aerial photographs and geological maps purchased.

5.2 Reconnaissance

Ground inspection of leases and EL boundaries was undertaken including flagging of EL boundaries where they crossed roads.

5.3 Mapping and Prospecting

A regional structural assessment of the area was undertaken using 1:60,000 Darwin-Kakadu Regional aerial photographs flown on 1 September 1987 as a base. This information was plotted at 1:50,000 to match the scale of aerial geophysics survey plans. These maps are not presented here as they contain information relating to other tenements and regional exploration strategies.

Inspection of old mine workings in the vicinity of Mount Shoobridge and the Howley Ridge were made in an attempt to gain an understanding of the different mineralization styles in the region.

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5.4 Geochemical Soil Sampling

Two traverse lines were sampled as an initial multielement reconnaissance survey. This was followed by a regional stream sediment sampling programme over the whole EL.

5.4.1 Multielement Reconnaissance Survey

No of samples	56
Size of fraction	-2mm
Assay technique	Au - fire assay, AAS finish
	As - vapourhydride, AAS finish
	Cu, Pb, Zn, - AAS

Approximately 2 kg of -2mm material was collected from each sample point and then forwarded to Analabs in Darwin for analysis. Results are plotted as stacked profiles for each traverse and presented as plans 255 and 258. Assay sheets are included in Appendix 1.

Results were generally very low although correlation between elements does exist. On the basis of this work (and work in areas retained) it was decided that sufficient evidence existed for gold alone to outline anomalous areas. The trace elements did not provide sufficient additional information to warrant determination on a routine basis.

5.4.2 Stream sediment survey

Sampling was conducted in two parts, an initial survey with follow up work in selected areas

No of samples	129
Size of fraction	-2mm
Assay technique	BLEG

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The stream sediment sampling programme was undertaken as a means to rapidly cover the licence area which has a well defined drainage pattern. This work commenced in March 1988 which caused some operational difficulties due to thick seasonal growth and boggy water courses. Most samples were seived to -2mm in the field and the remainder were laboratory dried prior to siving. Nominal 2 kg field samples were resplit to 1 kg and bulk leached for gold to a detection limit of 0.1 ppb.

A weak gold anomaly was located near the western side of the relinquished area and due to its low order, did not warrant additional work at this stage.

Sample locations and results are shown on plan No 282. A description of sampled material and reported gold grades are presented in Appendix 2.

5.5 Aerial Geophysics

An airborne geophysical survey was undertaken in September 1987 on the entire licence area as part of a broader survey encompassing all the Northern Golds current tenements. Preliminary results were received in early January 1988. Data collection comprised Total Magnetic Field Intensity and radioactive channels as follows - Total Count, Potassium, Uranium and Thorium.

Results are not presented here as they pertain to tenements still held by Northern Gold.

6.0 References

Nicholson, P.M. and Eupene, G.S. 1984. Controls on Gold Mineralisation in the Pine Creek Geosyncline. The Aus I.M.M. Conference Darwin NT August 1984.

Sullivan, C.J. and Iten, K.W. 1952. The Geology and Mineral Resources of the Brocks Creek District, NT. Bulletin No 12 B.M.R. Canberra.

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APPENDIX 1

MULTIELEMENT RECONNAISSANCE SURVEY

ASSAY REPORTS

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	70.6.14.02119	11/11/87	22454	1 OF 5

TUBE No.	SAMPLE No.	Cu	Zn	As	Au	Pb
1	024	20	20	27	0.023	50
2	025	10	30	14	<0.008	20
3	026	20	15	7	<0.008	15
4	027	15	10	5	0.025	10
5	028	40	15	10	0.039	10
6	029	30	15	8	0.014	15
7	030	15	10	8	0.016	20
8	031	10	20	4	<0.008	10
9	032	5	10	5	<0.008	5
10	033	5	10	6	0.069	5
11	034	10	20	8	<0.008	10
12	035	10	20	14	<0.008	<5
13	036	10	25	7	<0.008	<5
14	037	10	15	12	<0.008	<5
15	038	10	10	11	<0.008	<5
16	039	5	10	14	<0.008	<5
17	040	5	10	12	<0.008	<5
18	041	10	15	11	<0.008	<5
19	042	15	20	25	0.024	<5
20	043	15	10	14	<0.008	<5
21	044	15	20	16	<0.008	5
22	045	5	10	9	<0.008	<5
23	046	5	10	17	<0.008	<5
24	047	15	10	18	<0.008	5
25	048	20	10	22	<0.008	<5

ELATE
SE Corner claim

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	70.6.14.02119	11/11/87	22454	2 OF 5

TUBE No.	SAMPLE No.	Cu	Zn	As	Au	Pb
1	049	15	10	20	<0.008	<5
2	050	5	10	10	<0.008	<5
3	051	5	10	6	<0.008	<5
4	052	5	10	16	<0.008	5
5	053	10	10	11	<0.008	<5
6	054	10	15	22	<0.008	<5
7	055	10	10	17	0.012	<5
8	056	10	10	22	<0.008	<5
9	057	10	10	6	0.009	<5
10	058	5	10	3	0.010	<5
11	059	10	15	12	0.017	<5
12	060	50	60	27	0.012	1750
13	061	15	35	5	0.009	225
14	062	25	50	10	0.009	75
15	063	65	80	15	0.022	60
16	064	50	55	14	0.091	55
17	065	65	90	12	0.013	80
18	066	40	45	15	0.024	15
19	067	30	40	17	0.019	20
20	068	30	20	6	0.034	30
21	069	10	10	8	0.042	10
22	070	5	5	4	0.014	10
23	071	5	10	9	0.013	5
24	072	20	15	8	0.012	10
25	073	5	5	14	0.012	10

EL 4736 South eastern corner along old track off Douglas-Daly Road.

EL 4736 Shadbridge Area.

Along old Stuart Highway head eastwards from EL Boundary

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	70.6.14.02119	11/11/87	22454	4 OF 5

TUBE No.	SAMPLE No.	Cu	Zn	As	Au	Pb
1	099	30	15	21	<0.008	5
2	100	35	30	26	<0.009	<5
3	101	40	55	62	<0.009	5
4	102	135	100	37	0.023	10
5	103	155	25	40	0.012	30
6	104	135	15	33	0.017	75
7	105	105	20	45	0.008	50
8	106	85	15	29	0.012	35
9	107	45	<5	15	0.013	20
10	108	30	<5	14	0.009	10
11	109	25	<5	21	0.012	10
12	110	25	<5	15	0.012	20
13	111	30	<5	18	<0.008	20
14	112	15	<5	11	<0.008	10
15	113	40	<5	17	<0.009	15
16	114	20	<5	6	<0.008	5
17	115	40	25	12	0.089	20
18	116	90	10	11	<0.008	<5
19	117	30	30	10	<0.008	50
20	118	30	30	11	<0.008	30
21	119	20	30	9	<0.008	15
22	120	30	20	12	<0.008	10
23	121	35	25	11	<0.008	15
24	122	30	15	13	<0.008	5
25	123	10	15	5	<0.008	5

EL 4736
West side of Fountainhead Road between old & new Stuart Highways
South end
↓
North end.

↑
EL 4736

Douglas-Daly Rd.

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	70.6.14.02119	11/11/87	22454	5 of 5

TUBE No.	SAMPLE No.	Cu	Zn	As	Au	Pb			
1	124	15	10	6	<0.008	5		ELU Blk Along	
2	125	10	10	12	<0.008	<5		Douglas Daly Road	
3	126	10	5	7	<0.008	10		(Fenceline to east of	
4	127	15	25	21	<0.008	10		road working N→S)	
5	128	10	<5	5	<0.008	<5			
6	129	10	5	1	<0.008	<5			
7	130	10	10	7	<0.008	5			
8	131	10	10	3	<0.008	<5			
9	132	10	5	6	<0.008	<5			
10	133	10	<5	2	0.008	<5			
11	134	20	15	15	<0.008	10			
12	135	10	5	8	<0.008	5			
13	136	10	5	2	0.008	<5			
14	137	25	5	17	0.010	5			
15	138	20	5	10	0.009	<5			
16	139	10	5	4	<0.008	<5			
17	140	10	5	2	<0.008	<5			
18	141	10	<5	3	<0.008	<5			
19	142	20	10	10	<0.008	<5			
20									
21									
22									
23	DETECTION	5	5	1	0.008	5			
24	UNITS	ppm	ppm	ppm	ppm	ppm			
25	METHOD	101	101	114	309	101			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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EL 4736 PARTIAL RELINQUISHMENT

APPENDIX 2

STREAM SEDIMENT SURVEY

SAMPLE DESCRIPTIONS AND ASSAYS

STREAM SEDIMENT SAMPLES EL 4736

Sample No	Results	AU (ppb)
4015	Creek, silt, soil and rock scree	0.6
4016	Creek, cobbles, gravel, sand, some silt	0.4
4017	Creek, cobble, gravel, sand wash	0.6
4018	Creek, cobble, sand silt wash	0.9
4019	Creek, cobble, gravel, sand silt steep silt/soil banks	2.9
4020	Creek, cobbles, gravel silt	4.4
4021	Broad drainage, silt/soil	3.3
4022	Broad drainage, silt/soil	2/4
4023	Grab sample, copper working Note ppm Au	,0.008ppm
4024	Grab sample, copper working ppm Au	<0.008ppm
4025	Creek, gravel silt wash	0.5
4026	Broad drainage, silt/soil	1.0
4027	Broad drainage, silt/soil	1.9
4028	Broad drainage, gravel/silt	10.0
4029	Broad drainage, gravel/silt	1.0
4030	Creek, gravel, sand wash	3.1
4031	Broad drainage, silt/soil	0.3
4032	Broad drainage, silt/soil	x
4033	Broad drainage, gutter, cobbles, gravel to silt	0.4
4034	Broad drainage, silt/red soil	0.7
4035	Broad drainage silt/soil, pisolitic laterite layer at depth	0.6
4036	Broad drainage, gravel, silt/soil	3.3
4037	Creek, cobbles to silt	0.6
4038	Broad drainage, silt/soil	0.6
4039	Creek, gravel, sand on bedrock	0.9
4040	Creek, cobbles to silt	0.4
4041	Creek, cobbles to silt	1.8
4042	Creek, cobbles, gravel	5.2
4043	Creek, cobbles to silt	13.1
4044	Creek, cobbles to silt	6.0
4045	Creek, cobbles to silt	1.8
4046	Creek, cobbles to silt	1.2
4047	Creek, cobbles to silt sand	2.1
4048	Creek, cobbles to silt sand	2.5
4049	Broad drainage, silt/soil	2.6
4050	Broad drainage, silt/soil	1.4
4051	Creek, gravel, sand	3.0
4052	Creek, gravel, sand	1.8

Sample No	Results	AU (ppb)
4053	Creek, gravel, sand	1.4
4054	Broad drainage, silt/soil	1.2
4055	Creek, cobbles to sand	1.5
4056	Creek, sand, silt in gutter	1.5
4067	Broad drainage, sand, silt	1.0
4068	Creek sand	1.5
4073	Broad drainage, silt/soil, rock fragments	1.4
4085	Broad drainage, soil and rock scree	0.4
4086	Broad drainage, soil and rock scree	1.8
4087	Broad drainage, silt/soil	4.9
4088	Broad drainage, silt/soil, rock scree	0.1
4089	Broad drainage, silt/soil, rock scree	5.3
4090	Broad drainage, silt soil	8.1
4091	Creek cobbles and silt	7.1
4092	Broad drainage,silt/soil	2.2
4093	Creek, silt/soil	3.3
4094	Creek, cobbles to silt	11.4
4095	Broad drainage, silt/soil	2.0
4096	Broad drainage, silt/soil	0.7
4097	Broad drainage, silt/ soil some gravel	0.9
4098	Broad drainage, silt/soil	1.0
4099	Creek, cobbles, gravel	x
4100	Broad drainage, silt/soil	0.4
4101	Creek, silt	0.9
4102	Broad drainage, silt/soil	0.3
4103	Broad drainage, silt/soil	7.5
4104	Creek, silt/soil, some rock fragments	0.9
4109	Broad drainage, silt/soil	1.1
4110	Broad drainage, silt/soil	1.7
4111	broad drainage, silt/soil	0.8
4112	Broad drainage, silt/soil, minor gravel	0.9
4113	Broad drainage, silt/soil	0.8
4114	Broad drainage, silt/soil, slightly sandier	0.7
4115	Broad drainage, silt/soil	2.1
4116	Broad drainage, silt/soil	1.8
4117	Broad drainage, silt/soil	0.9
4118	Broad drainage, silt/soil	0.3
4119	Broad drainage, silt/soil	0.6
4133	Sheetwash, soils, some rock fragments	2.1
4134	Sheetwash, soils, some rock fragments	1.7
4135	Creek, silt/soil, minor gravel	1.1
4136	Creek, mud	5.6
4137	Broad drainage/sheetwash, soil	0.6
4138	Broad drainage soil	1.1

Sample No	Results	AU (ppb)
4141	Broad drainage, soil, sheetwash	1.1
4142	Broad drainage, soil, sheetwash	0.6
4196	Small broad drainage, soil/silt, some rock fragments	0.5
4197	Small broad drainage, soil/silt, some rock fragments	x
4198	Small broad drainage, some rock fragments	0.6
4199	Small broad drainage, soil/silt	0.9
4200	Small broad drainage, soil/silt	0.4
4201	Small broad drainage, soil/silt	2.2
4202	Creek, steep valley, soil/silt, trace of rock fragments	3.7
4203	Creek, steep valley, soil/silt rock fragments	0.5
4204	Creek steep valley, soil/silt rock fragments	0.5
4205	Creek, steep valley, soil/silt, rock fragments	x
4206	Creek, steep valley, soil/silt, rock fragments	0.8
4207	Broad drainage, silt/soil	0.8
4208	Broad drainage, silt/soil	1.0
4209	Broad drainage, silt/soil	2.8
4210	Broad drainage, small valley, silt/soil	4.2
4211	Broad drainage, small valley, silt/soil, minor rock fragments	4.4
4212	Creek/large erosion gully, rock to sand	0.7
4213	Narrow drainage, silt/soil, minor rock fragments	2.6
4214	Creek sand, silt, some rock fragments	0.6
4215	Creek, sand, gravel, cobbles	0.7
4216	Broad drainage, soil/silt	0.5
4217	Creek,sandy soil/silt	0.4
4218	Broad drainage,silt/soil, some rock fragments	0.7
4219	Narrow drainage, silt/soil, some rock fragments	x
4220	Narrow drainage, silt/soil, some rock fragments	x
4221	Narrow creek/gully, steep valley cobbles, silt on bedrock	7.7
4222	Narrow creek/gully, steep valley cobbles, silt on bedrock	1.8
4223	Creek, silt gravel, some rock fragments	0.4

Sample No	Results	AU (ppb)
4224	creek, sandy silt/soil, rock fragments	1.6
4225	Broad drainage, silt/soil, minor rock fragments	2.4
4226	Broad drainage, silt/soil	1.6
4227	Broad drainage, silt/soil	3.2
4230	Broad drainage, soil/silt	0.2
4231	Broad drainage,soil,sandy, small rock fragments	0.4
4232	Broad drainage, colluvial/sheetwash, soil	x
4233	Broad drainage, soil/silt	x
4234	Broad drainage, soil/silt	0.6
4235	Creek, silt/clay	1.0
4236	Creek, gravel wash, silt, rock fragments	0.8
4237	Creek, soil, rock fragments, bedrock shallow	1.4
4238	Creek, soil, rock fragments, bedrock shallow	0.5
4239	Creek, soil, rock fragments, bedrock shallow	0.6
4240	Creek, soil, rock fragments, bedrock shallow	0.7
4241	Creek, gravel wash, rock fragments	0.2
4242	Broad drainage,, soil/silt	0.2

NB: x - below detection limit of 0.1 ppb

Adelaide River

METANA PLANT SITE

Adelaide River

STUART HIGHWAY

Hayes Creek

RETAINED

RETAINED

EL4736

LIMIT OF PHOTOGRAPH

0 1 2

KILOMETRES

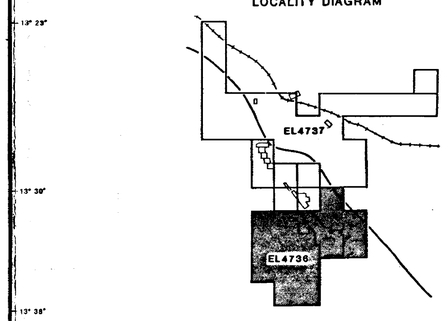
SCALE IS APPROXIMATE

BASE MAP TAKEN FROM UNCONTROLLED PHOTO ENLARGEMENT

LEGEND

- * 01 (9.7) — Sample location and number, Gold value ppb
- Drainage systems
- Major road - sealed
- Minor road - sealed
- Track - graded
- Estimated EL boundary

LOCALITY DIAGRAM



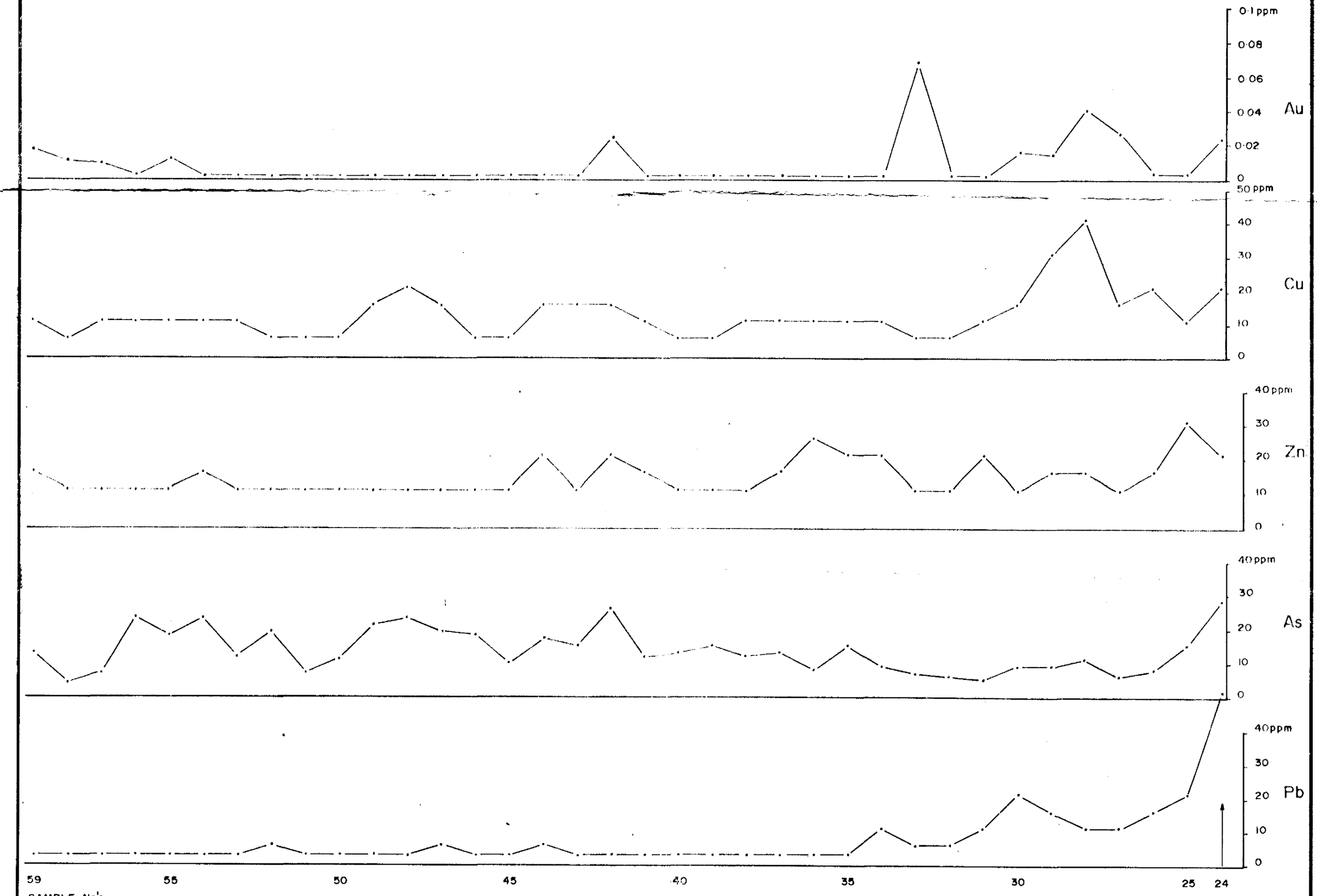
NORTHERN GOLD NL

EL4736

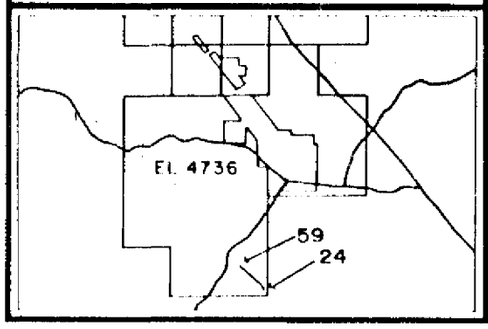
GEOCHEMICAL SAMPLE LOCATIONS

CR88/427

SCALE	1:20,000	DATE	MARCH 1988	DRAWING NUMBER
DRAWN	A.R.	APPROVED		
AMMENDED		AMMENDED		282
AMMENDED		AMMENDED		
AMMENDED		AMMENDED		



LOCALITY DIAGRAM



NORTHERN GOLD NL

CR 88/427 EL 4736

Orientation Soil Geochem

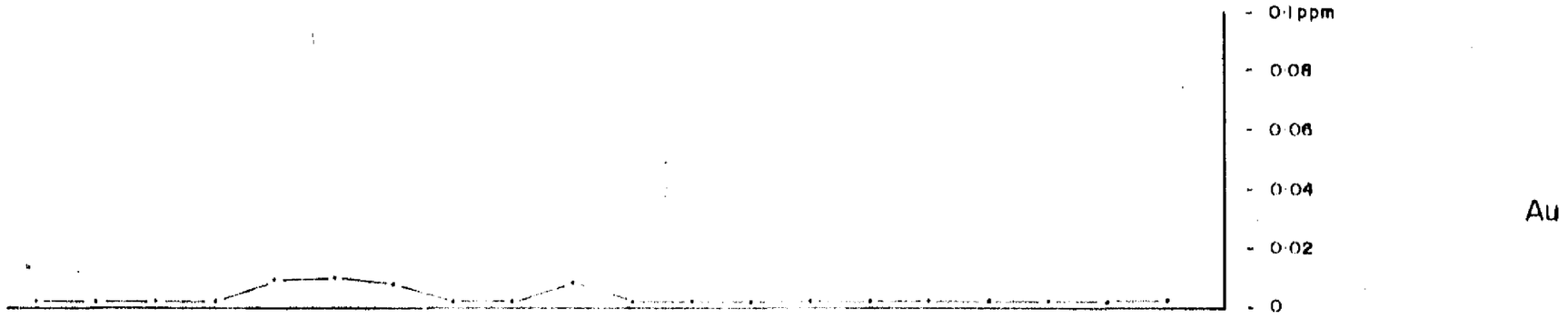
Multi Element Au Cu Zn As Pb

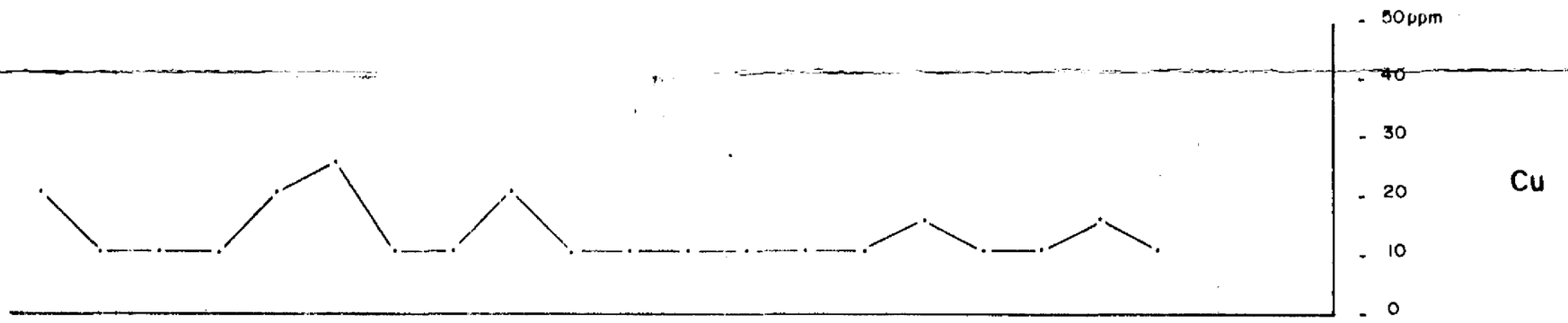
0 50 100 200 300 400 500m

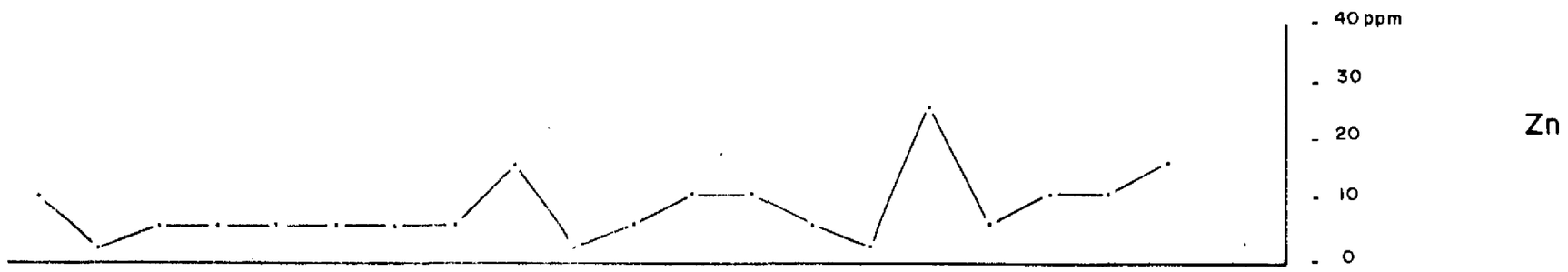
SCALE 1:5000

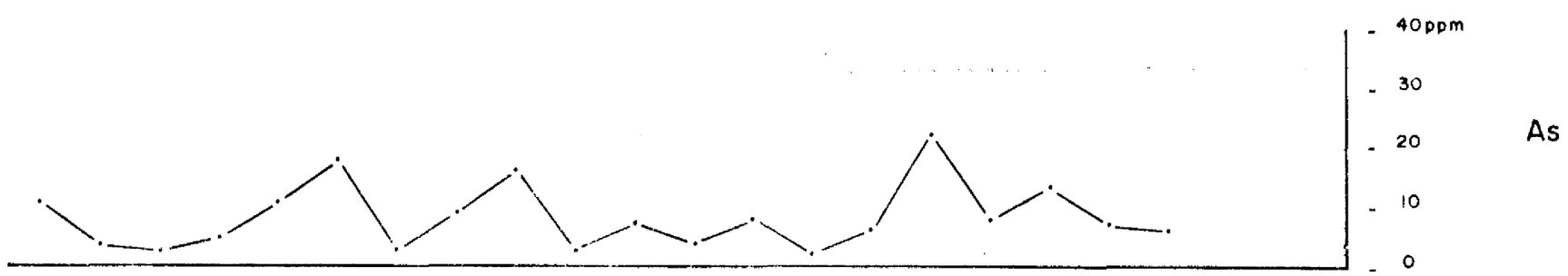
PLAN No. 255

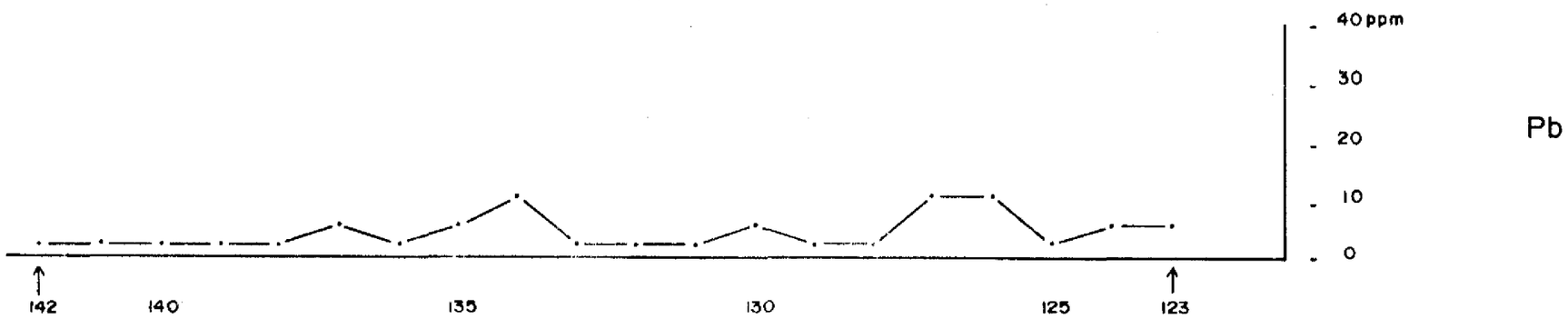
DATE June '88





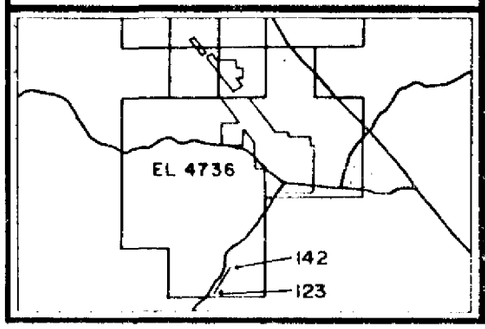






SAMPLE No's 142 140 135 130 125 123

LOCALITY DIAGRAM



NORTHERN GOLD NL

CR88/427 EL 4736

Orientation Soil Geochem

Multi Element Au Cu Zn As Pb

0 50 100 200 300 400 500m

SCALE 1:5000

PLAN No. 258

DATE June '88