Northern Gold N.L. A.C.N. 009 620 937

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Stuart Highway, Adelaide River
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OPEN FILE

EL 5870

Partial Relinquishment Report

To 6th November 1991

Pine Creek Sheet SD 52-8 Batchelor 14/2-IV (5171.IV)

Licensee: Northern Gold NL

Compiled for
Northern Gold NL
Michelle Stokes
November 1991

SUMMARY

An exploration program was carried out on the relinquished blocks of EL 5870 to test the area for Au and base metal mineralization. Geological mapping, rock chip sampling, soil sampling and stream sediment sampling were completed.

A 400 meter long anomaly identified in the soil sampling program contains values ranging from 3 to 35 ppb Au in an area of Cainozoic lateritic cover. This anomaly coupled with rock chip sample results ranging up to 0.26 g/t Au from this laterite and the Buckshee Breccia to the south suggest that these younger, iron-rich lithologies may be potential sources for future low grade gold resources.

CONTENTS

FIGURES

1 INTRODUCTION

1.1 Title

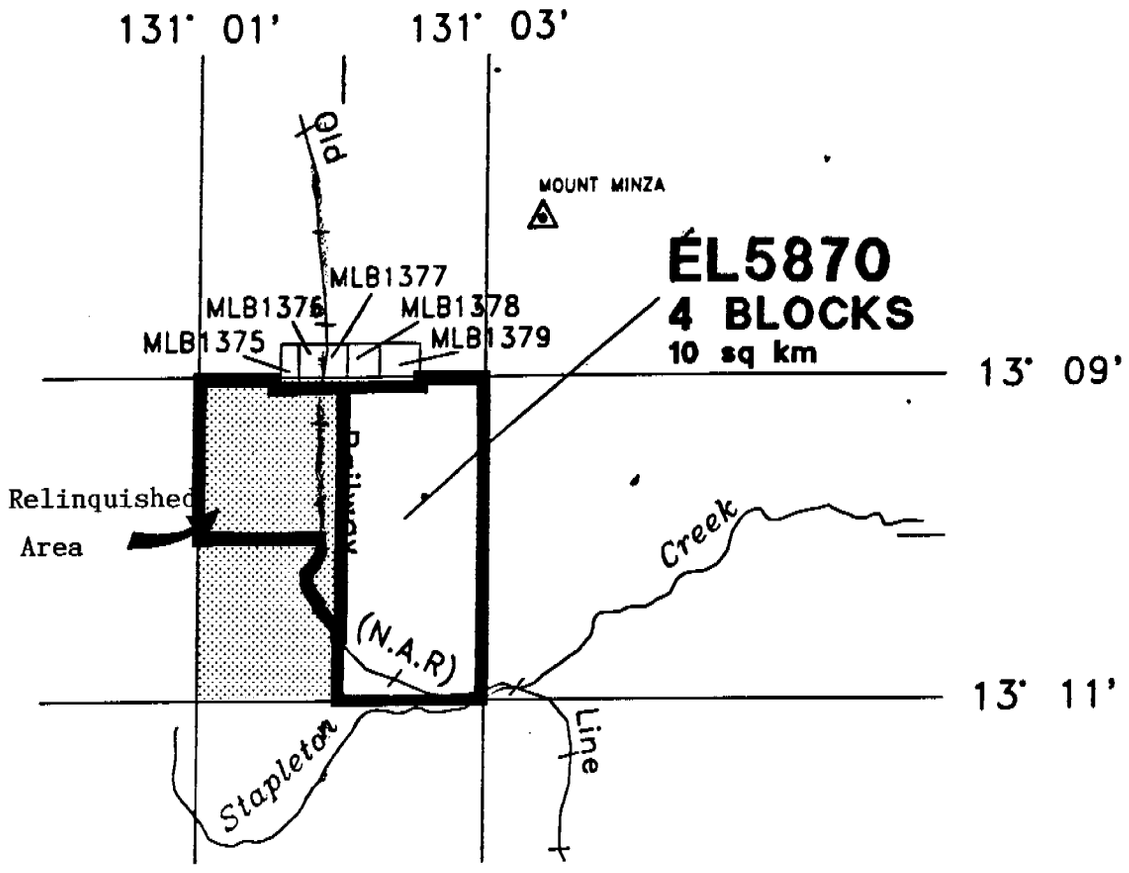
EL 5870 was granted on 7 November 1989 to Northern Gold NL for a period of six years. The licence initially covered four blocks (10 kilometer2) and was reduced by relinquishing the two westernmost blocks at the end of the 1991 year (Figure 1).

1.2 Location and Access

EL 5870 is located approximately 10 kilometers northwest of Adelaide River (Figure 1) within the Rum Jungle Mineral Field. Access to EL 5870 is via the Camp Creek or Batchelor-Stapleton roads. Access within the tenement is restricted to four wheel drive vehicles due to the rugged nature of the terrain.

1.3 Previous Work

No recorded exploration work was carried out on the relinquished area of EL 5870 until after the discovery of uranium at Rum Jungle in 1949. Subsequent geophysical work by the B.M.R. located several uranium prospects (Waterhouse 1-4) north of EL 5870 in 1953 (Wyatt 1953). The largest of these, Waterhouse 2, located 2 kilometer north of the tenement, has been drilled by the B.M.R. (Ruxton 1961) and C.R.A. Exploration (French 1974), and tested with one shaft and several costeans by United Uranium.


131° 01'
131° 03'
Old
MOUNT MINZA
EL5870
4 BLOCKS
10 sq km
MLB1377
MLB1376
MLB1378
MLB1375
MLB1379
13° 09'
Railway
Relinquished
Area
Creek
(N.A.R)
13° 11'
Stapleton
Line

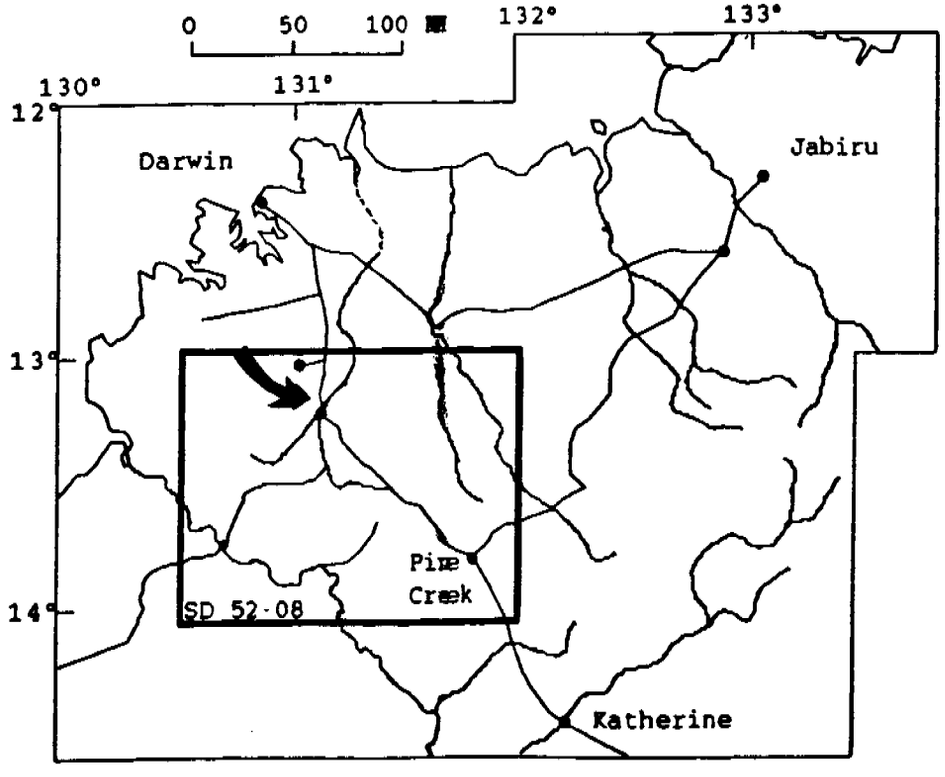
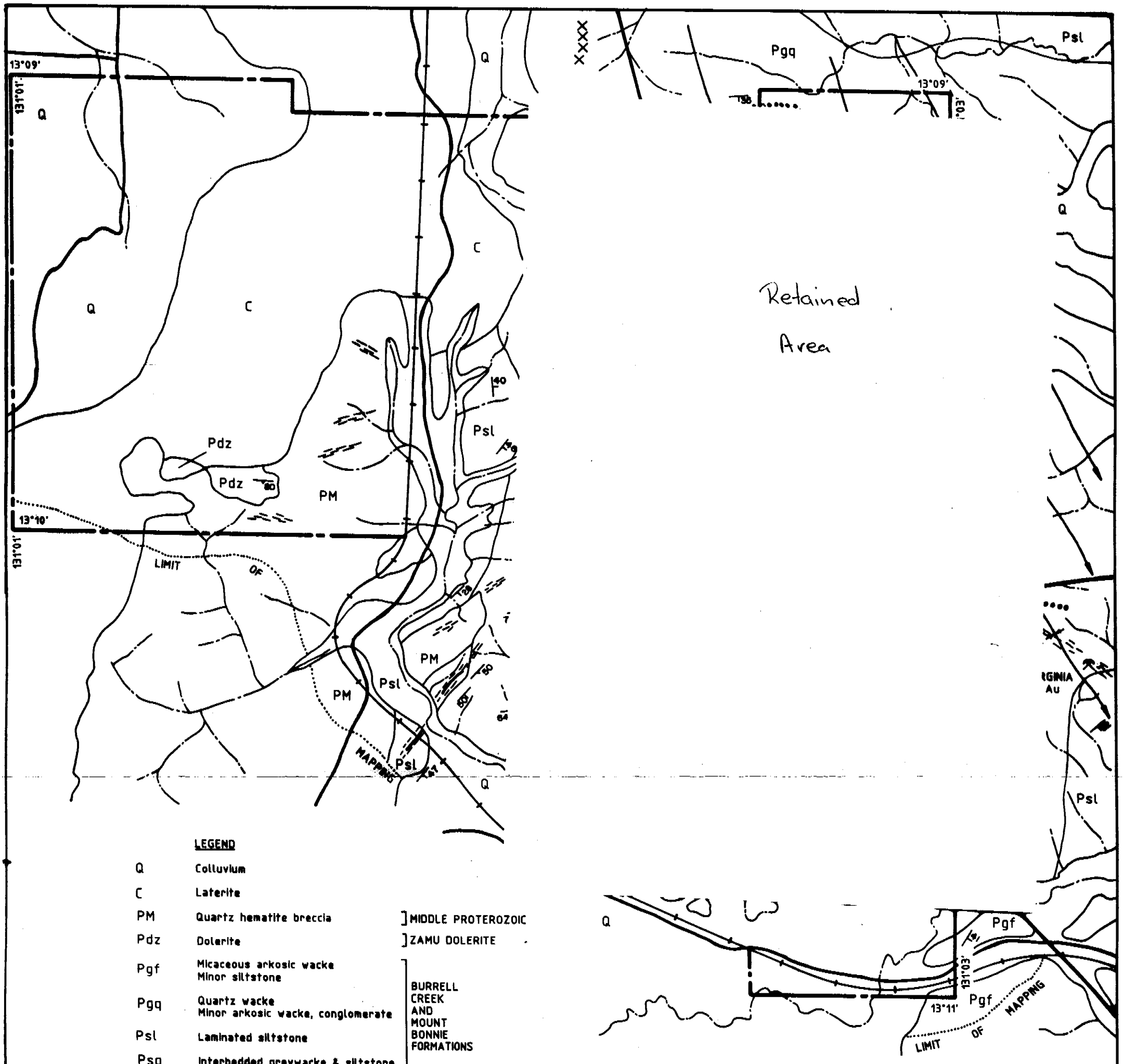

0
50
100
132°
133°
130°
131°
12°
Darwin
Jabiru
13°
Pine
Creek
SD 52-08
14°
Katherine

Figure 1

2 REGIONAL GEOLOGY

EL 5870 is situated within the Pine Creek Geosyncline, a tightly to isoclinally folded sequence of mainly pelitic and psammitic Lower Proterozoic sediments with interlayered tuff units. All the lithologies in the area have been metamorphosed to low and in places medium grade metamorphic assemblages. For the purposes of this report the prefix meta is implied but omitted from rock names and descriptions. The sequence has been intruded by pre-orogenic dolerite sills and a number of late syn-orogenic to post-orogenic Proterozoic granitoids. Largely undeformed Middle and Late Proterozoic, Palaeozoic and Mesozoic strata as well as Cainozoic sediments and laterite overlie the Pine Creek Geosyncline lithologies.



LEGEND

Q	Colluvium	
C	Laterite	
PM	Quartz hematite breccia	] MIDDLE PROTEROZOIC
Pdz	Dolerite	] ZAMU DOLERITE
Pgf	Micaceous arkosic wacke Minor siltstone	] BURRELL CREEK AND MOUNT BONNIE FORMATIONS
Pgq	Quartz wacke Minor arkosic wacke, conglomerate	
Psl	Laminated siltstone	
Psg	Interbedded greywacke & siltstone	

- Tenement boundary
- Road
- Railway (abandoned)
- Quartz vein
- XXX Quartz stockwork
- High strain zone
- Creek
- Mine workings
- Inferred fault
- Antiform
- Synform
- Conglomerate
- Younging
- Bedding
- Cleavage

Figure 2

Northern Gold N.L.

EL 5870 GEOLOGY

COMPILED BY	DATE	SCALE
D.R.	OCT. 1990	1 : 15000

3 EXPLORATION COMPLETED

Northern Gold completed an exploration program designed to test the area for gold and base metal mineralization.

3.1 Geological Reconnaissance

Geological reconnaissance was carried out over EL 5870 and a geological map was produced (Figure 2). Twenty rock chip samples were collected from the relinquished section of the tenement and these were submitted to Australian Assay Labs in Pine Creek for analysis of Au by fire assay, and As, Cu, Pb, Zn, and Ag by ICP1. Sample locations, descriptions and results are shown on Figure 3 and given in Appendix 1.

EL 5870 comprises mainly north-south trending ridges separated by tributaries of Stapleton Creek. The ridges consist of Proterozoic lithologies which are blanketed by Quaternary cover to the south, and by Cretaceous laterite and Quaternary colluvium to the west of the old Northern Australia Railway Line.

Outcrop in the relinquished western block of EL 5870 is dominated by a massive haematitic quartzite breccia, the Buckshee breccia. The breccia has a haematitic matrix of siltstone or greywacke, and contains clasts of quartzite, quartz, siltstone, greywacke and chert, in decreasing order of abundance. Brecciated fragments are commonly 1-5 cm in diameter but have been observed up to 5 metres long. Specular haematite is common in the matrix. Thin-sections cut by C.R.A. (Marmont 1973) and Uranerz (Taylor 1979) of this unit found limited evidence of strain suggesting a syngenetic rather than tectonic origin. Stratigraphic relationships defined by the B.M.R. (D'Addario and Stirzaker 1984) indicate a Middle Proterozoic age for the Buckshee Breccia.

EL 5870

RELINQUISHED BLOCKS

RETAINED BLOCKS

12540
12538
12539
12541
12574
12573
12572
12571
12561
12595
12591
12592
12594
12593
12621
12542
12543
12570
12565
12552

718000E
719000E
720000E
721000E
722000E
723000E

8545000N
8544000N
8543000N
8542000N

Figure 3

Northern Gold NL

EL 5870
RELINQUISHED BLOCKS
ROCK CHIP
SAMPLE LOCATIONS

SCALE	DATE	SHEET
1: 15000	24/10/90	1 of 1
	REF No.	
	Plotted with MICROMINE	

A body of highly weathered, ferruginous, fine to medium grained diorite or dolerite, commonly exhibiting a weak 060-080° striking sub-vertical foliation of kaolinized feldspars, crops out through the Buckshee Breccia near the southern boundary of the western tenement block. This unit bears a strong resemblance to the Zamu Dolerite to which it has thus been assigned. Breccia/dolerite contacts indicate that the Buckshee Breccia overlies the dolerite stratigraphically, and thus postdates it.

East-west striking steeply-dipping high strain zones (S2) are common throughout all units in the tenement. These are present as areas of intense cleavage development or as shear zones. Within the Buckshee Breccia such zones display a mylonitic fabric which deforms breccia fragments over a 30 cm - 1 meter width. The weak foliation observed in the dolerite is probably related to these zones.

3.2 Stream Sediment Sampling

A total of 9 stream sediment samples were taken from the relinquished portion of EL 5870. About 2 kg of sediment sieved to -6mm was collected from the best available trapsites in smaller creeks draining directly from areas of outcrop. The samples were submitted to Australian Assay Labs in Pine Creek for a bulk cyanide leach for Au and ICP analysis for Cu, Pb, Zn, As and Ag. Sample locations and results are shown in Figure 4 and given in Appendix 2.

3.3 Soil Sampling

Where stream sediment sampling was not possible in flat-lying areas of lateritic and Quaternary cover of the western block of the tenement, a soil sample grid was constructed. Three E-W lines of 1100 metres, 1500 metres and 1500 metres in length spaced at 500 metres were sampled. Samples were taken every 50 metres and composited to 100 metres for a total of 41 samples (12757-12797). Approximately 2 kg of soil sieved to -6mm was collected for each composite sample. Samples were submitted to AAL Pine

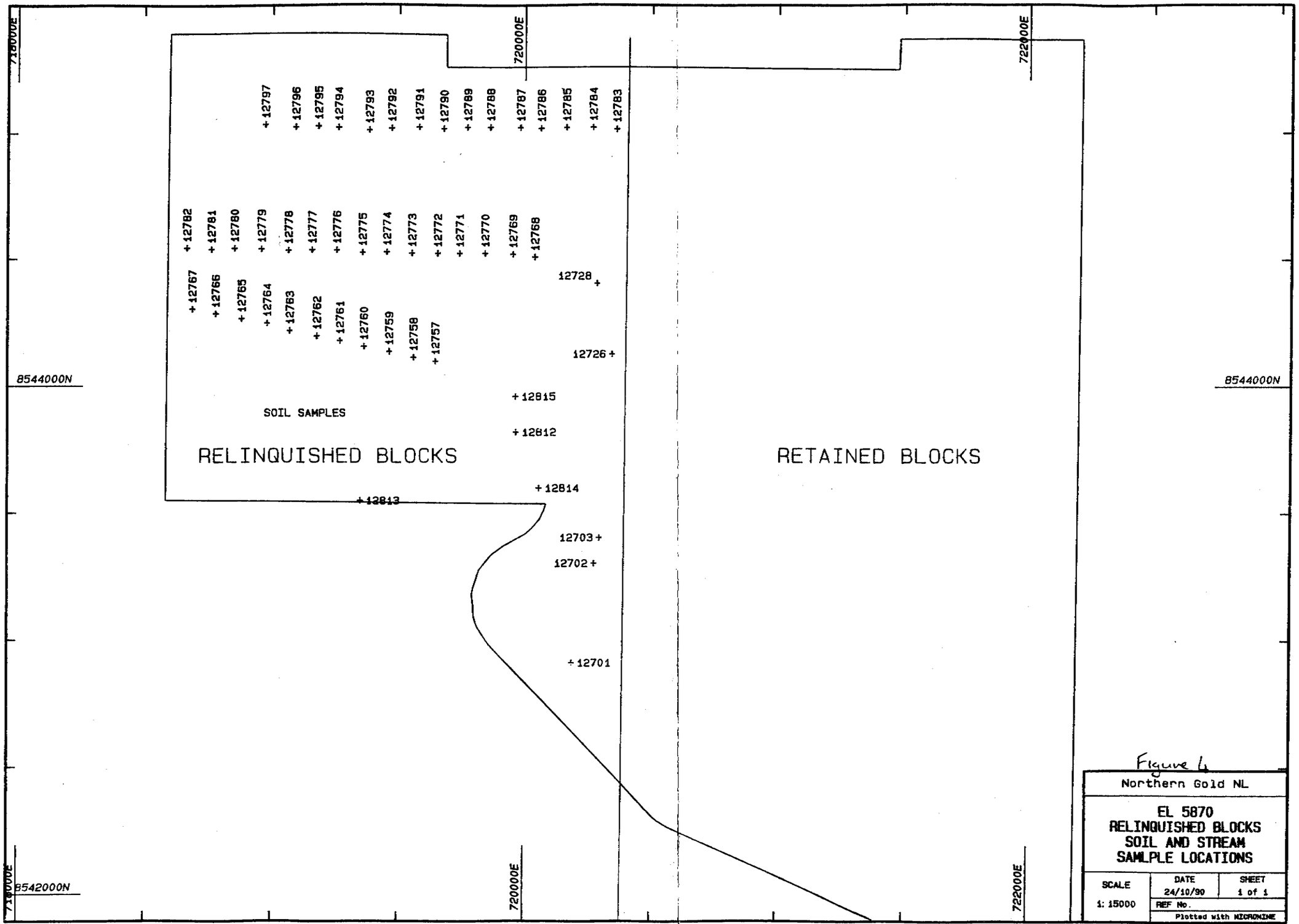


Figure 4

Northern Gold NL

EL 5870
RELINQUISHED BLOCKS
SOIL AND STREAM
SAMLPLE LOCATIONS

SCALE	DATE	SHEET
1: 15000	24/10/90	1 of 1
	REF No.	
	Plotted with MICROMINE	

Creek for BLEG Au analysis and ICP1 base metal analysis. Sample locations and results are presented in Appendix 3 and Figure 4.

4. EXPLORATION RESULTS

4.1 Geological Reconnaissance

Rock chip samples taken in the Buckshee Breccia returned values of up to 0.18 g/t Au (sample 12542). Similar values obtained from laterite to the north (0.26 g/t Au from sample 12539) and a 400 meter long soil sample anomaly of up to 35 ppb (sample 12760) obtained over laterite indicate these younger iron-rich units as potential hosts to low grade gold resources.

4.2 Stream Sediment Sampling

No significant anomalies were defined by the stream sediment sampling in the relinquished blocks.

4.3 Soil Sampling

A 400 meter long soil sample anomaly of up to 35 ppb (sample 12760) was obtained over laterite in the west of the license. A single 30 ppb Au value obtained in the northern line of sampling may have a lateritic source.

5 CONCLUSIONS

Rock chip sampling and soil sampling identified the Buckshee Breccia and Cainozoic laterite as potential sources for low grade gold resources.

6. REFERENCES

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APPENDIX 1

ROCK CHIP SAMPLE DESCRIPTIONS AND ASSAY RESULTS

12538	Laterite
12539	Laterite
12540	Laterite
12541	Laterite
12542	Qtz hematite breccia
12543	Qtz hematite breccia
12552	Sheared silt+qtz
12561	Hematitic qtz vein
12565	Silt+hem qtz veinlts
12570	Qtz hematite breccia
12571	Qtz hematite breccia
12572	Qtz hematite breccia
12573	Sheared hem breccia
12574	Qtz hematite breccia
12591	Dolerite, haematitic
12592	Qtz hematite breccia
12593	Qtz hematite breccia
12594	Dolerite+goss vnlts
12595	Dolerite
12621	Qtz hematite breccia

L = below detection
Au in ppb, All others in ppm

Sample	Au	Cu	Pb	Zn	As	Ag
12538	L	29	38	7	57	1
12539	0.26	30	38	10	126	1
12540	L	36	46	7	84	1
12541	L	24	36	8	74	1
12542	0.18	L	L	13	22	1
12543	L	10	12	8	28	L
12552	L					
12561	L					
12565	L					
12570	L					
12571	L					
12572	L					
12573	L					
12574	L					
12591	L					
12592	L					
12593	L					
12595	L					

APPENDIX 2

SOIL AND STREAM SEDIMENT ASSAY RESULTS

ANALYSIS REPORT

Assay Laboratories Group

PINE CREEK: Lot 174 Ward St, Pine Creek 0847
PO Box 41, Pine Creek 0847
Ph (089)761 262 Fax 761 310

BATCH 20R STREAMS (B5870)

NORTHERN GOLD NL

REPORT : PC 025930 6 Page(s) Date : 24/11/90

Client reference : 909

Cost code :

Copies to : RICHARD MONTI
MICHELLE STOKES

Samples : Type Preparation code
Received : 23/10/90

Analysis	Code	Quality Parameter	Detection	Units
Cu	ICP/D100	Prec.±10 %	2	ppm
Pb	ICP/D100	Prec.±10 %	5	ppm
Zn	ICP/D100	Prec.±10 %	2	ppm
Ar	ICP/D100	Prec.±10 %	2	ppm
Ag	ICP/D100	Prec.±10 %	1	ppm

ANALYSIS REPORT

Lab ssay atories roup

REPORT : PC 025930

Sample	Cu	Pb	Zn	As	Ag
12701	14	11	5	16	<1
12702	19	8	4	5	<1
12703	19	11	4	23	<1
12704	20	7	3	22	<1
12705	17	9	3	30	<1
12706	23	8	4	57	<1
12707	20	9	5	20	<1
12708	28	<5	4	8	<1
12709	26	7	6	20	<1
12710	27	7	3	46	<1
12711	21	14	5	75	<1
12712	26	12	5	8	<1
12713	9	7	4	31	<1
12714	7	9	4	16	<1
12715	9	14	5	22	<1
12716	7	7	3	23	<1
12717	10	6	4	8	<1
12718	11	13	4	33	<1
12719	11	13	4	54	<1
12720	11	10	3	19	<1
12721	26	14	5	6	<1
12722	31	14	5	50	<1
12723	32	8	4	11	<1
12724	43	14	7	28	<1
12725	23	5	4	33	<1

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Assay Laboratories Group

REPORT : PC 025930

Sample	Cu	Pb	Zn	As	Ag
12726	46	7	15	23	<1
12727	34	25	20	88	<1
12728	23	18	9	68	<1
12729	70	13	6	132	<1
12730	18	<5	3	38	<1
12731	15	6	3	7	<1
12732	20	11	10	104	<1
12733	20	17	11	298	<1
12734	64	26	10	475	<1
12735	31	20	7	363	<1
12736	15	6	5	10	<1
12737	62	25	12	282	<1
12738	38	16	7	88	<1
12739	52	25	8	394	<1
12740	23	10	6	35	<1
12741	53	31	12	276	<1
12742	10	10	3	18	<1
12743	15	10	4	9	<1
12744	20	11	4	38	<1
12745	10	15	6	20	<1
12746	11	21	18	7	<1
12747	30	15	8	18	<1
12748	10	<5	3	3	<1
12749	9	<5	2	6	<1
12750	13	13	6	12	<1

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Australian Assay Laboratories Group

REPORT : PC 025930

Sample	Cu	Pb	Zn	As	Ag
12751	14	9	7	17	<1
12752	7	<5	<2	10	<1
12753	22	12	3	68	<1
12754	8	12	4	5	<1
12755	9	8	8	4	<1
12756	16	11	7	14	<1
12757	7	15	8	21	<1
12758	17	14	14	3	<1
12759	46	21	12	9	<1
12760	16	31	8	10	<1
12761	13	17	9	10	<1
12762	15	18	16	12	<1
12763	7	11	4	3	<1
12764	18	15	8	3	<1
12765	21	19	9	3	<1
12766	16	15	7	4	<1
12767	5	<5	2	<2	<1
12768	8	11	5	22	<1
12769	31	10	6	5	<1
12770	30	16	7	8	<1
12771	35	18	9	8	<1
12772	40	27	8	10	<1
12773	34	21	9	8	<1
12774	34	17	7	7	<1
12775	36	19	8	10	<1

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Assay Laboratories Group

REPORT : PC 025930

Sample	Cu	Pb	Zn	As	Ag
12776	16	9	4	6	<1
12777	31	6	7	3	<1
12778	25	14	9	2	<1
12779	23	9	8	<2	<1
12780	25	9	5	2	<1
12781	4	<5	3	6	<1
12782	3	<5	<2	4	<1
12783	24	24	11	6	<1
12784	20	19	9	8	<1
12785	8	10	4	7	<1
12786	21	24	9	9	<1
12787	24	21	8	18	<1
12788	14	10	5	14	<1
12789	46	15	7	14	<1
12790	37	16	5	<2	<1
12791	49	11	3	3	<1
12792	28	12	3	3	<1
12793	48	22	8	13	<1
12794	35	13	6	11	<1
12795	42	12	4	35	<1
12796	46	25	11	9	<1
12797	26	17	5	15	<1
12798	46	11	<2	55	<1
12799	38	14	3	25	<1
12800	38	21	7	19	<1

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Assay Laboratories Group

REPORT : PC 025930

Sample	Cu	Pb	Zn	As	Ag
12801	42	21	7	19	<1
12802	51	20	2	44	<1
12803	44	16	3	41	<1
12804	38	18	6	26	<1
7805	23	19	16	63	<1
12806	51	22	10	34	<1
12807	16	11	11	16	<1
12808	23	6	<2	24	<1
12809	35	12	<2	48	<1
12810	24	9	<2	29	<1
12811	15	8	5	28	<1
12812	13	10	3	14	<1
12813	16	12	<2	16	<1
12814	15	13	2	12	<1
12815	18	11	<2	19	<1
12816	43	7	<2	26	<1
12817	79	16	4	58	<1
12818	66	11	8	40	<1
12819	59	19	7	94	<1
12820	43	18	7	56	<1
12821	48	45	5	113	<1
12822	54	19	13	89	<1
12823	37	19	17	276	<1
12824	84	16	5	49	<1
12825	80	16	8	51	<1

Data in ppm unless otherwise stated.

TECTONIC UNIT: Pine Creek Geosyncline

TECTONIC SUB-UNIT:

STRATIGRAPHY: Buckshee Breccia; Zamu Dolerite

MAJOR TERMS: ✓ METALLIFEROUS MINERALS

NOMETALLIFEROUS MINERALS

TARGET GROUPS:

TIN/TANTALUM/TUNGSTEN	(BASE METAL)	INDUSTRIAL MINERALS	HEAVY MINERALS
DIAMONDS	RARE EARTH MINERALS	PLATINUM GROUP METALS	(GOLD)
SILVER	DIMENSION STONES	EVAPORITES	URANIUM
GEMSTONES			

ANALYSIS: Au; Cu; Pb; Zn; As; Ag

MINERLISATION:

AMF MINOR TERMS:

DRILLING	GEOPHYSICS	✓ GEOCHEMISTRY	GENERAL
	AERIAL SURVEYS	SAMPLING	
DIAMOND	MAGNETIC	✓ STREAM SEDIMENT (9)	✓ GEOLOGICAL MAPPING
PERCUSSION	RADIOACTIVITY	✓ SOIL (91)	PHOTOGEOLOGY
AUGER	GROUND	✓ ROCK CHIP (20)	METHODS
ROTARY	EM SURVEY METHOD	TRENCHING	REGIONAL GEOLOGY
VACUUM	IP SURVEY METHOD	BULK	STRATIGRAPHY
	RESISTIVITY SURVEY	GEOCHEMICAL ANOMALY	✓ RECONNIASSANCE
	MAGNETIC SURVEY		STRUCTURE
	GRAVITY SURVEY		METAMORPHISM
	GEOPHYSICAL ANOMALY		PETROLOGY
			LITHOLOGY

NORTHERN TERRITORY GEOLOGICAL SURVEY GEOSYSTEM DATA SHEET

REPORT NO: CR 92/025 **CLASSIFICATION** Open

REPORT TITLE: Partial Relinquishment Report EL 5870 to 6 November 1991

AUTHOR(S): Stokes M

PUBLISHER Northern Gold NL

PLACE OF PUB'N Adelaide River NT **DATE OF PUB'N** 1991 November

REPORT TYPE:.....**UNPUBLISHED**.....**PAGES OF TEXT** 6

PLANS: 2 appendices; 4 figures; 8 references;

CORE: **LS**

CUTTINGS: **LS**

DRILL CORE?

LICENCE NO(S): EL 5870

PROJECT YEAR(S):

LICENCEE(S): Northern Gold NL

JOINT VENTURE(S):

OPERATOR(S):

1: 1 000 000: SD 52 Darwin

1: 250 000: SD 52-8 Pine Creek

1: 100 000: 5171 Batchelor

PROSPECT NAME(S):

TEXT LOCATION: Library Darwin

MICROFICHED?: Yes

INDEXED BY/DATE: DK 23/1/92

CHECKED BY /DATE: MD 3/2/92

ENTERED INTO DATABASE: OPEN FILE 24 JAN 1992

GENERAL TERMS: BLEG;

NOTES: Appendix 1: Rock chip descriptions and assay results.
Appendix 2: Stream sediment and soil sample assay results.

ABSTRACT: Rock chip sampling of the Buckshee Breccia returned values to 0.18g/t Au with lateritic material in the north returning a max. value of 0.26g/t Au. A 400m long soil anomaly over laterite in the west of the licence was also outlined (up to 30 ppb Au).