

**ACACIA RESOURCES LIMITED**

**ANNUAL REPORT FOR**  
**ELIZABETH GROUP**

**MCN'S 506, 507, 734, 735 & 738 and**  
**MLN'S 135, 779, 780, 822 & 856**

**FOR THE YEAR ENDING 31 DECEMBER 1998**

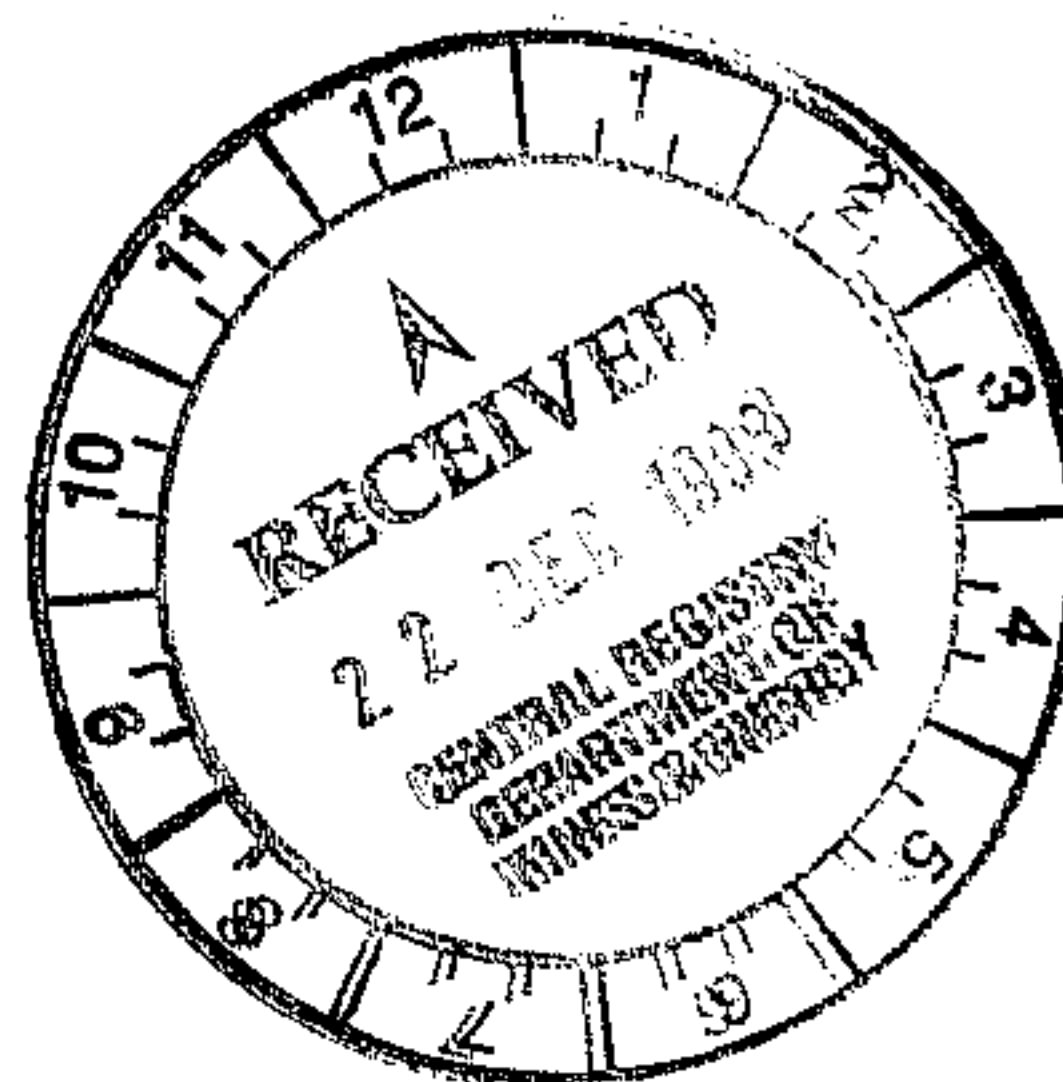
CR98/822

Author:	J. Ham	Report No:	08.10014
Date:	December 1998	Copy:	1

1:250 000	Pine Creek	SD52-8
1:100 000	Pine Creek	5270

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### SUMMARY

Mineral Claims N506, N507, N734, N735, N738 and Mineral Leases N135, N779, N780, N822, N856, known as the Elizabeth Group, are currently being explored by Acacia Resources Limited in conjunction with SEL 7984 (Elizabeth). Acacia (formally Billiton Australia) previously operated these tenements under an option agreement with R M Biddlecombe until 26 February 1996, when Acacia exercised the right to purchase the licences, obtaining full ownership.

These tenements include the historic Elizabeth Gold workings which trend NNW and cover an area of approximately 2km in length and 400m in width. MLN 856 situated approximately 1km west north west of MCN 734 is included with the Elizabeth tenements.

Exploration activities conducted by Acacia during this period include:

- surface geochemical sampling survey
- regional geophysical data compilation

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## **1. INTRODUCTION**

The Elizabeth Group of leases lies 7km north west of the Union Reefs Gold Mine and are mostly within SEL 7984, Elizabeth. The northern end of the group contains the historic Elizabeth Gold workings, which have a recorded production of 107 kg Au. This report details the exploration completed for the period ending 31<sup>st</sup> December 1998, which has included geophysical data compilation and reconnaissance.

## **2. TENEMENT STATUS**

Mineral Claims N506, N507, N734, N735, N738 and Mineral Leases N135, N779, N780, N822, N856, known as the Elizabeth Group, were previously operated by Acacia Resources (formerly known as Billiton Australia) under an option agreement with R M Biddlecombe until 26 February 1996, when Acacia exercised the right to purchase the licences, obtaining full ownership.

An application for a renewal of Mineral Lease N856 was submitted 30 September 1998. A reply is awaited for this renewal, and also for MLN822 (application submitted October 1997).

## **3. LOCATION AND ACCESS**

The Elizabeth tenements are approximately 19km north of Pine Creek and 7km north west of the Union Reefs Gold Mine in the Northern Territory (Figure 1). Access is via the Springhill and Mt Wells Roads, turning east off the Stuart Highway 22km north of Pine Creek. The historic Elizabeth workings lie 600m west of the Mt Wells road at the McKinlay River crossing, and can be accessed by a narrow, fair weather 4WD track.

## **4. REGIONAL GEOLOGY**

The Elizabeth tenements are located in the central part of the Pine Creek Geosyncline (Figure 2). The geosyncline contains Early Proterozoic metasedimentary rocks overlying a gneissic and granitic Archaean basement. The metasediments represent a preserved basinal sequence up to 14km thick (Needham et al., 1980), which were tightly folded and metamorphosed to greenschist, and in some places to amphibolite facies, between 1890 to 1870 Ma (Ferguson, 1980).

The geosynclinal sequence has been intruded by transitional igneous rocks including pre-deformational dolerite lopoliths and dykes, and syn- to post-deformational granites. Weakly deformed Middle and Late Proterozoic, Cambro-Ordovician and Mesozoic platform cover unconformably overlie the Pine Creek Geosyncline metasediments.

The Elizabeth tenements lie over a narrow corridor of metasediments, comprising Burrell Creek and Mt Bonnie Formations (Stuart-Smith et. al., 1987), between two lobes of the Cullen Batholith. This corridor contains both the Union Reefs (Au) and Pine Creek (Au) ore bodies as well as numerous historic gold and base metal workings, including Springhill (Au), Flora Belle (Ag, Pb), McKinlay (Ag, Pb), Esmeralda (Au) and Elizabeth (Au).



## **5. LOCAL GEOLOGY**

The interbedded turbiditic greywackes and shales of the Elizabeth tenements have been assigned to Early Proterozoic Burrell Creek Formation (Stuart-Smith *et al*, 1987). These rocks have been tightly folded about NNW trending axial traces to produce sub-vertical to steeply dipping bedding across the area. Peak greenschist facies metamorphism was coincident with this folding event. A number of fold closures have been identified including a parasitic antiform-synform pair immediately east of the main line of workings of the Elizabeth Mine. The overall average fold plunge is toward the south with occurrences of variable fold plunge interpreted as fold crests. The prominent vein set dips E/ENE and are interpreted to be oblique veins (Hewson).

The historic workings at Elizabeth are centred on a narrow (1 - 2m) shear hosted vein system dipping steeply east and interpreted as part of the broader Pine Creek Shear Zone. Mineralisation intersected in drilling to date is associated with quartz veins occurring dominantly within greywacke sediments or along shale-greywacke contacts.

## **6. PREVIOUS WORK**

In the period 1875-1897 the Elizabeth workings produced in the order of 107 kg of gold, averaging about one ounce to the tonne (Stuart-Smith *et al*, 1993). The workings are concentrated north of the McKinlay River, where the upper 30m of a gold-bearing shear/vein system has been largely stoped out. Continuation of mineralisation below this level is largely untested and unknown.

One diamond drill hole was completed by the NTDME in August 1979, with poor results. In 1988, Pine Creek Goldfields carried out a program of mapping and rock chip sampling within MLN 822. Seven (7) RC holes for 464m were then drilled, with best intersections of 1m @ 4g/t Au in EL88/3 and 1m @ 4.60 g/t Au in EL88/6.

Work carried out by Acacia (formally Billiton) since 1993, wholly or partly on the MCNs and MLNs, includes:

### **Year Ending December 1993 - Report 08.6669**

- Mapping - identified patchy Au mineralisation
- Rock chips - identified patchy Au mineralisation
- Collected 338 spot soil samples - best result of 4650ppb Au

### **Year Ending December 1994 - Report 08.7519**

- Mapping - mineralisation located in steeply dipping western limb of south plunging anticline
- Collected 7 spot soil samples - best result of 24ppb Au
- Drilled 290m of RC (5 holes) - best result 3m @ 3.41 g/t Au (ELP024)

### **Year Ending December 1995 - Report 08.7766**

- Reconnaissance of old workings
- Collection of one rock chip sample
- Compilation and interpretation of previous work

Year Ending December 1996 - Report 08.8743

- Drilled 1359m of RC (16 holes)
- Acquired 1: 25, 000 scale aerial photographs
- Digital elevation modelling from vectorised 1:500, 000 topographic maps

Year Ending December 1997 - Report 08.8972

- Drilled 699m of RC (7 holes)
- Rockchip/niche sampling of discrete veins in a vein swarm and a shear
- Structural mapping
- Detailed aeromagnetic and radiometric survey
- Surveying of 1997 and previous years RC drill holes
- Extension of the regional baseline and surveying of the local Elizabeth grid.

## **7. WORK COMPLETED PERIOD ENDING 31 DECEMBER 1998**

### **7.1. Geochemical Survey**

Regolith geochemistry consultant Louisa Lawrance visited the Elizabeth group leases, to assess the regolith profile and soil sampling techniques. The area was considered representative of Acacia's Pine Creek tenements. The results of the survey are summarised below:

- The regolith profile in the Pine Creek area is typically stripped to lower saprolite or saprock.
- Thicker lower saprolite development (or preservation) occurs in areas of low or level topography
- In areas with palaeochannel cover it is best to sample the interface between the cover and the residual profile. It was suggested samples in areas of cover include a 1-2m composite sample of transported material (upwards from the interface) and a 2-3m composite sample of residual material (downwards from the interface).
- In areas of no previous sampling, it was suggested that regional programs included 10m into 50m composites to maximise the identification of low level anomalism, whilst reducing sample costs.

### **7.2. Regional Geophysical Data Compilation**

Hungerford Geophysical Consultants merged and levelled the multiple aeromagnetic data sets that Acacia has acquired to allow easier comparison of the images across the boundaries of the different surveys. The following processing was applied to merge the detailed aeromagnetic and multiclient datasets:

- Regrid all surveys to 15m grid cell size.
- Add 47210nT to the UTS grid (if required)
- Boolean join of the multiclient and UTS grids
- Smooth the merged grid with a 3 x Hanning filter

Revised reduced to the pole and first vertical derivative plots were produced and a revised regional geological interpretation was produced utilising recently acquired regional gravity data, multiple detailed and multiclient aeromagnetic data sets, and IP surveys acquired between 1992 and 1997.

The interpretation of the detailed aeromagnetic image identified a target area of structural deformation, which coincides with Elizabeth workings.

## **8. ENVIRONMENT**

No ground disturbing activities were conducted within the reporting period. Existing tracks were used for access, and no track upgrades were completed.



**9. EXPENDITURE FOR THE PERIOD ENDING 31<sup>ST</sup> DECEMBER 1998**

Detailed below is the combined expenditure for the Elizabeth MLN's and MCN's:

Staffing	1 503
Support	3 849
Geophysics	70
Geology	1 818
Administration	1 086
<b><u>Total</u></b>	<b><u>\$8 326</u></b>

**10. PROPOSED PROGRAM FOR THE PERIOD ENDING 31<sup>ST</sup> DECEMBER 1999**

Work planned for the 1999 field season includes:

- Drill testing of the northern Elizabeth Mine workings.
- Compilation and revision of geological and structural maps using work conducted during 1998, with a view to updating the geological understanding of the Elizabeth area.

## **11. REFERENCES**

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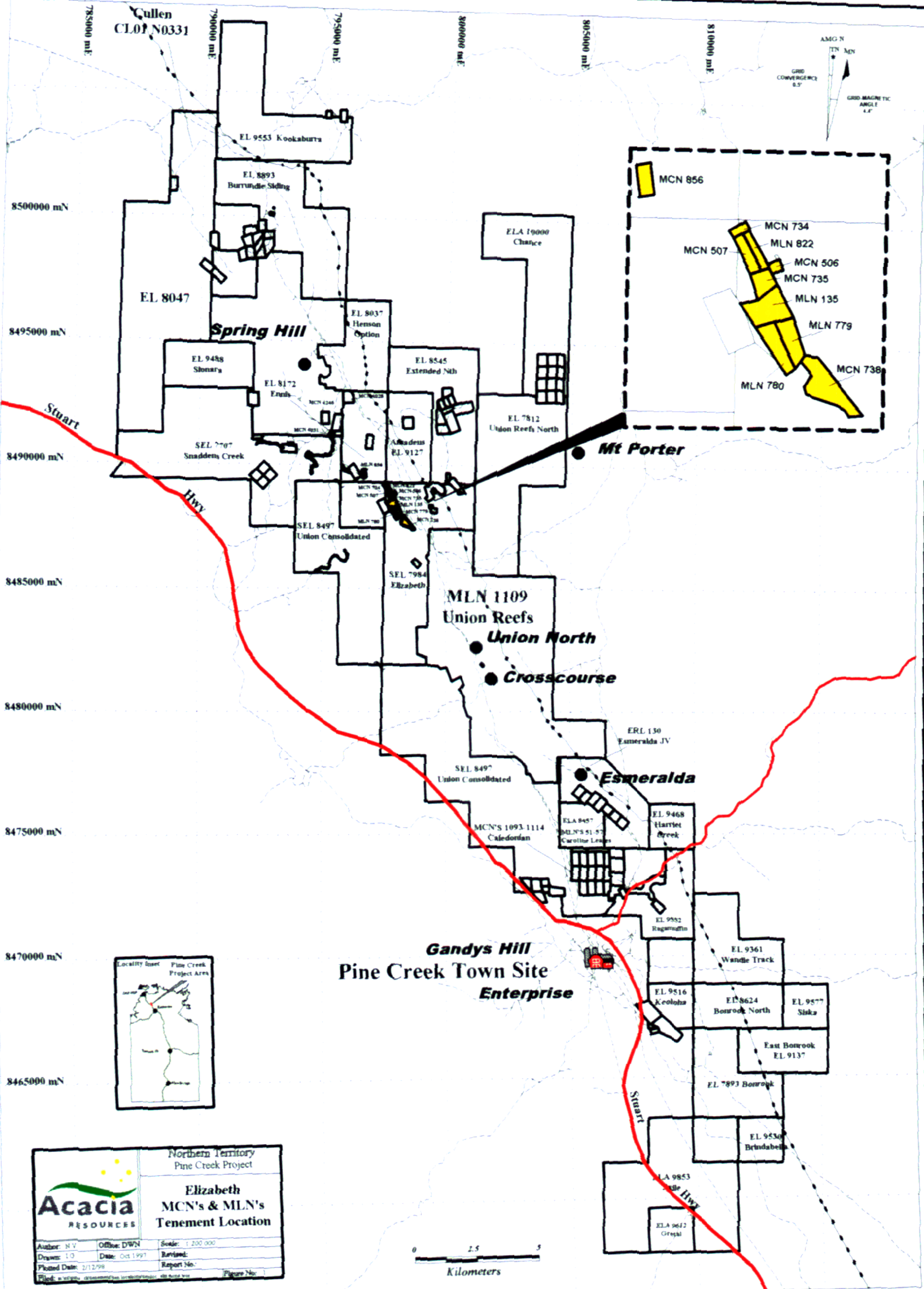
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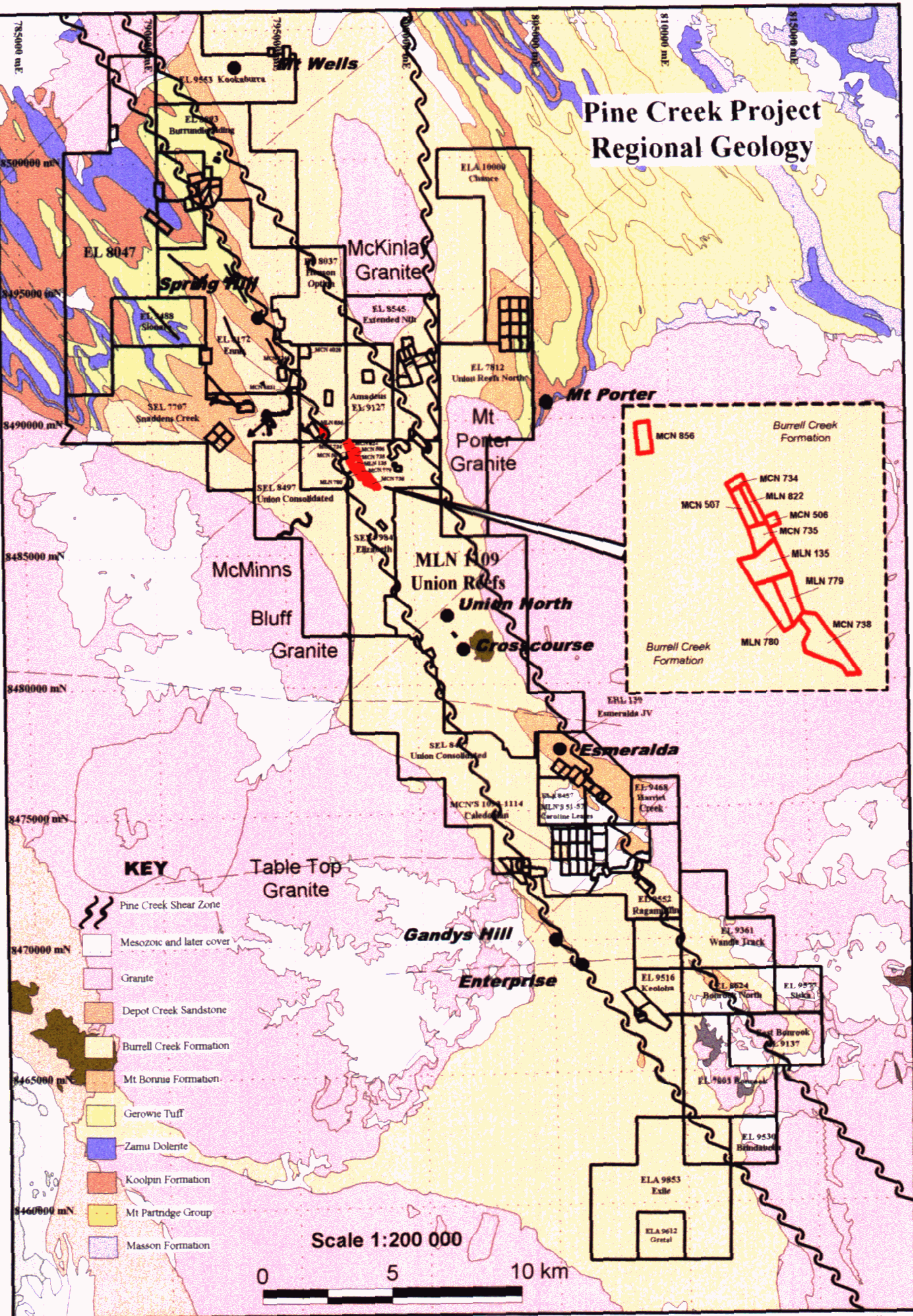
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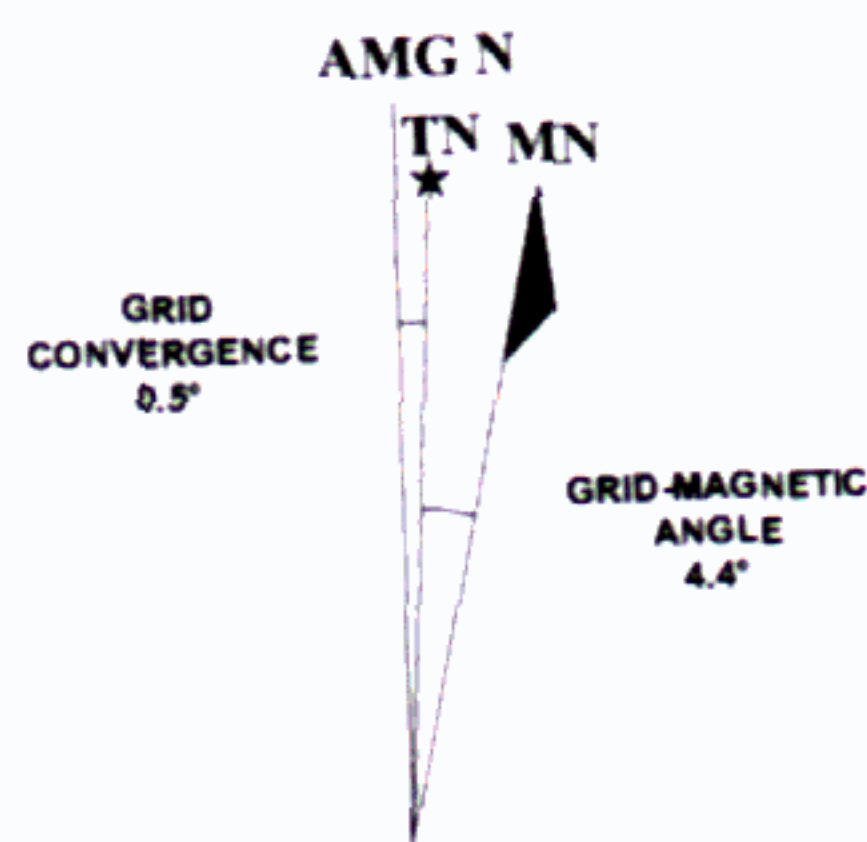
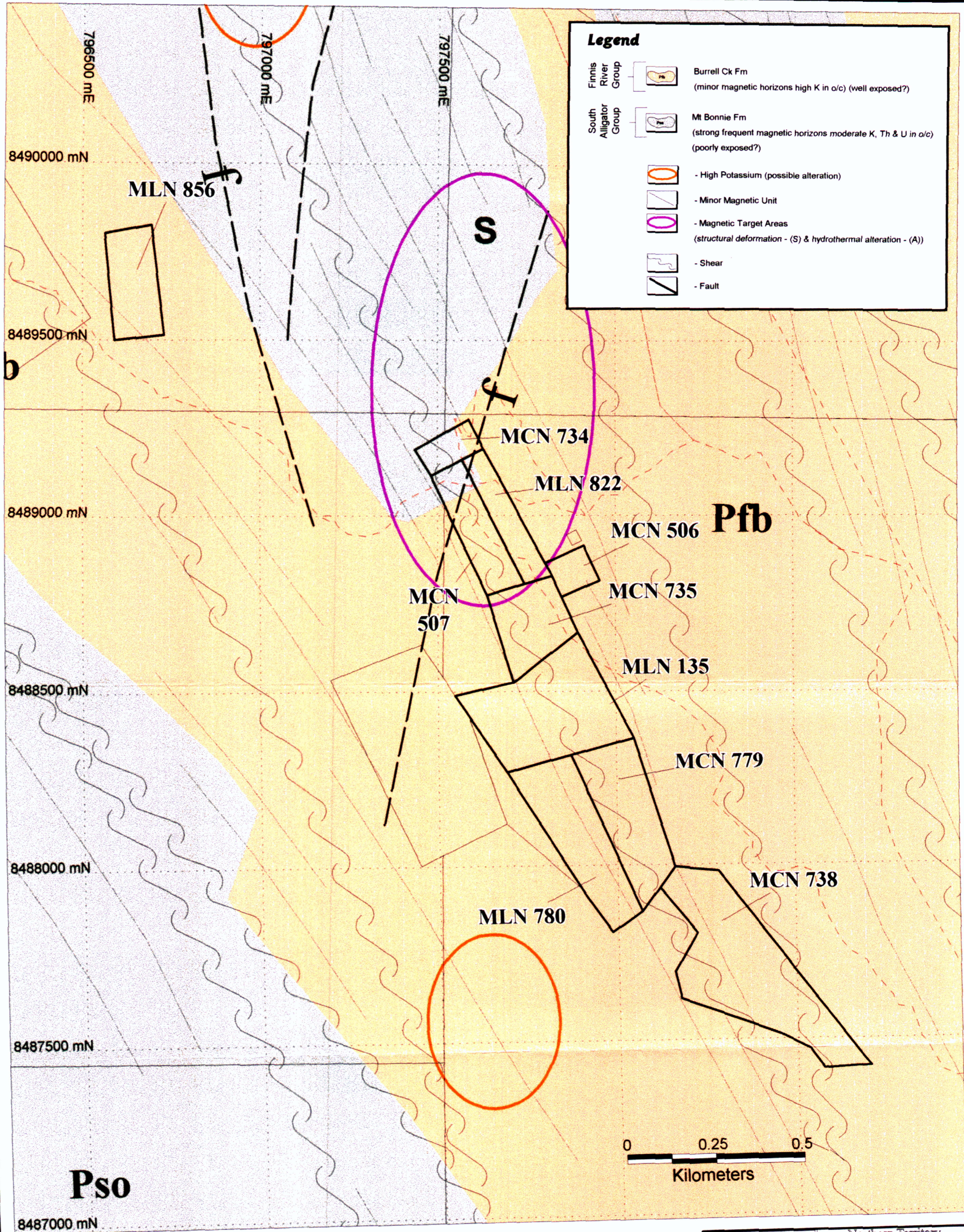




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**Figure 2**





		Northern Territory Pine Creek Project	
		Elizabeth MCN's & MLN's Interpreted Geology	
Author: N.H. / J.H.	Office: DWN	Scale: 1:10 000	
Drawn: A.L.H.	Date: 3/12/98	Revised:	
Plotted Date: 3/12/98	Report No.:		Figure No: 3
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# **APPENDIX 1**

## **Environmental Register**

## **TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER**

### **LAND STATUS RECORD**

**Project:** Pine Creek

**Tenement Name** Elizabeth Group

**Loc. Code:** UR07

**Tenement No's:** MCN's 506, 507, 734, 735 & 738  
MLN's 135, 779, 780, 822 & 856

**Registered Holder(s):** Acacia Resources Limited

<b><u>Tenement:</u></b>	<b><u>Date Granted:</u></b>	<b><u>Term:</u></b>	<b><u>Area:</u></b>
MCN 506	22/10/93	6yrs	1.44Ha
MCN 507	22/10/93	6yrs	4.12Ha
MCN 734	13/10/95	6yrs	3.62Ha
MCN 735	13/10/95	6yrs	2.57Ha
MCN 738	13/10/95	6yrs	15 Ha
MLN 135	19/10/81	20yrs	8.9 Ha
MLN 779	4/1/79	20yrs	8.09Ha
MLN 780	4/1/79	20yrs	8.09Ha
MLN 822	21/10/77	20yrs	8.09Ha
MLN 856	8/12/78	20yrs	4.5 Ha

**Bond/Security:** Nil

**JV Partners (if any):** Nil

**Land Classification:** (Crown, Private, Lease) Lease

**Land Holder/Occupier:** Gary Hamilton  
(Equest Pty Ltd)

**Station:** Mary River West

**Address:** 9 Pall Mall  
Currumbin, Qld, 4223

**Phone:** (075) 534 7408

**Contacted By:** Ken Hellsten

**Date:** March 1994

**Pastoral Notes:** (Stock, Cultivation, Access, Rainfall)

Open grazing land, little evidence of domestic livestock.  
Access via the Stuart Highway, the North Australia Railway Easement or any number of unmarked bush tracks.

**Environmental Notes:** (Flora/Fauna, Erosion, Bushfires, Flooding)

Open Tropical Savanna. Prone to flooding during the wet, access difficult during the wet.

**Groundwater:** (Bores/Wells/Dams, streams, drainage, test data)

The McKinlay River flows adjacent to the western boundary of the southern leases, and bisects the northern leases.

**Aboriginal Notes:** (Sacred Sites, Cultural)

There are no recorded sites in the group of leases. The leases are covered by AAPA certificate C97/058, which expires on 6<sup>th</sup> May, 1999.

**TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER**  
**LAND STATUS RECORD**  
**(continued)**

**Historic Relics:**                    (Mine Workings, Equipment, Homesteads etc.)

Numerous workings and mining relics are scattered throughout the licence area. Including the old Elizabeth Gold Mine and chinese heritage sites. Some archaeological sites exist, however are not registered to date.

**Previous Activity:**                    (Mining, Exploration, Forestry, etc.)

Licence previously covered by numerous exploration companies. Pine Creek Goldfields have constructed access roads and drill pads in the northern part of the Elizabeth Group of tenements and drilled 7 RC holes in 1988.

NTDME constructed a diamond hole in the northern part of the licence group in 1979.

**TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER**  
**PRE-EXISTING ENVIRONMENTAL DISTURBANCE RECORD**

**Tenement Name:** Elizabeth Group      **No(s):** MCN's 506, 507, 734, 735 & 738  
MLN's 135, 779, 780, 822 & 856

**Exploration Activity Area:** 64.42Ha

**Shafts/Pits/Dumps:** Numerous shafts and pits along Elizabeth Gold Mine line of lode.  
Shafts sunk and stoped to approximately 30m depth.

**Track/Access:** Tenement can be accessed from eastern margin by turning west off the Mount Wells Road at the McKinlay River crossing.

**Line Clearing:** Nil

**Costeaning:** None evident

**Drill Sites:** One diamond drill site constructed by NTDME (1979)  
Seven RC drill sites constructed by PCG (1988)

**Other:**

**Location Data:** 1:250 000 Pine Creek Sheet SD52-8  
1:100 000 Pine Creek Sheet 5270

Other Ref:

**Compiled by:** Jane Ham

**Date:** 16/12/98

**TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER**  
**ACACIA ENVIRONMENTAL IMPACT RECORD**

**Tenement Name:** Elizabeth Group

**No (s):** MCN's 506, 507, 734, 735 & 738  
MLN's 135, 779, 780, 822 & 856

**Report Ref No's:** 08.6669  
08.7766  
08.8743  
08.8972  
08.10016

**Exploration Activities:**

rock chip sampling, reverse circulation drilling, aeromagnetic and radiometric survey, grid surveying, regolith survey

**Grids & Traverses:**

Construction of grid baseline marked by five inch star pickets at 100m intervals.

**Soil Sampling:** Nil

**Costeans / Pits:** Nil

**Drilling:** 6 RC drill holes for 300m (1994)  
16 RC drill holes for 1359m (1996)  
7 RC drill holes for 699m (1997)

**Drill Traverses:**

**Drill Pads:** Drill pads constructed for the RC holes listed above.

**Ground Geophysics:** Nil

**Access Tracks:** Access tracks constructed prior to drilling programs in 1994, 1996 & 1997.  
Existing access tracks were upgraded in 1997, after the wet season.  
No track upgrades completed in 1998

**Camps:** Nil

**Other:** Nil

**Compiled by:** Jane Ham

**Date:** 2/12/98



**TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER**  
**ACACIA REHABILITATION RECORD**

**Tenement Name:** Elizabeth Group      **No(s):** MCN's 506, 507, 734, 735 & 738  
MLN's 135, 779, 780, 822 & 856

**Disturbance:** Soil Sampling, RC drilling      **Date:** 2/12/98

**Rehabilitation:** Soil sample sites backfilled.  
RC sample bags removed to site farm. Pads recontoured.  
Holes capped.

**Grids & Traverses:** 10km's of 100 x 50m cross line gridding marked with iron fence  
droppers  
Fence droppers left in place as future reference for exploration  
1 km of baseline gridding using 5" starpickets.  
Starpickets left for future gridding reference.

**Soil Sampling:** Backfilling of all sample sites completed at time of sampling.

**Costeans/Pits:** NA

**Drilling:** Drill holes capped on completion of drilling.  
Samples removed from drill site to designated sample farm

**Drill Traverses:**

**Drill Pads:** Drill pads cleared, drill collars buried as per NTDME regulations.  
Drill pads recontoured

**Ground Geophysics:**

**Access Tracks:** No rehabilitation completed

**Camps:**

**Other:**

**Inspected / Clearance:**      **Bond/Security released:**

**Compiled by:** Jane Ham      **Date:** 2/12/98

**Follow-up Inspection Report:**