



DIAMANTINA PROJECT

EPM 15787 PARTIAL RELINQUISHMENT REPORT  
FOR THE PERIOD TO 9<sup>TH</sup> OCTOBER 2009  
BEDOURIE SG 54-01  
QUEENSLAND

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AusQuest Limited

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## **SUMMARY**

This partial surrender report covers exploration activity within EPM 15787 for the period ended 9th October 2009. This tenement is located in the eastern part of the Diamantina Project, and contains the northern portion of the Machattie Prospect, a coincident magnetic and gravity target that spans both tenements EPM15782 and EPM15787.

The Diamantina Project is a greenfields exploration project located in far-western Queensland and is targeting Iron Oxide-Copper Gold (IOCG) mineralisation below the Eromanga Basin sediments.

The exploration model for the Diamantina Project is based on comparisons with the Olympic Dam (OD) deposit which is a world class IOCG deposit located in SA. The OD model requires the presence of a strong gravity response reflecting the presence of large quantities of hematite mineralisation (alteration), the probable presence of an underlying magnetic source (although the cause of the magnetic anomaly at OD is still unknown) and a nearby deep crustal-scale structural regime (Torrens Hinge Zone).

Exploration to date by AusQuest over the area surrendered has included a detailed helicopter gravity survey over a target outlined by the gravity data released by the Queensland Geological Survey, field reconnaissance to determine access and logistical parameters for ground based field exploration and desk-top studies including modeling of both the magnetic and gravity data. Field work has also included a native title site clearance survey.

The Machattie prospect straddles the tenement boundary between EPM15782 and EPM15787. The area being surrendered is within the northern portion of EPM 15787 and is considered of a lower priority and no further exploration is planned for that portion of the tenement.

## 1.0 INTRODUCTION

This is the first partial surrender report for **EPM 15787** which was granted on 10<sup>th</sup> October 2007. The Machattie Prospect straddles the tenement boundary between EPM15782 and EPM 15787 and is located at the eastern end of the Diamantina Project, to the east of the main Birdsville-Bedourie road immediately south of Lake Machattie. Access to this prospect is via Flood road which crosses the anomaly close to its centre point (see Figure 1). ). EPM 15787 was reduced by 23 blocks as of the 9<sup>th</sup> October 2009 and now comprises 22 sub-blocks.

Relinquished block details are summarised below:

<u>BLOCKS</u>	<u>SUB-BLOCKS</u>
741	A B C D E F G H J L Q V
742	A B C D F G H J O T Y

The current tenement status fro the Diamantina Project is provided in Table 1.

Table 1: Tenement Status

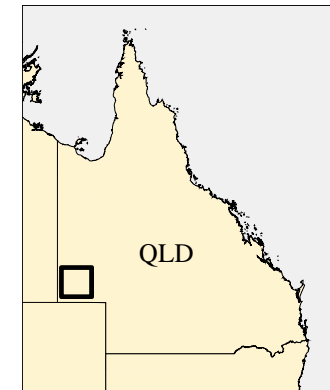
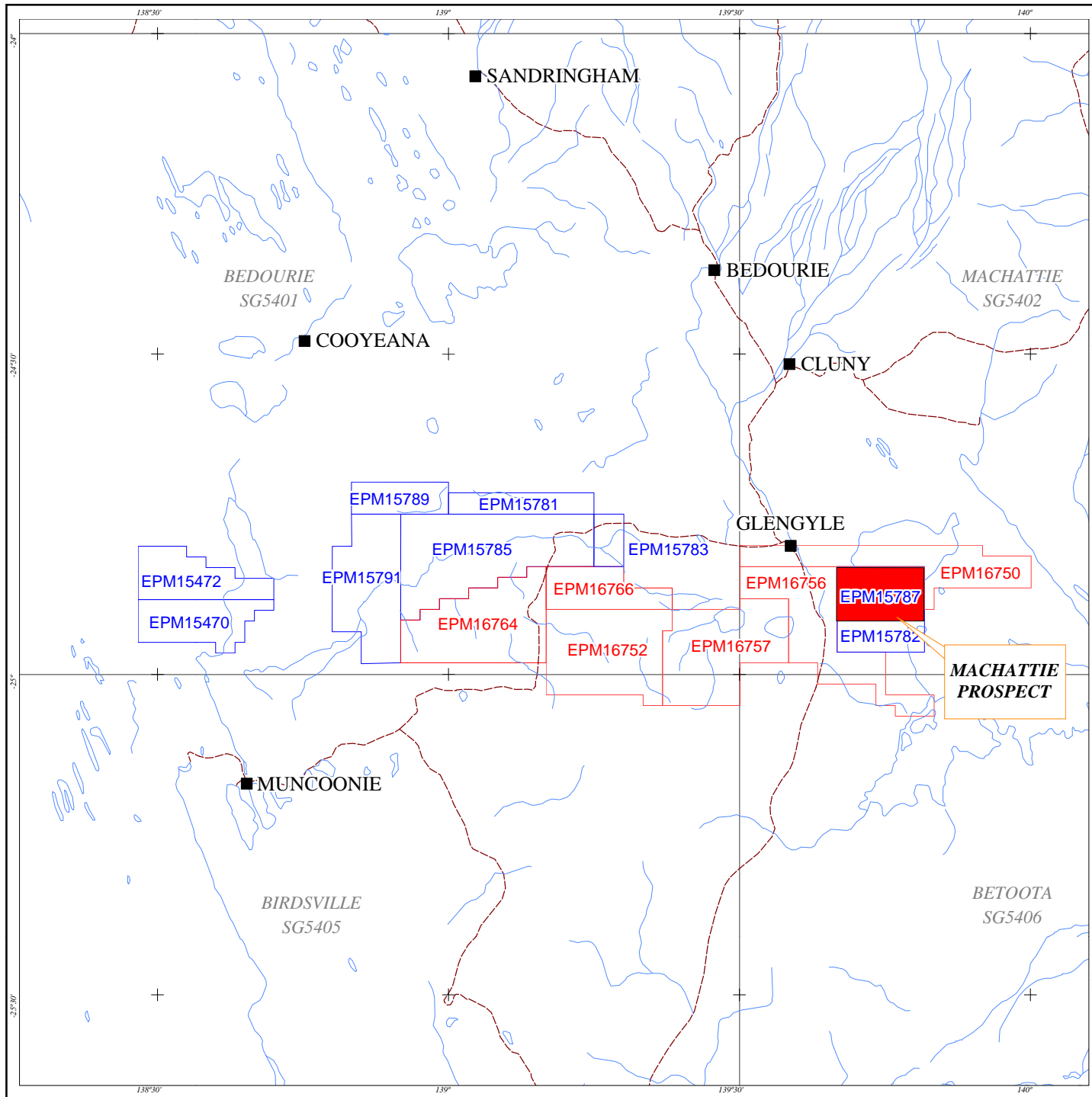
<b>Tenement</b>	<b>Sub-blocks</b>	<b>Grant Date</b>	<b>Expiry Date</b>	<b>Rent \$</b>	<b>Commitment \$</b>
EPM 15781	30	10/10/2007	9/10/2012	3,738.00	20,000
EPM 15782	27	10/10/2007	9/10/2012	3,364.20	20,000
EPM 15783	15	29/08/2007	28/08/2012	1,869.00	10,000
EPM 15785	136	10/10/2007	9/10/2012	16,945.60	40,000
<b>EPM 15787</b>	<b>45</b>	<b>10/10/2007</b>	<b>9/10/2012</b>	<b>5,607.00</b>	<b>20,000</b>
EPM 15789	30	10/10/2007	9/10/2012	3,738.00	20,000
EPM 15791	83	10/10/2007	9/10/2012	10,341.80	30,000
EPM 16750	79	Application			40,000
EPM 16752	100	Application			40,000
EPM 16756	90	Application			40,000
EPM 16757	100	Application			40,000
EPM 16764	99	Application			40,000
EPM 16766	42	Application			25,000
Total	846			45,603.60	385,000

A detailed in-fill helicopter gravity survey was completed over the Machattie Prospect to optimise the site for drilling in 2008.

Heritage and native title site clearance surveys for the drill site and access were completed in February 2008 with Mithaka Native Title claimant group.

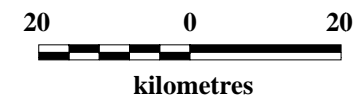
## 2.0 REGIONAL GEOLOGY

The Diamantina project is located near the southern edge of the Mt Isa Block where continental scale structures and/or plate boundaries have been inferred from interpretation of regional geophysical data sets (Figure 2).

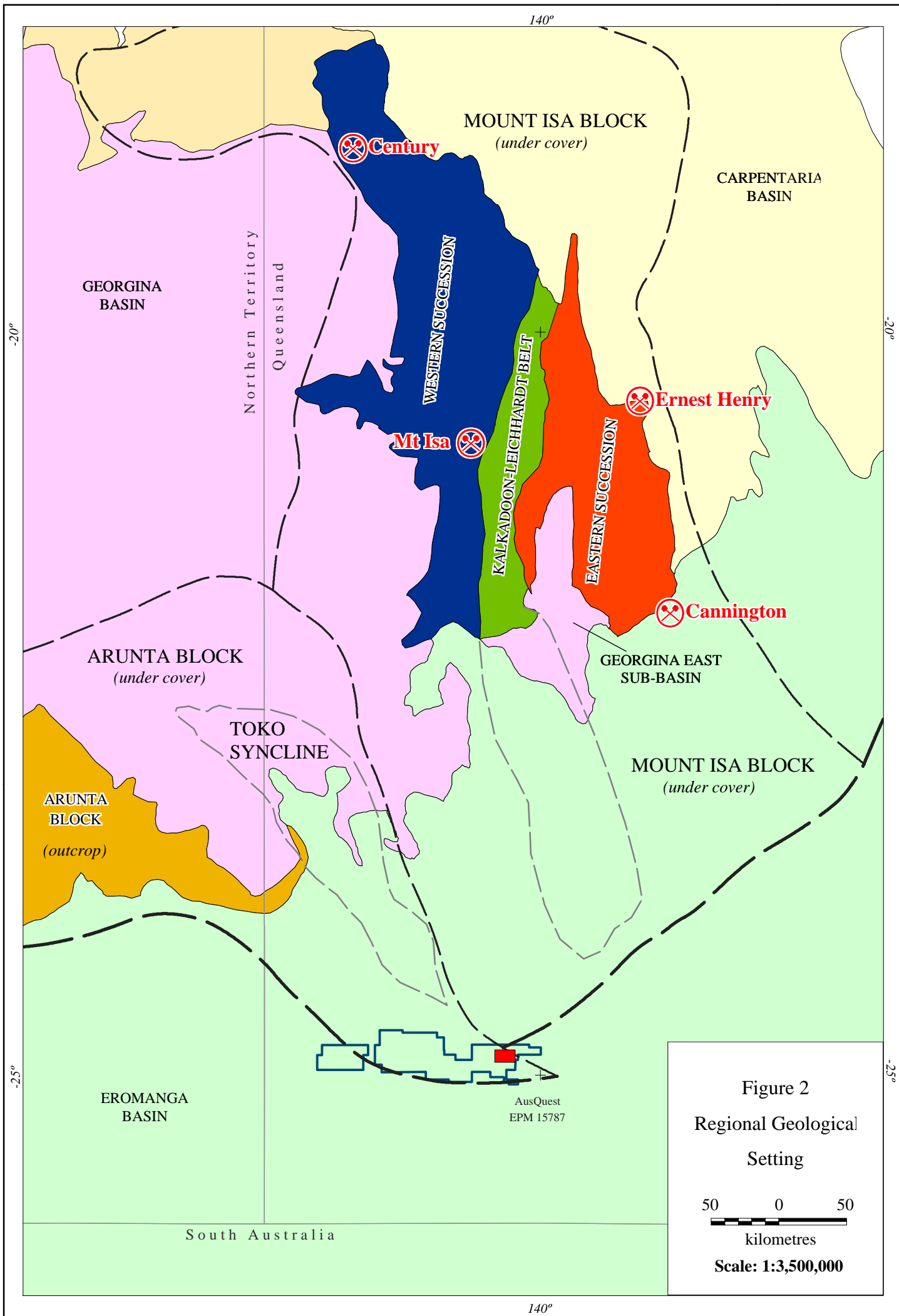


- Tenement Granted
- Tenement Application

Figure 1  
 Location Plan  
 Diamantina Project



**Scale: 1:1,000,000**



The Machattie Prospect is targeting an Iron Oxide-Copper Gold deposit similar in nature to those found at Olympic Dam in SA and Ernest Henry in Queensland.

Evidence from magnetic and gravity data released by the Queensland Geological Survey in 2007 suggests the presence of a large scale iron oxide body at depths of approximately 1000 metres, below the Eromanga Basin sediments, that could represent the alteration systems (hematitic breccias) associated with base and precious metal accumulations associated with large scale volcanic caldera structures.

The Proterozoic aged rocks which host the many base and precious metal deposits in the Mt Isa and Olympic Dam (OD) regions are believed to form the basement to the Cretaceous Eromanga Basin sediments which cover the entire project area and beyond.

Evidence from seismic data to the south show the Eromanga sediments gently shelving to the north with no obvious signs of major structural dislocations in the trace of the basal unconformity. This is in stark contrast to the regional gravity and magnetic data to the north which infer major north-east and west-north-west dislocations in the vicinity of the Diamantina targets suggesting these continental-scale structures are probably pre-Cretaceous, possibly Proterozoic in age. Major mineralising events in the Mt Isa and Olympic Dam regions are dated as mid-Proterozoic in age.

In SA the Torrens Hinge Line which is a continental-scale structure, is thought to be fundamental to the location of the Olympic Dam deposit. Exploration activity for new OD targets in SA has focused close to this major structure since OD's discovery in the late 1970s, highlighting its importance in the ore forming process.

A similar exploration rationale may be applicable in the Diamantina area where coincident gravity/magnetic targets thought to reflect major accumulations of iron oxide below the Eromanga Basin sediments, have recently been defined close to bounding structures of the Mt Isa and Arunta Blocks to the north.

### **3.0 PROJECT GEOLOGY**

The tenements are covered by sediments of the Eromanga Basin which are thought to overly older Proterozoic aged basement rocks of the Mt Isa Block and /or the Arunta Block which are the target of the proposed exploration programme.

The Machattie Prospect reflects a complex magnetic/gravity target at the eastern end of the Diamantina project area which is interpreted to reflect possible IOCG mineralisation below the Eromanga Basin sediments.

Aeromagnetic data acquired from the Queensland Geological Survey (400m line spacing) were reprocessed to provide basic maps for the area. Interpretation of this data included regional depth to basement estimates and regional modelling of selected traverses. The depth to basement in the target area was interpreted as approximately 900m.

Drilling completed at the Machattie Prospect in 2008 intersected a thick intrusion (more than 800m thick) of magnetite-pyroxenites below the Eromanga Basin cover sequence, in the core of the gravity anomaly.

## **4.0 REVIEW OF PREVIOUS WORK**

No previous mineral exploration has tested below the Eromanga Basin sediments in the area. Seismic data collected in the search for oil and gas in the Cooper Basin to the south, has been used to collaborate the inferred depth to basement rocks (thickness of Eromanga Basin Sediments) in the vicinity of the proposed drill sites.

Available water bore and stratigraphic drill-hole information have been collated to assist with the interpretation of target depths.

## **5.0 EXPLORATION ACTIVITY**

### 5.1 Gravity Survey

A detailed helicopter gravity survey was completed over the Machattie Prospect which was originally identified from Government gravity data, in November 2007. This was used to provide greater control for computer modelling and to help optimise the drill site location. Readings were taken on an approximately 500 metre x 500 metre spacing. A total of 8 new readings were recorded within the portion of EPM15787 that has been surrendered. A Gravity Logistics Report is presented in appendix 1, the data are presented in appendix 2, and station locations are shown in figure 3.

### 5.2 Geophysical Discussion

The coincident magnetic/gravity target at Machattie was interpreted to reflect possible IOCG mineralisation below the Eromanga Basin sediments.

Modelling of the depth to the base of the Eromanga sedimentary rocks suggested approximately 900 metres of cover which was shown to be a good estimation based on drilling results at the Machattie Prospect immediately to the south of the surrendered portion of the title.

Drilling completed at the Machattie Prospect in 2008 intersected a thick intrusion (more than 800m thick) of magnetite-pyroxenites below the Eromanga Basin cover sequence, in the core of the gravity/magnetic anomaly. The northern boundary of this intrusion occurs south of the surrendered portion of EPM15787.

## **6.0 ENVIRONMENTAL**

No ground disturbance exploration was completed over the relinquished portion of tenement EPM 15787. Exploration included desktop studies, the compilation of regional geophysical data sets and an airborne helicopter survey.



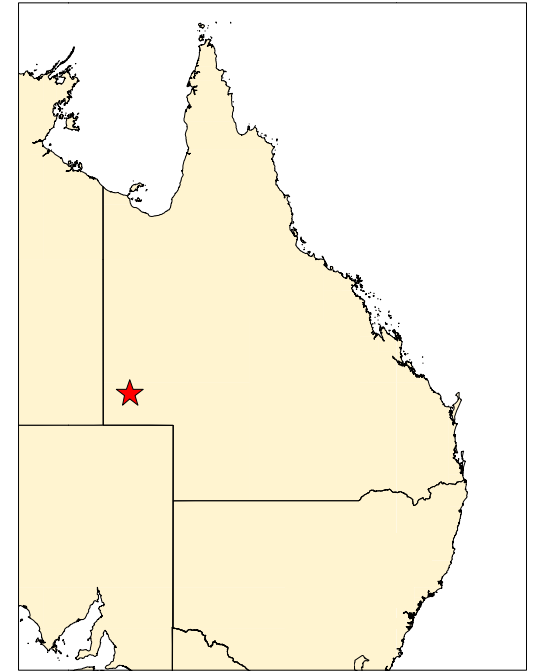
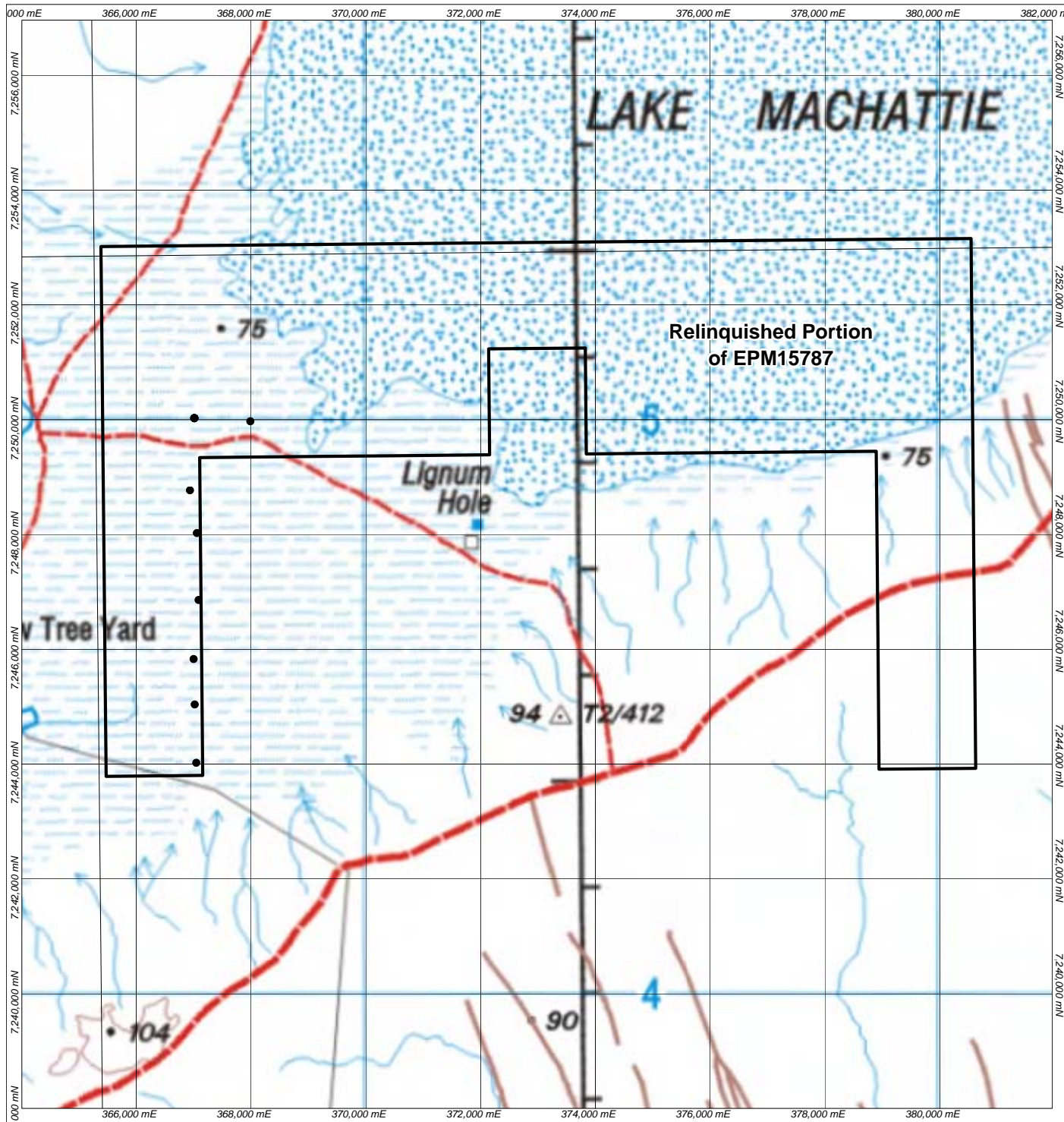


Figure 3

Tenement EPM 15787  
 Area of Partial Relinquishment  
 Location of Gravity Data Stations



Scale: 1:100,000

## **7.0 CONCLUSIONS AND RECOMMENDATIONS**

The area relinquished is outside the Machattie Prospect area as defined by aeromagnetic and gravity surveys. No gravity or magnetic targets were identified within the surrendered portion of EPM15787 and no further work is recommended. No ground disturbing activities were completed on the relinquished portion of the tenement.

## **8.0 REFERENCES**

G Drew, M Sherington, J Thornett, J Ashley, 2008. Collaborative Drilling Initiative Proposal, Diamantina IOCG Project, Machattie Prospect, Queensland. AusQuest unpublished internal report (AQD Report No: 2008/11).

G Drew, M Sherington, J Thornett, J Ashley, 2008. Collaborative Drilling Initiative Proposal, Diamantina IOCG Project, Mulligan Prospect, Queensland. AusQuest unpublished internal report (AQD Report No: 2008/12).]

# **Appendix 1**

## Gravity Logistics Report (Digital Data)

# **Appendix 2**

Gravity Survey Data

(Digital Data)