



<b>Titleholder</b>	Geotech International Pty Ltd
<b>Operator</b>	Minemakers Australia Pty Ltd
<b>Tenement</b>	EL26710 (Booda Bore)
<b>Report name</b>	Partial Relinquishment Report for EL26710 (Booda Bore) for the period ending 23 October, 2012
<b>Personal authors</b>	A. Pellatt
<b>Corporate author</b>	Minemakers Australia Pty Ltd
<b>Target commodity</b>	Phosphate
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<b>Datum/Zone</b>	GDA94, Zone 53
<b>250,000 mapsheet</b>	HELEN SPRINGS SE53-10
<b>100,000 mapsheet</b>	BRUNCHILLY 5760, MUNKADERRY 5860
<b>Contact details</b>	Fulton, R. Minemakers Australia Pty Ltd PO Box 1704 West Perth WA 6874 Fax: (08) 9264 7099 Ph: (08) 9264 7000
<b>Email for technical details</b>	<a href="mailto:anniep@minemakers.com.au">anniep@minemakers.com.au</a>

## ABSTRACT

This partial relinquishment report describes exploration activities completed over a relinquished portion (comprising 54 blocks), of EL26710 (the Booda Bore prospect). EL26710 is a joint venture between Minemakers Australia Pty Ltd (MAPL) and Geotech International Pty Ltd. Exploration is aimed at the discovery of economic phosphate deposits proximal to the Alice Springs-Darwin railway. Such deposits are known to occur in shallow marginal marine sediments at the western edge of the Georgina Basin, similar to MAPL's Wonarah project located approximately 200 km to the east-southeast. The tenement is located 114 km northeast of Tennant Creek on the 1:250,000 HELEN SPRINGS SE53-10 and the 1:100,000 BRUNCHILLY 5760 map sheets. The geology in the immediate area consists of Palaeoproterozoic Tomkinson Creek Group, a dominantly arenaceous sequence, particularly in the basal portions, with siltstone and shale more important in the upper portions. This stratigraphy is overlain by undeformed Middle Cambrian sedimentary rocks. Early Cambrian lithologies are represented by the Helen Springs Volcanics that consist of amygdaloidal tholeiitic basalt and a basal sandstone unit. The Middle Cambrian Gum Ridge Formation was deposited in shallow shelf epicontinental seas subject to episodic peritidal influence. Lithologies consist principally of limestone and associated phosphorite units. Preliminary research involved a study of the airborne magnetic data and phosphorus assaying of water bore cuttings. Geochemical soil sampling was then completed in an effort to identify anomalous trends in P-U-Th, with a total of 21 soils, 6 rocks and 16 maglag samples taken over the relinquished part of the tenement. Due to the low order assay results, this portion of the tenement was relinquished.

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## **1. INTRODUCTION**

This partial relinquishment report describes exploration activities completed on a relinquished portion of EL26710, Booda Bore prospect which is operated by Minemakers Australia Pty Ltd (MAPL). MAPL is a wholly owned subsidiary of Minemakers Limited which listed on the ASX on 10 October 2006. Exploration is aimed at the discovery of economic phosphate deposits proximal to favorable infrastructure, particularly the Alice Springs-Darwin railway. Such deposits are known to occur in shallow marginal marine sediments at the western edge of the Georgina Basin, similar to MAPL's Wonarah project located approximately 200 km to the east-southeast.

## **2. LOCATION**

EL26710 is located 114 km north-northeast of Tennant Creek in the Northern Territory (Figure 1). The tenement lies on the 1:250,000 HELEN SPRINGS SE53-11 and the 1:100,000 BRUNCHILLY 5760 map sheets. The tenement covers relatively flat land within two pastoral properties, viz. Banka Banka and Brunchilly. Land use is dominated by cattle grazing.

## **3. TENURE**

EL26710 covering 144 blocks (468.60 km<sup>2</sup>) was granted on 24 October 2008 to Geotech International Pty Ltd (Geotech) for a period of six years. In 2011, a total of 36 blocks were relinquished, leaving 108 blocks for the retained tenement. A further 54 blocks has been relinquished and this report details exploration activities completed on these blocks. The retained tenement now comprises 54 blocks.

A joint venture agreement between Minemakers Australia Pty Ltd and Geotech was signed on 12 May 2009. The agreement provides participating interests for Minemakers (80%) and Geotech (20%), with Geotech being free-carried from expenditure contributions until a Decision to Mine. Field exploration activities were subject to consultations with the pastoral lessee and, through the Northern Land Council, with the Native Title claimants (Banka Banka Native Title Claim NTD 6005/01).

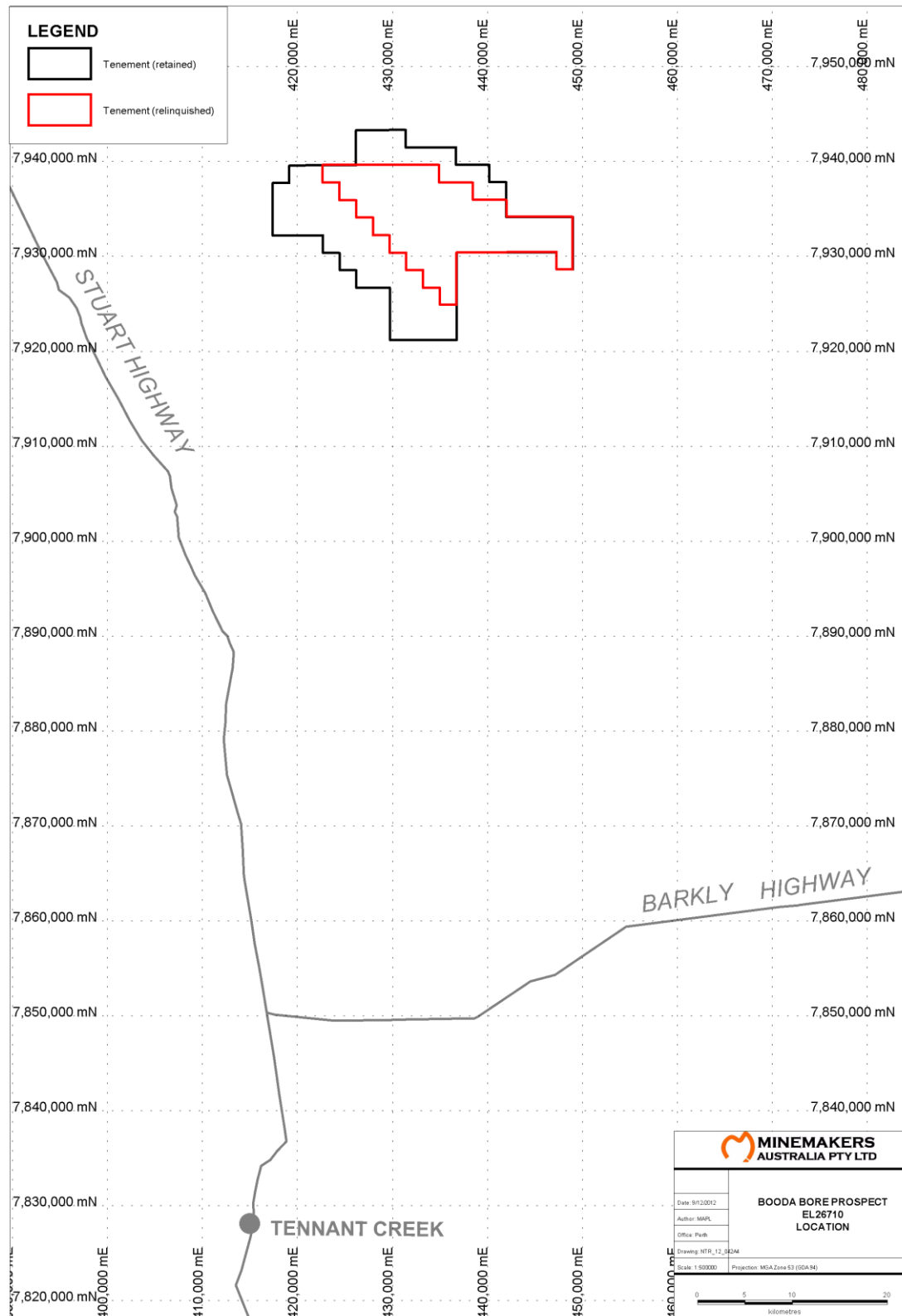


Figure 1: Location of EL26710.

#### 4. GEOLOGY

The Booda prospect is located on the eastern edge of the Palaeoproterozoic Tomkinson Creek Group, a dominantly arenaceous sequence particularly in the basal portions with siltstone and shale more important in the upper portions (Donnellan, 2004). This stratigraphy is overlain by undeformed Middle Cambrian marine sedimentary rocks that comprise the western edge of the Georgina Basin which has been divided into two sub-basins called Barkly and Undilla (Figures 2 and 3). Early Cambrian deposition is represented by the Helen Springs Volcanics that consist of amygdaloidal tholeiitic basalt and a basal sandstone unit. These rocks unconformably overlie the Tomkinson Creek Group.

The Middle Cambrian Gum Ridge Formation was deposited in shallow shelf epicontinental seas subject to episodic peritidal influence. Lithologies consist principally of limestone that includes fine-grained sandstone, siliciclastic mudstone, bioclast, oncolite, stromatolitic and cryptomicrobial limestone, marly limestone, fossiliferous nodular chert; carbonate and evaporitic pseudomorphs (Hussey et al., 2001). Occasional trilobites, brachiopods and sponge spicules occur in this formation. There are a number of mapped exposures of Gum Ridge Formation in and adjacent to the tenement and geological mapping has identified a number of exposures of slightly younger and related Anthony Lagoon beds (op. cit.). Both of these units are capable of hosting phosphorite deposits.

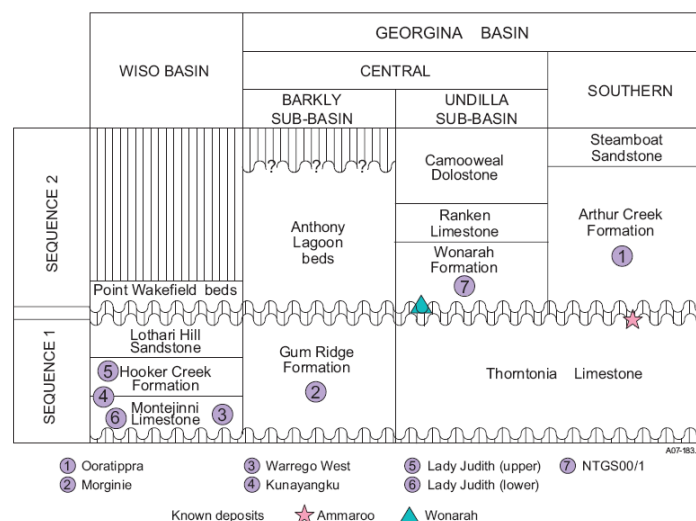


Figure 2. Stratigraphy and phosphate occurrences of the Georgina Basin (after Khan et al, 2007).

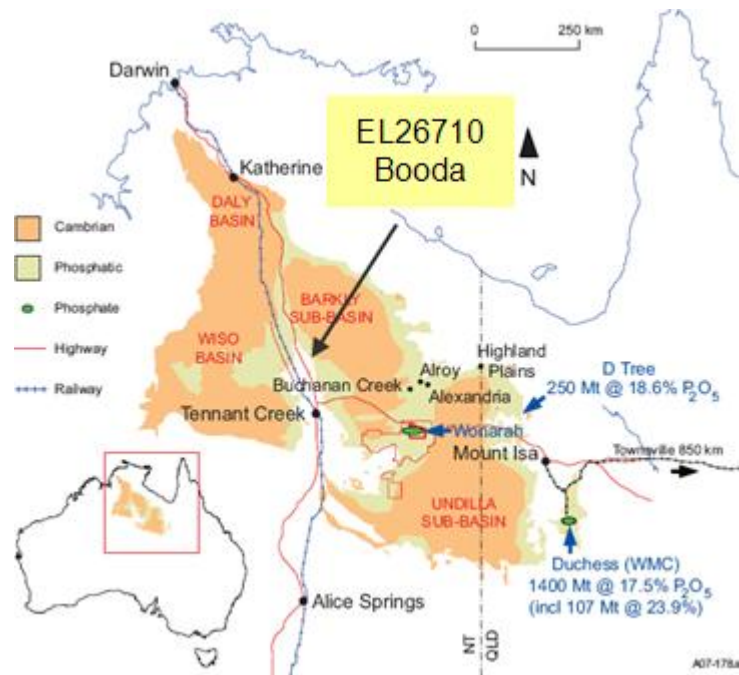


Figure 3. Location of EL26710 in the Barkly Sub-Basin of the Georgina Basin (after Khan et al, 2007).

## 5. WORK COMPLETED

### 5.1 Office Research

During the first year of tenure, office research was completed over the entire tenement. Airborne magnetic data indicate the presence of basement highs and embayments, features that are considered to favour phosphorite accumulation. Some near-surface magnetic highs are considered to represent sub-surface basalt of the Helen Springs Volcanics. Preliminary research involved identifying water bores in the immediate area and ascertaining whether these had been tested for phosphate (Khan et al., 2007). The target stratigraphy is known to be flat-lying to gently dipping and it was considered that any near-surface phosphorite would have a geochemical signature that could be identified by soil and/or maglag sampling. Basement highs and embayments would then be targeted in the geochemical survey where local station tracks allowed access.

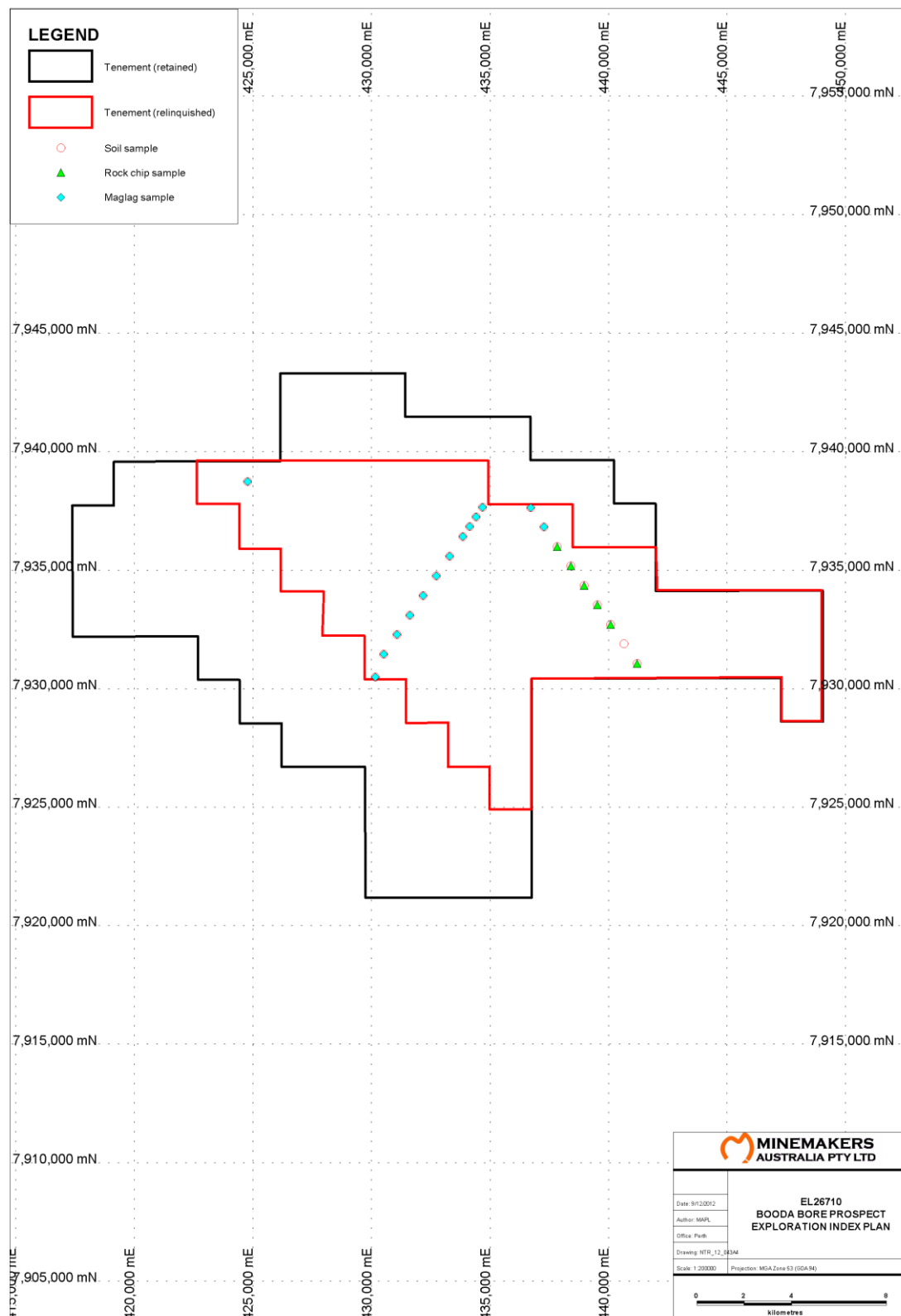


Figure 4: Exploration Index Plan.



## 5.2 Geochemical survey

A geochemical survey was conducted over station tracks within the tenement during early February 2010. A total of 21 soils, 6 rock chips and 16 maglag samples were collected on a traverse on the relinquished part of the tenement (Figure 4).

Soil samples were collected from a depth of about 15 cm with an average sample weight in the range 1200-1300 gm. Maglag samples were not always available at each site. Average sample weight was 20-30 gm.

The soil and rock samples were forwarded to ALS Laboratory, Mt Isa. The soil samples were sieved to -80#, pulverised and digested in a multi-acid digest and assayed using ME-MS41, ICP-MS, ICP-AES techniques for the following 51 elements: Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn and Zr. The rock samples were pulverised and digested in a multi-acid digest and assayed using ME-MS41, ICP-MS, ICP-AES techniques for the same 51 elements listed above. The results are reported in Laboratory Reports MI10020779 (rocks) and MI1024320 (soils).

Due to a misunderstanding the maglag samples were not submitted with the rock and soil samples, but were submitted to Genalysis Laboratories Pty Ltd, Perth in early November 2010. For samples  $\leq 25$  gm (no preparation); samples  $>25$  gm were pulverised. An aqua regia digest was used and the following elements were assayed: ICP-OES for P, Fe, Mn; ICP-MS for As, Cd, Ce, La, Pb, U and Th. The results are reported in Laboratory Report 1286\_0\_1015483.

In addition, magnetic susceptibility and scintillometer readings were recorded at each sampling site using an SM-30 magnetic susceptibility meter and a RadEye PRD scintillometer.

## 6. CONCLUSIONS

Based on the low order surface geochemical sampling results, it was decided to relinquish this portion of EL26710.

## 7. REFERENCES

**Donnellan N (2004)** Geology of the Tennant Region 1:500,000 scale. Northern Territory Geological Survey, Darwin and Alice Springs.

**Hussey KJ, Beier PR, Crispe AJ, Donnellan N & Kruse PD (2001)** HELEN SPRINGS SE53-10 1:250,000 Geological Series. Edition 2. Northern Territory Geological Survey.

**Khan M, Ferenczi PA, Ahmad M & Kruse PD (2007)** Phosphate testing of waterbores and diamond drillcore in the Georgina, Wiso and Daly basins, Northern Territory. Northern Territory Geological Survey, Record 2007-003.