ASX Release

3 October 2023

Drilling Commences at Pinjin South Joint Venture

Highlights

- Plowden Resources earning an initial 15% interest in Pinjin South Joint Venture by funding A$1.6 million
- Programme of 19 RC drill holes for 3,000 metres has commenced at the Pinjin South Joint Venture located 125 km east-northeast of Kalgoorlie
- Programme testing 6 of the 21 identified gold, nickel and lithium targets
- Preliminary drilling results are expected in Q2 FY24

St Barbara Limited ("**St Barbara**" or the "**Company**") (ASX: SBM) is pleased to announce that reverse circulation (RC) drilling has commenced at the Pinjin South Earn-In and Joint Venture ("**Pinjin**"), located in the Eastern Yilgarn area of Western Australia.

Exploration at Pinjin South is operated and funded by Plowden Resources Pty Ltd ("**Plowden**") under a A$15.6 million exploration Earn-In and Joint Venture agreement.

The planned drill program comprises up to 19 RC holes for 3,000 metres. It is estimated that the program will take approximately 2 weeks to complete. The primary objective of the drilling is to test the 6 most promising gold, nickel and lithium targets defined to date. Preliminary assay results from the program are expected in Q2 FY24.

Commenting on the exploration drilling at Pinjin, St Barbara Managing Director and CEO Andrew Strelein said "*The initial technical work completed by Plowden has further developed the regional geological and structural understanding of the project. This work in combination with boots on ground technical mapping, auger drilling, Induced Polarisation surveys, gold and multi-element analysis has led to the identification of over 21 gold, nickel and lithium targets. We look forward to seeing the results of the early stage drilling of 6 of the highest priority drill targets.*"

Background

The Pinjin South Earn-In and Joint Venture with Plowden Resources Pty Ltd commenced on 24 December 2021 covering 7 tenements (E28/2494, E28/2264, E28/2447, E28/2234, E28/2327, E28/2446, E28/2313) for 528 km^2.

The tenements are located 125 km east-northeast of Kalgoorlie, 25 km southeast of Carouse Dam Gold Project (4.1 Moz Resource) and immediately adjacent to, and between, Ramelius Resources Rebecca and Roe Gold Projects (3.1 Moz combined Resource).

The Pinjin South project is located within the Edjudina, Linden and Murrin Domains of the Kurnalpi Terrane which comprises a series of thin linear north-north westerly bounded domains of dominantly mafic-felsic volcanic and volcaniclastic sequences. The Project is interpreted to lie along the southern portion of the Laverton Tectonic Zone, a well-endowed regional scale shear/fault system. The northern portion of the Zone hosts the Sunrise, Wallaby, Lancefield and Granny Smith gold camps, having a combined gold mineral endowment in excess of 20 Moz.

Plowden can sole fund A$15.6 million or more in exploration expenditure over a maximum of 6 years to earn up to a 70% interest in the Pinjin South Joint Venture.

There are four Earn-in periods including:

1) 15% Participating Interest by funding A$1.6 million within 24 months,
2) 25% Participating Interest by funding A$2.6 million within 36 months,
3) 50% Participating Interest by funding A$5.6 million within 48 months and
4) 70% Participating Interest by funding A$15.6 million within 72 months.

A minimum exploration spend of A$2.6 million is required within the first 36 month Earn-In period.

Plowden is currently on track to achieve a 15% Participating Interest by funding A$1.6 million by 24 December 2023.

Previous work completed by Plowden during the first year and a half of the joint venture included:

- Geological mapping and surface sampling,
- 1,326 Auger drill holes with gold and multi-element analysis,
- 14 line kilometres of Dipole-Dipole Induced Polarisation surveys,
- 10 RC holes for 2,442 metres, including gold and multi-element analysis, and
- Extensive district scale geological interpretation and deposit scale exploration targeting.

2023 Drill Program

The RC drill programme of up to 19 holes for 3,000 metres is designed to test the 6 highest ranked gold, nickel and lithium targets. The 6 drill targets are summarised in Table 1 below.

Table 1. Summary of the RC drill targets to be tested and the preliminary proposed drill programme.

Target	Commodity	Target	Style	Total Holes	Total Metres
Bythol	Au	Soil / Auger Anomaly	Porphyry / Conglomerate	3	600
Duke	Li, Au	Rock Chip & Soil Anomaly	Granite / Pegmatite Dykes	11	1,500
Patches	Au, Ni. Li	DDIP Anomaly	Greenstone Shear zone	1	200
Arcade	Au	Conceptual Target	Banded Iron Formation	1	200
Backsore Ridge	Au, Ni	DDIP Anomaly	Greenstone Shear zone	2	400
Mulgabbie South	Au	DDIP Anomaly	Banded Iron Formation	1	100

Note: drilling program may vary due to ground conditions and geology encountered.

It is estimated that the programme will take approximately 2 weeks to complete. Preliminary assay results from the programme are expected in Q2 FY24.

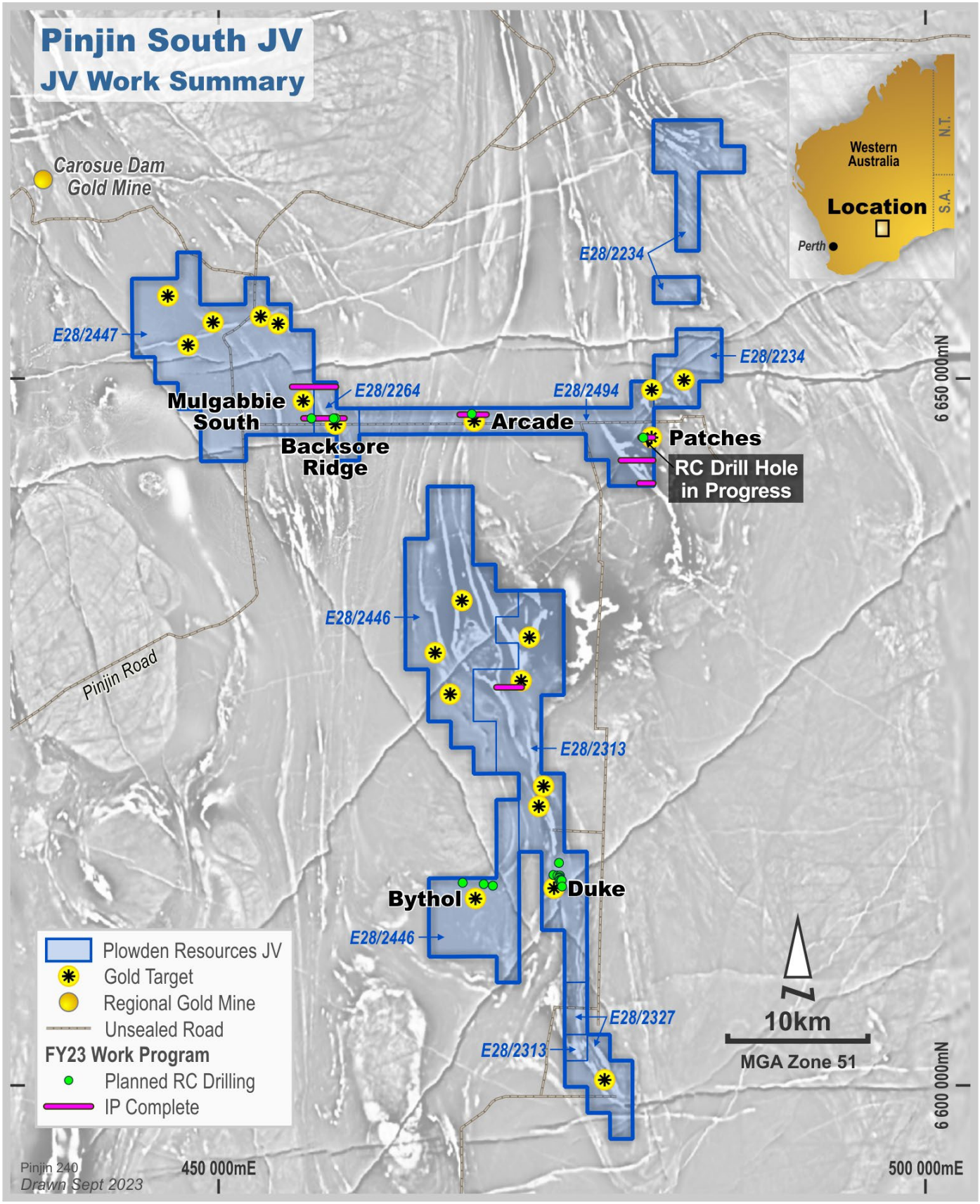

Figure 1: Pinjin South JV tenements showing the location of the 6 RC drill targets overlain on regional aeromagnetics.

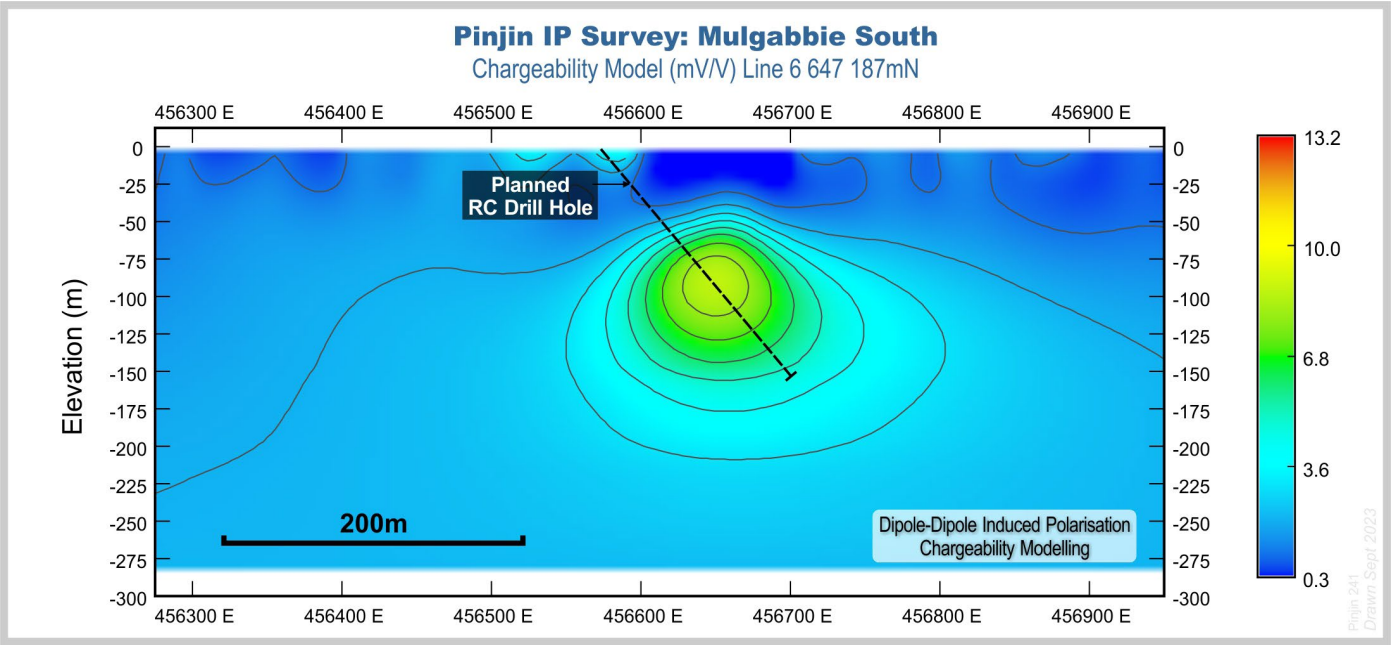

Figure 2: Cross Section at Mulgabbie South Target showing the location of proposed drilling and Dipole-Dipole Induced Polarisation chargeability modelling.

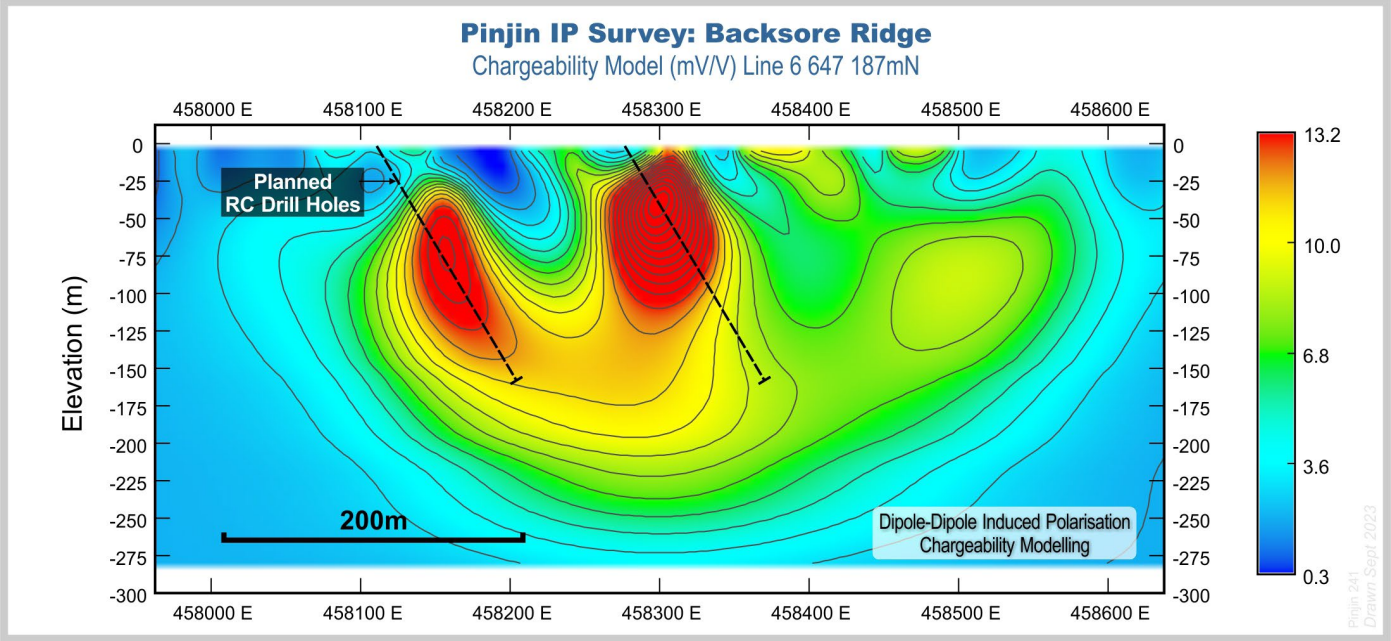

Figure 3: Cross Section at Backsore Ridge Target showing the location of proposed drilling and Dipole-Dipole Induced Polarisation chargeability modelling.

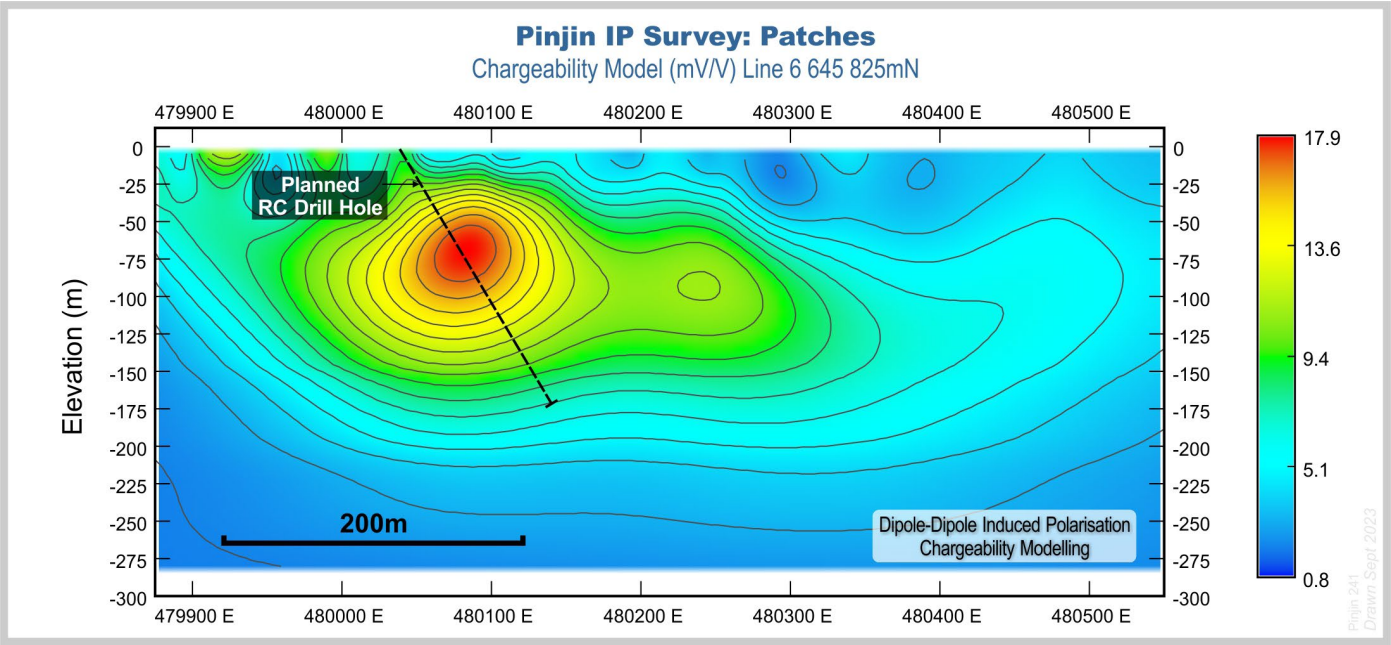

Figure 4: Cross Section at Patches Target showing the location of proposed drilling and Dipole-Dipole Induced Polarisation chargeability modelling.

Authorised by

Andrew Strelein
Managing Director and CEO

For more information

Investor Relations

David Cotterell
General Manager Business Development & Investor Relations

info@stbarbara.com.au

T: +61 3 8660 1959
M: +61 447 644 648

Media Relations

Paul Ryan / Michael Weir
Citadel-MAGNUS
M: +61 409 296 511 / +61 402 347 032

PINJIN SOUTH JV – JORC Code, 2012 Edition – Table 1

Contents

Geophysics - Section 1 Sampling Techniques and Data

(Criteria in this section apply to the succeeding section.)

Criteria	Commentary
Sampling techniques	• Plowden Resources Pty Ltd contracted Kinematex Pty Ltd to conduct a ground based Induced Polarisation (IP) and Resistivity (Res) survey within the Pinjin South JV. A total of 14 line kilometres was surveyed. Ground Geophysical Survey Equipment includes: • Transmitter: ~ GDD TX4 Transmitter (2,400 v / 20 A / 5,000 w). • Receiver: ~ SmarTem 24 Receiver. ~ Potential Electrodes: CuSO4. • Survey Specifications: ~ Receiver Dipole & Station Spacing: 50m (in-line 2D) n=8. ~ Transmitter Frequency: 0.125Hz (2 second on – 2 second off time base). ~ Stacking Time: 120 Seconds (3 Readings).
Drilling techniques	• N/A
Drill sample recovery	• N/A
Logging	• N/A
Sub-sampling techniques and sample preparation	• N/A
Quality of assay data and laboratory tests	• Three readings taken with good repeatability.
Verification of sampling and assaying	• All data was reviewed and processed independently of the field acquisition contractor through Core Geophysics.
Location of data points	• All locations were captured in GDA2020 MGA Zone 51. • Handheld GPS for station locations with +/- 3 m accuracy. • Topo taken from 90m universal grid, the area has limited topographical relief.
Data spacing and distribution	• 50m Dipole Spacing. • All lines were orientated East – West.
Orientation of data in relation to geological structure	• The orientation of all lines was perpendicular to the general geological and structural trends in the area. • No bias was believed to be introduced by the sampling method.
Sample security	• N/A
Audits or reviews	• N/A

Geophysics - Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	Commentary
Mineral tenement and land tenure status	• St Barbara Limited currently has 100% ownership of the 7 tenements comprising the Pinjin Project. These include: E28/2494, E28/2264, E28/2447, E28/2234, E28/2327, E28/2446 and E28/2313. Plowden Resources Pty Ltd is currently in a Earn-In and JV and can earn a 70% interest in the Pinjin South Joint Venture by sole funding A$15.6 million in exploration expenditure over a maximum of six years. Based on current planned work programs, Plowden Resources Pty Ltd is currently on track to achieve a 15% Participating Interest by funding A$1.6 million by 24 December 2023.
Exploration done by other parties	• There have been numerous historical holders of the project area which covers over ~528 square kilometres. • Exploration has been conducted by numerous companies including but not limited to: Aberfoyle Resources, BHP, Cove Mining, CRA, Gutnick Resources, Hawthorn Resources, Magma Metals, Newmont Pty Ltd, Newcrest Mining, Placer Dome, Sons of Gwalia, Troy Resources NL and Uranez,
Geology	• Plowden is targeting Archean orogenic gold mineralisation near major regional faults. Plowden is also targeting nickel sulphides within mafic – ultramafic complexes and lithium pegmatite swarms. • The tenement package covers Archaean greenstones within the highly prospective Eastern Goldfields Province of the Yilgarn Craton. The Pinjin project covers portions of the prospective Laverton and Keith-Kilkenny Tectonic Zones which pass through the eastern and western portions respectively
Drill hole Information	• N/A
Data aggregation methods	• N/A
Relationship between mineralisation widths and intercept lengths	• N/A
Diagrams	• Appropriate summary diagrams and cross sections are included in this announcement.
Balanced reporting	• N/A
Other substantive exploration data	• All relevant data has been included in the body of this announcement.
Further Work	• Plowden are preparing to drill test the centre of 3 chargeability anomalies. Results of that drilling will be reported once completed and the relevant data was available.