

Exploration for Lithium Commencing North of Southern Cross

- **Lithium potential identified at Enterprise’s Bullfinch North Project proximal to Southern Cross, WA.**
- **Bullfinch North Project covers 240km² of the Southern Cross Greenstone Belt in WA and is considered prospective for gold, nickel and lithium.**
- **No previous lithium exploration has been undertaken in the Project area.**
- **Project area geology and metamorphic grade are similar to geological setting of other lithium deposits in the Yilgarn Block, including the Earl Grey lithium deposit south of Southern Cross.**
- **A targeted and systematic soil sampling program is planned for the project area, commencing in late January.**
- **Drill testing of Enterprise’s high-grade gold targets in Project will continue in parallel with the new lithium exploration program.**

Enterprise Metals Ltd (ENT) (“Enterprise” or the “Company”) is pleased to advise that it has completed a review of the geological setting of prominent lithium deposits in the Yilgarn Block of Western Australia. This review has determined that the Bullfinch North Project (Fig. 1) contains similar geological settings to the major pegmatite-hosted lithium deposits in the Southern Cross, Norseman-Wiluna, Ravensthorpe, and Balingup greenstone belts.

As reported previously (ENT-ASX: 23 December 2020) the Bullfinch North area comprises slightly to strongly metamorphosed rocks that were initially mafic and ultramafic volcanic rocks, sedimentary rocks, and local felsic volcanic rocks. Foliated Archean granitic rocks flank the NNW-trending greenstone belt.

No previous exploration for lithium-bearing pegmatites has been undertaken. Targeted and systematic soil sampling for lithium will commence in late January in those areas amenable to soil sampling that are identified by ENT as not covered with younger transported cover rocks.

Targeted areas for sampling include the Bingin-Maries Find area on the peninsula jutting into Lake Deborah West. In early 2021 Enterprise undertook drill testing of amphibolite hosted historical gold workings. The Bingin-Maries Find gold workings are closely associated with a network of pegmatite intrusive bodies, some of which appear dyke-like whereas others have complex shapes, which have not been explored or analysed for lithium by previous explorers.

Enterprise considers that the geological setting of the Bingin-Maries Find area has some similarities with the Earl Grey lithium deposit some 100km south of Southern Cross. The Earl Grey deposit is described as being a pegmatite with an albite-spodumene-quartz-microcline dominated composition, with accessory muscovite, biotite, petalite and tourmaline. (Kidman, 2018) This albite spodumene pegmatite hosts rare metal lithium–cesium–tantalum (LCT) mineralization.

Background

Enterprise holds “*Option to Purchase*” agreements over a contiguous block of Bullfinch North tenements held by Nickgraph Pty Ltd and Peter Gianni.

The tenement package extends for approximately 50 km along strike from just north of Trough Well through to just south of Bullfinch (Fig. 1). and covers approximately 240 km² of granted tenements over Archaean greenstone lithologies prospective for orogenic gold deposits, nickel-copper sulfide deposits, iron ore, and pegmatite hosted lithium.

Figure 1. Location of Bullfinch North Project, Bingin Peninsula and Earl Grey Lithium Deposit

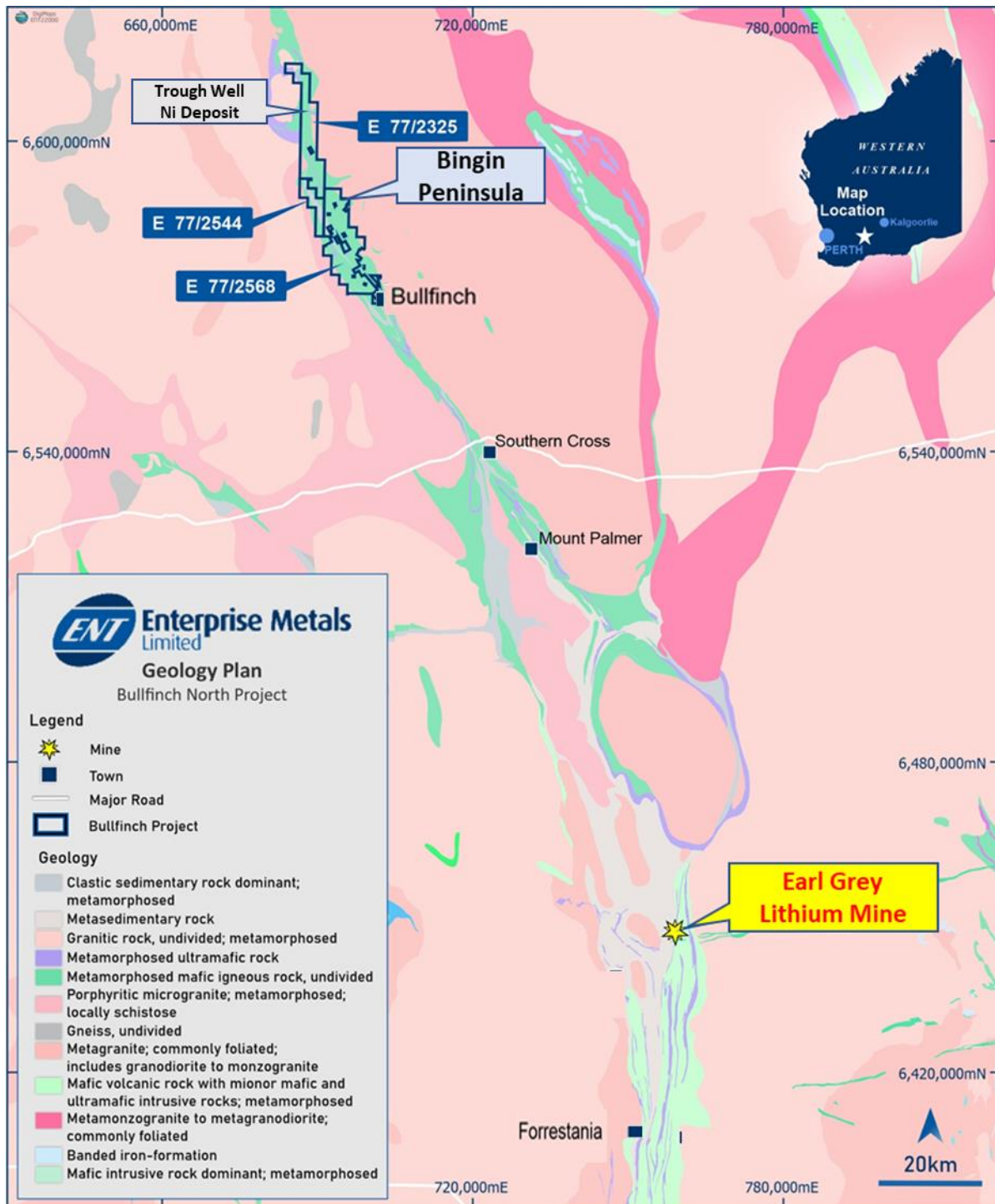
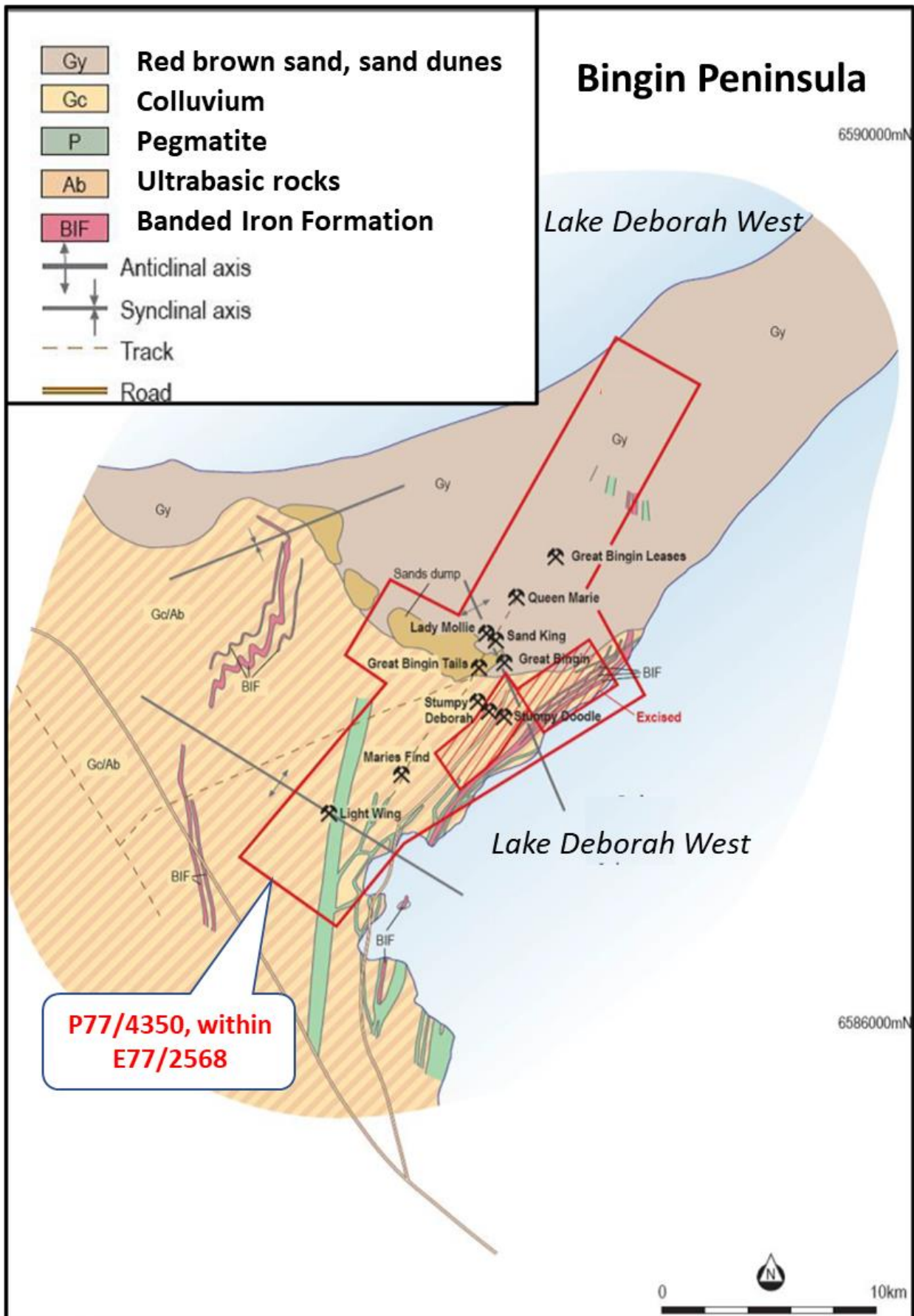


Figure 2. Surface Geology Plan Showing Pegmatites
West of the Bingin-Maris Find Gold Workings: from Sullivan (2008).



In a recent 2022 research paper authored by Emeritus Professor David Groves and others (Groves et al., 2022-online), it was pointed out that the higher pressures of the **upper-greenschist to amphibolite facies** environments would favour both formation of spodumene and giant crystals.

“The anomalous abundance of the economic spodumene-bearing pegmatites in Archean greenstone belts is probably related to a combination of higher heat flow due to mantle plume activity and preservation of environments at the required crustal level due to the long-term stability of Archean cratons with anomalously thick lithosphere” (Groves et al., 2005, and references therein).

Groves et al. (2022) also point out the favourability of synkinematic lithium pegmatites for economic deposits. The complex shape of pegmatites on the western shoreline of Lake Deborah West suggests that these may be synmetamorphic and syndeformational pegmatite bodies.

Table 1. Significant Spodumene Rich Archean Pegmatites in Western Australia (Groves et al, 2022)

Deposit	Size/Grade	Pegmatite Dip	Metamorphic Grade	Greenstone Belt	Reference
Greenbushes	>157mt @ 2.25% Li ₂ O	Gentle Dip	Amphibolite	Balingup	Partington (2017)
Kathleen Valley	156mt @ 1.4% Li ₂ O	Gentle-Moderate Dip	Lower Amphibolite	Norseman Wiluna	Liontown Resources Ltd website (2021)
Pilgangoora	156mt @ 1.25 Li ₂ O	Gentle Dip	Amphibolite	East Strelley	Sweetapple et al. (2017)
Mount Marion	78mt @ 1.37% Li ₂ O	Sub-horizontal	Lower Amphibolite	Norseman Wiluna	Smith & Ross (2017)
Mount Cattlin	17mt @ 1.08% Li ₂ O	Sub-horizontal	Lower Amphibolite	Ravensthorpe	Porter (2017)

This ASX Announcement has been approved in accordance with the Company’s published continuous disclosure policy and authorized for release by the Company’s Board of Directors.

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Competent Person Statement

The information in this report that relates to Exploration Activities and Results is based on information compiled by Mr Dermot Ryan, who is an employee of Montana Exploration Services Pty Ltd and a Director and security holder of the Company. Mr Ryan is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Ryan consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

References

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