



# ESSENTIAL METALS

for a sustainable future

**ASX Code: ESS**

## Corporate Profile

Shares on issue: 241,545,856  
Cash: \$9m (30 Sep 2021)  
Debt: Nil

## KEY PROJECTS

**LITHIUM** Pioneer Dome  
**GOLD** Golden Ridge  
**GOLD** Juglah Dome

## Joint Ventures (ESS %)

2x nickel projects (20-25%)\*  
4x gold projects (25-30%)\*  
\* Free carried to a decision to mine

## Corporate Directory

**Non-Executive Chairman**  
Craig McGown

**Non-Executive Directors**  
Paul Payne  
Warren Hallam

**Managing Director**  
Timothy Spencer

**CFO & Company Secretary**  
Carl Travaglini

**Exploration Manager**  
Andrew Dunn

## Investor Relations

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**14 January 2022**

## New lithium targets to be tested by air-core drilling at Dome North as diamond drilling resumes

30-hole/2,320m air-core program to commence next week to test newly identified targets close to existing deposits

## HIGHLIGHTS

- Air-core drilling will follow up on open or unexplained anomalism generated from the August 2021 drill programme at Dome North. This includes testing a 350m wide zone of lithium anomalism in lower saprolite between the Davy and Cade Deposits, as well as testing anomalism along strike to the north-east of the Heller Deposit that is geochemically similar to that at the northern ends of Davy and Cade.
- New drilling contractor procured to complete the 13-hole diamond drilling programme that commenced last Quarter. Drill rig now on-site and on track to complete the programme by mid-February.
- The diamond drill programme is targeting near-surface (oxide/transition) mineralisation at both the Cade and Davy deposits to obtain samples for bulk density measurements and for confirmatory metallurgical test work.
- An environmental baseline survey over the Dome North area has been completed with the final report pending. No particularly sensitive flora or fauna were identified.
- Capital expenditure and operating cost estimates for a nominally sized 1.6Mtpa concentrator plant have been received and will be utilised as part of the Scoping Study planned to commence by mid-year, pending assays from the current drill programmes and the results from further metallurgical test work.

Essential Metals Managing Director, Tim Spencer, said: *"The more we learn about Dome North, the more excited we are about its future. While we advance the Dome North Resource in terms of testing its extent and improving its confidence level by in-fill drilling and further metallurgical test work, we are continuing with high-quality exploration in and around the Resource as well as across our entire 450km<sup>2</sup> of Project tenure."*



## PIONEER DOME LITHIUM PROJECT

The 450km<sup>2</sup> Pioneer Dome Project (ESS: 100%) is located in the core of Western Australia’s lithium corridor in the Eastern Goldfields, approximately 130km south of Kalgoorlie and 275km north of the Port of Esperance. A Mineral Resource<sup>1</sup> of 11.2Mt @ 1.21% Li<sub>2</sub>O has been defined at ‘Dome North’ in the northern area of the Project.

The southern Yilgarn area is recognised as being well-endowed with spodumene deposits, including the Bald Hill Mine, the Mt Marion Mine and the Buldania Project, all of which are located within 80km of the Pioneer Dome Project. The world-class Greenbushes Deposit, the Mt Holland Mine and the Mt Cattlin Mine are located further west, south-west and south-south-west, respectively.

### AIR-CORE DRILL PROGRAMME AT DOME NORTH

In August 2021, 93 slimline Reverse Circulation (RC) holes were drilled, totalling 5,934m, around the existing Dome North spodumene deposits (Figure 1 and Figure 2). Final assay results were announced on 3 November 2021<sup>2</sup>.

No new pegmatites with reportable intersections were discovered by this drilling, however encouraging geochemical results were returned from Heller North (PDRCS43 & 44) as well as the ‘Davy to Cade’ (PDRCS71 to PDRCS75) areas, both of which required further investigation.

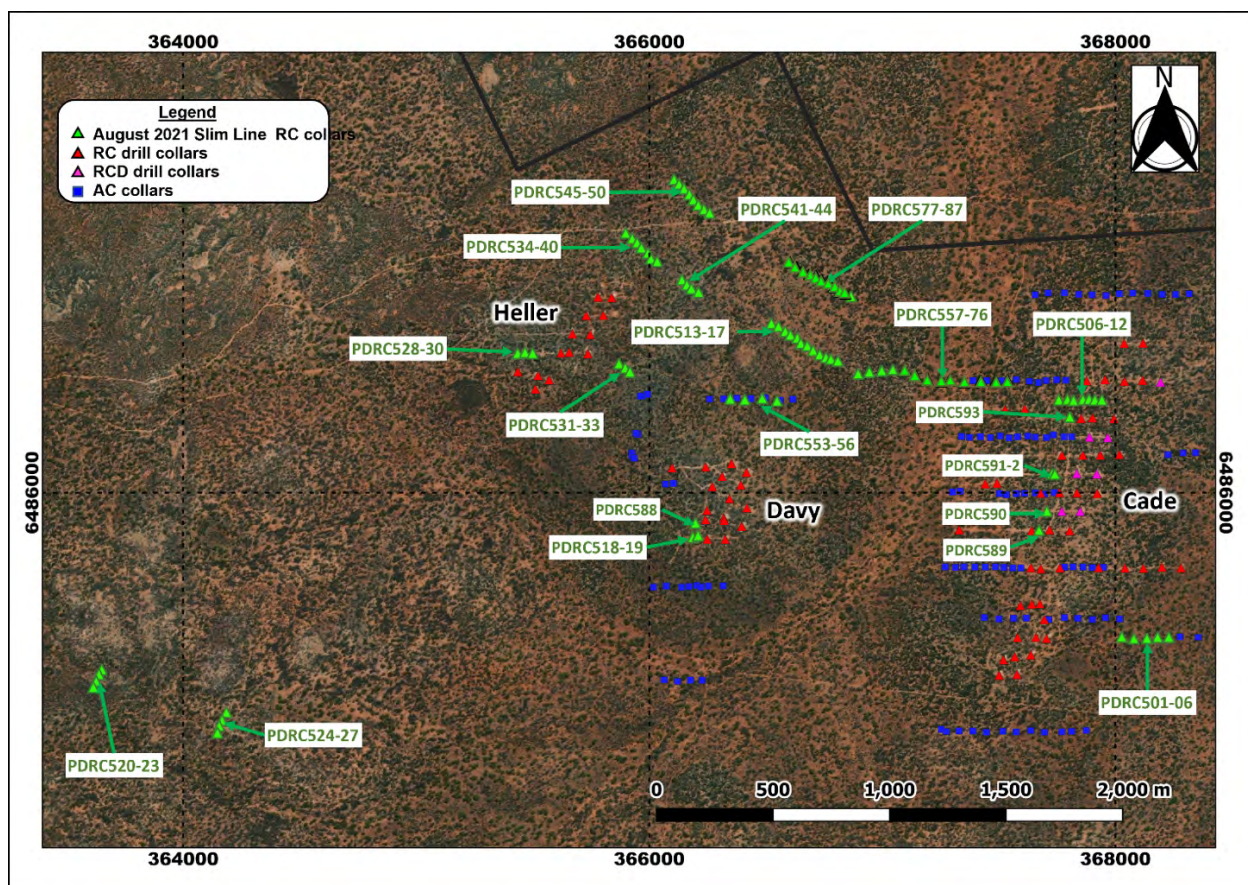


Figure 1 – Dome North LCT drilling – see legend.

<sup>1</sup> Refer to ASX announcement dated 29 September 2020 “Dome North Lithium Project – Resource Upgrade”

<sup>2</sup> Refer ASX announcement 3 November 2021- “Dome North lithium drill programme to commence”

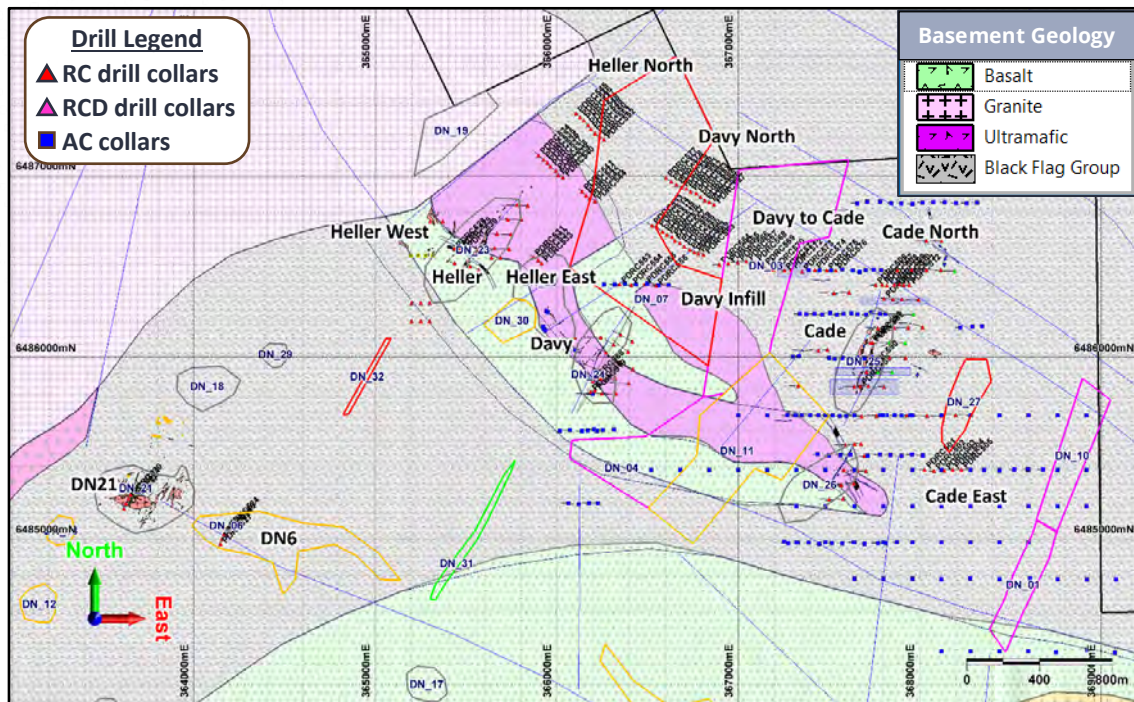


Figure 2 – Dome North drilling (slimline RC holes annotated with hole IDs) with LCT targets on top of the interpreted geology.

An air-core (AC) drill programme comprising 30 holes for ~2,320m will be carried out to test the Heller NE (north-east) and 'Davy to Cade' targets generated from the August 2021 slimline RC programme (Figure 3).

The aim is further test the geochemical anomalies for new spodumene bearing pegmatite that could add to the current Mineral Resource.

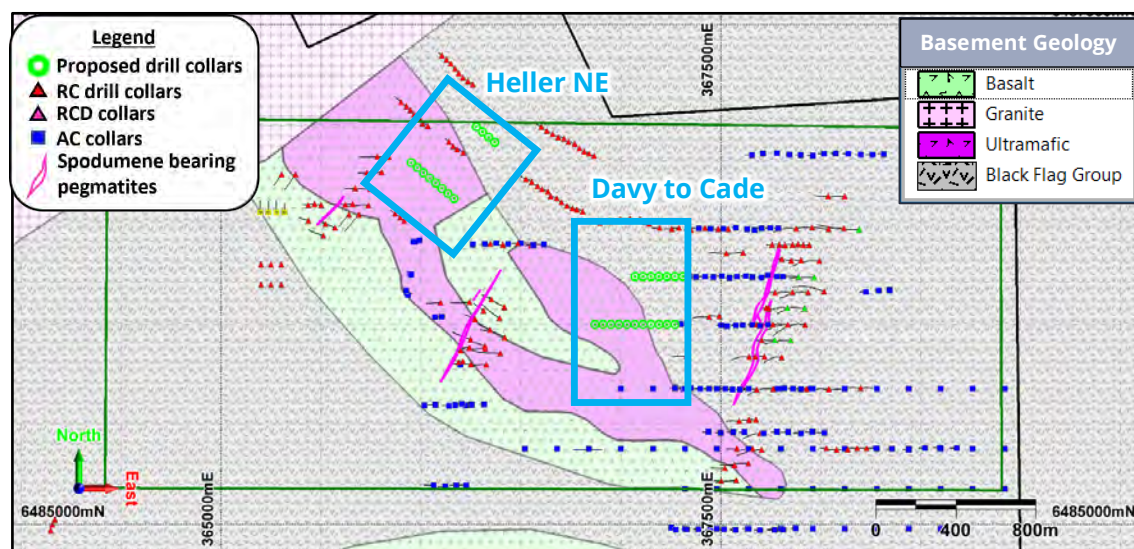


Figure 3 – Dome North proposed drilling (green circles), surface projection of MRE (magenta outlines) and previous drilling (see legend) on top of the interpreted geology.



## Heller NE Target

As part of the August 2021 drill programme, two traverses of drilling spaced 300m apart were completed to test the potential north-eastern extension of the Heller pegmatite, as well as to follow up on existing rock chip anomalism. Both traverses failed to intersect pegmatite where the strike projection of the Heller pegmatite was anticipated. However, the two easternmost holes of the southern traverse intersected a 2-3m wide pegmatite with anomalous lithium (up to 324ppm), beryllium (up to 108ppm), tantalum (up to 91ppm) and tin (up to 20ppm) with a potassium-rubidium ratio as low as 13 (Figure 4).

The best opportunity for an economic pegmatite is considered to be along strike from RC holes PDR543 and PDR544, either to the south in the ultramafic or to the north in the Black Flag Beds, which is considered a more brittle and more likely host than the ultramafic. The geochemistry results from PDR543 and PDR544 are similar to those intersected beyond the northern economic extents of Davy and Cade.

A total of 12 holes for 960m are planned to test as far north as possible (150m) and 200m south of PDR543 and PDR544, to see if a larger spodumene-bearing pegmatite develops beyond the previously intersected pegmatites (Figure 5).

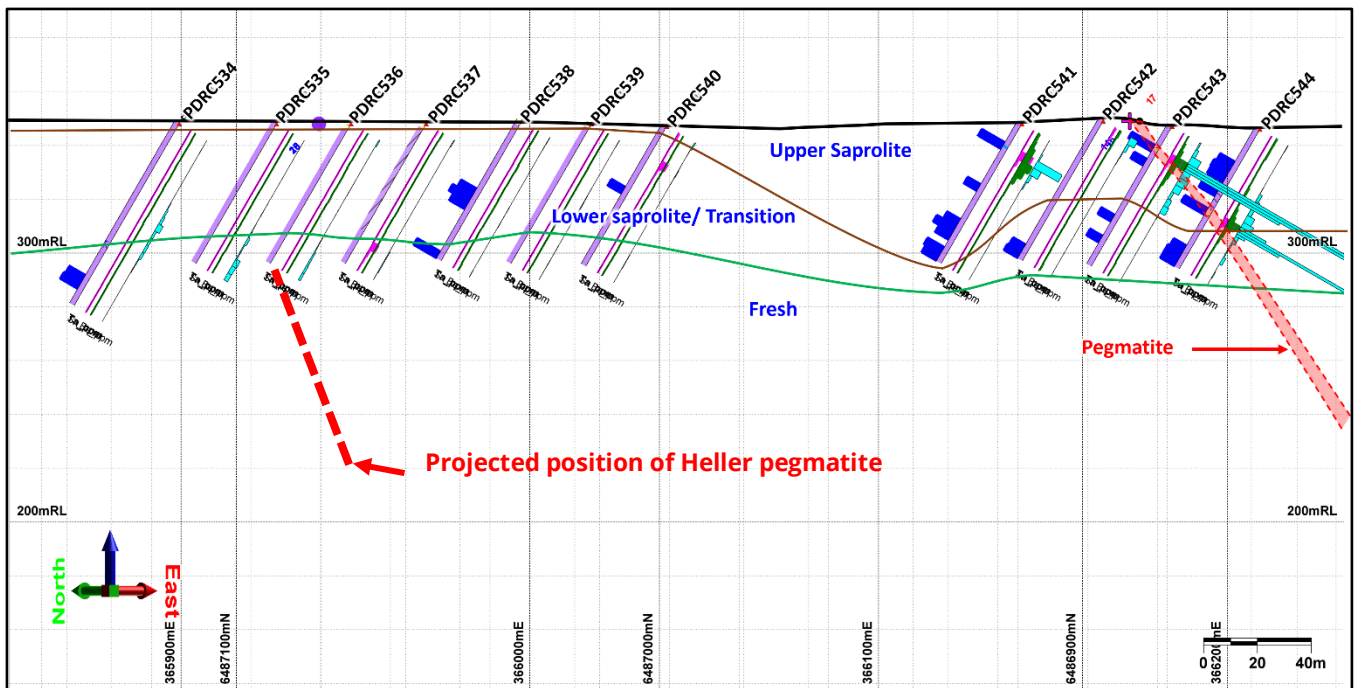


Figure 4 - Interpretation of drilling results from first traverse ~300m north-east of Heller. Lithium >50ppm plotted as the dark blue graph on the left-hand side and tantalum as magenta and beryllium as light blue graph on the right.

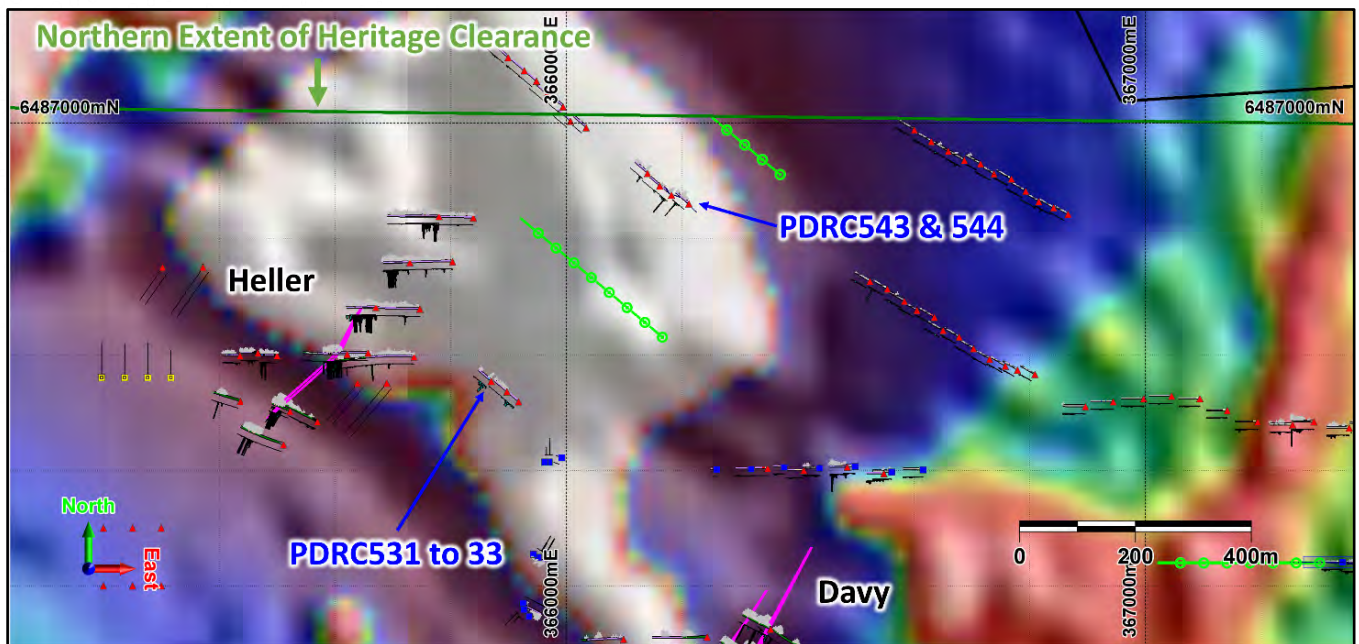


Figure 5 - Existing drilling (collar and traces), planned drilling (light green circles and traces) on top of the 1VD RTP magnetic image.

### 'Cade to Davy' Target

As part of the August 2021 drill programme, one traverse was drilled between the two known spodumene bearing pegmatites to test beneath transported cover and to determine the extent/source of the regolith hosted lithium anomalism (Figure 6).

The drilling results expanded the >50ppm lithium anomalism to a ~350m wide zone with no observed pegmatites. The relationship of the lithium anomalism to the Cade deposit is unclear (Figure 6), however it might represent a halo to an unrecognised but significantly sized lithium enriched pegmatite (Figure 8). If so, further potential may exist north or south of this drilling.

A total of 18 holes for 1,360m have been planned on two traverses to test for pegmatites beneath the transported cover.

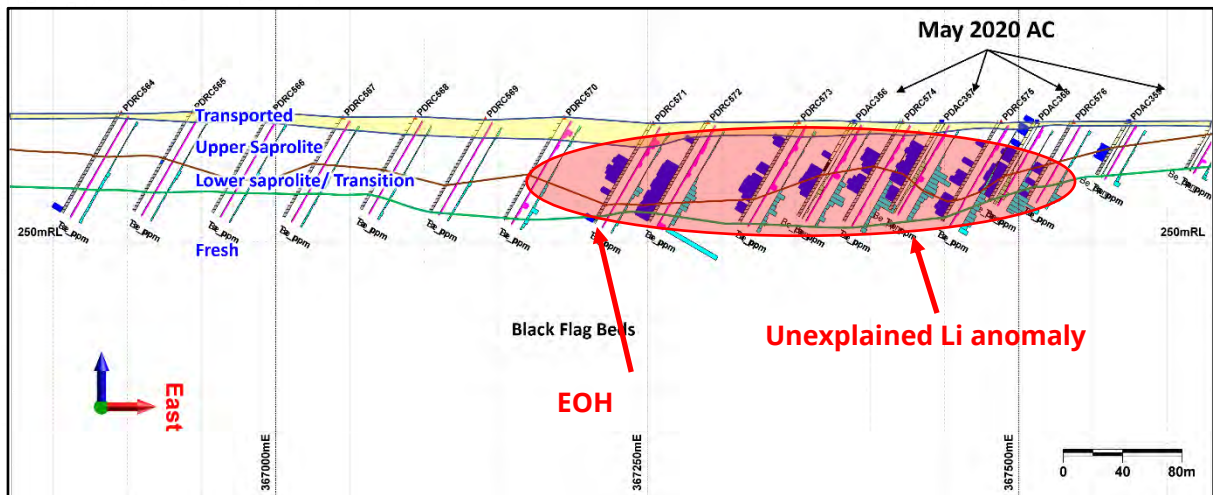


Figure 6 - Interpretation of drilling results from the traverse between Davy and Cade. Lithium >50ppm plotted as the dark blue graph on the left-hand side and tantalum as magenta and beryllium as light blue graph on the right.

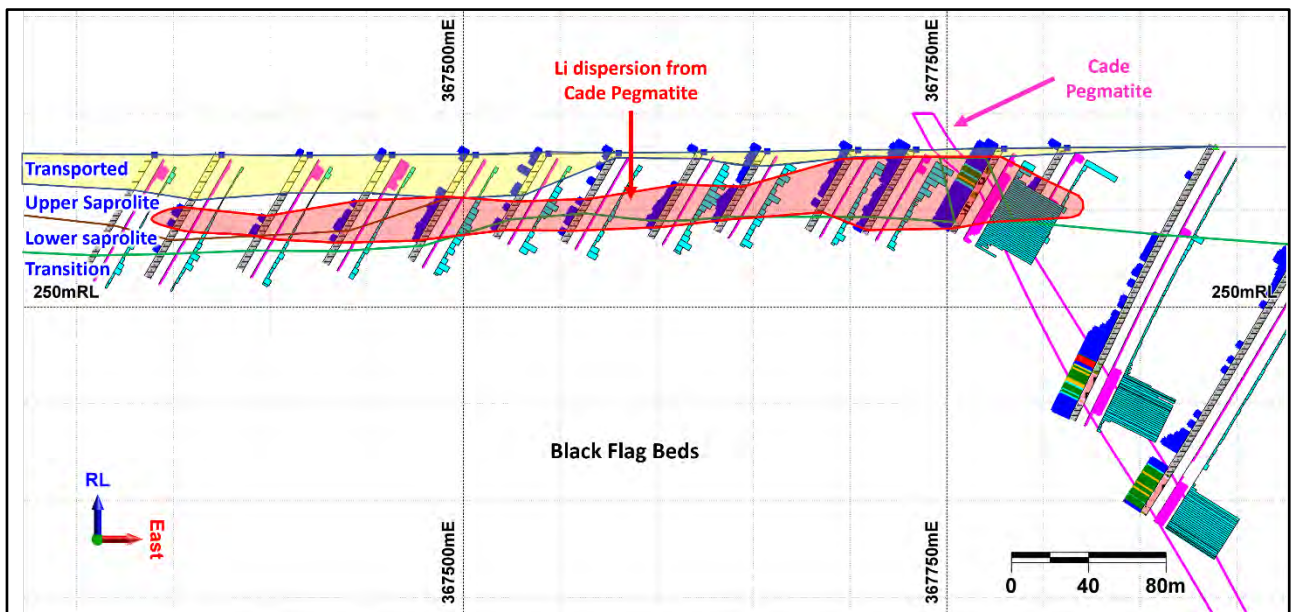


Figure 7 - Interpretation of drilling results from May 2020 AC drilling (PDAC365 to 377) west of Cade. Lithium >50ppm plotted as the dark blue graph on the left-hand side and tantalum as magenta and beryllium as light blue graph on the right.

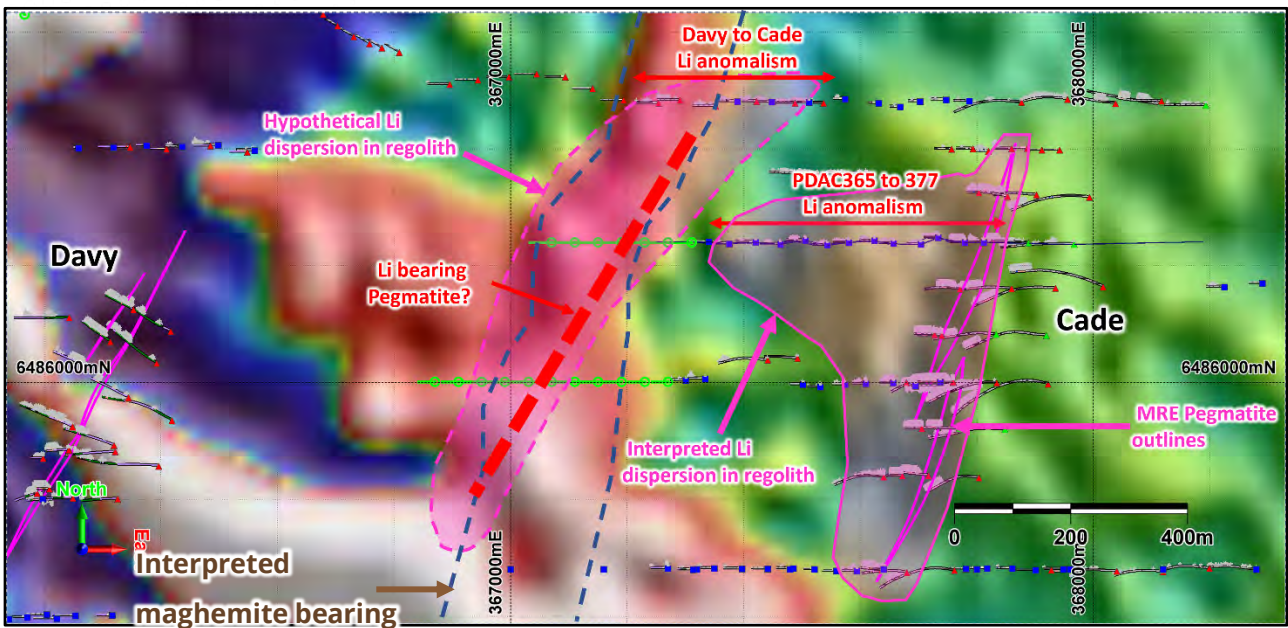


Figure 8 - Li dispersion in regolith (shaded pink areas), hypothesised hidden pegmatite, existing drilling (collar and traces), planned drilling (light green circles and traces), maghemite bearing drainage outline on top of the 1VD RTP magnetic image.

## DRILLING TIMELINES

The air-core drill programme to test the Heller NE and 'Cade to Davy' targets is expected to be completed by the end of January with the results expected by the end of March.

The diamond drill programme targeting near-surface (oxide/transition) mineralisation at both the Cade and Davy deposits to obtain samples for bulk density measurements and for confirmatory metallurgical test work is expected to be completed by mid-February, with assay results expected to be received by mid-April.

Core samples will then be selected for metallurgical test work, which is expected to take six weeks.



## CONCENTRATOR CAPITAL AND OPERATING COST EVALUATION

Essential engaged Primero, a leading integrated engineering group, to develop order of magnitude (OOM) capital and operating cost estimates for two plant flowsheet options, processing 1.6 million tonnes per annum of spodumene ore:

- Option 1 - Whole of Ore Flotation (WOF)
- Option 2 - DMS and flotation (Hybrid)

The costs were collated from Primero's database and factored as required with an 'order of magnitude' accuracy of +/-35%. The scope of costs considered only related to the process plant, from the run-of-mine to concentrate stockpile and TSF discharge. Items such as bulk earth works, NPI, power and water supply were not included in the CAPEX estimate.

The evaluation will assist Essential in understanding the economic thresholds of a 'stand-alone' lithium concentrate operation. In compliance with ASX Listing Rules, the results of the evaluation are not able to be made available to the public 'as is' but will be incorporated into a Scoping Study, expected to commence by mid-year, pending assays from the current drill programmes and results from further metallurgical test work.

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*This ASX release has been approved by the Board of Directors.*

**For further information:**

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## ABOUT ESSENTIAL METALS LIMITED

Essential Metals is a well-funded and active explorer focussed on the discovery of key global demand-driven commodities, for the creation of shareholder wealth through exploration and project development. The Company operates **three strategically located lithium and gold projects** in Western Australia.

### 100% OWNED AND MANAGED PROJECTS:

- **LITHIUM:** The **Pioneer Dome Lithium Project** is highly prospective for lithium-caesium-tantalum (LCT) mineral systems and includes the **Dome North Lithium Mineral Resource** of 11.2 million tonnes @ 1.21% lithium (Li<sub>2</sub>O).<sup>3</sup>
- **GOLD:** The **Juglah Dome Project** is located 60km east-south-east of Kalgoorlie and is considered to be highly prospective for gold and has potential for VHMS style polymetallic deposits.
- **GOLD:** The **Golden Ridge Project** is located ~20km south-east of Kalgoorlie, WA. Our activities are focussed on reappraising known prospects as well as identifying new areas within the large land tenure.

### JOINT VENTURE INTERESTS:

- **GOLD:** The **Acra** Project is near Kalgoorlie. Northern Star Resources Limited (ASX:NST) has earned a 75% Project Interest and continues to fully fund exploration programmes until approval of a Mining Proposal by DMIRS is received with Essential Metals holding a 25% interest.
- **GOLD:** The **Kangan** Project is in the West Pilbara and part of a joint venture with Novo Resources Corp (TSXV:NVO) and Sumitomo Corporation (TYO:8053), who will jointly fund 100% of gold exploration programmes until a decision to mine is made, with Essential Metals holding a 30% interest.
- **GOLD:** The **Balagundi** Project is subject to a farmin & JV agreement where Black Cat Syndicate Limited (ASX:BC8) is earning a 75% interest in the Project located at Bulong, near Kalgoorlie. Black Cat will then fully fund gold exploration programmes until a decision to mine is made, with Essential Metals retaining a 25% interest.
- **GOLD:** The Company holds a 25% free-carried interest (20% for nickel rights) in the **Larkinville** Project near Kambalda, WA, with Maximus Resources Ltd (ASX:MXR).
- **NICKEL:** The nickel mineral rights on the **Blair-Golden Ridge** Project, which includes the suspended Blair Nickel Sulphide Mine, are subject to a Farmin/Joint Venture with Crest Investment Group, a nickel exploration specialist which is earning up to a 75% interest. The Company will retain a 25% free-carried interest up to a decision to mine.
- **NICKEL:** The Company holds a 20% free-carried interest (nickel only) in the **Wattle Dam** project near Kambalda, WA, with Maximus Resources Ltd (ASX:MXR).

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<sup>3</sup> Refer to ASX announcement dated 29 September 2020 "Dome North Lithium Project – Resource Upgrade"



## Forward Looking Statement

This announcement may contain forward-looking statements which involve a number of risks and uncertainties. These forward looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. No obligation is assumed to update forward looking statements if these beliefs, opinions, and estimates should change or to reflect other future developments.

**Reference to previous market announcements:** The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The company confirms that the form and context in which Exploration Results or Competent Person's findings are presented have not been materially modified from the original market announcements.

## Exploration Work - Competent Person Statement

Mr Andrew Dunn (MAIG), Exploration Manager who is employed full-time by Essential Metals Limited, compiled the technical aspects of this Report. Mr Dunn is eligible to receive equity-based securities in Essential Metals Limited under the Company's employee incentive schemes. Mr Dunn is a member of the Australian Institute of Geoscientists and has sufficient experience that is relevant to this style of mineralization and type of deposit under consideration and to the activity that is being reported on to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Dunn consents to the inclusion in the report of the matters in the form and context in which it appears.