CARAVEL MINERALS

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6 April 2022

CARAVEL COPPER PROJECT

PFS UPDATE

Highlights

- **Engineering studies indicate potential for mill throughput to increase by additional 1.9Mt, from 12 Mtpa to 13.9Mtpa. Final evaluation work is in progress**
- **Increased throughput equates to an additional ~5,000 tonnes of Cu in concentrate per annum for total annual production of ~40,000 tpa Cu in stage one and ~61,000 tpa Cu in stage two**
- **Some metallurgical studies have been delayed due to slow laboratory turnaround, however results to date remain in line with 2021 Scoping Study (refer to ASX release dated 4 November 2021)**
- **Due to the additional work for evaluation of the increased throughput option and the delays in laboratory results, final reporting date for the PFS has been extended to May**
- **Other Pre-Feasibility technical studies are progressing well and largely complete, although will be revised for the increased throughput**
- **Mining costing and scheduling has been completed with unit costs in line with 2021 Scoping Study**
- **Processing unit cost estimates are in line with 2021 Scoping Study**
- **Capital cost estimates received to date indicate labour and material costs, particularly steel, will increase in line with market conditions**
- **WA-based construction firm CIVMEC has developed a modular construction strategy to help mitigate tight labour market conditions and take advantage of site proximity and transport connections to Perth**
- **Engagement has commenced with local suppliers for project construction planning**
- **Activities relating to water supply, infrastructure, land tenure and environmental permitting are progressing well.**

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PFS Base Case Update – 1.9Mtpa Additional Throughput

Process circuit optimisation work by Ausenco in conjunction with Caravel Copper Project Pre-feasibility Studies ("PFS") mining studies has highlighted an opportunity to increase the throughput of the plant approximately 16% from the Caravel Copper Project Scoping Study (refer to ASX Release dated 4 November 2021) ("2021 Scoping Study") by the addition of secondary crushing – Figure 1. The reduced size of the feed to the SAG mill circuit will enable throughput to increase 1.9Mtpa, for a total ~13.9Mtpa in stage one expanding to 27.8Mtpa in stage two of the Project. The capital cost increase for the secondary crushing is expected to be low relative to revenue increases.

The increased throughput equates to an additional ~5,000 tonnes of Cu in concentrate per annum, increasing annual production to **~40,000 tpa Cu in stage one** and **~61,000 tpa Cu in stage two**.

Additional costs from the secondary crushing circuit are more than offset by the impact of higher throughput with almost unchanged plant fixed costs, resulting in overall lower total processing costs per tonne ore and per unit of copper.

Reviews of cost inputs have also highlighted increases in power prices and the assumption for power cost has been increased by approximately 18%. With the expected cost reductions from higher throughput and increases from higher power costs the overall processing costs remains in line with the previous 2021 Scoping Study costs.

Further studies are required for the increased throughput option including revised mining schedules, comparisons of infrastructure requirements and financial modelling prior to final reporting.

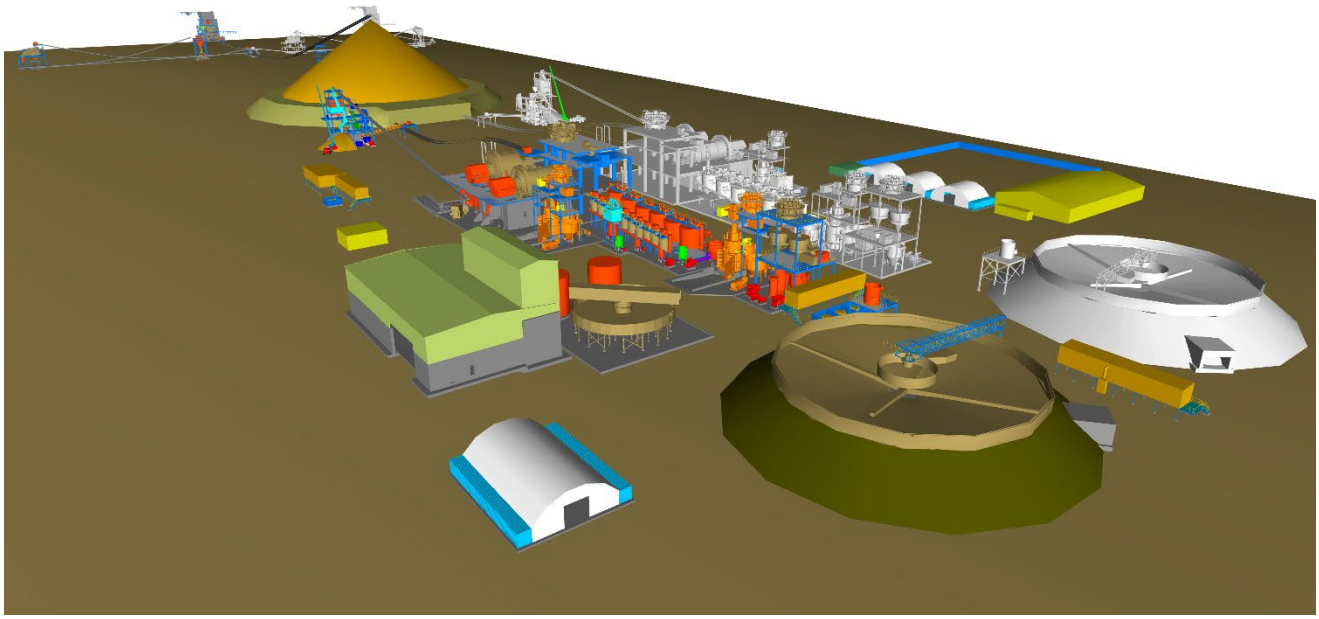

Figure 1: Latest 3D model of processing plant with secondary crushing to process an additional 1.9Mtpa of ore for the new base case 13.9Mtpa (years 1 – 5) increasing to 27.8Mtpa (from year 6).

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Mining

Detailed pit designs, mining schedules and costings have been completed for both the current throughput scenarios (12 to 24 Mtpa) and the higher throughput scenarios that are now under investigation (13.9 – 27.9 Mtpa).

The higher throughput scenarios are expected to be readily accommodated with only minor amendments to the schedules and no significant variation to designs. Mining working capital and unit operating costs will remain about the same as the 2021 Scoping Study and fixed costs will be unchanged against the higher throughput. Overall mining costs are expected to be in line with costs from the 2021 Scoping Study.

A key change between the 2021 Scoping Study and the PFS has been the utilisation of ACE technologies (Automation, Electrification and Communication). The most important aspect of ACE is the use of diesel-electric drive haul trucks and electric drive drills and shovels. These draw their power directly from the grid and offer improved performance and reduced operating costs. The ACE studies have indicated haulage cost savings compared to a manned diesel fleet estimated at around 14% or around $630M over 28 years. The ACE fleet would also reduce carbon emissions by approximately 56% before power usage is calculated. Diesel price increases have a much lower impact (around 50% less) on the ACE fleet compared to the conventional fleet and mining personnel costs reduce by around 28%. The reduction in operator roles is offset by an increase in higher skilled technical support roles where there are opportunities for more diverse recruitment and more attractive work conditions.

A Maiden Ore Reserve will be published with the upcoming PFS release. Further studies are in progress to evaluate the potential for larger pit options based on the Inferred Resources of 1.17 Mt contained copper, which are largely located below the current PFS pit. Initial studies indicate that most of the Inferred Resources may be included in a larger pit based on the same economic assumptions used in the current study. On this basis further work is being investigated to convert the Inferred Resources to Indicated so they may then be brought into the reserves in the future, which would in turn either substantially increase the mine life or allow further substantial increases in plant throughput for a similar mine life.

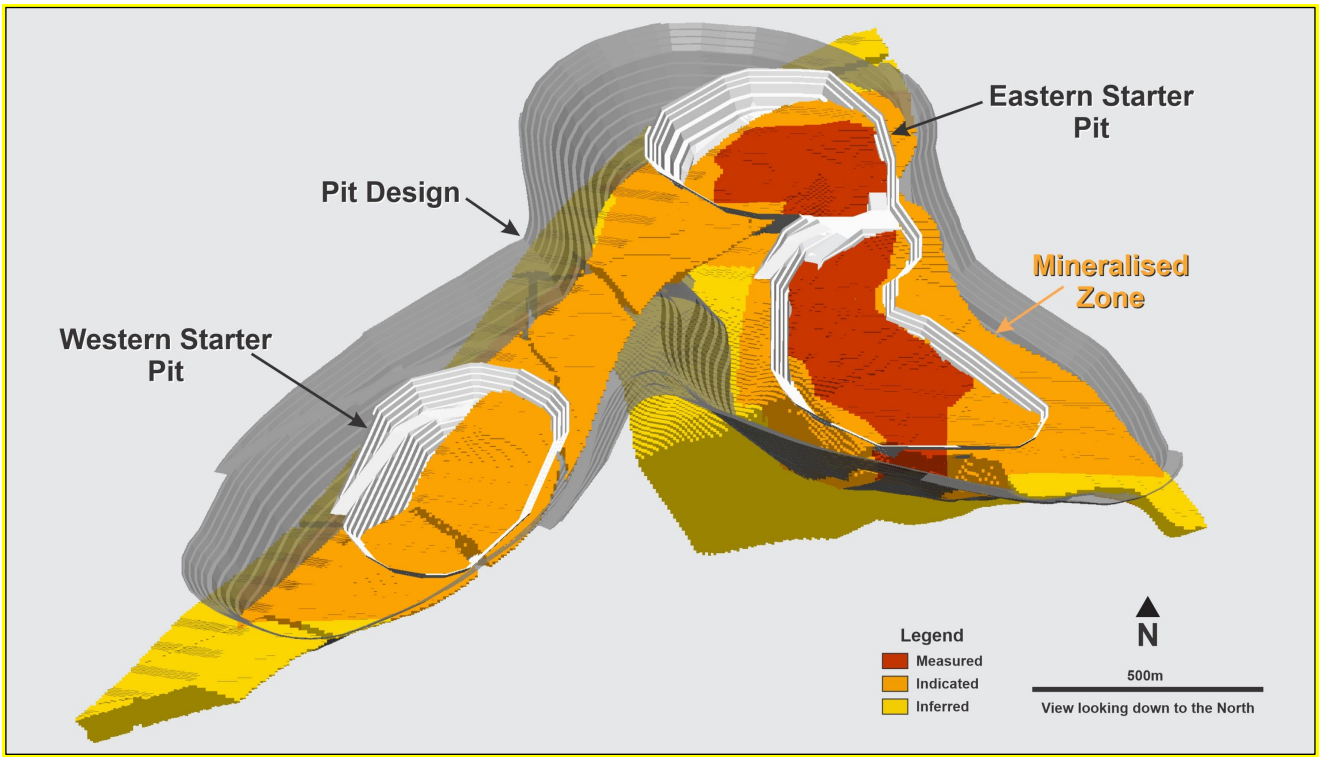

Figure 2: Current PFS pit design and Measured, Indicated and Inferred Mineral Resource zones at the Bindi Deposit.

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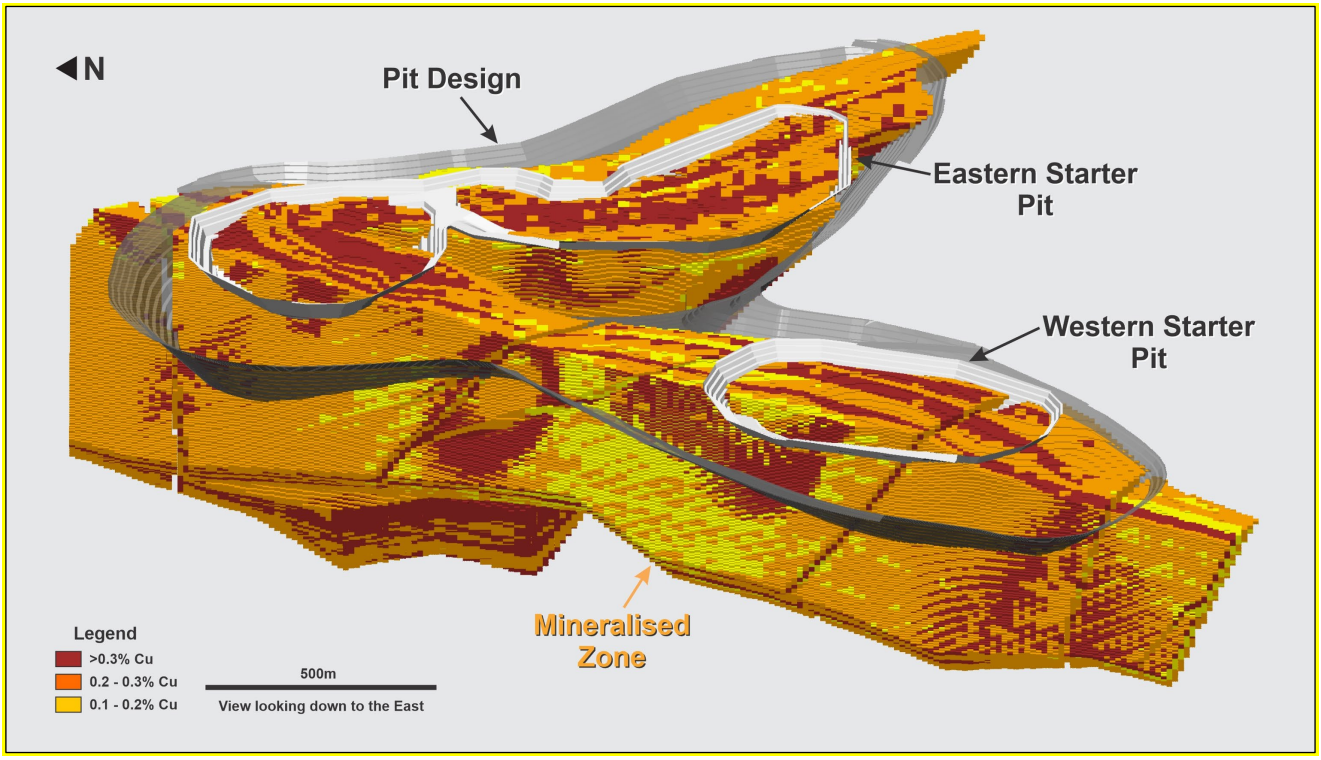

Figure 3: Bindi Deposit – Current PFS pit design and starter pits. Mineralised Zone shows extent of Inferred Ore Resources below current pits.

Metallurgy & Processing

PFS metallurgical test work based on the 2021 Scoping Study flowsheet continues to demonstrate that Caravel's ore is very amenable to conventional flotation practices.

The flowsheet is now based on primary crushing, secondary crushing, grinding by SAG and ball mill with a pebble crushing circuit, followed by conventional rougher and cleaning flotation, thickening and filtering. Recent test work has explored the opportunity for fully autogenous grinding and coarse particle flotation. Coarse particle flotation has not been included in the PFS base case but will be further considered in the Definitive Feasibility Study with a view to identifying further increases in primary grinding throughputs and consequent improvements in capital and operating costs.

Progress with metallurgical studies has been affected by long delays in local laboratories. Whilst some studies remain incomplete there has been low variability in the test work to date. Further testing will evaluate the recoveries of payable metals and deportment of deleterious elements utilising composite samples that represent the various zones and structure of the deposit, particularly those areas that make up the early years of production. Studies to date indicate the current flowsheet can produce a high-quality concentrate with very low deleterious elements that is expected to be widely marketable.

There will be no substantive changes to the flow sheet and plant design from the 2021 Scoping Study other than the addition of secondary crushing to allow the increase in throughput to 13.9Mtpa.

Considering the expected cost reductions from higher throughput and increases from higher power costs, the overall processing costs remain in line with the 2021 Scoping Study costs.

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ECI - CIVMEC

WA-based construction firm CIVMEC is reviewing the Ausenco engineering design work and provided input into the constructability of the project with an assessment of the following for inclusion in the PFS:

- The opportunity for pre-assembly and modularisation
- Transportation of modules to site
- Bulk material pricing e.g. earthworks, civils, structural, platework and mechanical
- Construction manning and labour rates.

CIVMEC operates Australia's largest heavy engineering facility at Henderson (30km south of Perth, WA) within the Australian Marine Complex and is working with Caravel and Ausenco to provide ongoing support including during the DFS.

Approvals and Site Assessments

- **Environmental Approvals**
  Baseline flora, vegetation, aquatic ecology, fauna, soil, geological, physical and geochemical mine waste and indigenous heritage field studies have been completed providing a scientific, evidence-based level of understanding of the local environment. In addition, soil, geological, physical and geochemical mine waste laboratory analysis have also been completed. Approval submissions are being prepared for the formal environmental assessment process.

- **Power**
  The existing powerline from Moora to Wongan Hills has been constructed to 132kV capacity although only is currently energised to 33 kV. An application to access this power line has been submitted to Western Power who are progressing the design to upgrade and extend the power infrastructure required to supply 65MW of power to the Caravel site to meet the Project's stage one power requirements. The increased power network capacity is expected to provide cost, decarbonisation and reliability benefits to the broader region.

  Caravel is also working with Western Power and other stakeholders on energy requirements for the Project's potential borefield to abstract and pump the required volumes of water via a new pipeline to the mining and processing site.

- **Water**

  Groundwater field work and associated licence applications are well progressed. A number of areas with sustainable yields potential have been evaluated with test bore holes and pump testing. Work is ongoing to further define and secure these resources.

- **LiDAR**

  A LiDAR and photogrammetry survey of the general project area and surrounds is near completion. The acquired data will be used to produce a 'digital elevation model' and topographical feature information to be used during detailed project planning.

- **Heritage**

  Cultural heritage surveys have been completed with the Yued Traditional Owners and Caravel's heritage consultants. Caravel continues to work in accordance with Heritage Protection agreements and relevant legislation.

Stakeholder Engagement

Engagement is continuing with landowners and a range of project stakeholders to obtain input into project design. Opportunities to maximise the use of local providers of goods and services in the Project are being actively explored.

This announcement is authorised for release by Managing Director, Steve Abbott.

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Competent Persons Statements

The information in this report that relates to Exploration Results is based on and fairly represents information compiled by Mr Peter Pring. Mr Pring is Senior Exploration Geologist with Caravel Minerals. Mr Pring is a shareholder of Caravel Minerals and is a member of the Australasian Institute of Mining and Metallurgy. Mr Pring has sufficient experience of relevance to the styles of mineralisation and 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 Pring consents to the inclusion in this report of the matters based on information in the form and context in which they appear.

The information in this report that relates to Mineral Resources is based on and fairly represents information compiled by Mr Lauritz Barnes, (Consultant with Trepanier Pty Ltd). Mr Barnes is a shareholder of Caravel Minerals. Mr Barnes is a member of both the Australasian Institute of Mining and Metallurgy and the Australasian Institute of Geoscientists. Mr Barnes has sufficient experience of relevance to the styles of mineralisation and 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 Barnes consents to the inclusion in this report of the matters based on information in the form and context in which they appear.

Information in this announcement relating to Mineral Resources is extracted from the ASX release dated 23 November 2021. Caravel Minerals Limited confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters underpinning the Mineral Resource continue to apply and have not materially changed. Caravel Minerals Limited confirms that the form and context in which the Competent Persons' findings are presented in this announcement have not been materially modified from the original market announcement.

Previous Disclosure *The information in this report is based on the following Caravel Minerals ASX Announcements, which are available from the Caravel Minerals website www.caravelminerals.com.au and the ASX website www.asx.com.au:*

- *25 August 2021 "Bindi Deposit – Updated Geological Model"*
- *4 November 2021 "Scoping Study – Caravel Copper Project"*
- *23 November 2021 "Major Mineral Resource Upgrade – Caravel Copper Project"*
- *17 February 2022 "PFS Update - Caravel Copper Project"*
- *4 March 2022 "Drilling Results – Bindi Copper Deposit"*

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

Forward Looking Statements *This document may include forward looking statements. Forward looking statements include, but are not necessarily limited to, statements concerning Caravel Minerals planned exploration programmes, studies and other statements that are not historic facts. When used in this document, the words such as "could", "indicates", "plan", "estimate", "expect", "intend", "may", "potential", "should" and similar expressions are forward looking statements. Such statements involve risks and uncertainties, and no assurances can be provided that actual results or work completed will be consistent with these forward looking statements.*

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ABOUT
CARAVEL MINERALS

Caravel Minerals Limited (ASX:CVV) is advancing Pre-Feasibility Studies for the Caravel Copper Project – a large-scale, long-life copper mining and processing project located 150km northeast of Perth in Western Australia's Wheatbelt region. Current mineral resources for Measured, Indicated and Inferred are 1.18 billion tonnes at 0.24% Cu for 2.84Mt contained Cu (0.1% cut-off), making Caravel Australia's largest undeveloped copper project based on contained Cu. The Project will use conventional open-pit mining and simple flotation processing methods to process 12Mtpa of ore from years 1 to 5 ramping up to 24Mtpa from year 6. Copper will be sold as a concentrate and exported via road through local ports with ~35,000 tpa copper in concentrate in years 1 to 5 and ~65,000 tpa copper in concentrate from year 6. Current mine life is >25 years.