

5 JUNE 2024

ANNOUNCEMENT

# CLUSTER OF EM ANOMALIES IDENTIFIED AT ARTILLERY ROAD



# Highlights



Recent Electromagnetic (EM) survey identifies new cluster of anomalies at the newly discovered Artillery Road prospect;



Emergo and Mitre Geophysics EM inversion analysis identifies new Induced Polarisation (IP) conductor targets at depth;



This discovery follows the success of the initial drilling at Artillery Road that confirmed a large mineralised skarn deposit;

QMines is now preparing access agreements with the aim of ground truthing, mapping and completing soil sampling at the targets; and



Once complete the Company expects to design a further drilling program to test multiple anomalies.

## Overview

QMines Limited (**ASX:QML**) (**QMines** or **Company**) is pleased to announce the results of a field review for drill targeting at the Artillery Road prospect, a newly discovered regional target that forms part of the Company's flagship Mt Chalmers copper and gold project, located 17km north-east of Rockhampton, Queensland (Figure 1).

Geochemical modelling, field mapping, and petrographic analysis of Reverse Circulation (**RC**) drilling samples has improved the understanding of the deposit, and drilling to date suggests the Artillery Road prospect is part of a larger skarn system.

## **Management Comment**

Commenting on the drilling program, QMines Executive Chairman Andrew Sparke said:

The Company will commence drilling these new targets once field investigation is completed and access and compensation agreements have been finalised. With 40 plus Electromagnetic and newly identified Induced Polarisation anomalies to assess, QMines has an excellent pipeline of regional drilling targets that will extend well into the future."





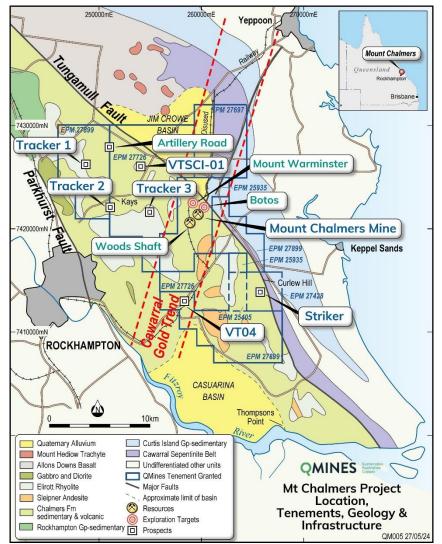


Figure 1 Location, tenure and geology of the Mt Chalmers project and the Artillery Road prospect.

## **Skarn Deposits**

Skarn mineralogy is mappable in the field and serves as the broader "alteration envelope" around potential ore bodies. Most skarn deposits are predictably zoned in both mineralogy and geochemistry (Figure 2), and recognition of distal alteration features is important in the early exploration stages. Details of skarn mineralogy and zonation can be used to construct deposit-specific exploration models for developing exploration programs or regional syntheses.

Copper skarns are considered the world's most abundant skarn type. They are common in orogenic zones related to subduction, both in oceanic and continental settings, and are generally associated with I-type (magnetite series calc-alkaline) porphyritic plutons with associated volcanic rocks. They have stockwork veins, brittle fractures and brecciation, and intense hydrothermal alteration. These features are indicative of a relatively shallow environment formation. Most copper skarns form close to intrusive stock contacts with a relatively oxidised skarn mineralogy dominated by magnetite and garnet.

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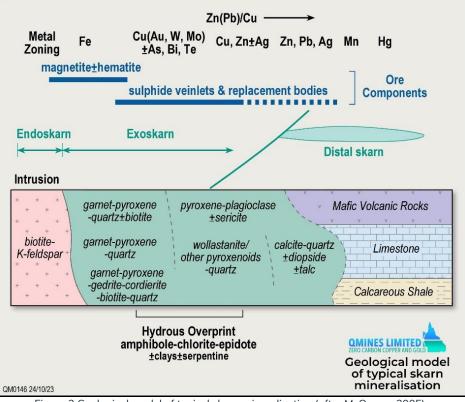


Figure 2 Geological model of typical skarn mineralisation (after McQueen, 2005).

## **Petrographic Study**

Intense hydrothermal replacement of primary minerals with skarn-like assemblages (including actinolite-epidoteclinopyroxene (diopside)), or their strongly retrogressed equivalents are interpreted in a recent petrographic study<sup>1</sup> of Artillery Road RC drill-chips. Low-grade metamorphism (± propylitic alteration) was also noted in some samples.

The primary rock types of the intensely altered rocks remains speculative, but could include carbonaceous sedimentary rock, mafic to intermediate igneous rock and perhaps dolomitic/calcareous sedimentary rock. There could have been initial higher temperature replacement by calc-silicate phases (specifically clinopyroxene), followed by initial retrograde replacement by sulphides (pyrrhotite, pyrite, chalcopyrite) and actinolite, and perhaps under lower temperature conditions by epidote and quartz, with associated chlorite and relatively low-Fe sphalerite.

No garnets or magnetite were noted in the petrography, suggesting drilling may be distal to the causative intrusion and potential interpreted Cu (+/- Au) zone.

# **Geological Mapping**

QMines acquired the Mt Chalmers project in 2020 and, as a precursor to commencing regional exploration, digitised and combined all known historical geological mapping from previous explorers. The Artillery Road prospect was mapped by both Geopeko and Newmont in the 1980's, with the local geology map for Artillery Road shown in Figure 3 with the addition of interpreted lineaments and faults derived from geophysical data.

The Artillery Road cluster of VTEM and reprocessed IP target areas are shown locally in aerial view in Figure 4.

<sup>&</sup>lt;sup>1</sup> https://wcsecure.weblink.com.au/pdf/QML/02738738.pdf



Despite having been mapped by at least two previous explorers, QMines discovered a series of gossan outcrops while ground-truthing the VTEM targets in the area. These gossans are thought to be the surface expression of the Artillery Road skarn.

There is extensive historical soil sampling across parts of the current project area, however the Artillery Road prospect area was not sampled. This has highlighted that even though the area has a long history of mining and exploration, near-surface deposits can still be found.

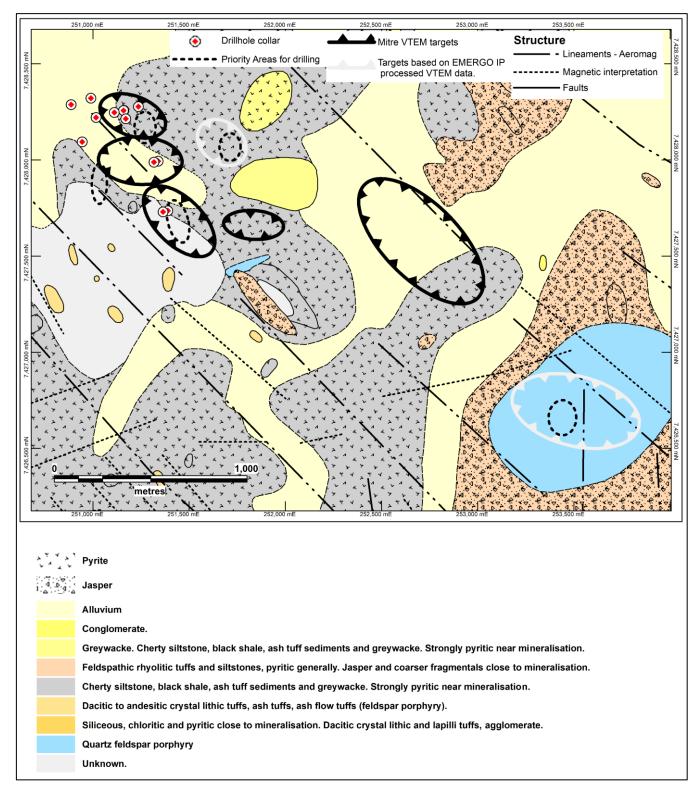


Figure 3 Local geology at the Artillery Road prospect with EM and IP anomalies (after Geopeko and Newmont).



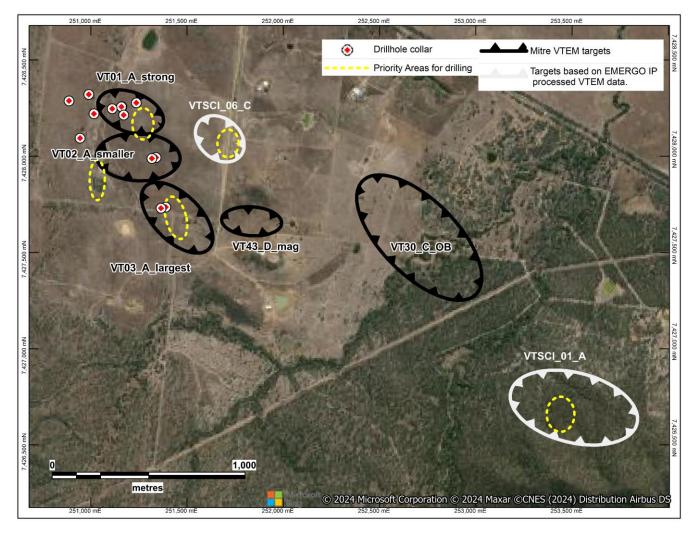


Figure 4: Clustered VTEM and newly identified IP target at Artillery Road.

# Geophysics

Artillery Road was a priority drill target generated from the regional VTEM survey flown by the Company in 2023 and processed and interpreted by Mitre Geophysics (**Mitre**).<sup>2</sup> An initial program comprising 13 first pass RC drill holes was completed later in that year. Further collaborative work was undertaken by EMergo and Mitre modelling IP effects to resolve weak conductors hidden by polarisation signals. This gave a more accurate mapping of ground resistivity and potential disseminated sulphides at depth<sup>3</sup>.

The cluster of EM targets originally identified by Mitre and upgraded through the IP modelling, has produced a

significant new target VTSCI\_01\_A which is shown locally in Figure 3 - Figure **5**. The newly identified IP conductors are shown in grey scale on all images and, whilst appearing as strong deeper conductive anomalies, are reflected as magnetic lows in the VTEM TMI RTP data.

VTSCI\_01\_A is interpreted by Mitre as a large, deep, strong conductive anomaly which is coincident with a mapped quartz felsic porphyry intrusive (Figure 3).

<sup>&</sup>lt;sup>2</sup> https://wcsecure.weblink.com.au/pdf/QML/02738738.pdf

<sup>&</sup>lt;sup>3</sup> https://wcsecure.weblink.com.au/pdf/QML/02751083.pdf



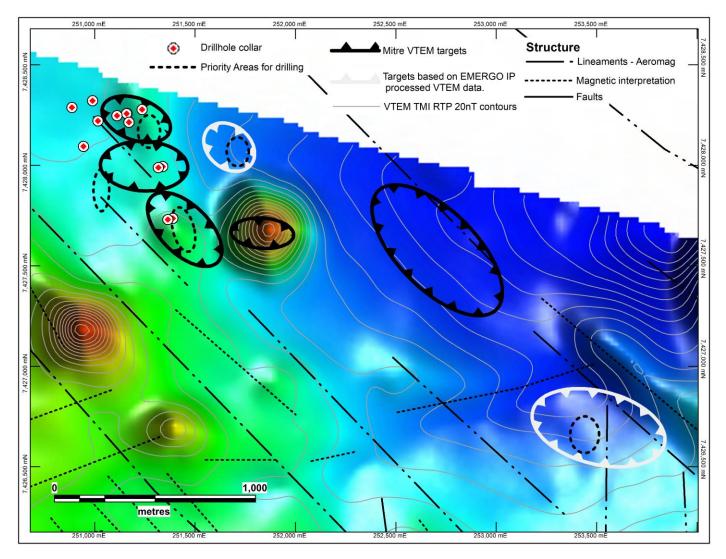


Figure 5: Artillery Road clustered EM and IP anomalies over TMI RTP magnetics and structural interpretation.

The summary plot generated by Mitre (Figure 6) shows VTSCI\_01\_A as a broad, single peak early-mid to late time response. This area is strongly influenced by IP effects. The corrected model suggests a clearer late time anomaly across multiple survey lines (>300m). The resistivity model shows a deep (250m+) conductor, but this conductor is almost certainly much deeper than the actual source.

The EM and IP response also includes a chargeability anomaly at 340m depth and may also be generating a reversely polarised magnetised anomaly.

The Company now has access to the site and will commence ground investigations prior to the commencement of first pass drilling at this new EM/IP target.

# QMINES Sustainable Australian Copper

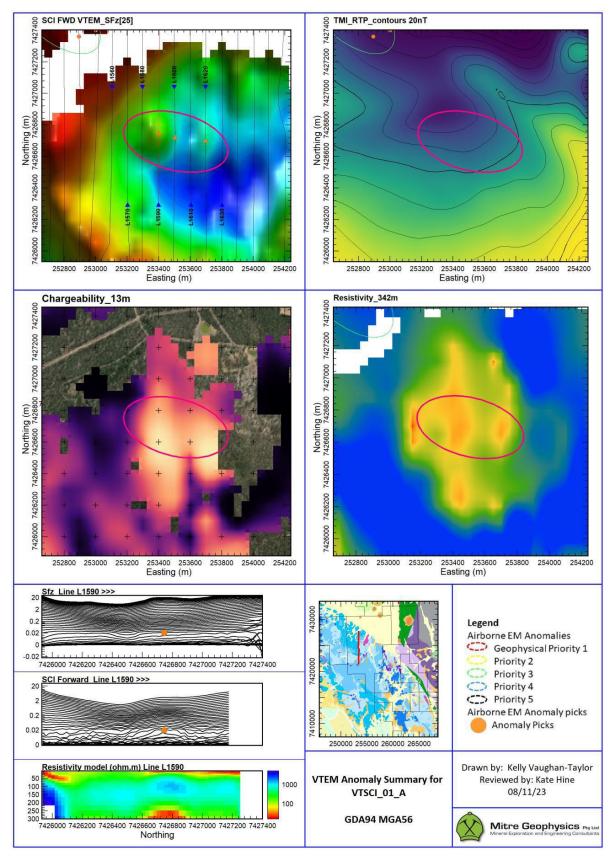


Figure 6: Summary plot of the VTSCI 01 EM target generated from the EMergo IP Inversion Study.

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# Drilling

The first pass drilling at the Artillery Road prospect intersected skarn mineralisation with drill collar locations shown in Figure 3-5. The holes targeted three VTEM anomalies, preceding the EMergo IP study, adjacent to and within 2,000m of the mapped porphyry and IP anomaly.

The initial program<sup>4</sup> comprised 13 RC holes for 2,373 metres, with all holes returning mineralised intervals between 3 to 23m wide, including 23m @ 0.11% Cu and 0.9% Zn from 205m (ARCC010), 15m @ 0.1% Cu, 1.78% Zn and 1g/t Ag from 219m (ARRC013). Anomalous gold was intersected in holes ARRC005 (12m @ 0.28g/t Au and 0.18% Cu from 34m) and ARRC007 (10m @ 0.11g/t Au and 0.15% Cu from 30m).

The drilling highlighted a geochemical (sulphide assemblage) zonation typical of a skarn system with stronger Zn-Pb-Ag in the northwest (distal), becoming more Cu-Au rich in the southeast (towards the mapped intrusion and IP anomaly.

#### **Next Steps**

The Company is currently completing initial ground works at various targets including ground truthing, geological mapping and sampling. These works will better inform the design of a future drilling program designed to test several EM, IP, and magnetic anomalies. The drill program aims to extend recently discovered mineralisation, discover the source of the fluids, and define a potentially economic zone within the skarn.

## **Forward-Looking Statements**

This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning QMines Limited planned exploration program and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "expect," "intend," "may", "potential," "should," and similar expressions are forward-looking statements. Although QMines believes that its expectations reflected in these forward- looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that further exploration will result in the estimation of a Mineral Resource.

## **Competent Person Statement**

#### Exploration

The information in this document that relates to mineral exploration and exploration targets is based on work compiled under the supervision of Mr Glenn Whalan, a member of the Australian Institute of Geoscientists (AIG). Mr Whalan is QMines' principal geologist and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking 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' (JORC 2012 Mineral Code). Mr Whalan consents to the inclusion in this document of the exploration information in the form and context in which it appears.

<sup>&</sup>lt;sup>4</sup> https://wcsecure.weblink.com.au/pdf/QML/02738738.pdf



#### **About QMines**

QMines Limited (**ASX:QML**) is a Queensland focused copper and gold development Company. The Company owns rights to 100% of The Mt Chalmers (copper-gold) and Develin Creek (copper-zinc) deposits, located within 90km of Rockhampton in Queensland.

Mt Chalmers is a high- grade historic mine that produced 1.2Mt @ 2.0% Cu, 3.6g/t Au and 19g/t Ag between 1898-1982.

#### **Project & Ownership**



#### **QMines Limited**

ACN 643 312 104 ASX:**QML** 

#### Unlisted Options

5,750,000 ( \$0.375 strike, 3 year term)

#### Shares on Issue

225,393,018

#### Contacts

**Registered Address** Suite J, 34 Suakin Drive, Mosman NSW 2088

Postal Address PO BOX, Mosman NSW 2088 The Mt Chalmers and Develin Creek projects now have a Measured, Indicated and Inferred Resource (JORC 2012) of **15.1Mt @ 1.3% CuEq for 195,800t CuEq.**<sup>1,</sup> 2

QMines' objective is to make new discoveries, commercialise existing deposits and transition the Company towards sustainable copper production.

#### **Directors & Management**

Andrew Sparke Executive Chairman

Peter Caristo Non-Executive Director (Technical)

**Glenn Whalan** Geologist (Competent Person) **James Anderson** General Manager Operations

Elissa Hansen Non-ExecutiveDirector & Company Secretary

#### **Compliance Statement**

With reference to previously reported Exploration results and mineral resources, 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, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parametres underpinning the estimates in 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 presented have not been materially modified from the original market announcement.

 ASX Announcement - Mt Chalmers Resource Upgrade. 22 Nov 2022
ASX Announcement - QMines Delivers Fight Resource at Develin Creek. 22 Sept 2022

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This announcement has been approved and authorized by the Board of QMines Limited.



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