



Eloise Camp: Shear-hosted Copper

Mike Taylor EGM- Exploration

September 2024

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AIC Mines

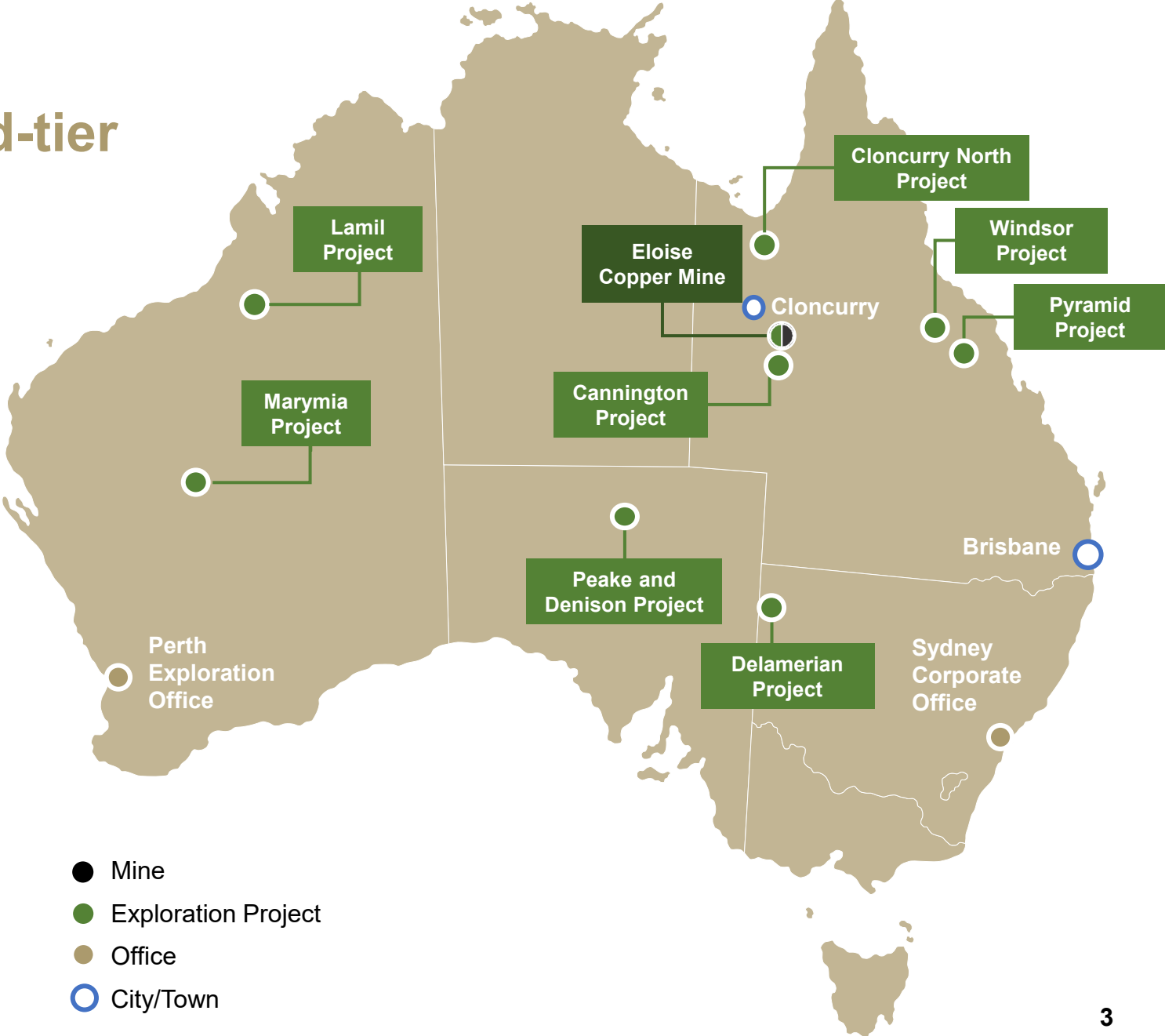
Building a new Australian mid-tier copper and gold miner

Growth through exploration, development and acquisition

Cornerstone asset in the Mt Isa – Cloncurry region, one of the most significant copper producing regions in the world

Building a team for long-term, repeatable success in exploration, development and acquisition

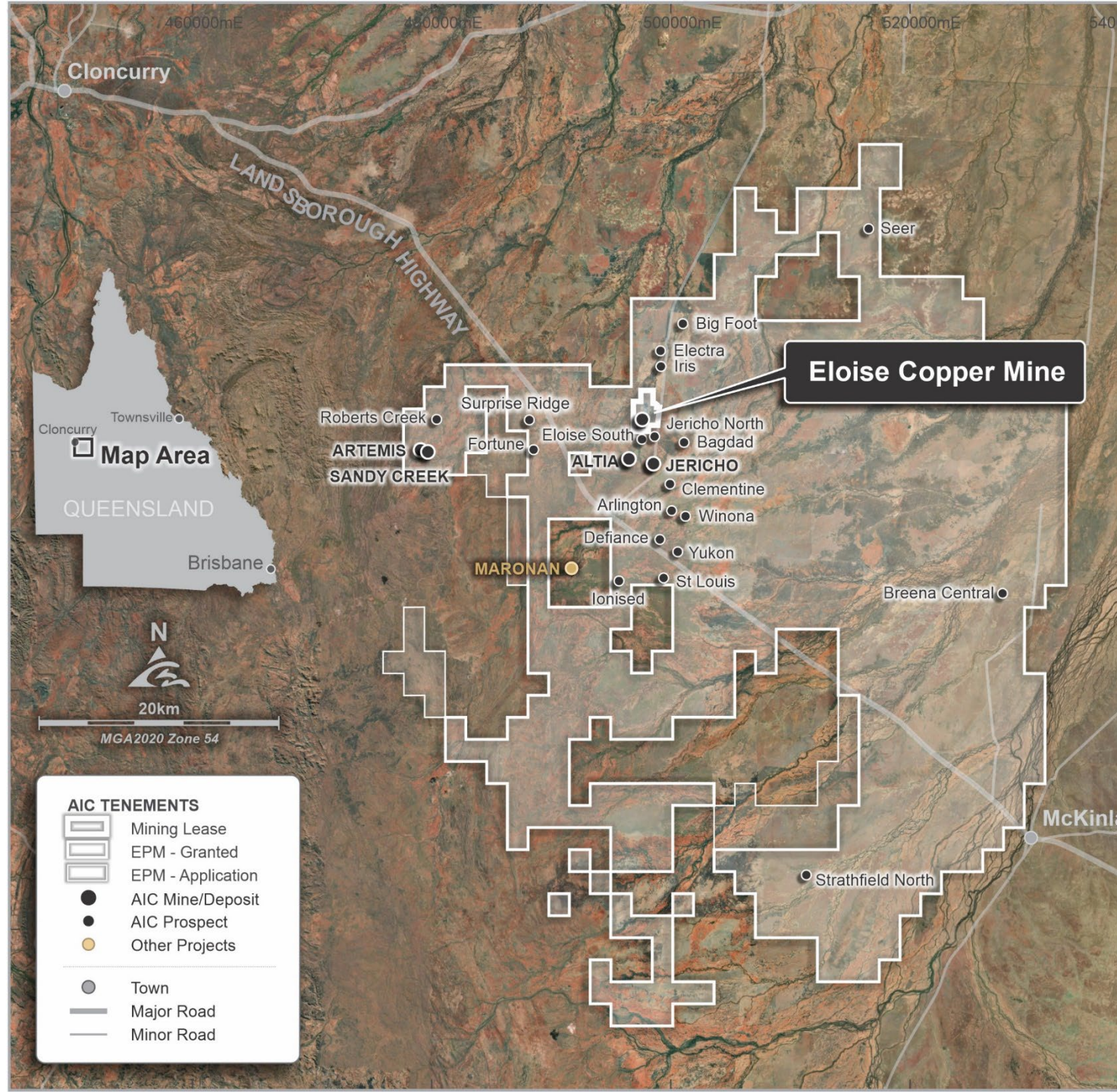
Exploration focused in Eastern Australia



Eloise Deposit

Enduring Copper-Gold mine

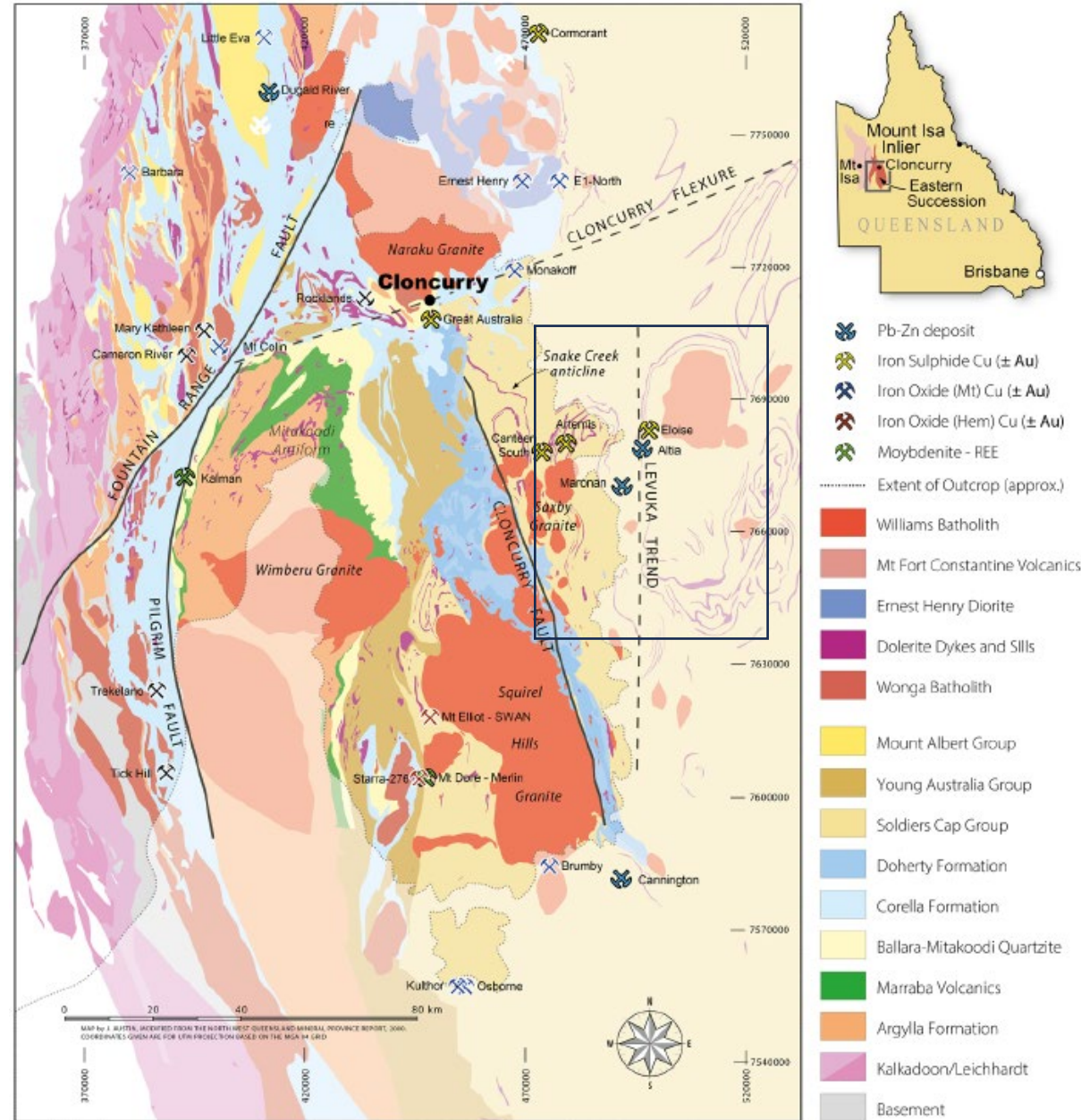
- Located 60km SE of Cloncurry
- Discovered in 1985 by BHP during their Eastern Succession discovery boom
- Developed by Amalg in 1996 on 3.3Mt grading 5.8% Cu & 1.6g/t Au resource
- Production totalling 14.5Mt of ore grading 2.7% copper (Cu) for ~376,000t of copper¹ – 26 years of production
- Mineral Resource² of 6.2Mt grading 2.5% Cu and 0.7g/t Au containing 154,750t of copper and 135,250oz of gold



Regional Geological Setting

Eastern Succession of Mt Isa Province

- The Eastern Succession hosts numerous deposits, including the world-class Ernest Henry (Cu-Au) and Cannington (Pb-Zn-Ag) deposits
- Low ratio of large deposits to moderate/small
- Spectrum of deposit styles
 - Range from magnetite- or hematite-dominated IOCG's, iron sulphide copper-gold deposits (ISCG), Broken Hill-type (BHT) and shear hosted gold-copper deposits
- *The development of a tighter framework for IOCG deposits is helping label these variable deposits*



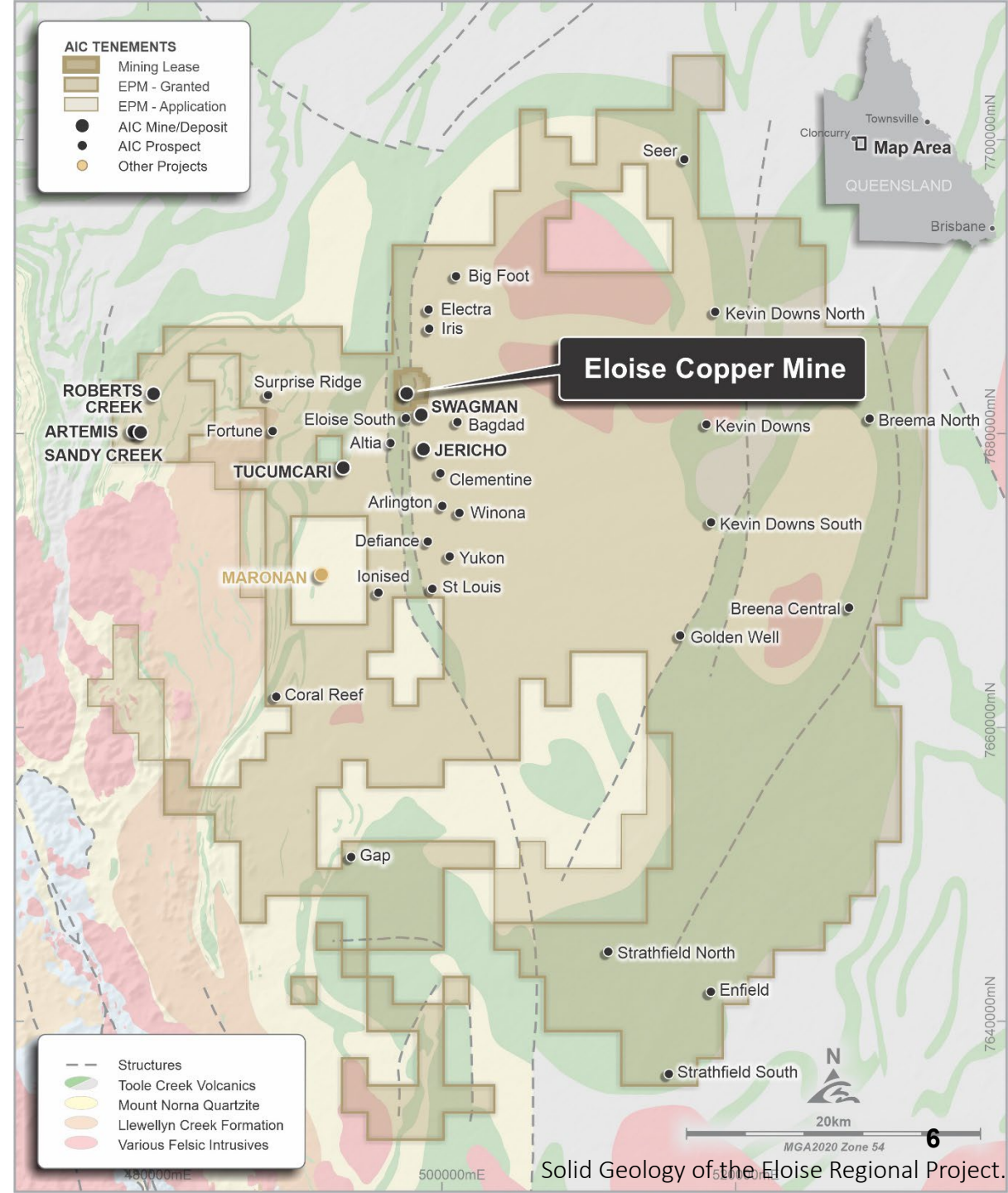
Geology of the Eastern Succession.

Austin, James & Blenkinsop, Thomas. (2010). Cloncurry Fault Zone: strain partitioning and reactivation in a crustal deformation zone, Mt Isa Inlier. Australian Journal of Earth Sciences. 57. 1-21. 10.1080/08120090903416187.

Geological Setting

Local Geology

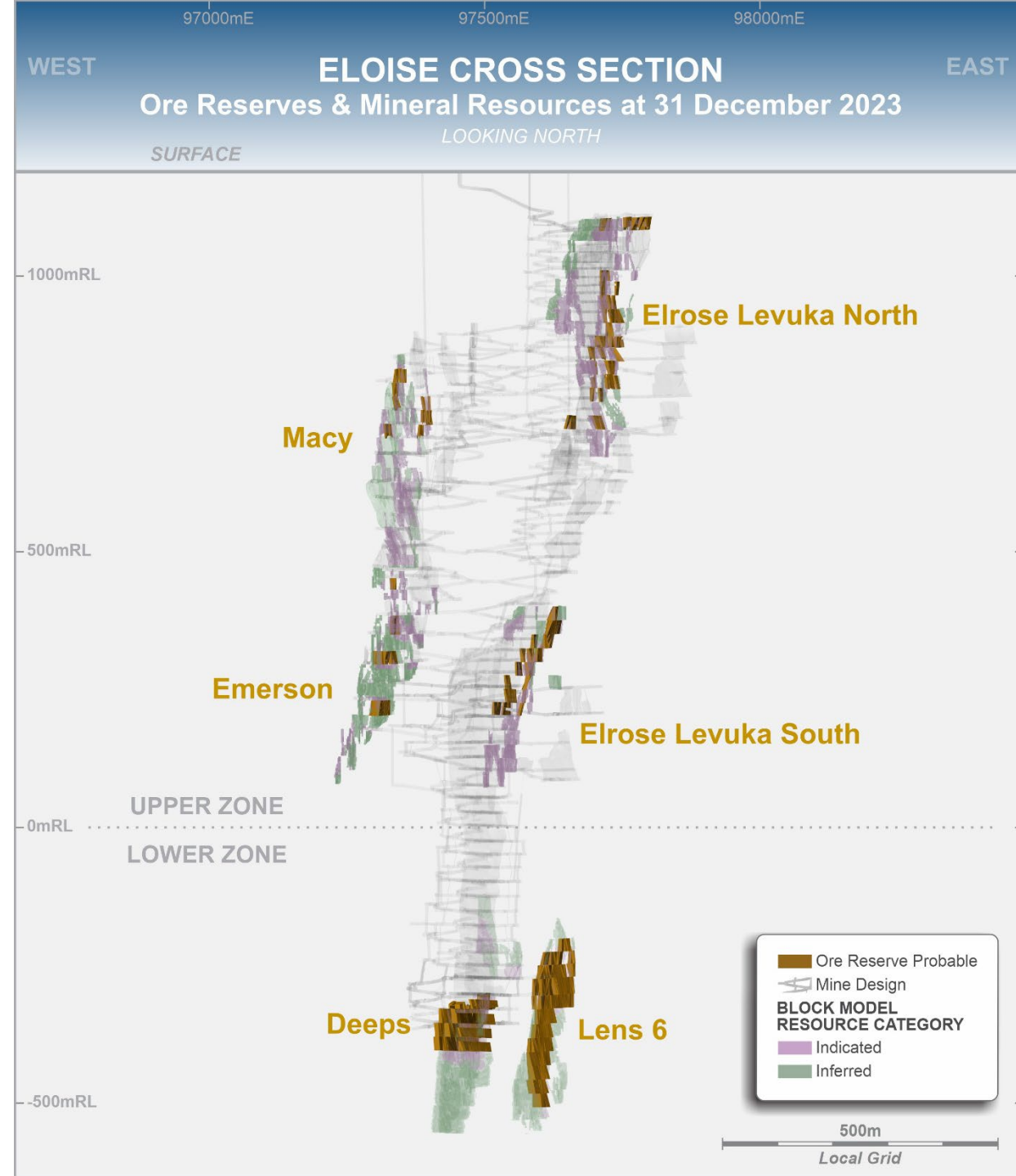
- Metamorphosed siliciclastic and mafic igneous rocks of the Soldiers Cap Group
- Comprises three units, namely the Toole Creek Volcanics (psammites, amphibolite and schist), the Mount Norna Quartzite (meta-arkose, psammopelite, quartzite and amphibolite), and the Llewellyn Creek Formation (psammite and schist)
- Granites occupy a large area of the Eastern Succession (Williams- Narku suite) - dominantly unroofed
- Emplaced during the Isan Orogeny (ca. 1540 to 1500 Ma; Perkins and Wyborn, 1998).
- Increasing depth of Cenozoic mudstones and unconsolidated Mesozoic sediments from west to east



Eloise Deposit

Orebody Characteristics

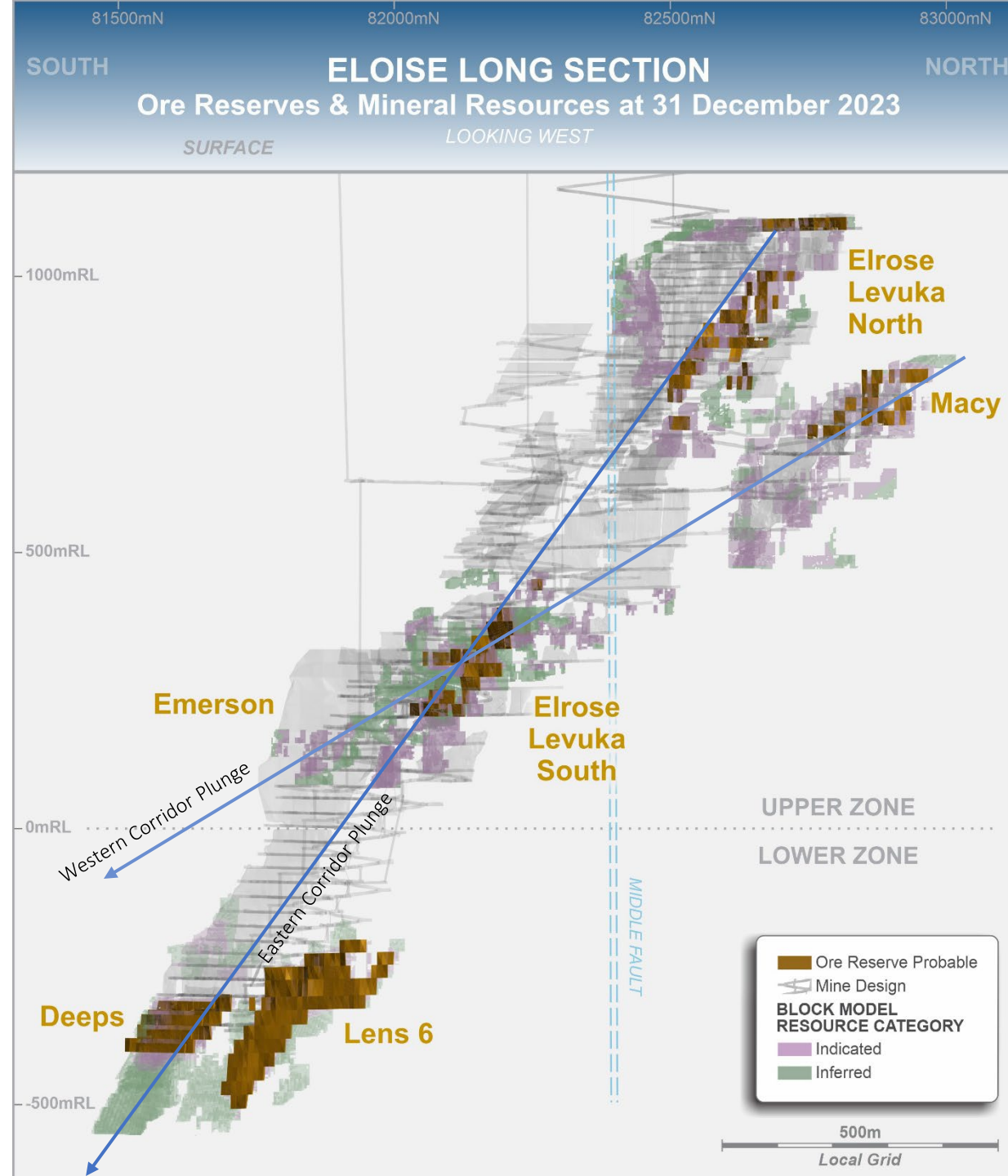
- Hosted in fine to medium grained psammities
- Composed of two subparallel, NNE trending steeply plunging bodies (Colloq. Mineral Corridors)
- Corridors located on either side of thick amphibolite's (gabbro dykes and sill protolith)
- Ore mineral assemblage is Chalcopyrite (Cpy) with Pyrrhotite (Po) and minor Pyrite (Py)



Eloise Deposit

Orebody Geometry

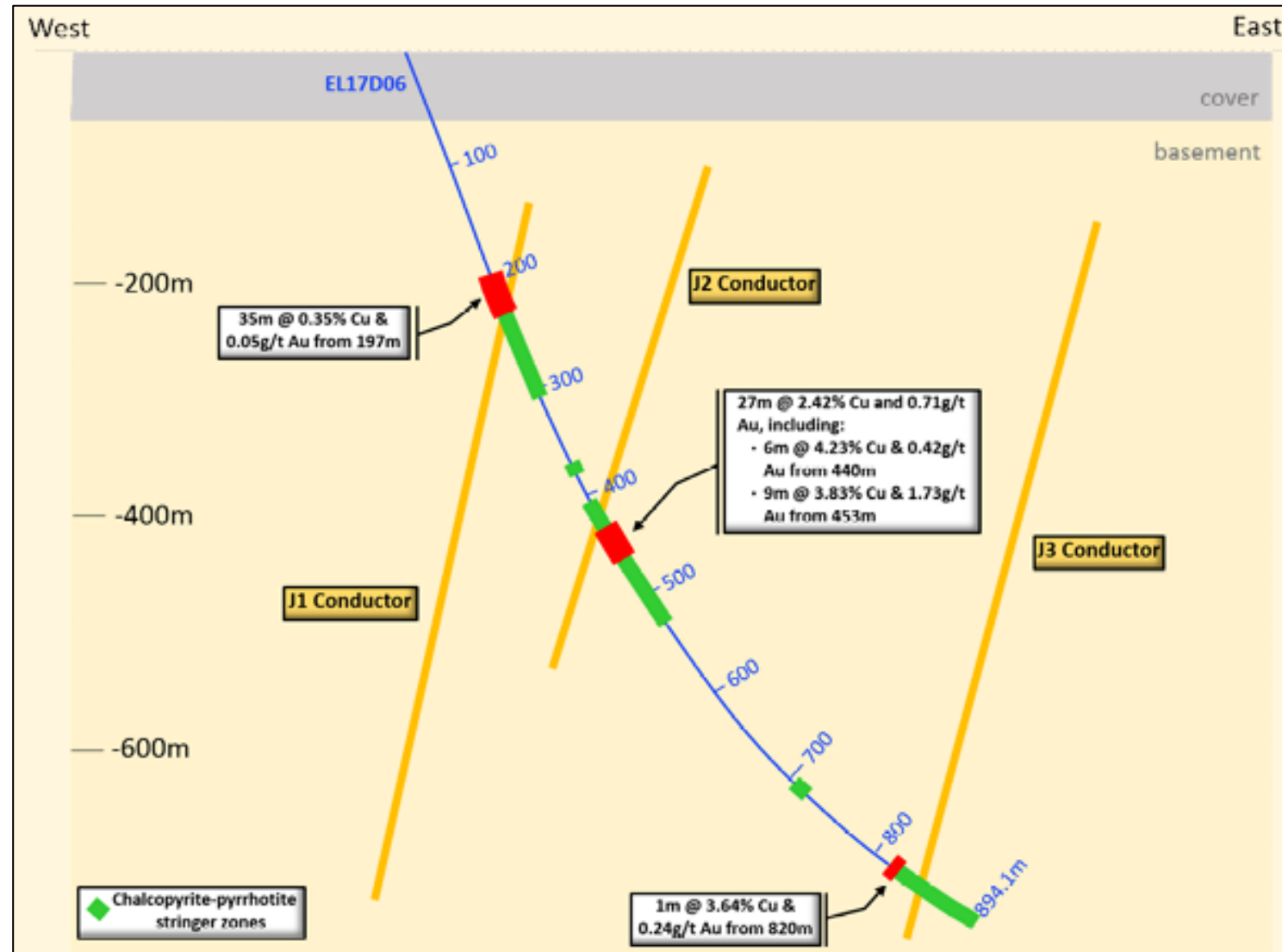
- The Eastern Corridor plunges 55° trending 190°
- Western Corridor plunges $30\text{-}35^\circ$ trending 190°
- Deeps resource defined to $\sim 1.6\text{km}$ depth and remains open
- Western Corridor open below Emerson
- Each corridor contains at least 5 sub-parallel lenses
- Lenses range in thickness from 1 to $+10\text{m}$, separated by 5-10metres of altered host rock.



Jericho Discovery

Systematic Exploration through Cover

- Discovered in 2017 by Minotaur Ltd - OZ Minerals JV
- Detection tool- ground electromagnetics
- EL17D06¹ intersected 3 lenses of copper mineralisation;
 - 35m @ 0.35% Cu - J1
 - 27m @ 2.42% Cu, 0.71g/t Au – J2
 - 1m @ 3.64% Cu – J3
- **Doesn't adhere to the Eloise exploration model**

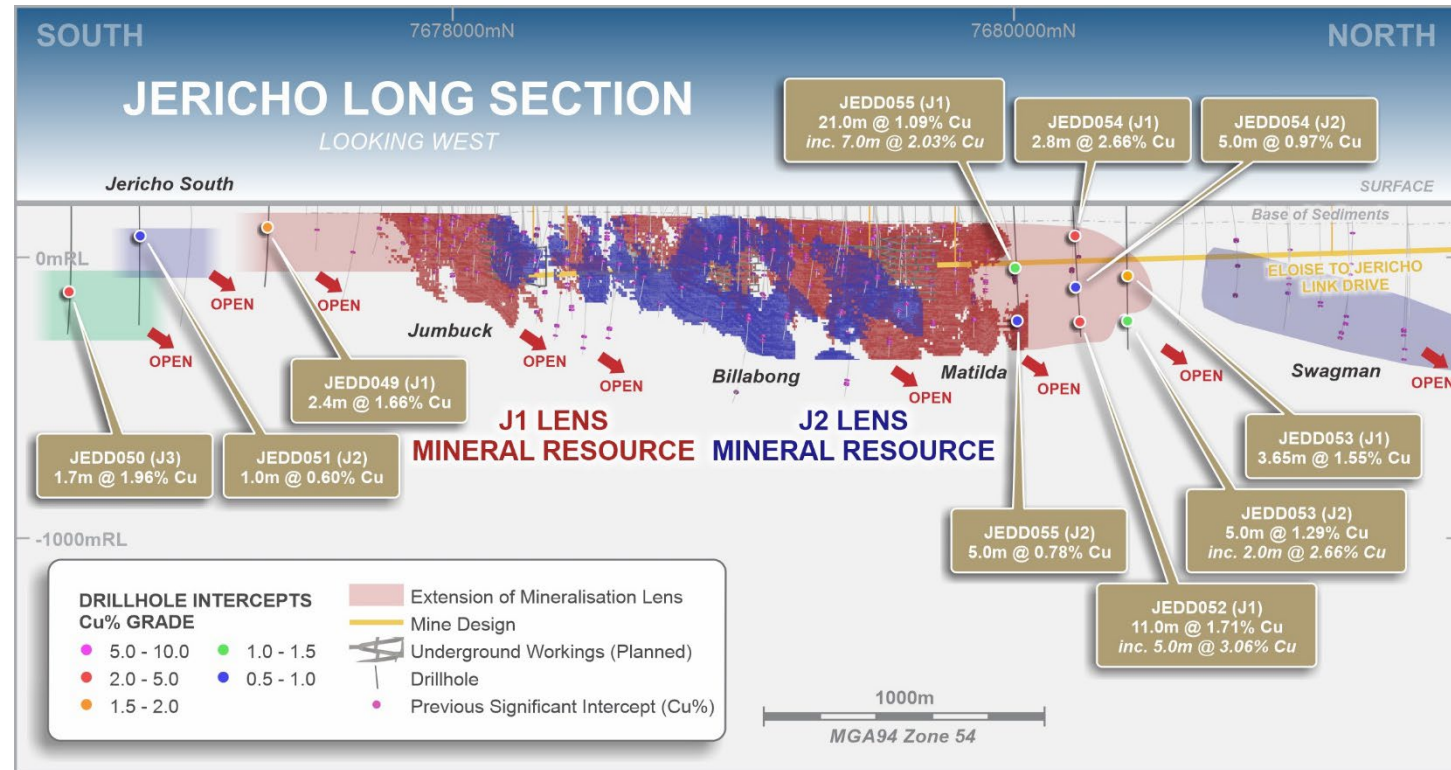


Original Cross section from Minotaur ASX announcement 3 November 2017

Jericho Resource

Open along strike and at depth

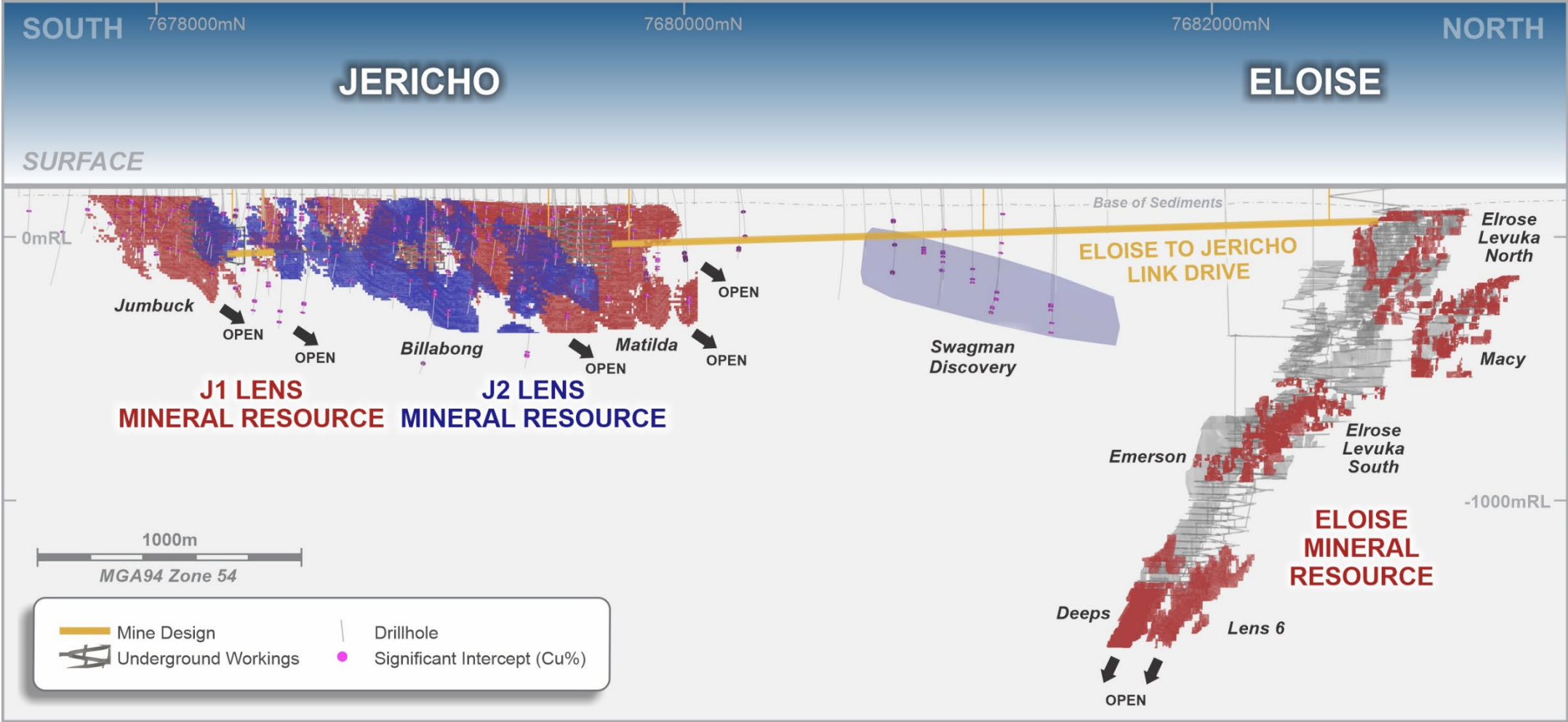
- Mineralisation now defined over a 5km strike and open
- Two lenses (J1 and J2) containing higher grade (>2% Cu) north plunging shoots
- Jericho Mineral Resources total: **14.1Mt** grading **2.0% Cu** and **0.4g/t Au** containing 286t Cu and 177koz Au (at 31 Dec 2023)
- Jericho Ore Reserve estimate: **3.2Mt** grading **1.9% Cu** and **0.4g/t Au** containing 61kt Cu and 37koz Au (at 31 December 2023)



Note: See the Mineral Resource and Ore Reserve tables provided in AIC ASX announcement "Significant increase in Jericho Ore Reserve" dated 28 March 2024

Jericho Resource Growth Potential

Along strike and Depth



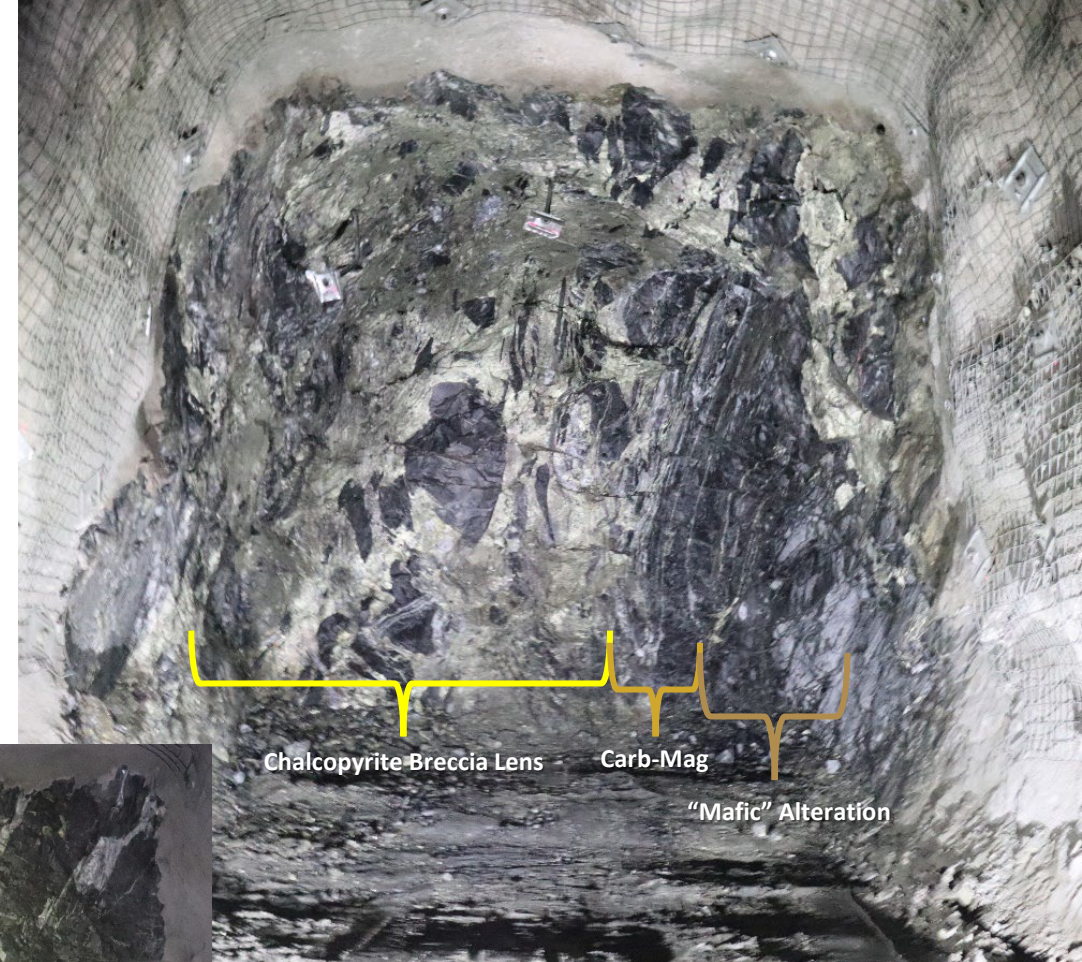


Eloise Deposit Mineralisation-Alteration and Structure

Eloise Mineralisation Style

Massive Sulphide

- Chalcopyrite occurs as breccia's to sheeted veins "replacing" larger pyrrhotite envelope
- Proximal alteration typically carbonate-magnetite overprinted by sulphides
- Proximal to medial: chlorite-hornblende-biotite-scapolite-actinolite - "mafic" alteration



Typical mining face of a single lens looking north

R-L: Carbonate-Magnetite to "mafic minerals" alteration

Eloise Alteration

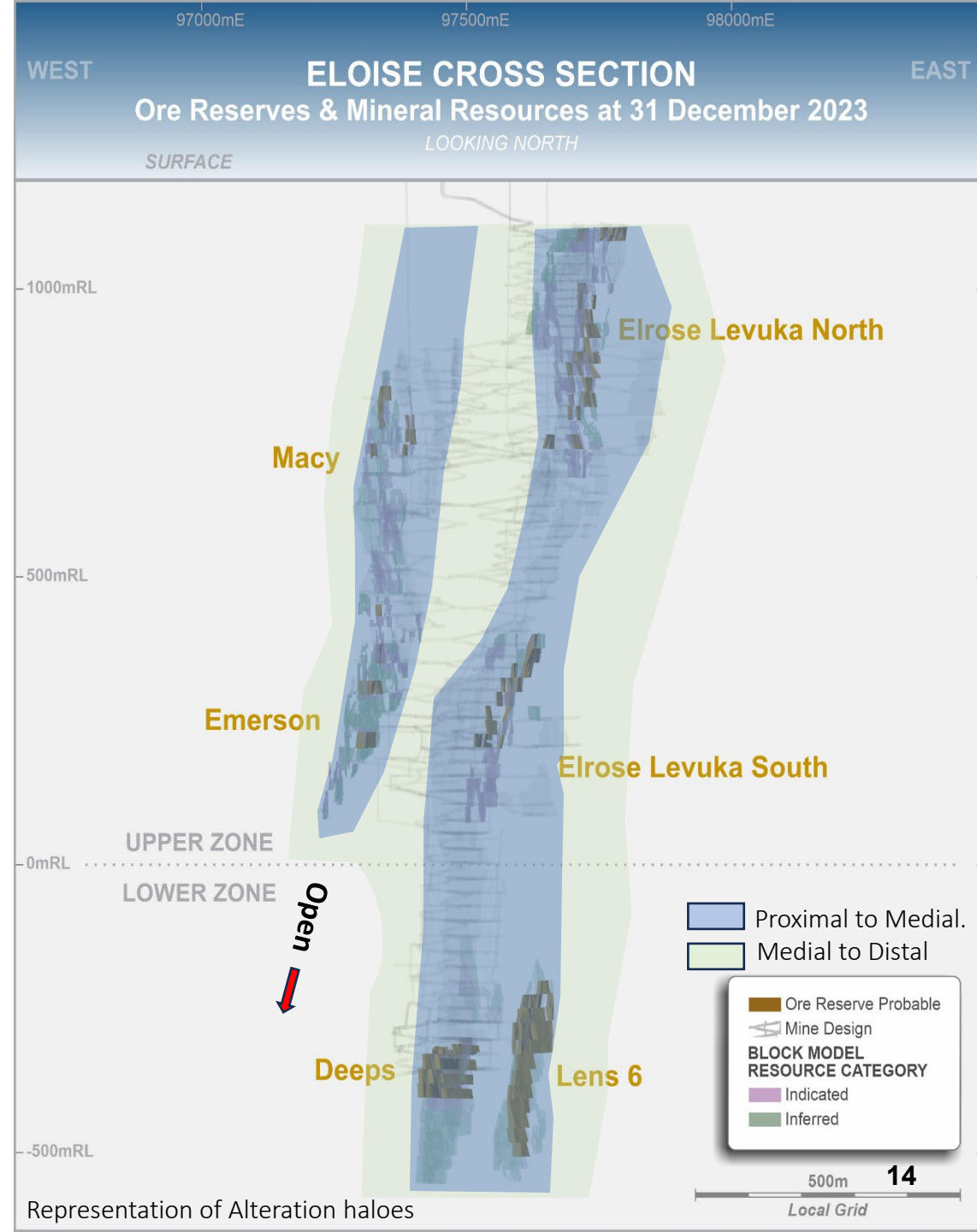
Proximal to Distal Discernable

- Pyrrhotite (pyrite) intergrown and marginal to Cpy core
- Proximal Carb-Mag:
 - Where mag absent, carbonate predicts medial to distal
- “Mafic” minerals- scapolite, feldspars, amphibole, mica’s, apatite
 - Reflection of Fe to Cl, + P in excess
- Proximal <50m – Medial 50-100m - Distal <200m

Alteration Mineral Group	Proximal	Medial	Distal
Carbonates	Ank	Dol	Cal (Fe) / Cal
Scapolite	Scap (CL)		Scap
Feldspars	Ca-Fsp	Alb	Ano / Ksp
Chlorite	Clino	Chl	Cham
Amphiboles	FeAct	FeAct (Cl)	Hbl(Fe) / Hbl(Mg)
Biotite		Bt (Cl)	Bt

S ----- CL ----- Fe

Modified from Schlegel et al 2023 internal report



Representation of Alteration haloes

Eloise Paragenesis

Multiple Stages

- Relationships observed in core and micro scale (TIMA) allow for a revised paragenesis.
- Stage 1: early regional Peak Metamorphism – typical across region
- Stage 2: appearance of slightly lower temperature Na-K-Ca metasomatism developed in the shear zone.
- Stage 3: Carbonate-magnetite
- Stage 4: Sulphides with metasomatic Fe and Chlorine

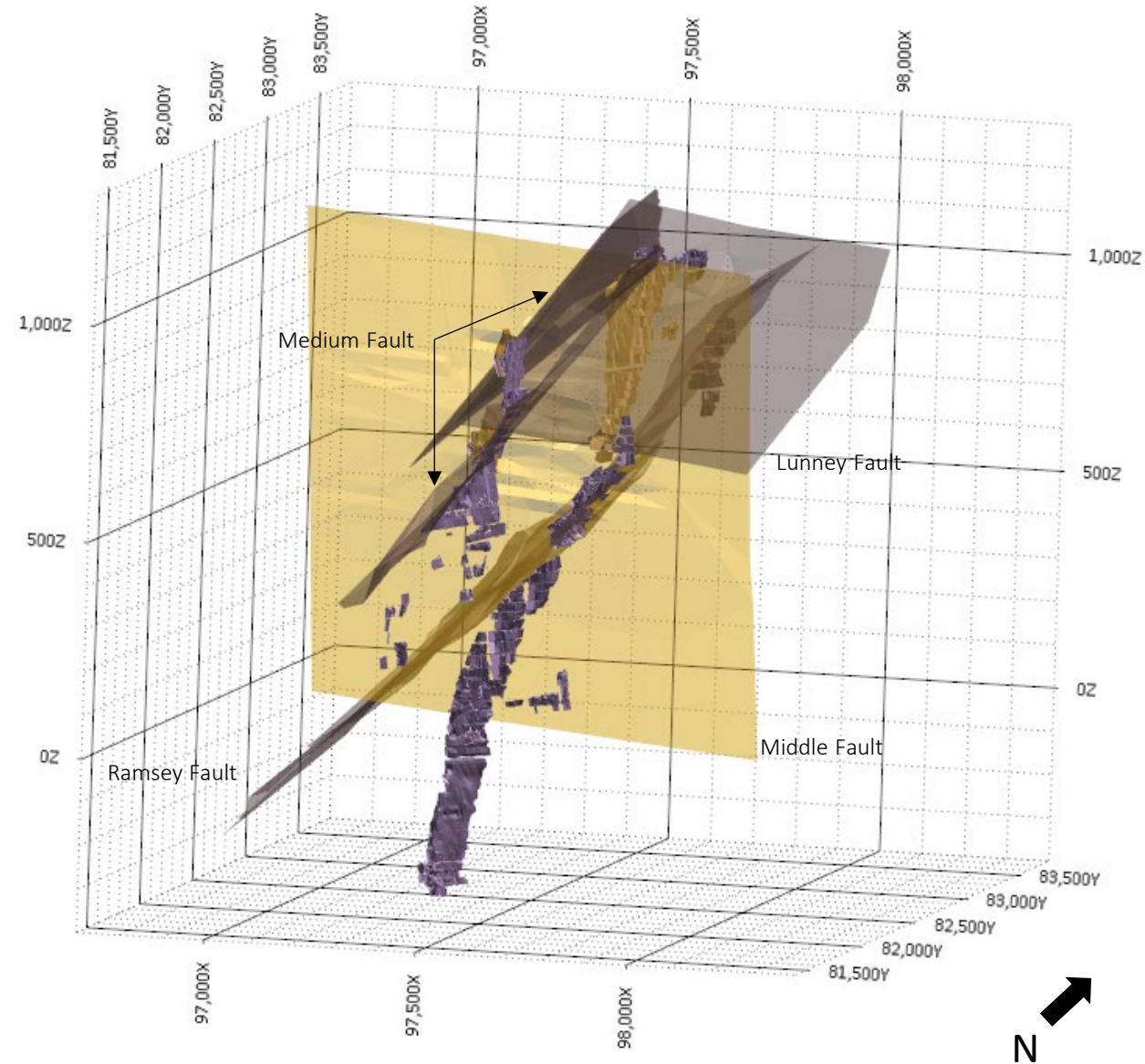
	Stage 1	Stage 2	Stage 3	Stage 4	Stage 4b
	Sodic-Silica <i>Peak Metamorphism</i>	Na-Ca-K Minerals <i>Pre Mineralisation</i>	Magnetite-Carbonate <i>Pre to Syn Mineralisation</i>	Fe-CL "Mafic" Minerals <i>Mineralisation</i>	Post Mineralisation
Albite	—			—	
Quartz (silica)	—			—	
Apatite		—			
Hornblende	—	—	—	—	
Biotite	—	—	—	—	
Tourmaline	—		—	—	
Scapolite	—			—	
Chlorite	—			—	
Epidote	—			—	
Feldspar	—	—	—	—	
Magnetite			—	—	
Calcite			—	—	
Siderite				—	—
Muscovite			—	—	
Actinolite-Trem		—		—	
Pyrrhotite				—	—
Pyrite			—	—	—
Chalcopyrite				—	—
Pentlandite				—	
Sphalerite				—	—
Galena				—	—
Gold				—	—

Modified from Baker et al 2001 and Birchall et al 2021

Eloise Structure

Ductile-Brittle Transition

- Eastern and western corridors contain shear fabrics (evidence of ductile formation)
- Shears developed within shadow of amphibolite bodies
 - Strain partitioning across units
 - Considered Isa D2 event (Baker and Laing 1998)
- Moderate to steep faults (e.g. Ramsay Flt) control alteration and often mineralisation (Dip W & S)
 - Considered brittle Isa D3 event (Baker and Laing 1998)
- Steep ENE Middle Flt offsets orebody – widely accepted as the last event



3D model of Eloise showing Major Faults

Eloise Structure

Ore Textures

- Considered as an example of ductile deformation of sulphides and host rocks
(e.g. Baker and Laing 1998)
 - Durchbewegung texture (a)
 - S-C fabrics on margins (b)
- Looks convincing but context needed



Eloise Structure

Ore Textures

- Mineralisation developed in **West** dipping fault (a)
 - Cross cuts earlier foliation hosting Po and Cpy
- Taper veinlets of Cpy
- Fracturing replaced by Stage 3 carbonate and sulphides (b)



Eloise Structure

Summary

- Steep NNE trending S_1 foliation is subparallel to transposed S_0 (D2 event)
- L_1 foliation observable on S_1 plane – plunging 55° trending 190° (= orebody plunge)
- Evidence of sinistral fault movement perpendicular to lineation
- Explains plunge, appearance of Cpy fracture veins and Cpy in non-ductile faults
- Places timing of mineralisation as a minimum in a brittle D3 event?



Pervasive foliation with lineation in eastern mineral corridor

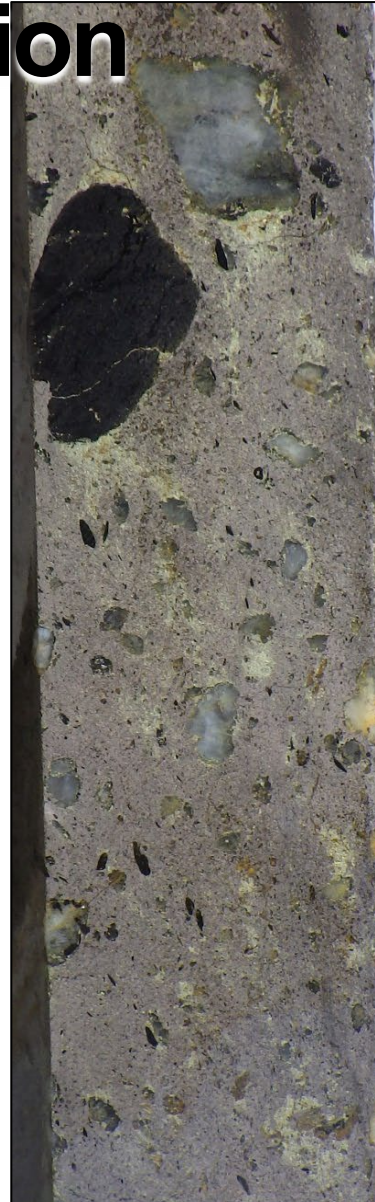


Jericho Deposit Mineralisation-Alteration and Structure

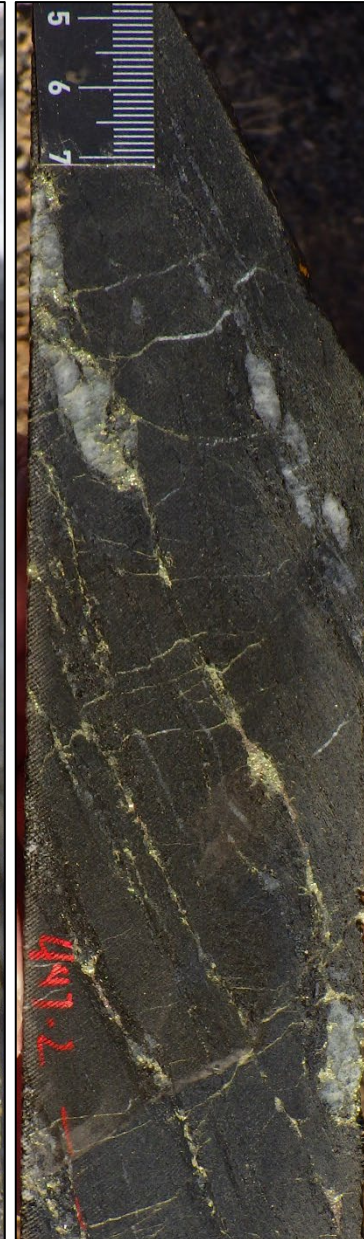
Jericho Mineralisation

Ore Textures

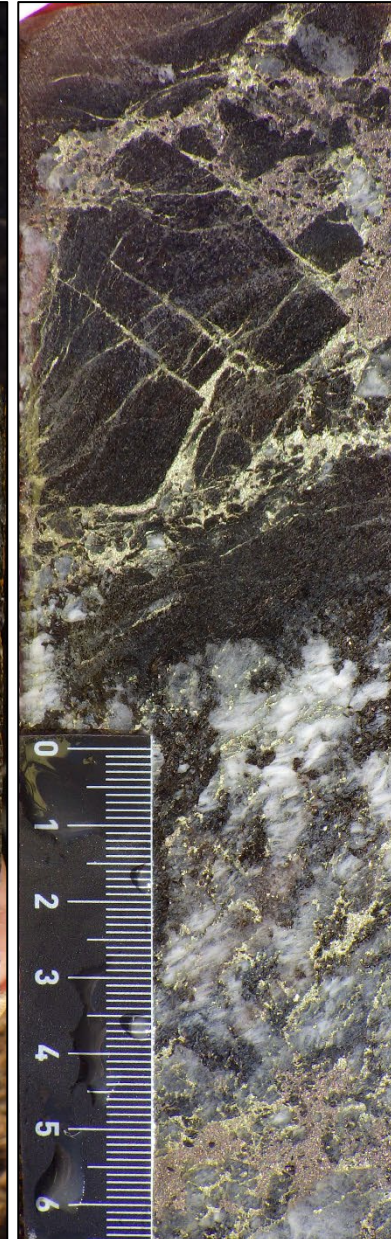
- Po-Cpy % equal in massive sulphide zones
- Textures
 - 1. Durchbewegung
 - 2. Boudins with sulphide
 - 3. Brittle fracture controls sulphide infill
 - 4. Brittle veinlets with Stage 4 alteration



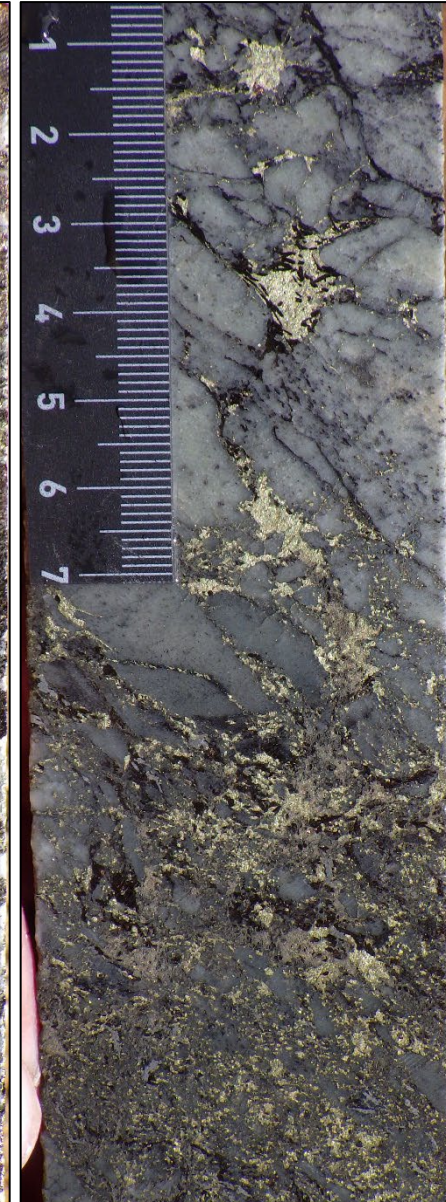
Durchbewegung texture:
Polyolithic breccia
fragments in Po matrix



Overprinting early
boudinaged quartz veins



Fracture control on Po-Cpy
emplacement



Sulphide-biotite fracture
veinlets overprint albite
altered host rock

Jericho Alteration

Significant Variations

- Stage 2 is very weak and more restrictive
- Stage 3 Carb-Mag is absent
- Stage 4 alteration is restrictive but sulphides more extensive
- Implications:
 - Weak mag-sus response
 - Stage 4 alteration halo <10m
 - Po+Cpy provides +3,000S conductance

	Stage 1	Weak	Absent	Stage 4	Stage 4b
	Sodic-Silica <i>Peak Metamorphism</i>	Na-Ca-K Minerals <i>Pre mineralisation</i>	Magnetite-Carbonate <i>Pre to Syn Mineralisation</i>	Fe-CL "Mafic" Minerals <i>Mineralisation</i>	Post Mineralisation
Albite					
Quartz (silica)					
Apatite					
Hornblende					
Biotite					
Tourmaline					
Scapolite					
Chlorite					
Epidote					
K-Spar					
Magnetite					
Calcite					
Siderite					
Muscovite					
Actinolite-Trem					
Pyrrhotite					
Pyrite					
Chalcopyrite					
Pentlandite					
Sphalerite					
Galena					
Gold					

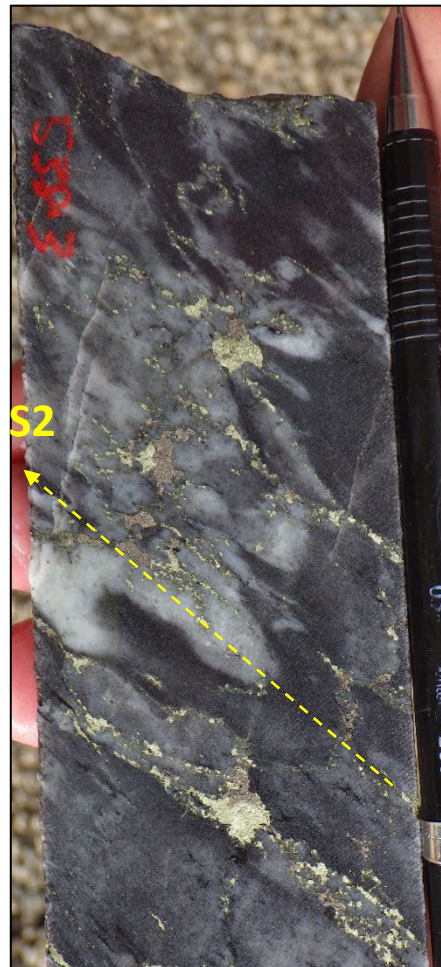
Modified from Baker et al 2001 and Birchall et al 2021

Jericho Structure

Five Deformation Events

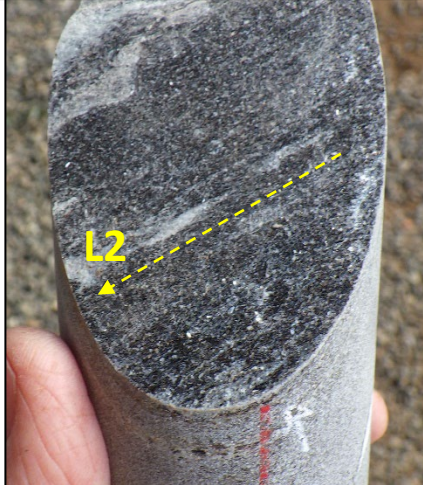


Type 2 Mushroom interference fold patterns. N-S F1 overprinted by F2 E-W shortening

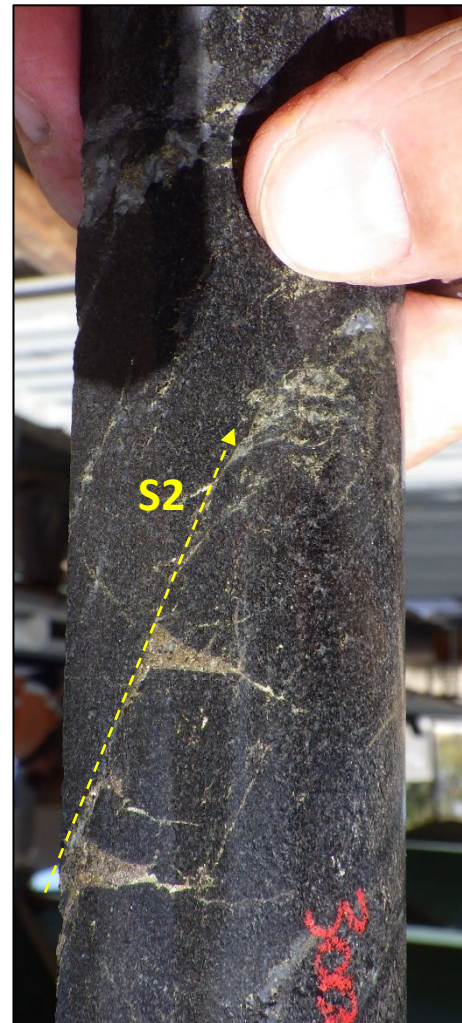
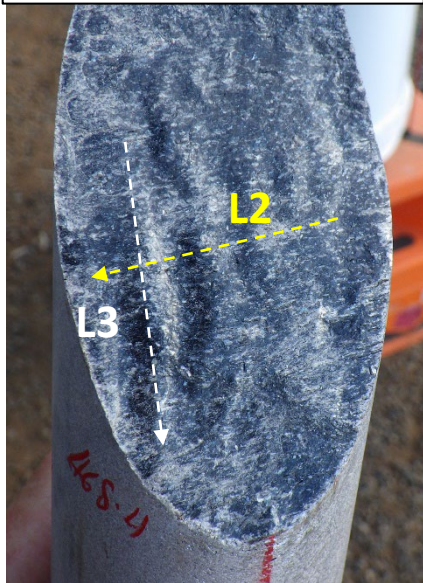


Sulphides overprinting early pygmatic folded Qtz veins. Early Qtz veins tightened to steep NNE

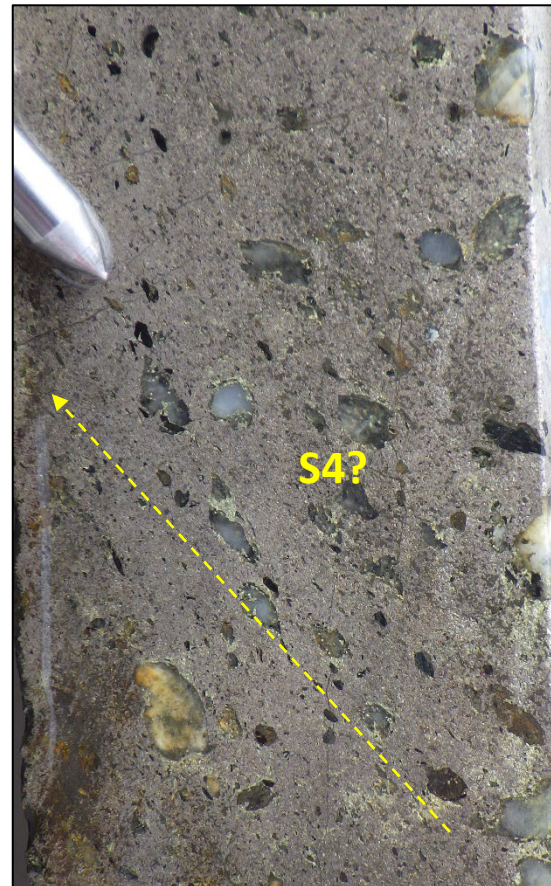
S2 Foliation with gently north pitching mineral elongation lineation



S2 Foliation with gently north pitching mineral elongation lineation overprinted by S3 crenulation cleavage. Sth plunge



Sulphide taper veinlets off reactivated foliation surface. Flat south dip



Ductile deformation of sulphides and fragments

Structure Summary

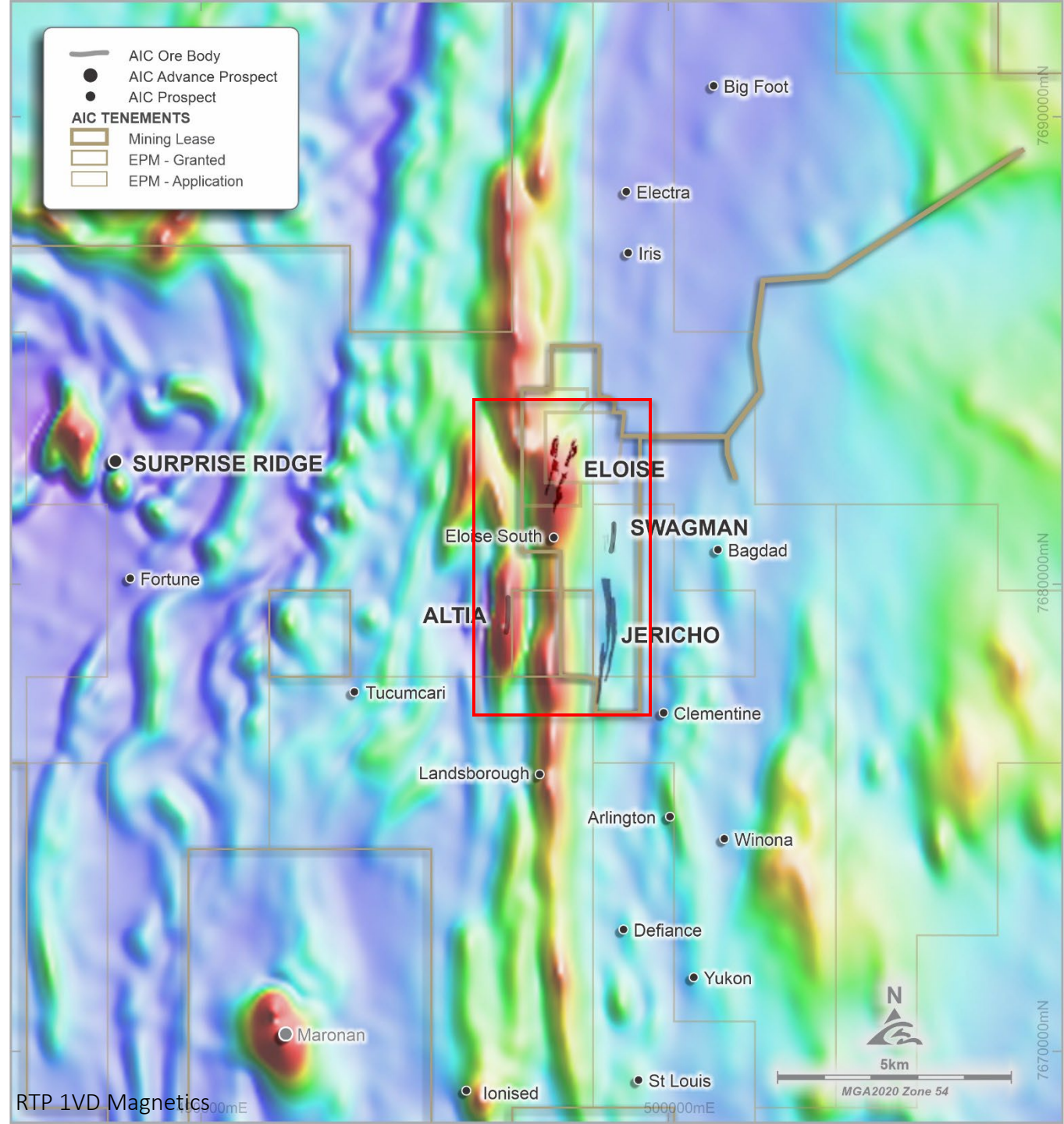
Eloise and Jericho in Connected Shear Zone

- **Not more deformation events than Eloise - arguably more visible**
- D1 is N-S directed shortening and thus equivalent to regional D1- not recognised at Eloise..yet
- D2 is E-W directed shortening regional event recognised at Eloise as the pervasive S_1 foliation and mineral lineation L_1 – ductile event
- D3 is a NE-SW tightening of S_2 pervasive foliation and creation of L_3 lineation in pelites
- D4 is Syn-mineral NW-SE shortening developing brittle fracturing, breccia and taper veins
 - Results in Durchbewegung txt developed proximal to steep NNE shear planes, utilises existing north plunge L_2 for high grade shoots at Jericho, and
 - The previously “D2 fabric recognised in Eloise” which produced the southerly plunging lineation
- D5 late faulting post mineral-localised straining of Durchbewegung texture

The Eloise Camp

Polymetallic Shear

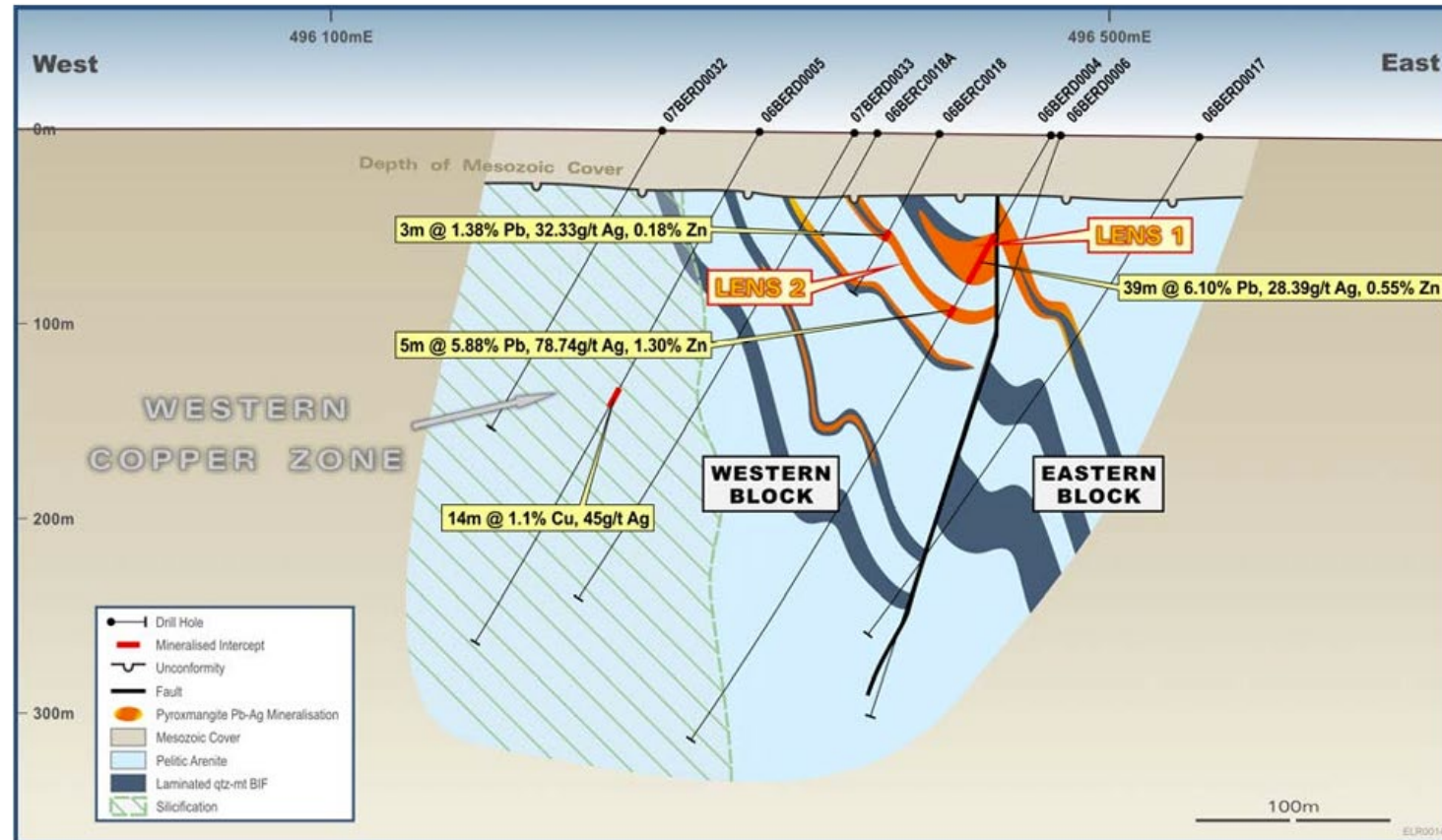
- Defined by two ~15Mt copper-gold deposits
 - Shear-hosted Po-Cpy style
- Eloise magnetic and conductive; Jericho non-magnetic and conductive
- Dominantly reduced fluid although Fe oxide present at Eloise
- (~1% Zn) Sphalerite in upper levels of Eloise
- **Altia Pb-Ag deposit 3kms from Cu deposits**
- Is there a relationship to the lead?



Altia Pb-Ag Deposit

Broken Hill Type Analogue?

- Resource of 6.3Mt @ 3.4%Pb, 0.38%Zn & 37g/t Ag¹
- Hosted in psammites/amphibolite package
- Distinguished by Qtz-Mag-Garnet bands, Calc-Silicate- carbonate beds associated with Galena veinlets/disseminations
- Western copper zone (Po stringers)
- Grouped with Cannington Pb-Zn and Maronan Pb-Ag-Cu BHT deposits located 100km & 10km South respectively



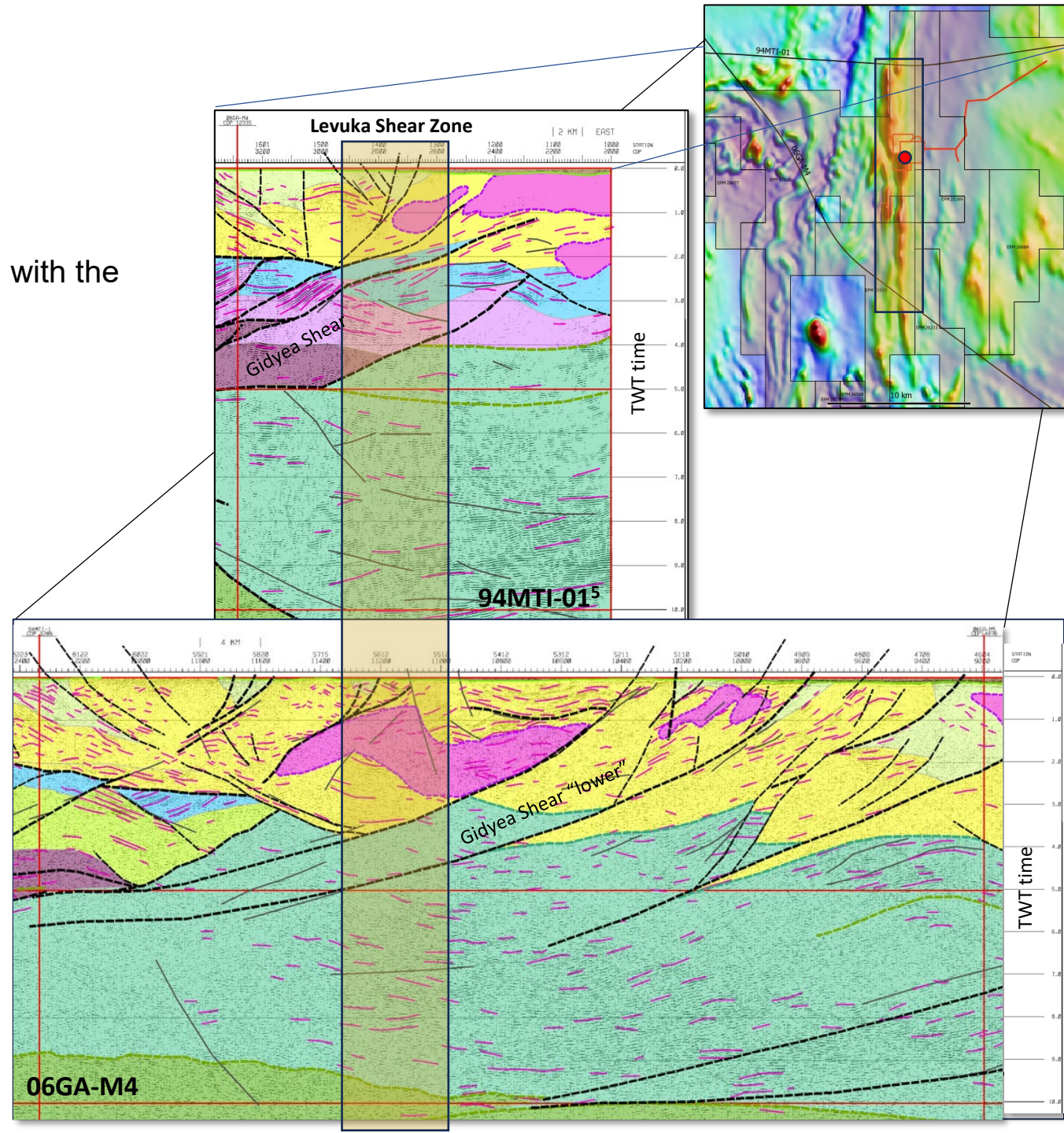
Altia Prospect Cross Section 7679000mN²

Toward a Genetic Model

Supporting Data

- Seismic supports east dipping Levuka Shear Zone merging with the Gidyea thrust in the middle crust
- Indications of granite body at depth below the shear zone
- Dating Data:
 - Eloise Ar/Ar stage 4 biotite = $\sim 1530\text{Ma}^1$
 - Eloise Ar/Ar stage 2 biotite = $\sim 1555\text{Ma}^1$
 - Jericho monazite (U/Pb) = $\sim 1570\text{Ma}^3$
 - Jericho Ar/Ar biotite = $\sim 1530\text{Ma}^2$
- Eloise $\delta^{34}\text{S}$ isotope range 0 to 2.3per mil¹ implies magmatic origin
- Temp data^{1,4} ranges from $+450^\circ\text{C}$ for Stage 2
 - $200^\circ\text{-}400^\circ\text{C}$ for Stage 4

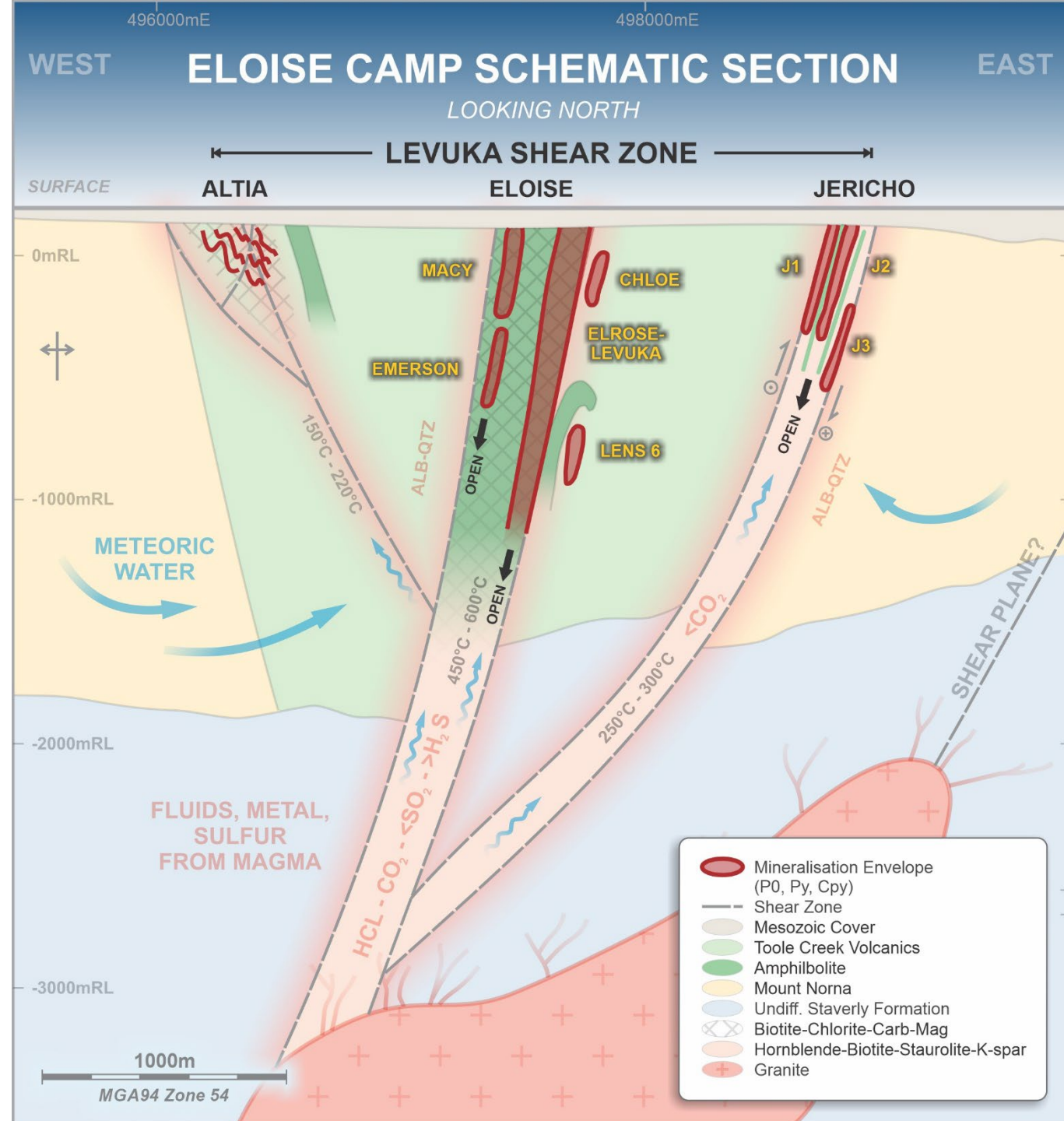
1. Baker et al 2001 Economic geology
2. Unpublished data
3. Payne 2020 internal report
4. Baker 1998, Economic Geology
5. Connors et al 2021 QMER 27.



Toward a Genetic Model

Magmatic Shear-Hosted Copper

- Stage 1 Albite-silica and Qtz veining is developed during early D2 at peak metamorphism (1570Ma)
- Stage 2 alteration is Syn-D3 (~1555Ma)
- Stage 3 Carb-Mag is fluid flow during intrusion emplacement in 'early' D4 into Levuka Shear
- Stage 4 is syn-mineral, related to D4; more reduced fluid and brittle faulting to increase permeability (~1525Ma)
- Source of fluids more likely **magmatic** - connected to underlying granite emplacement
 - High H₂S and CO₂ expelled
- Altia **not** 1650Ma BHT style
- Temperature and fluid gradient from center to margins of Levuka Shear



Summary

- Eloise paragenesis now recognisable as **four** main stages.
 - Stage 2 Na-Ca-K alteration post peak metamorphism formed during D3 event (NE-SW compression)
 - Stage 3 separate Carb-Mag alteration pre mineralization formed in “early” D4 (NW-SE compression)
 - Stage 4 mineralisation during D4 utilising both ductile fabrics and brittle permeability
- Mappable zoned alteration halo now recognized up to 200m from mineralisation
- Jericho **three** main paragenetic stages. More oxidized Carb-Mag fluid phase absent
 - Preservation of **five** deformation events- matching regional events
 - Alteration halo <50m
- Fe-oxide %, Cu-Au vs Pb-Zn vs REE enrichment a factor of fluid oxidation state, hydrothermal input and temperature in “Cloncurry” systems
 - Expect different deposits and thus different alteration indicators and detection responses even with camps
- Deposit label ISCG suits well. But genetically; shear hosted base-metal deposits formed at the waning stages of orogenesis