



Helix Resources Limited

**Models and Exploration
Methods For Orogenic
Deposits in the Girilambone
Basin**

Cobar District – New South Wales

**MINES AND WINES
CONFERENCE PRESENTATION**

Craig Johnson – Exploration Manager



Helix Resources Limited (ASX:HLX)

13th SEPTEMBER 2013

www.helix.net.au

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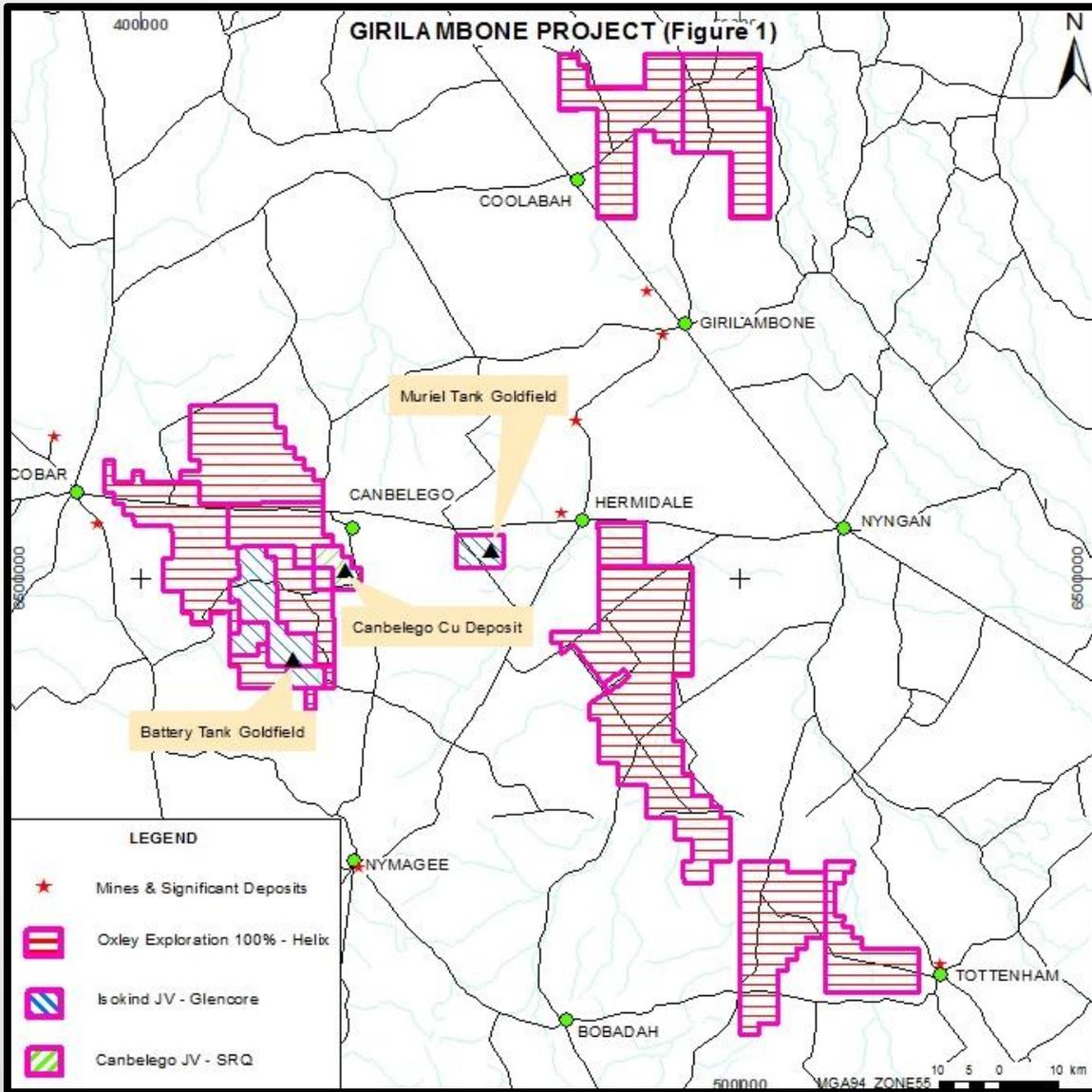




Overview – Girilambone Project

- **Project Location & Background**
- **Regional Setting & Mineralisation Models**
- **Regional Examples**
- **Project Examples**
- **Geochemical Exploration Methods**

Girilambone Project Location



~3,000km2 tenements

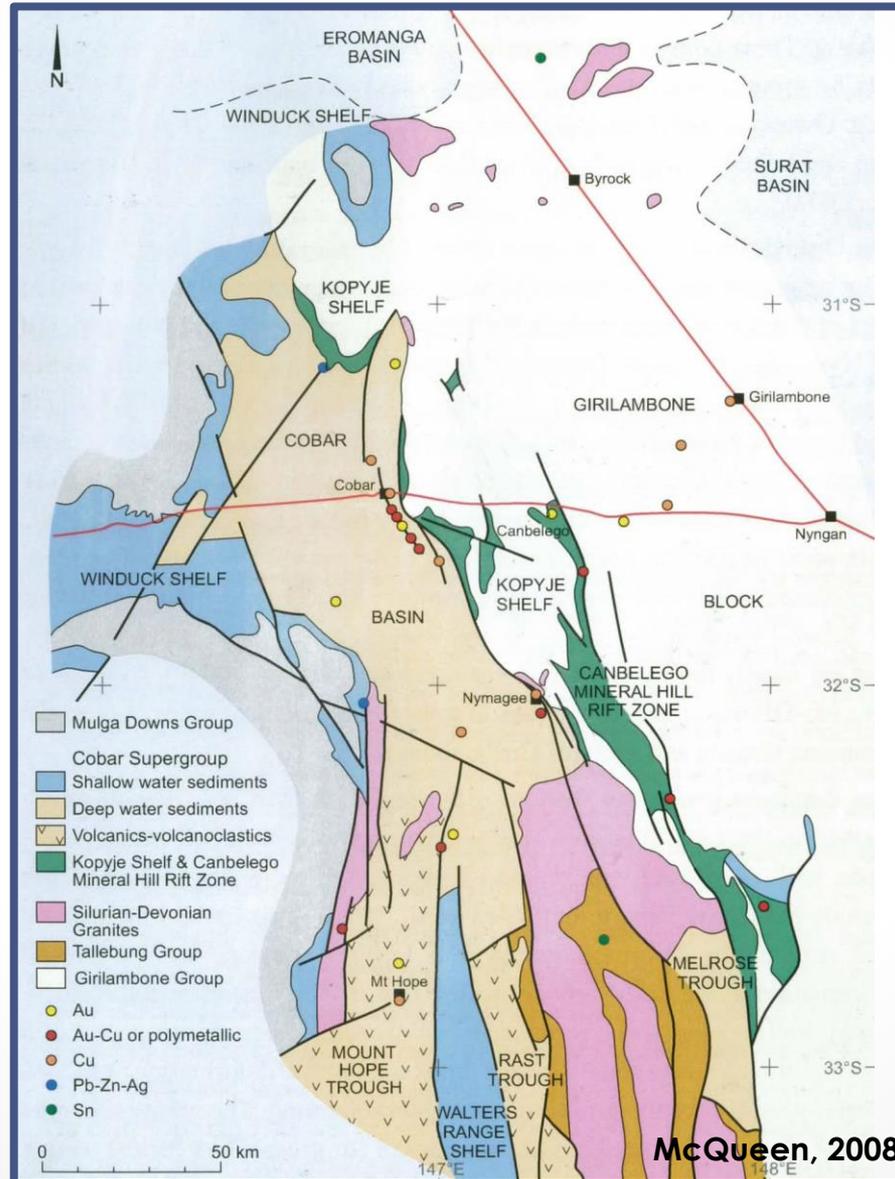
Isokind JV (HLX70%/Glencore30%)

- Battery Tank Goldfield
- Muriel Tank Goldfield

Canbelego JV (HLX70%/Straits30%)

- Canbelego Cu Depost
- Caballero Prospect

Regional Setting – Mineralisation Models

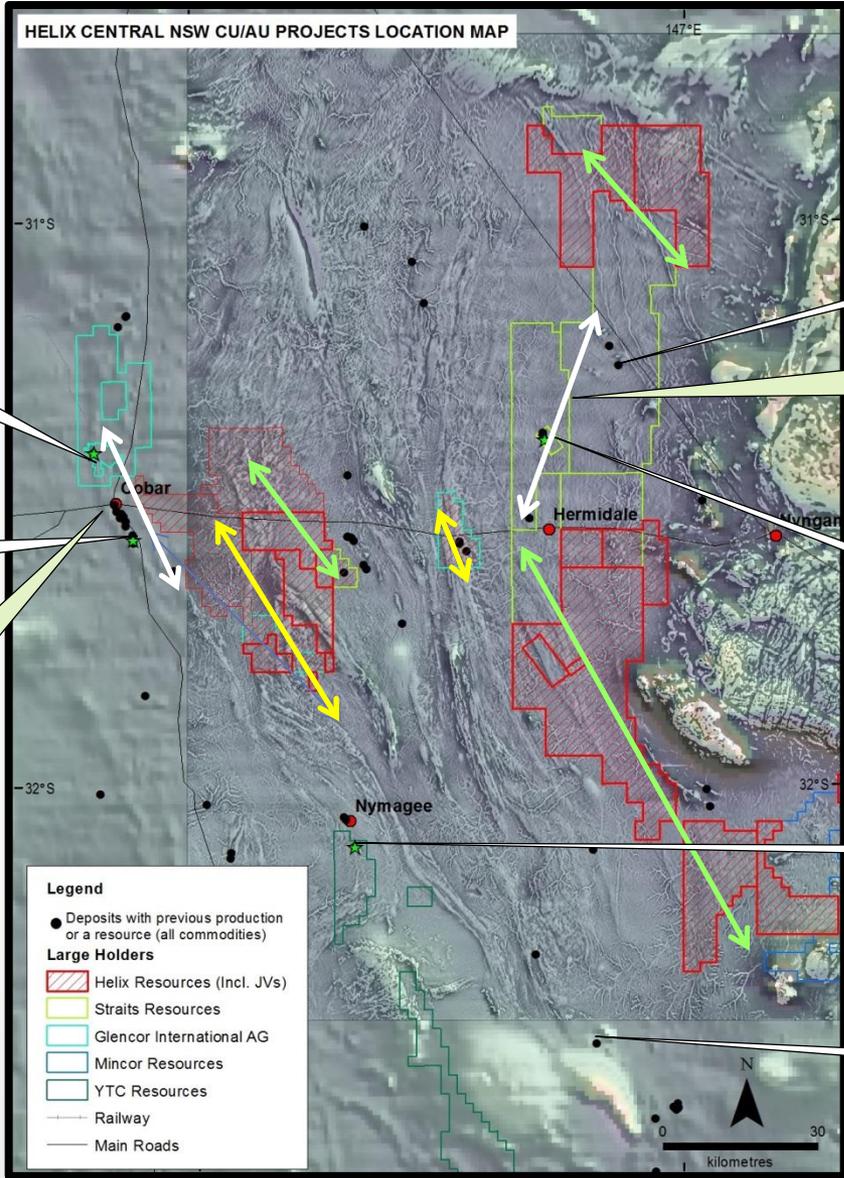


Exploration Genetic Models - Regional Settings



Helix Copper & Gold Trends

Copper trend
 Gold trend



CSA

The Peak

Cobar Trend – 2.2Mt contained copper – 7Moz gold - resources/historic production

Murrawombie

Straits Trend – 1Mt contained copper resources/historic production

Tritton

Hera

Mineral Hill



Utilise a generalised “Mineral Systems” approach to guide the exploration program

Test “Mineral Systems” concepts for a range of appropriate Genetic Models

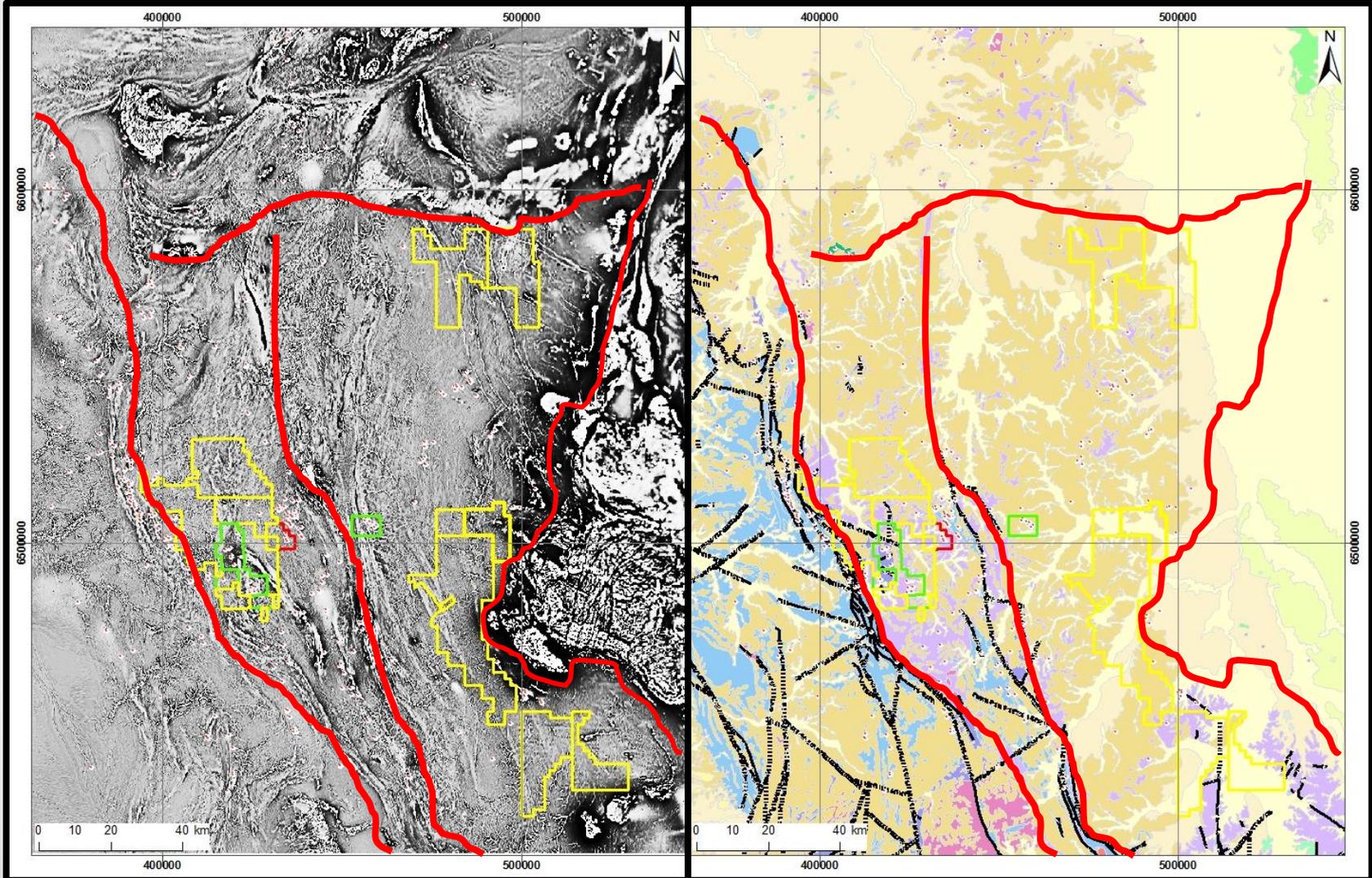
Develop a regional conceptual mineralisation model for a range of “styles”

Findings?

A range of different mineralisation processes consistent with several genetic models are present district wide however, higher grades appear to be localised by later compressional / transpression structural features

The features of this “Orogenic” component have much in common with the features of the “Cobar-Style”

Girilambone Basin - Mineralisation Models



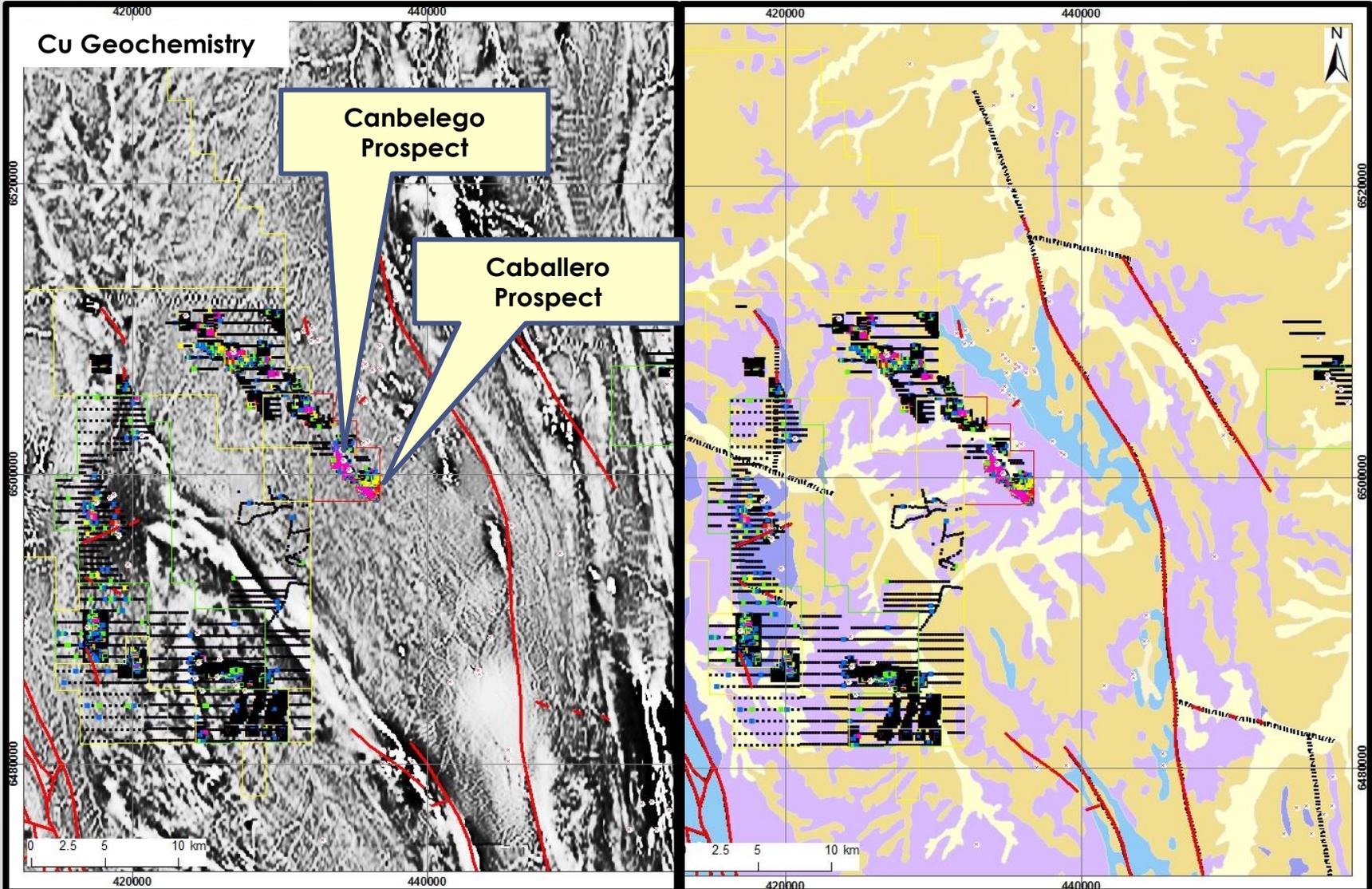


Genetic Models & Associations:

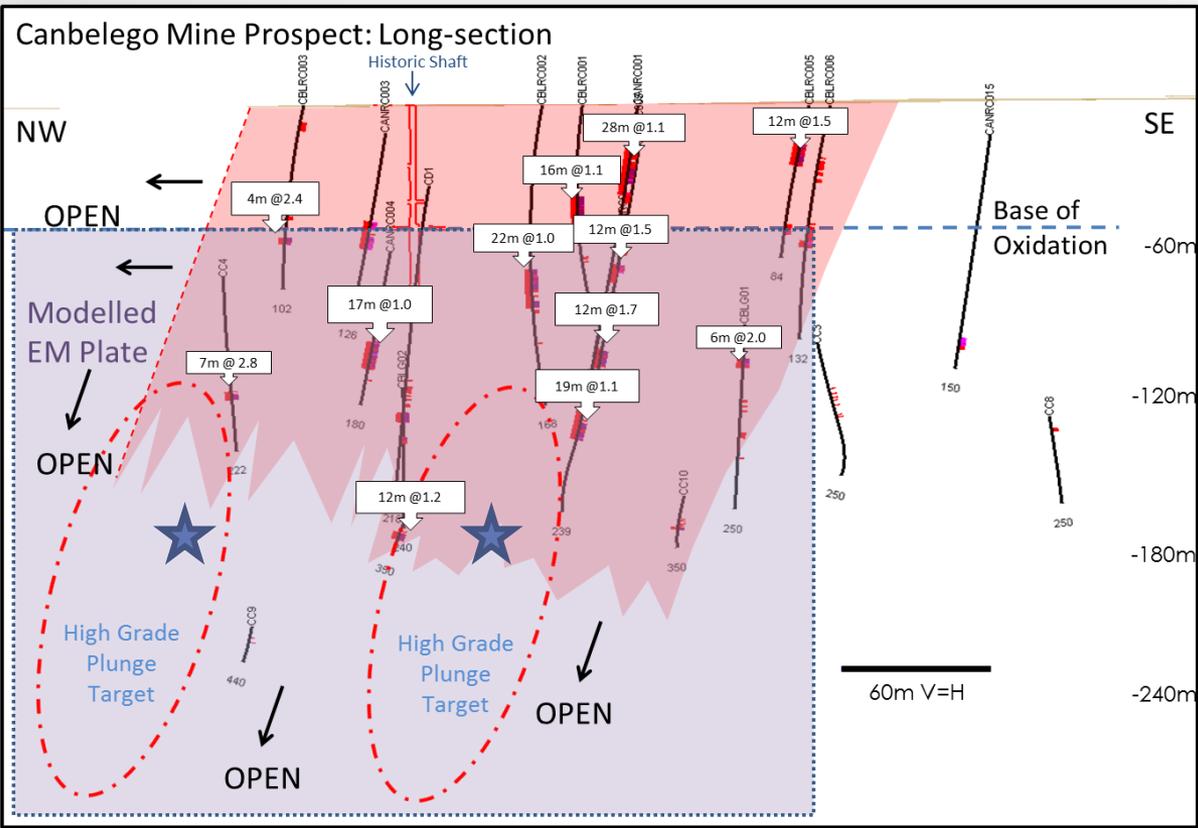
1. **Mafic Volcanics and Volcanogenics (VMS)**
2. **Turbidites (Orogenic)**
3. **Intermediate to Silicic Volcanics and Volcanogenics (VMS, Low Sulphidation Epithermal)**
4. **Variations on the theme (Orogenic/Epithermal)**

Deposits/Prospects	Models
Murrawombie, Tritton, Budgery, Tottenham	1
Restdown Goldfield, Battery Tank Gold Field, Muriel Tank Goldfield	2, 3,4
Mt Boppy, Mineral Hill	2,3,4
Cobar Mineral Field, Canbelego Cu	2,3,4

Canbelego Copper Prospects - Local Setting



Canbelego Copper Mine Prospect Area

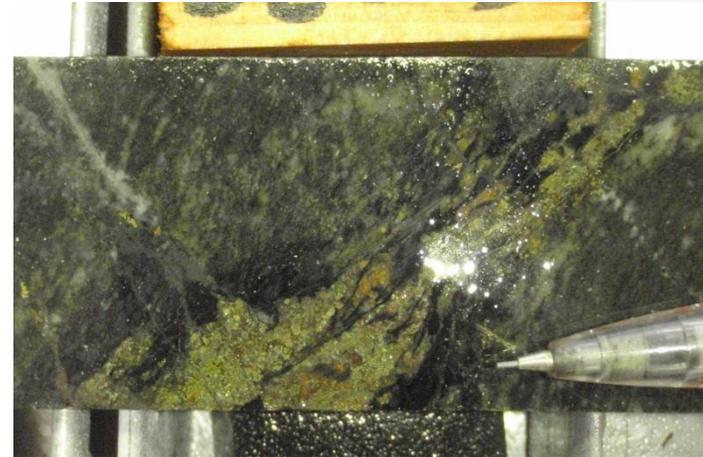


Canbelego Copper Prospect

- HLX 70% /SRQ 30%
- Inferred Resource 1.5Mt @ 1.2% Cu (18,000t)* from surface at historic Canbelego Mine

* refer www.helix.net.au for details and definitions

Canbelego Rocks, Mineralisation & Structure



Canbelego Rocks, Mineralisation & Structure



Canbelego Prospect:
sulphide "stringer" and
breccia mineralisation

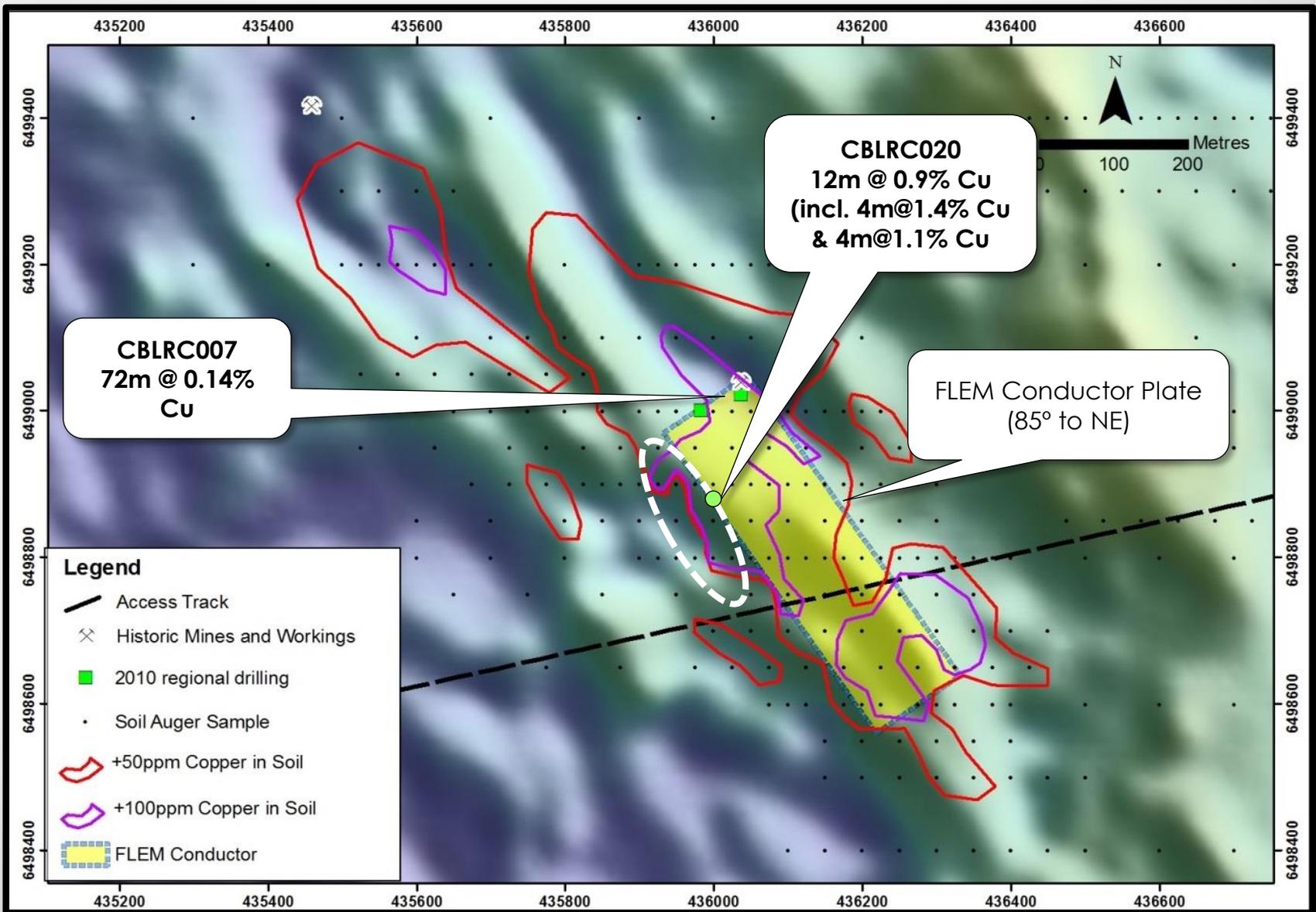
Canbelego Rocks, Mineralisation & Structure



Canbelego Prospect:
sulphide matrix supported
breccia,
chlorite/carbonate clasts



Caballero Prospect

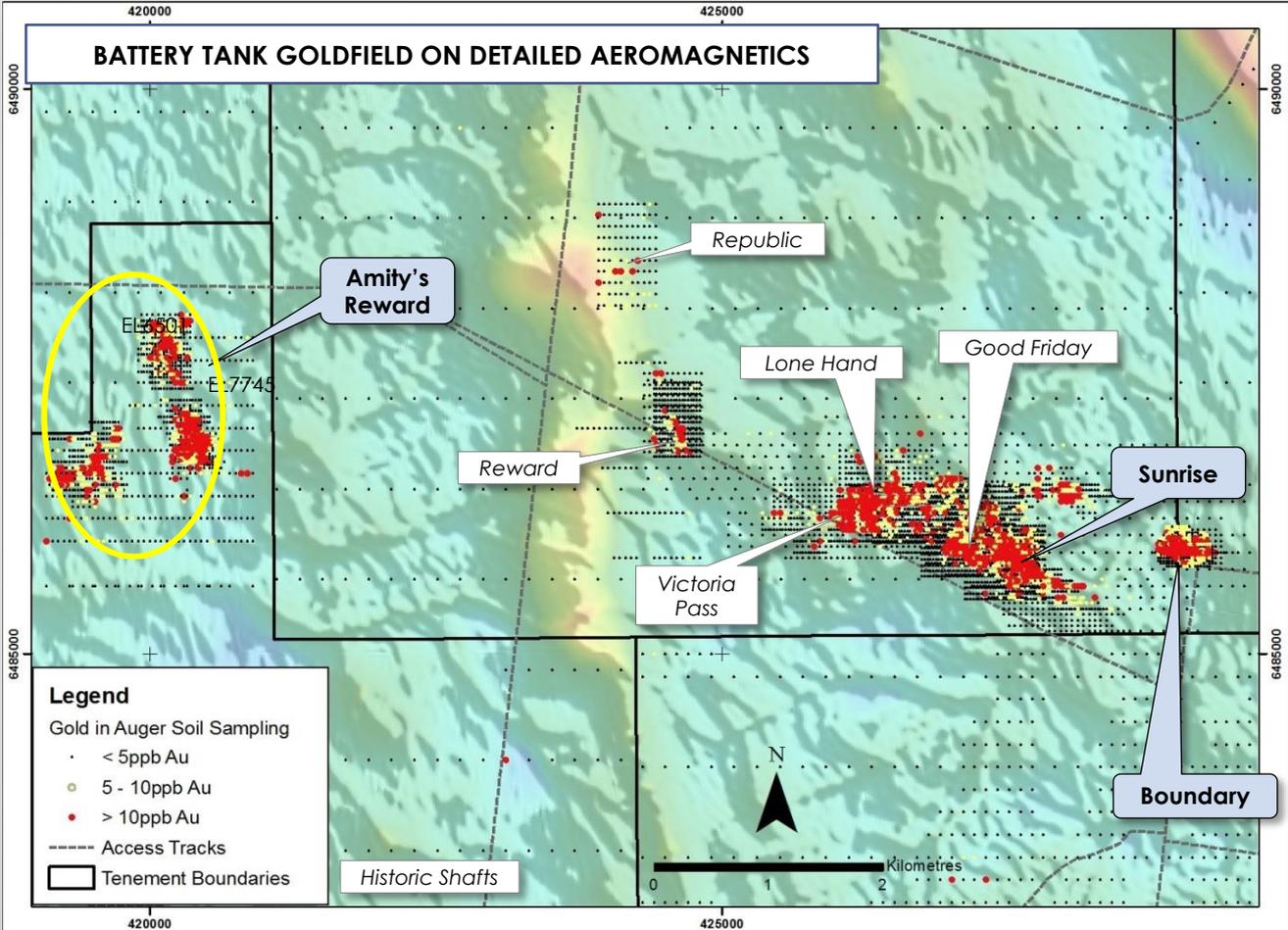


Caballero Prospect Rocks



Caballero Prospect:
transposed silicified rock
bands & quartz veins with ex-
carbonate/sulphide

Battery Tank Goldfield - Restdown Gold Project



Battery Tank Goldfield

Host Rock – Girilambone Group Turbidites

Au mineralisation in shear zones & “crackle breccias”

High Au:Ag ratio

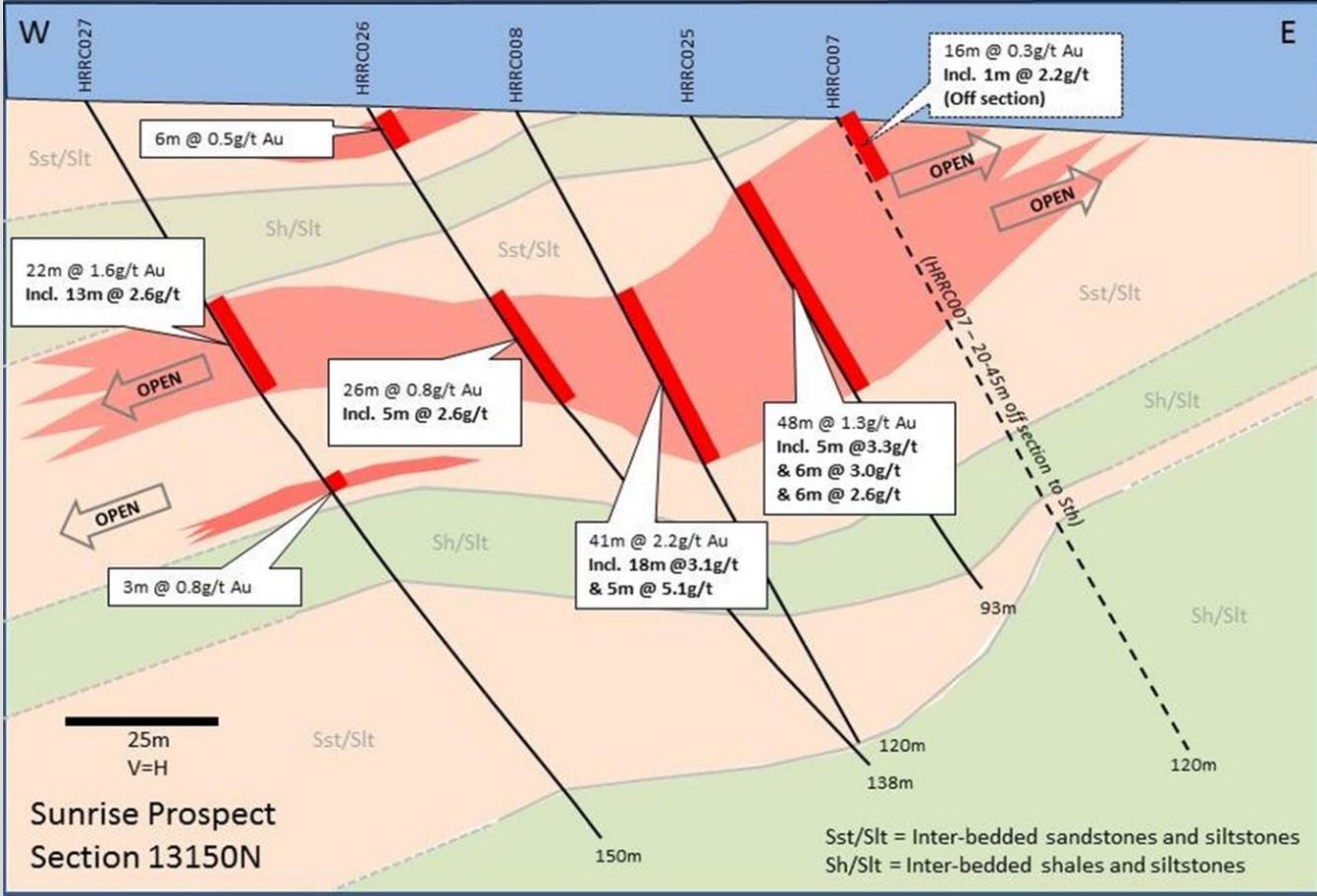
Sunrise Prospect:
41m @ 2.2g/t Au

Good Friday:
23m @ 23.9g/t Au (CMPL historical result)

Boundary Prospect:
70m @ 1.1g/t,
16m @ 1g/t Au (incl. 5m @ 2.7g/t)

Amity's Reward:
17m @ 0.5g/t Au (incl. 2m @ 3.3g/t)

Sunrise Prospect



Sunrise & Good Friday

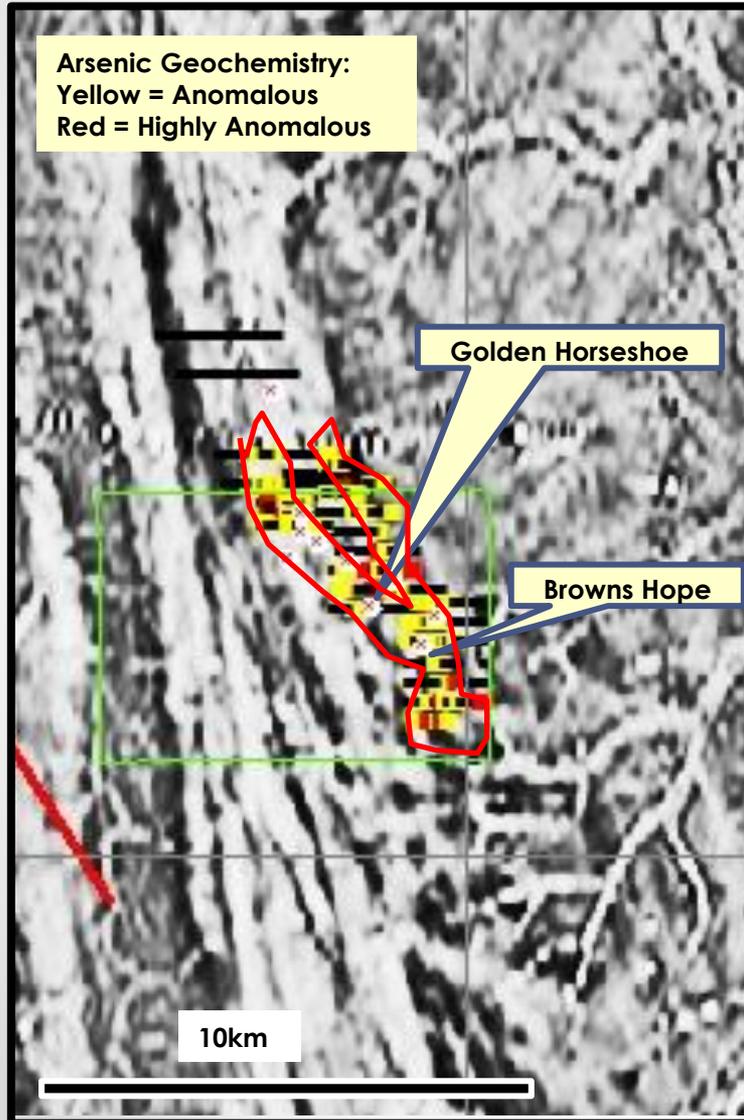
- Inferred resource on 2.6Mt @ 1.2g/t Au for 100,000oz* at Sunrise & Good Friday.
- Good Friday - multiple historic pits and shafts worked around 1900's
- Sunrise - identified using soil auger sampling, 500m east of Good Friday.
- Drilling to date: Sunrise 6,000m & Good Friday 1,700m – Total 66 holes (Glencore previous 2,200m, at Good Friday)

* refer www.helix.net.au for details and definitions

Battery Tank Goldfield - Alteration



Muriel Tank Goldfield - Golden Horseshoe & Browns Hope



- Massive blue-black quartz lodes with trace internal vughs, lamination best developed at margins.
- Visible/nuggety gold
- Well-developed bounding shear zones
- Mineralisation footprints on left stepping structure (NB: inflections/NE structures)
- Sandstone/greywacke - carbonaceous Shale (turbidites)
- Coarse grained footwall rocks – sandstone/grits
- Historical reports of malachite in drilling

Geochemical Sampling Method



WGP:

- Thin transported cover - rapid access to consistent sample media

EGP:

- Variable thickness transported cover
- Consistent, effective sample media at greater depth



Transported Loam

Quartz Lag Layer

Zone targeted with Soil Auger Sampling
-40# sieved fraction to reduce "spikey" assay results

Rock-Soil Interface

Weathered Bedrock

Geochemical Sampling Tools



Quad Bike Power Auger (WGP)

Selective Interval Sampling



Hydraulic Auger - Deep Interface Sampling (EGP)



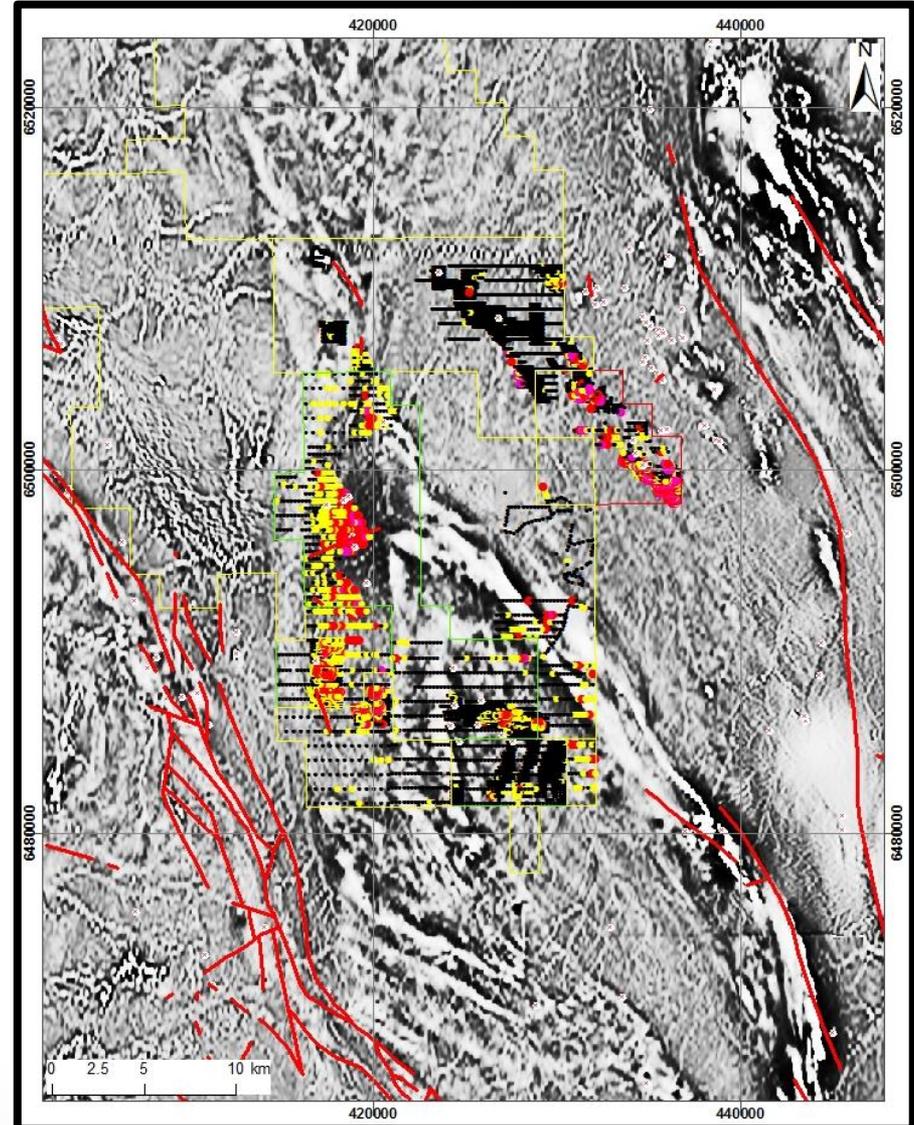


Antimony Geochemistry:

- Volcanics/Volcanogenics
- Hydrothermal Sulphide

Informative with regard to mineralisation and regional model

- Low Sulphidation Epithermal Mineralisation in a Range of Settings





- **Gold Mineralisation on the Battery Tank Goldfield is shear hosted in zones of reactivation of multiple generations of structure**
- **The gold mineralisation character has features consistent with both Low Sulphidation Epithermal and Orogenic Models**
- **Gold Mineralisation at Muriel Tank Goldfield has mineralisation and vein styles more in common with “typical” vein hosted orogenic styles**
- **Copper mineralisation in the WGP has features consistent with VMS and Low Sulphidation Epithermal environments**
- **Structural overprints consistent with “Cobar Style” mineralisation controls represent “high-grading” and modifying features**



The author/presenter would like to thank Helix's Joint Venture partners Glencore and Straits Resources Limited respectively for their permission to include information on aspects of the GP that are operated under joint venture arrangements. In particular, Derek Webb at Glencore and Ivan Jerkovic at Straits are thanked for their assistance.



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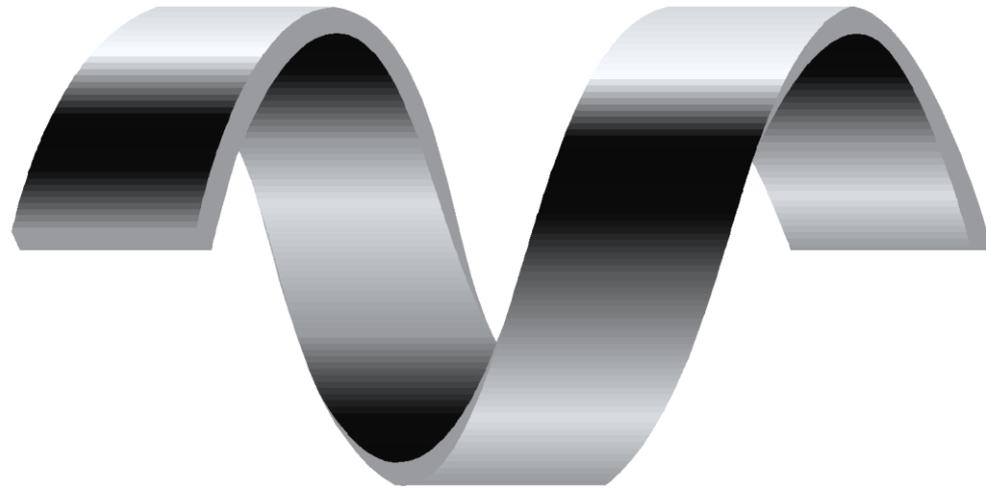
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Thank You