



**Superior**  
Resources

# Investor Presentation

*Greenvale copper and nickel  
provinces*

Peter Hwang – Managing Director  
October 2022

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ASX:SPQ



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# Corporate snapshot

1. As at 17 October 2022



## Carlos Alberto Fernicola

Non-Executive Chairman

*B.Com, FCA, F Fin, FCIS, FCSA, GradDipAdvAcctg, GDippAppFinInv, GDipAppCorpFin*

Carlos has 30+ years of experience in accounting, taxation, audit and the financial services industry. He is a Fellow of Institute of Chartered Accountants ANZ, Fellow of the Governance Institute of Australia and Fellow of the FSIA.



## Peter Henry Hwang

Managing Director

*B.Sc. (Hons), LLB, MAIG, MGSA, MQLS*

Peter has 12+ years experience as a gold, base metals and diamond geologist and 21 years experience as a lawyer at Freehills, Ashurst and Minter Ellison, specialising in mining, commercial, M&A, mining infrastructure, regulatory and native title law.



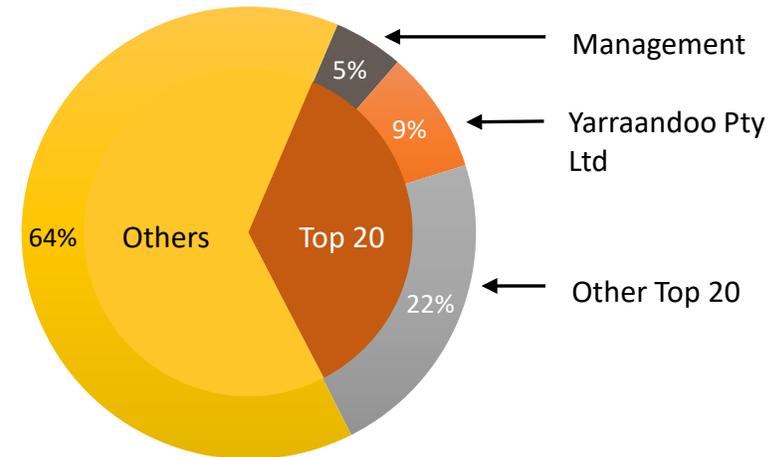
## Simon James Pooley

Non-Executive Director

*MAusIMM, GAICD*

Simon was formerly Chief Operating Officer for Novo Resources Corp., General Manager Operations for Millennium Minerals Limited and General Manager Exploration and Business Development for CopperCo Limited.

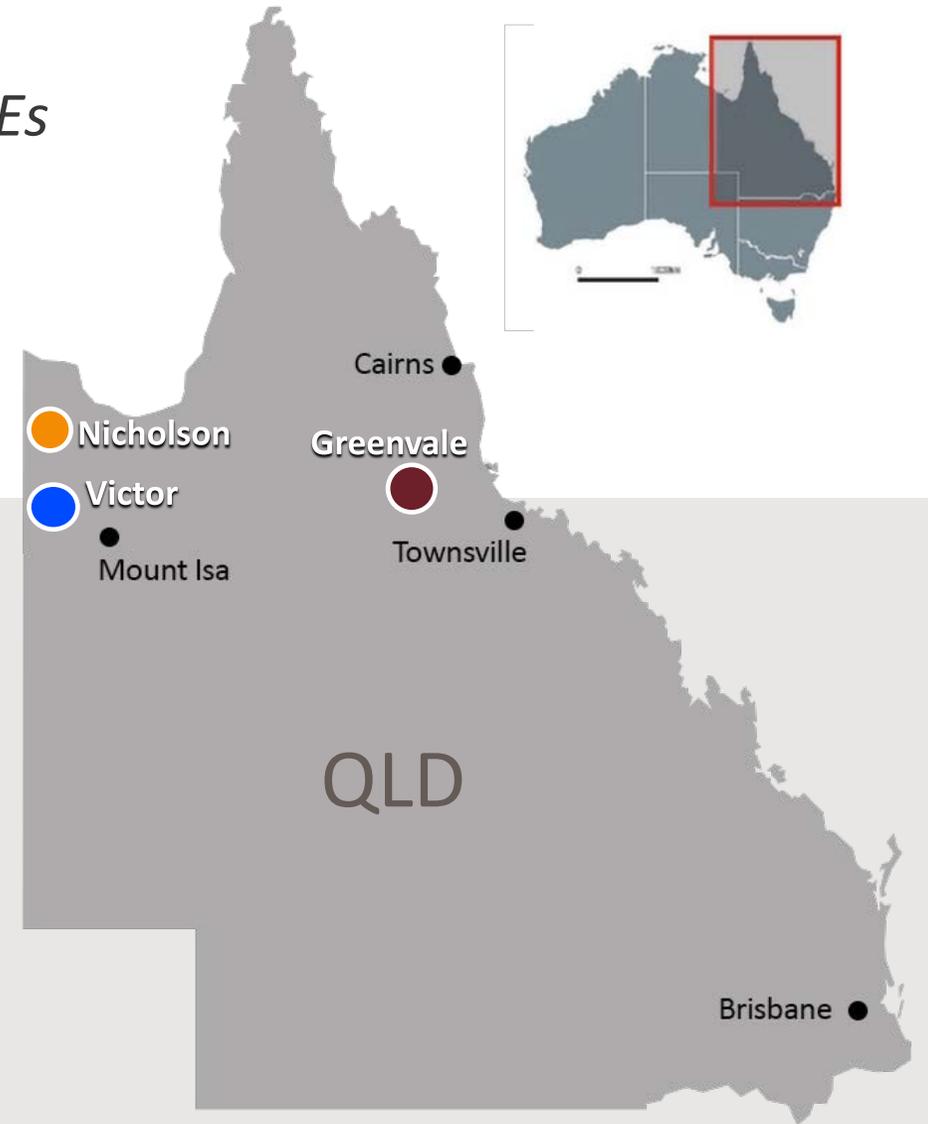
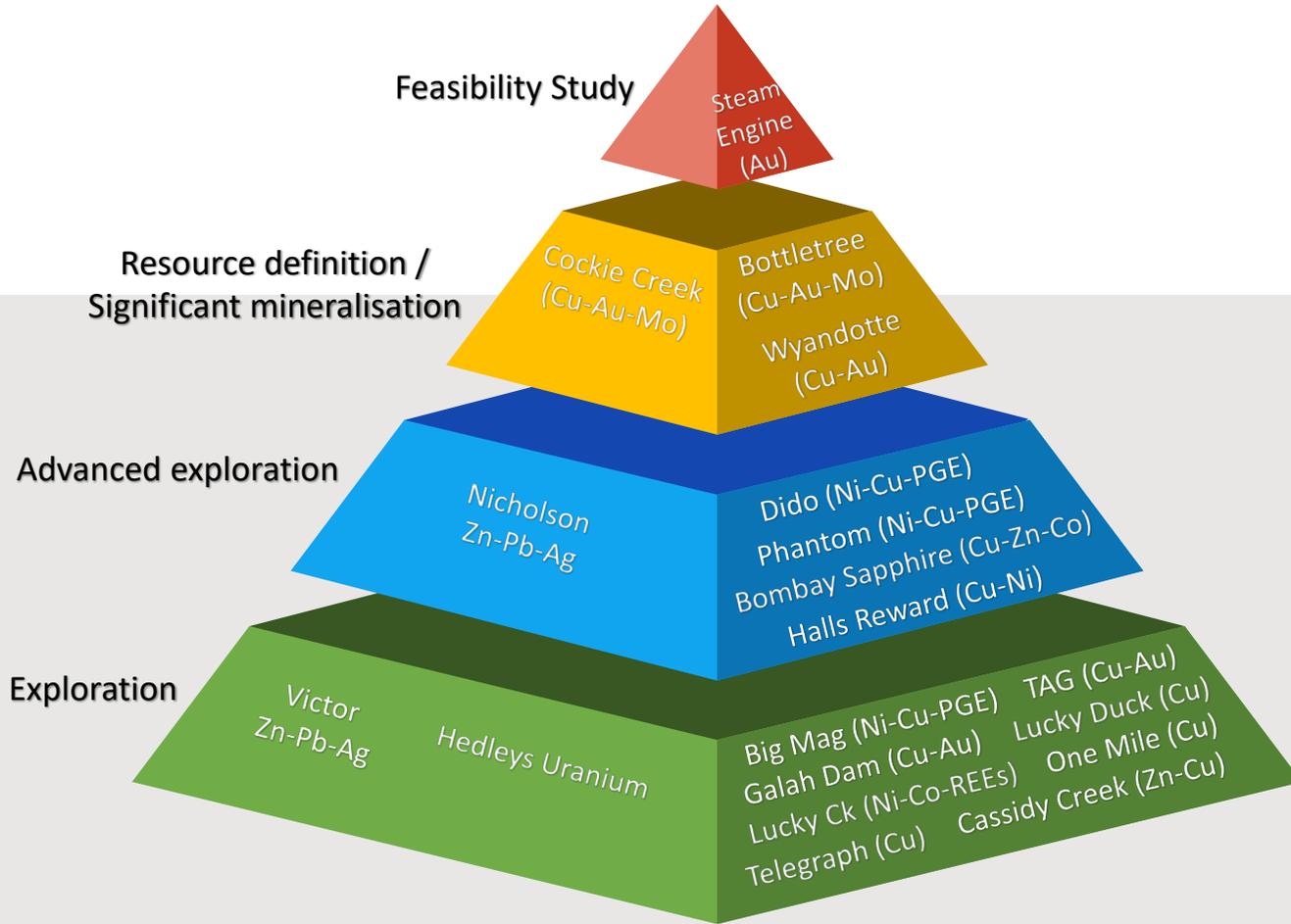
Share Price <sup>1</sup> <b>\$0.05</b>	Issued Shares <b>1,701m</b>	Market Cap <b>\$85m</b>
Cash <b>\$2.3M</b>	Debt <b>\$nil</b>	Top 20 Holdings <b>36%</b>



Growth through discovery – multiple tier 1-potential exploration projects

# Project portfolio – 100% SPQ

Leveraging the green transition – Cu, Ni, Zn, Co, U, REEs



# Operational snapshot

Targeting Cu, Ni, Zn discovery and defining copper and gold resources in Queensland

Porphyry Cu-Au-Mo			Ni-Cu-PGE	Au
<p><b>Bottletree</b></p> <p>632m @ 0.21% Cu<sup>1</sup> incl 224m @ 0.40% Cu incl 103m @ 0.53% Cu</p>	<p><b>Cockie Creek</b></p> <p>13Mt @ 0.42% Cu<sup>2</sup> (54,600t Cu)</p>	<p><b>Wyandotte</b></p> <p>Shallow Exploration Target<sup>3</sup>: 0.4Mt @ 2.2% Cu (8,800t Cu) - 1.0Mt @ 1.9% Cu (19,000t Cu)</p>	<p><b>Dido, Big Mag, Phantom Creek</b></p> <p>Voisey's Bay style Ni-Cu-PGE</p>	<p><b>Steam Engine</b></p> <p>2.72Mt @ 2.0 g/t Au (171,000 ounces Au)<sup>4</sup></p>
<p><b>Very large scale Cu system emerging:</b></p> <ul style="list-style-type: none"> <li>Large drilling program underway</li> <li>Targeting interpreted mineralised porphyry core</li> <li>1.5km x 1km Cu soil anomaly over porphyry target</li> <li>Several large Cu 'leakage' mineralised zones surrounding interpreted core</li> </ul>	<p><b>Large IP chargeability anomaly beneath Cu Resource:</b></p> <ul style="list-style-type: none"> <li>Porphyry Cu-Au-Mo system</li> <li>Upcoming maiden JORC (2012) Mineral Resource Estimate</li> </ul>	<p><b>High grade copper deposit related to interpreted Cu-Au porphyry:</b></p> <ul style="list-style-type: none"> <li>Mineral Resource Estimate to be established</li> <li>No exploration since 1975</li> </ul>	<p><b>Voisey's Bay style Ni-Cu-PGE:</b></p> <ul style="list-style-type: none"> <li>Proven Voisey's Bay-style Ni-Cu-PGE deposit systems</li> <li>Fertile troctolite intrusions identified by Anglo but not followed up or inadequately followed up</li> </ul>	<p><b>Feasibility Study in progress</b></p> <p><b>Toll treatment discussions</b></p> <p><b>Scoping Study (Base Case)<sup>5</sup>:</b></p> <ul style="list-style-type: none"> <li>\$24.2M cash flow (post tax @ A\$2,200/oz; \$41M @ A\$2,500)</li> <li>Only 70,000oz mined</li> <li>\$5.1M CAPEX (pre-production and closure)</li> </ul>

1: Refer ASX announcement, 2 June 2022

2: JORC (2004) Inferred; Refer ASX announcement, 27 March 2013

3: Refer ASX announcement, 15 June 2021

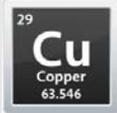
4: JORC Measured, Indicated and Inferred; Refer ASX announcement, 11 April 2022

5: Refer ASX announcement, 27 April 2021

Growth through discovery

# Greenvale Project

Multiple tier-1 discovery opportunities



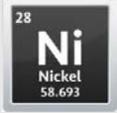
**Transformational advances towards major discovery at Bottletree**



**Ramping Up: pipeline of significant porphyry Cu-Au systems**



**Large drilling program underway**



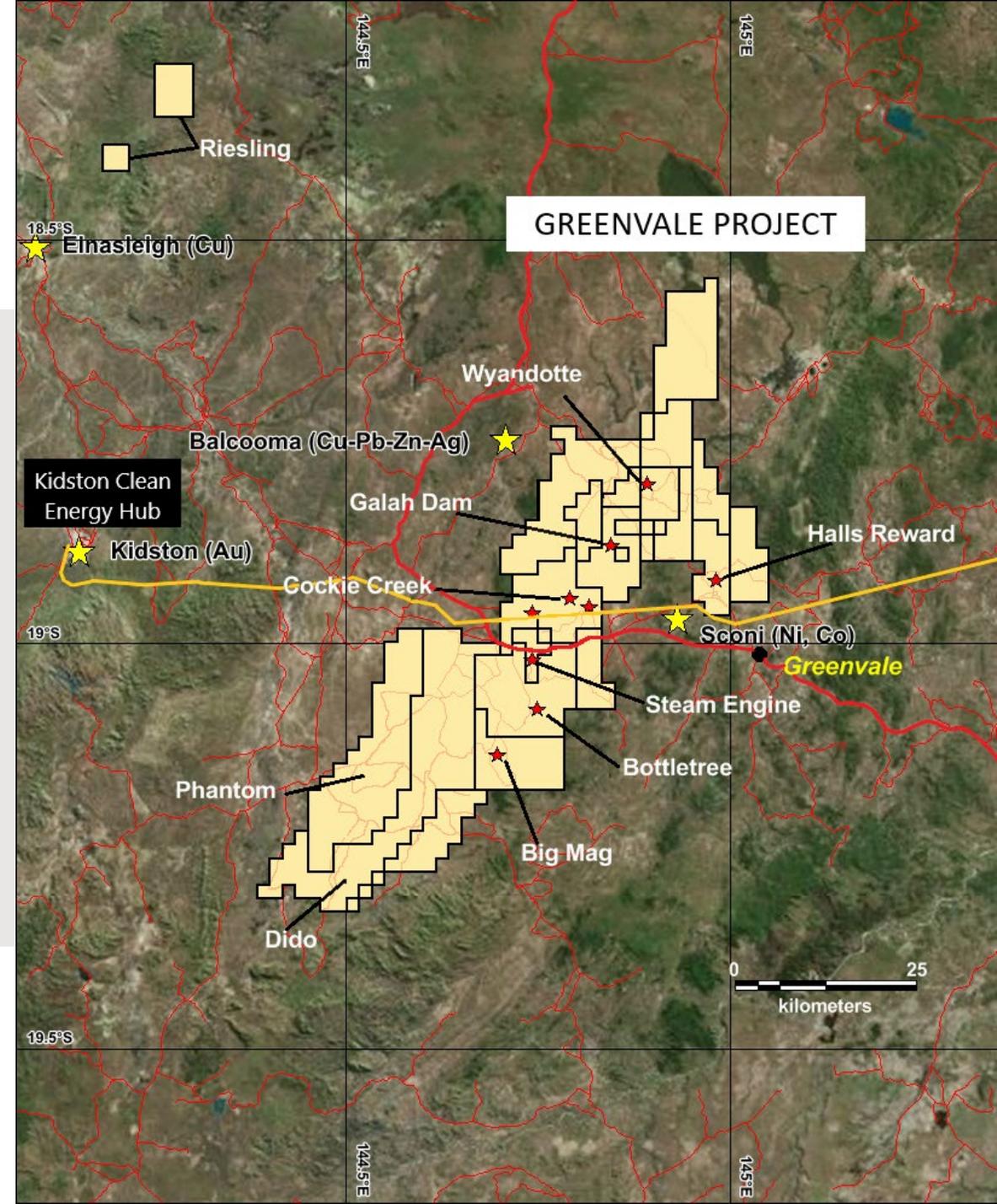
**First mover advantage on new Ni-Cu-PGE Province**



**Recent pegging spree by [Rio Tinto](#) & others to the west**



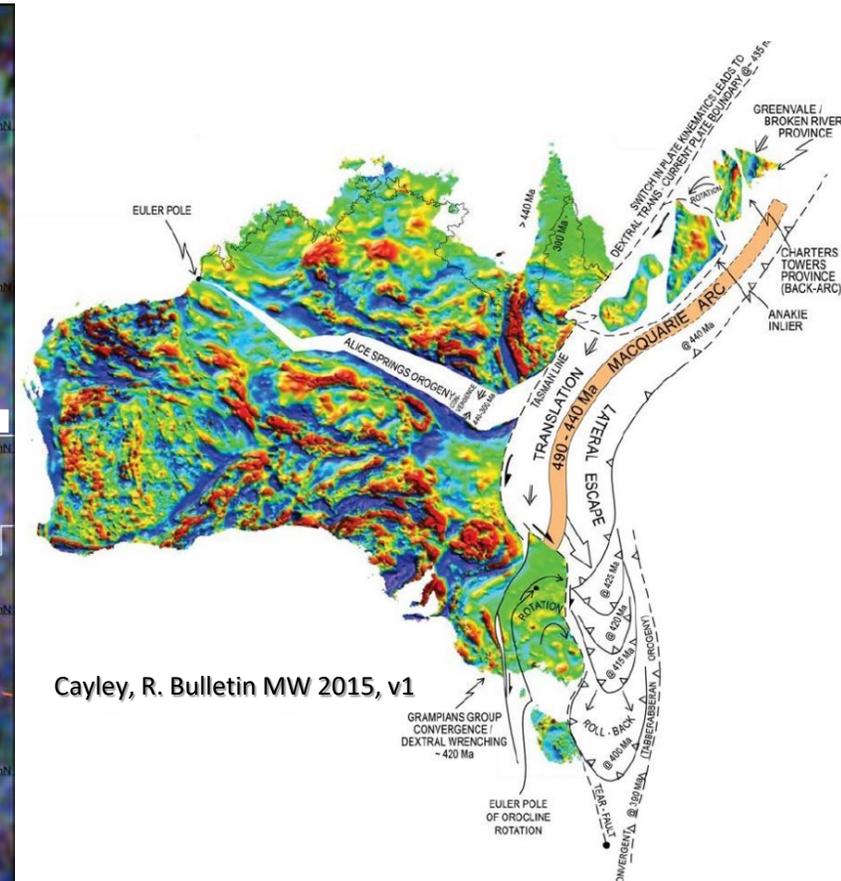
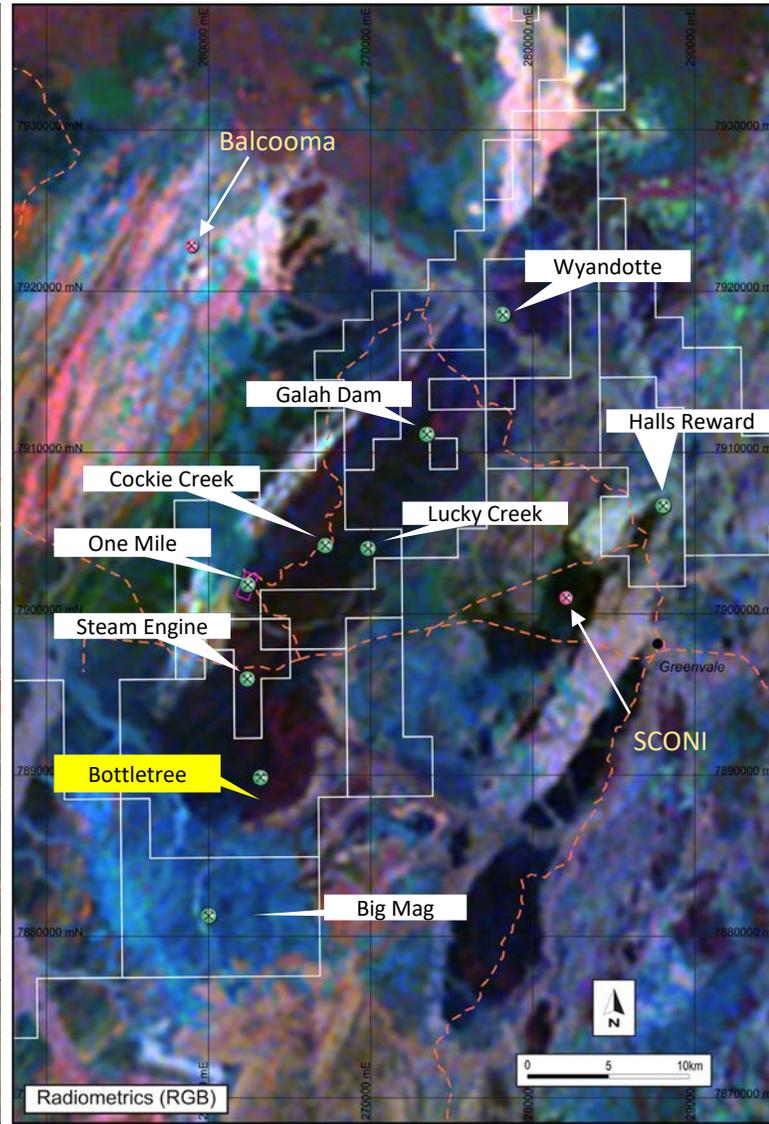
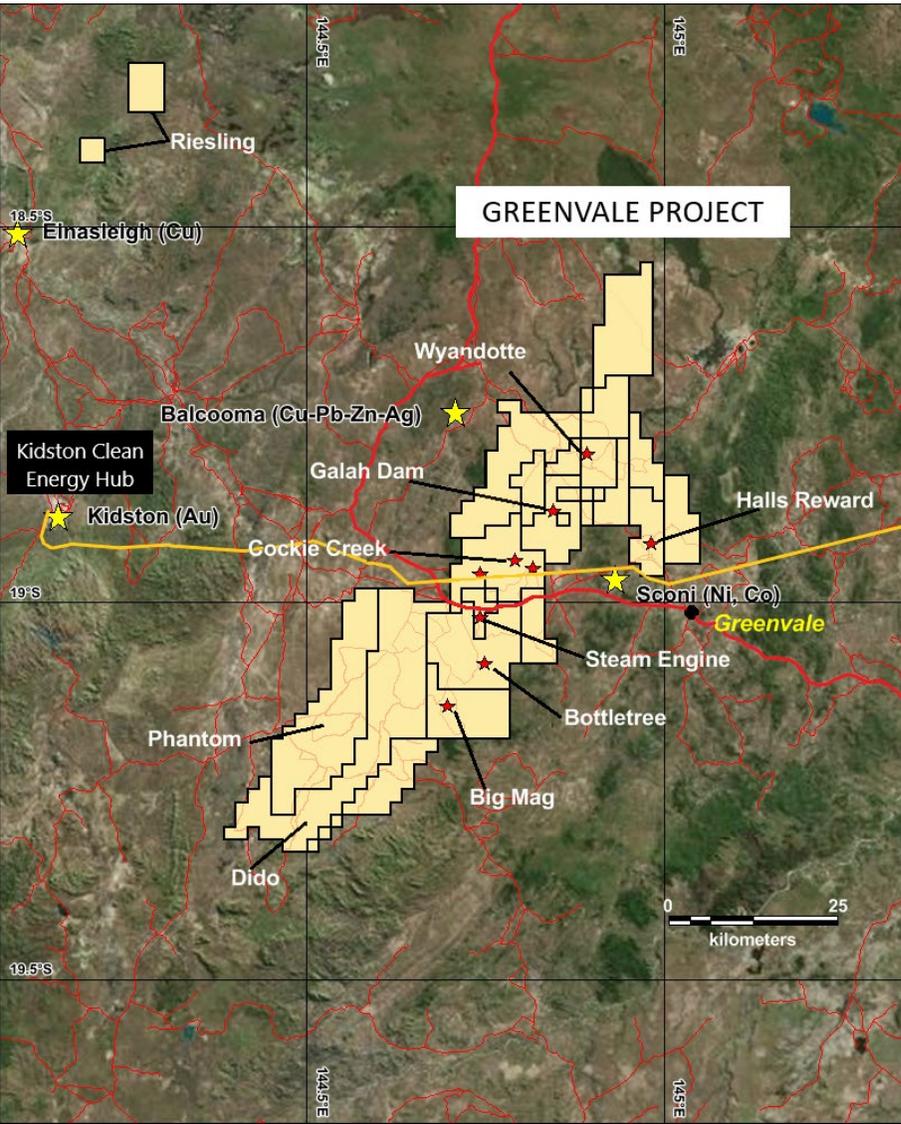
**Feasibility Study: Steam Engine Gold toll treatment**



Growth through discovery

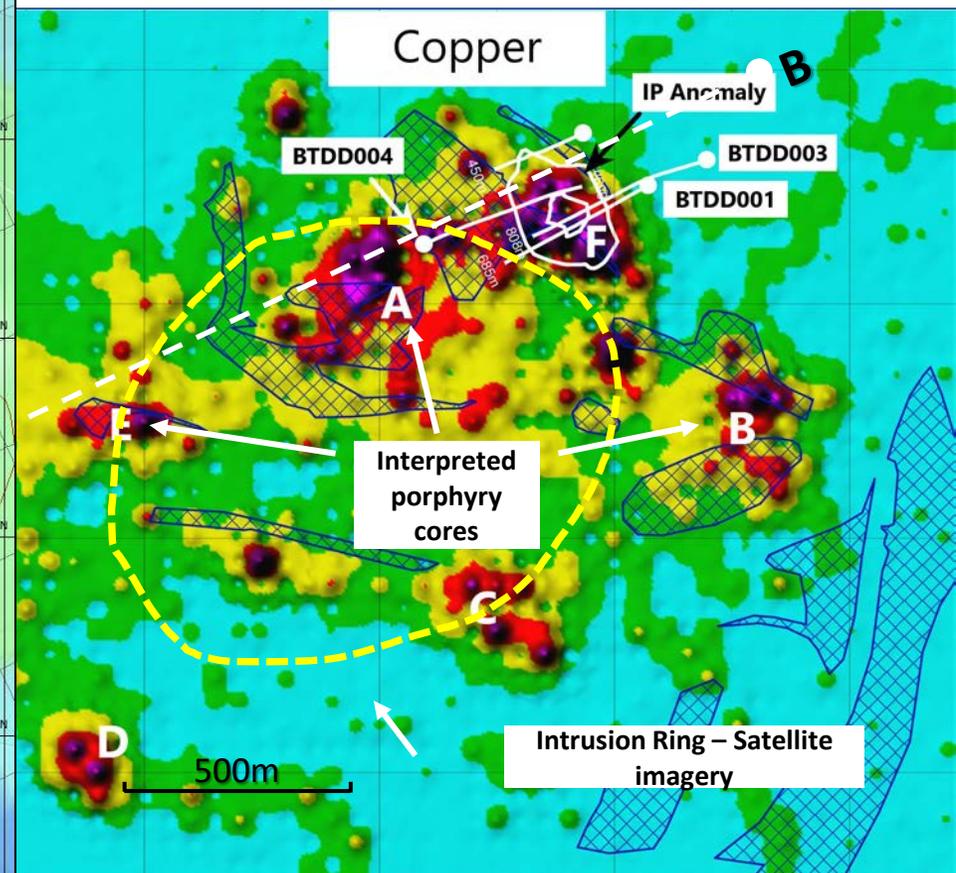
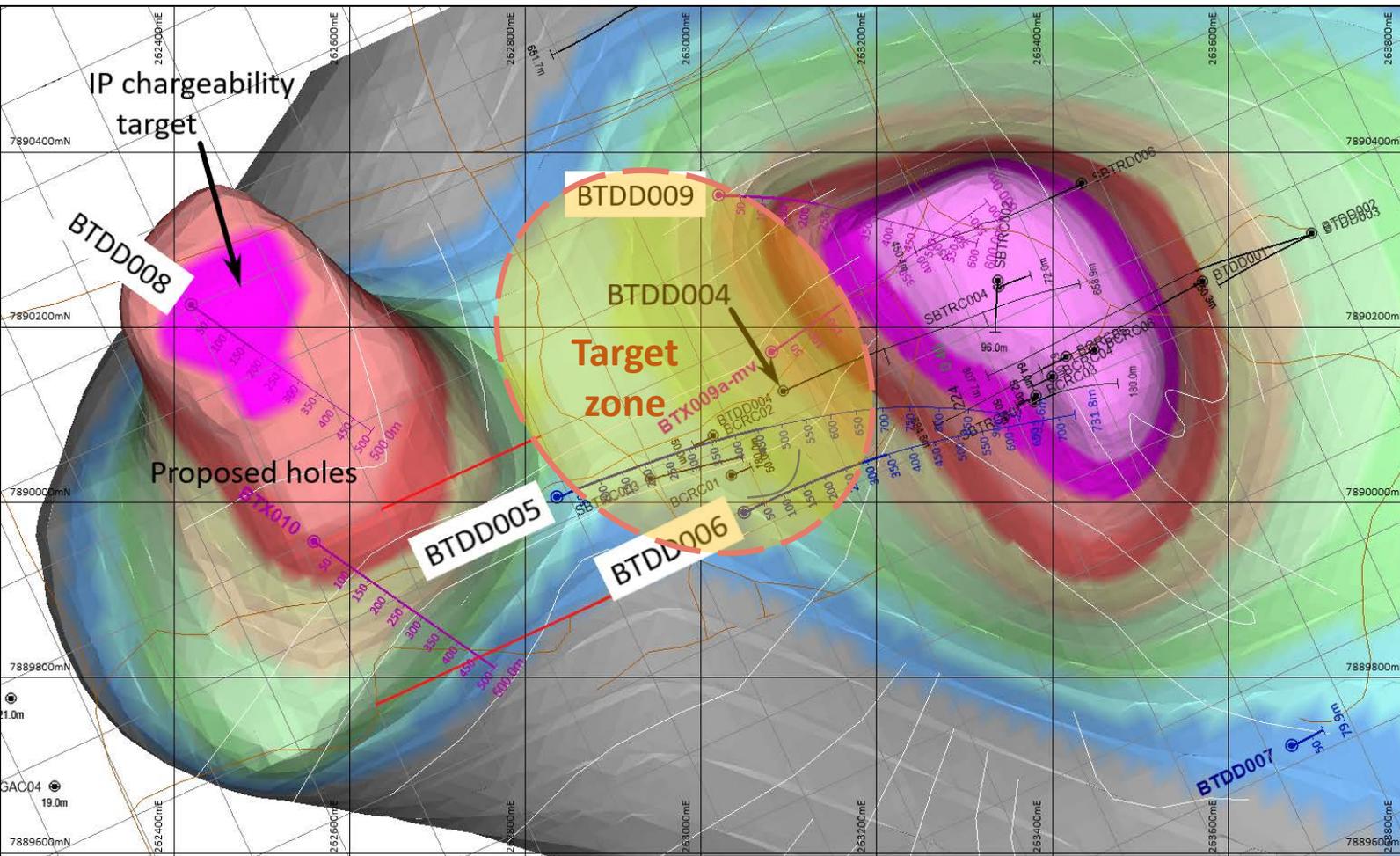
# Greenvale Project

Copper Belt – Why the concentration of copper?

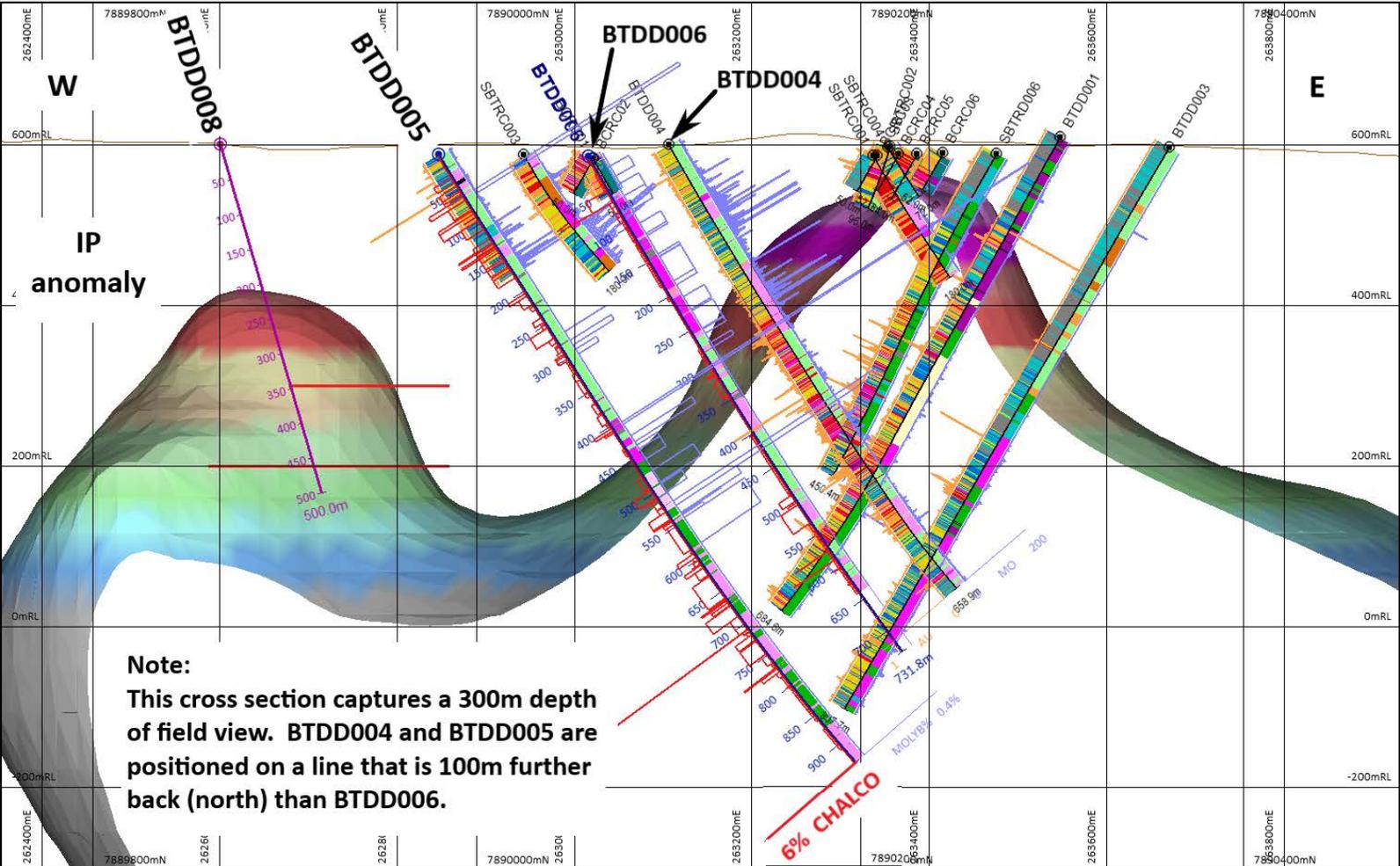


Cayley, R. Bulletin MW 2015, v1

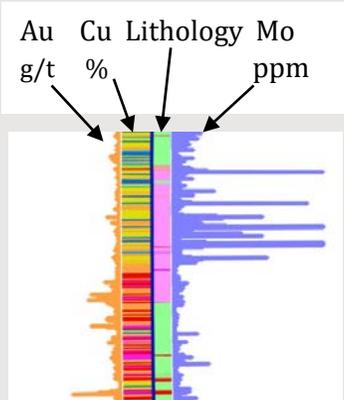
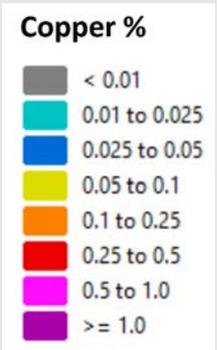
# Bottletree – Large-scale Cu-Au interpreted porphyry system



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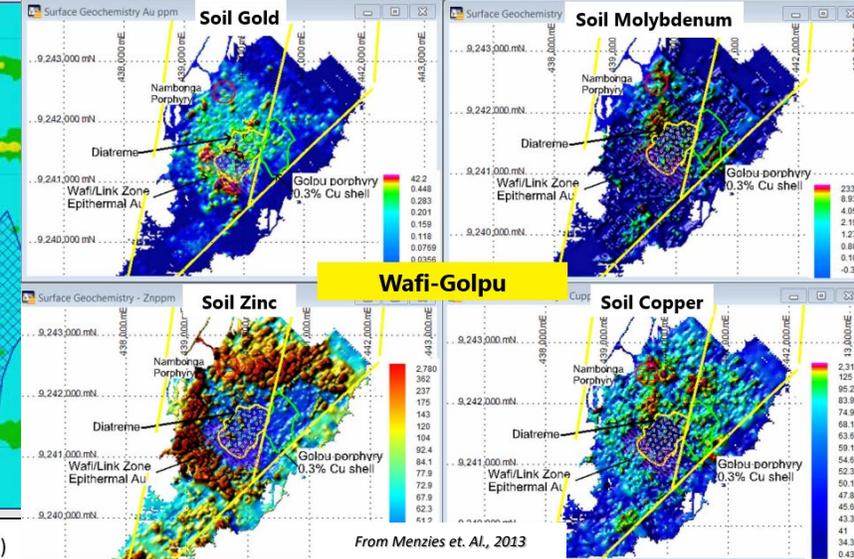
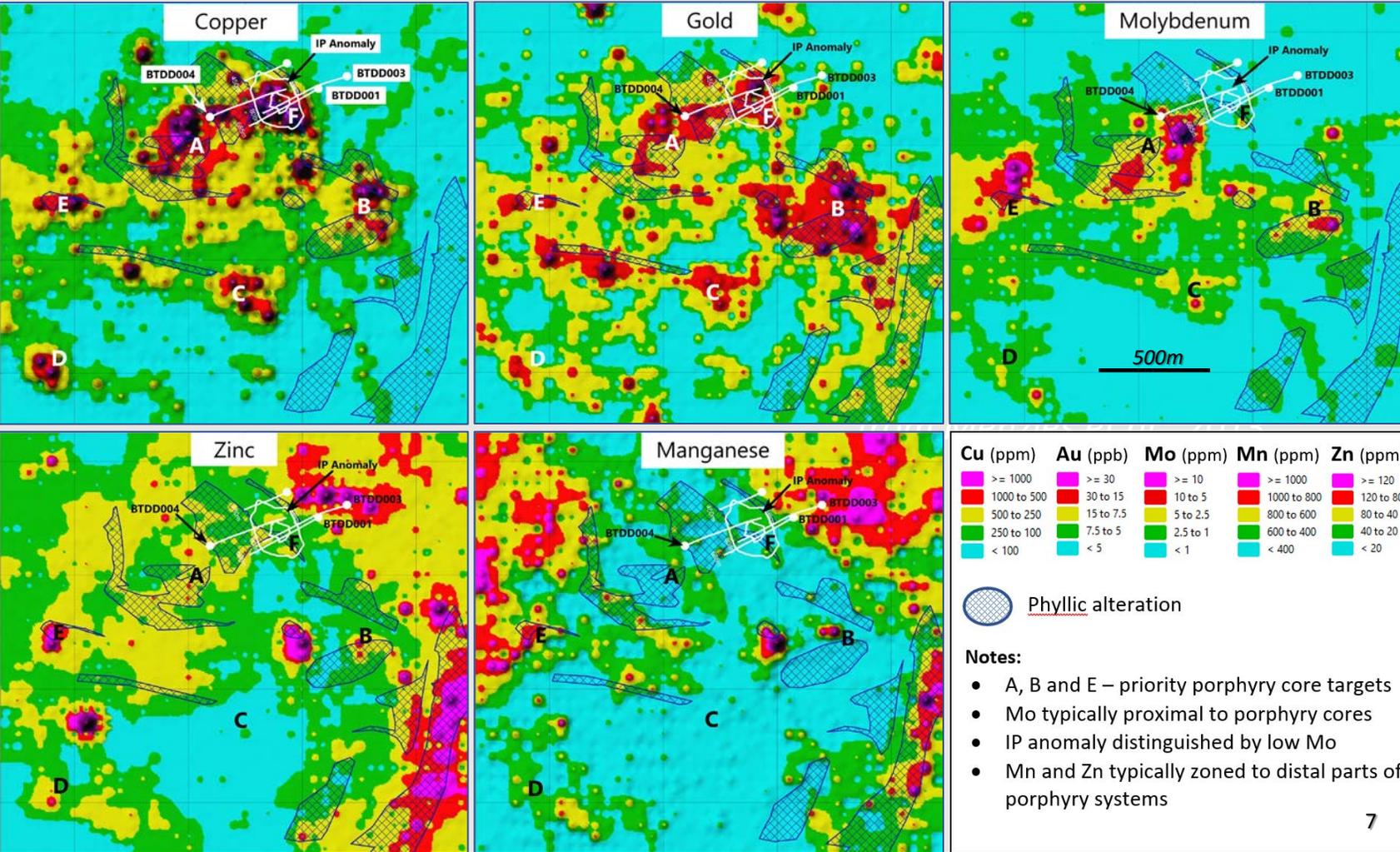
- Emerging large-scale copper system
  - 632m @ 0.21% Cu, 0.03g/t Au, 18.0ppm Mo<sup>6</sup> incl. 224m @ 0.40% Cu, 0.05g/t Au, 3.5ppm Mo incl. 103m @ 0.53% Cu, 0.05g/t Au, 3.3ppm Mo incl. 15m @ 1.19% Cu, 0.15g/t Au, 1.9ppm Mo
- Drilling to date has intersected interpreted outer rim of porphyry system and interpreted late-stage porphyry intrusions
- 2022 drilling program targeting central zone of interpreted porphyry



- Lithology**
- Andesite, Meta-Andesite, Meta-Andesite/SH
  - Basalt, Brx Basalt/Calcite
  - Tonalite, Tonalite Dyke, Tonalitic Porphyry, Biotite Tonalite, ...
  - Dacite Porphyry, Dacite Porphyry/Qtz
  - Diorite Dyke, Diorite Porphyry
  - Microdiorite Porphyry, Microdiorite
  - Pegmatite, Pegmatite/Qtz, Pegmatite/Tonalite Dyke, QF-Pe.
  - Buck Quartz, Qvn, Buck Quartz/Chl
  - Buck Quartz/Cpy, Buck Quartz/Cpy/Brx-Andesite, Buck Q...
  - Brx Buck Quartz/Pyrh/Cpy

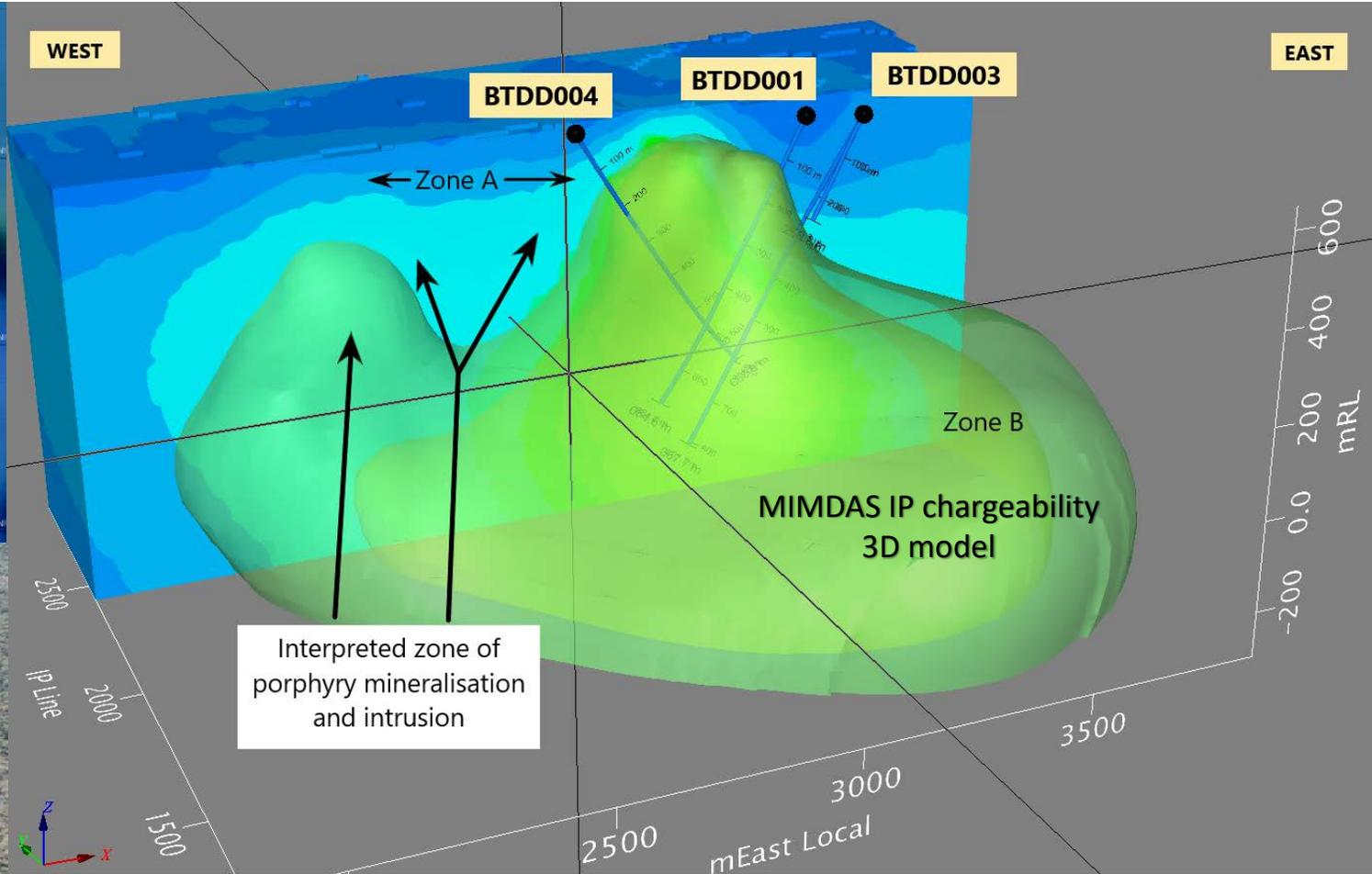
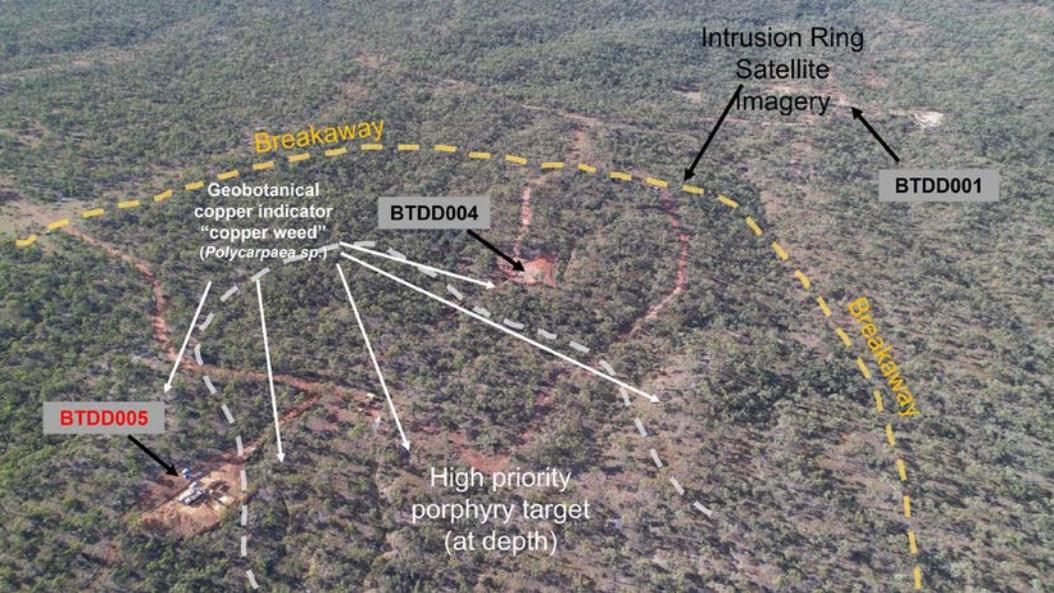
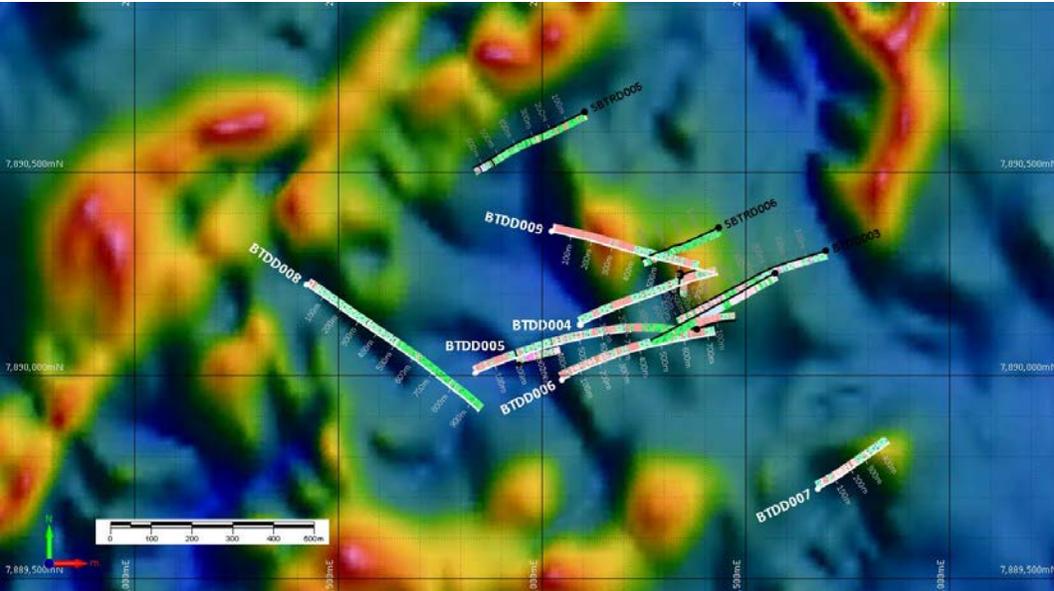
6: Refer ASX announcement dated 25 October 2018

# Bottletree – Large-scale Cu-Au interpreted porphyry system



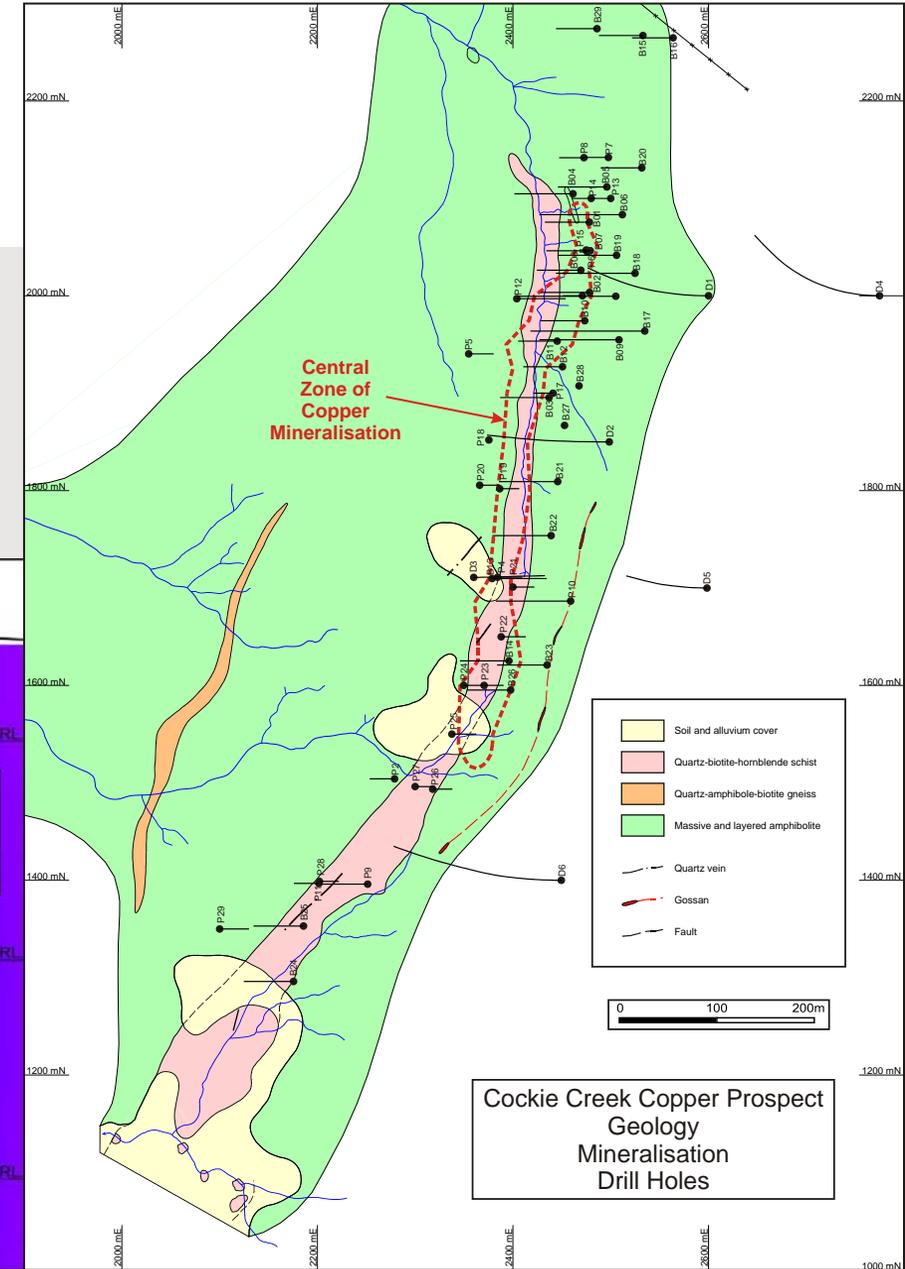
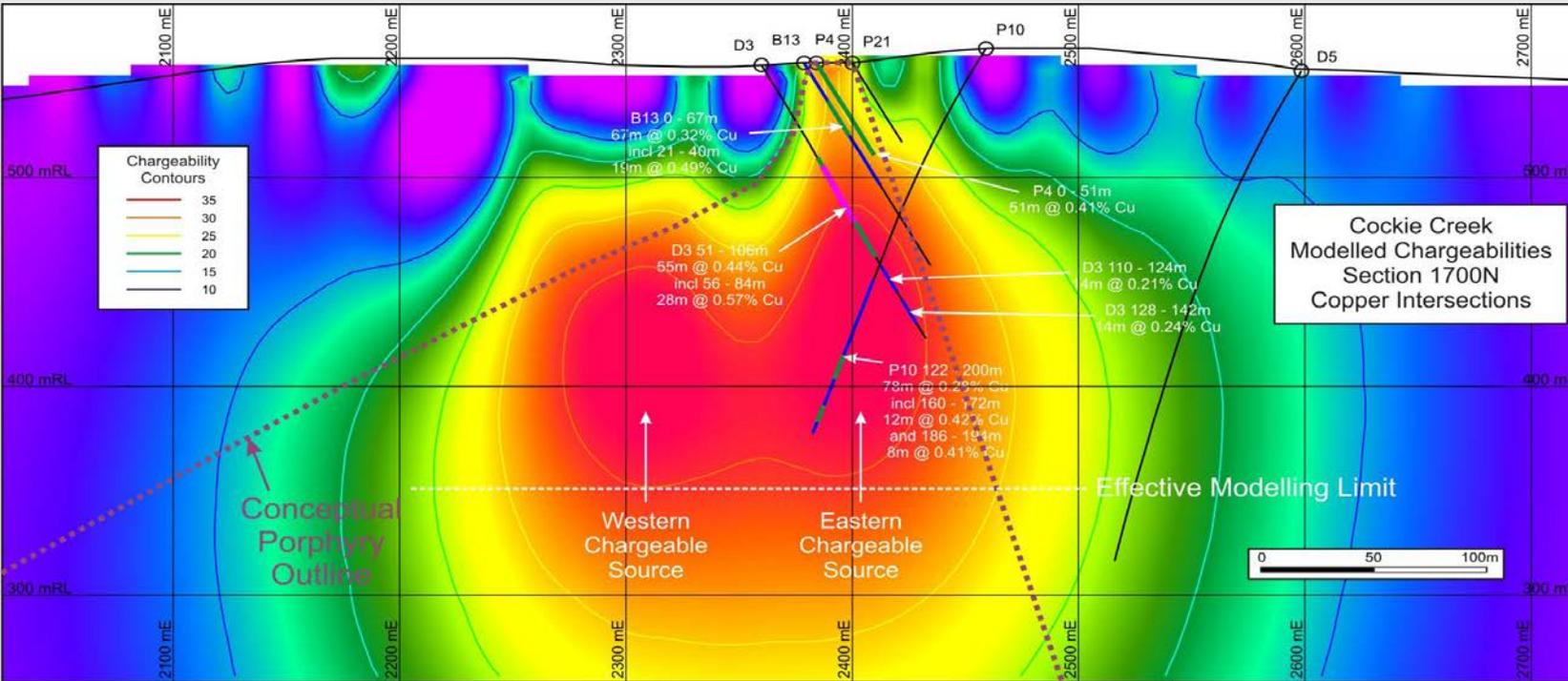
- Multiple Cu-Au-Mo porphyry targets highlighted by multi-element soil geochemistry
- Soil pathfinder element zonation showing typical porphyry signature
- Cu-Au-Mo anomalism remains open to the W and SW

# Bottletree – Large-scale Cu-Au interpreted porphyry system



# Cockie Creek – Cu-Au

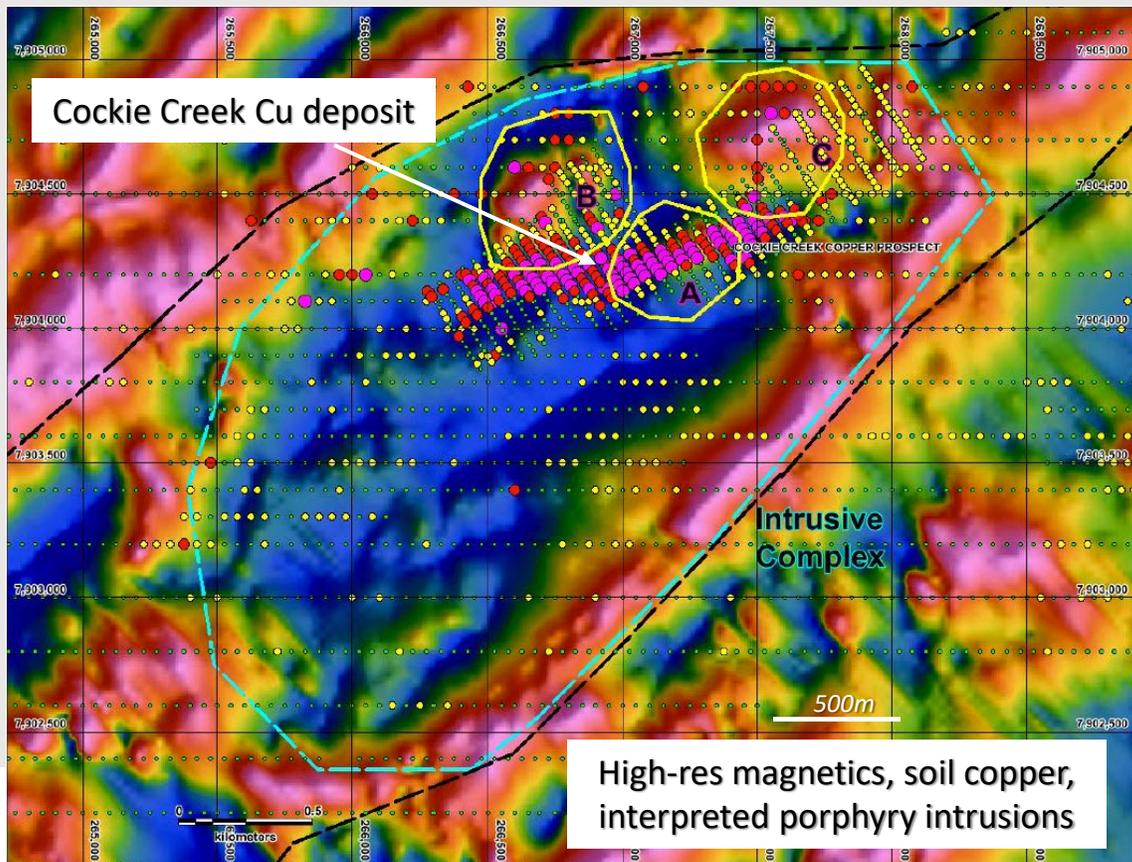
- Potential for a significant porphyry Cu-Au deposit
- Current Mineral Resource estimate: **13Mt @ 0.42% Cu<sup>8</sup>** (JORC 2004), based on strike length of 1.2kms and down to approx. 300m depth
- Significant Au mineralisation with the copper
- Two large, intense IP chargeability targets at depth beneath the defined mineralisation



8: Refer ASX announcement dated 27 March 2013

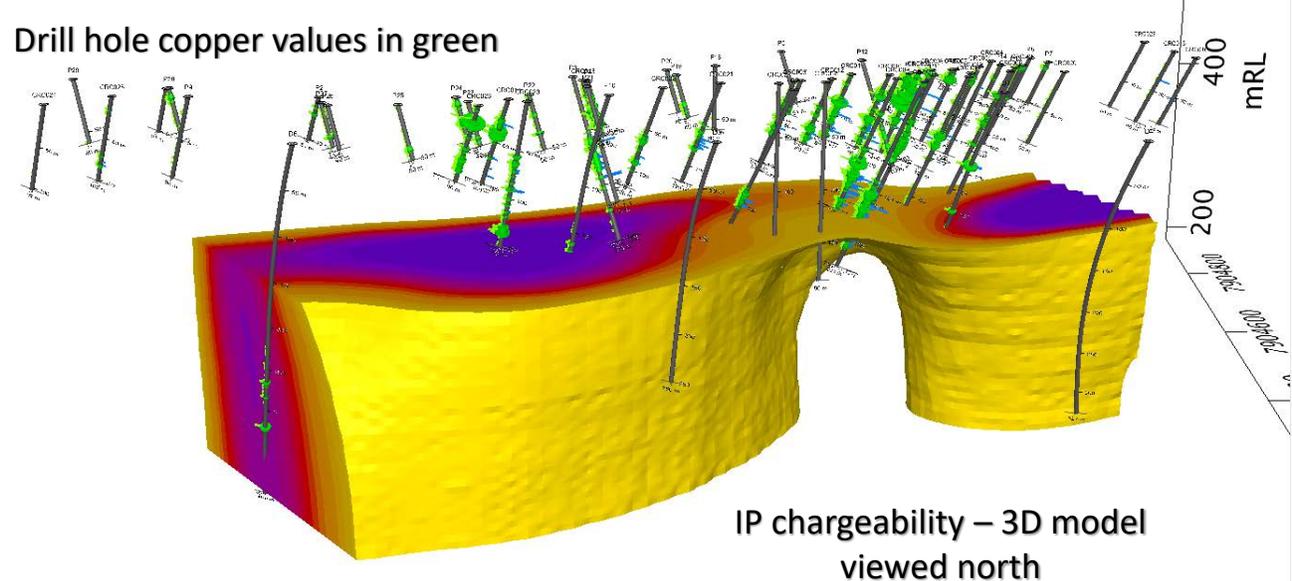
# Cockie Creek – Cu-Au

- Potential for a significant porphyry Cu-Au deposit
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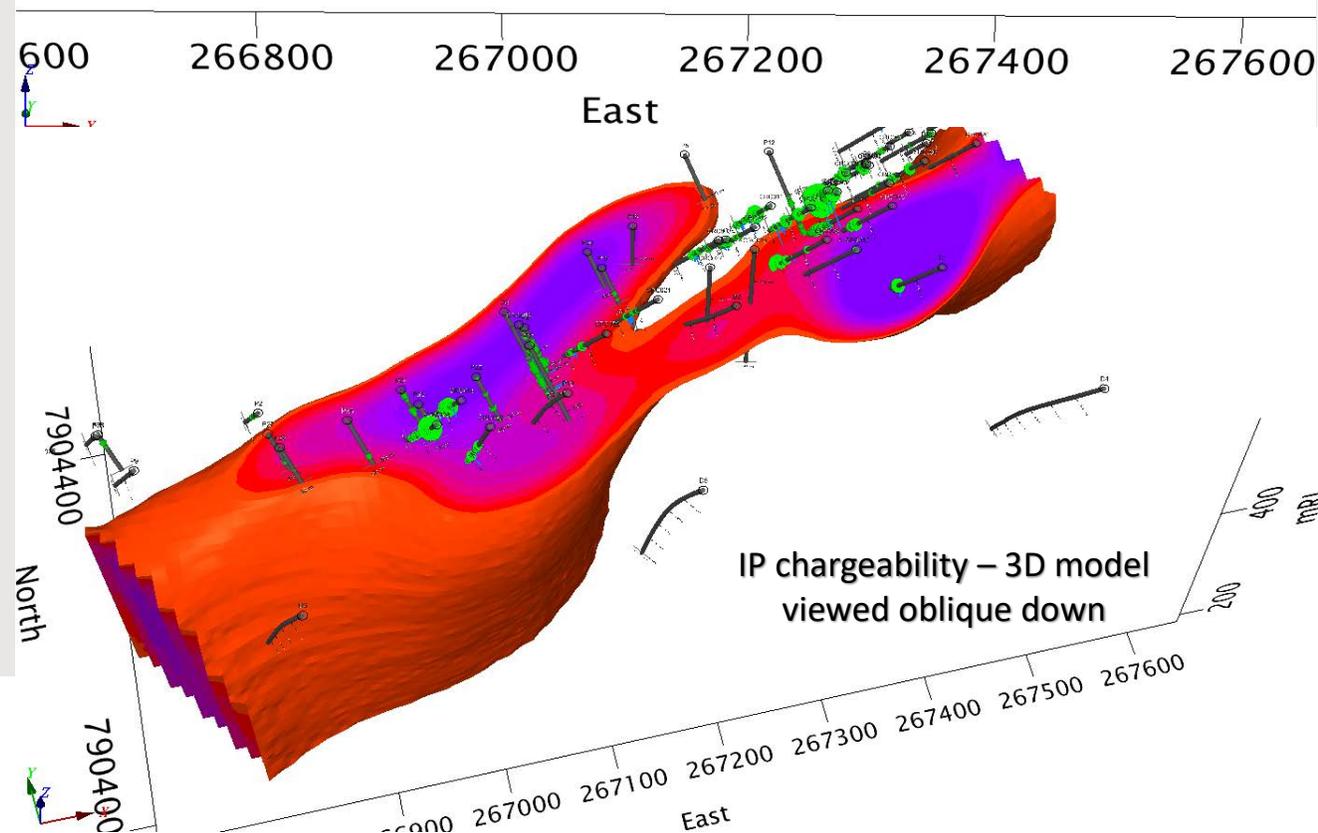


9: Refer ASX announcement dated 27 March 2013

Drill hole copper values in green

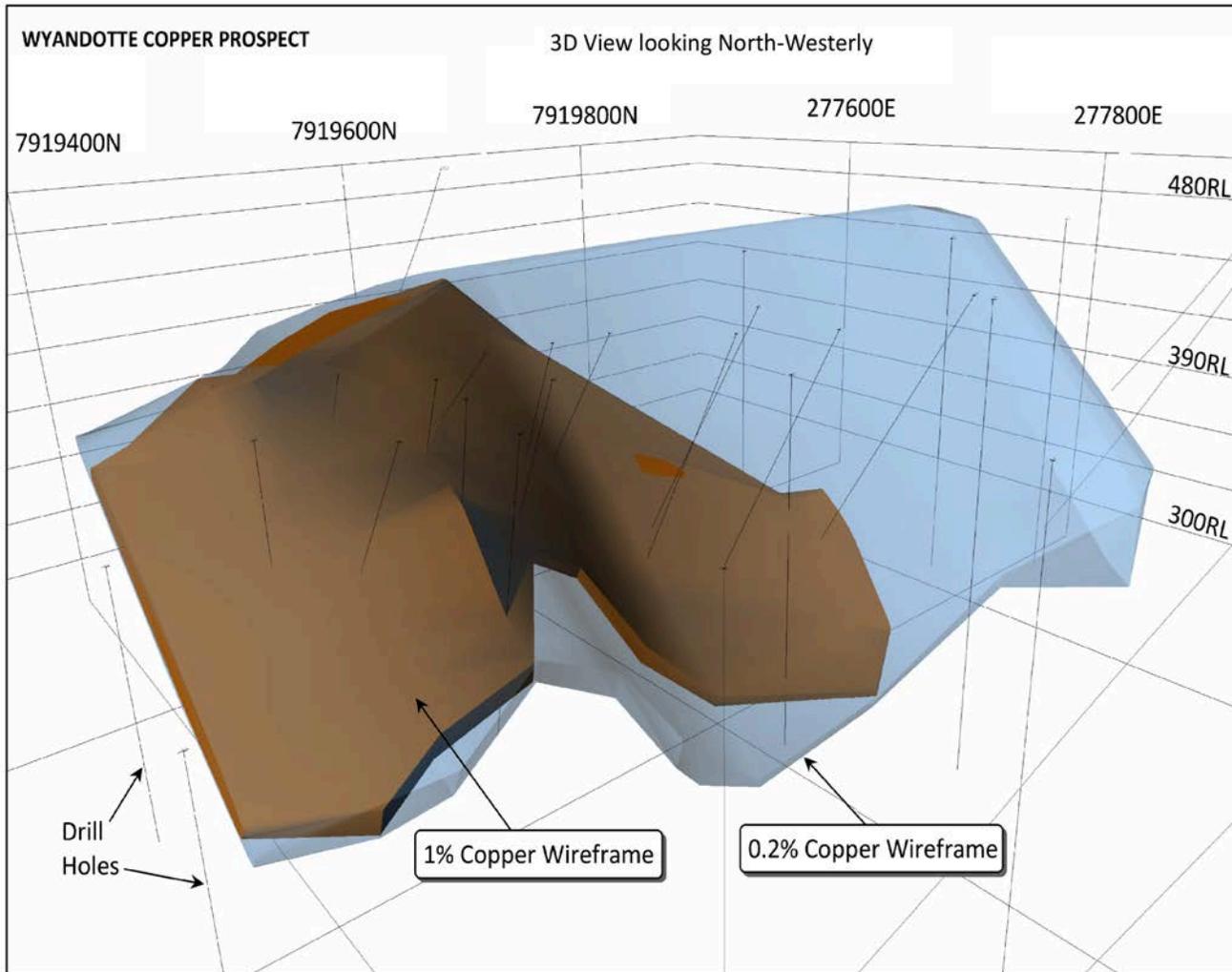


IP chargeability – 3D model viewed north



IP chargeability – 3D model viewed oblique down

# Wyandotte – High grade copper deposit



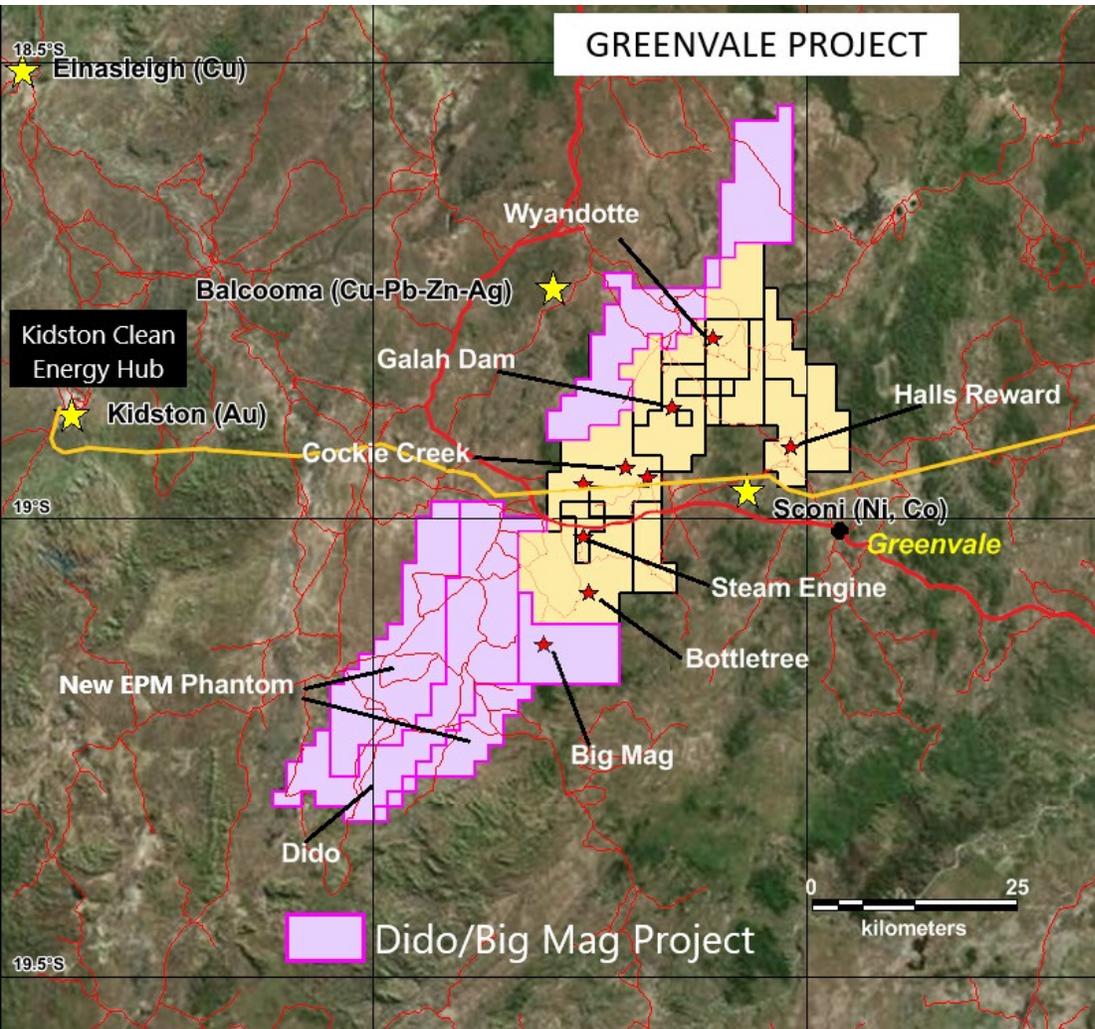
## Exploration Target<sup>10</sup>

Tonnes	SG	Cu %	Cu tonnes	Range
400,000	2.7	2.2%	8,800	Lower
1,000,000	3.0	1.9%	19,000	Upper

- Maiden Mineral Resource estimate to be established
- No exploration conducted since 1975
- Potential for down-dip extension of mineralisation
- Ground geophysical surveys to identify larger source of mineralisation

10: Refer ASX announcement dated 15 June 2021

# Dido, Phantom & Big Mag – Ni-Cu-Co-PGE

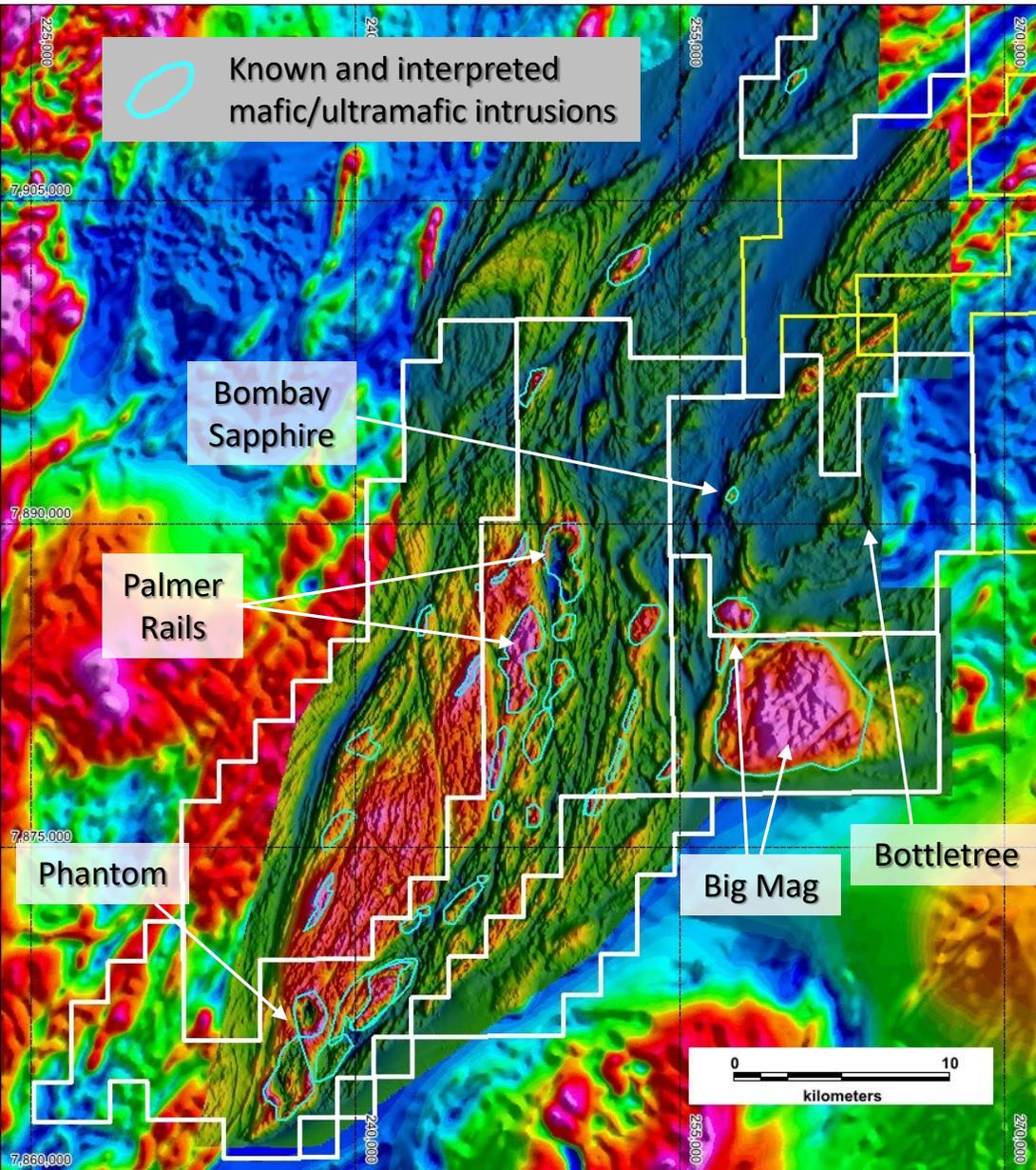


## Proven Voisey's Bay style magmatic sulphide Ni-Cu-PGE deposit systems

- Previous exploration by Anglo American (2007-2012) confirmed presence of Voisey's Bay-style geological system
- Troctolites, pyroxenites and gabbro-norites indicative of large-scale Ni-Cu-PGE magmatic sulphide ore bodies
- Evidence of wall rock contamination and multiple phases of magma intrusion are key features of Ni-Cu-PGE ore systems
- Initial drill results considered by Anglo to be very significant
- Numerous fertile troctolite intrusions not followed up or inadequately followed up
- Localised areas of differentiated mafic and ultramafic intrusions (Ovoids and feeder dykes) with high potential for **magmatic Ni-Cu-Co-PGE** mineralisation identified in high resolution airborne magnetics
- largely **unexplored**
- Rio Tinto recent pegging

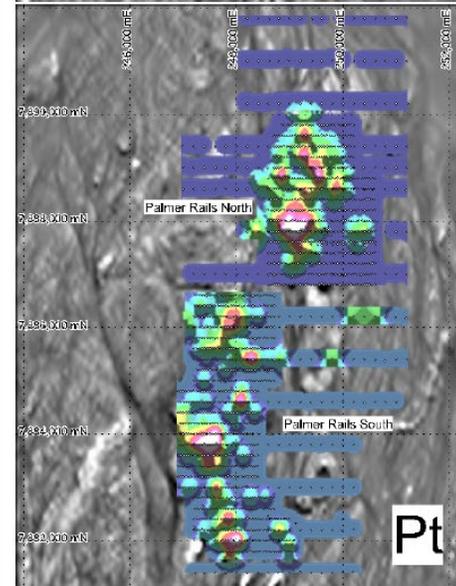
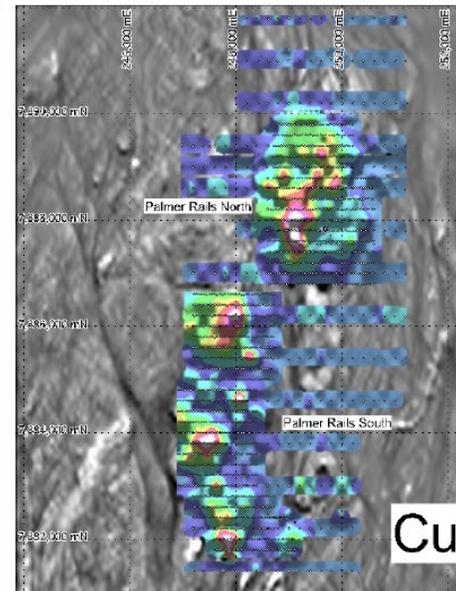
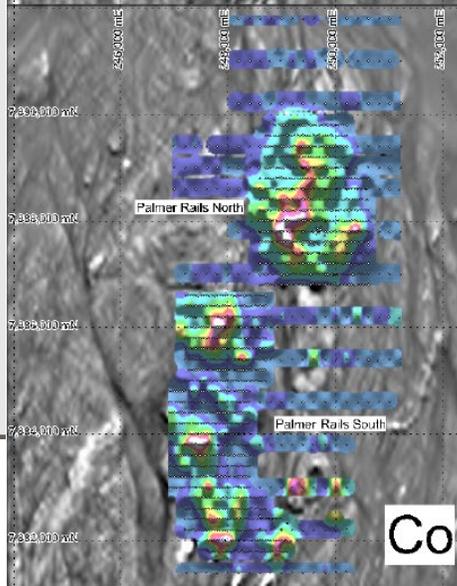
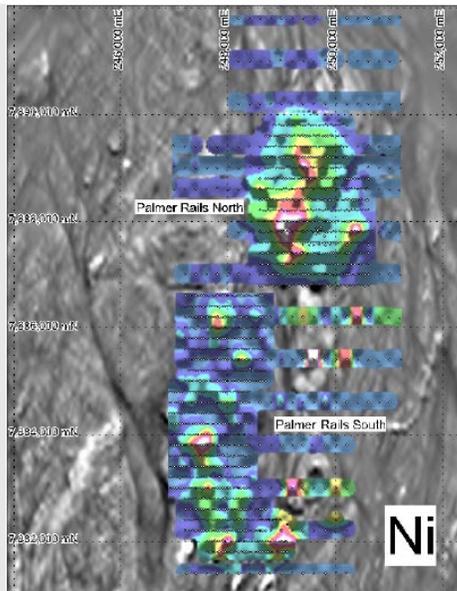
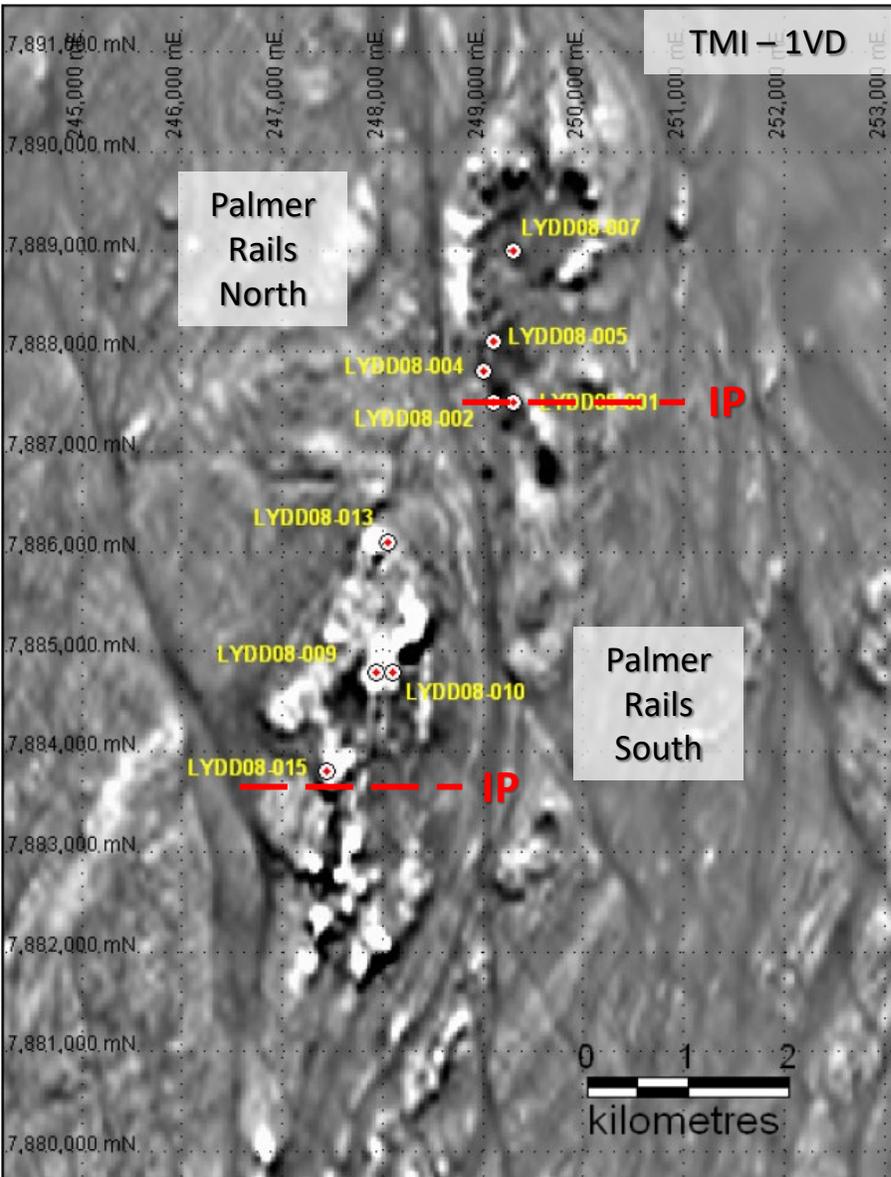


# Dido, Phantom & Big Mag – Ni-Cu-Co-PGE systems at Dido



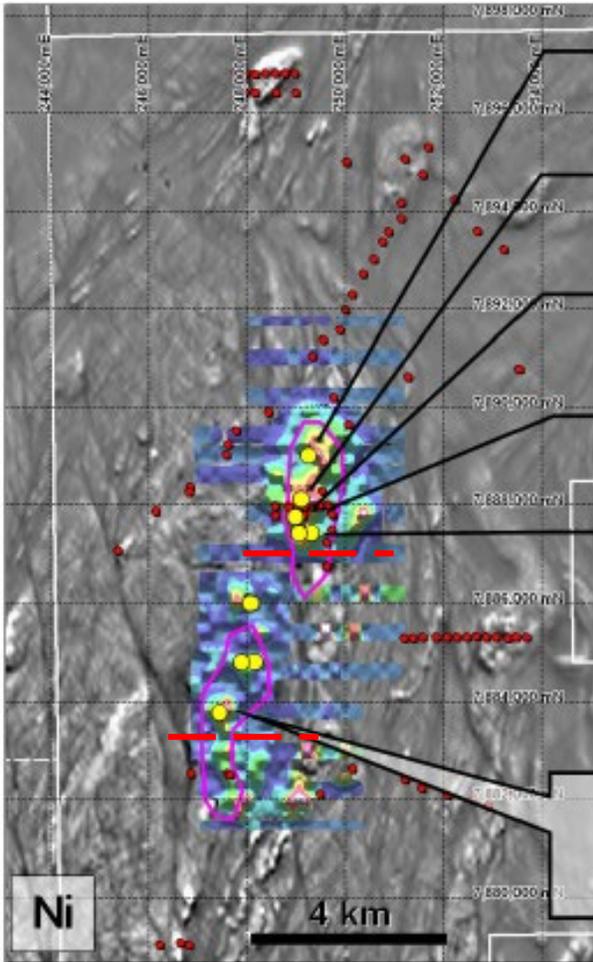
- Numerous troctolite, pyroxenite and gabbro-norite intrusions across entire project area indicative of large-scale Ni-Cu-PGE magmatic sulphide ore bodies
- Microprobe analyses of olivine from intrusions (Fo72-Fo85) consistent with Voisey's Bay – significant Ni vs MgO depletion – indicates Ni sulphide deposit likely to exist in the project area
- Hornblende geobarometry indicates intrusions were emplaced @ 5.5kbars (15-20km depth) – ideal for mineralised mafic intrusions
- Evidence of wall rock contamination and multiple phases of magma intrusion are key features of Ni-Cu-PGE ore systems
- SHRIMP and U-Pb geochronology indicate 460-470Ma age (mafic/ultramafic intrusions) and 430Ma age (Dido Tonalite)
- Initial 9-hole diamond drill program intersected multiple >15m thick disseminated Ni-Cu-PGE sulphide mineralisation (up to 0.58% Ni, 0.28% Cu) in Voisey's Bay type intrusions
- Numerous fertile troctolite intrusions not followed up or inadequately followed up
- largely **unexplored**

# Dido, Phantom & Big Mag – Palmer Rails



- 9 diamond drill holes (2,700m)
- Targeted IP and soil anomalies
- Intersected mafic/ultramafic intrusions incl gabbro-norite, troctolite, pyroxenite
- “Extremely encouraging”: Intrusions show substantial wall rock contamination and magma mixing
- Palmer Rails North geochemically distinct from PR South
- Magmatic sulphides present in most drill holes (both mafic and ultramafic)
- Intergrown pyrrhotite-chalcopyrite-pentlandite grains intercumulus to silicate grains
- Palmer Rails North is Ni-rich, Palmer Rails South PGE-rich

# Dido, Phantom & Big Mag – Palmer Rails



**LYDD08-007**  
133m @ 0.12% Ni

**LYDD08-005**  
28.2m @ 0.14% Ni

**LYDD08-004**  
105m @ 0.14% Ni

**LYAC015**  
24m @ 0.15% Ni

**LYDD08-001**  
74.5m @ 0.10% Ni

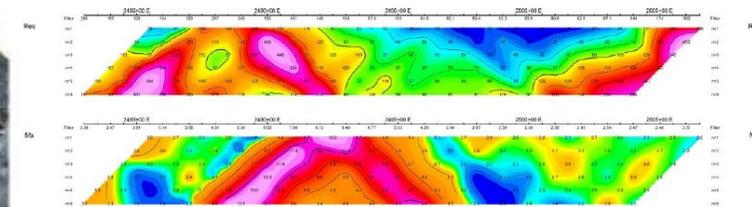
**Suite 2 Magma**  
**Ni Depleted!**



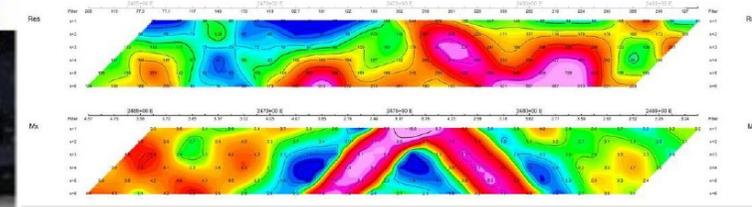
E.g., LYDD08-005:

- 0.37% Ni, 0.13% Cu, 0.01g/t Pt, 0.03g/t Pd (27-29m)
- 0.23% Ni, 0.07% Cu, 0.12g/t Pt, 0.37g/t Pd 0.3g/t Au (29-31m)
- 0.38% Ni, 0.22% Cu, 0.01g/t Pt, 0.12g/t Pd (31-33m)
- 0.15% Ni, 0.14% Cu, 0.01g/t Pt, 0.01g/t Pd (317-319m)

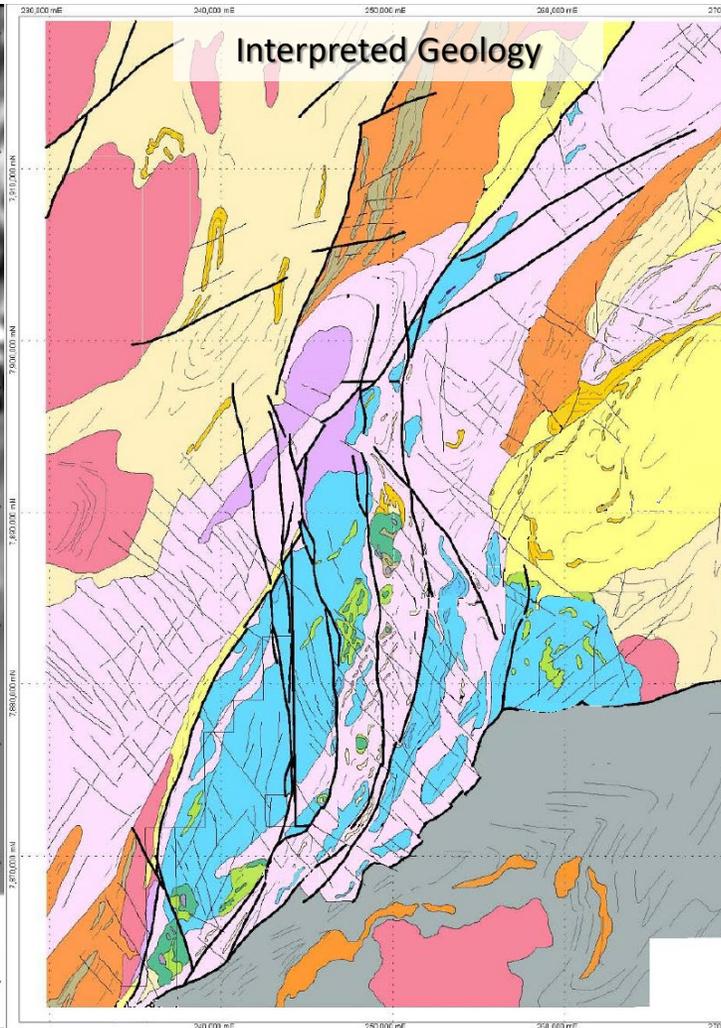
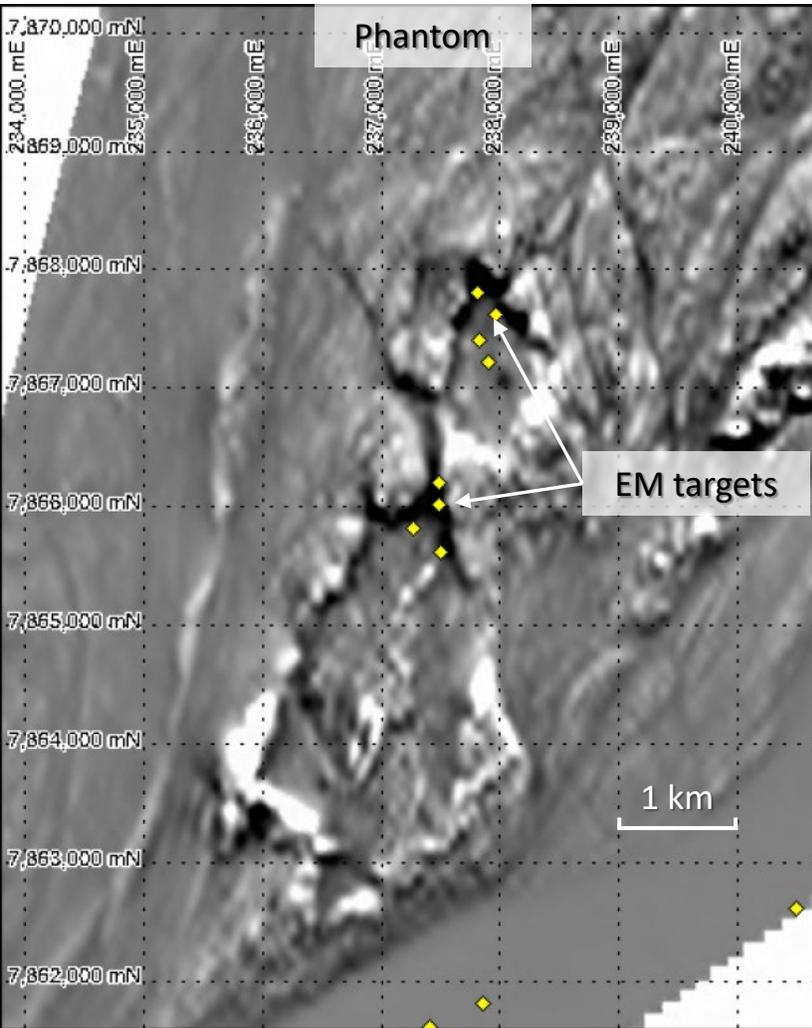
## Palmer Rails North



## Palmer Rails South



# Dido, Phantom & Big Mag – Phantom

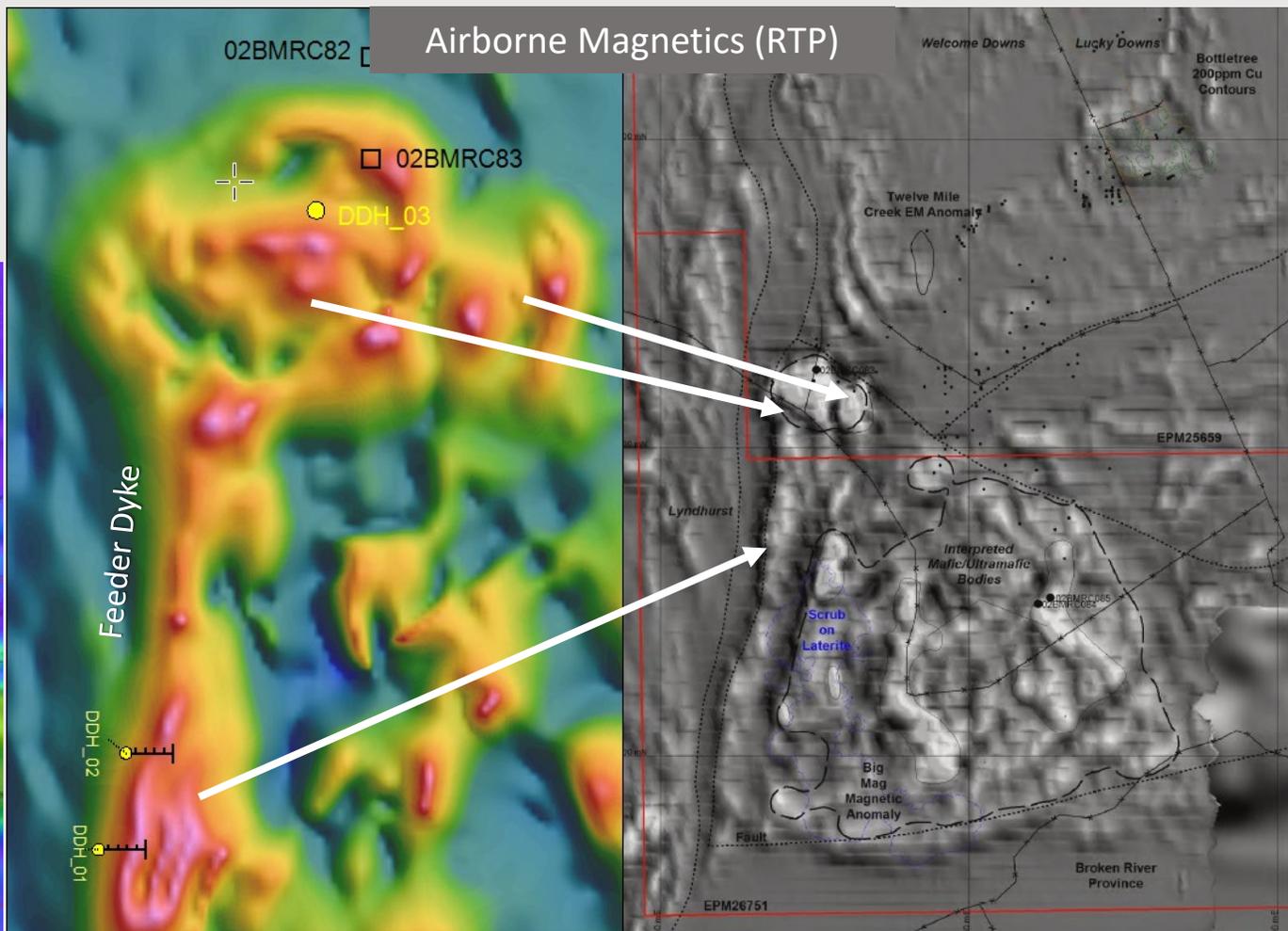
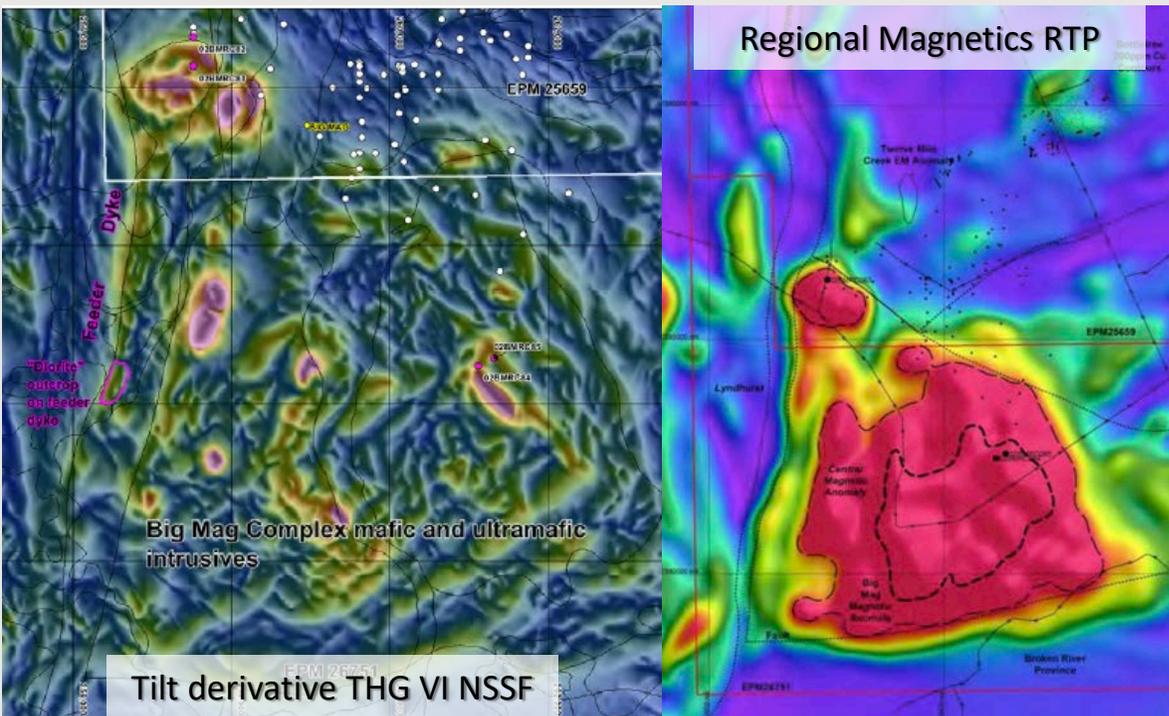


- 2 connected intrusives comprising gabbro, olivine gabbro and troctolite
- Extensive disseminated Ni-Cu sulphide mineralisation in outcrop
- Spectrem EM conductor targets drill-ready
- No exploration work conducted by Anglo



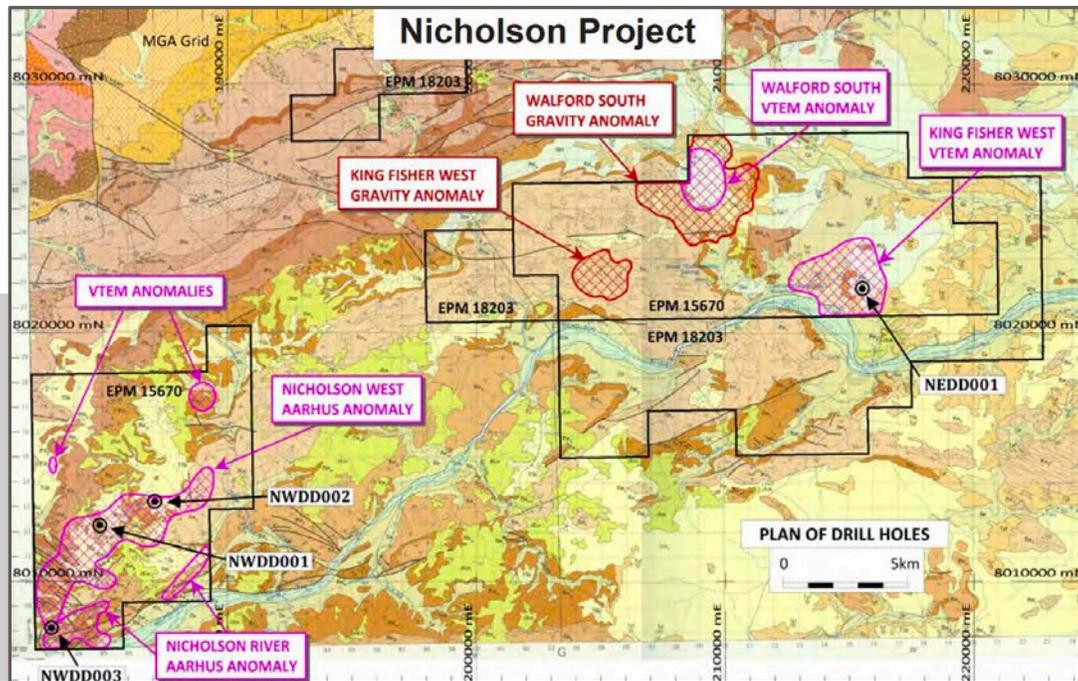
# Dido, Phantom & Big Mag – *Big Mag*

- A series of mafic and differentiated ultramafic intrusions
- Drill-ready potential Ovoids and Feeder Dykes
- Intense magnetic anomaly targets at depth
- Differentiated / layered intrusion appears within potential Feeder Dyke



# Mt Isa-style Zn-Pb-Ag-Cu targets

- Located within Carpentaria Zinc Province, which contains 20% of the world's zinc inventory
- Underexplored – the most likely area to make the next Mount Isa discovery

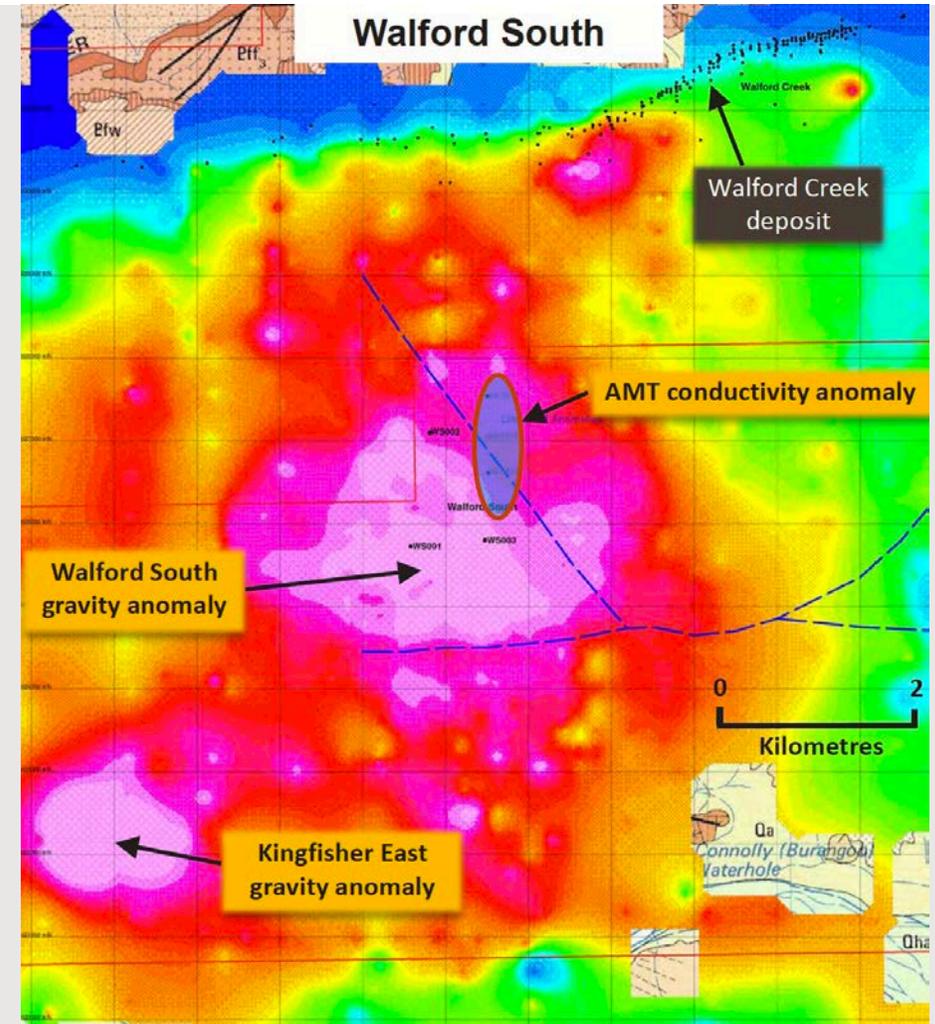
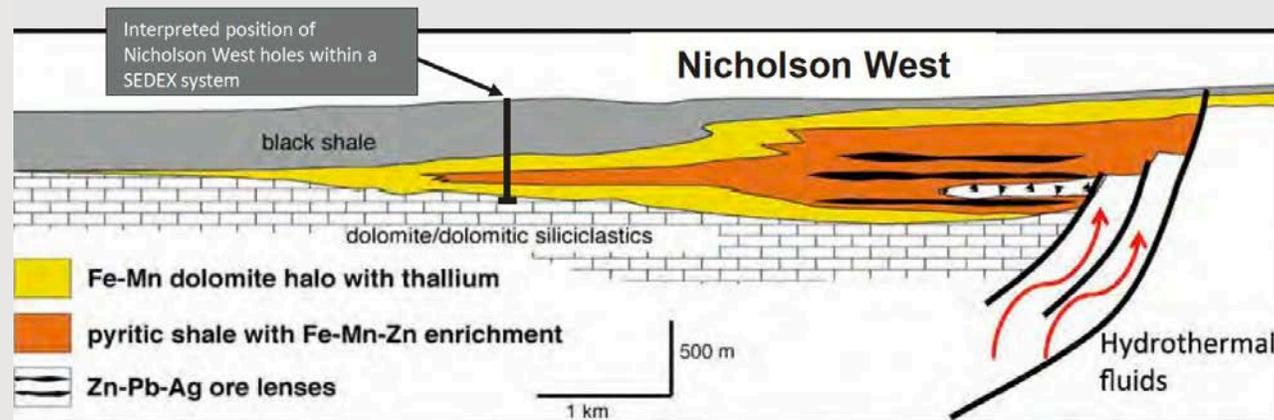


# Nicholson West and Walford South targets

## Walford South: Tier 1-potential VTEM, gravity and AMT target

- Coincident VTEM, gravity and associated AMT anomalies
- Anomalies adjacent to at least two major fault structures
- Previous SPQ drilling (3 holes) intersected “classic” well-developed stratiform pyritic shale, typical of McArthur River style mineralisation

## Nicholson West: 2019 drilling confirmed presence of SEDEX mineralisation systems (McArthur River and Mt Isa) developed within thick (up to 340 m) Mount Les Siltstone

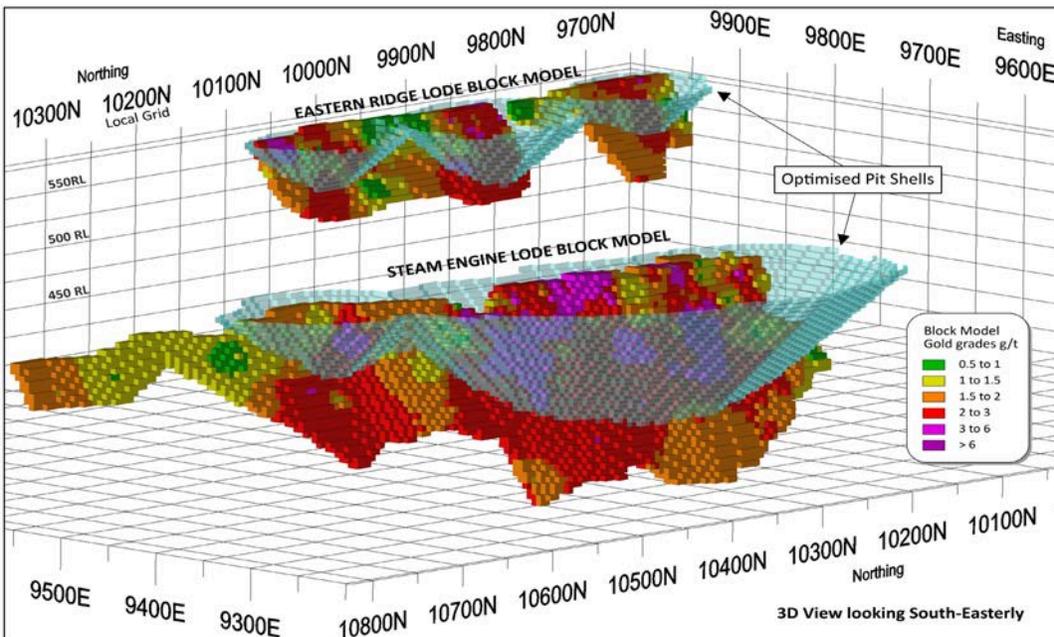


(Refer ASX announcement dated 6 March 2020)

# Appendices



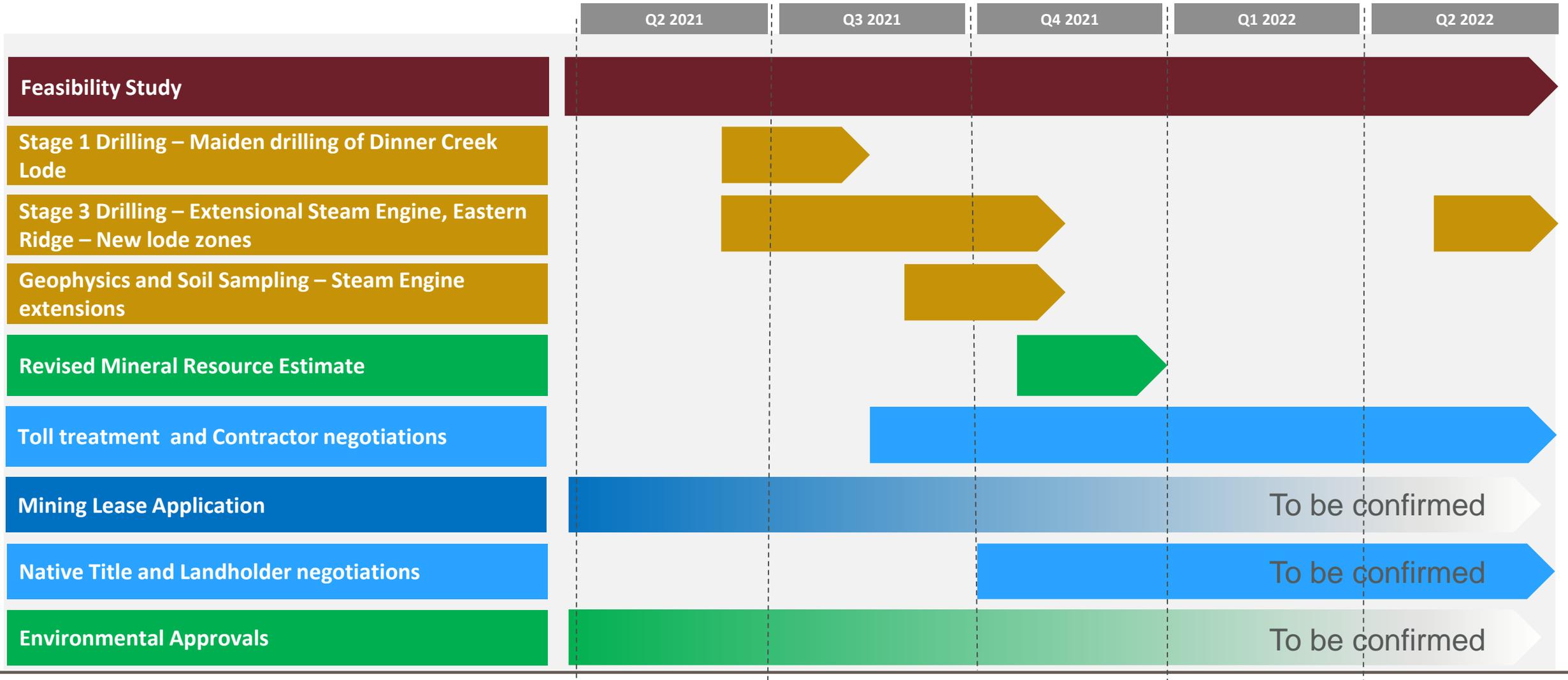
# Steam Engine – Highly positive Scoping Study



Parameter	Breakeven Value
Gold Price	A\$1,709 (US\$1,299 @ 0.76 AUD/USD)
Gold Grade	1.79 g/t
Gold Recovery Steam Engine Lode Ore	60%

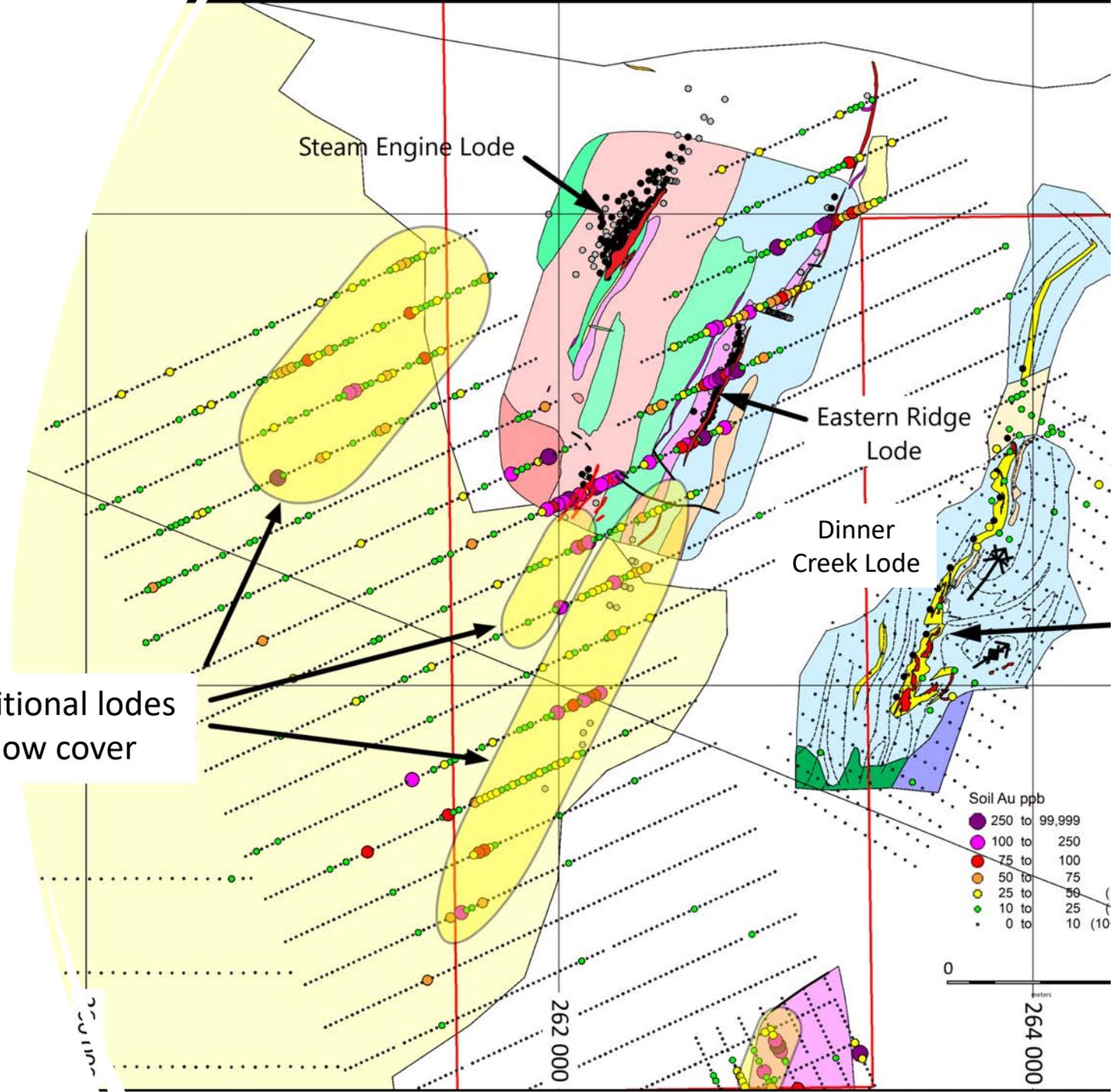
Parameter	Base Case @ A\$2,200 /oz	Upside Case @ A\$2,500 /oz
<b>Financial Summary</b>		
Overall Cash Flow (post-tax)	A\$24.2M	A\$41.0M
NPV <sub>7%</sub> (post-tax)	A\$21.2M	A\$35.9M
Internal Rate of Return (IRR) (post-tax)	242%	410%
All-in Sustaining Costs (AISC) <sup>12</sup>	A\$1,673 /oz	A\$1,725 /oz
Payback Period	11 months	9 months
<b>Funding</b>		
CAPEX (Pre-Production and Closure)	A\$5.1M	A\$5.1M
Funding Required <sup>13</sup>	A\$10.0M	A\$9.0M
Return on Capital (post-tax)	475%	806%
<b>Physical Outputs</b>		
Life of Mine (LOM) (Construction to Closure)	~2.5 years	~2.9 years
Total Ore	1.131 Mt	1.305 Mt
Ore Grade	2.31 g/t	2.24 g/t
Overall Gold Recovery	84%	84%
Gold Produced and Sold	70,000 oz	79,000 oz

# Steam Engine – Current program timeline



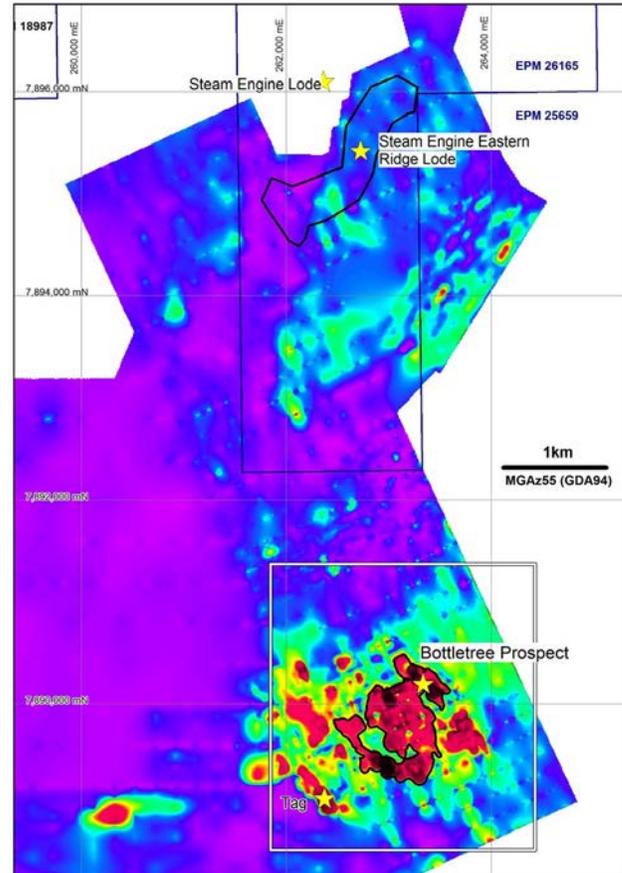
# Steam Engine Project – Potential new lodes

Potential additional lodes under shallow cover

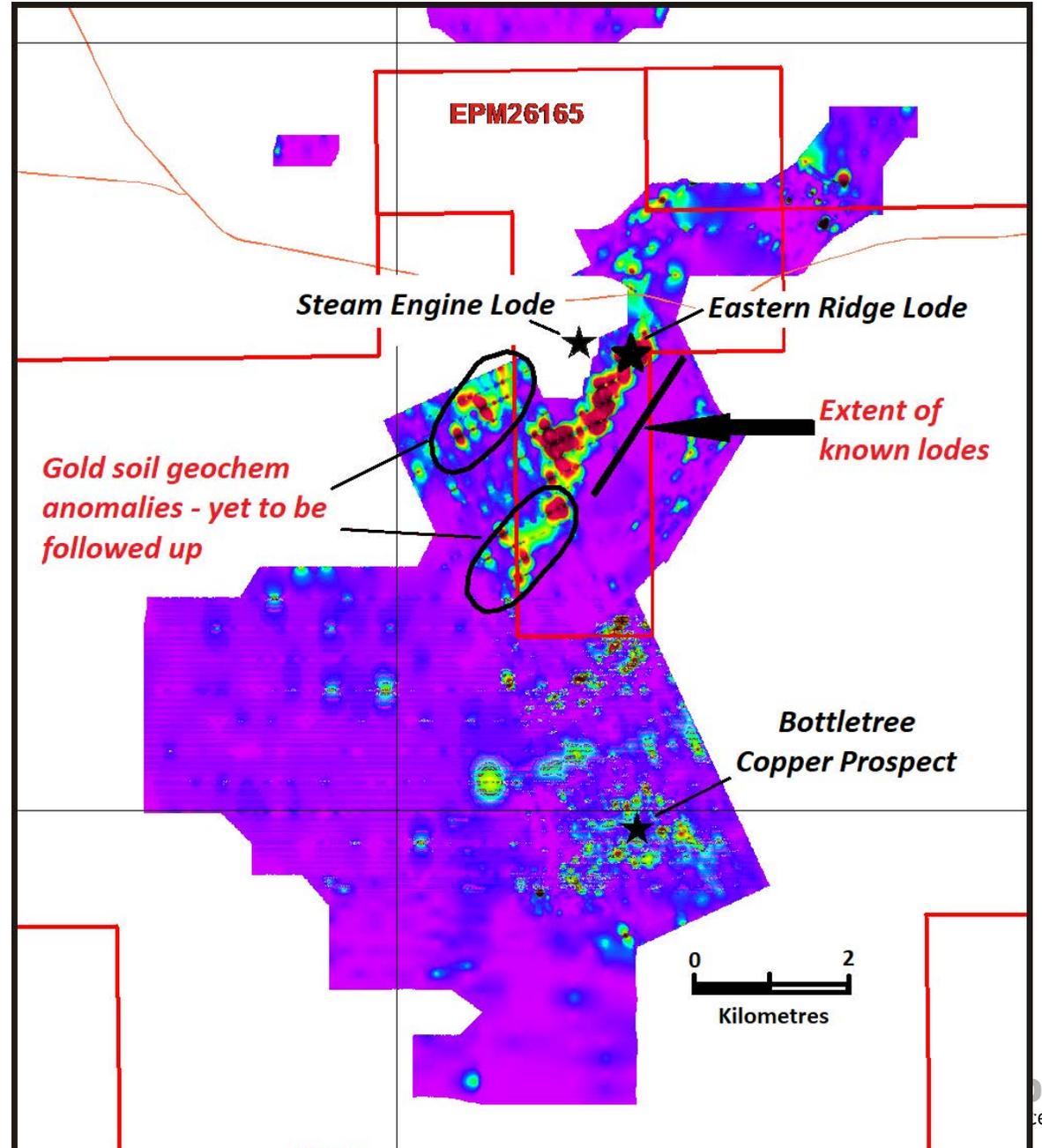


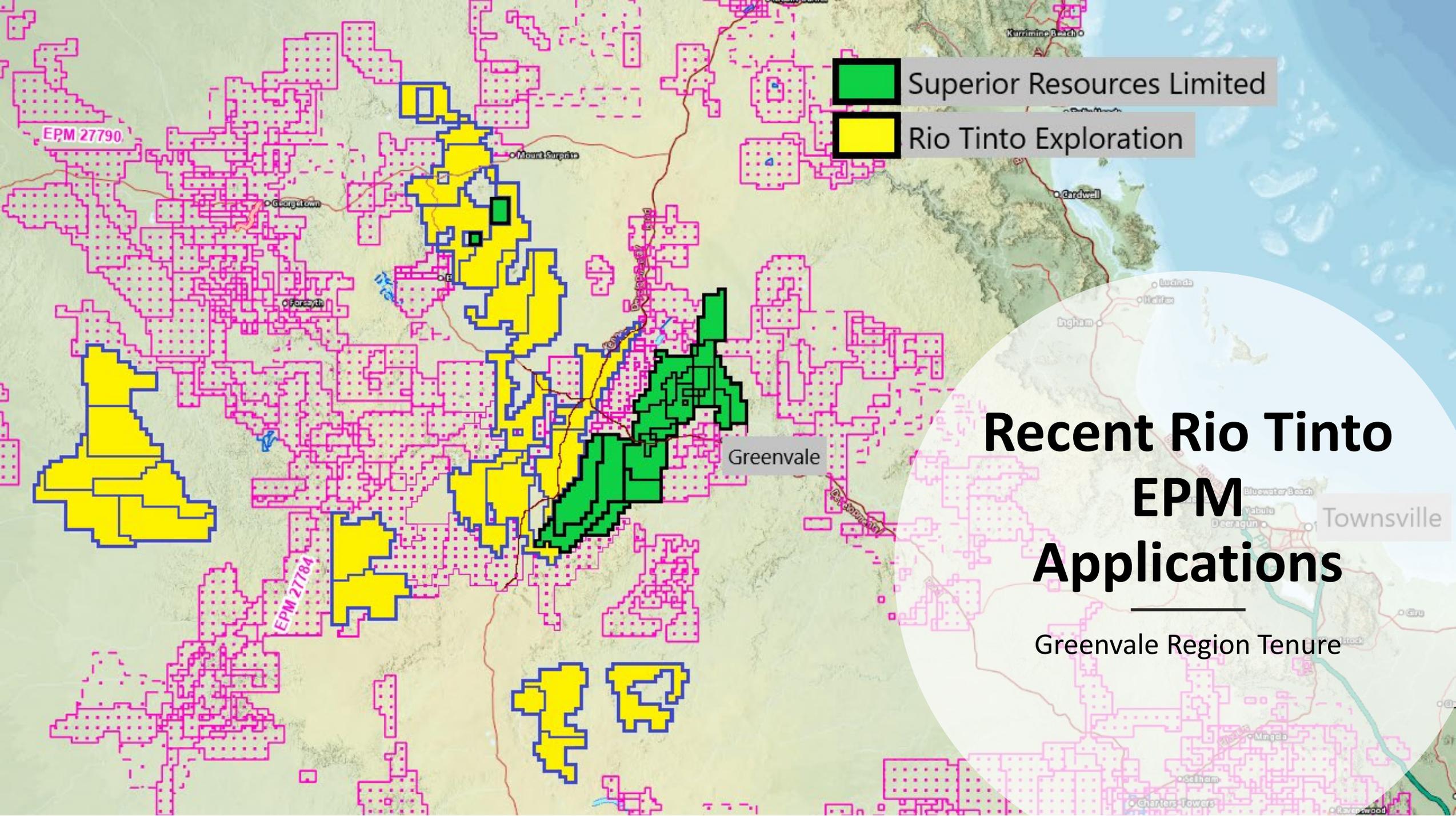
# Steam Engine Project – Potential new lodes

Soil geochemistry (Copper)



Soil geochemistry (Gold)





Superior Resources Limited

Rio Tinto Exploration

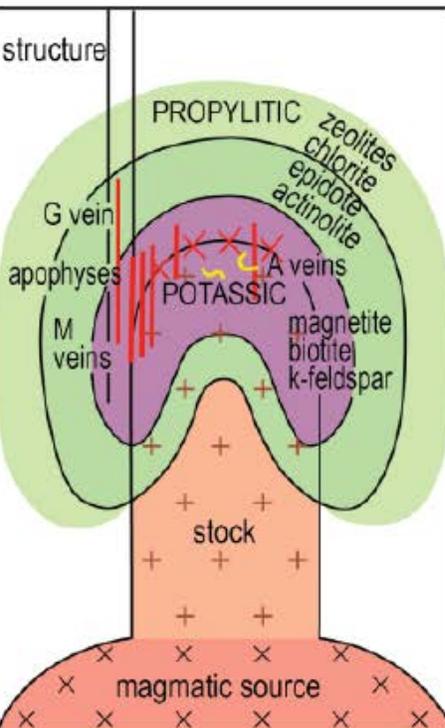
# Recent Rio Tinto EPM Applications

Greenvale Region Tenure

# STAGED PORPHYRY Cu-Au EVOLUTION

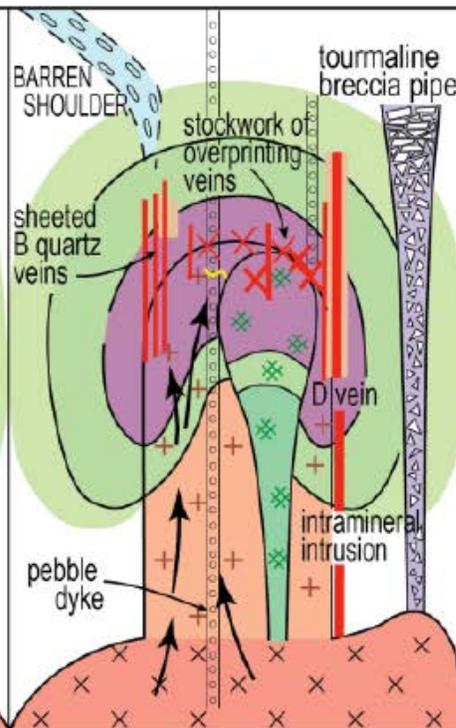
EARLY

EMPLACEMENT, PROGRADE ALTERATION & EARLY MINERALISATION



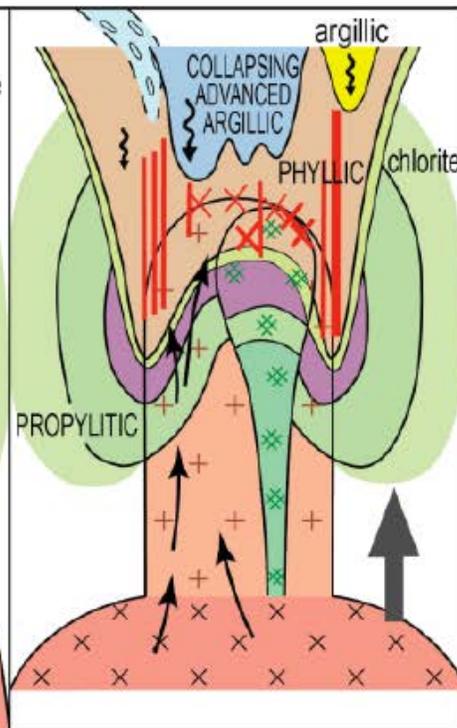
Zoned potassic to inner & outer propylitic alteration by heat transfer. Initiation of prograde A, M & G veins. Early mineralisation.

PROGRESSIVE COOLING & CONTINUED MINERALISATION



Exsolution of volatiles to form barren shoulders. Tourmaline breccia pipes. Metals from the magma source as B C & D veins. Pebble dykes. Initiation of phyllic alteration.

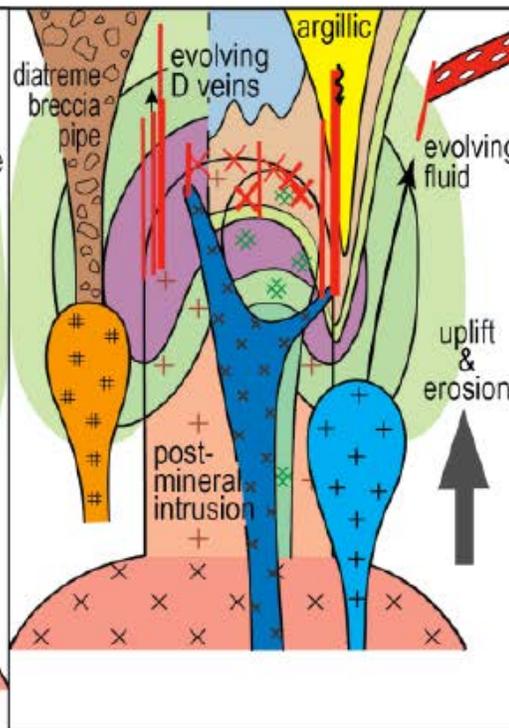
DRAW DOWN, RETROGRADE ALTERATION & LATE MINERALISATION



Draw down of low pH waters onto cooling apophysis & phyllic-argillic alteration. Degassing of magma source at depth & late mineralisation. Collapsing advanced argillic contributes to lithocaps.

LATE

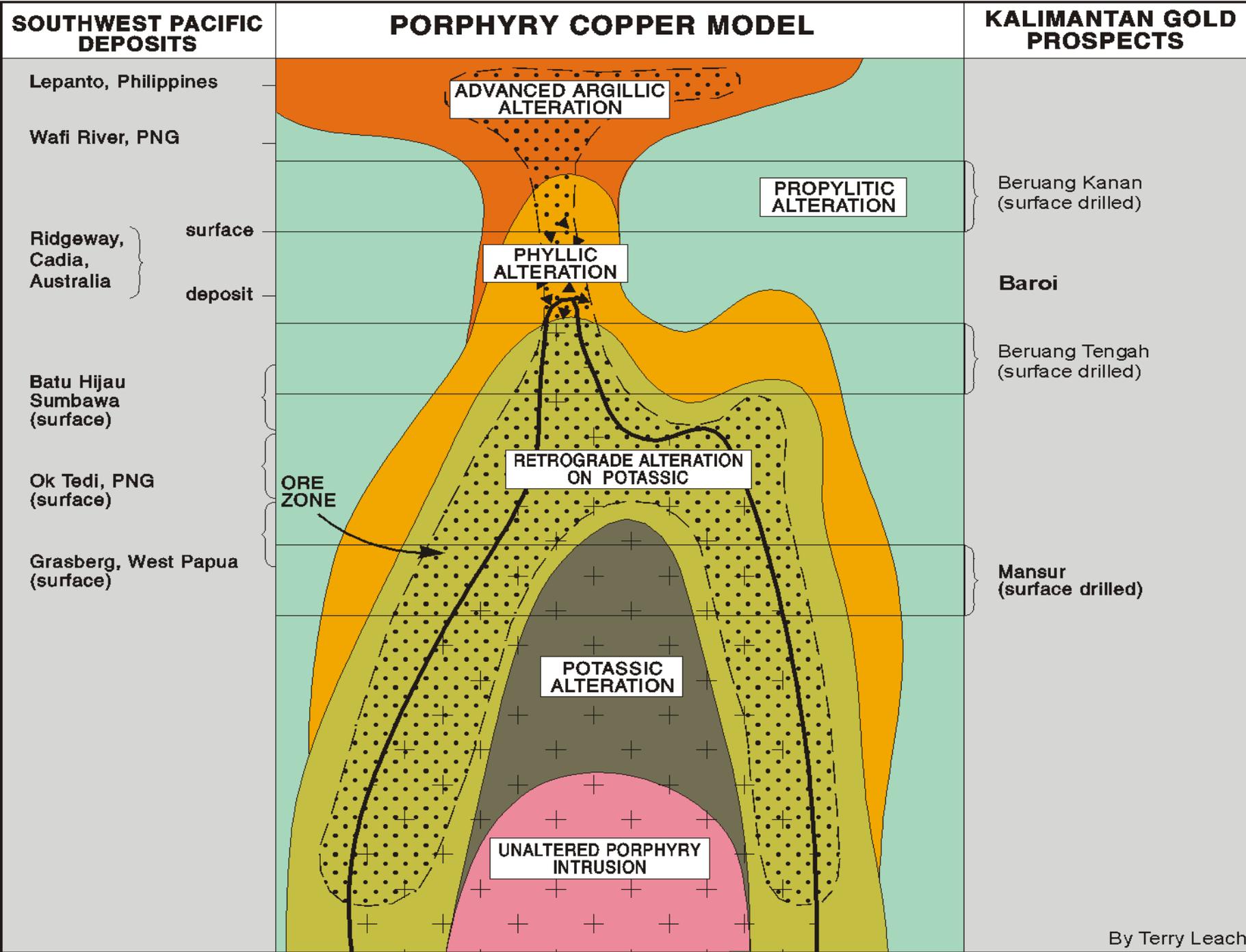
SHUT DOWN & POST-MINERAL



Uplift & erosion. Continued collapse of low pH and meteoric waters. Evolution of alteration & mineralisation. Post-mineral intrusions & breccias stope out ore. Epithermal overprint.

CORBETT et al. 854c

## Porphyry Cu-Au system



# Porphyry Cu-Au system

By Terry Leach



**Superior**  
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