

# TERTIARY MINERALS PLC

Exploring for copper in Zambia and Nevada, USA.



Copper mineralisation in drill core, Jacks Copper Project

Company Presentation  
6 November 2023

Background photo: Kevamba Hill, Mushima North Project

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**Patrick Cheetham, *Group Chairman & Chairman of the Nomination Committee***

- Geologist and founder of the Company
- 39 years' experience in mineral exploration
- 34 years' experience in public company management
- Founder of Dragon Mining Ltd, Archaean Gold NL and Sunrise Resources plc



**Donald McAlister, *Non-Executive Director & Chairman of the Audit Committee***

- Accountant and founding Director
- Previously: Finance Director at Mwana Africa plc, Ridge Mining plc and Reunion Mining plc.
- 26 years' experience in all financial aspects of the resource industry, including metal hedging, tax planning, economic modelling/evaluation, project finance and IPO's



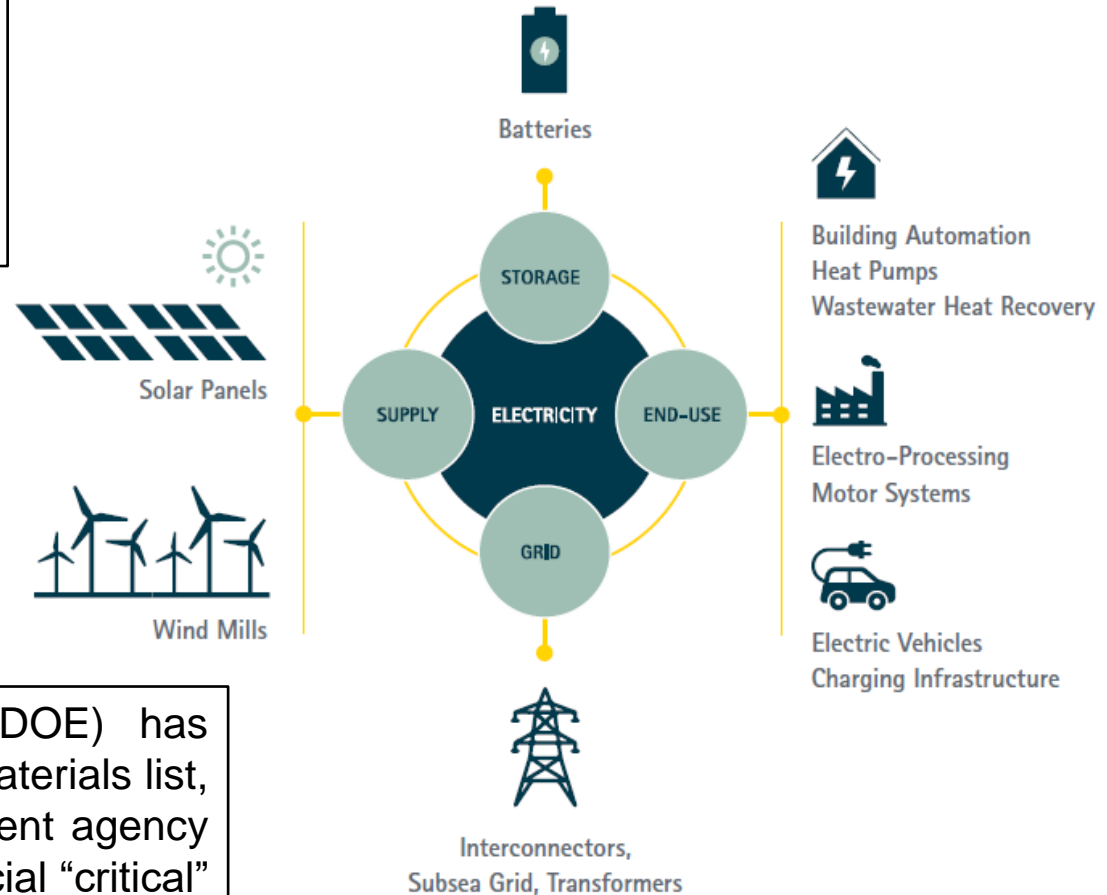
**Dr. Mike Armitage, *Non-Executive Director & Chairman of the Remuneration Committee***

- 30 years' experience producing resource estimates, competent persons reports and feasibility studies with SRK Consulting
- Previously Managing Director and Chairman of the SRK UK, Director of SRK's Exploration Services, and SRK Group Chairman
- Chair of the Applied Earth Science Division of IMMM, Chair of the Geological Society Business Forum and Honorary Chair of the Critical Minerals Association

# Copper – A critical mineral for the Clean Energy Transition

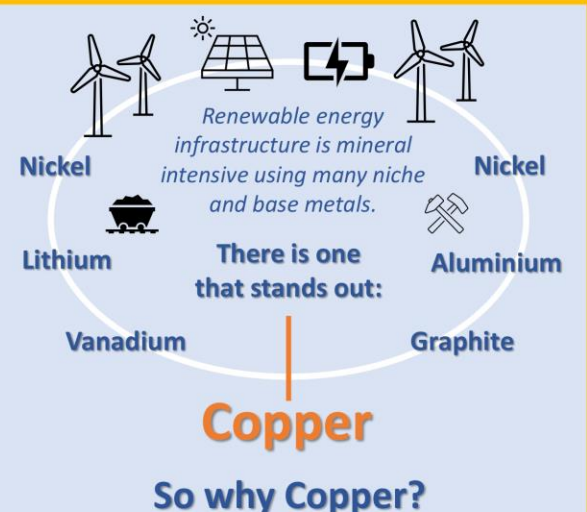


“Copper is essential for a vast array of decarbonizing technologies. When taken together, these technologies have the potential to account for two-thirds of global greenhouse gas emissions’ abatement by 2050.”



The US Department of Energy (DOE) has officially added copper to its critical materials list, marking the first time a US government agency has included copper on one of its official “critical” lists, following the examples of the European Union, Japan, India, Canada and China.

# Copper – The No.1 Clean Energy Transition Metal



## So why Copper?

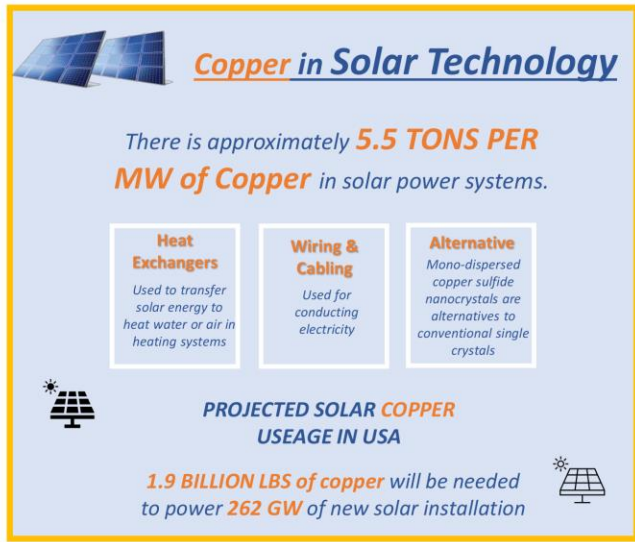
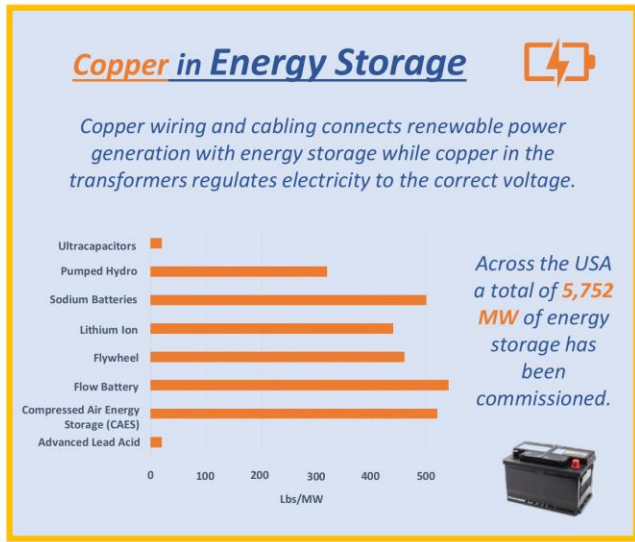
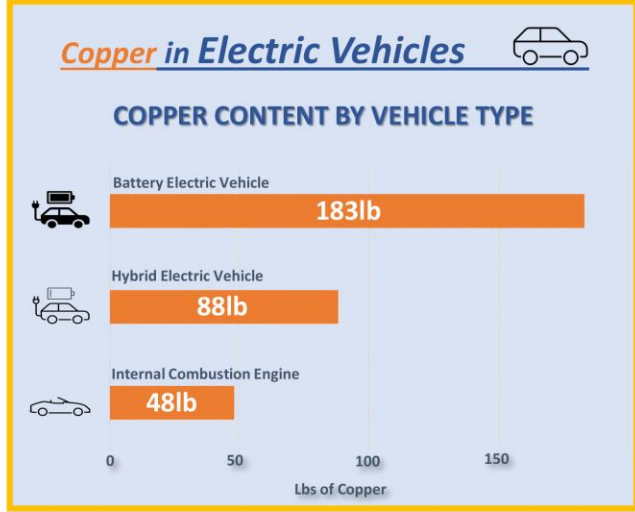
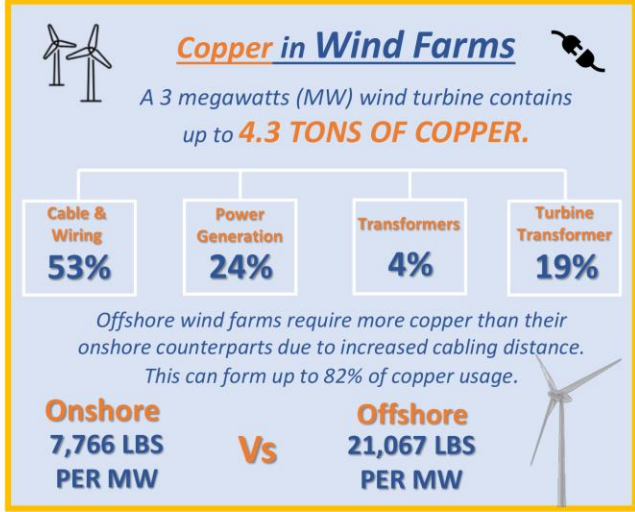
Copper has superior properties that allow it to be used in renewable energy.

- Conductivity**  
Low resistance to electron flow meaning it is a good thermal and electrical conductor.
- Ductility**  
Copper's high ductility allows it to be bent and stretched into wires and sheets for electrical uses.
- Efficiency**  
To achieve the same equipment electrical efficiency other conductors would require 20% more materials.
- Recyclability**  
Copper is 100% recyclable and easily recoverable so can be reused without losing its superior properties.

These properties make copper a critical material for the transition to a clean energy economy



The generation of clean energy from wind and solar requires 4-6 times more copper than fossil fuels.

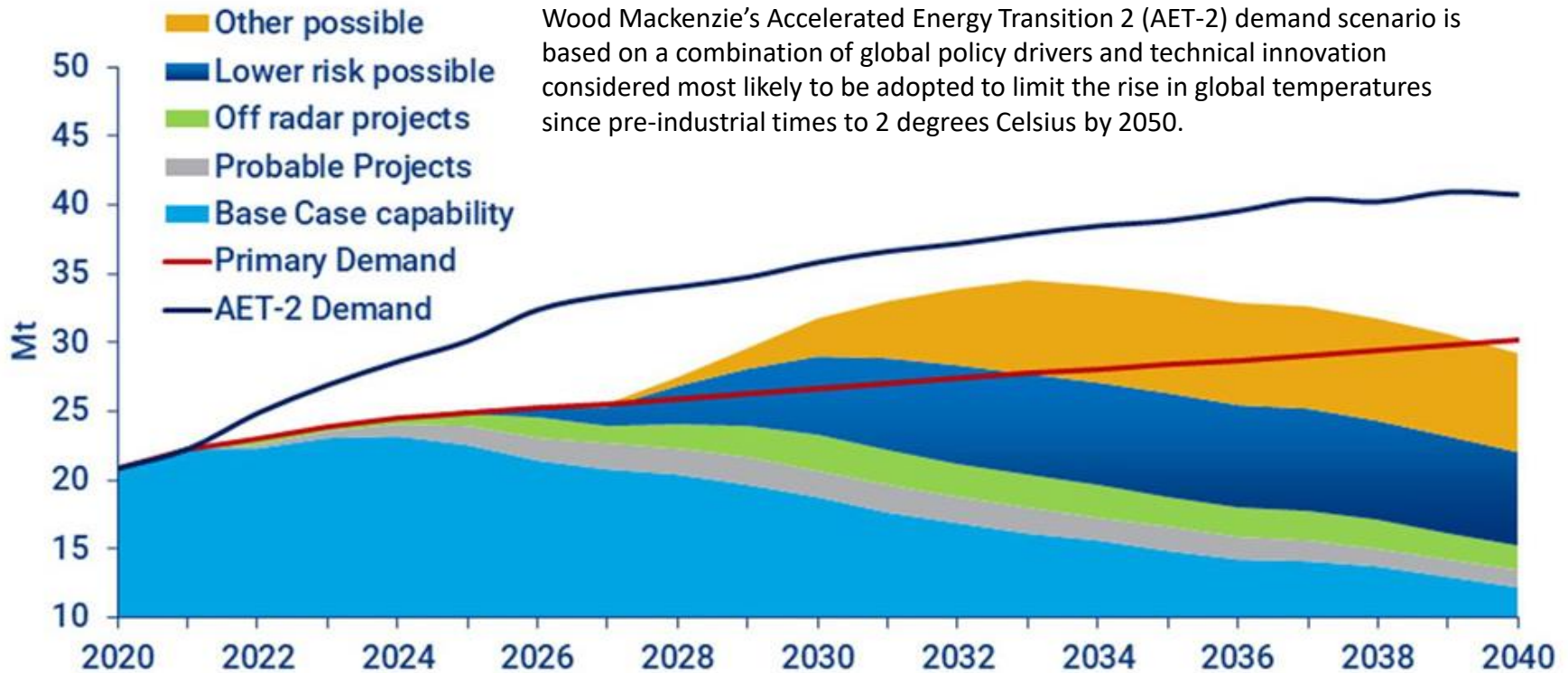


# Copper – The Supply Problem



*The Copper Problem – insufficient supply to meet projected demand, even with projected new mine developments.*

Primary copper demand scenarios versus mine supply potential



Source: Wood Mackenzie

# Why Zambia?



- Host, with DRC, to the Central African Copperbelt - the world's largest sediment-hosted stratiform copper province.
- Zambian Copperbelt contains multiple world-class deposits - Sentinel, Kansanshi, Lumwana, Konkola, Mufulira, Mopani, Chambishi and others which together produced over 760,000 tonnes of copper in 2022.
- The UPND government is rationalising the mining tax regime to attract investment and has stated goals to boost copper production to 3 million tonnes by 2032.
- Government has re-introduced the deductibility of mineral royalties against corporate income tax and amended royalty rates.
- Tertiary anticipates that the fiscal environment for mining and exploration will continue to improve and re-establish Zambia as a primary destination for investors focused on copper, the key energy transition metal.



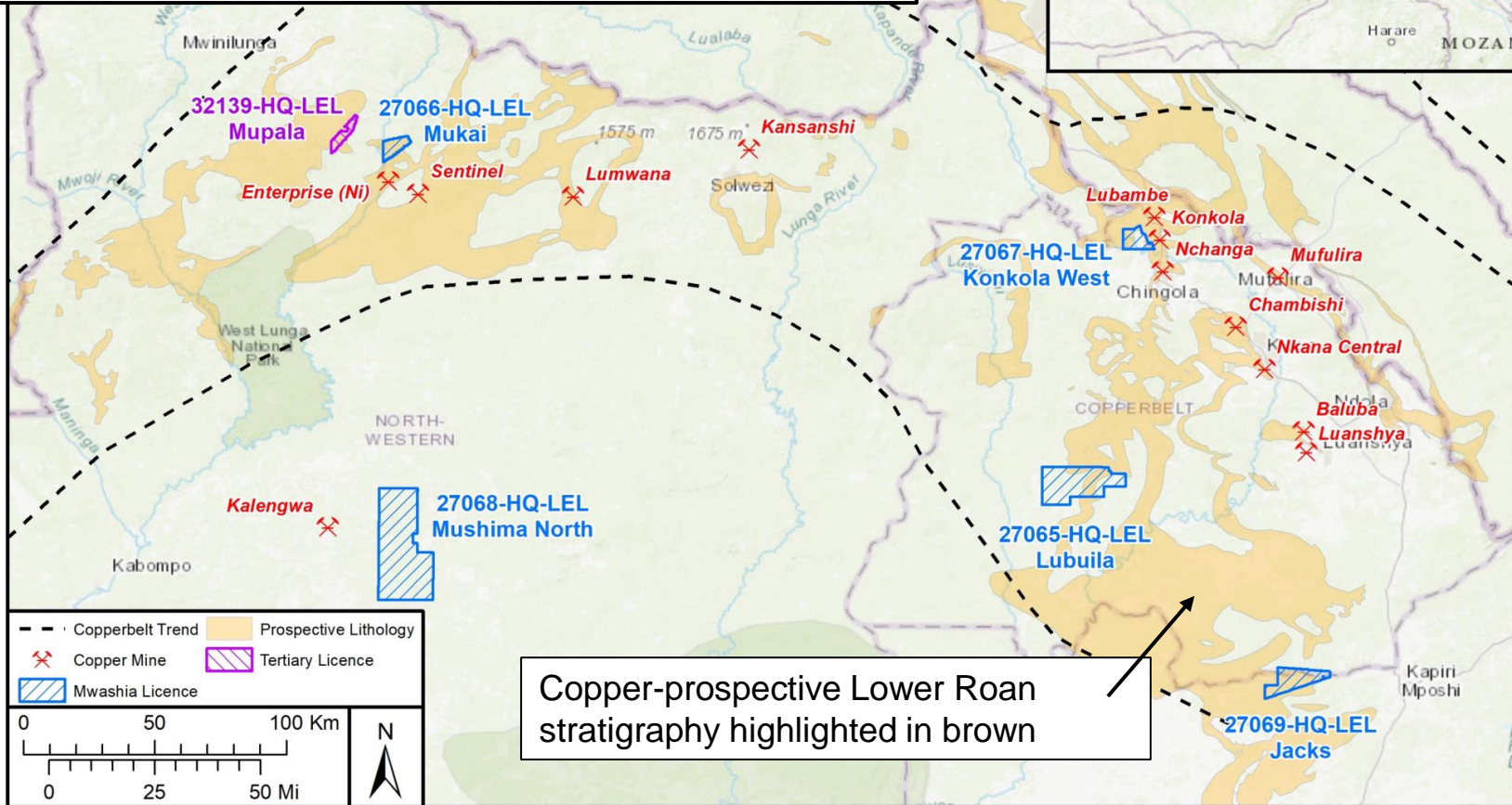
Industry is responding to the projected copper supply deficit and Zambia's fiscal initiatives with new investment:

- US\$2.1 billion in the Sentinel copper mine (First Quantum Minerals)
- US\$1.25 billion to expand its Kansanshi copper mine (FQM)
- US\$2 billion to expand the Lumwana copper mine (Barrick Gold Corporation)
- US\$1.3 billion investment in NFC Africa Mining/Chambishi mine (China Non-Ferrous Metals Mining Corp)
- US\$1 billion investment into Konkola copper mine (Vedanta)
- US\$1 billion investment in Mopani (several bidding groups)
- US\$88.5 million investment in JV with arc Minerals (Anglo American)
- US\$150 million investment into Mingomba deposit (KoBold Metals)
- US\$100 million investment in expansion of Mimbula mine (Moxico Resources)

# Zambia Licence Interests



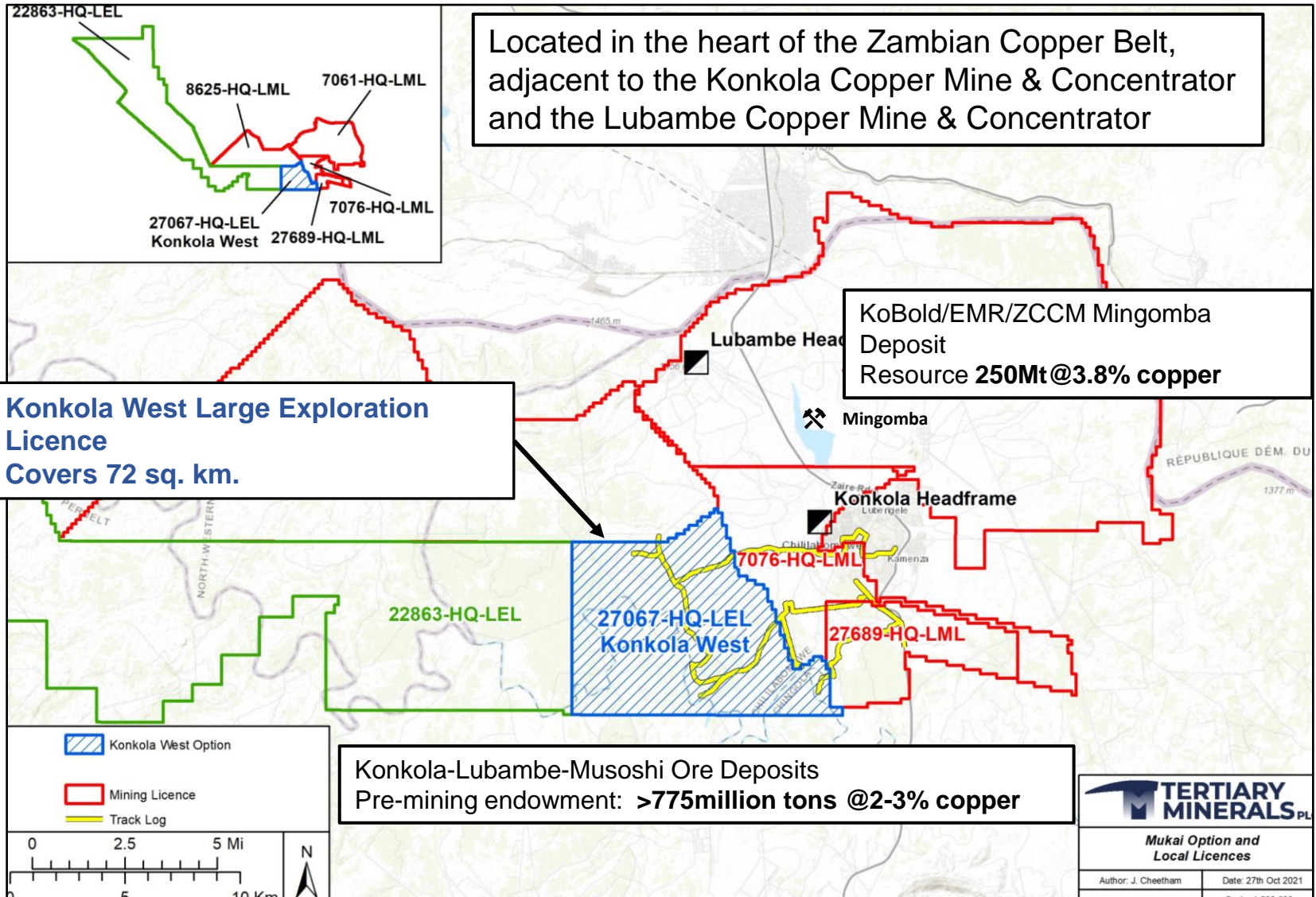
Tertiary Minerals (Zambia) Ltd currently has interests in a portfolio of exploration projects covering a total area of 1,240km<sup>2</sup> in and around the Central African Copperbelt. It has earned the right to 90% interest in Jacks Copper Prospect and is earning up to 90% interest in four other Large-scale Exploration Licences with local partner Mwashia Resources Ltd. A new 100% owed licence, Mupala, was granted in 2023.



Copper-prospective Lower Roan stratigraphy highlighted in brown



# Konkola West - In the Shadow of the Headframe



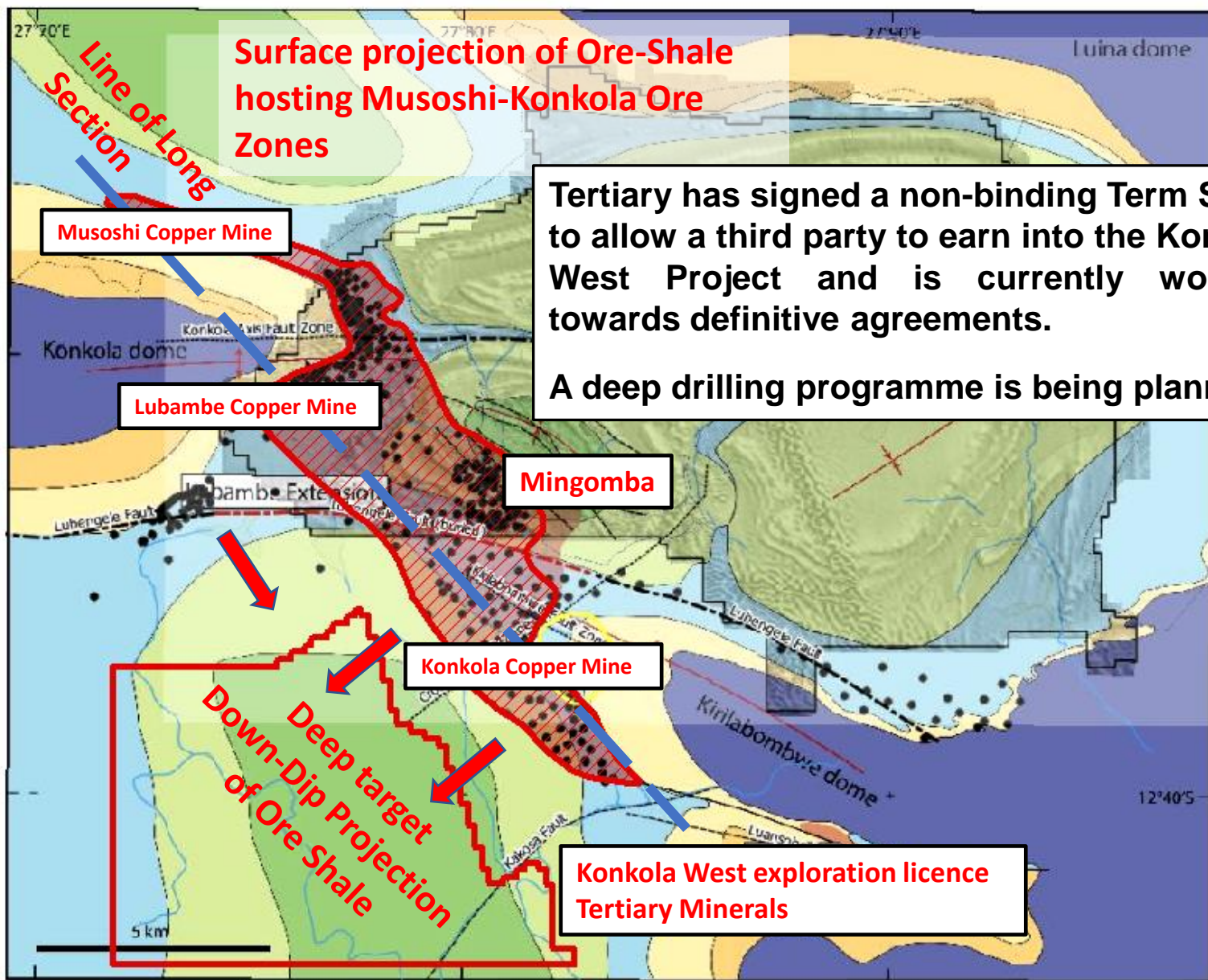
# Konkola West Project



- Targeting deep down dip extensions to the >15km long continuous high grade Musoshi-Konkola copper ore being mined at Musoshi (DRC), Lubambe (EMR Capital/ZCCM) and Konkola - Konkola Deeps (Konkola Copper Mines plc/Vedanta).
- Musoshi-Konkola deposits have pre-mining endowment of >775 million tons of high-grade copper ore.
- Konkola West Project adjoins the west side of the mining lease hosting the Konkola copper mine.
- Vedanta has recently announced US\$1 billion of investment into redeveloping the Konkola copper mine.
- KoBold Metals is investing \$150 million into development of deep copper resources in the Mingomba deposit (250 million tons @3.8% copper) on a nearby mining lease. (KoBold Metals shareholders include BHP and Breakthrough Energy Ventures, a company founded by Microsoft's Bill Gates).



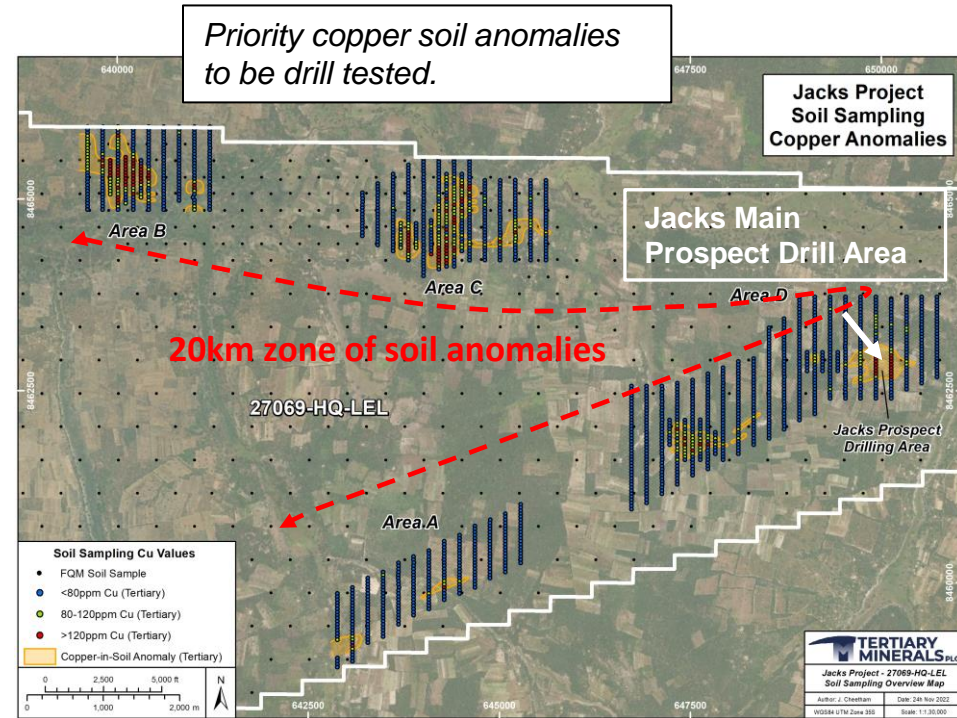
# Konkola West - Deep Target



# Jacks Copper Project - Overview



- Successful Phase 1 Drill Programme completed in Spring 2022 at the Jacks Main Prospect. Copper mineralisation now intersected in two horizons over a 350m strike length, both open along strike and at depth.
- Soil sampling has defined multiple copper-in-soil anomalies within a 20km strike length of prospective Lower Roan stratigraphy, host to the major copper deposits across the Central African Copperbelt.
- The soil anomalies compare favourably with soil anomalies present over current and past producing mines on the Copperbelt with similar Cu-Sc ratios indicative of sulphide copper mineralisation.
- Tertiary has earned right to 90% interest in Jacks Copper Prospect and is earning up to 90% interest in four other Large-scale Exploration Licences with local partner Mwashia Resources Ltd.

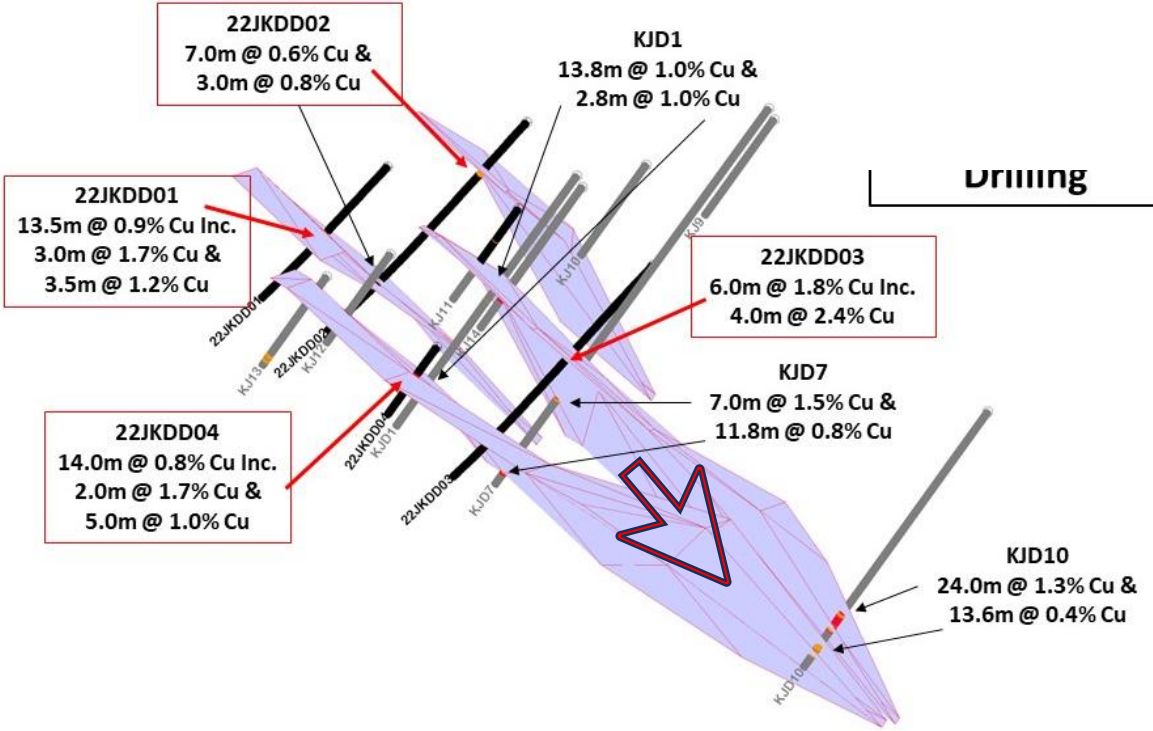
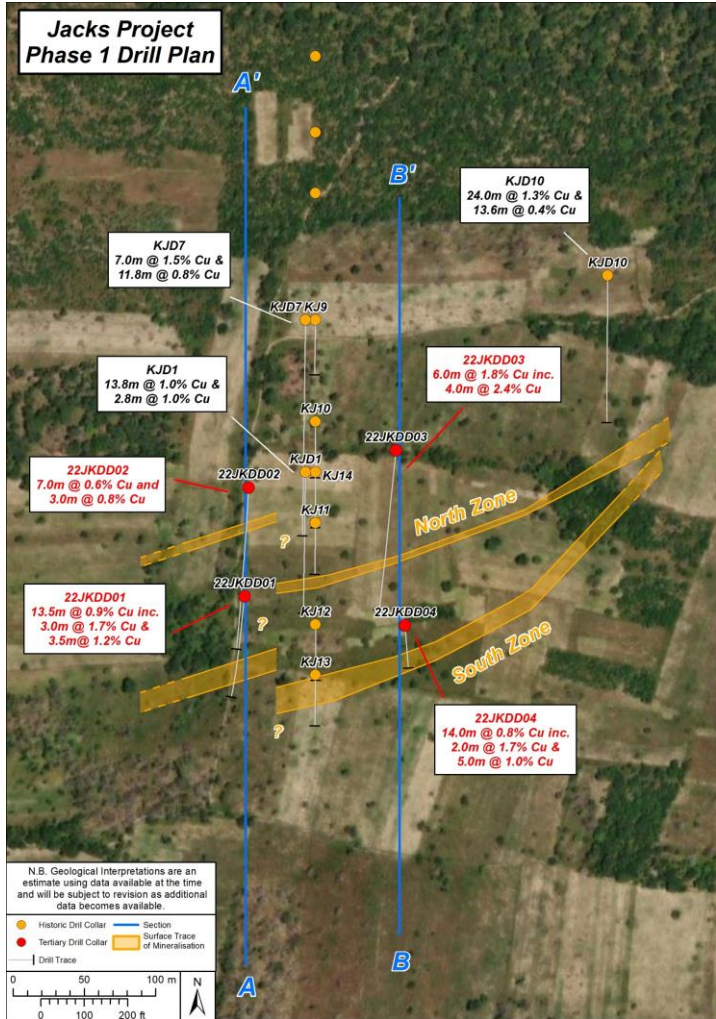


# Jacks - Tertiary Phase 1 Drill Programme



Drill holes prefixed:  
 KJD: Cyprus Amax (1990s)  
 22KJDD: Tertiary Minerals plc (2022)

## Drilling – Jacks Main Prospect



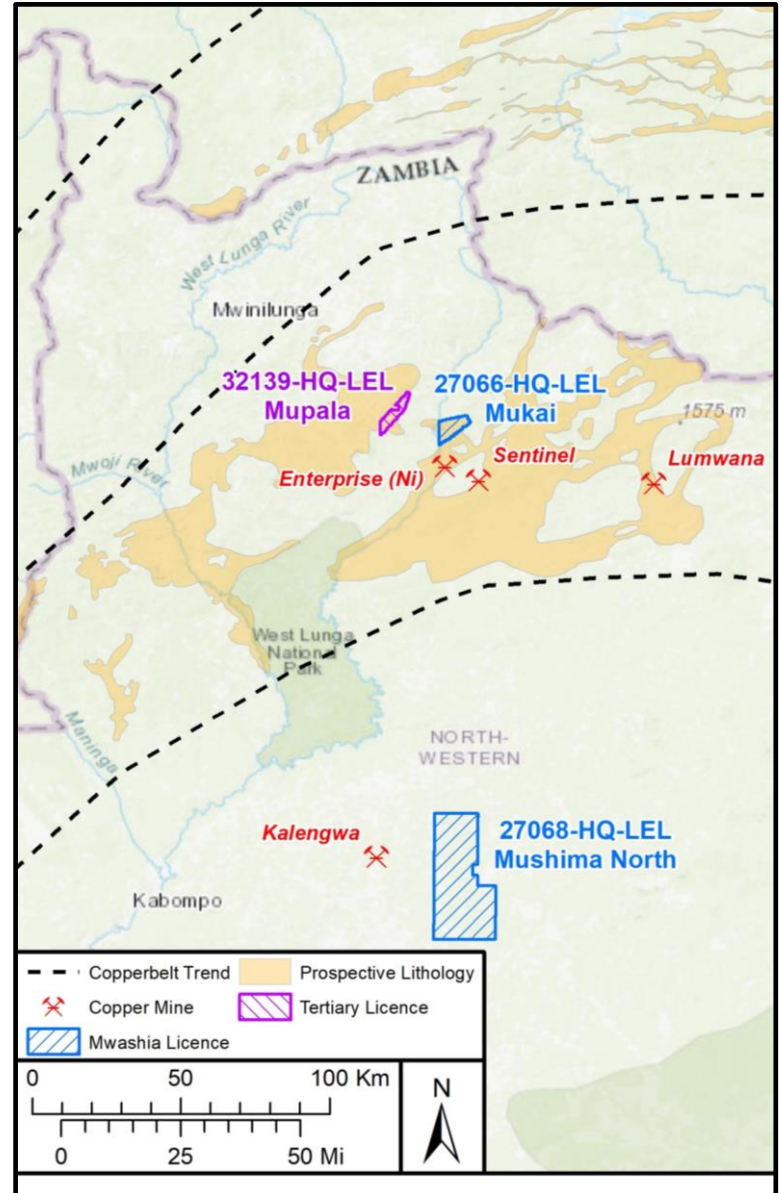
Phase 2 drill target – increased thickness of mineralisation to east & down plunge towards and around KJD10

# Agreement with First Quantum Minerals (FQM)



In September 2022 Tertiary and global copper producer FQM signed a *Data Sharing & Technical Cooperation Agreement* for Mukai and Mushima North Projects whereby:

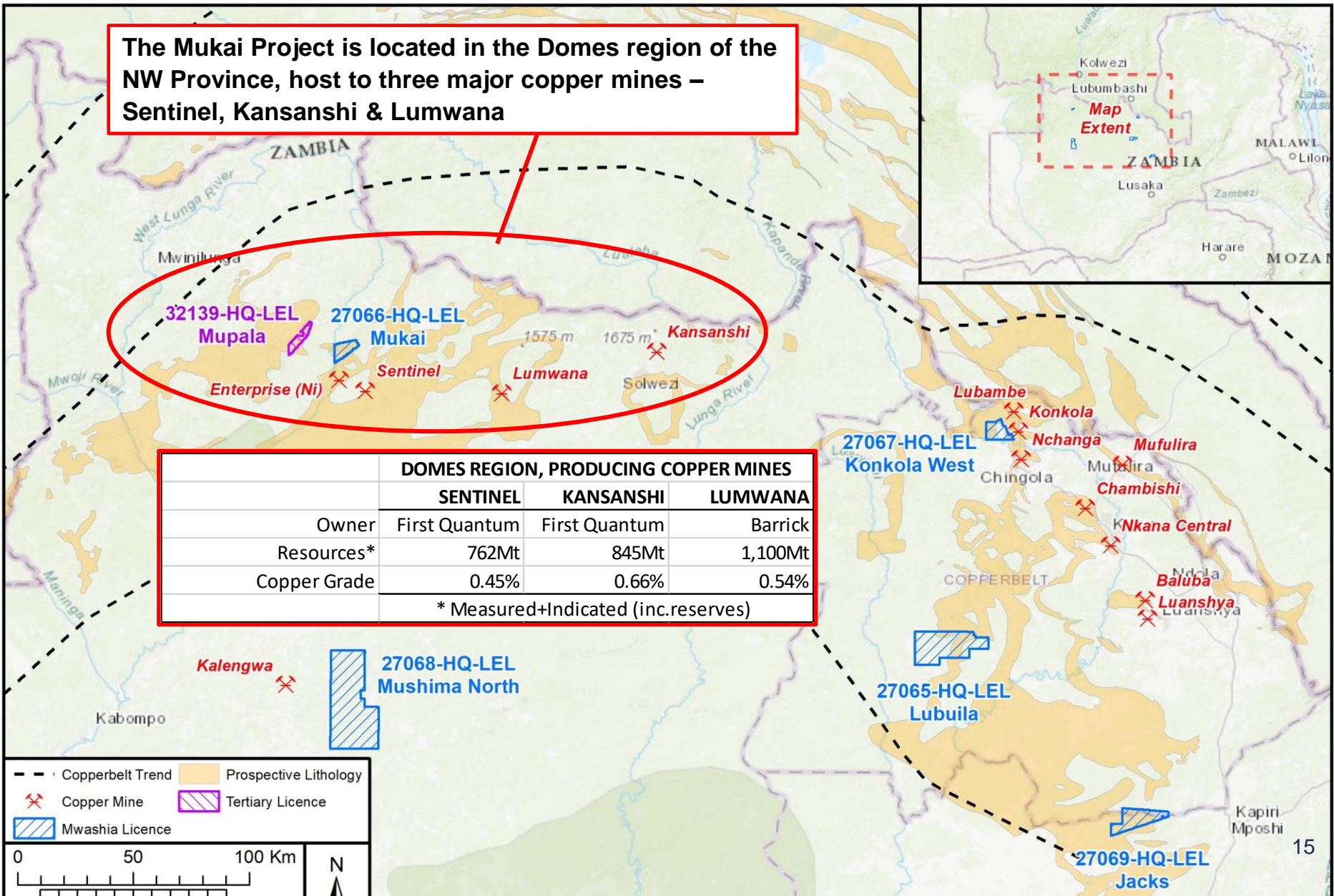
- FQM & Tertiary have established a Technical Committee with the objective to work collaboratively with respect to advancing exploration and development of the Projects.
- FQM has provided Tertiary with all of its historical exploration data for the two licence areas and Tertiary will submit its exploration results to the Technical Committee on an ongoing basis.
- The Technical Committee will advise and assist Tertiary in relation to all technical matters relating to the Projects.



# Mukai Project - Located in Prolific “Domes” Region



The Mukai Project is located in the Domes region of the NW Province, host to three major copper mines – Sentinel, Kansanshi & Lumwana



DOMES REGION, PRODUCING COPPER MINES			
	SENTINEL	KANSANSHI	LUMWANA
Owner	First Quantum	First Quantum	Barrick
Resources*	762Mt	845Mt	1,100Mt
Copper Grade	0.45%	0.66%	0.54%
* Measured+Indicated (inc.reserves)			

Copperbelt Trend  
 Prospective Lithology  
✕ Copper Mine  
 Tertiary Licence  
 Mwashia Licence

0 50 100 Km

N

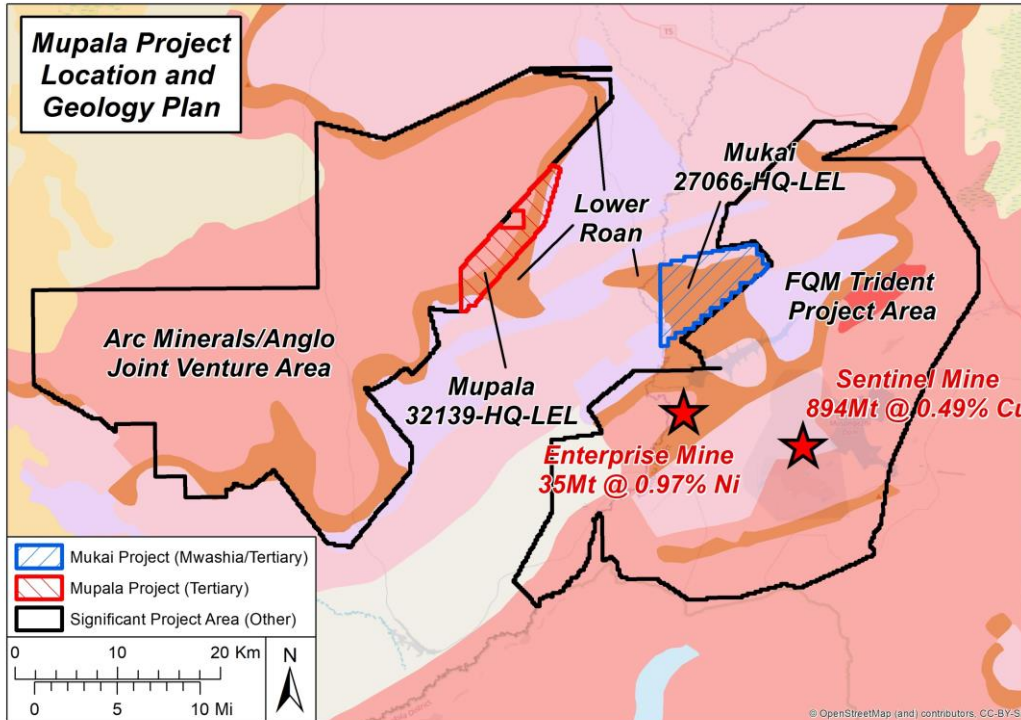
# Mukai Project - The Right Address



Mukai Projects is located centrally between:

- **First Quantum Minerals Trident Mining Complex** (Sentinel Copper Mine & Enterprise Nickel Mine)
- **Arc Minerals Zambia Copper Project** where Anglo-American has right to earn 70% for US\$88.5M.

Contain same prospective stratigraphy as that hosting the orebodies at Sentinel and Enterprise.

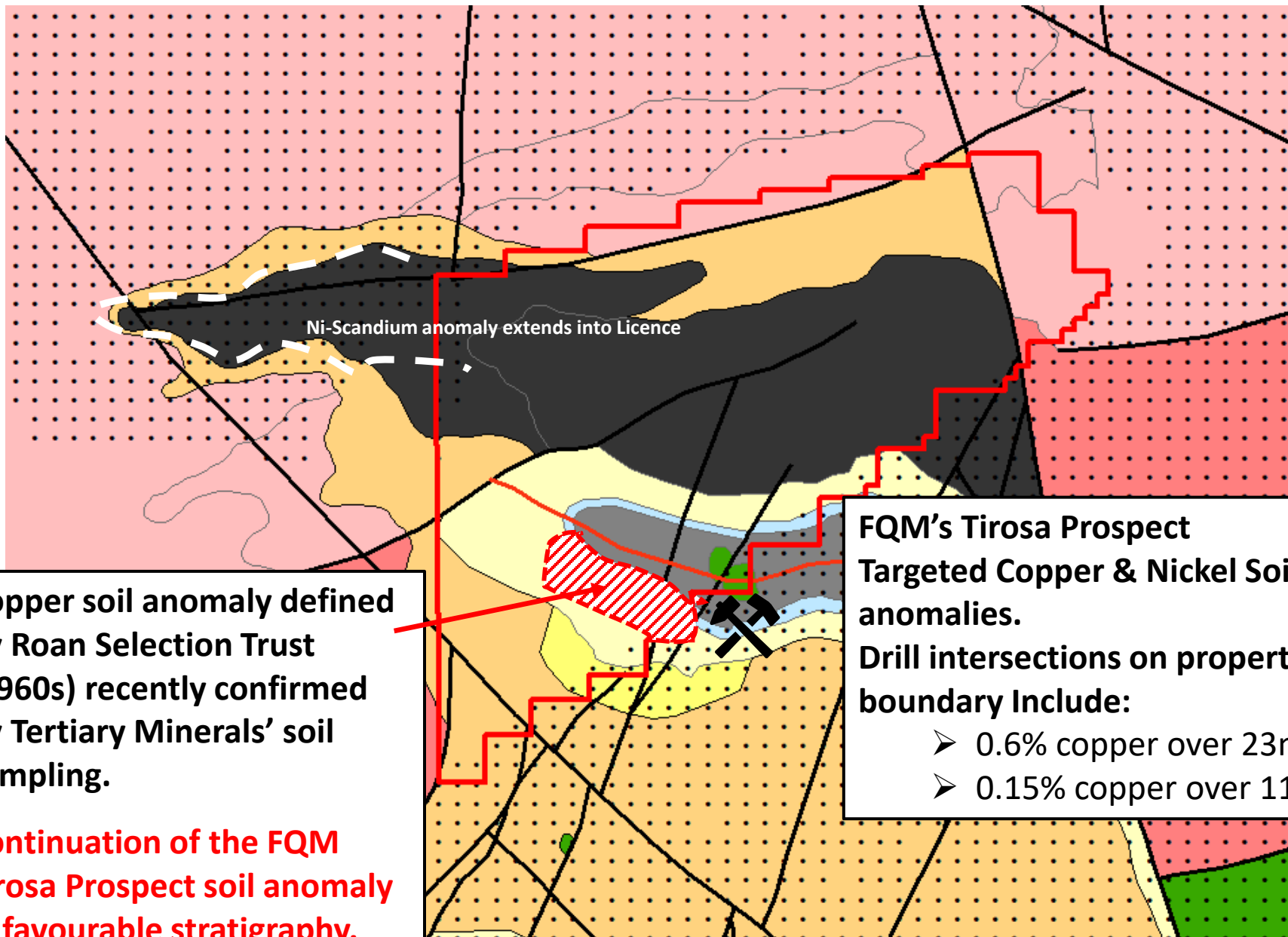


First Quantum Minerals Sentinel Copper Mine & Processing Plant





# Mukai Project - Priority Drill Target



Ni-Scandium anomaly extends into Licence

Copper soil anomaly defined by Roan Selection Trust (1960s) recently confirmed by Tertiary Minerals' soil sampling.

Continuation of the FQM Tirosa Prospect soil anomaly in favourable stratigraphy.

FQM's Tirosa Prospect Targeted Copper & Nickel Soil anomalies.

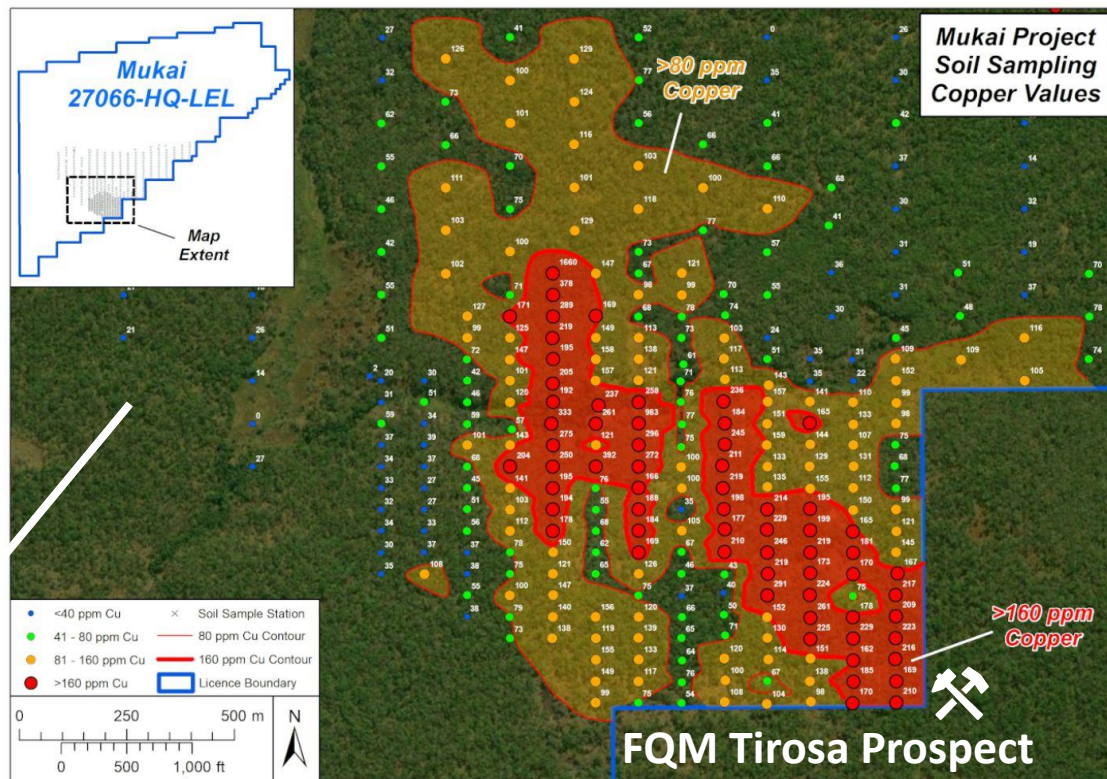
Drill intersections on property boundary Include:

- 0.6% copper over 23m
- 0.15% copper over 11m

# Mukai Project – Soil sampling



- A total of 526 samples were collected on a 300m x 100m grid infilled up to 100m x 50m and analysed in the field using a portable XRF instrument (“pXRF”).
- A large high-grade copper-in-soil anomaly is defined with values in excess of a 160ppm copper over an area of approximately 1,300m by 400m with a peak soil value of 1,660ppm copper (0.16%) and soil values averaging 252ppm (average of 63 samples).
- This high-grade anomaly is part of broader copper-in-soil anomaly defined by 162 samples containing greater than 80ppm copper and averaging 173ppm copper over an area of approximately 1,800m by 800m.
- Soil anomalies from past producing mines on the Copperbelt typically have thresholds in the range 50 to 150ppm copper, averaging 80ppm copper and peak values in the range 100-450ppm copper and averaging 210ppm copper.



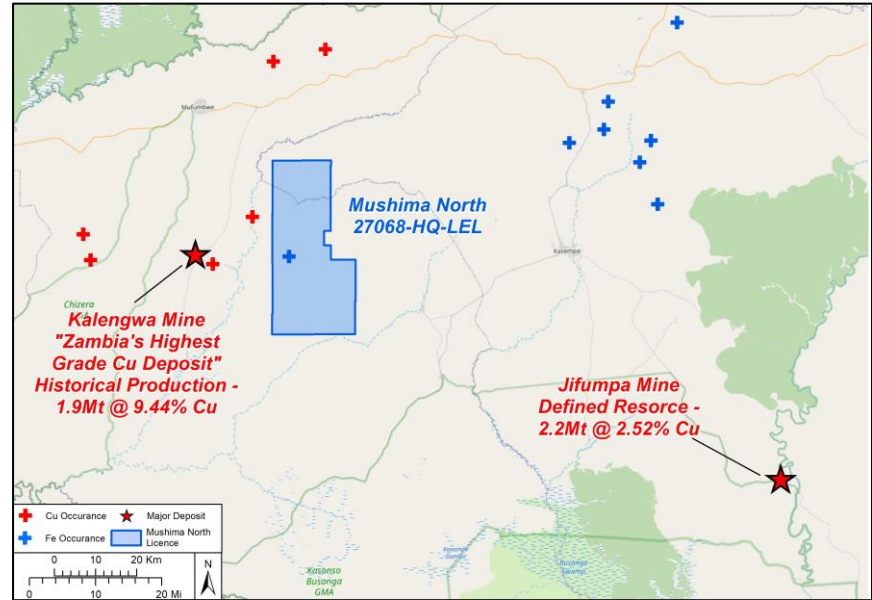
**FQM’s Tirosa Prospect  
Targeted Copper & Nickel Soil anomalies.  
Drill intersections on property boundary  
Include:**

- 0.6% copper over 23m
- 0.15% copper over 11m

# Mushima North - Iron-Oxide-Copper-Gold (“IOCG”)



- The Mushima North Project is prospective for Iron-Oxide-Copper-Gold (“IOCG”) deposits, exemplified by the giant Olympic Dam project in Australia.
- Part of the data sharing & technical cooperation agreement with FQM.
- Located 10km east of the past producing Kalengwa Mine - highest grade copper producer in Zambia.
- Historical hole RKN800 drilled Roan Selection Trust (“RST”) was re-assayed returning 33m grading 0.24% copper from 122m, including: 9m grading 0.43% copper from 140m, copper mineralisation to the end of hole.
- RKN800 ended in copper mineralisation grading 0.19% at a depth of 155m and lies on the edge of a gravity anomaly defined and targeted by BHP for Iron-Oxide-Copper-Gold mineralisation, which was never drill tested.
- Detailed Interpretation and Targeting Report completed by JAW Consulting, with six high priority targets now defined.



Sulphide mineralised core from 1960s drill hole RKN800

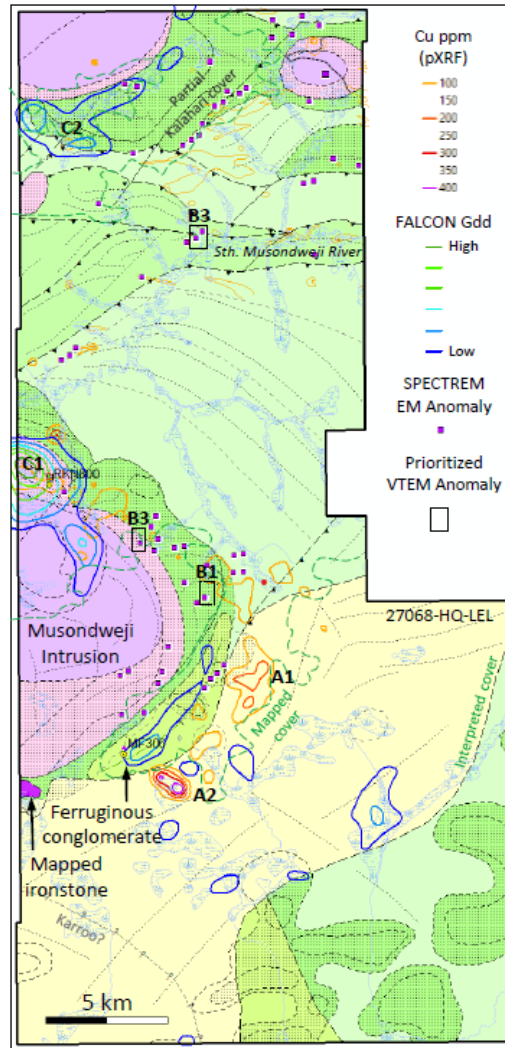
# Mushima North Project - Exploration Targets



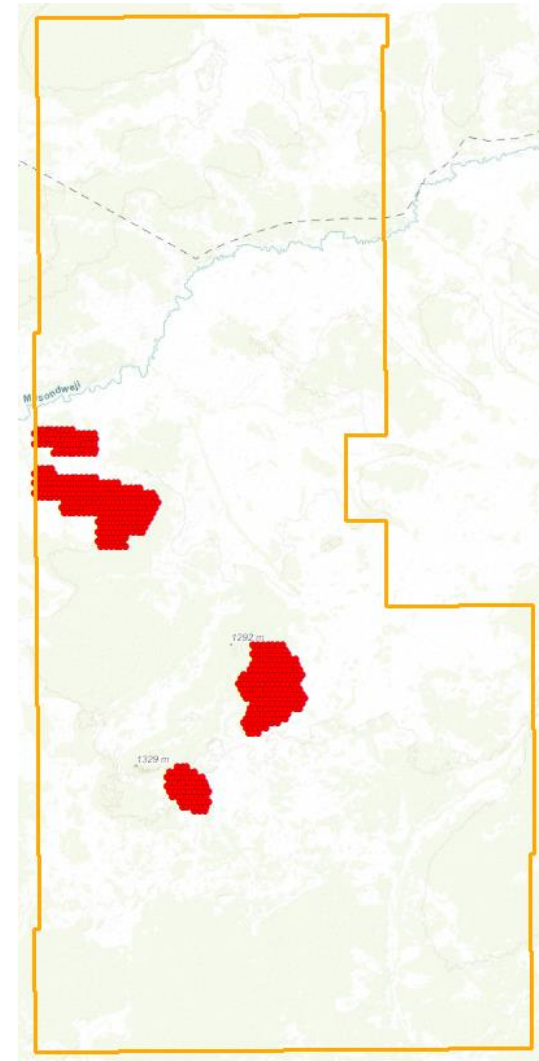
Several key targets identified, in order of priority:

- **Target C1** (Multiple data sources) Prominent gravity high associated with soil anomaly and wide low-grade intersection of copper mineralisation recently announced from resampling 1970s drill hole RKN800. This target, and a similar feature in the northwest of the property [**C2**], are potential IOCG systems previously targeted by BHP Billiton (2012).
- **Target A1** (FQM data) 1.7km long pXRF copper soil anomaly defined on 500m sample spacing. Enhanced by coincident arsenic and zinc anomalies.
- **Target B3** (FQM Data and SPECTREM data) Discrete strong EM conductor in favourable structural setting.
- **Target A2** (FQM data). Small high magnitude copper anomaly [**A2**].
- **Targets B1 and B2** (FQM data) Electromagnetic targets coincident with intrusive rocks or their margins.

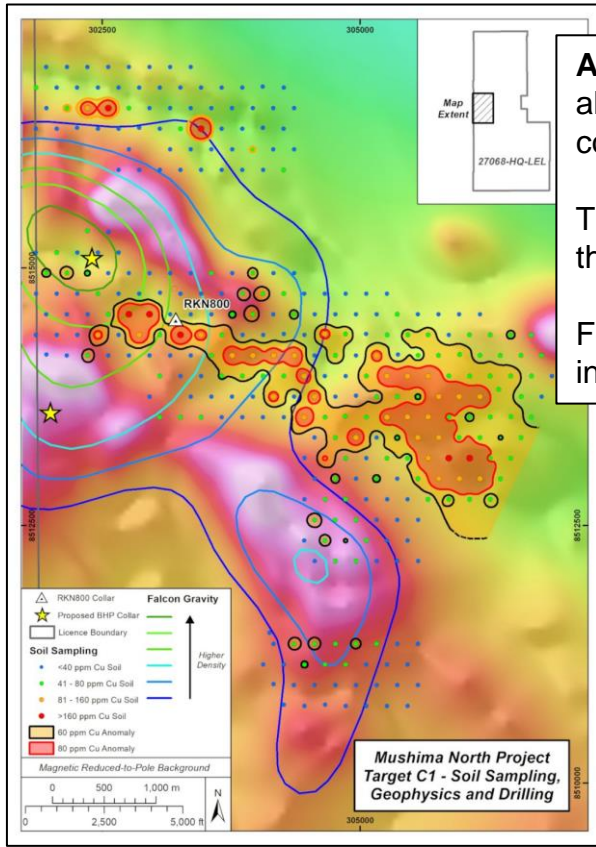
Soil sampling completed with an initial focus on Targets C1, A1, A2



Interpreted geology with potential targets.



# Mushima North Project – 2023 Soil Sampling

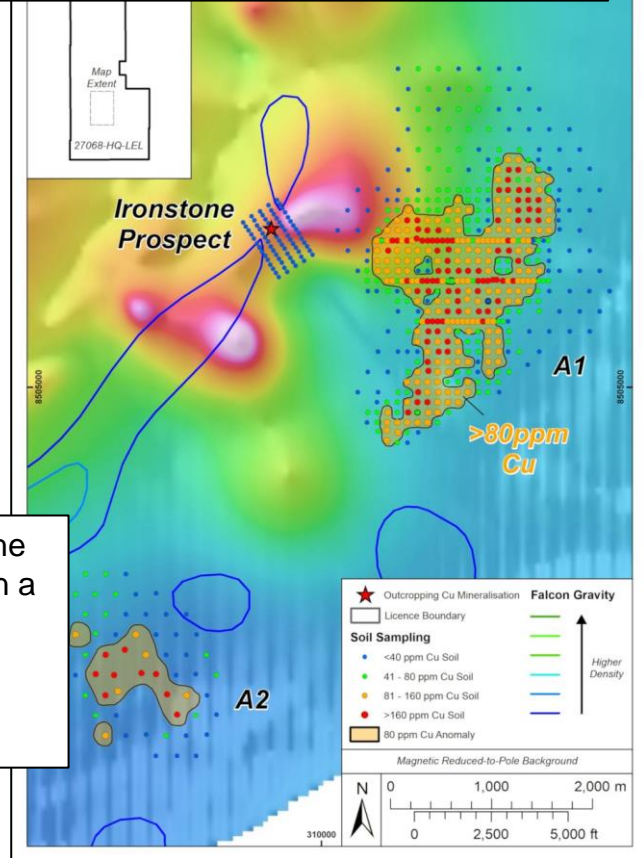


**At the C1 target** a significant open-ended copper anomaly has been defined, above 60ppm, covering an area of 4 km x 1.25 km, with peak value of 211ppm copper.

The highest copper-in-soil values are coincident with the highest arsenic values in the pXRF analysis, located close to arsenic anomalous drill hole RKN800.

Follows a zone of low magnetic amplitude – demagnetisation or inlier of sediments in Musondweji syenite.

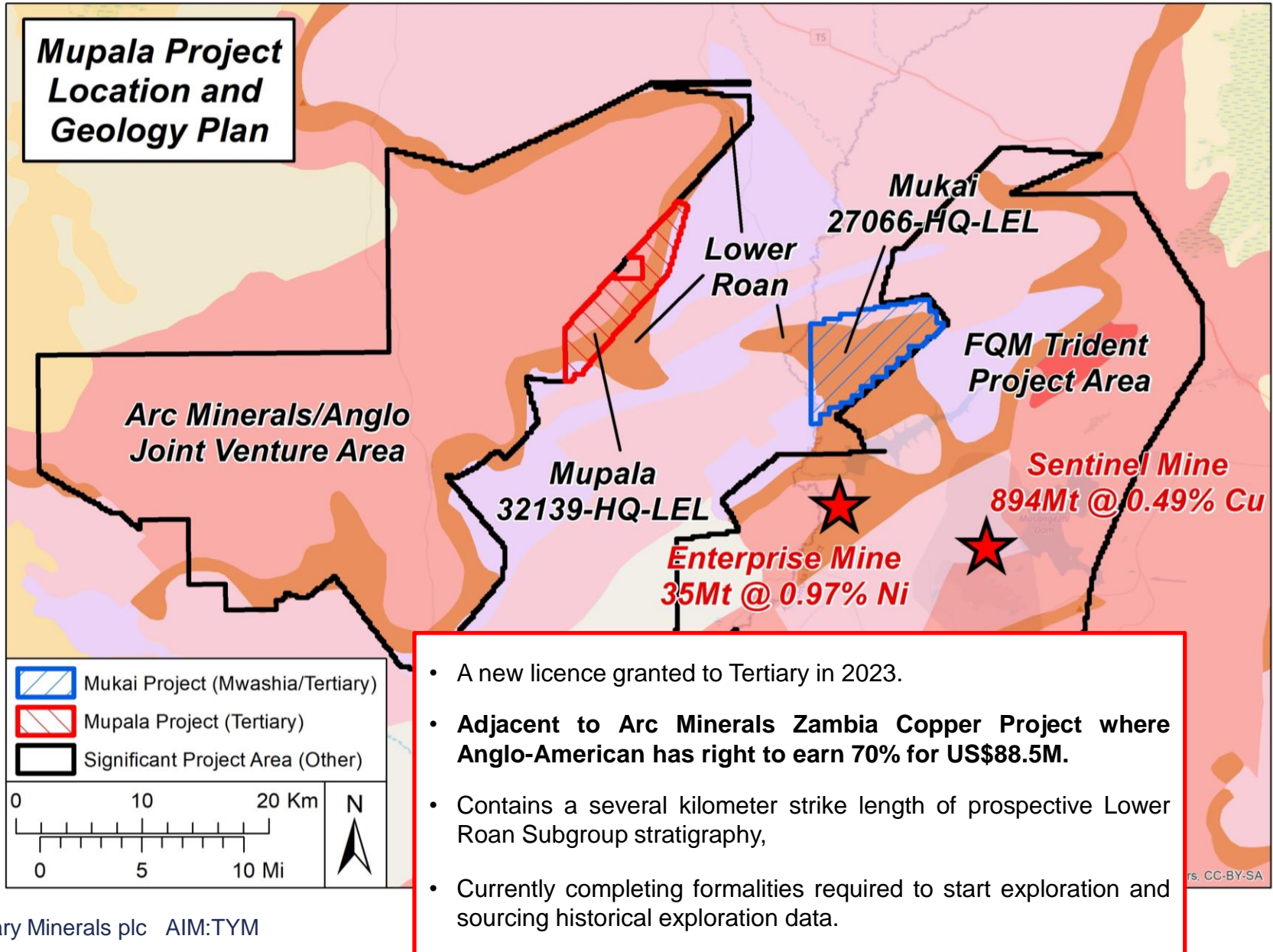
**Tertiary Minerals has completed an initial soil sampling programme over the Project, which has defined two copper-in-soil anomalies based on a total of 953 soil samples collected and analysed in the field using a portable XRF (“pXRF”) instrument.**



**At target A1**, a high-grade copper-in-soil anomaly has been defined at the A1 target covering an area of approximately 3,000m by 1,500m based on a threshold 80ppm. Max 280ppm copper.

A soil anomaly at A2 is likely hydromorphic in origin as associated with a Dambo.

# Mupala Project



# Why Nevada?



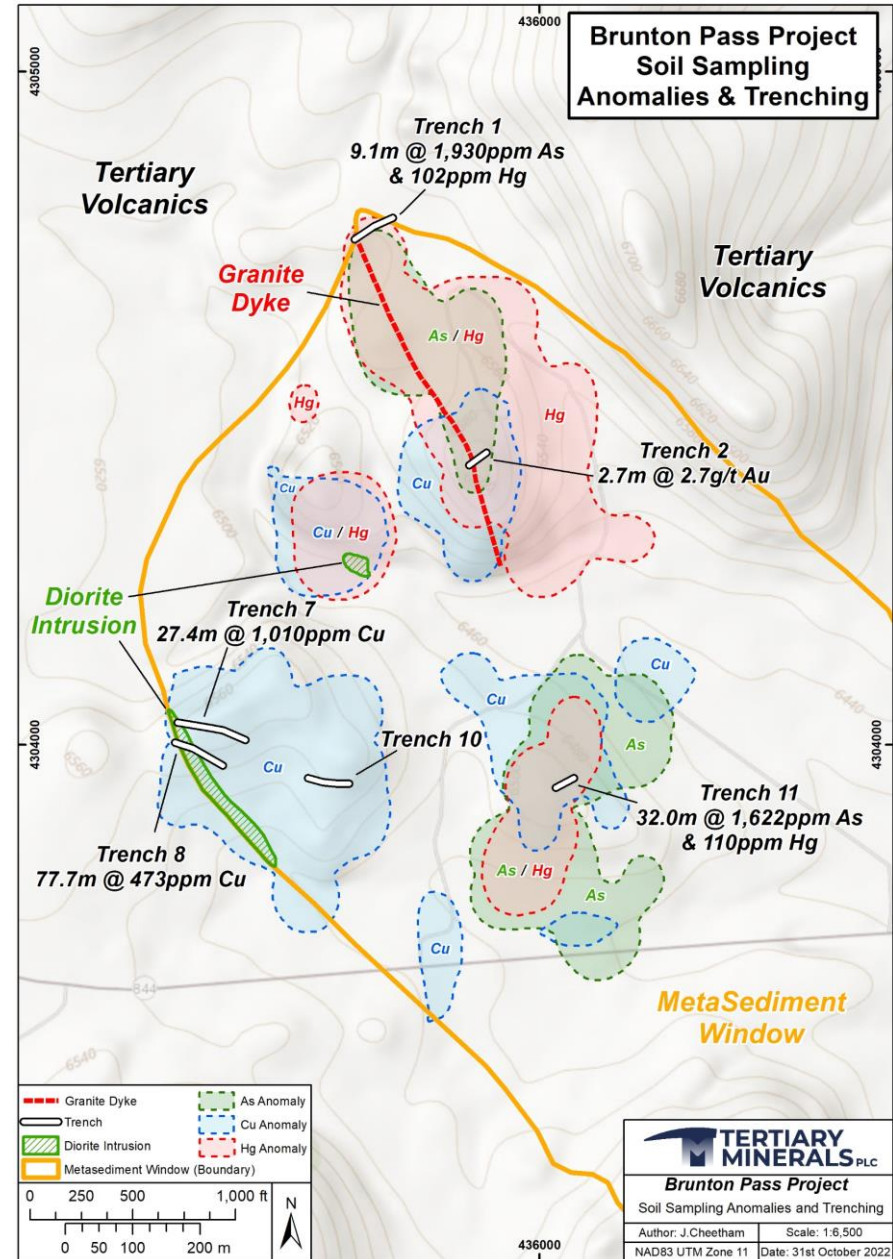
- Ranked 1<sup>st</sup> in the world as a mining jurisdiction by the Frazer Institute.
- 4<sup>th</sup> highest global gold producer.
- 2<sup>nd</sup> in the US for silver production.
- Significant copper and industrial mineral production.
- Majority of land is Federally owned and open to claim staking.
- Well defined and largely transparent mine permitting process.
- Major mining companies well established inc. Newmont, Barrick, Anglo-Gold, RioTinto, Kinross & Hecla.
- Tertiary holds several exploration projects in Nevada for copper and precious metals.
- Priority drill targets generated at the Brunton Pass Copper Project.



# Brunton Pass Copper Project



- Located in Walker Lane Mineral Belt which hosts several world class epithermal gold-silver (Tonopah, Comstock), copper-gold porphyry (Yerington), and iron-oxide-copper-gold (Pumpkin Hollow) deposits.
- Copper mineralisation spread over a 1km x 0.6km target area.
- Soil sampling defined multiple copper, arsenic and mercury soil anomalies.
- Follow up trenching g has defined large areas of skarn containing low grade copper and alteration styles similar to KHGM's producing Robinson Mine - possible halo to a copper skarn deposit and porphyry copper target:
  - Trench 7 intersected 45.7m grading 814ppm copper
  - Trench 8 intersected 77.7m grading 473ppm copper.
- Trenching across >1km zone of coincident arsenic and mercury anomalies revealed similar epithermal argillic alteration assemblages (smectite+quartz+/-opal) and geochemical indicators as Paradise Peak Mine (>1.6 million ounces gold past production):
  - Trench 1 intersected a 9.1m section containing 1,930ppm As and 102ppm Hg.
  - Trench 2 intersected 2.7m grading 2.65 g/t gold.
  - Trench 11 intersected 32m grading 1622ppm As and 110ppm Hg (approx. 1,000x background).







## Zambia

- JV agreement anticipated for Konkola West. Deep drill testing of ore shale planned.
- Drilling programmes planned to test key targets generated in 2023 at multiple projects.
- Continue cooperation with FQM to advance exploration planning and data sharing in Zambia.

## Nevada

- Brunton Pass (Nevada, copper) – drill testing of epithermal and skarn copper targets.

Share Structure	
Listing	AIM:TYM
Shares in issue	2,106,085,049
Warrants (0.12p-1.5p)	288,789,285
Market Cap (undiluted)	£2.6 million
Share Price – 52 week Range	0.09-0.27p

Directors' Shareholdings	Shares	%
Patrick L Cheetham*	21,465,000	1.02
Donald McAlister	2,937,609	0.14
Dr Mike Armitage	8,823,529	0.42

\* includes 2,843,625 held by K E Cheetham

(Information current as at 3 November 2023)

# Peer Group - TYM : Clearly Undervalued



Compared to other Exploration Companies operating in the Zambian, or Botswanan, Copperbelts (see below):

- Other reconnaissance-stage exploration companies trade at an average premium of 93% to Tertiary.
- exploration companies with active drill programmes have average market values 473% larger than Tertiary.
- other exploration companies that have joint ventures with majors trade at average valuations 645% larger than Tertiary.

London Broker SP ANGEL recently initiated coverage of Tertiary Minerals in May 2023 with a BUY recommendation to reflect the company's discount to market peers and highly prospective licence packages in premium jurisdictions.

*“Tertiary Minerals holds an enterprise valuation of c.\$4m, whilst the median enterprise value sits at \$18m and the mean at \$26m for companies at a similar stage”*

Company	Market	Locations	Development stage of Copperbelt Projects	Market Cap (£)	Partners
<b>Tertiary Minerals</b>	<b>AIM</b>	<b>Zambia/Nevada</b>	<b>Reconnaissance-stage</b>	<b>2.6</b>	<b>Data/Technical Agreement with FQM</b>
Castillo Copper	ASX	Zambia and Others	Reconnaissance-stage	3.9	
African Pioneer	LSE	Namibia, Botswana, and Zambia	Drilling	4.6	Joint Venture with FQM
Deep-South Resources	TSX-V	Zambia and Namibia	Reconnaissance-stage	5.0	
Cobre	ASX	Botswana and Others	Drilling	5.8	
Kavango Resources	LSE	Botswana and Others	Reconnaissance-stage	6.1	
BeMetals Corp.	TSX-V	Zambia and Japan	Drilling	9.8	Joint Venture with JOGMEC
Galileo Resources	AIM	Zambia	Drilling	10.3	
Midnight Sun Mining	TSX-V	Zambia	Drilling	15.1	
ARC Minerals	AIM	Zambia and Botswana	Drilling	43.8	Joint Venture with Anglo