

# **DEVELOPING THE WORLD-CLASS CAULA VANADIUM GRAPHITE PROJECT**

**ASX: MUS**

**17 September 2018**



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## COMPETENT PERSON STATEMENTS

Information in this report that relates to the Montepuez Ruby Project's Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Dr. Bernard Olivier, a Competent Person who is a registered member of the Australasian Institute for Mining and Metallurgy (AusIMM), which is a Recognised Professional Organisation (RPO) included in a list posted on the ASX website. Dr Olivier is the Managing Director and Executive of the company. Dr Olivier has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity, which he is undertaking to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Olivier consents to the inclusion of the data in the form and context in which it appears. Information in this report that relates to the Balama Graphite Project's Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Johan Erasmus, a Competent Person who is a registered member of the South African Council for Natural Scientific Professions (SACNASP) which is a Recognised Professional Organisation (RPO) included in a list posted on the ASX website. Mr Erasmus is a consultant of Sumsare Consulting, Witbank, South Africa who was engaged to undertake this work. Mr Erasmus has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results. Mr Erasmus consents to the inclusion of the data in the form and context in which it appears. Information in this report that relates to the metallurgical aspects of the Caula Graphite & Vanadium Project is based on information compiled by Dr. Evan Kirby, a Competent Person who is a registered member of the South African Institute for Mining and Metallurgy (SAIMM), which is a Recognised Professional Organisation (RPO) included in a list posted on the ASX website. Dr Kirby is a Non-Executive Director of the company. Dr Kirby has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity, which he is undertaking to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Kirby consents to the inclusion of the data in the form and context in which it appears.

**Mustang confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements referenced throughout this announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Mustang 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.**

# CORPORATE SNAPSHOT



## MUSTANG RESOURCES LIMITED (ASX:MUS)

### BOARD OF DIRECTORS

Dr. Bernard Olivier	Managing Director
Cobus van Wyk	Executive Director & COO
Ian Daymond	Non-Executive Chairman
Dr. Evan Kirby	Non-Executive Director & Metallurgist
Christiaan Jordaan	Non-Executive Director

### CAPITAL STRUCTURE

ASX Code	MUS
Shares on Issue	1,149,075,094
Unquoted Performance Rights*	14,000,000
Options#	221,737,720
Share Price (as at 14 September 2018)	A\$0.01
Market Capitalisation	A\$10.34 million
Number of shareholders (as at 31 August 2018)	4,051

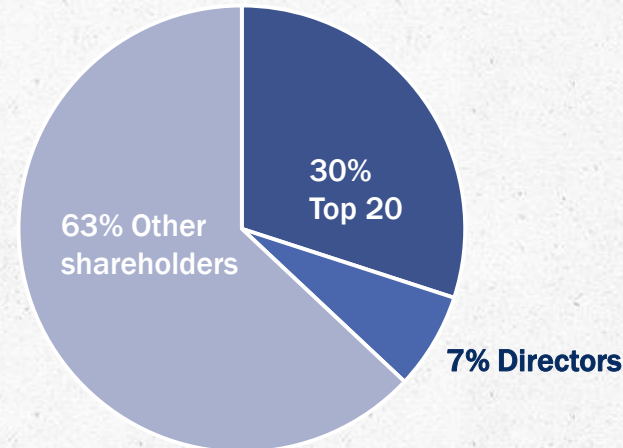
\*Class E Performance Rights in favour of vendors of Balama Graphite Project. Vest upon proving a 50Mt JORC Compliant Inferred & Indicated Resource @ >5% TGC on licences 6678L and 5873L.

# Note: 61million 3.5cent Listed Options expiring 25/01/2020 .Ticker- ASX: MUSOA

### CORE BUSINESS

Mustang Resources is an ASX listed company focused on the mining and exploration of 'New Energy Minerals (ASX:NXE)', including graphite and vanadium. The Company is currently fast tracking its world-class Caula Vanadium-Graphite project in Northern Mozambique with first cash flows targeted for H2 of 2019 from trial mining operations

### SHAREHOLDER BREAKDOWN



**Directors committed to invest A\$258,000 in the August 2018 placement @ 1.37cents (subject to shareholder approval) & A\$200,000 @ 2.3cents in February 2018**

# INVESTMENT HIGHLIGHTS



- Focused on the mining and exploration of 'New Energy Minerals', critical commodities for the lithium and vanadium battery markets, next generation steel and fire-resistant building materials
- Mustang is fast-tracking the world-class Caula Vanadium-Graphite project with first cash flows targeted for H2 of 2019
- Mustang's Caula project hosts a JORC (Measured) vanadium-graphite resource of 22 Mt @ 0.37%  $V_2O_5$  (0.2% cut-off) and 13.4% TGC (8% cut-off) for 81,600 tonnes of vanadium pentoxide (180 million pounds) and 2.93 Mt of contained graphite
- High grade intersections of up to 1.9%  $V_2O_5$  and 29% TGC
- Simple and robust fully integrated processing flowsheet developed to deliver both graphite and vanadium products
- Highly experienced board of directors and management team with a proven track record in developing profitable projects in Mozambique and Africa in general
- Mustang to change its name to 'New Energy Minerals (ASX:NXE)' (subject to shareholder approval at 2 October 2018 EGM)

# VANADIUM ENABLING STRONG STEEL REBAR

Use in steel market driving +500% price increase over last 2 years as China adopts new rebar standards

**“We've got a raging fire here in terms of supply, and we are about to throw a bucket of fuel onto it. I expect the price to reach historical highs in the coming months” Terry Perles, TPP Squared president, Mining Journal June 2018**



- Vanadium's current main use is as steel-strengthening alloy
- China announced new policies in January 2018 requiring higher % vanadium in steel rebar from 1 November 2018 onwards
- Expected to add between 10,000t to 15,000t of vanadium demand in the short term
- Vanadium demand is conservatively forecast to grow at a compound annual growth rate of 5.6%, reaching 133,000t in 2025
- Forecast supply, including all idle capacity and expansion of existing primary mines, predicted to grow at a CAGR of 3.7% to 111,000t in 2025
- 98% purity  $V_2O_5$  trading at US\$41,690/tonne (US\$18.95/lb)

Source: Mining Journal 28 June 2018

Price data from [vanadiumprice.com](http://vanadiumprice.com) accessed 13 September 2018, CIF Europe. CIF China @ US\$18.80/lb

# VANADIUM ENABLING RENEWABLE ENERGY STORAGE

Vanadium batteries to drive a massive surge in future high-purity  $V_2O_5$  demand

- Vanadium redox flow batteries (VRFBs) are the most efficient battery tech for utility scale renewable energy storage
- At present <5% of vanadium supply used for VRFBs, set to change rapidly
- 3,000t of vanadium used in batteries in 2017, twice as much as reported in 2016
- By 2025, the VRFB industry is forecasted to demand between 25,000t and 30,000t of vanadium (up to 10X more than 2017)
- VRFBs require high purity (99%+  $V_2O_5$ ) vanadium pentoxide which very few projects can supply at scale
- Mustang has the goal for Caula to become one of a handful of global primary vanadium supply sources of high purity, battery grade vanadium pentoxide

**“We think there’s a revolution coming in vanadium redox flow batteries. You’ll have to get into the mining business and produce ultra-pure vanadium electrolyte for those batteries on a massive scale”**  
**Robert Friedland, Chairman Pu Neng**



# GRAPHITE FOR AN ELECTRIC FUTURE

Critical commodity for the electric vehicle revolution

- Bloomberg NEF estimates EVs would account for 28% of global new car sales by 2030, and 55% by 2040
- Electric buses are expected to dominate their market even more decisively, reaching 84% global share by 2030
- Major car manufacturers (Renault, Volvo, GM etc) have committed to go all electric & hybrid by ~2023
- Graphite is a critical commodity for EVs, used in the anodes of Lithium batteries
- Companies like Tesla prefer natural graphite due to lower carbon footprint and cost

**“It is actually the biggest raw material by volume going into batteries, significantly larger than cobalt” Andrew Miller, senior analyst Benchmark Intelligence, October 2017**

Source: Benchmark Intelligence, Bloomberg NEF



MUSTANG  
RESOURCES LTD

**“Our cells should be called Nickel-Graphite...[there’s] a little bit of lithium in there, but it’s like the salt on the salad” Elon Musk, Tesla CEO and Founder, June 2016**

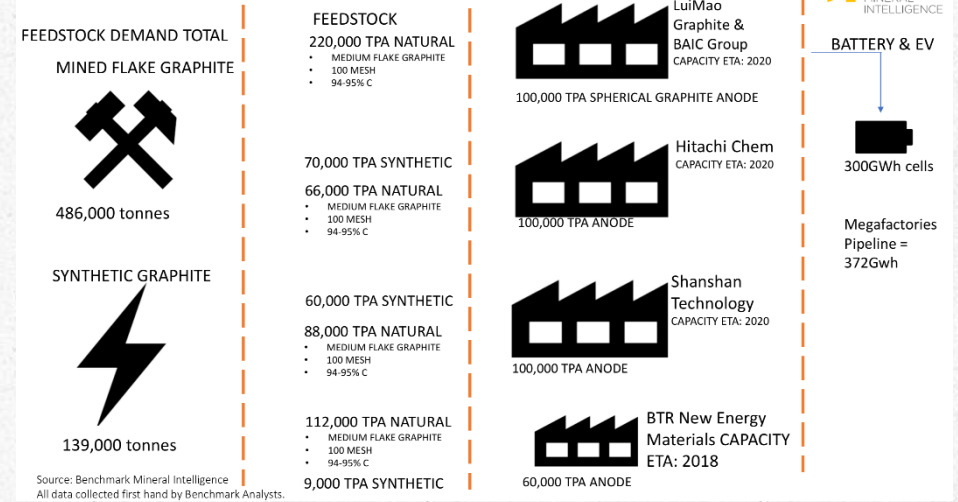


# GRAPHITE FOR AN ELECTRIC FUTURE

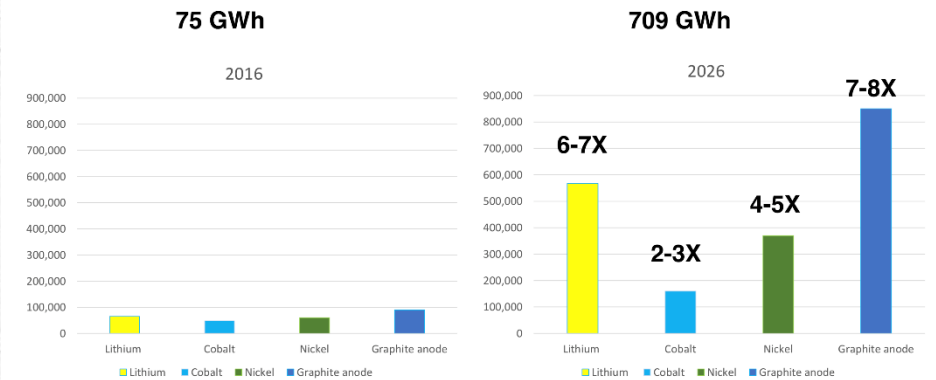
Critical commodity for the electric vehicle revolution

- Changing landscape resulting in 486,000 tpa flake graphite demand for new anode mega-factories by 2020
- Sufficient for 300GWh of cells with a Li-battery mega-factories pipeline of 372Gwh
- By 2027, graphite use in batteries forecasted to be 7 to 8 times higher than the current level
- Caula has proven it can deliver high purity (~98% C) natural flake products to support the electric vehicle revolution<sup>1</sup>

## Graphite anode megafactories



## Raw material revolution



Source: Benchmark Intelligence, Bloomberg NEF  
1. Refer to ASX Announcement dated 25 June 2018

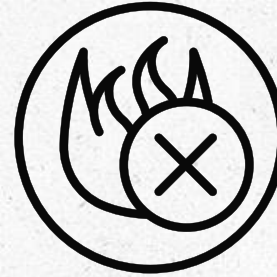


# GRAPHITE FOR SAFER BUILDINGS

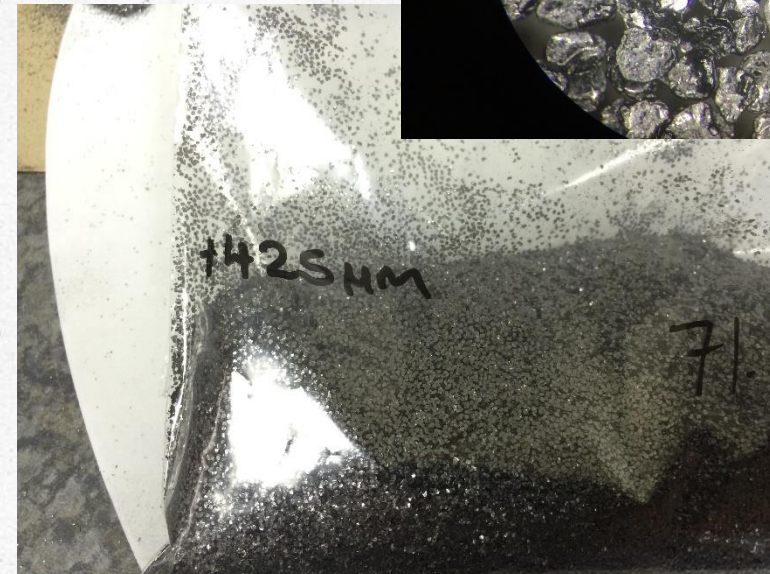
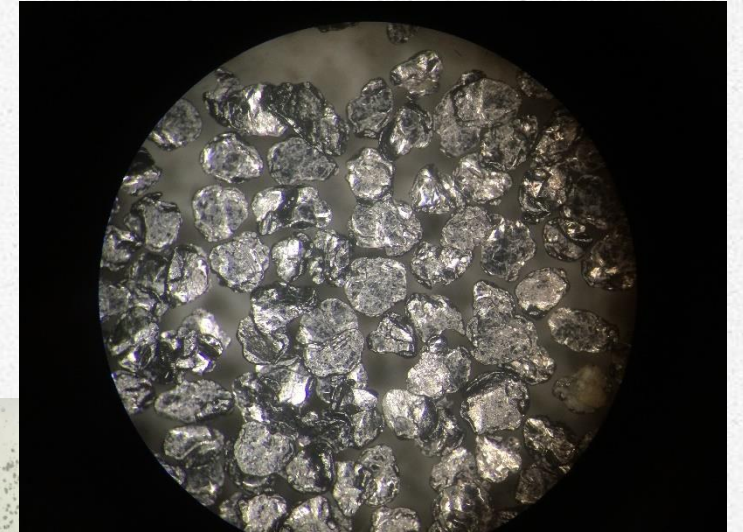
Caula well placed to supply large flake graphite into rapidly growing market

- Large flake graphite is a key feedstock into the “expandable graphite” market
- Expandable graphite is added to next generation fire-retardant building materials
- Approximately 5% expandable graphite included
- China alone forecasted to have future demand for 40Mtpa of fire retardant building materials
- Requires 2 million tonnes of high quality large-flake graphite each year
- Total graphite market currently <1Mtpa
- Caula has exceptional flake size distribution with >63% of concentrates larger than 180 microns @ 97% to 98% C
- Mustang has initiated further testing on its 180+ concentrates to assist with offtake discussions

Source: Graphite guide: Why fire resistance and not electric cars may drive these stocks. Angela East, April 16, 2018. Stockhead



fire retardant



# CAULA VANADIUM - GRAPHITE PROJECT

A Spectacular High Grade Vanadium & Graphite Discovery



## JORC (2012) Measured Mineral Resources

- Vanadium: 22 Mt @ 0.37%  $V_2O_5$  (0.2% cut-off) for 81,600 tonnes contained  $V_2O_5$
- Graphite: 22 Mt @ 13.4% TGC (8% cut-off) for 2.93 Mt of contained Graphite

## Premium Products

- Up to 68% Large, Jumbo and Super Jumbo Flake sizes @ 97% to 98% C
- Up to 1.9%  $V_2O_5$  in-situ, metallurgical work underway
- Syrah delivered  $V_2O_5$  concentrate of >2%  $V_2O_5$  and 98% & >99%  $V_2O_5$  products from similar vanadium-rich graphitic schist directly south of Caula<sup>1</sup>

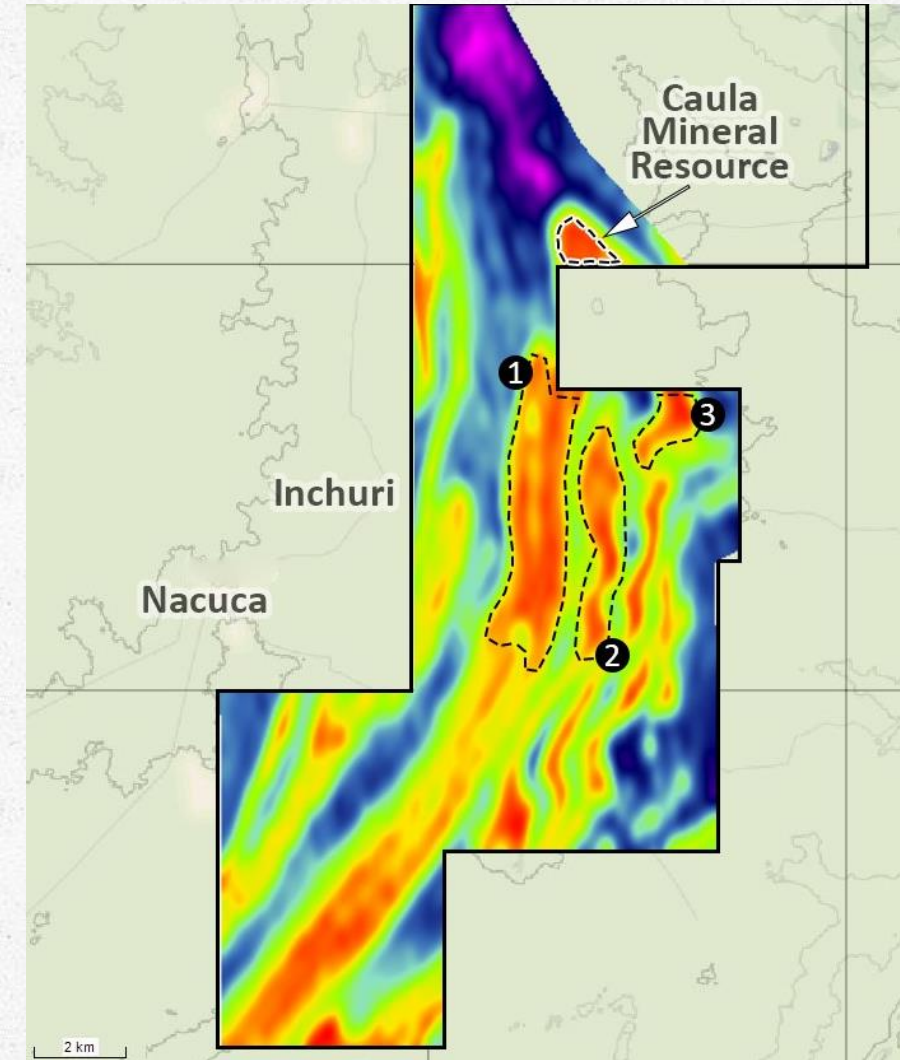
## Locality

- Located in Northern Mozambique and along strike from world-class **Syrah Resources (ASX: SYR, A\$780 million market cap)**
- Similar grade deposits BUT Caula has more large to jumbo flakes AND integrated vanadium-graphite flowsheet

## Project Status / Strategy

- Scoping study well advanced with results due by 5 October 2018
- Targeting production from phase 1 trial mining by mid 2019

1. Refer to Syrah Resources' ASX Announcements dated 8 April 2014 and 30 July 2014



# CAULA VANADIUM - GRAPHITE PROJECT

Unique mica-hosted vanadium deposit



- Caula project located in Cabo Delgado Provide, Northern Mozambique, with excellent transport infrastructure; ~25km access road to sealed road leading to ports of Pemba and Nacala



- Mozambique is one of the top rated African resource investment destinations with multi-billion \$ oil & gas investments (Exxon, ENI, Mitsui, CNPC etc) & mining projects (Vale, Syrah, Kenmare, BHP)
- Mustang team has recent track record of securing mining concessions for an adjacent project, all within 6 months
- Mozambique Government is highly supportive of new mining projects with no local shareholder requirements imposed on foreign investors
- Mining Law updated in 2004 with inputs from international mining codes
- Mustang core management team has ~15 years' experience operating in Mozambique

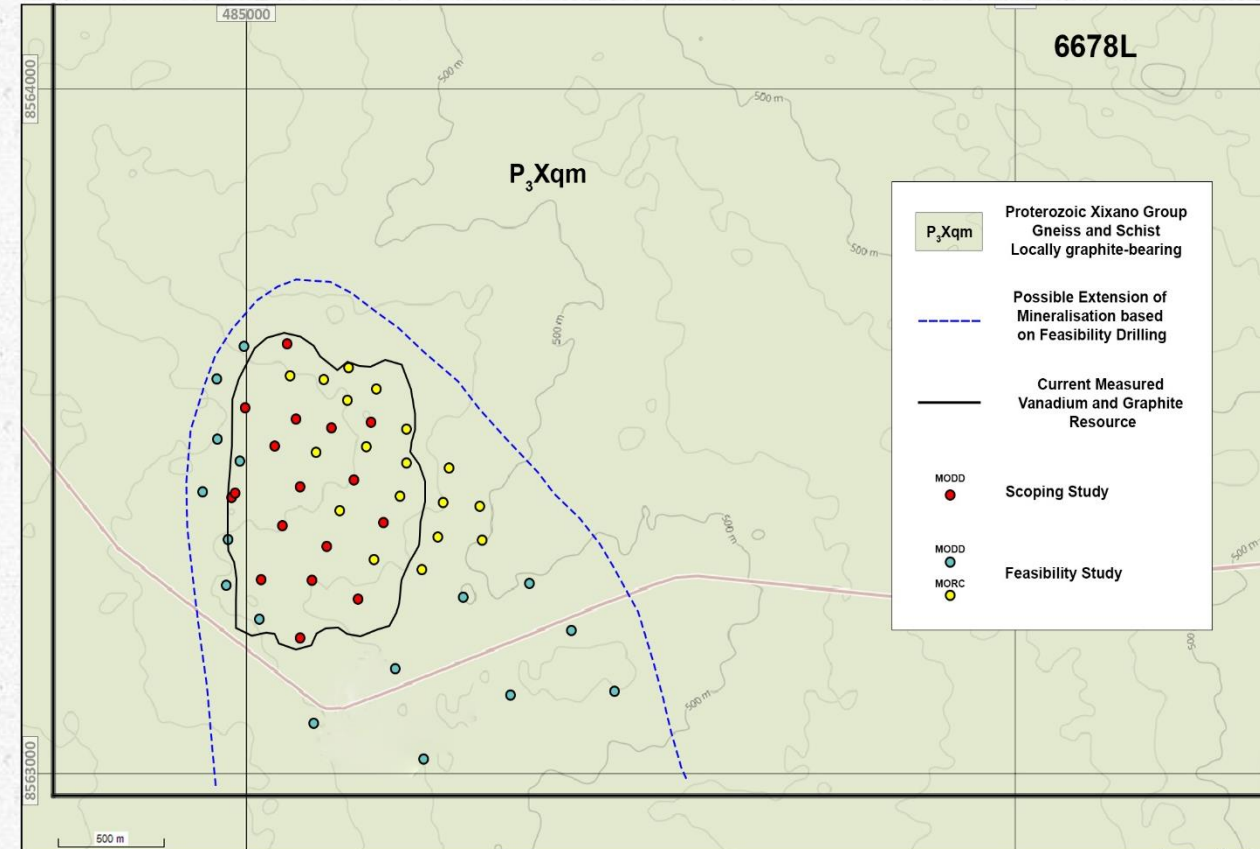


# CAULA VANADIUM - GRAPHITE PROJECT

317% increase in high grade Graphite Resource



- One of the highest grade graphite deposits in the world with grades up to 28% TGC
- Total Updated JORC (Measured) Graphite Resource of 22 Mt @ 13.4% TGC (8% cut-off)<sup>1</sup>
- 317% increase in size of Mineral Resource from 702,600 tonnes to 2,933,100 tonnes of contained Graphite
- The entire Graphite Resource now in the Measured Resource category and upgraded from the initial December 2017 Inferred Resource
- Substantial scope for further growth of the Graphite Resource through recently completed 4,155m drilling campaign
- Vanadium & graphite mineralisation occurs very near surface
- First ~50m oxidised zone will make mining easy & “free-dig” during initial years



# CAULA VANADIUM - GRAPHITE PROJECT

4,155m feasibility study drilling campaign completed ahead of schedule

- The feasibility study drilling program on the Caula Vanadium-Graphite Project in Northern Mozambique has been completed ahead of schedule<sup>1</sup>
- 3,025m of diamond drilling and 1,130m of reverse-circulation drilling completed (4,155m total in 34 holes)
- Drilling returned further large visible high-grade graphite and roscoelite (vanadium mica) intersections in all 34 holes drilled
- Confirms expansion of the current deposit boundary to the East, West and South
- Mineralisation has now been defined over a 850m strike length (from 540m previously) and estimated 430m wide true thickness (from 230m previously)
- The drilling program has also delivered suitable samples for feasibility level geological and geotechnical testing



1. Refer to ASX Announcement dated 6 September 2018

# CAULA VANADIUM - GRAPHITE PROJECT

Superior Graphite Metallurgy Proven



- Metallurgical testwork confirms exceptional quality graphite with more than 63% of cumulative proportion in large to super jumbo flakes sizes (>180µm) and excellent concentrate grades of up to 98% TGC

1. Refer to ASX Announcement dated 25 June 2018

Graphite Product	Size Fraction (µm)	Fresh Sample		Transitional Sample		Oxide Sample	
		Mass (%)	TGC (%)	Mass (%)	TGC (%)	Mass (%)	TGC (%)
Super Jumbo	>500	5.4	97.58	6.5	98.11	0.9	96.81
Jumbo	300 to 500	26.1	97.82	25.0	98.66	10.6	97.64
Large	180 to 300	36.4	97.43	36.6	98.64	34.7	97.70
Medium	150 to 180	9.5	96.96	10.3	98.46	14.8	97.76
Small	75 to 150	21.6	96.85	23.2	98.42	36.8	97.78
Fines	<75	6.0	88.6	1.1	97.71	4.2	96.12
Combined Concentrate		100	96.99	100	98.52	100	97.67

# CAULA GRAPHITE LEADS PEERS IN GRADE AND FLAKE SIZE

Significant opportunity for astute investors

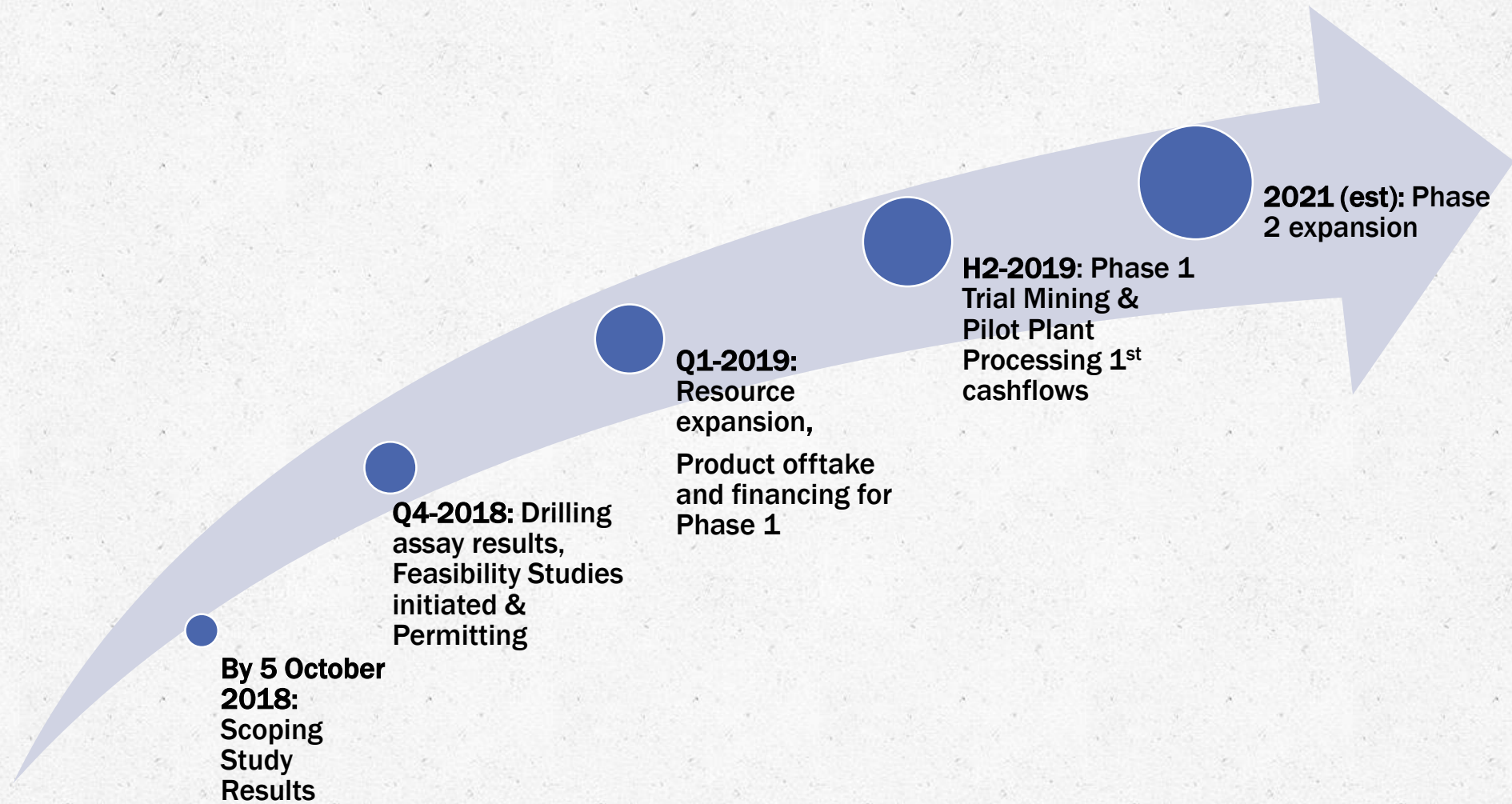
- Large measured resource of 22Mt with clear expansion potential following recent 4,155m drilling campaign
- Has both high resource grade (13.4% TGC) **AND** high % large – super jumbo flakes (63% cumulative oxide & fresh)
- Peer group leading grade + flake size combination
- AND has a significant vanadium grade (0.37%  $V_2O_5$ ) found within the graphitic schist in a mica mineral
- Fully integrated flowsheet to deliver both graphite & vanadium





# CATALYSTS FOR RE-VALUATION 2018 & 2019

Fast tracking project development to 1<sup>st</sup> cashflows in H2-2019



# SUMMARY

## Key Investment Takeaways

1. **Fast-tracked development of a world-class Vanadium-Graphite project**
2. **Significant maiden Vanadium resource hosted in an unique mica-mineral making it potentially simpler and cheaper to extract**
3. **Caula proven as one of the highest grade graphite deposits in the world AND delivers >63% of large, jumbo & super jumbo flakes @ up to 98% TGC**
4. **Management team with significant in-country experience & “skin in the game”**
5. **Clear development milestones to first trial-mining production from Caula in 2019**
6. **Additional upside through A\$10 million ruby asset merger with Fura**

## CONTACT DETAILS



**Dr Bernard Olivier**

[Bernard@mustangresources.com.au](mailto:Bernard@mustangresources.com.au)

**+61 (0) 408 948 182**

JMM

JANE MORGAN MANAGEMENT  
INVESTOR & MEDIA RELATIONS

**Jane Morgan**

[Jm@janemorganmanagement.com.au](mailto:Jm@janemorganmanagement.com.au)

**+ 61 (0) 405 555 61**

# APPENDIX 1: BOARD OF DIRECTORS

An experienced team with a proven track record



## **Ian Daymond, Non-Executive Chairman**

- A former solicitor with more than 41 years experience as a mining and resources lawyer. Former General Counsel & Company Secretary of Delta Gold Ltd for 11 years and saw the company grow to be one of the largest gold producers in Australia.
- Extensive board experience as a director of International Base Metals Ltd with substantial copper interests in Namibia, former chairman of EIDore Mining Corporation Ltd (ASX: EDM), ActivEX Ltd (ASX: AIV), Copper Range Ltd (ASX:CRJ) and a former Non-Executive Director of Hill End Gold Ltd.



## **Dr. Bernard Olivier, Managing Director**

- Holds a PhD in Economic Geology from the University of Stellenbosch, South Africa and has worked as a geologist since 1998 across Tanzania, South Africa, Burundi, Swaziland, Argentina, Colombia, Australia and the Philippines. A Member of the Australasian Institute of Mining and Metallurgy (MAusIMM).
- Worked on a variety of exploration and development projects and mining operations across a spread of commodities including, gemstones, graphite, gold, diamonds, PGEs, base metals and coal. Has over 10 years' experience as a listed company director and most recently served as the CEO of Richland Resources Plc (formerly Tanzanite One) since March 2010 and as Executive Director of Bezant Resources Plc since March 2007.



## **Cobus van Wyk, Executive Director & COO**

- Co-founder of the Regius Group of companies and Chief Operating Officer of Mustang since January 2018. Holds Bachelor of Marketing (Tshwane University of Technology) and MBA (University of Wales). Experienced exploration and mining entrepreneur active in Mozambique since 2004.
- Qualified portfolio manager and stockbroker, with 23 years' experience in financial services & 12 years' experience in mining & exploration in Mozambique.



## **Christiaan Jordaan, Non-Executive Director**

- CEO & Co-Founder of Regius Resources Group, an highly experienced Mozambican-focused exploration company that holds ~7.0% of Mustang.
- Has served as a Director of Mustang Resources since February 2016. Holds extensive knowledge of the resources and energy sectors both in Africa, Australia and internationally. Member of AICD, holds Commercial Law Degree, former Director of financial services group in SA.



## **Dr. Evan Kirby, Non-Executive Director & Metallurgist**

- Dr Kirby is a metallurgist with more than 40 years' experience and has extensive corporate and technical expertise. Has 16 years' experience in South Africa with Impala Platinum, Rand Mines and then Rustenburg Platinum Mines.
- In 1992, he moved to Australia and was employed by Minproc Engineers and then Bechtel Corporation, where he had management and technical responsibilities. In 2002, Evan established his own Australian based consulting business, Metallurgical Management Services. He has held leading roles in numerous metals and minerals projects, including many world-class developments, and has been a director of several ASX and AIM-listed mining companies.

# APPENDIX 2: STRATEGIC RUBY ASSET MERGER WITH FURA GEMS INC.



# FURA

1. Mustang agreed to merge all its ruby interests with Fura Gems Inc. (TSXV.FURA) (“Fura”) for A\$10 million in Fura shares<sup>1</sup>
2. Fura is listed on TSXV and led by former Gemfields COO Dev Shetty with interests in the Montepuez gem-field and the legendary Conscuez emerald mine in Colombia
3. Fura committed to invest A\$25 million in further exploration and resource definition, subject to exploration success, of its expanded Montepuez Project over 3 years
4. Fura investigating its dual listing in London with significant existing shareholder and new institutional investor interest expected
5. The transaction will deliver Mustang shareholders exposure to a leading gemstone specialist with significant experience and critical mass
- 6.

Closing of transaction is subject to satisfaction of customary conditions precedent on or before 30 November 2018, including Mozambican Government approval

**Mustang is now able to focus solely on its world-class Caula Vanadium-Graphite project where Phase 1 production is targeted for H2-2019**

1. Refer to ASX Announcement dated 17 July 2018