



**BLACK ROCK**  
MINING LIMITED

**MAHENGE GRAPHITE PROJECT  
BEST OF CLASS GRAPHITE PROJECT**

*Naturally Better Graphite*

**121 Mining Investment Conference  
Hong Kong – April 2018**



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## COMPETENT PERSONS

The information in this report that relates to Exploration Results and Mineral Resource Statements is based on information compiled by John de Vries, who is a member of the AusIMM. He is an employee of Black Rock. John de Vries 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 in the 2004 and 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

The information that relates to Mineral Resources is based on and fairly represents information compiled by Mr Lauritz Barnes, (Consultant with Trepanier Pty Ltd) and Mr Aidan Patel (Consultant with Patel Consulting Pty Ltd). Mr Barnes and Mr Patel are members of the Australian Institute of Mining and Metallurgy and have sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Barnes, Mr Patel and Mr de Vries consent to the inclusion in this report of the matters based on their information in the form and context in which they appear.

The Ore Reserves have been compiled by Oreology Consulting Pty Ltd, under the direction of Mr John de Vries, who is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy. Mr de Vries is a full-time employee of Black Rock Mining and holds performance rights in the company as part of his total remuneration package. Mr de Vries has sufficient experience in Ore Reserve estimation relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves".

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# 1. Summary

- **100% Project Ownership** – Black Rock Mining (ASX:BKT) has a 100% interest in the Mahenge Graphite Project located in Tanzania
- **Exceptional PFS** – Optimised PFS completed in Aug 2017 with the following key metrics
  - **Long life and meaningful scale** – Three stage construction to deliver 250k tonnes per annum for 31 years
  - **Low capex** – Pre production capex only US\$90m for 83k tonnes per annum
  - **Cash flow funding** – Stages two and three funded from cash flow
  - **Low opex** – Steady state opex of US\$378 per tonne (likely to be lower with train)
  - **Brilliant financial metrics** – Post tax unlevered NPV<sub>10</sub> of US\$905m with IRR of 45.1% inclusive of 16% Government free carry
- **Industry leading graphite** – Industry leading product attributes (concentrate grade and flake size distribution) confirmed in first pilot plant test
- **Simple processing** – Arguably the most simple process flow sheet in the industry
- **Strong management capability** – Proven management team focused on project execution
- **Path to market established** – Real partners in place
- **Graphite market improving** – Graphite market dynamics becoming increasingly positive

## 2. Corporate Overview

ASX Ticker	BKT
Share Price at 19 April 2018	A\$0.056
Shares on Issue <sup>1</sup>	443.7m
Options	67.2m
Performance Rights	3.4m
Fully Diluted Market Capitalisation	A\$28.8m
Cash on hand as at 31 December 2017*	\$4.12m
<b>Top 20 Shareholders</b>	c.50%
<b>Major shareholders</b>	
Copulos Group	24.63%

\*\$540k received in placement post 31-Dec



### Key Management



#### JOHN DE VRIES CEO and Managing Director

Mining Engineer with over 35 years-experience in mine development and operations. Previously, General Manager Technical Services with St Barbara and integral in the 2014 turnaround. John has held positions at BHP Ni West, and was Global Business Manager, Advanced Mining Solutions with Orica Mining Services. John's geographic experience includes Africa, the Pacific, the FSU, North America and South America.



#### RICHARD CROOKES Non-Executive Chairman

A geologist with over 28 years executive experience in the resources and investments industry. He is currently an Investment Director of EMR Capital and was formerly a Director of Macquarie Bank's Metals Energy Capital Division and was Chief Geologist with Ernest Henry Mining.



### 3. Exceptional PFS

- **Crawl, Walk, Run Strategy**
- Three stage construction to deliver a maximum of **250k tonnes per annum of 98.5% graphite concentrate for 31 years**. Stages two and three to be funded from free cash flow
- Pre-production capex of **US\$90.1m\***
- Steady state opex of **US\$378 per tonne**
- Realistic basket price assumption of **US\$1,241 per tonne delivering an operating margin of US\$863 per tonne**
- Assumed feed grade of **8.5% TGC**
- Life of mine strip ratio of **0.8:1 (early years are 0.5:1)**
- Post-tax unlevered project **NPV<sub>10</sub> of US\$905m**
- Post-tax, unlevered **IRR of 45.1%**
- EBITDA in first full year of production **US\$220 million (EBITDA margin of 66%)**

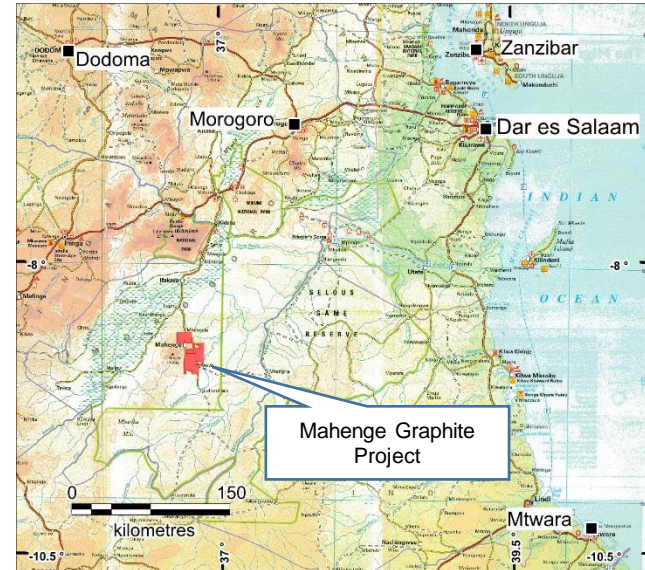


Image showing project location in Tanzania

Basket Price Assumption (US\$ per tonne)	Price Assumption (US\$ per tonne)	NPV <sub>10</sub> (nominal) US\$ m	IRR %
+400	1,641	1,421	62.8
+200	1,441	1,163	54.0
BASE	1,241	905	45.1
-200	1,041	648	36.0
-400	841	390	26.6

Sensitivity Table showing how changes in basket price effect NPV<sub>10</sub> and IRR

\* ASX Release of 8 August 2017

### 3. Exceptional PFS

Industry leading low peak capital and highest normalised margin

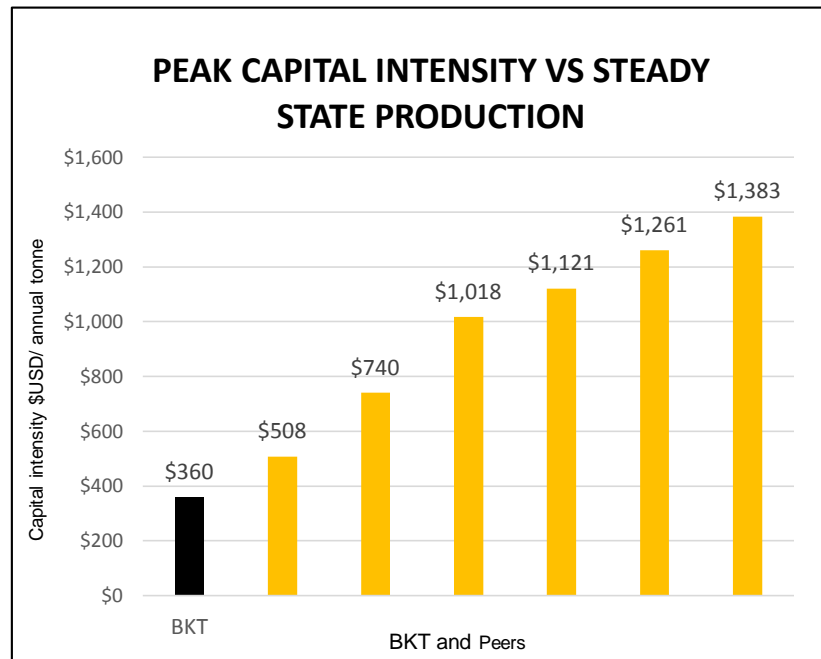


Chart showing peak capital v steady state production for all graphite developers with meaningful scale and life of mine

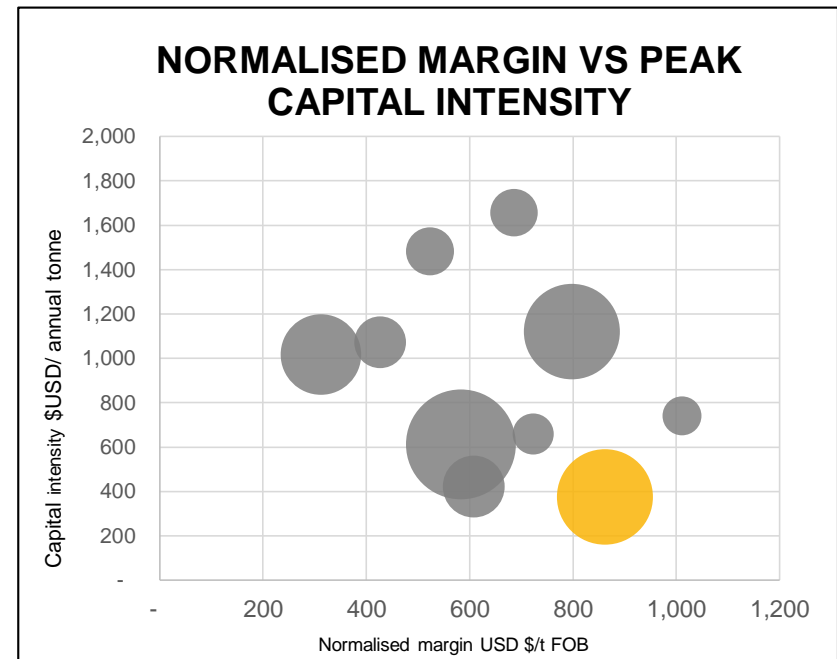


Chart showing margin normalised for graphite price assumption and flake size distribution against capital intensity and annual steady state production

## 4. Industry Leading Processing and Product

- **Purity and size matter**
- Approximately 70% of the primary cleaning circuit for the Ulanzi ore product contained flake sizes over 80 mesh (180 microns)
- Primary cleaning delivered a 95% concentrate and a secondary cleaning circuit increased this to 97.5%
- Additional work currently being completed for ultra high purity product

Size Mesh	um	% Retained Individual	Grade C (t) %	Distribution C (t) %
32	500	1.6	97.3	1.6
48	300	25.9	97.5	25.9
65	212	32.1	98.2	32.3
80	180	16.3	97.3	16.2
100	150	9.3	97.5	9.3
150	106	7.3	96.9	7.3
200	75	3.0	97.6	3.0
- 200 -	75	4.5	96.4	4.4
<b>Total (calc)</b>		<b>100</b>	<b>97.6</b>	<b>100</b>
<b>Total (direct)</b>			<b>97.1</b>	
<b>K<sub>80</sub></b>		<b>354</b>		

Table showing results from initial pilot plant run on Ulanzi ore

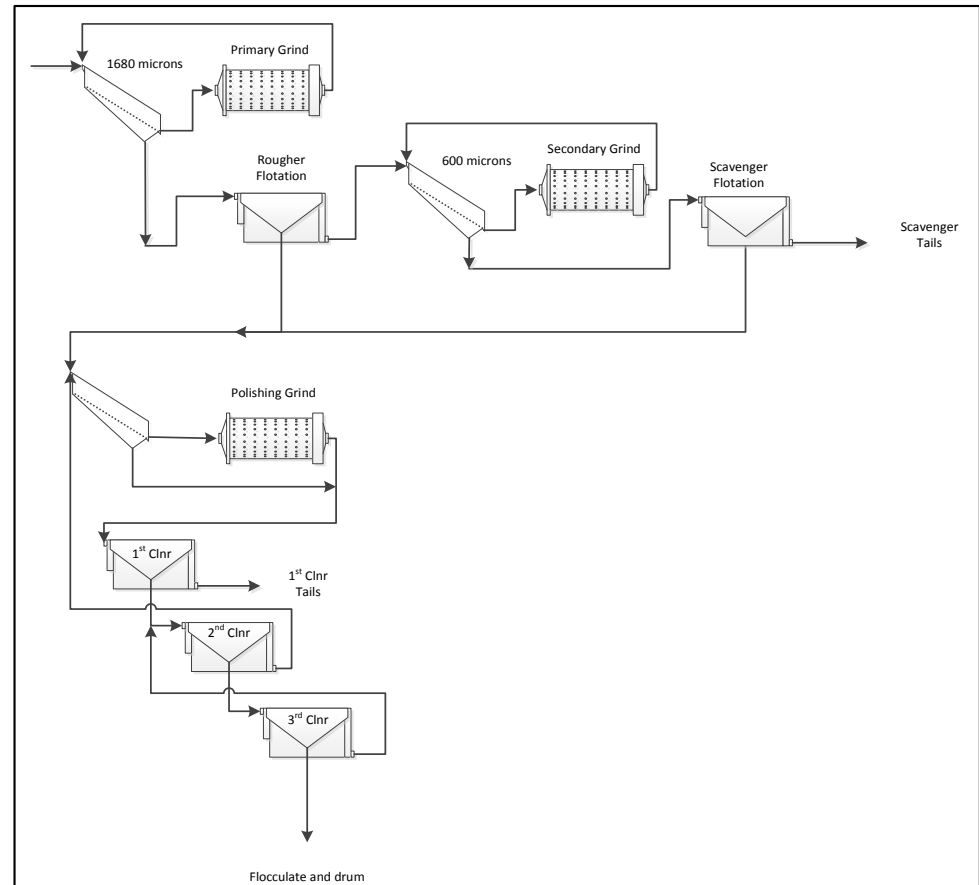


Chart showing process flow sheet



## 5. Execution

### Consistent Delivery on promises



Q1 FY18

Delivered  
Optimised  
PFS

Reserve  
declared of  
69.6 Mt at  
8.5% TGC

Q2 FY18

New Chairman  
appointed

\$4.75m raised to  
progress DFS

300 cycle battery  
test work  
completed

DFS Engineer  
appointed

Q3 FY18

Metallurgical  
testing and drilling  
program  
completed

TIC registration  
successful

ESIA submitted

Pilot plant  
commenced

Q4 FY18

Rail confirmed  
Pilot plant testing  
confirms industry  
leading graphite  
concentrate

## 5. Execution

Focus on construction ready

CY18 and C19 Targets

# Q4



# 1H



# 2H

Q4 FY18

ESIA approval  
Resettlement  
framework approved  
High purity product  
delivered  
Potential customers  
and partners with  
meaningful samples  
from pilot plant to test

1H FY19

DFS completed  
FEED commenced  
Mining licence  
awarded  
Construction  
contracts tendered  
and awarded

2H FY19

Construction  
commenced with  
commissioning  
targeted for late  
CY19

## 6. Partners



### MOU'S SIGNED WITH REAL INDUSTRY PARTICIPANTS



#### MEIWA

- Part of Mitsubishi group of companies
- Existing major player in battery space



#### BOTIAN

- Existing spherioniser in Chinese market
- Creates capacity to deliver final product without investing capital, organisational development and management bandwidth



#### BATTERY TESTING

- Long cycle data available to customers to facilitate acceptance testing
- Concentrate from pilot plant testworks in hands of potential customers and partners

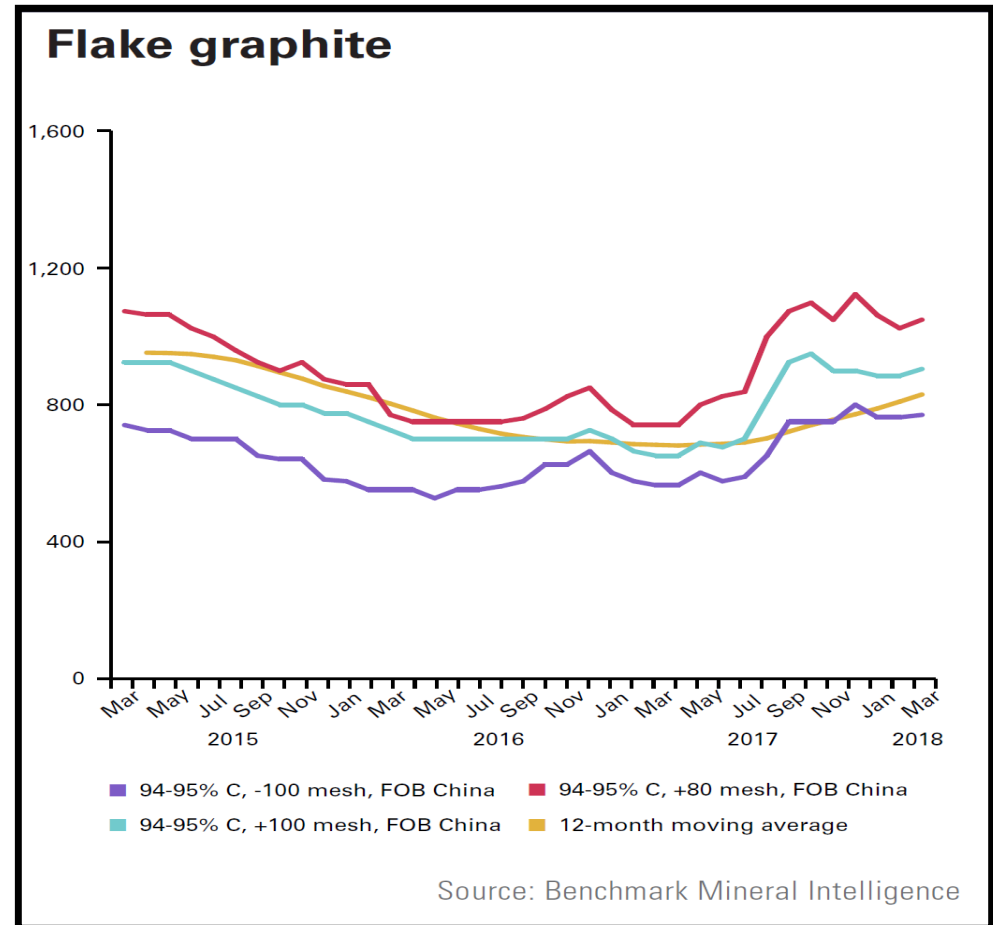
## 7. Graphite Market Dynamics Improving

- Pricing increasing across all grades
- EV's and storage showing strong growth - likely accelerate as supply chain constraints in Li & Co are removed
- Expandable & fire retardant – large high purity flake in increasing shortfall
- China production cuts matches Syrah start-up – no massive physical long positions
- Increased trade/geopolitical tensions refocusing to resource ownership

	PRICE
FLAKE, 94-95% C, -100 MESH	\$770
FLAKE, 94-95% C, +100 MESH	\$905
FLAKE, 94-95% C, +80 MESH	\$1,050
USPG, 99.95%, 15 MICRONS	\$3,100

Source: Benchmark Mineral Intelligence

Table showing March 2018 pricing data from Benchmark Mineral Intelligence



Graph showing graphite pricing since Mar 2015 from Benchmark Mineral Intelligence

## 8. Why Black Rock?

### **Track record of delivering to promise**

- Demonstrated engagement with government TIC & rail
- Meaningful local content

### **Pilot plant significant de-risks the project**

- Pilot plant proves that at significant scale the project can deliver premium size high grade concentrate

### **Definitive Feasibility Study**

- High quality detailed study supported by real pilot plant data – de-risks capex, and opex estimates and increases deliverability – “measure twice cut once”

### **Products and Partners**

- Real product, in credible volumes, in the hands of customers = real market engagement



# **BLACK ROCK**

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