

# Corporate Presentation – RIU conference

Black Canyon (ASX: BCA) is pleased to release the following presentation that Managing Director, Mr Brendan Cummins, will be providing at the RIU Resources Round Up conference, Sydney, commencing on the 7 May 2024.

**This announcement has been approved by the Board of Black Canyon Limited.**

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## Capital Structure (ASX: BCA)

Shares on Issue	70.1M
Top 20 Shareholders	41%
Board & Management	11%
Funds & Institutions	15 %

## Board of Directors

**Graham Ascough**  
Non-Executive Chairman

**Brendan Cummins**  
Managing Director

**Simon Taylor**  
Non-Executive Director

**Adrian Hill**  
Non-Executive Director

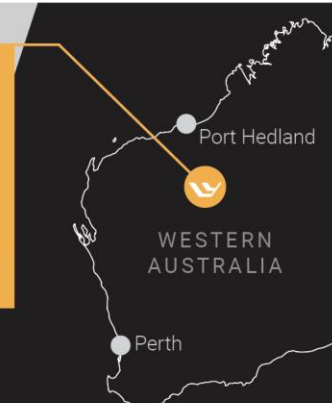
## Balfour Manganese Field Highlights

Global MRE of 314Mt @ 10.5% Mn. \*

Largest Resource in Western Australia.

Development Options – Traditional  
Mn concentrate or HPMSM processing  
for EV's.

\*BCA Announcement 12/12/23





# **Pilbara Focused Manganese Developer & Explorer**

May 2024

**Sydney RIU Resources Round Up**  
Conference Presentation

**ASX:BCA**  
[blackcanyon.com.au](https://blackcanyon.com.au)



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## Competent Persons Statement

The information in this report that relates to exploration results and exploration targets and results is based upon information reviewed by Mr Brendan Cummins who is a member of the Australian Institute of Geoscientists (AIG). Mr Cummins is the Managing Director of Black Canyon Ltd and 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 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Cummins consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## Scoping Study Cautionary Statement

The Scoping Study referred to in this presentation has been undertaken for the purpose evaluating the potential development of the Flanagan Bore Manganese Project, Pilbara region, Western Australia. It is a preliminary technical and economic study of the potential viability of the Flanagan Bore Manganese Project. The Scoping Study outcomes, Production Targets and forecast financial information referred to in the release are based on low level technical and economic assessments that are insufficient to support estimation of Ore Reserves. The Scoping Study is presented to an accuracy level of +/- 35%. While each of the modifying factors was considered and applied, there is no certainty of eventual conversion to Ore Reserves or that the Production Target itself will be realised. Further exploration and evaluation and appropriate studies are required before Black Canyon will be in a position to estimate Ore Reserves or to provide any assurance of any economic development case. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study. All (100%) of the Mineral Resources scheduled for extraction over the 20 year mine life in Scoping Study production targets are classified as Indicated. Only 40% of the Global Mineral Resource has been scheduled for mining in this Scoping Study. No Inferred Mineral Resources have been used in the Scoping Study.

The Mineral Resources underpinning the production target in the Scoping Study have been prepared by a competent person in accordance with the requirements of the JORC Code (2012). For full details on the Mineral Resource estimate, please refer to the ASX announcement of 13 April 2022. Black Canyon confirms that it is not aware of any new information or data that materially affects the information included in that release and that all material assumptions and technical parameters underpinning the estimate continue to apply and have not been changed. This Scoping Study is based on the material assumptions outlined in the announcement. These include assumptions about the availability of funding. While Black Canyon considers that all the material assumptions are based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

To achieve the range of outcomes indicated in the Scoping Study, funding in the order of \$44 million will likely be required. Investors should note that there is no certainty that Black Canyon will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Black Canyon's existing shares. It is also possible that Black Canyon could pursue other strategies such as project finance, strategic partners, a sale or partial sale of its interest in the Flanagan Bore Project. The Flanagan Bore Project is part of the Carawine Joint Venture ("Carawine JV"), with Carawine Resources Ltd ("CWX" ASX: CWX). The respective interests of each party currently being Black Canyon 75% and CWX 25%. Black Canyon is the manager of the joint venture, with both parties deemed to be contributing to JV expenditure according to their interests. This announcement contains forward-looking statements. Black Canyon has concluded that it has a reasonable basis for providing these forward-looking statements and believes it has a "reasonable basis" to expect it will be able to fund development of the Flanagan Bore Manganese Project. However, a number of factors could cause actual results or expectations to differ materially from the results expressed or implied in the forward-looking statements. Given the uncertainties involved, investors should not make any investment decisions based solely of the results of this study.

# Manganese Developer and Explorer

Essential for alloys used in the steel industry and critical for Cathodes in **Electric Vehicle Li-Ion batteries.**

Substantial Global MRE's totaling **314 Mt @ 10.5% Mn containing 33.1 Mt Manganese.**

**Exploration Targets 160 – 215 Mt @ 11 – 12% Mn, containing 18 – 23 Mt of manganese.**

Traditional manganese concentrate for the Mn alloying industry.

**Value add downstream processing for EV battery precursor material.**

**Tier 1 location –** Projects located in East Pilbara in the heartland of manganese and iron ore mines and access to Port Hedland

MANGANESE  
FOCUSED

BEST IN  
CLASS

BULK  
COMMODITY

PREMIER  
LOCATION



# Corporate Overview ASX:BCA



\$9.5m

Market Cap  
(as at 3/05/2024)

\$1.2m

Cash  
(End of March Quarter)

\$8.3m

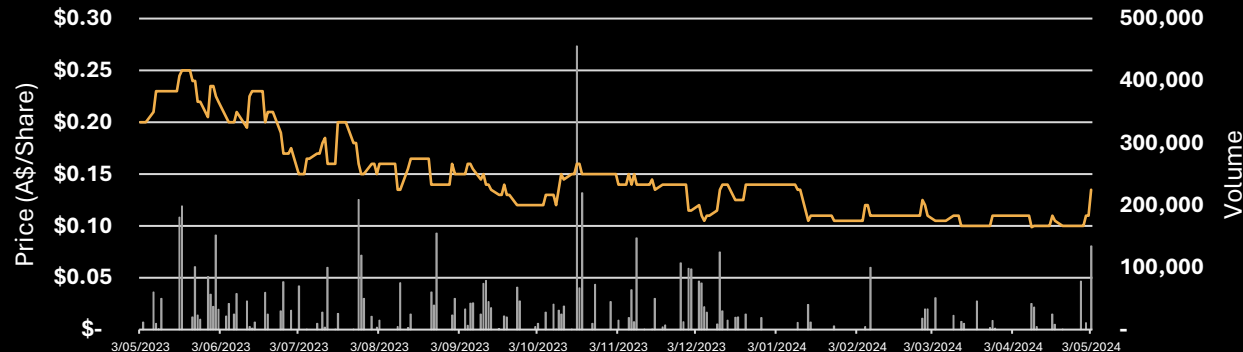
Enterprise  
Value

70.14m

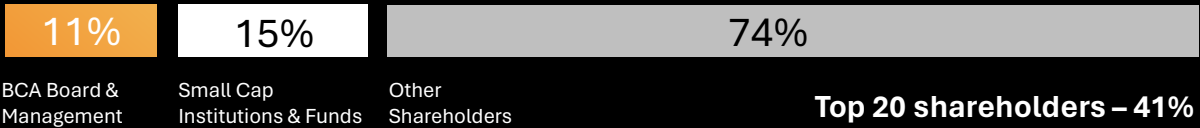
Shares on  
Issue

7.0m

Unlisted Options  
(\$0.28 exercise,  
exp 27/07/2025)



## Black Canyon Shareholders



**Graham Ascough**  
Non-Executive Chairman

Geophysicist  
Mr Ascough is a resources executive and geophysicist with more than 30 years' experience. He is presently Non-Executive Chairman of Geopacific Resources Ltd, Sunstone Metals Ltd and PNX Metals Ltd.



**Brendan Cummins**  
Managing Director

Geologist  
Mr Cummins has 30 years' experience across precious, base metals and bulk commodities. Extensive experience in resource development, feasibility, project development, environmental approvals and permitting.



**Simon Taylor**  
Non-Executive Director

Geologist  
Mr Taylor is a resources industry executive with over 30 years' experience in geology, finance and corporate management at CEO and Board levels. He is also Executive Chairman & CEO of Stellar Resources Ltd and Non-Executive Director of Petratherm Ltd.



**Adrian Hill**  
Non-Executive Director

Finance  
Mr Hill is a senior executive with over 25 years' experience in strategic and finance roles in the resources, energy infrastructure and investment banking industries. He has an established record in strategy development, corporate structuring and capital raising.

# Manganese (Mn)

## Essential for steel and critical for EV Li-ion batteries

Fourth most consumed metal by tonnage with 60Mt tonnes of ore mined globally on an annual basis.



Approx. 90% is used in steel manufacturing, Mn alloys added to prevent corrosion, resist abrasion, and increase hardenability.



Baseload demand from China with the emergence of India.



Smeltered to make a ferro or silico manganese alloy used in steel production (6 - 15kg Mn/t steel).



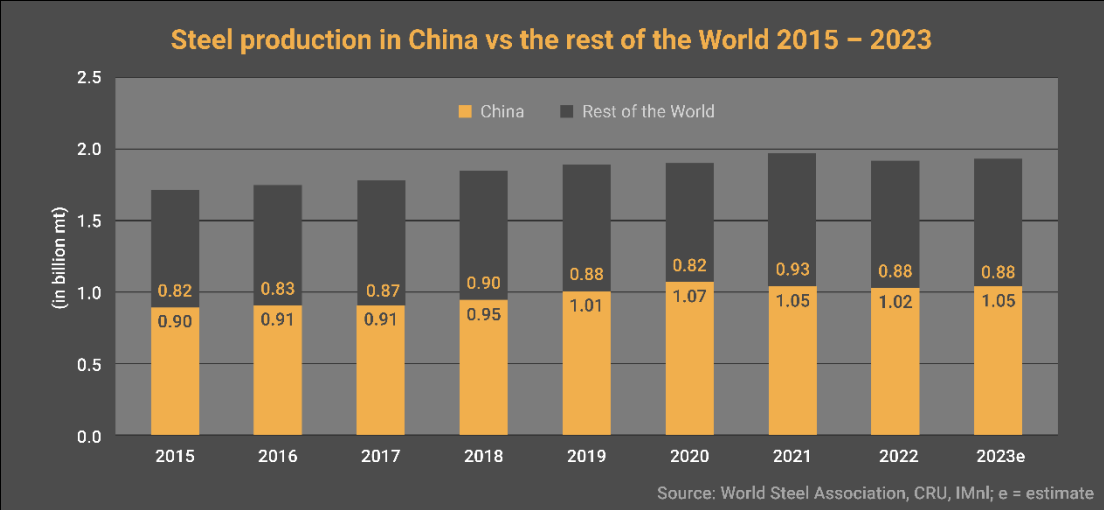
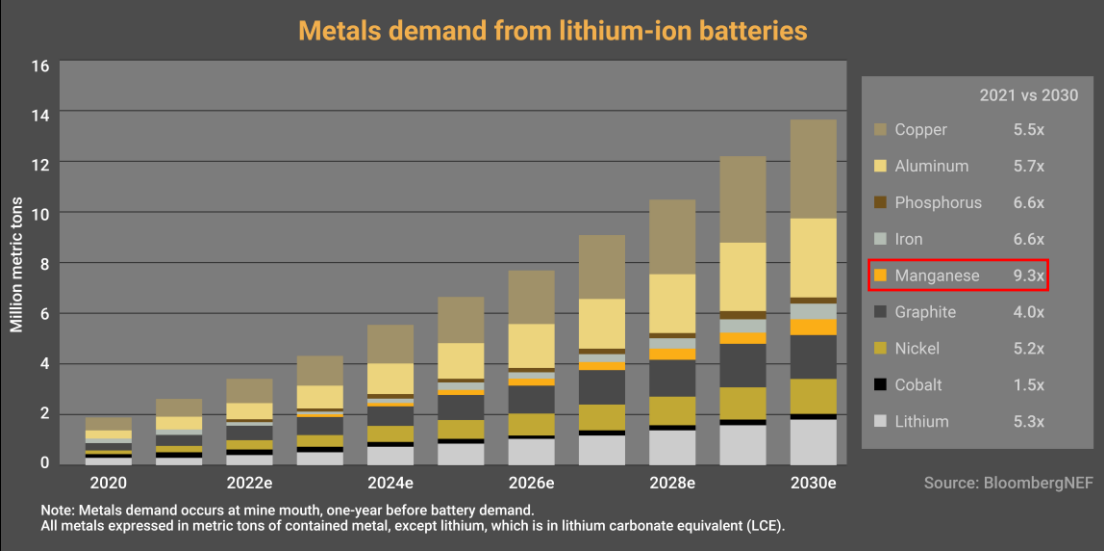
NMC batteries contain 10-30% Mn that equates to 10-60kg Mn depending on battery chemistry and pack size.



Growth of LFMP, high Li-Mn and sodium-based chemistries.



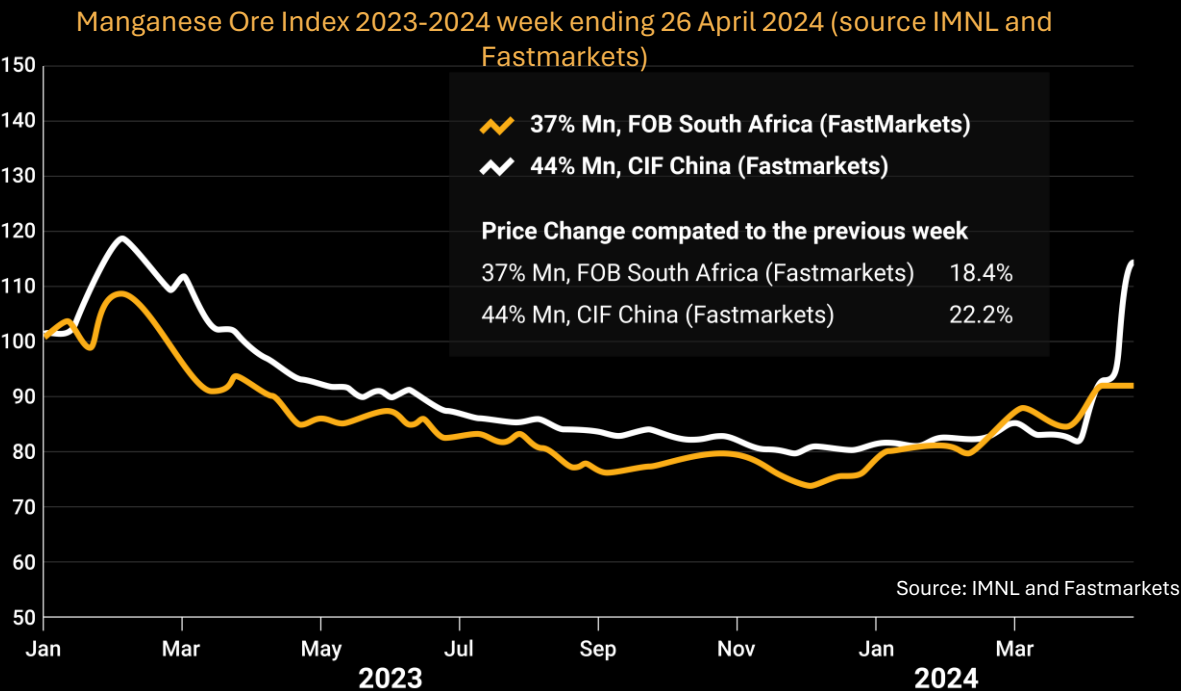
9.3x demand for Mn required for Li-Ion batteries by 2030.



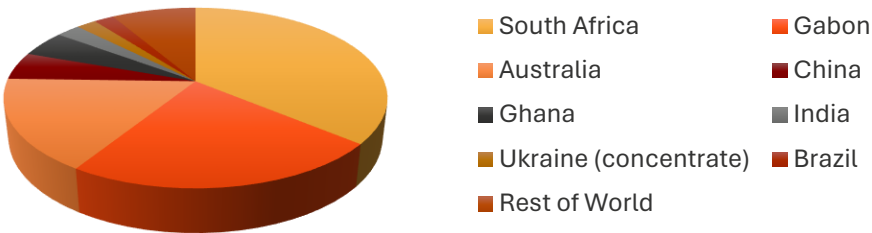
# Manganese Fundamentals

## Moving in the right direction

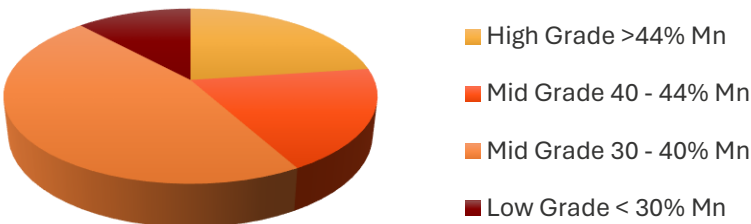
- ▶ Analysts expected the Mn ore price to move positively in 2024
- ▶ Groote Eylandt operations suspension removed approximately 15% of global manganese unit supply.
- ▶ Since March 2024, the price has moved up 34% from US\$4.20 DMTU to US\$5.65 DMTU (44% Mn benchmark material)
- ▶ Long term average price for the 44% Mn benchmark is US\$5.20 DMTU



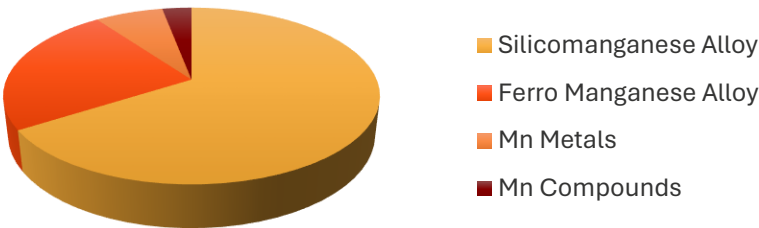
## World Manganese Production (2022 USGS)



## World Global Mn production grades (2023 IMNL)



## Mn Ore Utilisation (2023 IMNL)

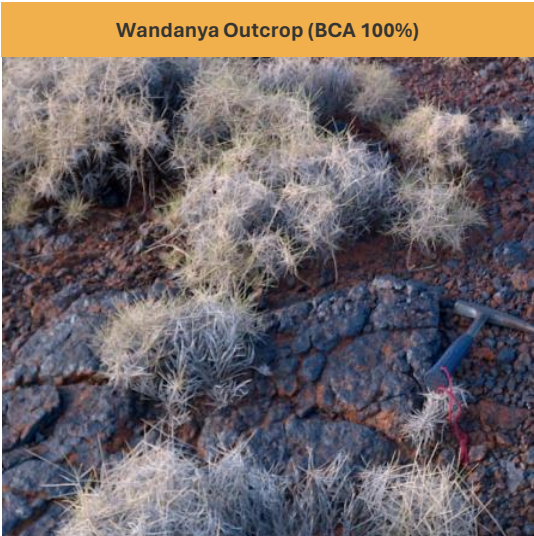
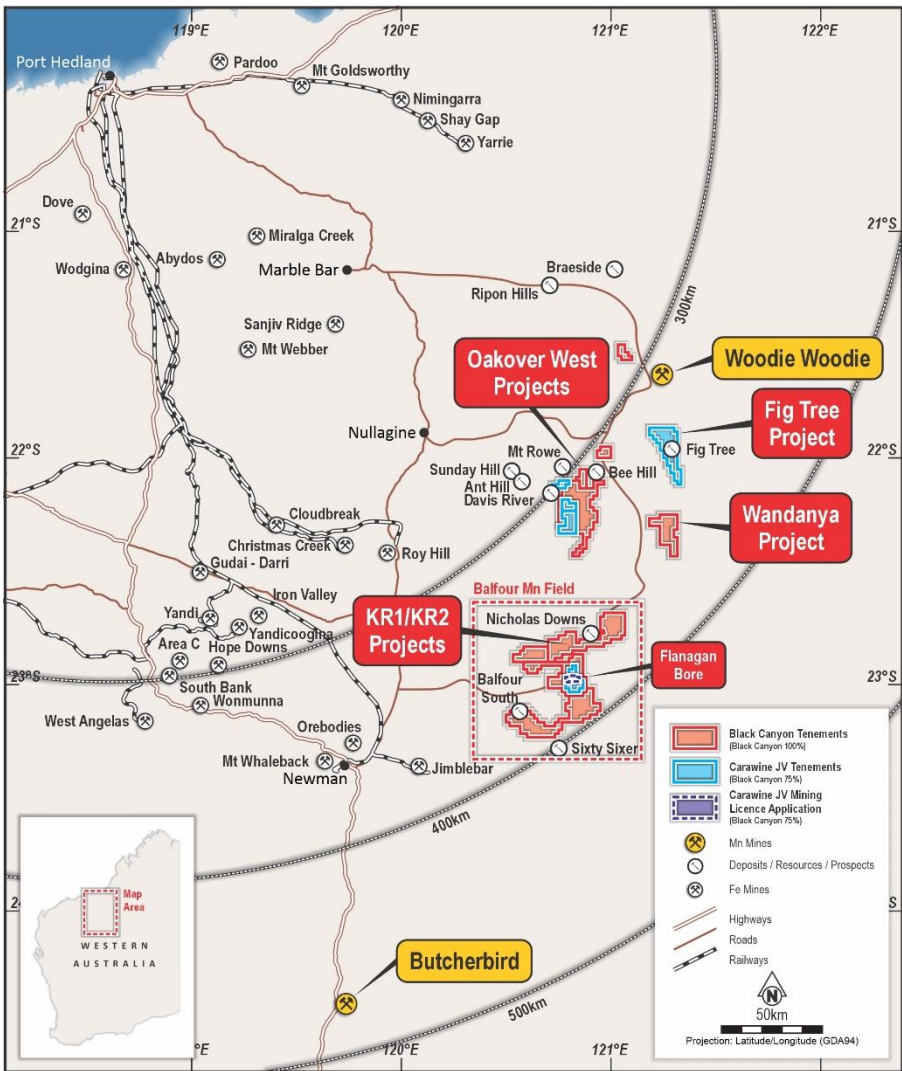


unit	2020	2021	2022	2023	2024e	2025e	2026e	2027e	2028e
US\$/DMTU	4.64	5.21	6.06	4.76	4.33	5.00	5.25	5.50	5.50

Company data, IMNI, Trademap, Morgan Stanley Research estimates



# Asset Overview – 2,100km<sup>2</sup> of Granted Licenses



BCA ASX Announcement 05/07/2023 High-grade Manganese Rock Chip Samples up to 54% Mn at the Wandanya Project.



# Balfour Manganese Field Mineral Resources

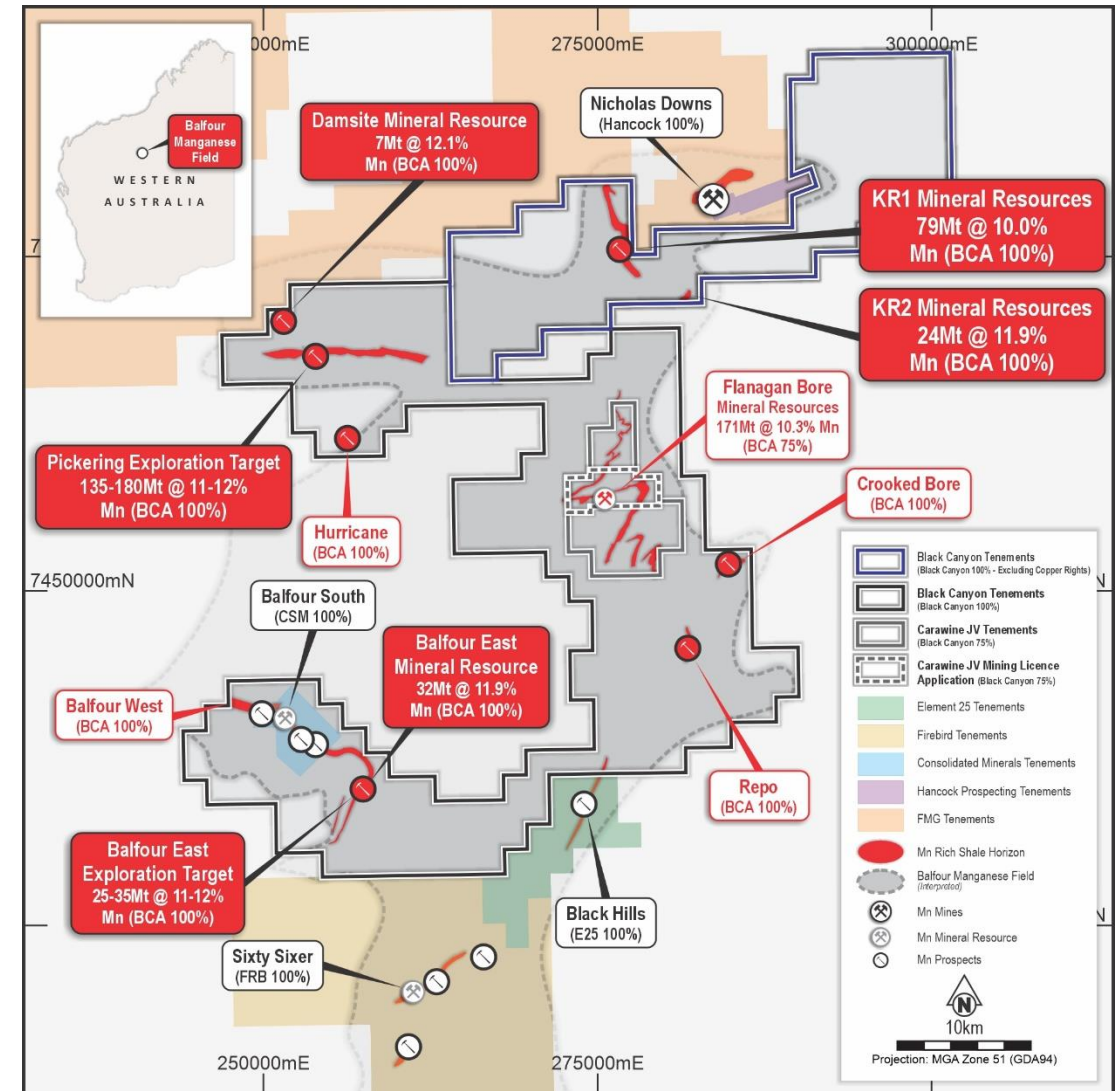
**Black Canyon controls the largest contained Manganese deposits in WA – 33.1Mt of contained Mn**

- MREs with strong geological and grade continuity demonstrated along and across strike – some remain open. Large scale mineralised system presents multiple development options
- 80% in high confidence Measured and Indicated Resource categories

Summary of Mineral Resources <sup>(1-3)</sup>							
Deposit	Mineral Resource Category	Material	In Situ Mn	Mn	Fe	Si	Al
		(Mt)	(Mt)	(%)	(%)	(%)	(%)
FB3 <sup>4</sup>	Measured	52	5.5	10.5	10.4	16.9	4.3
LR1 <sup>4</sup>	Measured	47	4.9	10.3	8.4	16.7	4.6
<b>Total</b>	<b>Measured</b>	<b>100</b>	<b>10.4</b>	<b>10.4</b>	<b>9.4</b>	<b>16.8</b>	<b>4.4</b>
KR1 <sup>5</sup>	Indicated	79	7.8	10.0	7.9	18.0	5.4
FB3 <sup>4</sup>	Indicated	63	6.3	10.0	9.6	16.8	4.4
LR1 <sup>4</sup>	Indicated	8	0.9	11.3	9.4	6.9	1.8
<b>Total</b>	<b>Indicated</b>	<b>150</b>	<b>15.1</b>	<b>10.1</b>	<b>8.7</b>	<b>16.9</b>	<b>4.8</b>
KR2 <sup>5</sup>	Inferred	24	2.9	11.9	10.6	19.2	5.0
Balfour East <sup>5</sup>	Inferred	32	3.9	11.9	8.5	18.6	4.9
Damsite <sup>5</sup>	Inferred	7	0.9	12.1	9.6	17.2	4.2
<b>Total</b>	<b>Inferred</b>	<b>64</b>	<b>7.6</b>	<b>11.9</b>	<b>9.4</b>	<b>18.7</b>	<b>4.9</b>
<b>Grand Total</b>		<b>314</b>	<b>33.1</b>	<b>10.5</b>	<b>9.1</b>	<b>17.2</b>	<b>4.7</b>

## Notes

- |  |                                       |
|--|---------------------------------------|
| (1) Mineral resources reported at a cut-off grade of 7% Mn.  | (4) Deposit under which BCA owns 75%  |
| (2) Appropriate rounding has been applied.   | (5) Deposit under which BCA owns 100% |
| (3) Refer to JORC Table 1, Sections 1 to 3 and Appendix 2 for further details in ASX release 27/11/2023. |                                       |



# Substantial Growth Potential at BMF

## Pickering and Balfour East Deposit Exploration Target Estimate

- Exploration Target estimated as a range across two projects:

**160 – 215 Mt @ 11 – 12% Mn,  
containing 18 – 23 Mt of manganese**

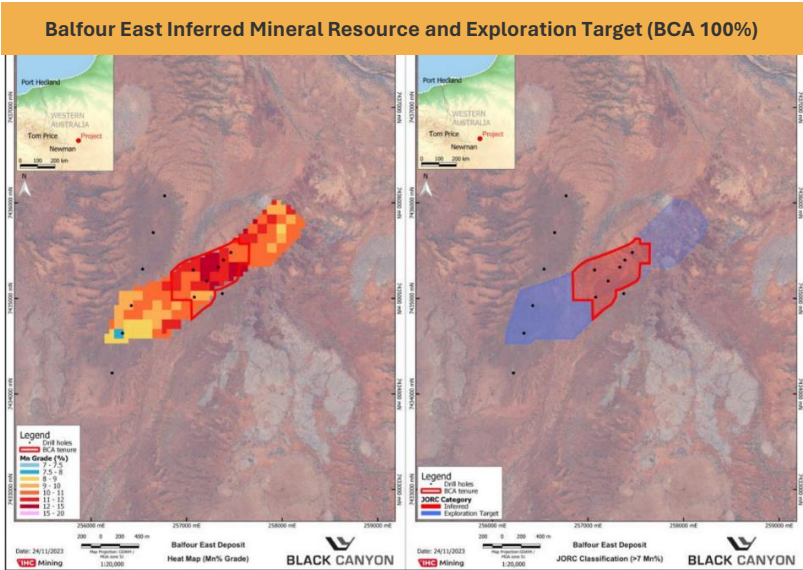
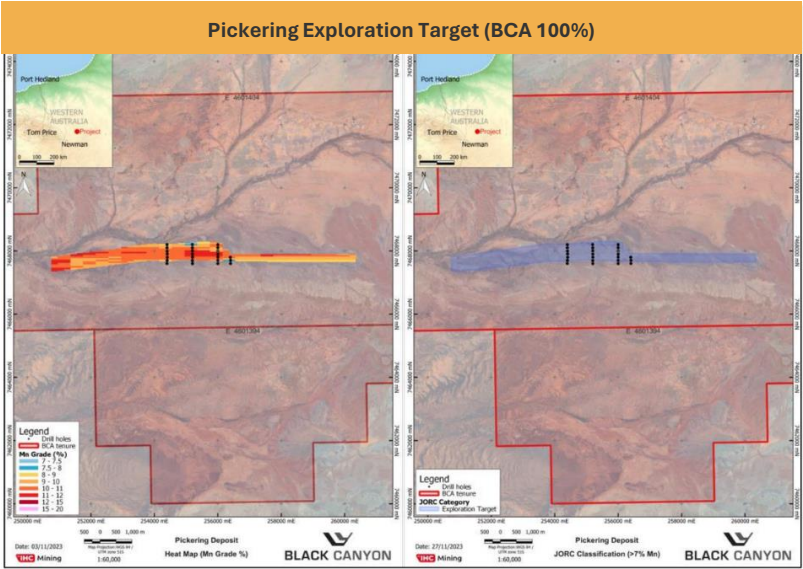
- MRE infill and extension drill programs in addition to a diamond core drill program for metallurgical testwork processing are planned for the 2024 field season.

Summary of Exploration Targets <sup>(1-3)</sup>							
Deposit	Category	Material	In Situ Mn	Mn	Fe	Si	Al
		(Mt) <sup>(2)</sup>	(Mt)	(%)	(%)	(%)	(%)
Pickering	Exploration Target	135 - 180	15 - 19	11 - 12	8	15	4
Balfour East	Exploration Target	25 – 37	3 - 4	11 - 12	8 - 9	19	5
Grand Total		160 - 215	18 - 23	11 - 12	8	15	4

### Notes

- (1) Exploration Target reported at a cut-off grade range of 4% and 10% Mn.
- (2) Appropriate rounding has been applied.
- (3) Refer to JORC Table 1, Sections 1 to 3 and Appendix 2 for further details in ASX release 16/01/2024.

BCA ASX Announcement 16/01/2024 Substantial Manganese Potential Identified at Balfour.  
The potential tonnage, grade and quantity of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource for the target area reported. It is uncertain if further exploration will result in the estimation of a Mineral Resource

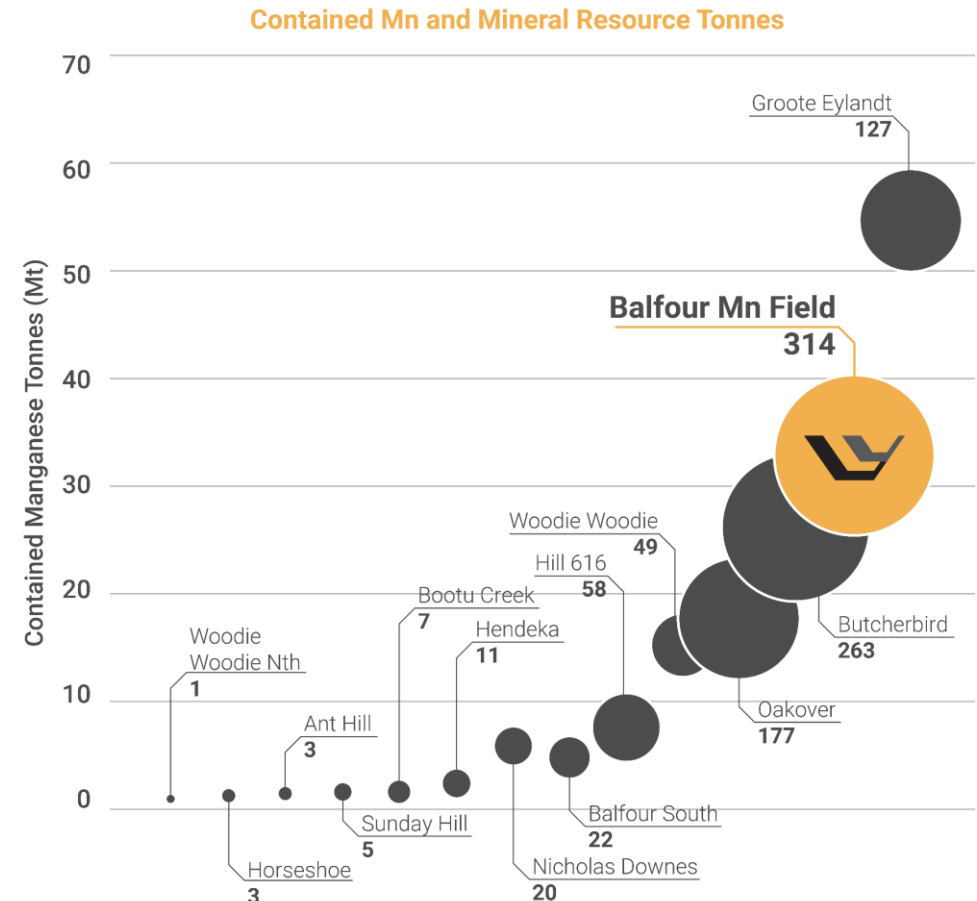


# Black Canyon in the Australian Manganese Context

- ▶ Largest manganese Mineral Resources Estimate in Western Australia and second largest in Australia.
- ▶ All discovered by Black Canyon in the past 2 years.
- ▶ Three drill programs 569 holes for 20,064m

Deposit	Company	Tonnes (Mt)	Grade Mn (%)	Contained Mn (Mt)
Groote Eylandt	South 32	127	43.6	55.4
<b>Balfour Mn Field</b>	<b>Black Canyon</b>	<b>314</b>	<b>10.5</b>	<b>33.1</b>
Butcher Bird	Element 25	263	9.9	26.1
Oakover	Firebird Metals	177	9.9	17.4
Woodie Woodie	Consolidated Minerals	49	30.6	14.8
Hill 616	Firebird Metals	58	12.2	7.0
Balfour South	Consolidated Minerals	22	19.4	4.2
Nicholas Downs	Hancock Prospecting	20	27.2	5.3
Hendeka	Trek Metals	11	15.0	1.7
Bootu Creek	OM Holdings	7	13.9	1.0
Sunday Hill	Resource Development Group	5	18.0	0.9
Ant Hill	Resource Development Group	3	24.8	0.8
Horseshoe	Bryah Resources	3	20.2	0.6
Woodie Woodie Nth	Accelerate Resources	1	19.1	0.2

Refer to notes at the end of the presentation for data pertaining to Mineral Resources.





# Robust Metallurgical Testwork

## Crushing and washing testwork

- ▶ Significant manganese grade uplifts from feed grades of 11% and 15% Mn upgraded to approximately 23% and 24% Mn through scrubbing and washing - an important first step for beneficiation.

## Pre-Feasibility level Heavy Liquid Separation (HLS) Test work (2023)

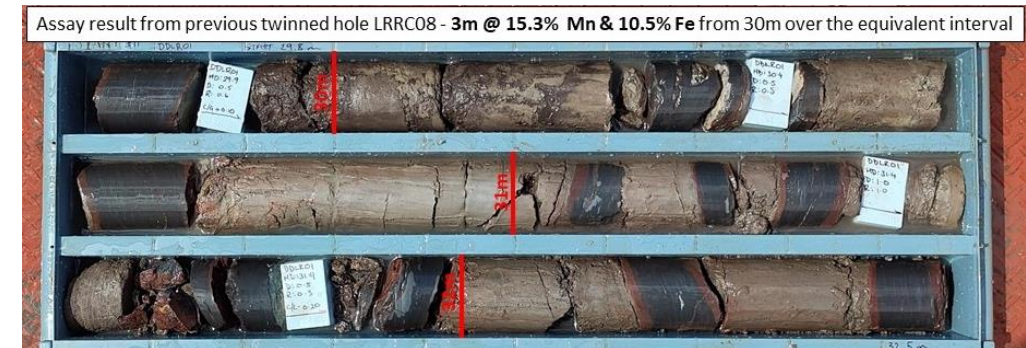
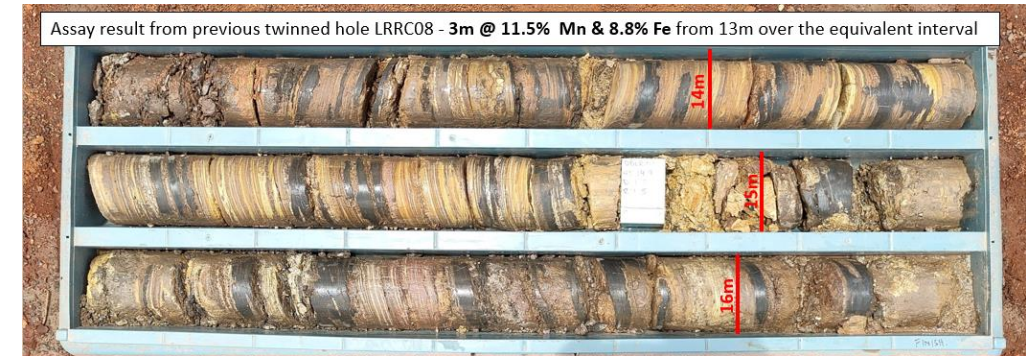
- ▶ Significant manganese concentrates results from lump (8-25mm) and fines (1-8mm) testwork includes
  - LR01 lump product - 32.2% Mn
  - LR01 fines product - 31.4% Mn
  - FB03 lump product - 33.2% Mn
  - FB03 fines product - 33.4% Mn

## HLS testwork delivers 35% plus Mn concentrate (2024)

- KR1 fines only - between 30.2% Mn & 37.4% Mn
- KR2 fines only - between 29.2% Mn & 35.3% Mn

## Dense Media Separation (DMS) testwork delivered 32% Mn (2024)

- KR1 fines only product - 31.8% Mn
- KR2 fines only product - 31.3% Mn

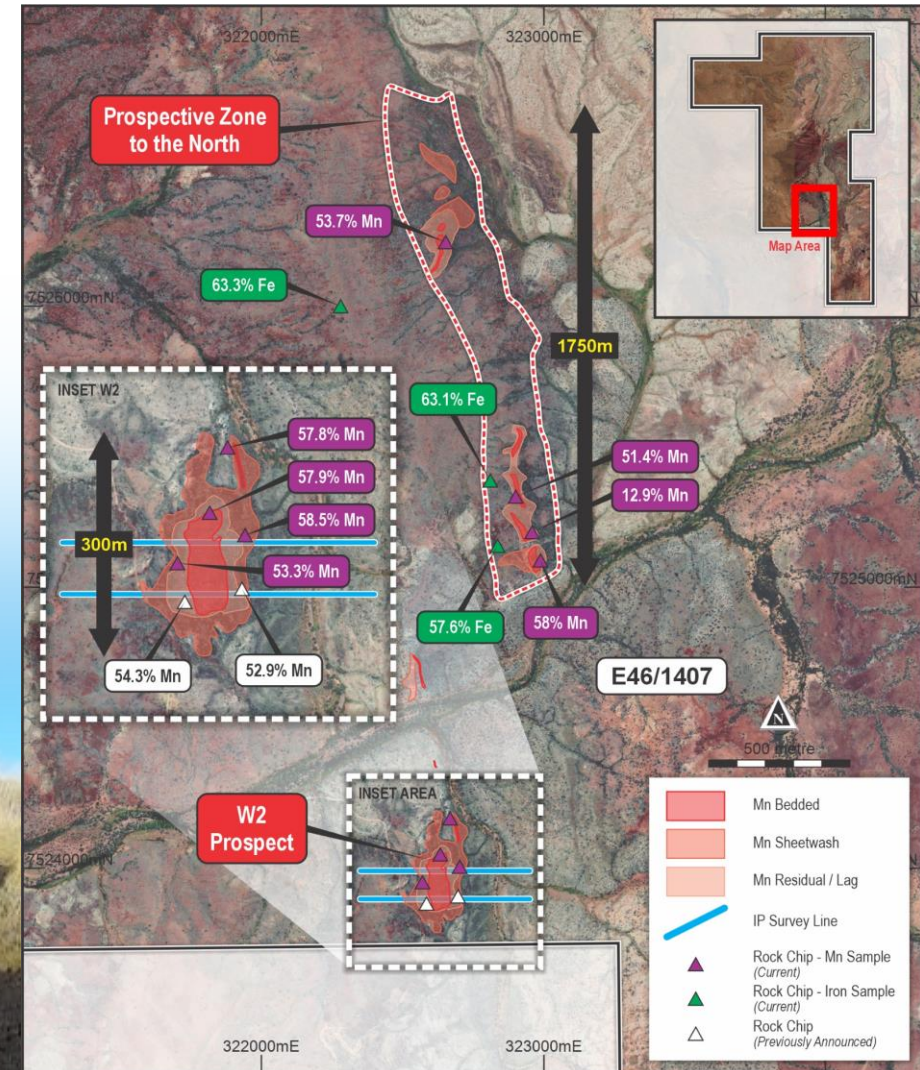




# Wandanya (BCA 100%)

## High-grade potential Discovery

- ▶ Reconnaissance sampling over the Wandanya (E46/1407) tenement (BCA 100%) delivered high-grade surface rock chip samples up to 58.5% manganese.
- ▶ Samples taken between 80 & 100m apart (across strike) returned 52.9%, 54.3%, 53.3%, 58.5%, 57.9% and 57.8% Mn from an outcrop that is approximately 300m long and 150m wide at the W2 prospect.
- ▶ Located 90km south of the Woodie Woodie Manganese Mine.
- ▶ No previous surface sampling or historic drilling has been completed over the outcropping mineralisation.
- ▶ Completed additional mapping, sampling and DDIP to generate potential drill targets subject to Heritage Surveys.



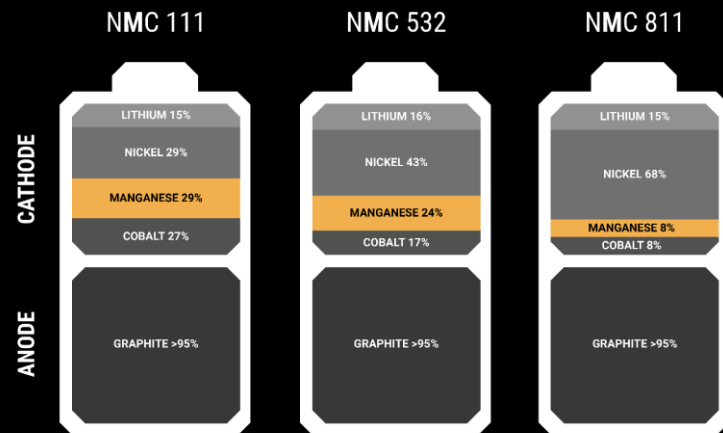
BCA ASX Announcement 05/07/2023 High-grade Manganese Rock Chip Samples up to 54% Mn at the Wandanya Project.  
BCA ASX Announcement 14/11/2023 Multiple High-Grade Manganese Rock Chip Samples from Wandanya Project.

# Manganese – Critical Energy Metal

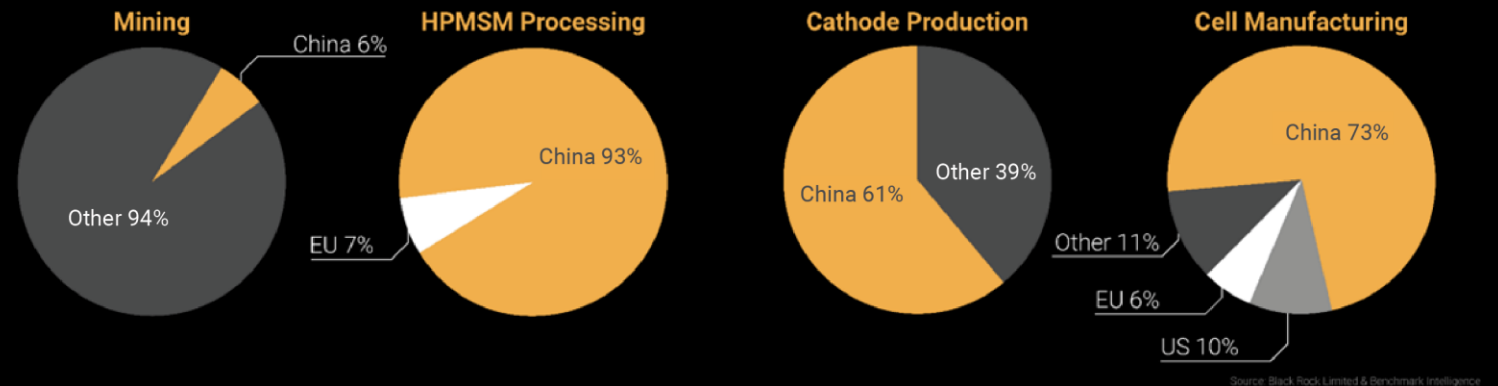
## More manganese required to feed the battery technology evolution

- ▶ Development of additional battery manufacturing capacity in the USA and Europe with the Inflation Reduction Act and Critical Raw Materials Act respectively.
- ▶ Svolt unveiled the Dragon Armour (Dec 2022) high manganese iron-nickel cells achieve a range of greater than 900km with mass production expected in 2024.<sup>1</sup>
- ▶ Umicore (Feb 2023) starts industrialisation of its leading manganese-rich HLM (high lithium, manganese 60%) battery with production to commence in 2026.<sup>2</sup>
- ▶ Gotion High-Tech (May 2023) announces the Astorino LFMP battery with a range up to 1000km, new battery pack design and planned mass production in 2024.<sup>3</sup>
- ▶ Samsung SDI (Sept 2023) announce its LFMP battery with the manganese infused LFP battery to increase energy density by about 15% to 20% at a similar price.<sup>4</sup>
- ▶ Emerging sodium-based bulk storage and EV batteries with up to 28% Mn content are being further investigated.

### Ternary (NMC) Li-ion batteries



Source: Pallinghurst-Traxys



<sup>1</sup> <https://www.autoevolution.com/news/svolt-develops-the-dragon-armor-battery-pack-and-promises-1000-km-range-206712.html>  
<sup>2</sup> <https://www.umicore.com/en/newsroom/news/umicore-starts-industrialization-of-manganese-rich-battery-materials-technology-for-electric-vehicles>  
<sup>3</sup> <https://thedriven.io/2023/05/24/breakthrough-ev-battery-pack-could-last-2-million-kms-or-130-years-of-average-driving/>  
<sup>4</sup> <https://www.businesskorea.co.kr/news/articleView.html?idxno=200970>



# BCA Downstream Testwork

## Stage 1 – Evaluate Ore Suitability (2022)

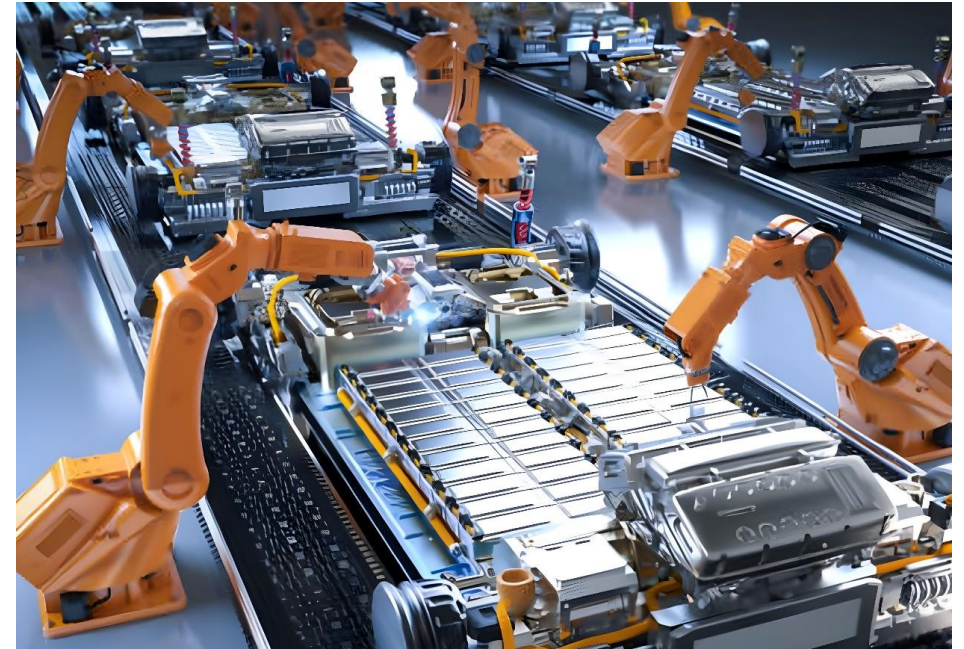
- ✓ Initial leach tests yielded a 93% extraction rate.
- ✓ Crystallised Manganese Sulphate crystals containing >32% Mn which >99% Mn Sulphate purity. Comparable to the typical 32% Mn content of battery grade HPMSM but further purification required to reduce elemental impurities.

## Stage 2 – Battery Grade HPMSM Experimental Flowsheet (2023)

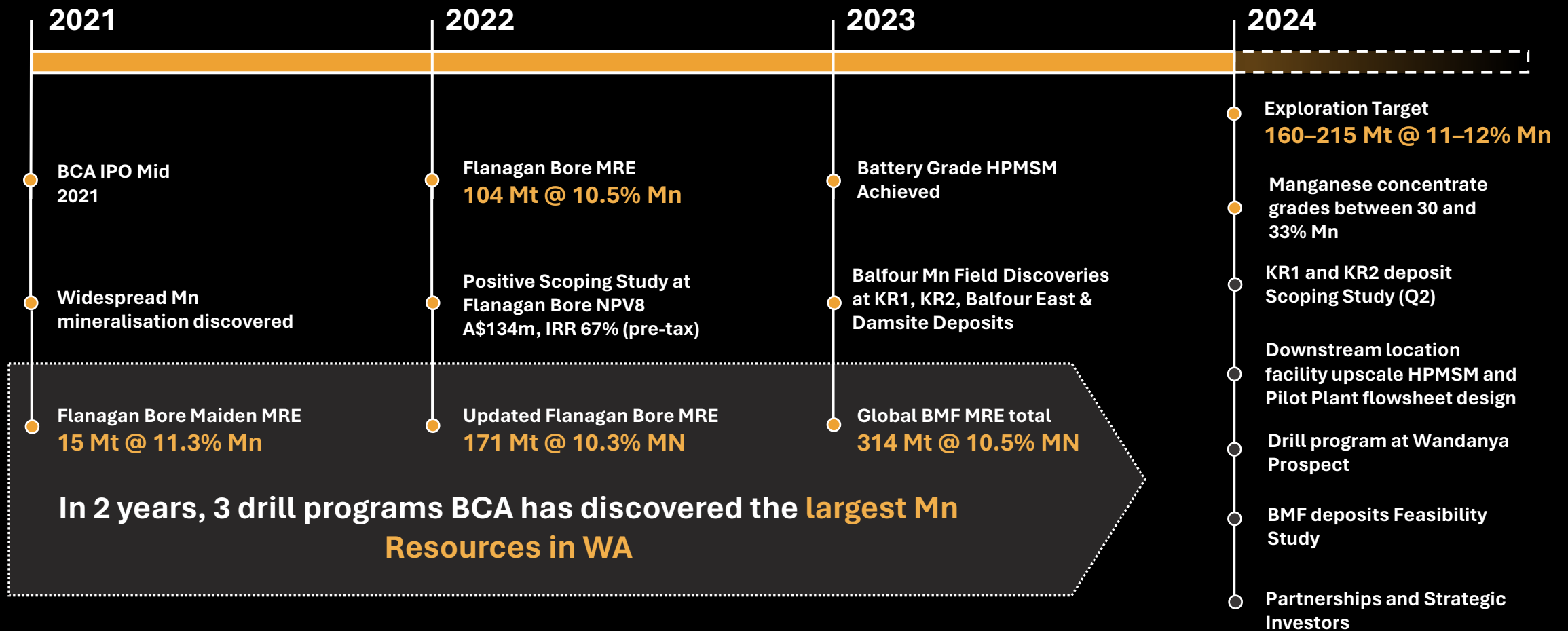
- ✓ Expanded HPMSM Strategy across the Balfour Mn Field.
- ✓ Leach tests yielded up to 99% extraction rate.
- ✓ Completed multistage stage purification to remove Na, Al, and K, then Fe and Al and basemetals. Single stage solvent extraction (SX) to selectively target manganese extraction, followed by crystallisation.
- ✓ Achieved battery grade - 32% Mn, >99% Mn Sulphate purity from KR1 feedstock.

## Stage 3 – Upscale Battery Grade HPMSM Flowsheet & Pilot Plant (2024)

- ✓ Sample selection (400kg), processing completed
- ✓ Larger scale samples generated to refine flowsheet and pilot plant design



# Black Canyon is a Growth Story



# 2024 Work Streams

- Update Scoping Study at KR1 & KR2
- Examine Scale
- Mining & Processing options
- Transport Options
- Advance Environmental Studies
- Advance Metallurgical Testwork
- Pre-Feasibility Studies



## MN CONCENTRATE

- Downstream processing facility location & key criteria
- Feedstock and End-product options
- Upscale Hydrometallurgical testwork
- Flowsheet development
- Pilot Plant
- Scoping Study



## PRECURSOR PRODUCT

- Offtake agreements with smelters or metal traders
- USA: importance of the IRA and the FTA
- Europe: importance of the EU Battery Passport Regulations
- Korean, Indian and Japanese customers
- OEM, battery producer & pCAM partnerships



## PARTNERSHIPS

- Manganese Ore supply shocks
- KR1 & KR2 Scoping Study Results
- Offtake Agreements
- Downstream processing location established
- Cornerstone or Strategic Investor



## POTENTIAL CATALYSTS



# BCA Investment Summary



**Manganese is essential** to the steel industry and a critical battery mineral, with strong growth forecast.



**Clear strategy** to add value & grow the Company through discovery, development & downstream processing.



**Significant exploration** programs completed across the Balfour Manganese Field.



**Delivering results** – Multiple discoveries, MRE upgrades, positive Scoping Study, ML applications, commencement of environmental studies and further feasibility studies planned.



**Downstream strategy**, HPMSM to facilitate global feedstock supply diversification supporting a value-add strategy.



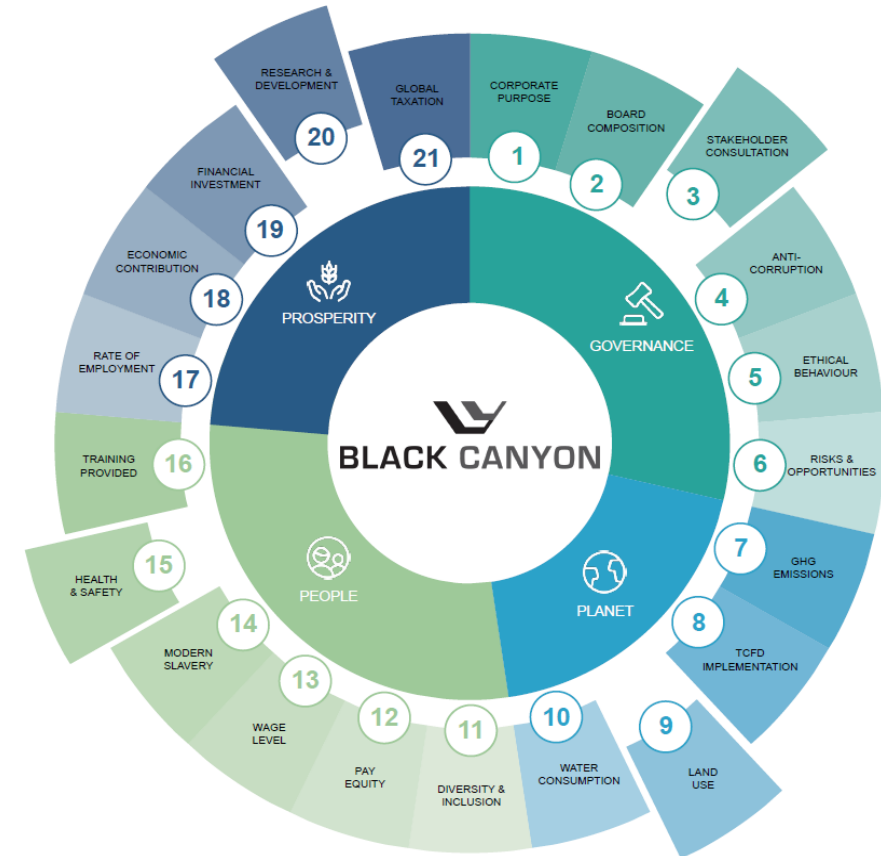
# ESG – Partnered With SocialSuite

## Highlights and achievements

- ▶ Partnered with Socialsuite to commence ESG reporting against the World Economic Forum (WEF) Stakeholder Capitalism Framework
- ▶ Commenced wider community engagement - Heritage surveys conducted on site prior to drilling, involving Traditional Owners. Cultural Monitors on site for drill line clearing activities
- ▶ Engagement with wider community including pastoralists and local prospectors
- ▶ Ensuring Environmental Compliance

## Focus areas for 2024/2025

- ▶ Baseline studies to understand the current environment including land, water, flora, fauna and social surroundings (commenced)
- ▶ Wider community stakeholder engagement (ongoing)
- ▶ Health & Safety policies/procedures to ensure compliance and a safe work environment for employees and contractors
- ▶ Strong management and effective deployment of capital
- ▶ LifeCycle Assessments (LCA) to establish carbon footprint as the project develops



Stakeholder Capitalism Metrics ESG Framework

# Balfour Manganese Field Mineral Resource Estimates

## BCA 100%

Summary of Mineral Resources > 7% cut-off grade							
Deposit	Mineral Resource Category	Material (Mt)	In Situ Mn (Mt)	Mn (%)	Fe (%)	Si (%)	Al (%)
Balfour East	Inferred	32	3.9	11.9	8.5	18.6	4.9
Damsite	Inferred	7	0.9	12.1	9.6	17.2	4.2
Grand Total		40	4.7	11.9	8.7	18.4	4.8

Summary of Mineral Resources >11% Mn cut-off grade							
Deposit	Mineral Resource Category	Material (Mt)	In Situ Mn (Mt)	Mn (%)	Fe (%)	Si (%)	Al (%)
Balfour East	Inferred	25	3.1	12.4	8.8	18.8	4.9
Damsite	Inferred	5	0.7	12.8	9.8	17.0	4.0
Grand Total		30	3.8	12.5	9.0	18.5	4.8

Summary of Mineral Resources > 7% Mn cut-off grade							
Deposit	Mineral Resource Category	Material (Mt)	In Situ Mn (Mt)	Mn (%)	Fe (%)	Si (%)	Al (%)
KR1	Indicated	79	7.8	10.0	7.9	18.0	5.4
Total	Indicated	79	7.8	10.0	7.9	18.0	5.4
KR2	Inferred	24	2.9	11.9	10.6	19.2	5.0
Total	Inferred	24	2.9	11.9	10.6	19.2	5.0
Grand Total		103	10.7	10.4	8.6	18.3	5.3

Summary of Mineral Resources >11% Mn cut-off grade							
Deposit	Mineral Resource Category	Material (Mt)	In Situ Mn (Mt)	Mn (%)	Fe (%)	Si (%)	Al (%)
KR1	Indicated	15	2	13.1	9.8	18.0	6.2
Total	Indicated	15	2	13.1	9.8	18.0	6.2
KR2	Inferred	14	2	13.6	11.2	18.2	4.6
Total	Inferred	14	2	13.6	11.2	18.2	4.6
Grand Total		29	3.8	13.3	10.5	18.1	5.5

## BCA 75%

Summary of Mineral Resources >7% Mn cut-off grade							
Deposit	Mineral Resource Category	Material (Mt)	In Situ Mn (Mt)	Mn (%)	Fe (%)	Si (%)	Al (%)
FB3	Measured	52	6	10.5	10.4	16.9	4.3
LR1	Measured	47	5	10.3	8.4	16.7	4.6
Total	Measured	100	10	10.4	9.4	16.8	4.4
FB3	Indicated	63	6	10.0	9.6	16.8	4.4
LR1	Indicated	8	1	11.3	9.4	6.9	1.8
Total	Indicated	72	7	10.1	9.6	15.7	4.1
Grand Total		171	17.7	10.3	9.5	16.4	4.3

Summary of Mineral Resources >11% Mn cut-off grade							
Deposit	Mineral Resource Category	Material (Mt)	In Situ Mn (Mt)	Mn (%)	Fe (%)	Si (%)	Al (%)
FB3	Measured	14	2	13.2	11.5	18.2	4.5
LR1	Measured	11	1	13.1	9.7	16.8	4.5
Total	Measured	25	3	13.1	10.7	17.5	4.5
FB3	Indicated	10	1	12.7	10.8	18.1	4.8
LR1	Indicated	5	1	12.9	9.9	6.1	1.6
Total	Indicated	15	2	12.8	10.5	14.5	3.8
Grand Total		40	5	13.0	10.6	16.4	4.3

### Notes

- (1) Mineral resources reported at a cut-off grade of 7% Mn and 11% Mn.
- (2) Appropriate rounding has been applied.



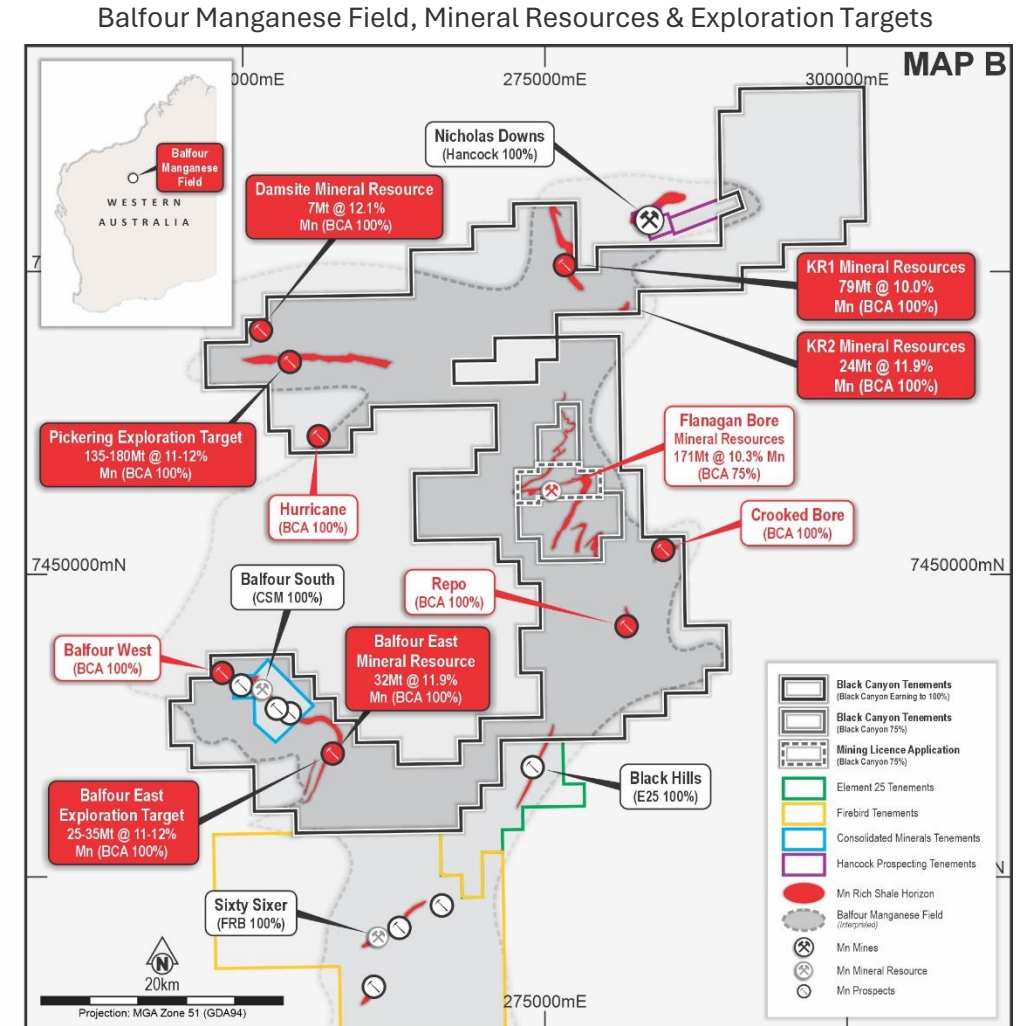
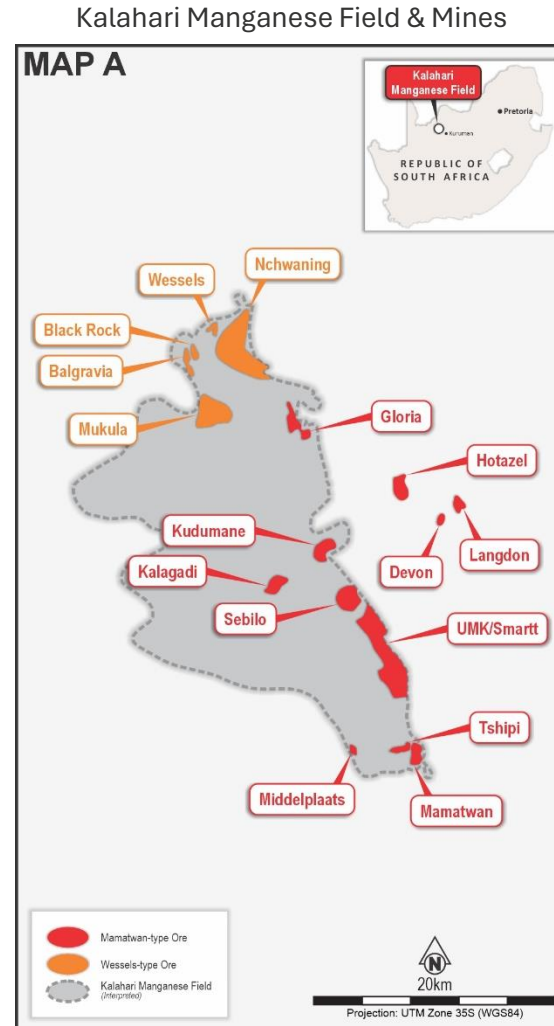
# Australian Mn Resources

Deposit	Company	Tonnes (Mt)	Grade Mn (%)	Contained Mn (Mt)
Groote Eylandt	South 32	127	43.6	55.4
Balfour Mn Field	Black Canyon	314	10.5	33.0
Butcher Bird	Element 25	263	9.9	26.1
Oakover	Firebird Metals	176.6	9.9	17.4
Woodie Woodie	Consolidated Minerals	48.5	30.6	14.8
Hill 616	Firebird Metals	57.5	12.2	7.0
Balfour South	Consolidated Minerals	21.6	19.4	4.2
Nicholas Downs	Hancock Prospecting	19.5	27.2	5.3
Hendeka	Trek Metals	11.3	15.0	1.7
Bootu Creek	OM Holdings	6.86	13.9	1.0
Sunday Hill	Resource Development Group	5	18.0	0.9
Ant Hill	Resource Development Group	3.1	24.8	0.8
Horseshoe	Bryah Resources	3.1	20.2	0.6
Woodie Woodie Nth	Accelerate Resources	1.2	19.1	0.2

Company	Deposit	Status	Contained Mn Mt	Measured		Indicated		Inferred		Total		Cutoff Mn %	Source
				tonnes Mt	grade Mn %	tonnes Mt	grade Mn %	tonnes Mt	grade Mn %	tonnes Mt	grade Mn %		
South 32	Groote Eyland	Operation	55,372,000	66.0	44.7	35	41.0	26	4402.0	127.0	43.6	-	2023 Annual Report (filed) Reported as a 43.6% Yield Grade
Black Canyon	Balfour Mn Field	Development	32,970,000	100	10.4	150	10.1	64.0	11.9	314.0	10.5	7.0	BCA Release 12/12/23
Element 25	Butcher Bird	Operating	26,144,000	15.3	11.5	41	10	206	9.8	263.0	9.9	-	2023 Annual Report (filed)
Firebird Metals	Oakover	Development	17,434,920	-	-	105.8	10.1	70.9	9.6	176.6	9.9	-	Firebird website 5/12/23 (& ASX release 10/3/22 - filed)
Consolidated Minerals	Woodie Woodie	Operation	14,841,000	-	-	-	-	-	-	48.5	30.6	-	GSWA Manganese invetsment flyer 2022
Firebird Metals	Hill 616	Exploration	7,015,000	-	-	-	-	57.5	12.2	57.5	12.2	-	Firebird website 5/12/23 (& ASX release 10/3/22 - filed)
Consolidated Minerals	Balfour South	Development	4,190,400	-	-	-	-	-	-	21.6	19.4	-	GSWA Manganese invetsment flyer 2022
Hancock Prospecting	Nicholas Downs	Care and Maint.	5,304,000	-	-	-	-	-	-	19.5	27.2	-	GSWA Manganese invetsment flyer 2022
Trek Metals	Hendeka	Development	1,695,000	-	-	-	-	11.3	15.0	11.3	15.0	10.1	2023 Annual Report (filed)
OM Holdings	Bootu Creek	Care and Maint.	953,540	-	-	6.9	13.9	-	-	6.9	13.9	-	Fosters stock Coverage report 02/11/2022
Resource Development Group	Sunday Hill	Exploration	899,000	-	-	4	17.7	1	19.1	5.0	18.0	-	RDG Sunday Hill MRE 1/6/2021 (filed)
Resource Development Group	Ant Hill	Exploration	769,300	-	-	2.8	24.4	0.3	28.7	3.1	24.8	-	MRL Sunday Hill MRE 31/12/2019 (filed)
Bryah Resources	Horse Shoe	Exploration	626,200	-	-	2.1	20.9	1	18.6	3.1	20.2	15.0	Bryah Release 24/08/2023 filed
AX8	Woodie North	Exploration	230,400	-	-	-	-	1.2	19.1	1.2	19.2	10-15%	AX8 release 30/11/2023 filed

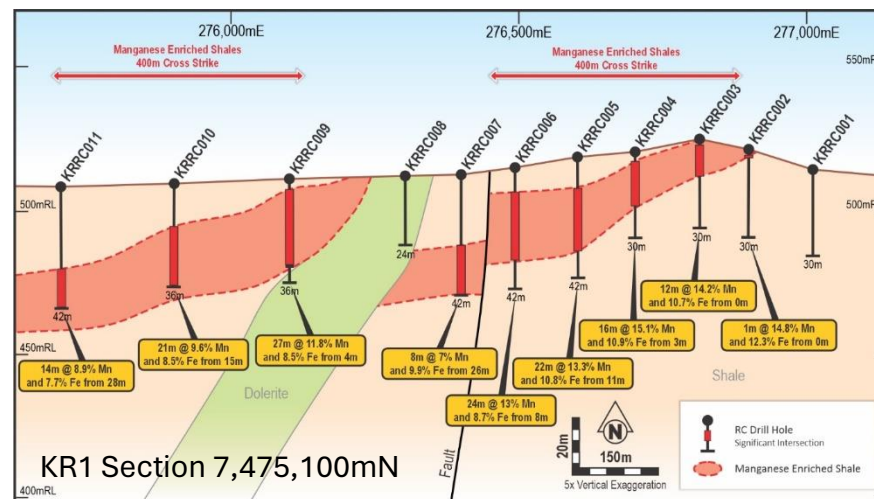
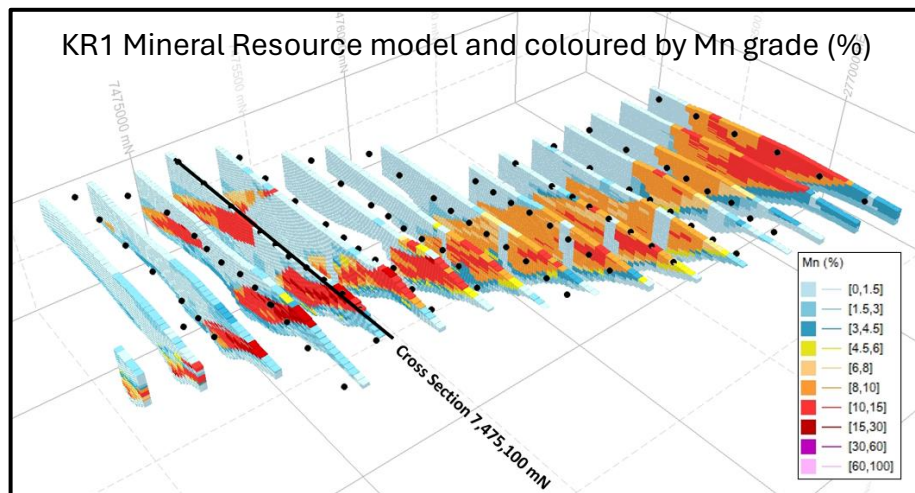
# Potential for Global Scale Discoveries

Parameter	Kalahari	Balfour
Basin Scale	35km x 15km	70km x 30km
Manganese Ore type	Carbonate & Oxide	Oxide
Benchmark Price (CIF) (12 months to Feb 2023 IMNL)	36-38% Mn US\$4.60 DMTU	44% Mn US\$5.80 DMTU
Establishment date	1960's to 2010 (> 20 mines)	2010 (1 mine)
Development stage	Mature	Emerging
Resource Grades	33-44% Mn	10-20% Mn
Ore Processing	Limited	DMS upgrade
Concentrate Grade	36-38% Mn	30-33% Mn
Mine depths	100 to 300m (OP & UG)	0 to 40m
Distance from Port	1000km	600km
Transport logistics	Train and Truck	Truck

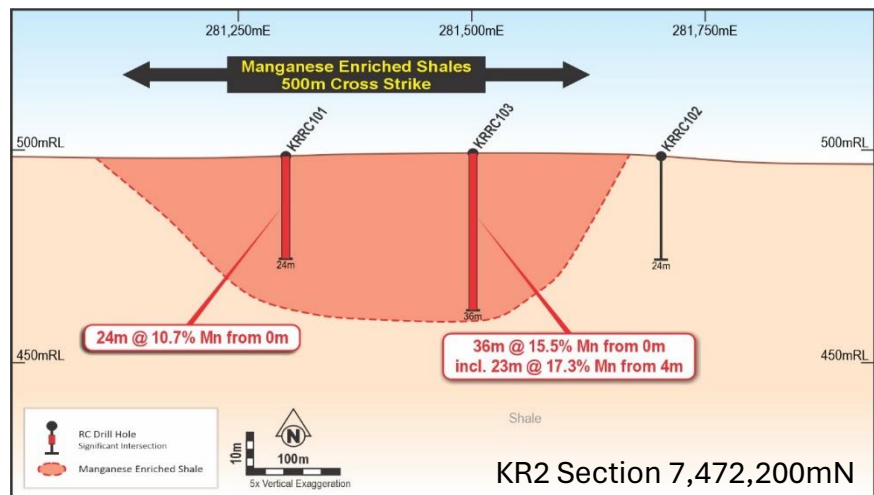
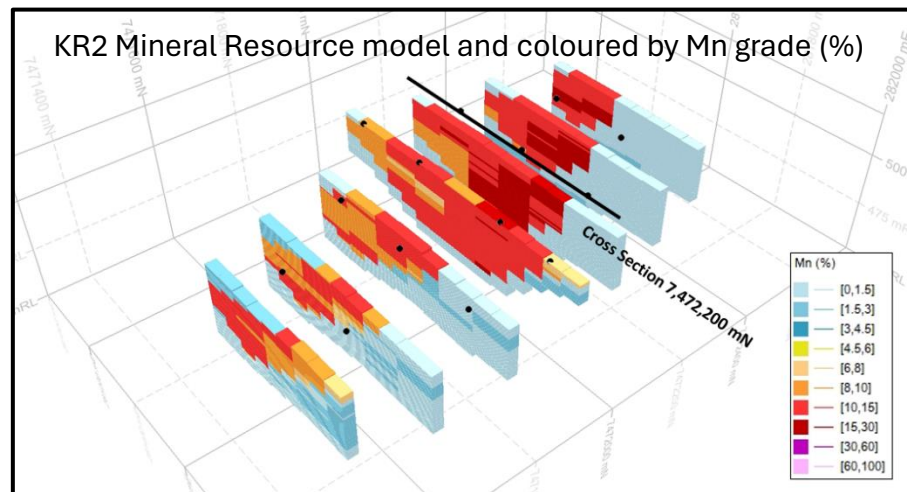


# KR1 & KR2 Deposits (BCA 100%)

79 Mt @ 10.0% Mn for 7.8 Mt of contained Mn



24 Mt @ 11.9% Mn for 2.9 Mt of contained Mn



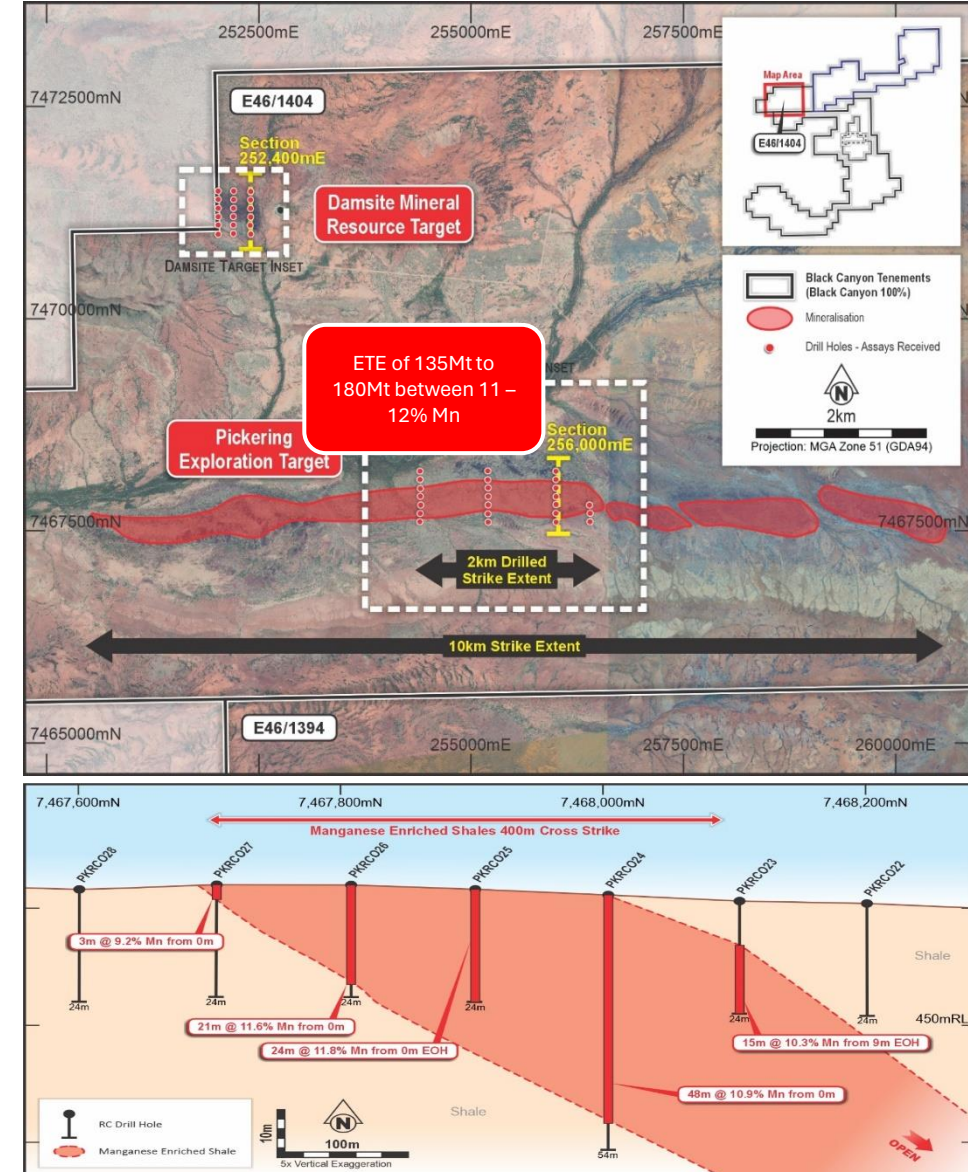


# Pickering Discovery (BCA 100%)

- ▶ Results confirm the Pickering manganese discovery has a cross strike width of between 300 to 500m and a drilled strike extent of at least 2,000m.
- ▶ The overall Pickering target can be traced along strike for about 10km so there remains significant potential to complete further drilling to expand the target size.
- ▶ The mineralised shale extends 10m to 48m downhole with a high portion of holes ending in mineralisation.

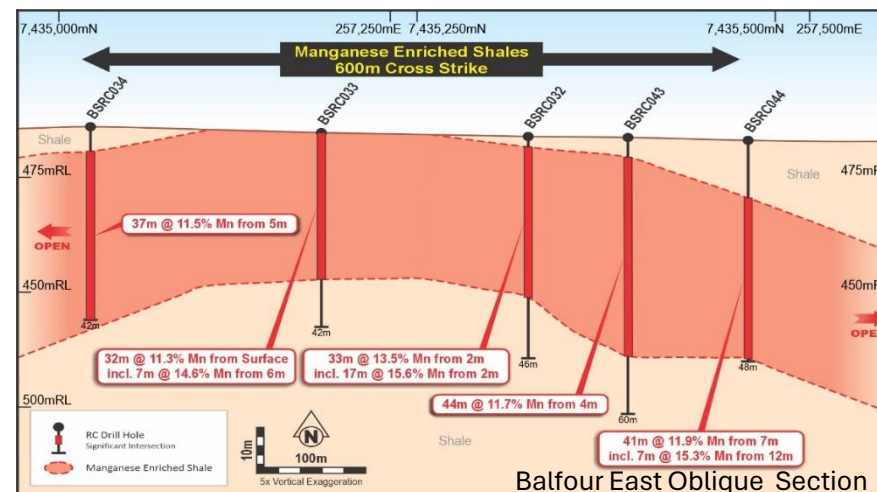
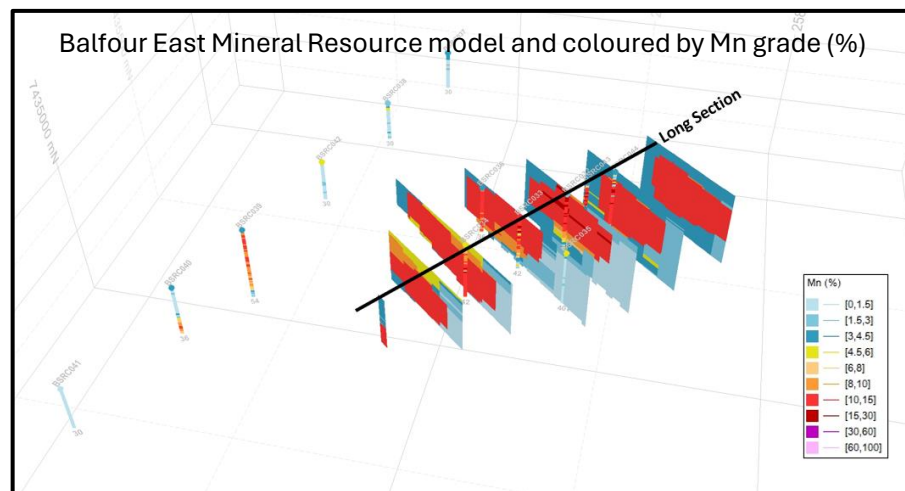
- PKRC019 24m @ 11.1% Mn from surface until EOH
- PKRC024 48m @ 10.9% Mn from surface
- PKRC032 24m @ 11.5% Mn from surface until EOH
- PKRC039 24m @ 11.3% Mn from surface until EOH

BCA ASX Announcement 18/10/2023 Drill Results Confirm more Manganese Discoveries from the Balfour Manganese Field

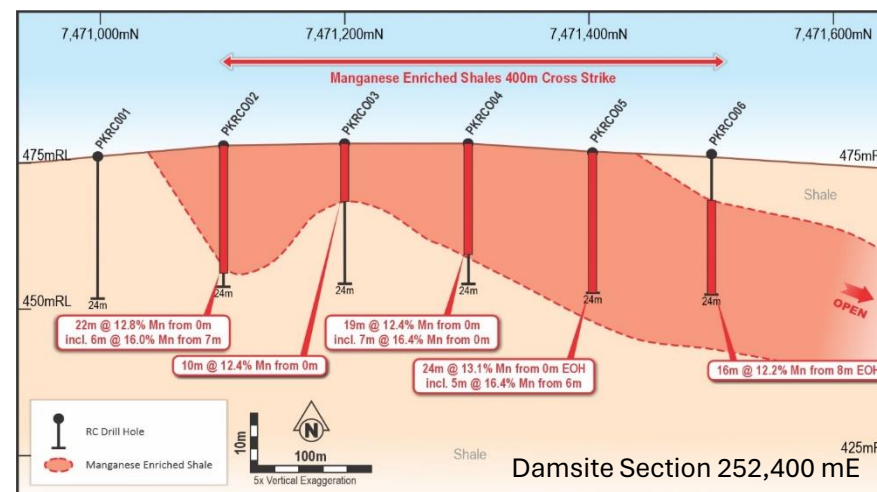
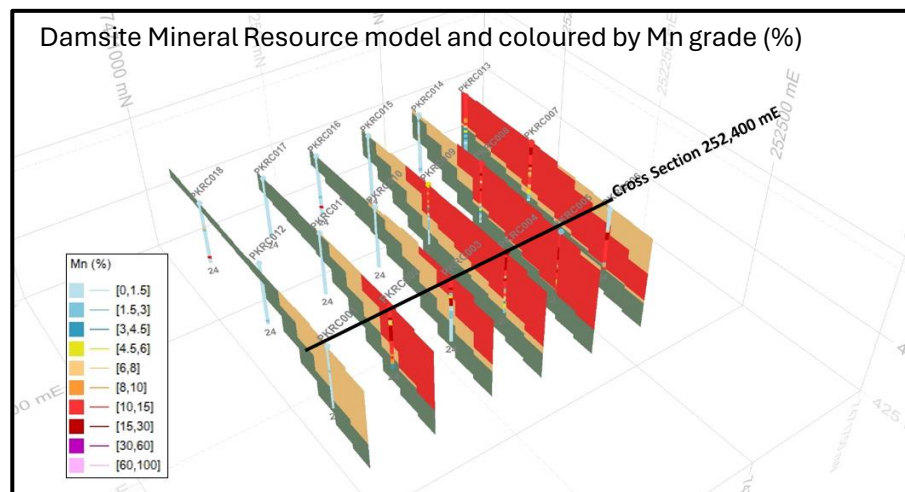


# Balfour East & Damsite Deposits (BCA 100%)

32 Mt @ 11.9% Mn for 3.9 Mt of contained Mn



7 Mt @ 12.1% Mn for 0.9 Mt of contained Mn

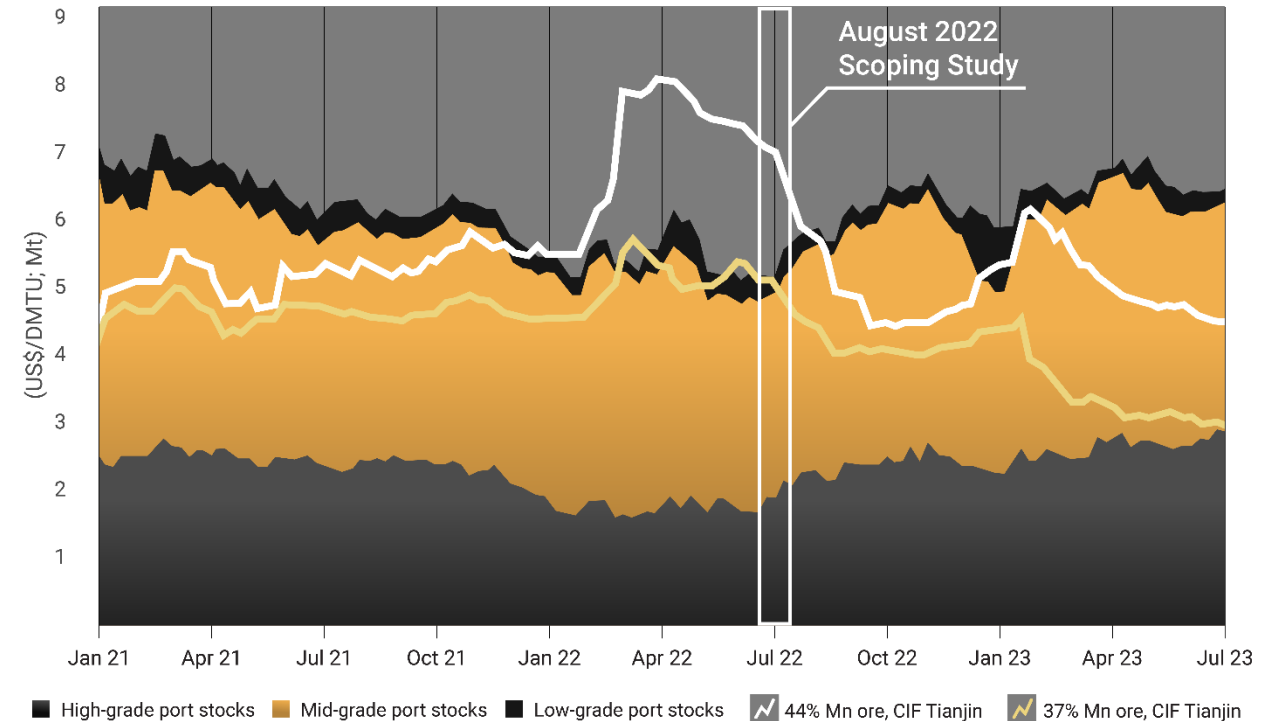


# Flanagan Bore Scoping Study Results (Aug 2022)

## Key Financial and Project Metrics

NPV <sub>8</sub> (before tax, real)	A\$134 million
IRR (before tax)	67%
Production Targets (LOM)	36.1Mt @ 11.7% Mn
Initial Mine Life @ 1.8Mtpa	20 Years
Annual Mn concentrate production	500kt
Project Capital Expenditure	A\$44 million
Payback Period	<2 Years
Total LOM Revenue	A\$2,282 million
Total LOM EBITDA	A\$420 million
Average Sales Price (CIF A\$/t Mn Conc LOM) (US\$4.90 DMTU or AU\$7.00/ DMTU)	A\$231
AISC (CIF, A\$/t Mn Conc LOM) (US\$4.08 DMTU or A\$5.82 DMTU)	A\$192

Manganese Ore Price and China Port Stocks



- ▶ Since 2015 Average price for 44% Mn was CIF US\$5.27 DMTU
- ▶ Manganese ore pricing currently at cyclical lows below the 5 year average









**BLACK CANYON**

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