



MAGNETITE MINES LIMITED

Making Steel **Stronger**



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DR. GAVIN ENGLAND - 26 November 2015 - Adelaide

MAWSON IRON PROJECT - AGM



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THE MAWSON IRON PROJECT - POSITIONED TO BE A MAJOR SUPPLIER OF HIGH QUALITY MAGNETITE

The Mawson Iron Project unites Royal's Red Dragon Venture (including Razorback) and Lodestone Equities - Olary / Braemar Iron Tenements

1. Potentially the largest undeveloped magnetite province in the world
2. Metallurgy has shown Braemar Iron Formation concentrate will produce high grade $>67\% \text{ Fe}^1$, with low impurities, which is where the future of iron ore will be
3. Project can compete with Pilbara DSO for OPEX costs
4. South Australia is the right place to build a major resource project

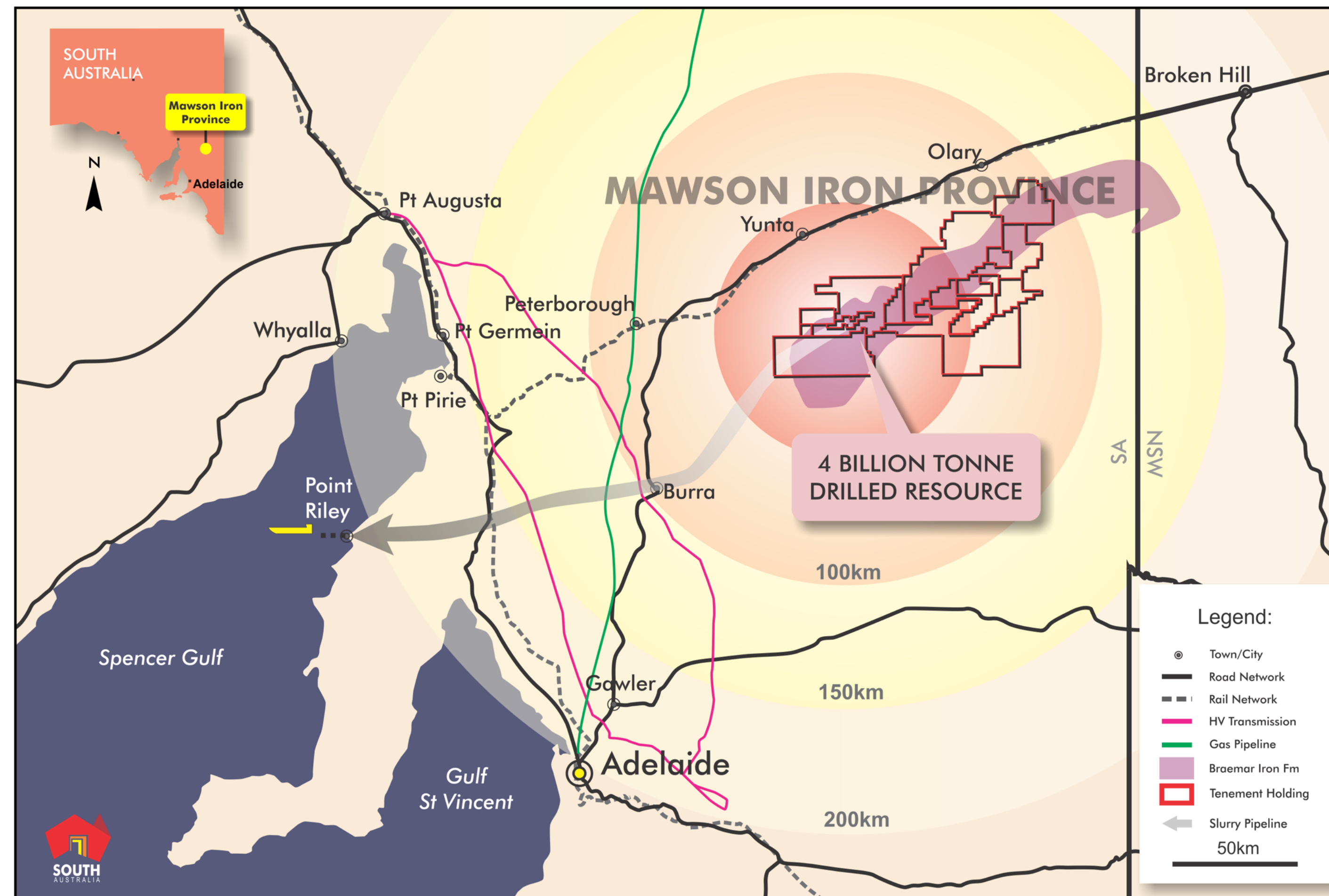
¹. ASX ANNOUNCEMENT 27/11/13



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SOUTH AUSTRALIA - A GOOD JURISDICTION TO DO BUSINESS





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WHY REBRAND TO MAGNETITE MINES?

- Provide focus on the Mawson Iron Project
- Magnetite is the future of high grade iron units
- First phase of an amalgamation of assets
- Part of a South Australian wave of innovation





INFRASTRUCTURE ADVANTAGES OF SOUTH AUSTRALIA

- **Access to low cost power from the Eastern grid – one sixth the cost of the Pilbara**
- **Cooper Basin gas option from an existing pipeline**
- **Dormitory town for workforce, instead of Fly in / Fly Out**
- **Existing roads and rail**
- **Local fabrication facilities available in Adelaide, Port Augusta, Pt Pirie and Whyalla**
- **Existing workforce**
- **State Government supportive – Major Project Status**

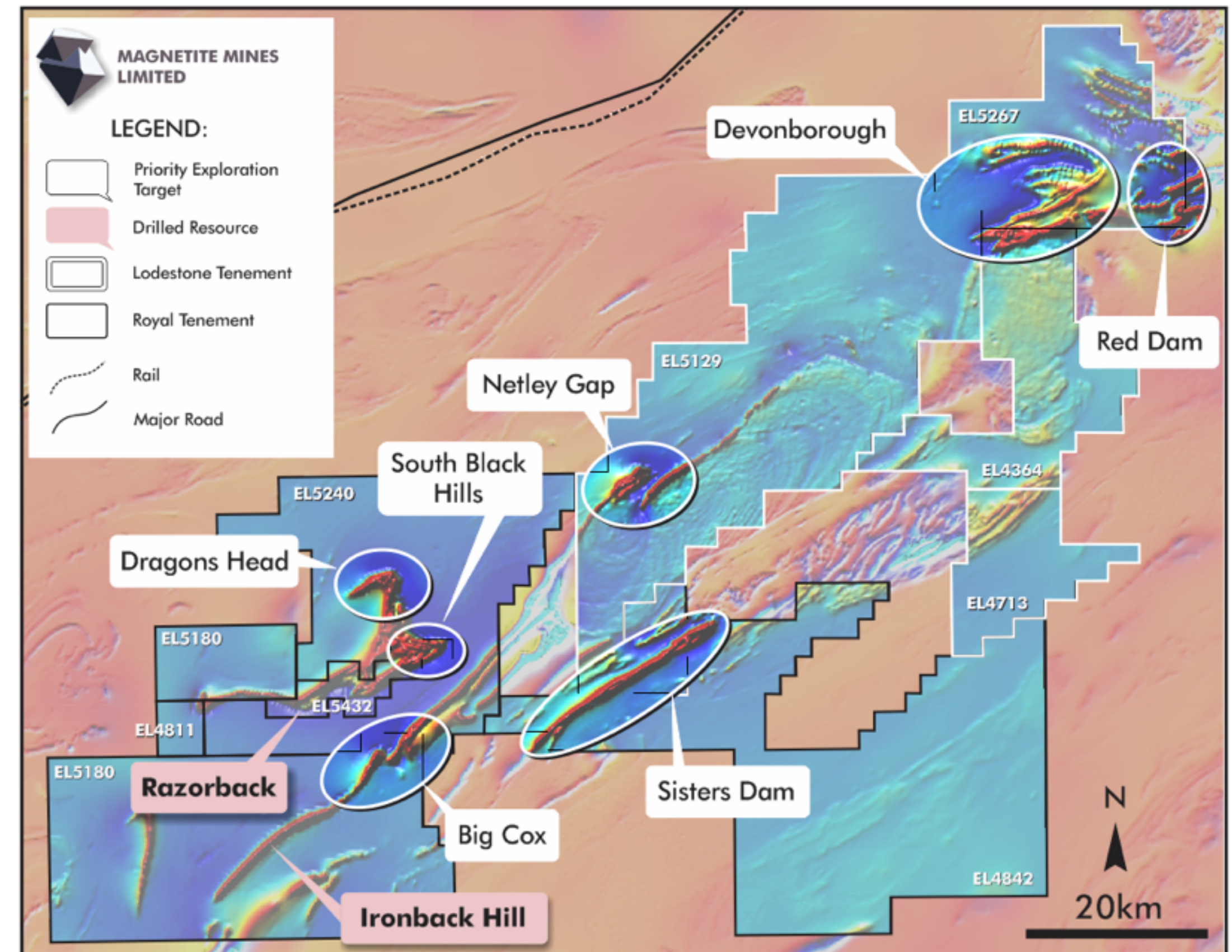


LARGEST UNDEVELOPED MAGNETITE PROVINCE IN THE WORLD

- Consortium has over 4500km² of tenure
- Royal's exploration potential of 16 to 35 Billion tonnes¹
- Lodestone also with large exploration potential
- Studies² to determine viability of 100 Mtpa for 25 years +


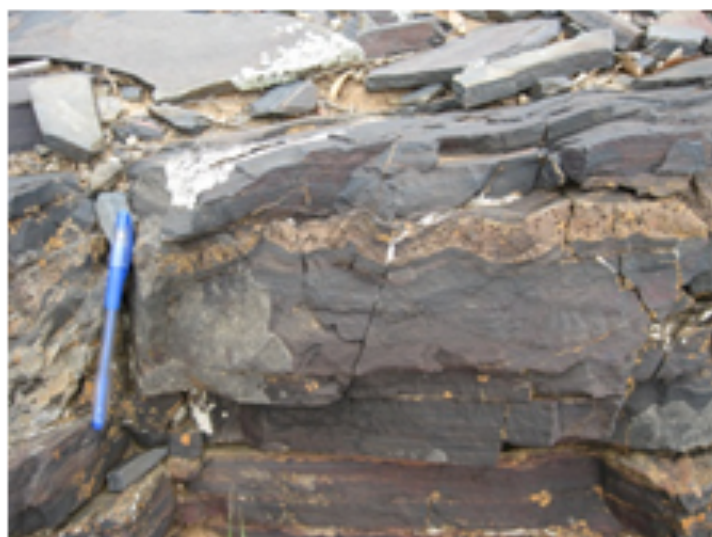
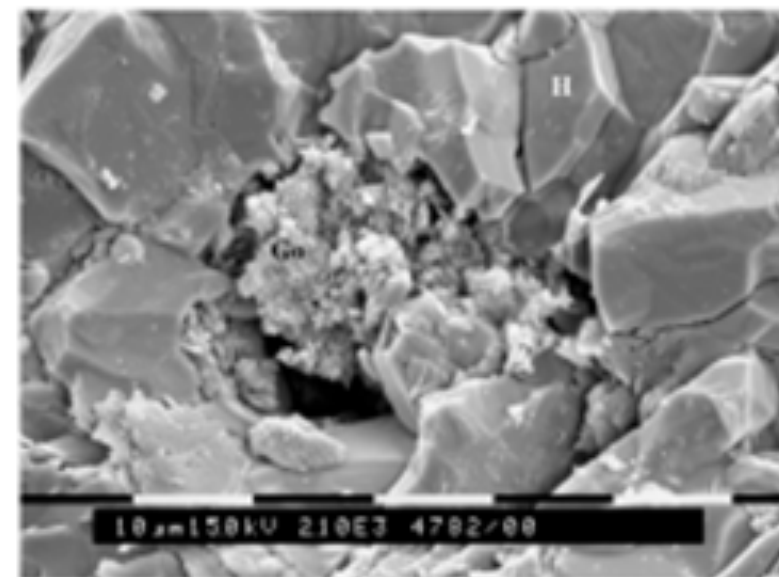
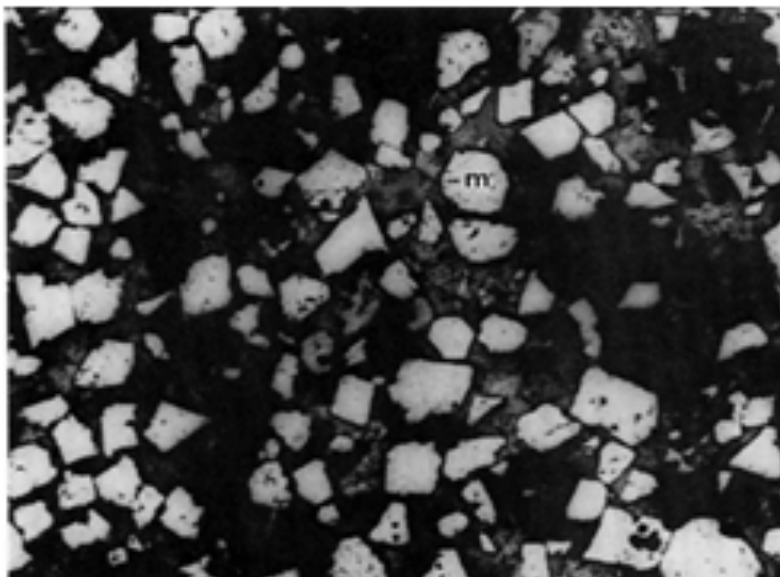
¹ ASX Announcement 29/10/2015. Note that there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource. The estimate of an exploration target tonnage should not be construed as an estimate of Mineral Resource.

² Conceptual Feasibility Study has been completed by the Lodestone Group for the Braemar Iron Project, which shows the the proposed Infrastructure Solution achieve a capacity of up to 100 mtpa. The Company advises that this conceptual feasibility study is not based on any assumptions of actual use of the Ito a infrastructure Solution by the Company or any other users in the Braemar region with the exception of the Braemar Iron Project.



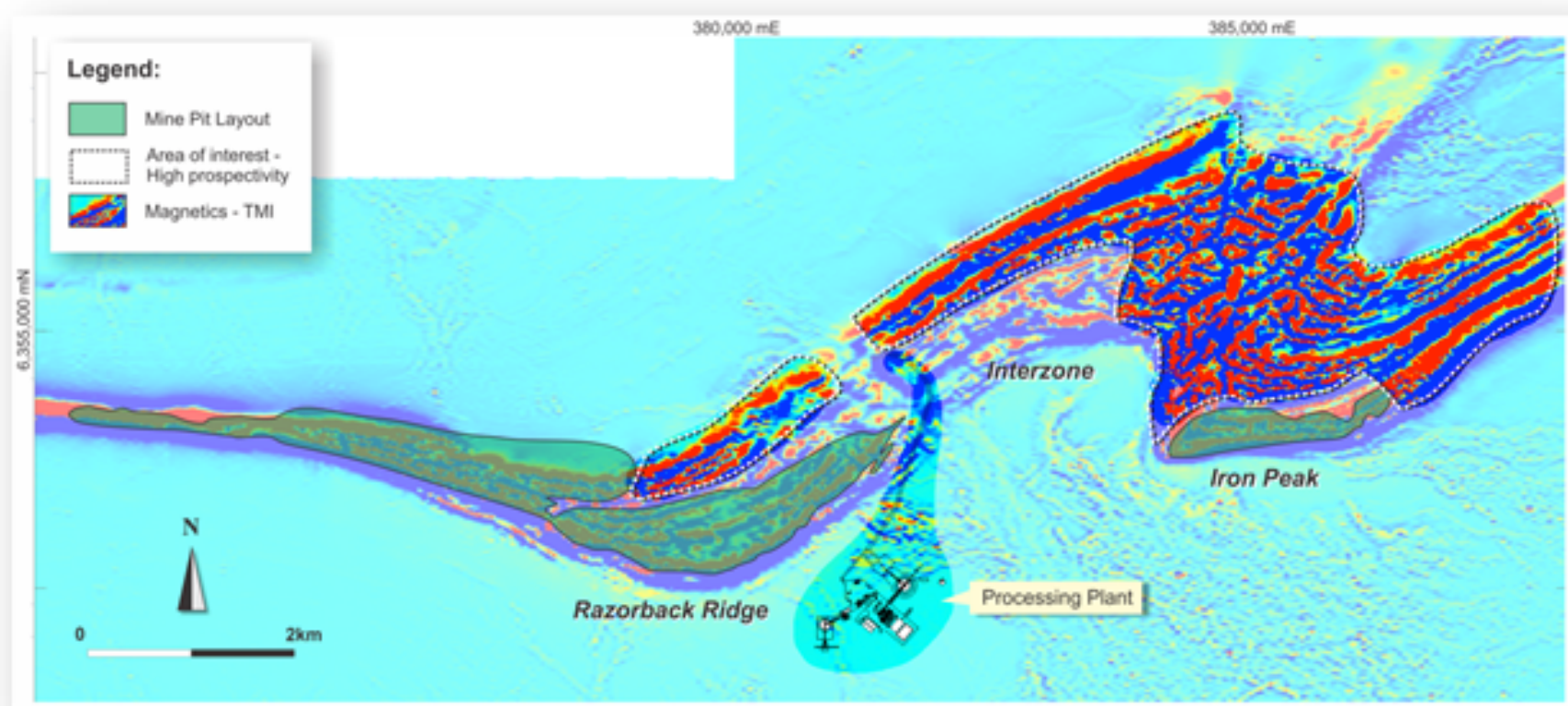


BRAEMAR IRON FORMATION COMPARED TO PILBARA BIFS

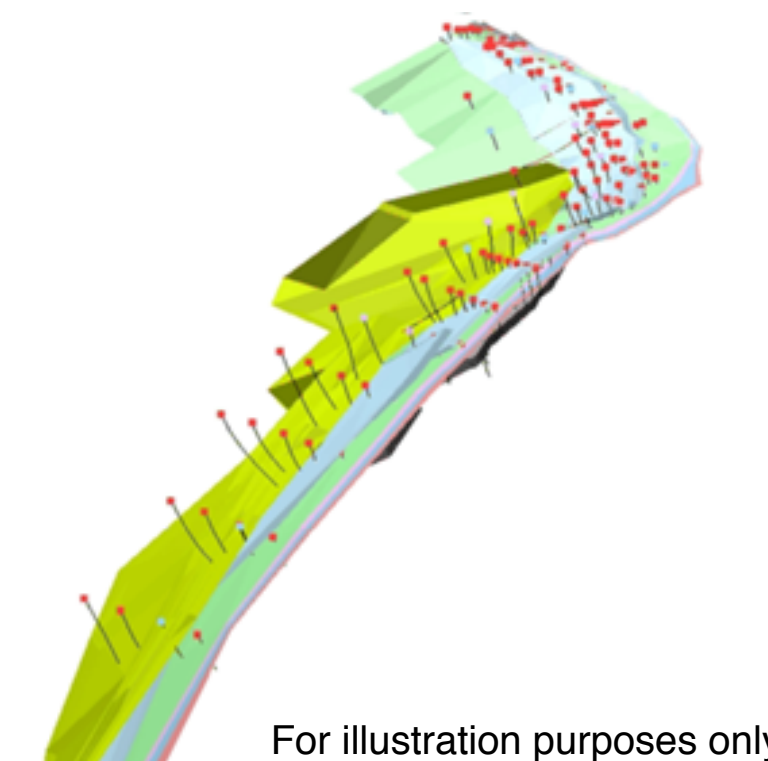
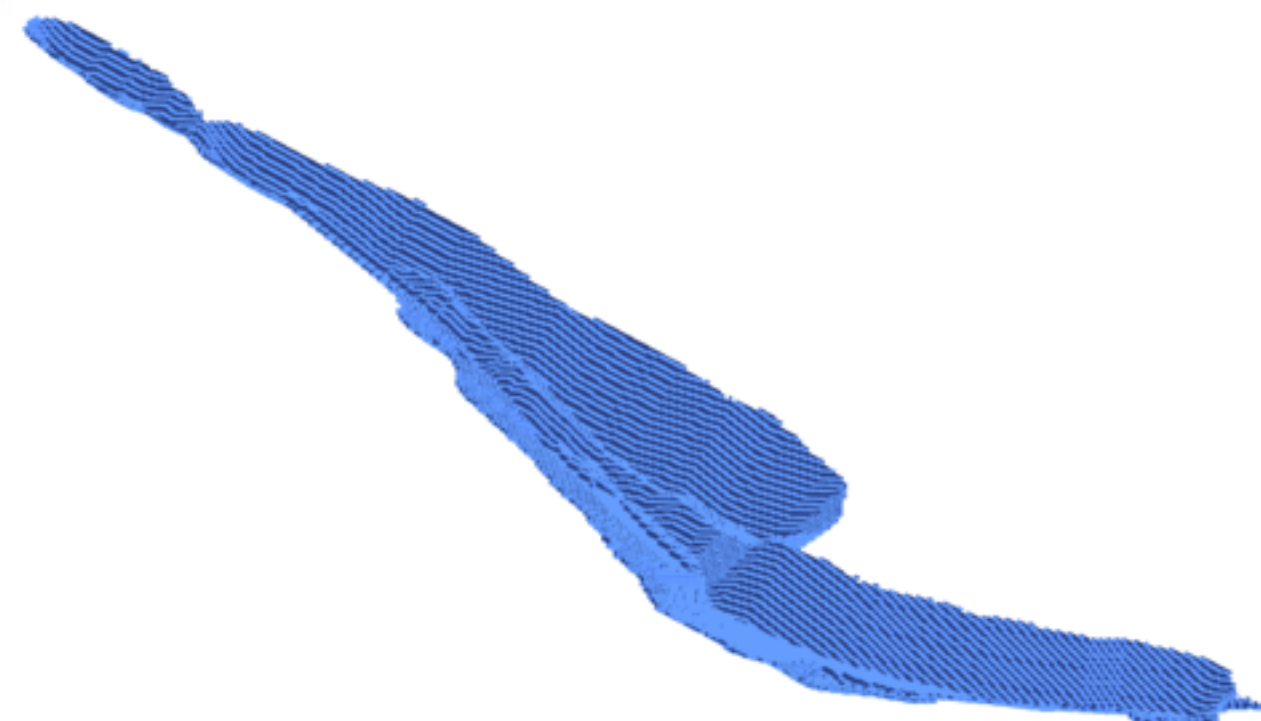
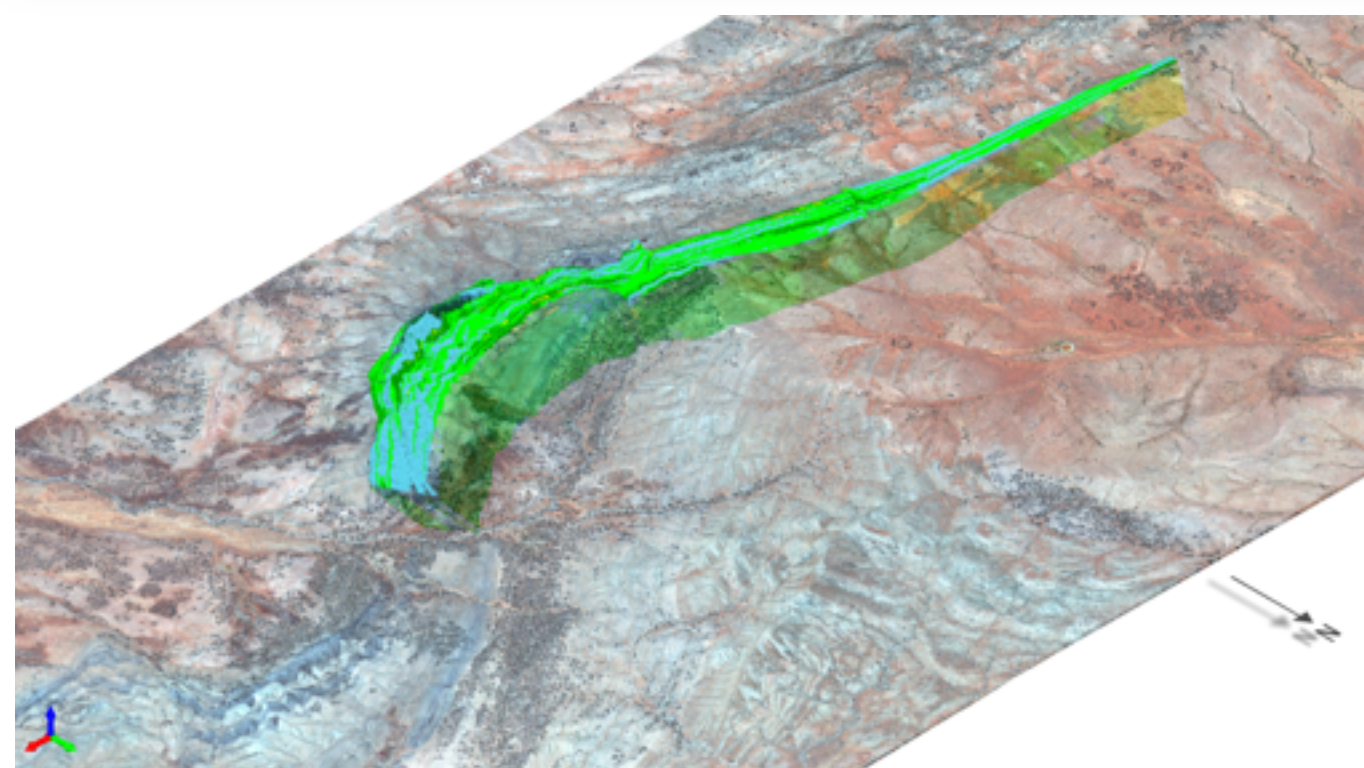
Pilbara	Braemar	Differences
		Pilbara ore derived from Banded Iron Formations (BIF), while Braemar ore from metamorphic shale siltstone, and sandstone
		Pilbara ore from BIF has a crystalline structure with magnetite often braking along crystals faces, while Braemar ore liberates as free magnetite grains
BWi = > 24 kW/t CWi = > 16 kW/t UCS = > 200 MPa	BWi = 9 kW/t CWi = 10 kW/t UCS = 80 MPa	Rock strength, crushability and grinding of Braemar ore around half that of BIF



RAZORBACK AND IRONBACK HILL - APPROX 4 BILLION TONNES



Prospect	JORC Resource Classification*	Million Tonnes	εDTR%	Fe%	SiO ₂ %	Al ₂ O ₃ %	P%
Razorback	Indicated	833	16.0	21.7	45.2	7.3	0.20
	Inferred	1,532	14.6	16.1	50.2	8.5	0.17
Iron Peak	Indicated	203	16.8	20.0	45.0	7.67	0.18
	Inferred	163	15.6	17.1	46.7	8.0	0.16
Total	Mineral Resources	2,732	15.3	18.2	48.1	8.0	0.18
Magnetite Concentrate		424	100	67.4	4.74	0.54	0.016

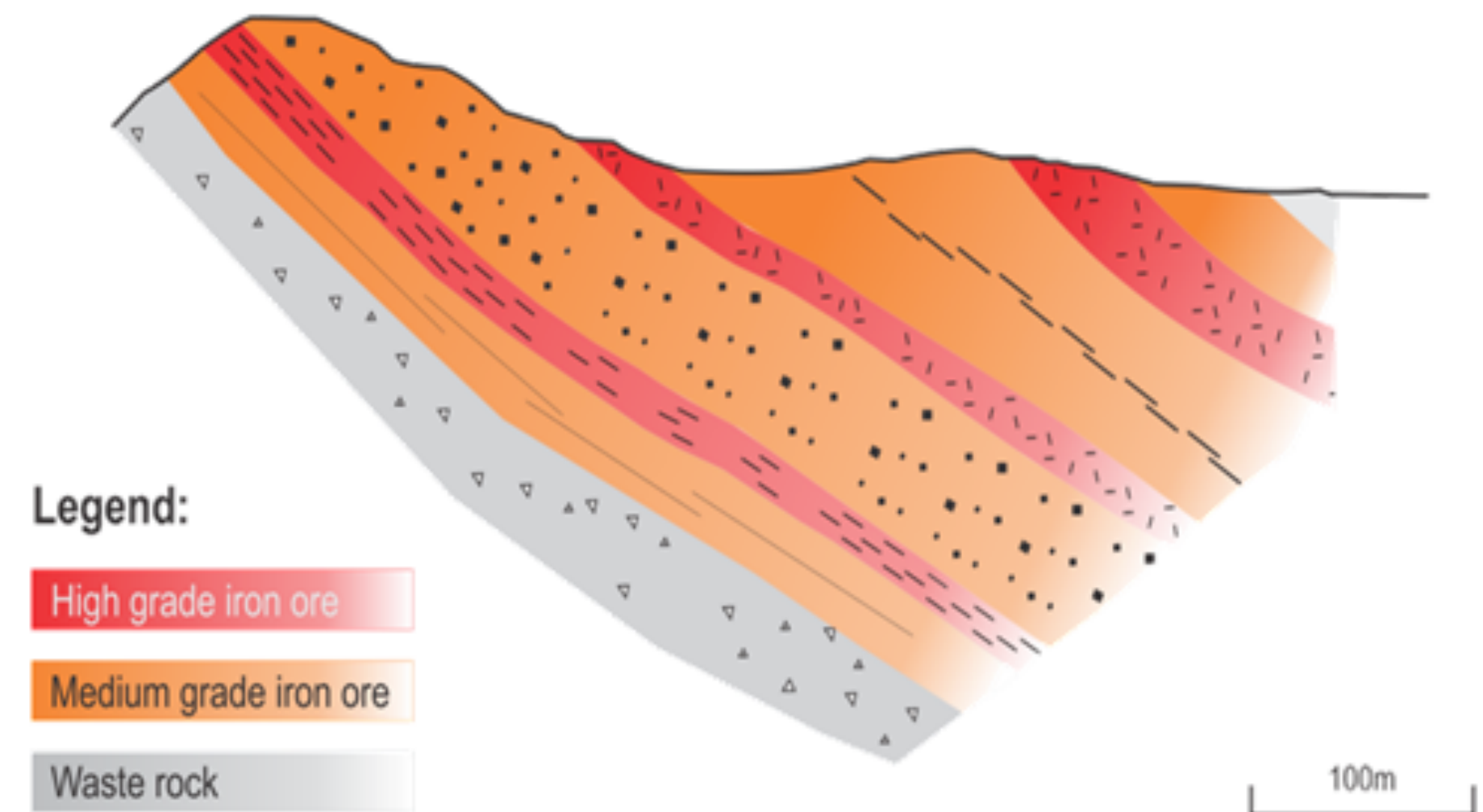


¹ The Mineral Resource information for the project was prepared and first disclosed under the JORC Code 2014 and the information has not been updated since to comply with the JORC Code 2012 on the basis the information has not materially changed since it was last reported;.

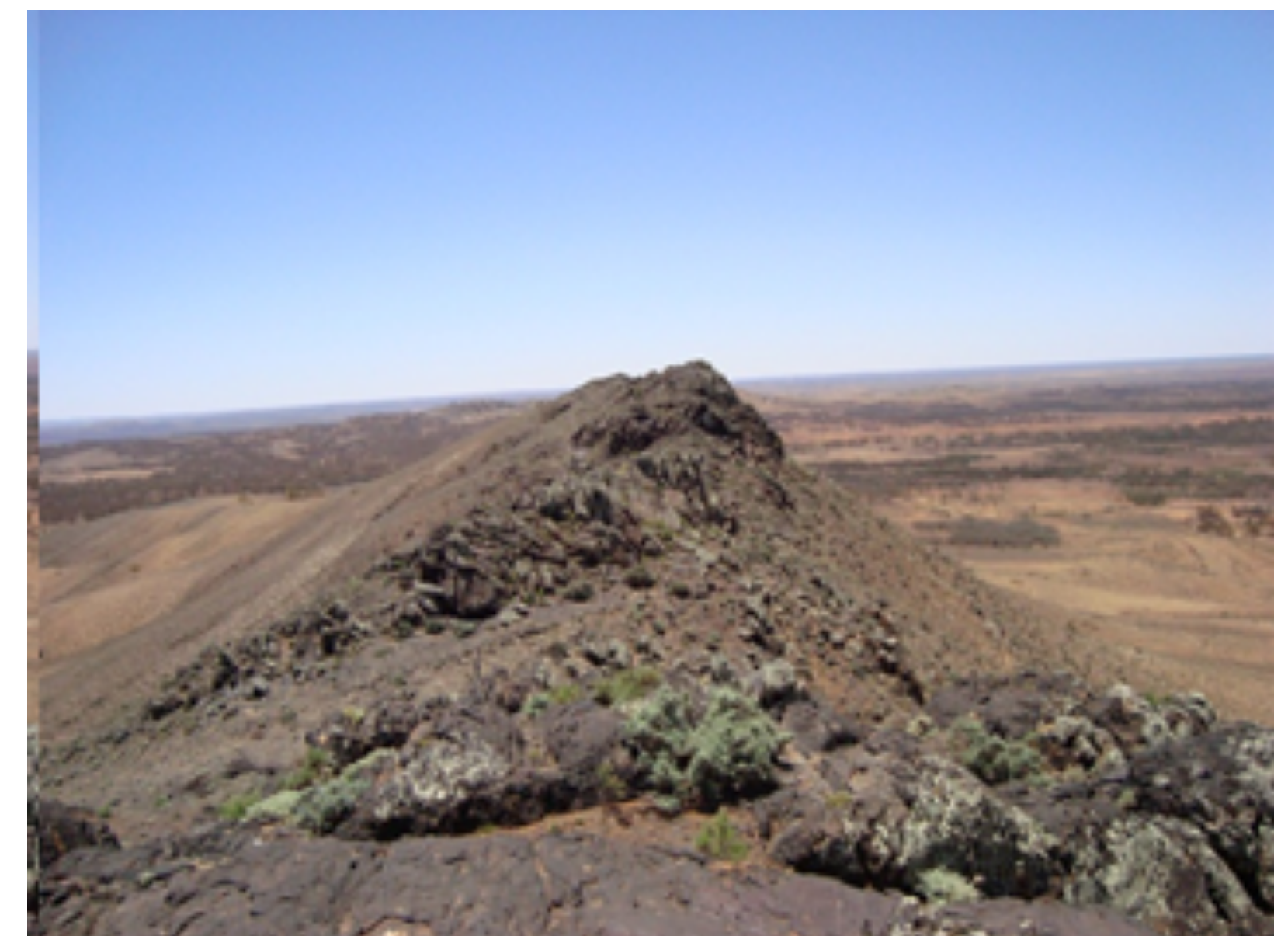


RAZORBACK - GOOD MINING QUALITIES

Characteristics	Benefit to Project
Magnetite in metamorphic sediment, not hard BIF	Softer ore for mining and crushing
Simple layer cake geology	Simple mine design
Average 250 metres thick and 10km in length	Very low stripping ratio (1:03)
Outcropping	No pre-strip



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BRAEMAR CONCENTRATE - A SUPERIOR STEEL MAKING PRODUCT

- **Concentrate grade of >67 % Fe¹ compared to a large portion of Pilbara production at ~60%**
- **Deleterious impurity level will be very low (P < 0.02%, Al304 < 0.5%, S <0.001%)**
- **High grade magnetite can reduce the energy requirements and pollution levels through the steel making process**



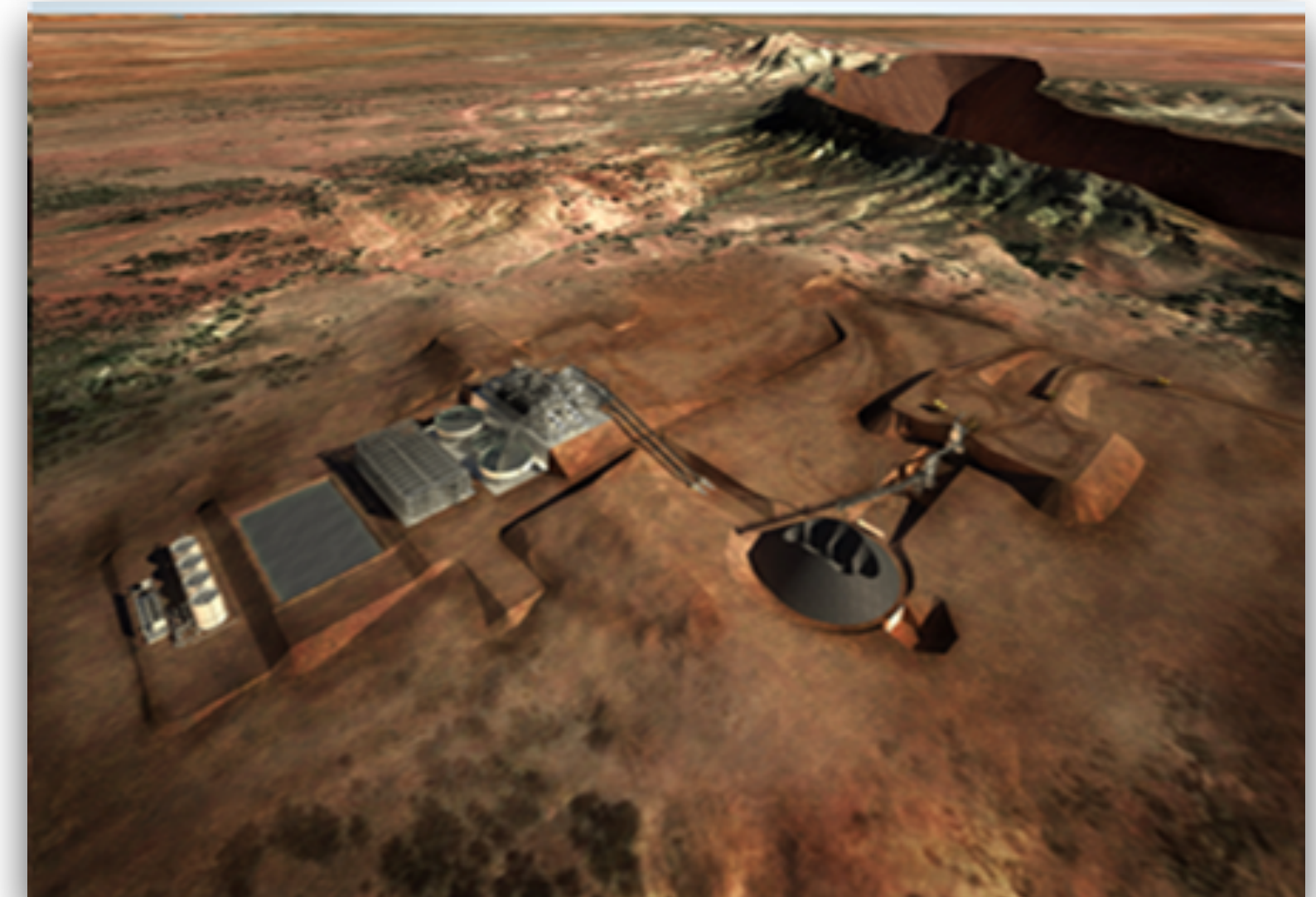
¹ASX announcement 27/11/2013



METALLURGY AND BENEFICIATION

- Metallurgical testwork has produced high grade magnetite product
- 38 to 45 microns grind sizes, coarser than WA magnetite
- Standard magnetite processing flowsheets were designed during the Razorback PFS¹
- Low rock hardness and abrasiveness has enabled a lower energy budget
- Optimisation underway to identify potential improvements in the flowsheet, including viability of 25 Mtpa magnetite concentrate at Razorback¹

¹There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised

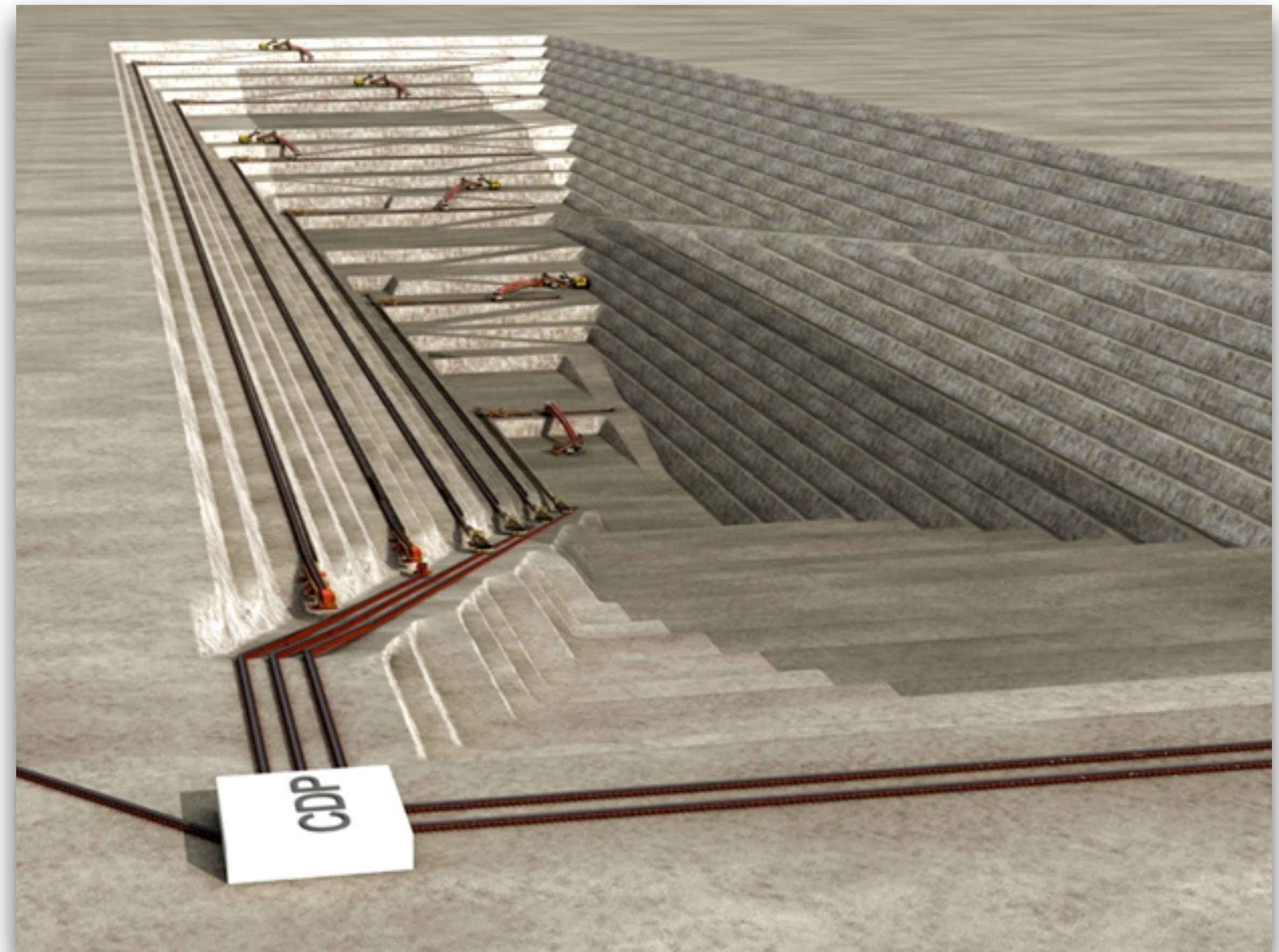


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SOFT ROCK AND ORE BODY GEOMETRY - IN PIT CRUSHING CONVEYING (IPCC)



Images supplied by Braemar Iron Pty Ltd, for illustration purposes only



FULLY MOBILE IPCC PROVIDES A QUANTUM LEAP IN COSTS FROM CONVENTIONAL TRUCK AND SHOVEL

Conventional Mine/Plant Interaction

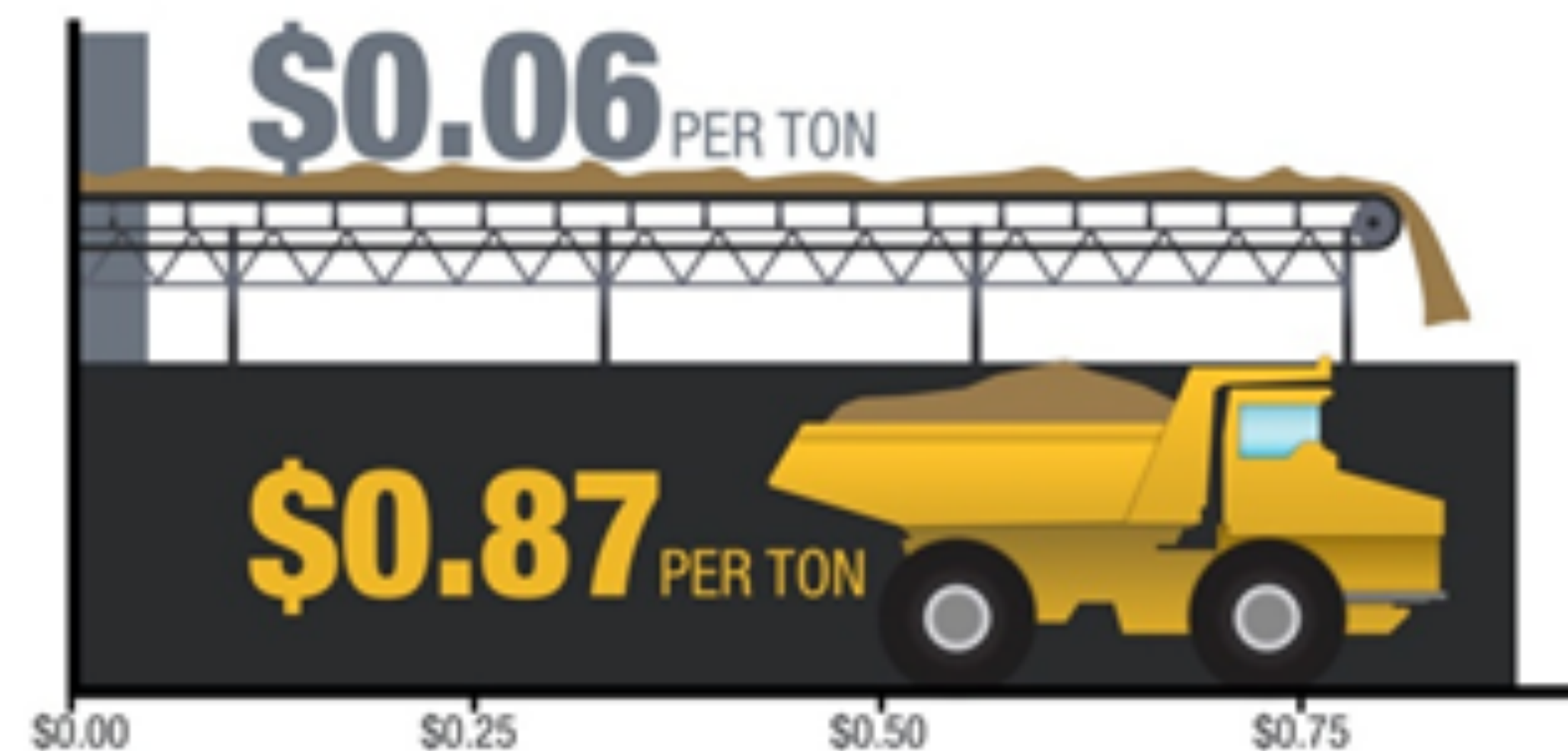


Fixed Location IPCC



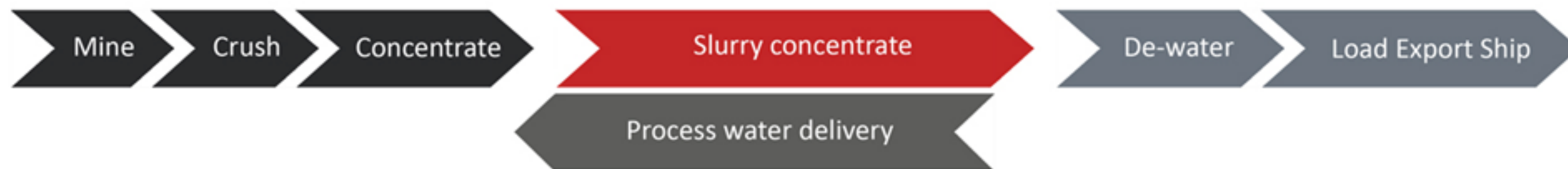
BREAKTHROUGH TECHNOLOGY

Fully Mobile IPCC (Truckless Mining)





SLURRY PIPELINE - A SIGNIFICANT COST SAVING BENEFIT



Based on Braemar Iron Pty Ltd Conceptual Feasibility Studies



ADVANTAGES OF SLURRY PIPELINE OVER RAIL

- More cost efficient
- Minimum handling
- No empty returned carriages to mine
- Reduces required storage
- Less impact on community
- Not sensitive to weather
- Environmentally friendlier, reduced energy footprint
- Less risk with scheduling and bottle necks
- Third party rail requires bank guarantee for rolling stock which can equate to \$0.5 to \$1 billion





BRAEMAR INFRASTRUCTURE CORRIDOR

SLURRY PIPELINE - Transports magnetite slurry from mine to coast

RETURN PIPELINE – Transports sea water from the coast to mine site to use in beneficiation

POWER LINES – Transmit power to mine site from access point either low cost national grid or gas-fired power station near Cooper Basin gas pipeline

ROAD – Access road from Burra, a dormitory town and planned administration centre

COMMUNICATIONS – Fibre optics connected to NBN (National Broadband Network)



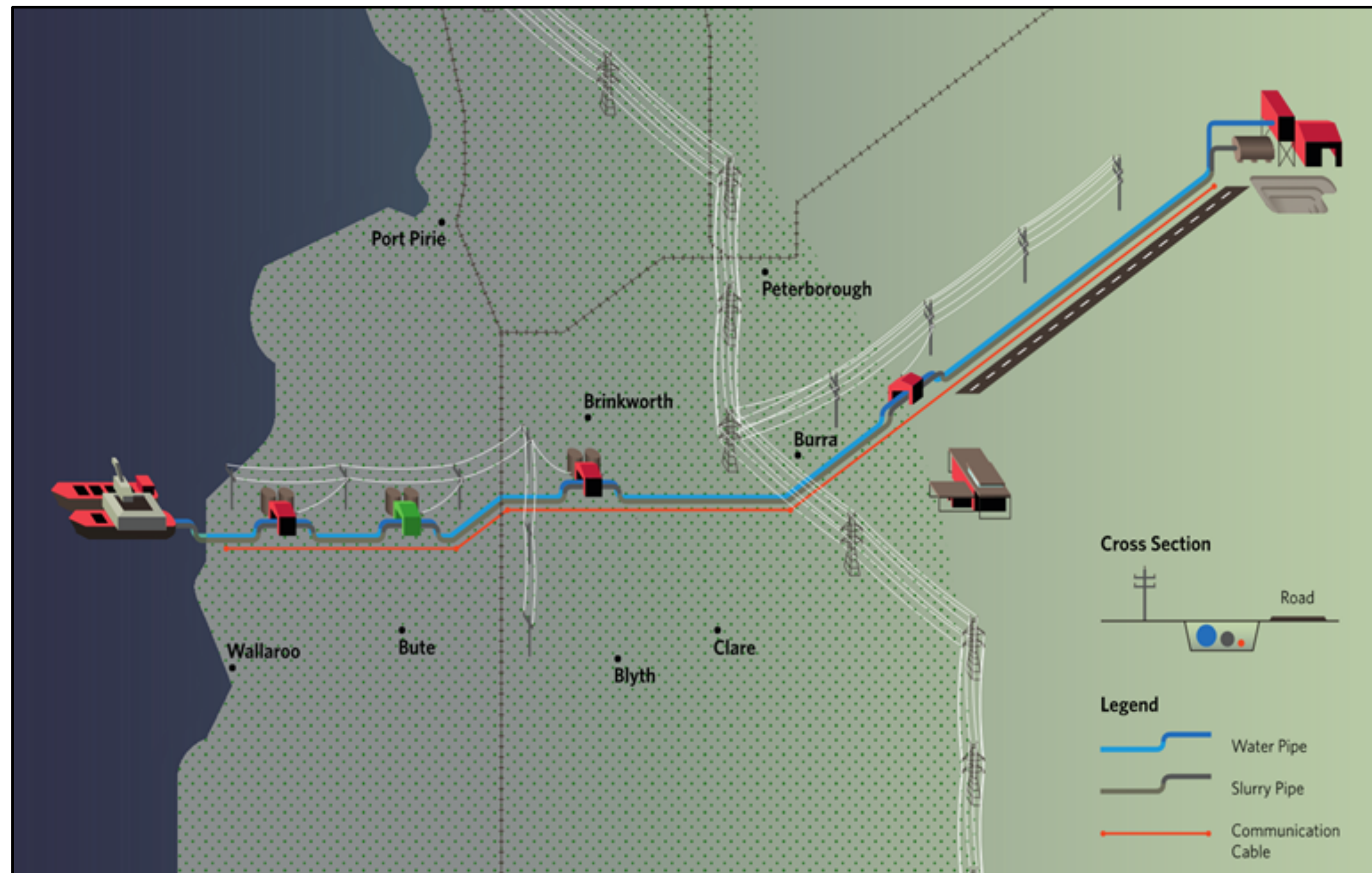


CONCEPT DE-RISKED - PROVEN TECHNOLOGY





PFS DETERMINED ROUTE FOR INFRASTRUCTURE CORRIDOR





PORTS IN SOUTH AUSTRALIA

- There are no existing cape size ports in South Australia
- There have been several proposed large port projects (e.g. Port Bonython), however no commitment to build
- Arrium are the only iron ore exporter in South Australia, but choose to use transshipment from Whyalla
- Transshipping is high OPEX
- Building a new port is high capex and requires heavy regulatory approval





OFFSHORE SHIP LOADER TECHNOLOGY

- Slurry delivered to a floating filter plant and port (FFPP)
- Technology applied in FFPP, already proven
- Facility located ~ 4-5 nautical miles off the coast, north of Wallaroo, Spencer Gulf
- Water depth (+24m) suitable for Cape-size and Valemax vessels
- Calm seas, cyclone free
- Government support
- Less permitting

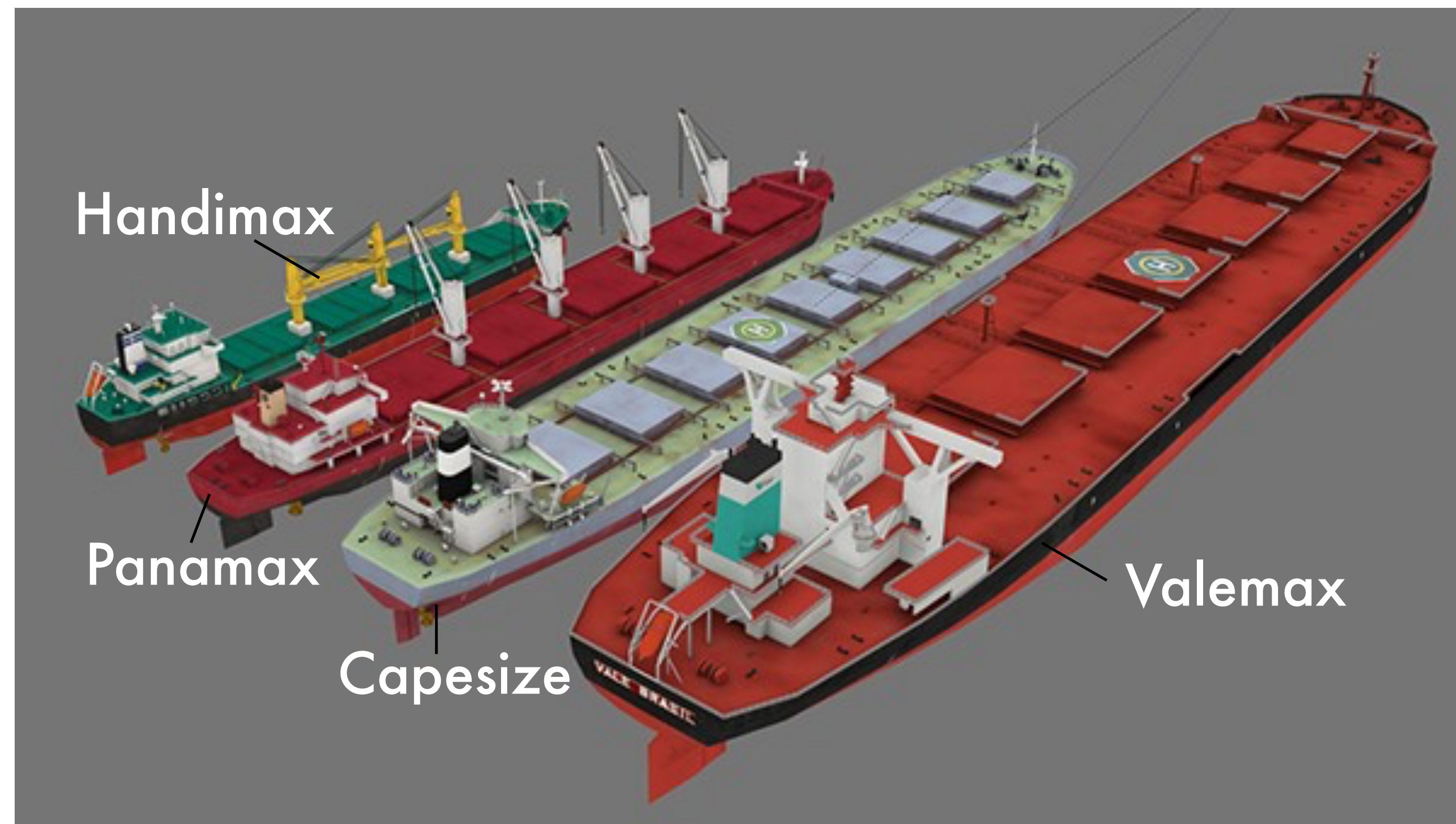


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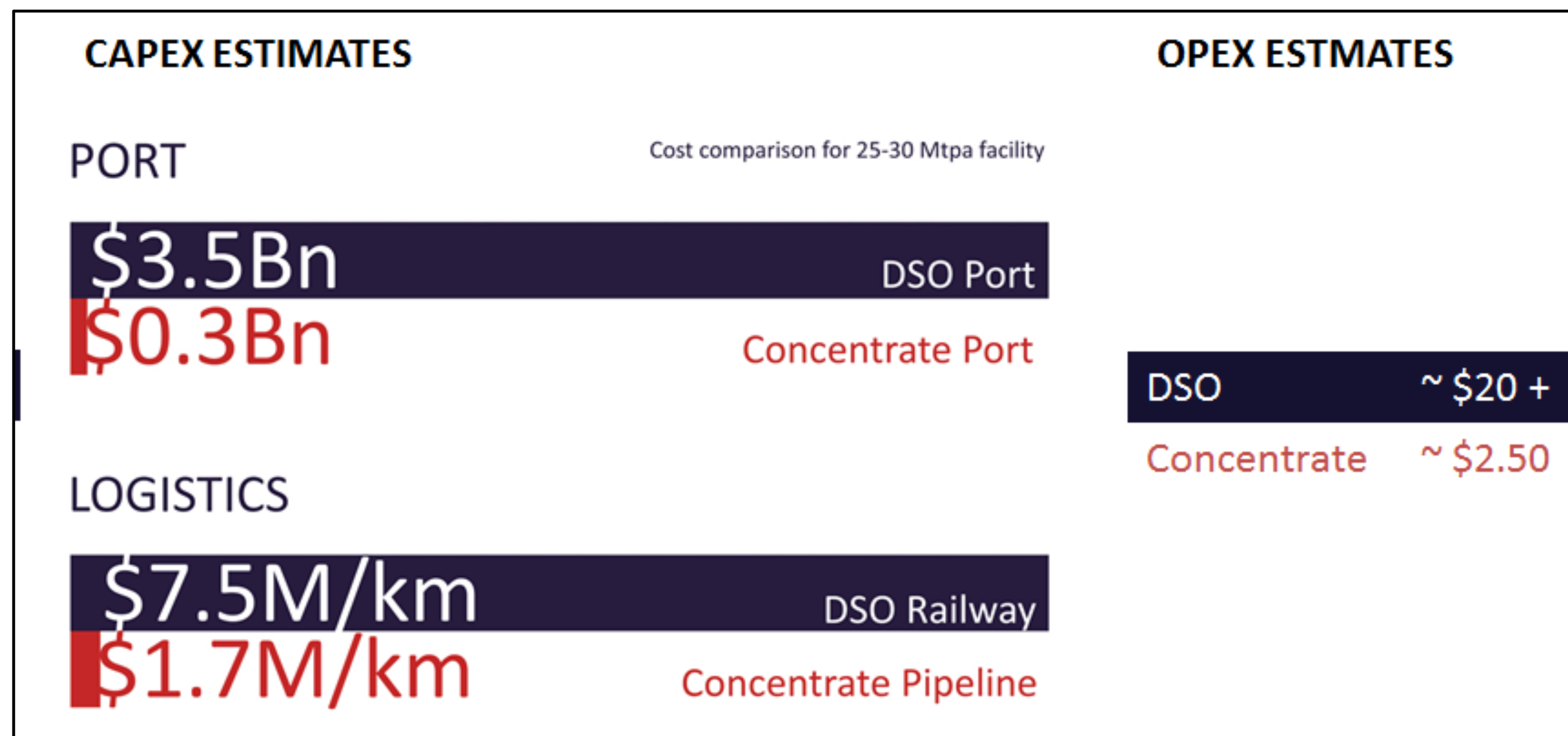
VLOC - VALEMAX COST ADVANTAGES

- Valemax ships have cost advantages of \$4 - \$6 per tonne over capsize vessels to China
- 35% less CO2 emitted per tonne
- Cape Size – 150,000 to 175,000 tonne capacity, 18 to 20m draft
- Valemax – 380,000 to 400,000 tonne capacity, 22 to 23m draft





SCOPING STUDIES* DEMONSTRATES COST BENEFITS OF INFRASTRUCTURE SOLUTION



* Based on Braemar Infrastructure Pty Ltd Conceptual Feasibility Studies



AGRICULTURAL OPPORTUNITIES

- Magnetite concentrate will be slurried to coast with fresh water
- Water will be sourced from a desalination plant on site, using the sea water from return pipe
- 25 Mtpa of concentrate will need 12.5 GL of fresh water to slurry
- Opportunities exist in the Upper York Peninsular with surplus water for municipal or agriculture purpose
- This brings a significant new resource to the region





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WHERE DO WE GO FROM HERE?

1. Get the story out and raise cash
2. Off-take and construction agreements
3. Merge assets
4. Optimisation
5. DFS





SUMMARY

- The iron ore story has another chapter
- Largest undeveloped magnetite province in the world
- High grade magnetite
- Product low OPEX to compete with Pilbara DSO
- South Australia good place to do business
- Ready to go

Further information go to:
www.royalresources.com.au
ASX:ROY

Royal Resources Management

Chairman	Gordon Toll
Exec Director	Frank DeMarte
Non Exec Director	Mal Randall
General Manager	Dr Gavin England



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