

Beharra.
The Midwest's
leading high grade
silica sand project.

ASX: PEC

Midwest Major Projects Update 2021

Batavia Coast Conference Centre, Geraldton | 15-16 September 2021

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Competent Persons Statement

The information in this report that relates to the March 2020 Exploration information for the Beharra Project is based on information compiled and fairly represented by Mr Colin Ross Hastings, who is a Member of the Australasian Institute of Mining and Metallurgy and consultant to Perpetual Resources Limited. Mr Hastings is also a shareholder of Perpetual Resources Limited. Mr Hastings has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which he has undertaken, to qualify as a Competent Person 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 Hastings consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to the Exploration information for the Beharra Project from September 2020 onwards is based on information compiled and fairly represented by Mr John Doepel, who is a Member of the Australasian Institute of Mining and Metallurgy and consultant to Perpetual Resources Limited. Mr Doepel has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which he has undertaken, to qualify as a Competent Person 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 Doepel consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Elizabeth Haren, a Competent Person who is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. Elizabeth Haren is employed as an associate Principal Geologist by Snowden Mining Consultants Pty Ltd, who was engaged by Perpetual Resources Limited. Elizabeth Haren has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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”. Elizabeth Haren consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Dr Andrew Scogings, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy, a Member of the Australian Institute of Geoscientists and is a Registered Professional Geologist in Industrial Minerals. Andrew Scogings is employed as an associate Executive Consultant Geologist by Snowden Mining Consultants Pty Ltd. Dr Scogings has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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”. Dr Scogings consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the Beharra Ore Reserve is based on information reviewed or work undertaken by Mr Frank Blanchfield (FAusIMM). Mr Blanchfield is an employee of Snowden and has relied on Perpetual for marketing, environmental, permitting, and financial modelling and any costs not relating to mining and metallurgy. The mine design and mining costs and economic viability of the project were assessed and completed by Snowden under his direction. Mr Blanchfield has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the preparation of mining studies to qualify as a Competent Person as defined by the JORC Code 2012. Mr Blanchfield consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The scientific and technical information in this report that relates to process metallurgy is based on information reviewed and work completed by Arno Kruger (MAusIMM), who is a metallurgical consultant and employee of IHC Robbins. The metallurgical factors including process flowsheet design and costs and assumptions for the bulk aircore sample that relate to Mineral Resources have been reviewed and accepted by Mr Kruger. Mr Kruger has sufficient experience that is relevant to the type of processing under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the JORC Code 2012. Mr Kruger consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Perpetual Resources: Investment Highlights

100% owner of the Beharra high grade silica sand project

Highly supportive commodity market backdrop provides strong tailwinds

Led by an experienced Board and team of Executives

PFS demonstrates a long-life project with compelling economics

Existing road network linked to deep water

Offtake discussions well advanced

Simple metallurgy and flow sheet

Regulatory and environmental approvals progressing well

Beharra PFS Outcomes	Base case
Post-Tax NPV (ungeared)	\$231m
Post-Tax IRR (ungeared)	55%
Production	1.5mt/yr
Initial Capex	A\$39m
Revenue (/ton) ^{#^}	A\$67 FOB
Opex (/ton) [^]	A\$43 FOB
Yr 2 EBITDA [~]	A\$37m

Note: For further information and full detail on all assumptions, please refer to ASX announcement titled, "Maiden Ore Reserve and Outstanding Beharra PFS Result Update" dated 17th March 2021.

[#]Refer to slide 14 for more information

[^]In nominal terms

[~]First year of full production

Corporate Snapshot

ASX Code	PEC
Share Price (as at 10 September 2021)	\$0.11
Ordinary Shares	492.2m
Options (5m at 4.5¢, 5m at 13¢, 10m at 16¢)	20m
Market Cap.	\$54m
Cash	\$3m
Debt	Nil
Enterprise Value	\$51m
Performance Shares	15.4m

Shareholders (Top 20 represent 58% of Register)

Delphi & Deutsche Balaton	12%
Julian Babarczy	6%
Robert Benussi	6%
Tolga Kumova	6%
Peter Gianni	6%



Julian Babarczy
Executive Chairman



Robert Benussi
Managing Director

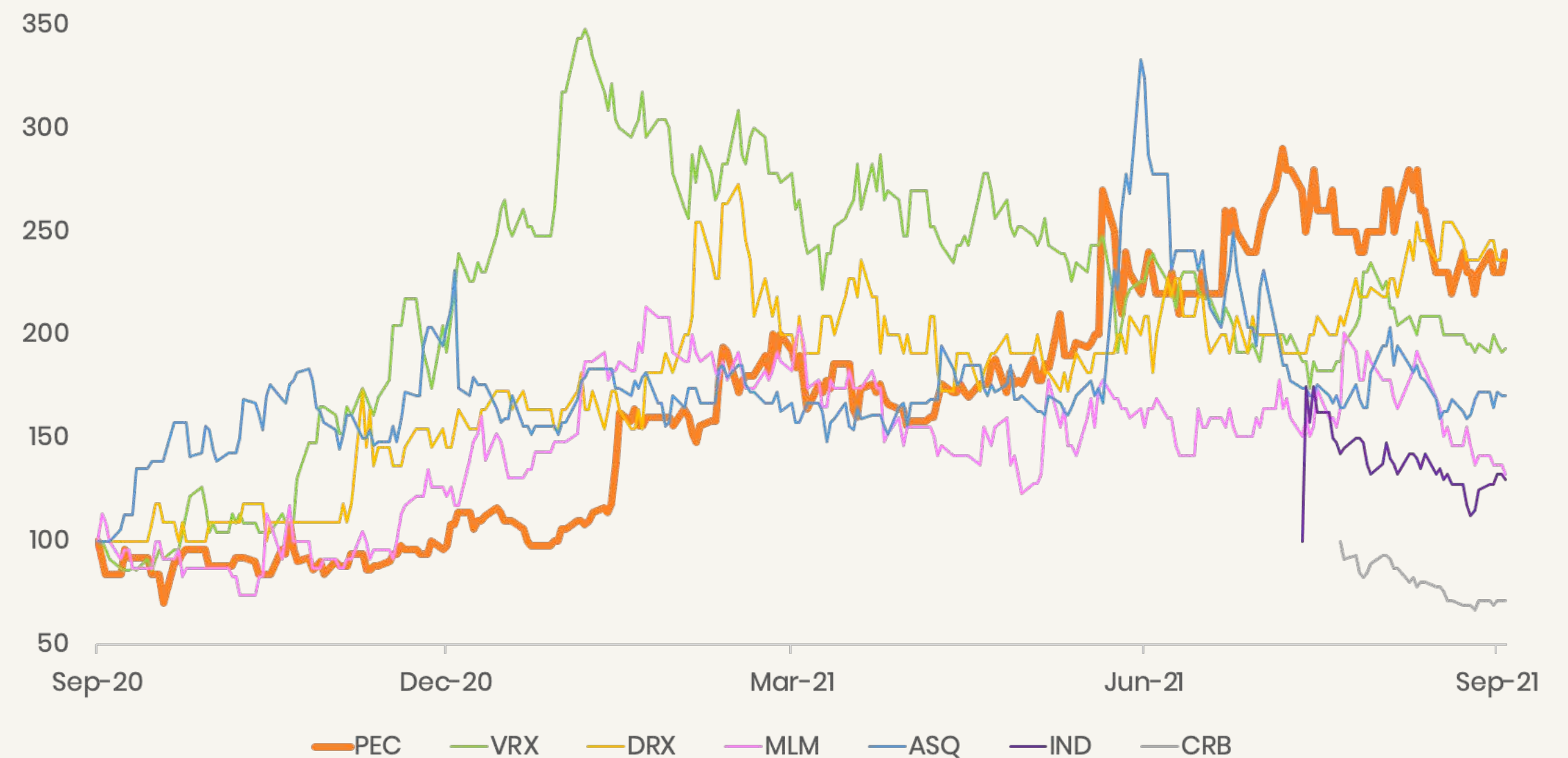


Brett Grosvenor
Non-Executive Director



George Karafotias
Non-Executive Director

PEC Share Price Relative to Peers



Project Portfolio

Three discrete Project Hubs – all located proximal to established infrastructure.

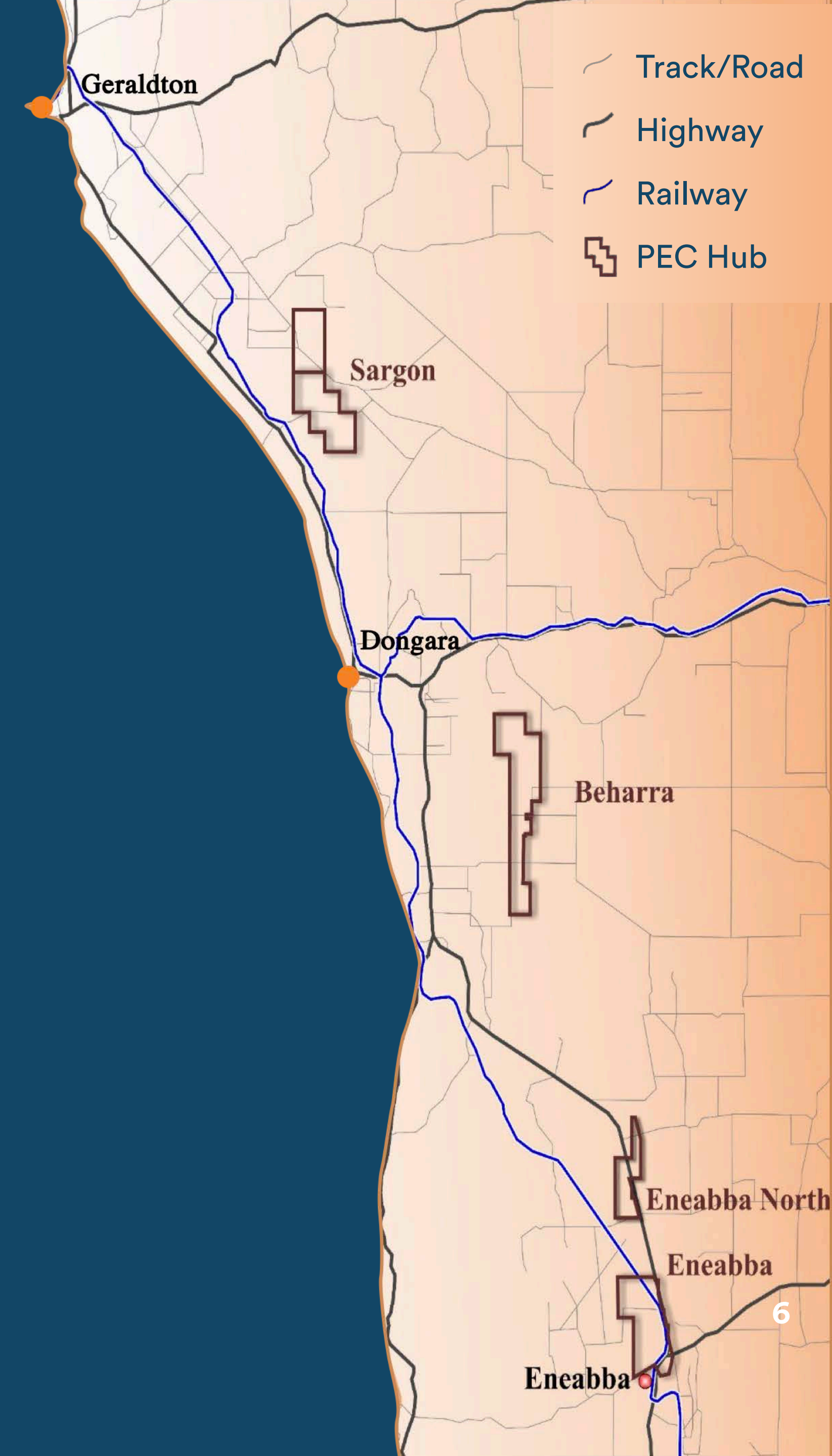
Beharra¹

- Pre-feasibility study completed with compelling economics
 - Post tax NPV (ungeared): \$231m
 - Post tax IRR (ungeared): 55%
 - Initial Capex: \$39m
- Mining License application granted
- Optimisation efforts showing strong potential
- DSO Scoping study underway
- Strong interest from potential customers

Exploration

- Reconnaissance activity underway across all exploration areas
- Aircore drilling planned across all exploration areas in coming quarters

¹ Note: For further information and full detail on all assumptions, please refer to ASX announcement titled, "Maiden Ore Reserve and Outstanding Beharra PFS Result Update" dated 17th March 2021.



An aerial photograph of a city skyline at sunset, featuring a prominent skyscraper (Burj Khalifa) and a complex highway interchange. The sky is a mix of orange and blue. A large white quote is overlaid on the center of the image.

**“We give such little thought to it...
But sand and gravel build the
foundations of our economies.”**

United Nations Report on Sand and Sustainability, 2019

Sand facts

“For construction alone, the world consumes roughly 40 to 50 billion tons of sand on an annual basis. That’s enough to build a wall of 27 meters high by 27 meters wide that wraps around the planet every year”

“The global rate of sand use — which has tripled over the past two decades partially as a result of surging urbanization — far exceeds the natural rate at which sand is being replenished by the weathering of rocks by wind and water”

“We just think that sand is everywhere. We never thought we would run out of sand, but it is starting in some places”

“Sand is the world’s most consumed raw material after water and an essential ingredient to our everyday lives”

“Sand is perceived as cheap, available and infinite and that is partly because the environmental and social costs are pretty much not priced in”

What is Silica Sand Used For?

Glass

- Architectural
- PV solar cell glass covers
- Smartphones
- Tablets
- Automotive
- Fiberglass
- Container Packaging

Building products

- Quartz surfaces
- Roofing shingles

Foundry sands

- Automotive & Manufacturing

Fillers & Extenders

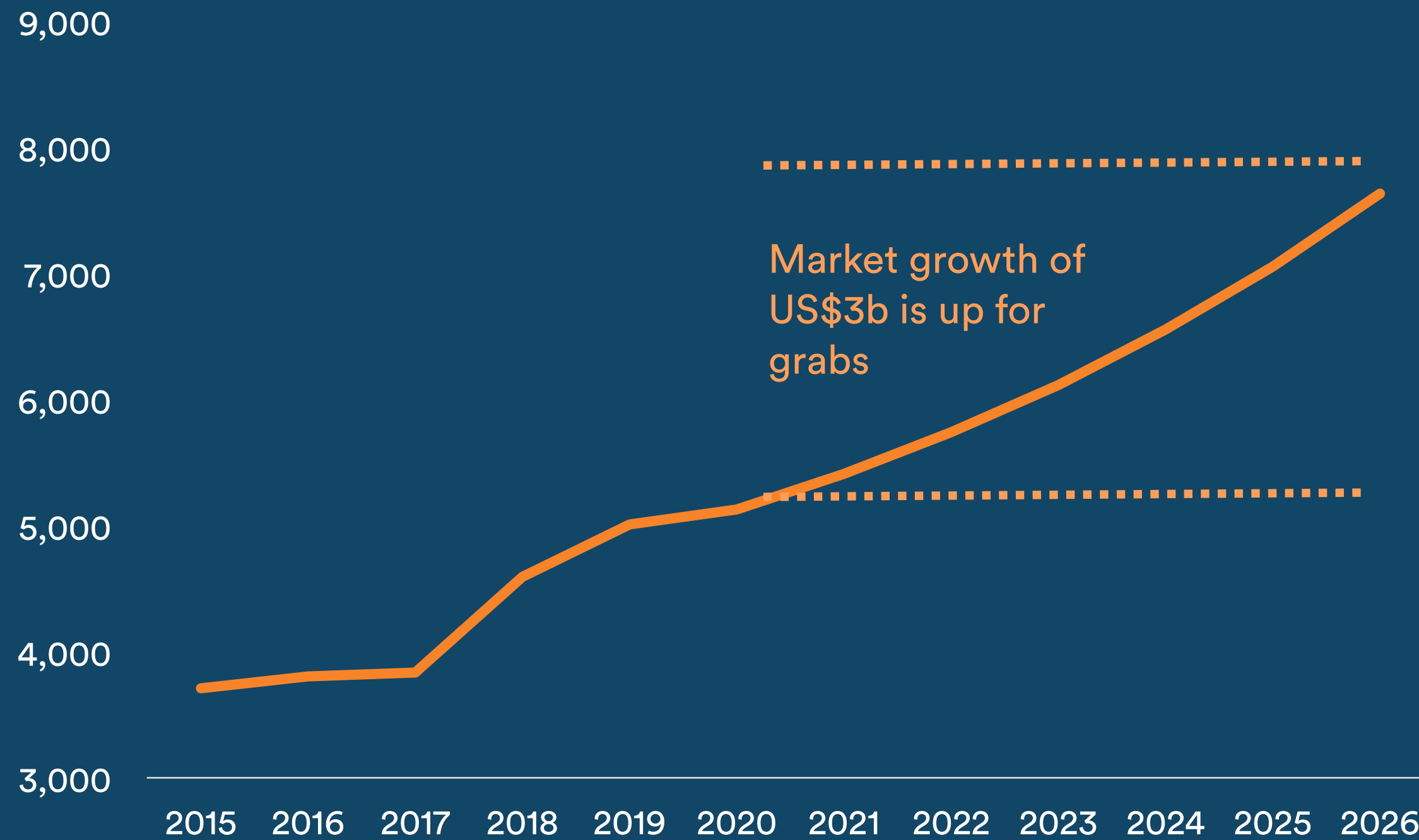
Chemicals

Construction Sands

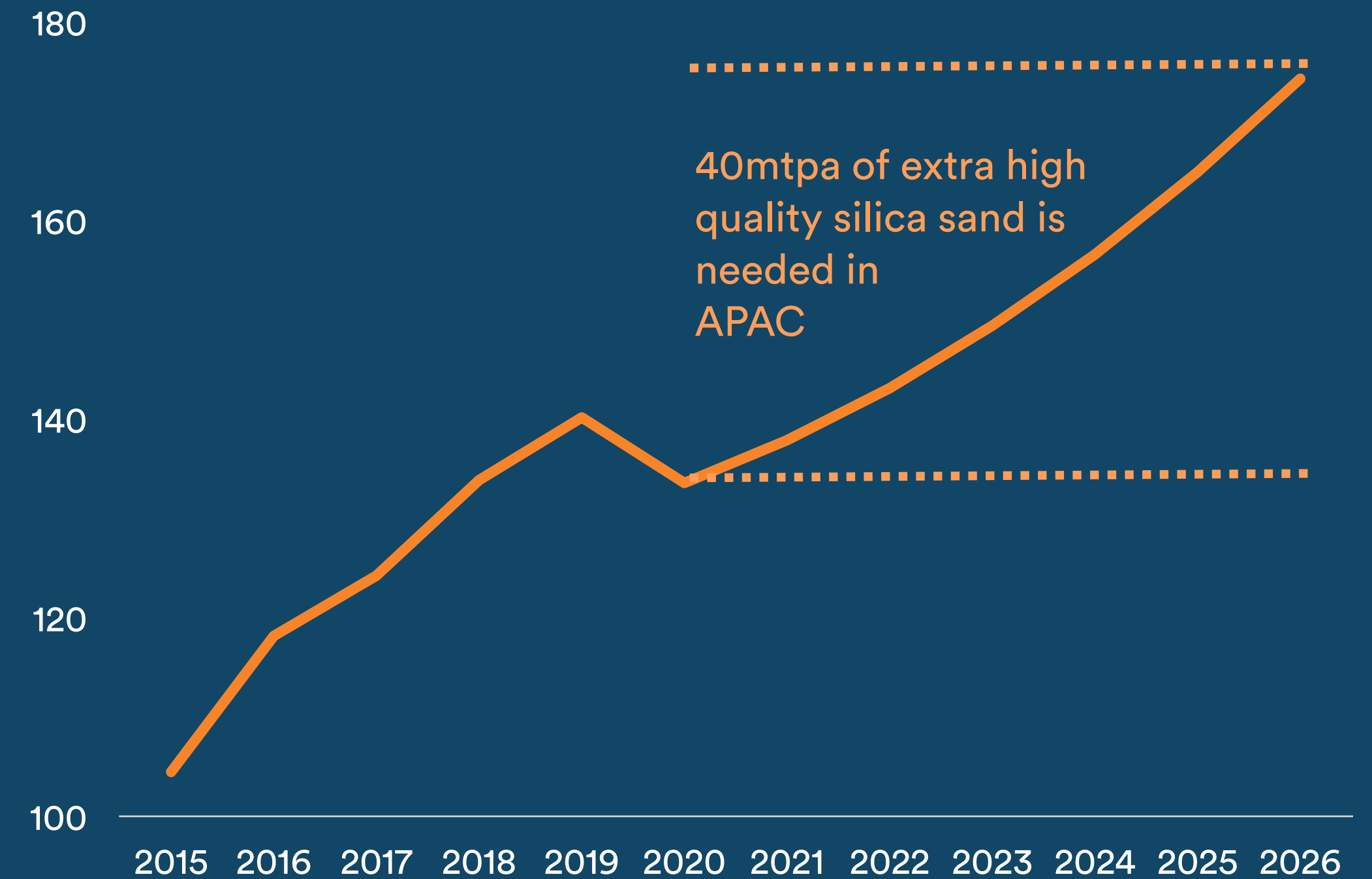


Asia Pacific: The fastest growing silica sand market in the world

APAC Silica Sand Market Value (US\$m)



APAC Sales Volume (mtpa)



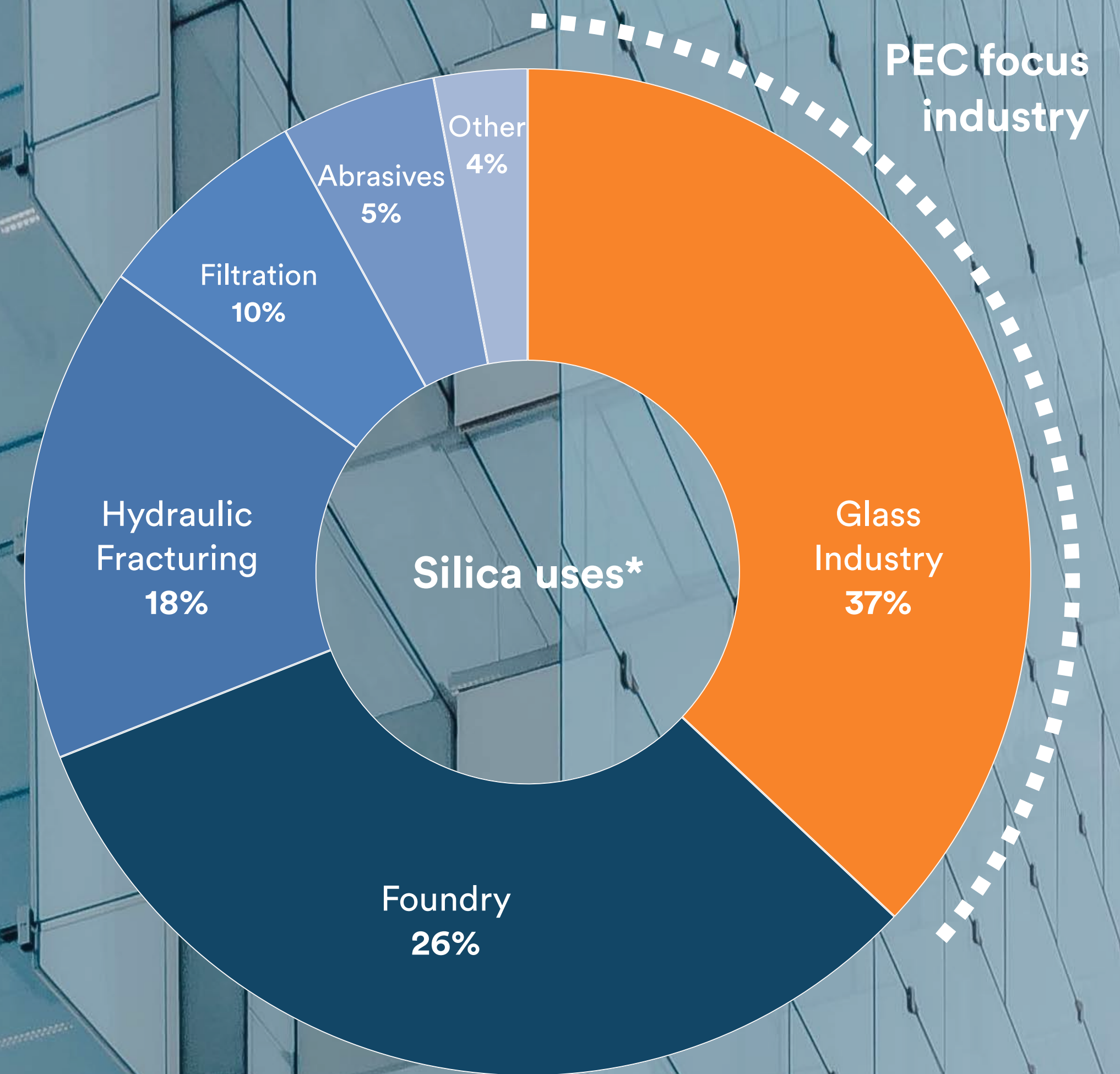
Source: IMARC Group, Report Title: "Asia Pacific Silica Sand Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2021-2026", Report Date: February 2021

Relative size of End Markets

- The Asian glass industry is the largest and highest growth for high grade silica sand
- The PV solar panel glass cover industry is experiencing exponential growth
- These markets are Perpetual’s focus
- Initial beneficiation test work has confirmed Beharra silica sand exceeds the minimum specification for high end glass, major float and container glass applications
- Particle size distribution analysis also demonstrates that Beharra sands may also service Asia’s foundry sand markets

Glass Application Type*	Minimum Specifications	
	SiO ₂	Fe ₂ O ₃
Float (Plate)	99.5%	200-400ppm
Container	99.5%	300-500ppm
Cover (Solar Panels)	99.95%	<100ppm
Smart (Ultra Clear Low Iron)	99.97%	<100ppm
Specialist (Thin Screen)	99.97%	<100ppm

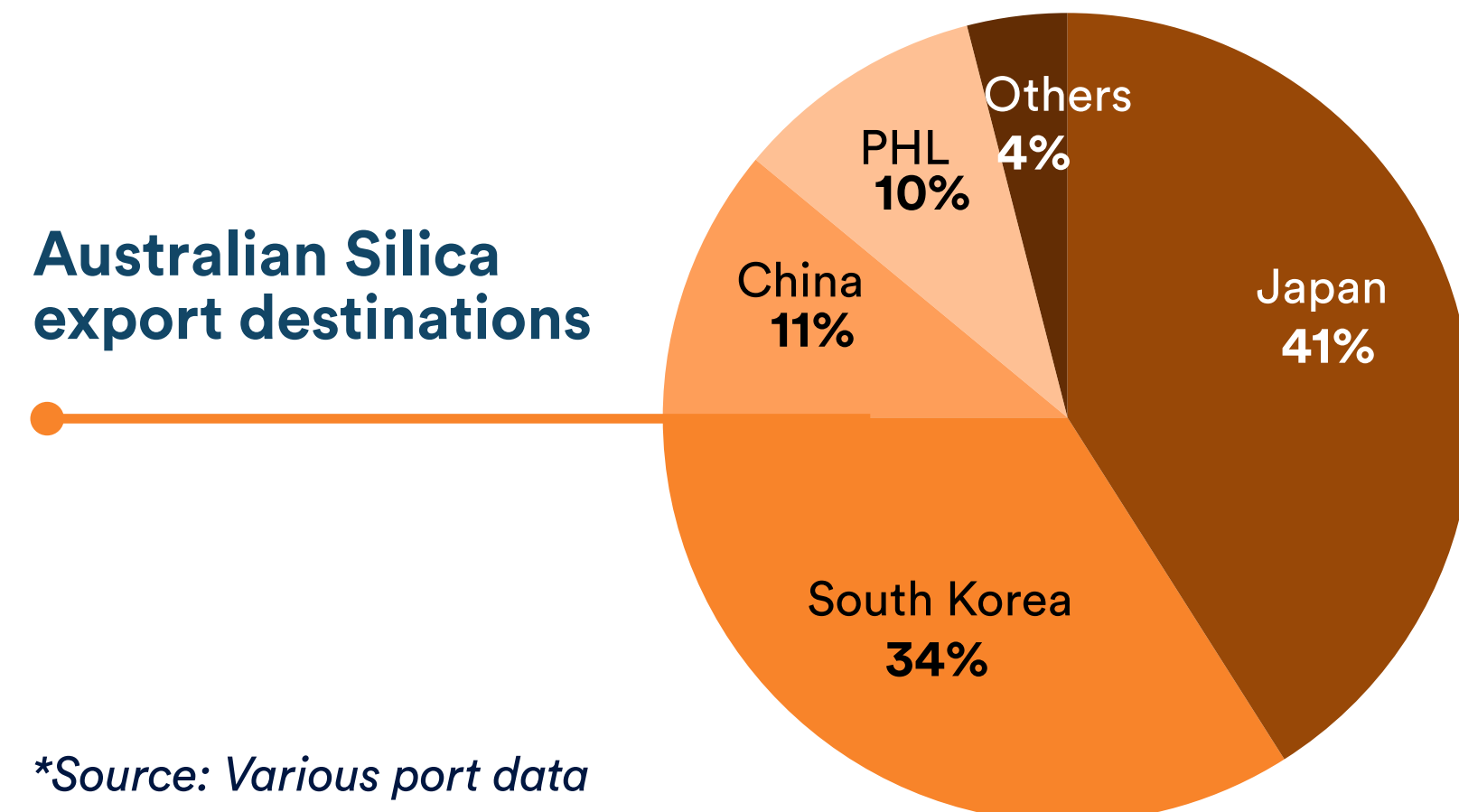
*Source: Stratum Resources



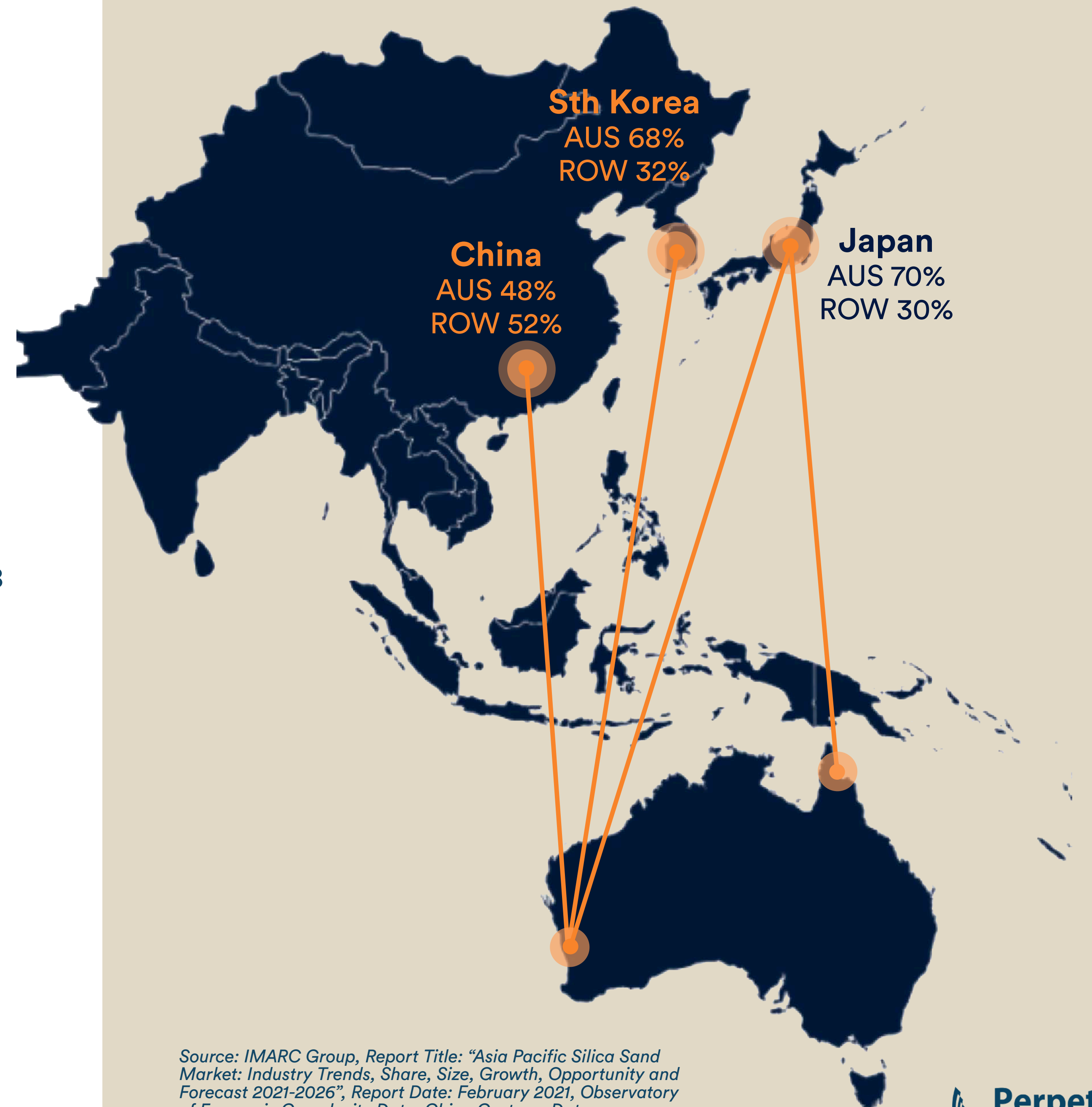
Source: IMARC Group, Report Title: “Asia Pacific Silica Sand Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2021-2026”, Report Date: February 2021

Australia: An established silica sand exporter

- Australia exports around 5mtpa of high grade silica sand*
 - 2.5-3.0mtpa from Cape Flattery
 - 1.0-1.5mtpa from Western Australia
 - Balance from various mines throughout Australia
- China now imports ~50% from Australia, up from ~25% in 2018
- Demand for high quality glass (including PV solar cell covers) is driving increased demand at a time when traditional supply sources are waning



*Source: Various port data



Source: IMARC Group, Report Title: "Asia Pacific Silica Sand Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2021-2026", Report Date: February 2021, Observatory of Economic Complexity Data, China Customs Data.

Beharra: High Grade Silica Sands

LOCATION

Approximately 100km south of Geraldton, comprising a north-south striking exploration licence covering an area of about 49 km²

SCALE

The project lies within the northern part of the Perth Basin and contains a 13km strike length of potentially high grade silica sand

RESERVE/RESOURCE

- Maiden Mineral Reserve Estimate of 48mt of 99.6% SiO₂, 276ppm Fe₂O₃¹
- Mineral Resource Estimate of 139mt at 98.6% SiO₂²
- Beharra tenement only <40% explored – significant upside remains
- >90% of resource identified as higher purity white sands
- Direct shipping potential exists

PROCESSING

- Detailed metallurgical test work conducted by Perpetual confirmed a simple gravity and magnetic separation flow sheet to produce a concentrate that resulted in upgrading the SiO₂ to 99.6% and reduced Fe₂O₃ content to 276ppm (1,950ppm in situ)³
- White sand only development scenario could significantly enhance economics

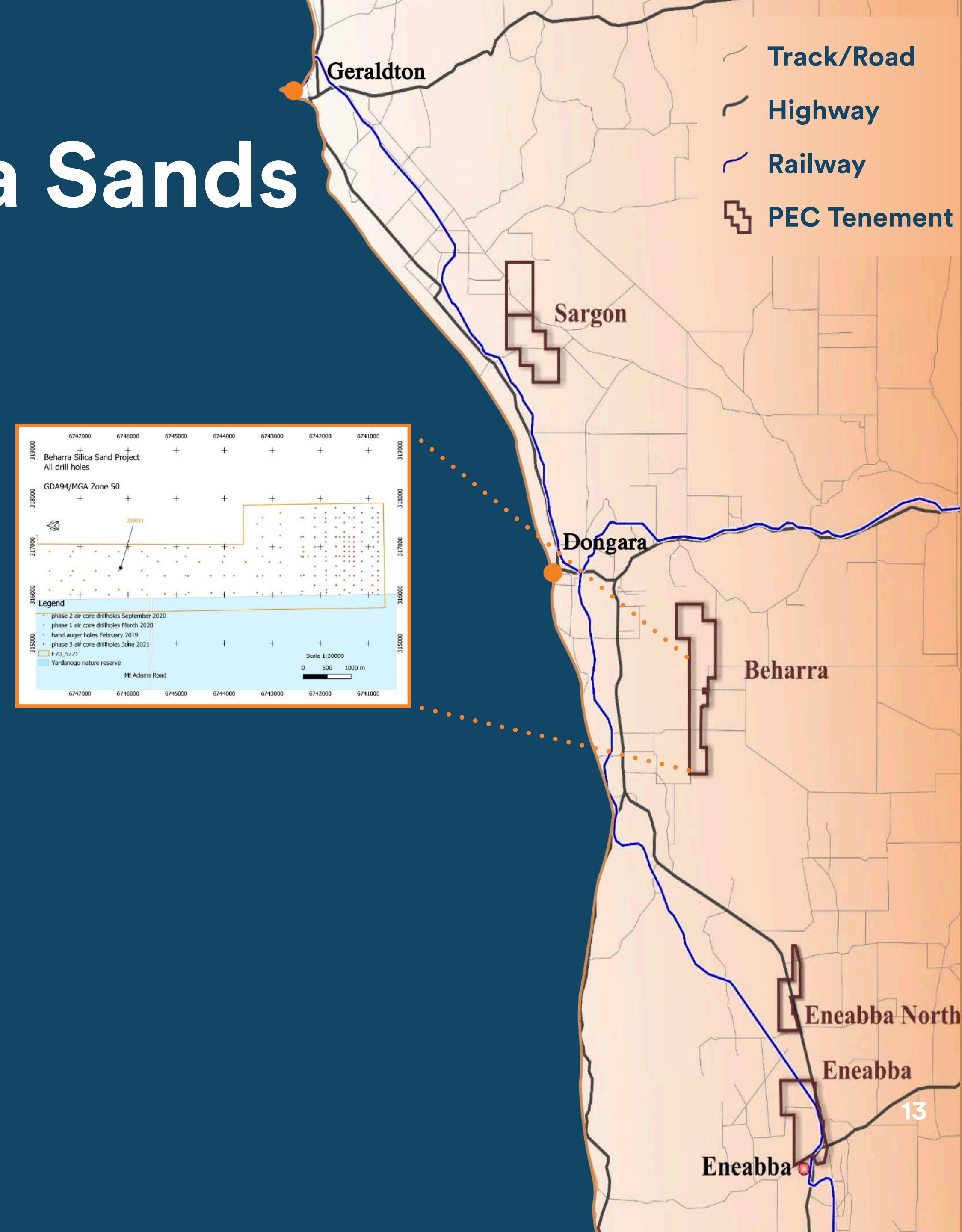
PRODUCT

Extensive metallurgical testing has confirmed suitability for the major glass markets in Asia, including the high growth PV solar cell glass cover industry

¹ Please refer to ASX announcement titled, "Maiden Ore Reserve and Outstanding Beharra PFS Result Update" dated 17th March 2021.

² Please refer to ASX announcement titled, "Upgraded Mineral Resource Estimate - Beharra", dated 9th March 2021.

³ Please refer to ASX announcement titled, "Exceptional Metallurgical Test Results - Beharra", dated 29th January 2021.



Project Economics

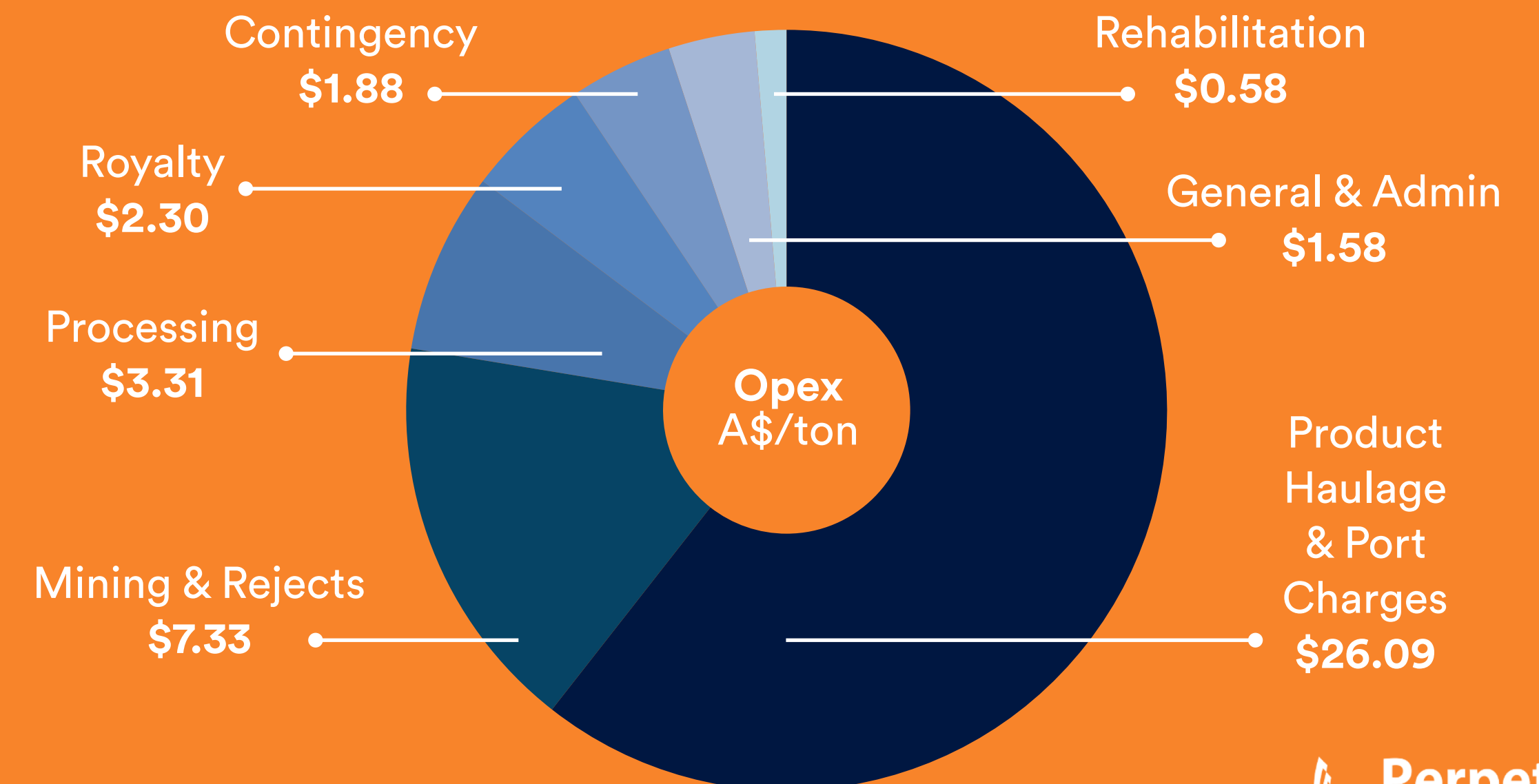
Perpetual's strategy is to operate with maximum flexibility, aiming to be able to respond to the expected positive changes in market demand. As a result, a flexible cost base is assumed, with potential to reduce opex over time through strategic reinvestment of cashflows into core plant and equipment and/or additional logistics infrastructure.

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Yr 2 EBITDA~	A\$37m

#Refer to slide 14 for further information
 ^In nominal terms
 ~First year of full production

Capital Expenditure	Cost (A\$)
Wet Processing Plant	\$19.1m
On Site Infrastructure	\$3.5M
Off-Site Infrastructure (Bore field, site access roads)	\$9.3m
Indirect Costs (PCM Fees)	\$2.3m
Other	\$1.3m
Contingency	\$3.5m
TOTAL	A\$39m

Note: For further information please refer to ASX announcement titled, "Maiden Ore Reserve and Outstanding Beharra PFS Result Update", dated 17th March 2021.



What makes Beharra special

90% white sand

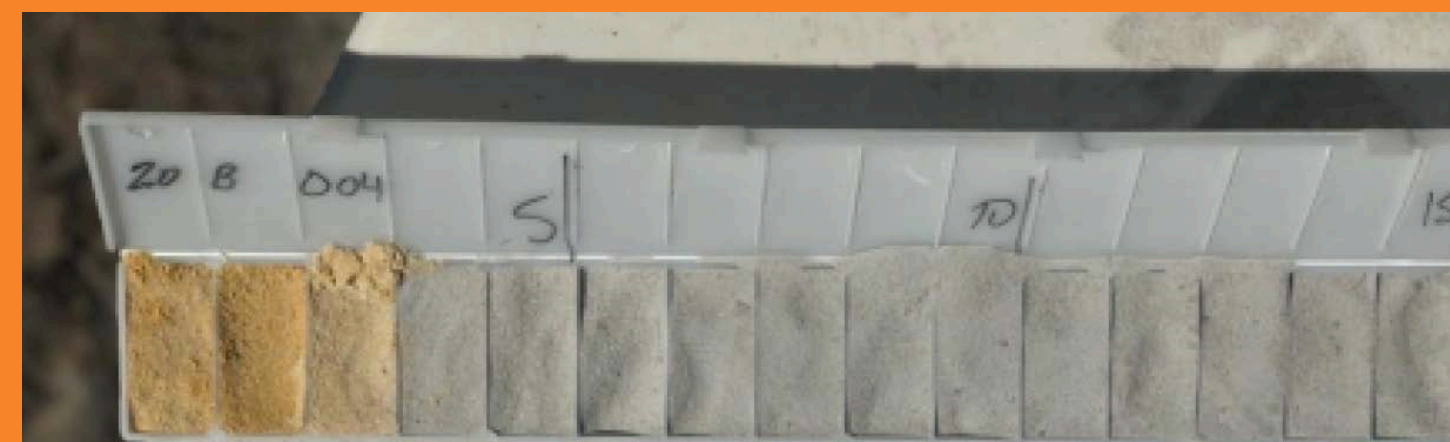
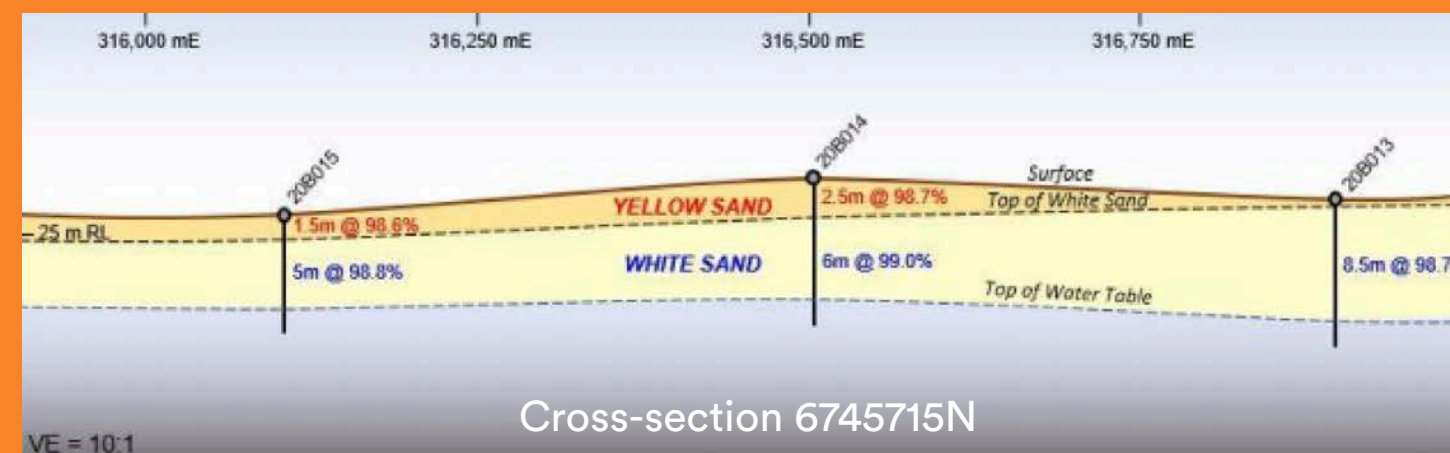
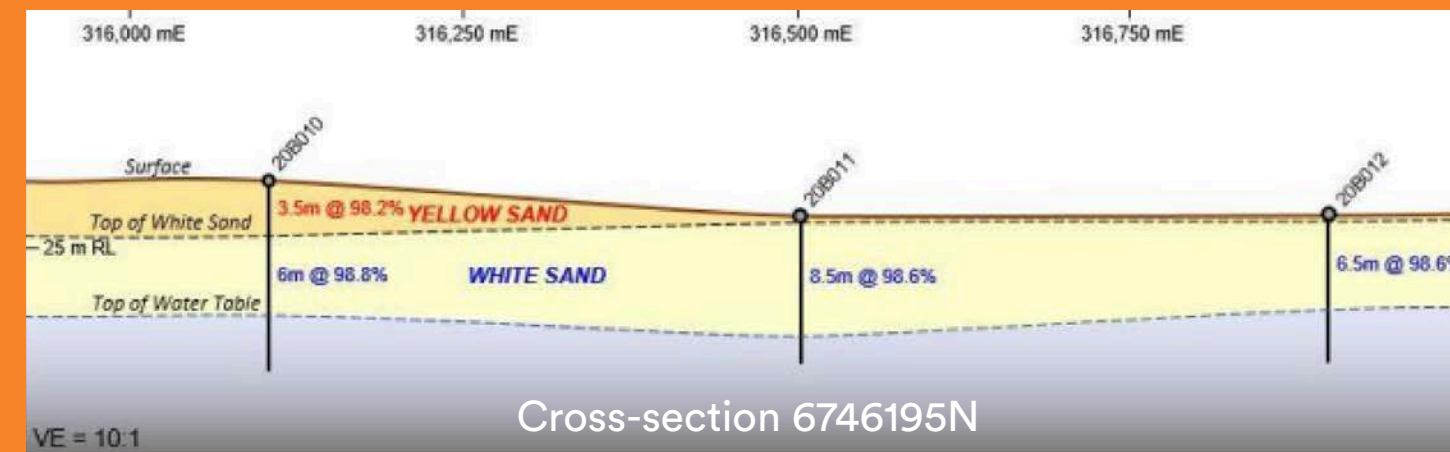
- White sand has less impurities, the key to achieving a saleable product
- Higher impurities require processing, which adds to capital and operating costs
- Yellow sand is only useful for lower value construction sand applications



Beharra White Sand compared to Beharra Yellow Sand

Simple geology

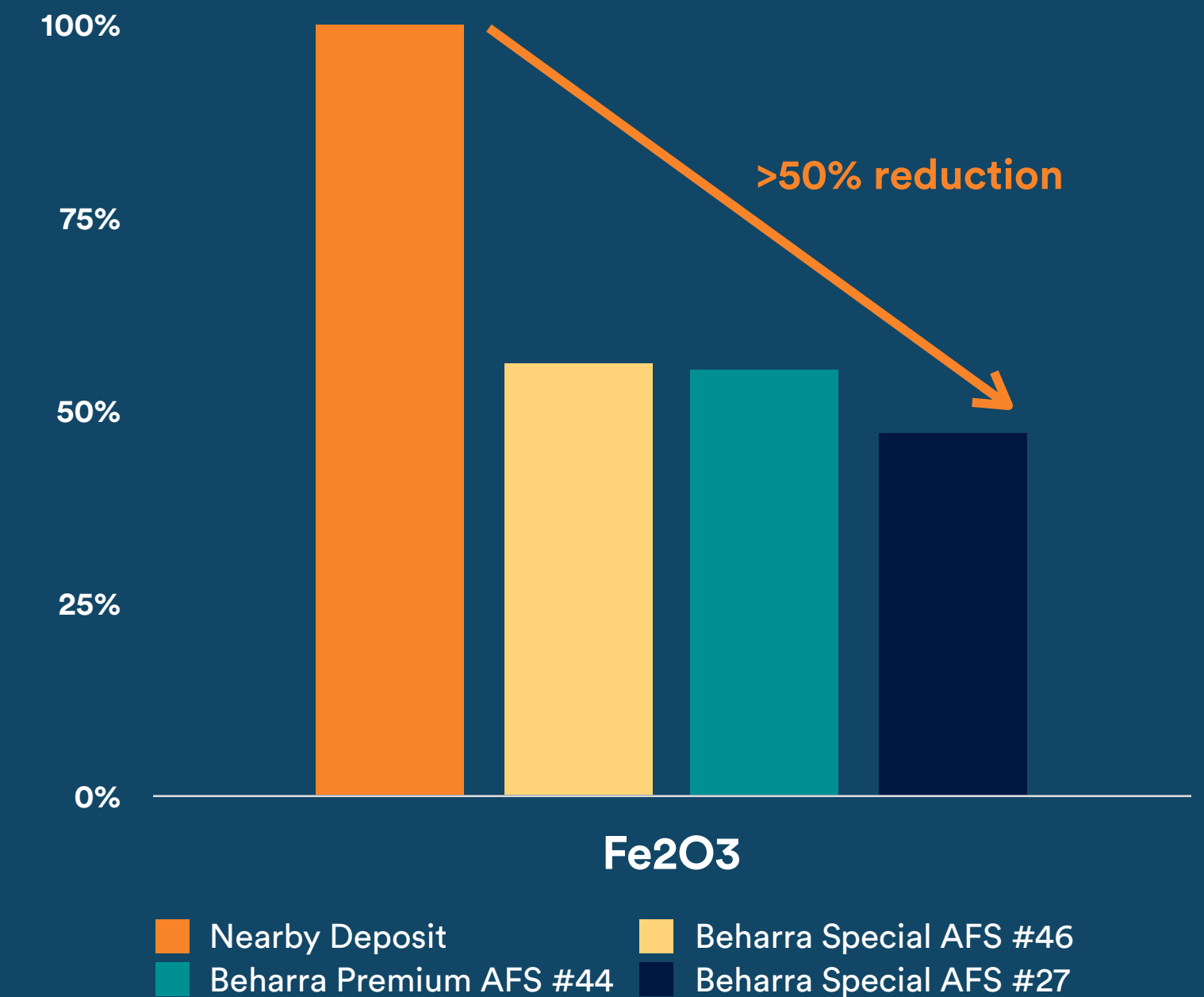
- Clearly defined horizons of white and yellow sand
- Selective mining expected to be straightforward



>12m Intersection of White Sand separated into 1m intervals from September 2020, Beharra Drill Program

Superior metallurgy*

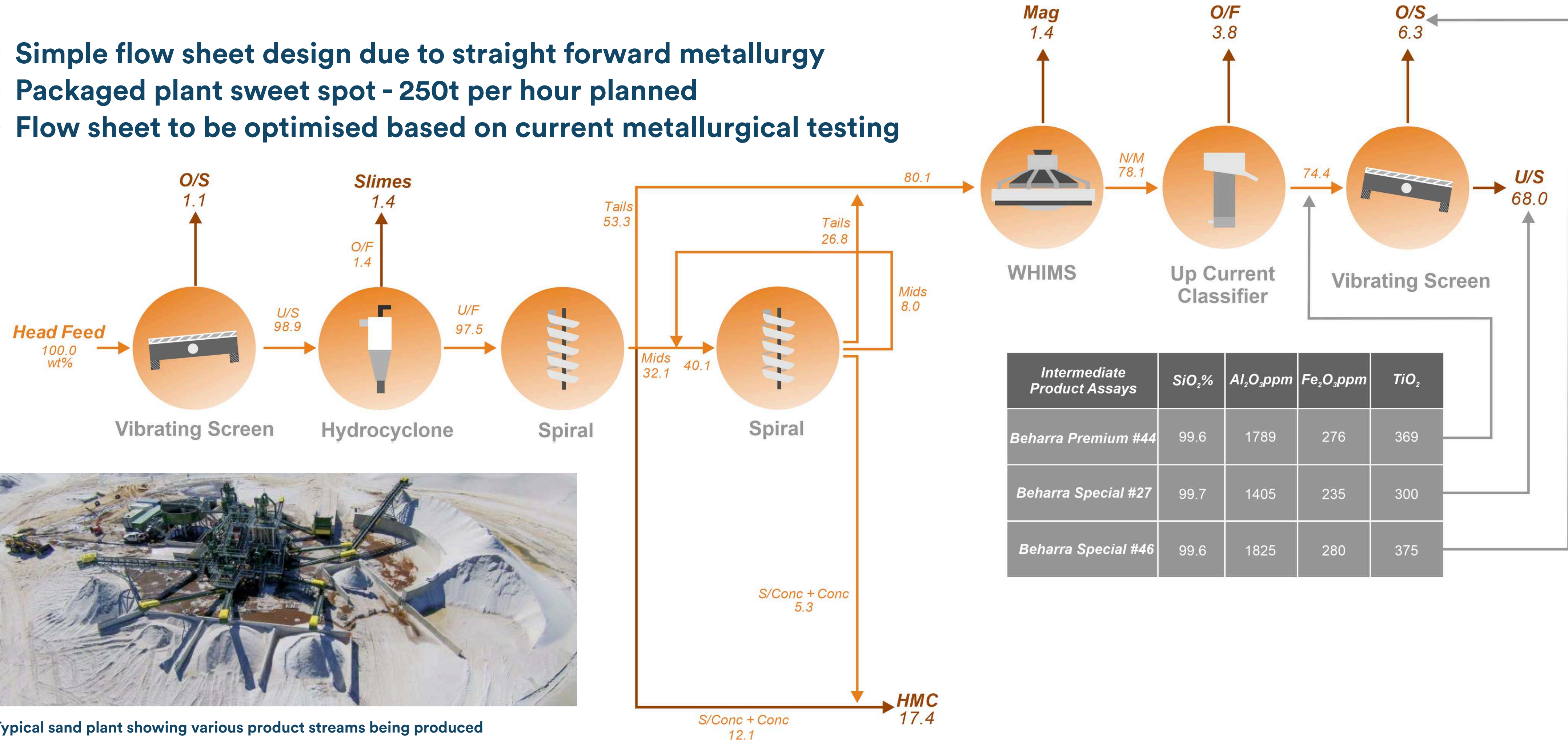
- Lowest known impurity profile in the Midwest
- Potential for premium product pricing



*Source: PEC test results (see ASX Announcement dated 29th January 2021) and VRX Silica's Arrowsmith North technical Sheet (see <https://vrxsilica.com.au/assets/Arrowsmith-NF500.pdf>)

PFS Production Process

- Simple flow sheet design due to straight forward metallurgy
- Packaged plant sweet spot - 250t per hour planned
- Flow sheet to be optimised based on current metallurgical testing

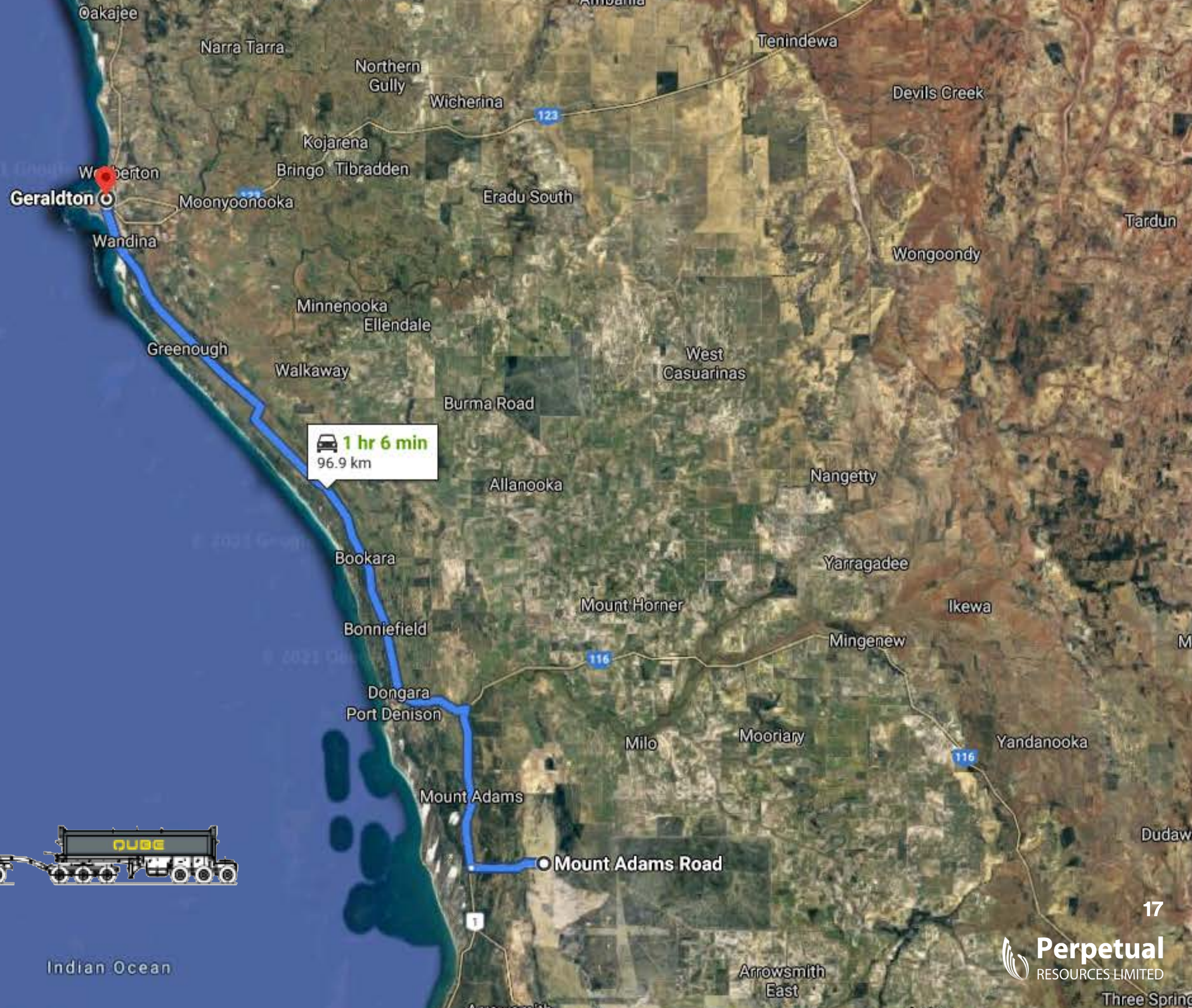


Typical sand plant showing various product streams being produced

Note: For further information please refer to ASX announcement titled, "Exceptional Metallurgical Test Results - Beharra", dated 29th January 2021.

Tier 1 Infrastructure Regional

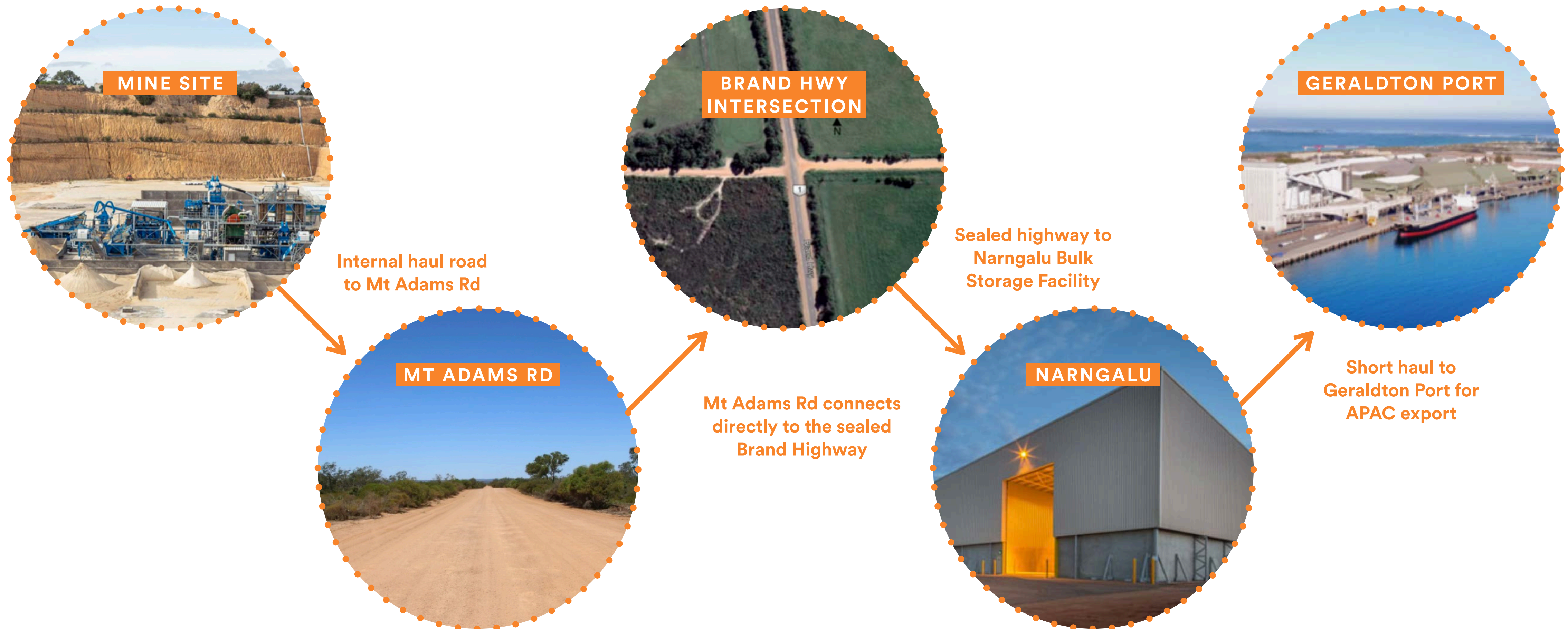
Beharra is one hour by high quality road to Geraldton Port, underpinning the economic viability of Beharra.



RAV7.3 – PBS Super Triple



Tier 1 Infrastructure In Practise



Future Opportunities for Enhancement

DSO production scenario being investigated

Freight alternatives such as Road + Rail or Rail only

Direct port access as part of Mid West Ports expansion project

Potential simplifying of the metallurgical flowsheet to lower capital and operating costs

Dry mining and slurrification option (hydro-transport of ROM)

Campaign mining and processing

Conversion of capex to opex or shared costs with other operators

Investigations of expansion cases in terms of increased plant throughput

Selective processing of the white sand horizons

New Dongara Bypass could lower freight costs

Midwest Regional Benefits

Beharra is a generational project with a 32 year mine life and significant expansion potential.

Benefits to region, state and Australia

- Corporate taxes of \$485m
- State royalties of \$56m
- Strong injection of spending into local economy

Local benefits

- Local office establishment
- 62 construction jobs and 57 ongoing jobs
- Strong intention to utilise indigenous and local workforce and services
 - Equipment maintenance
 - Contractors
 - Specialist technical consultants
 - Waste management
 - Fueling
 - Seasonal rehab
 - And many others

Note: Dollar values listed above are taken from the Beharra PFS Study



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