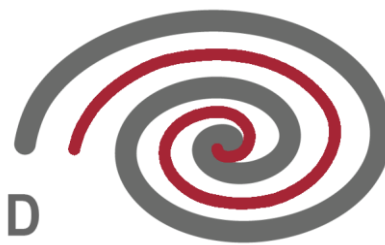


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FOCUSED ON  
**Industrial  
Minerals**

JUNE 2022 | ASX : HVY

Heavy  
**Minerals**  
LIMITED



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## Competent Person Statement

The information in this announcement that relates to Exploration Results, Exploration Targets and Mineral Resource estimates is based on and fairly represents information and supporting documentation prepared by Mr. Greg Jones (FAusIMM) who is a Non-Executive Director for Heavy Minerals Limited. Mr. Jones is a Fellow of the Australasian Institute of Mining and Metallurgy and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that is being reported on 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. Jones has reviewed this report and consents to the inclusion in the report of the matters in the form and context with which it appears.

The Exploration Results referred to in this announcement were last reported in accordance with ASX Listing Rule 5.7 and released on the ASX market announcements platform on the 2<sup>nd</sup> May 2022 (Port Gregory) and 6<sup>th</sup> December 2021 (Inhambane). The Company confirms that it is not aware of any new information or data that materially affects the information included in the prospectus.

The Mineral Resource estimates referred to in this announcement were last reported in accordance with ASX Listing Rule 5.7 and released on the ASX market announcements platform on the 2<sup>nd</sup> May 2022 (Port Gregory) and 6<sup>th</sup> December 2021 (Inhambane). The JORC Mineral Resource report that supports the original Mineral Resource estimate for Inhambane is hosted on the company website at the following link:

<https://www.heavyminerals.com/technical-reports/>

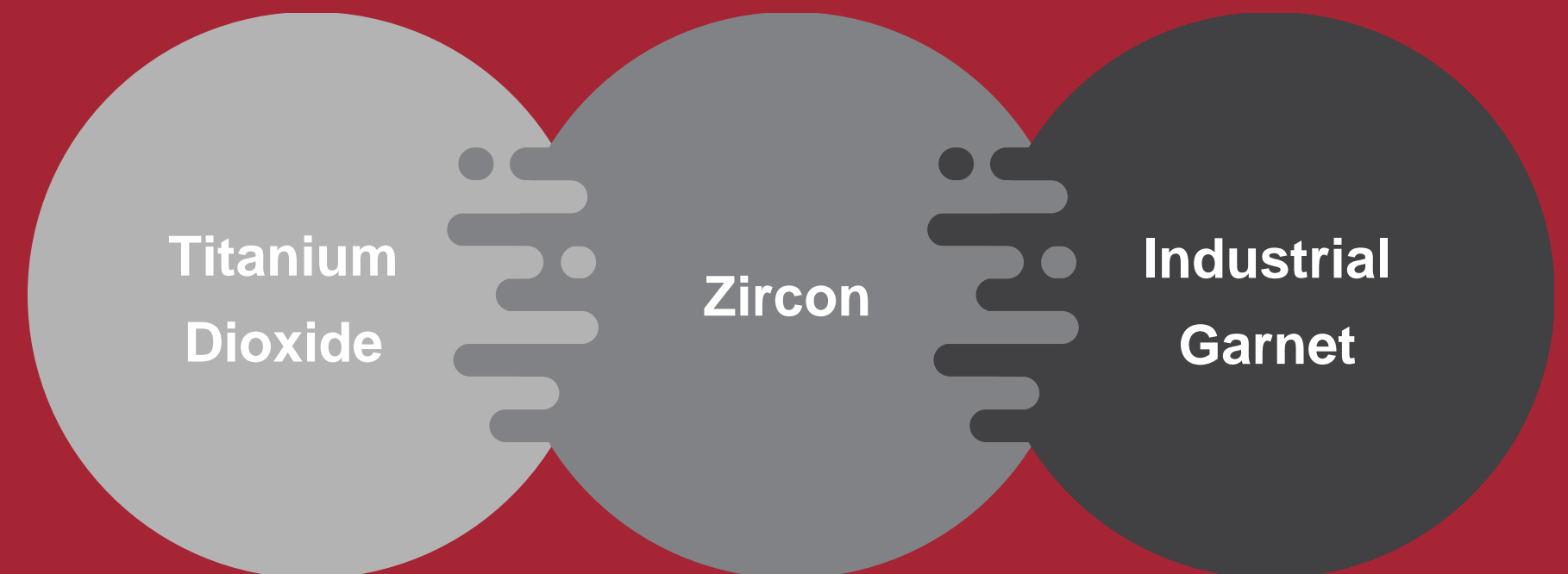
# Presentation Outline

- Investment Highlights
- Capital Structure
- Board of Directors
- Project Overview
- Industrial Garnet
- Garnet Market
- Garnet to 2030
- Port Gregory Garnet Project & Timeline
- Port Gregory JORC Mineral Resource
- High Grade Drilling Results
- Red Hill Discovery
- Market Outlook – Mineral Sands
- Inhambane – Mineral Sands Project
- Inhambane JORC Mineral Resource

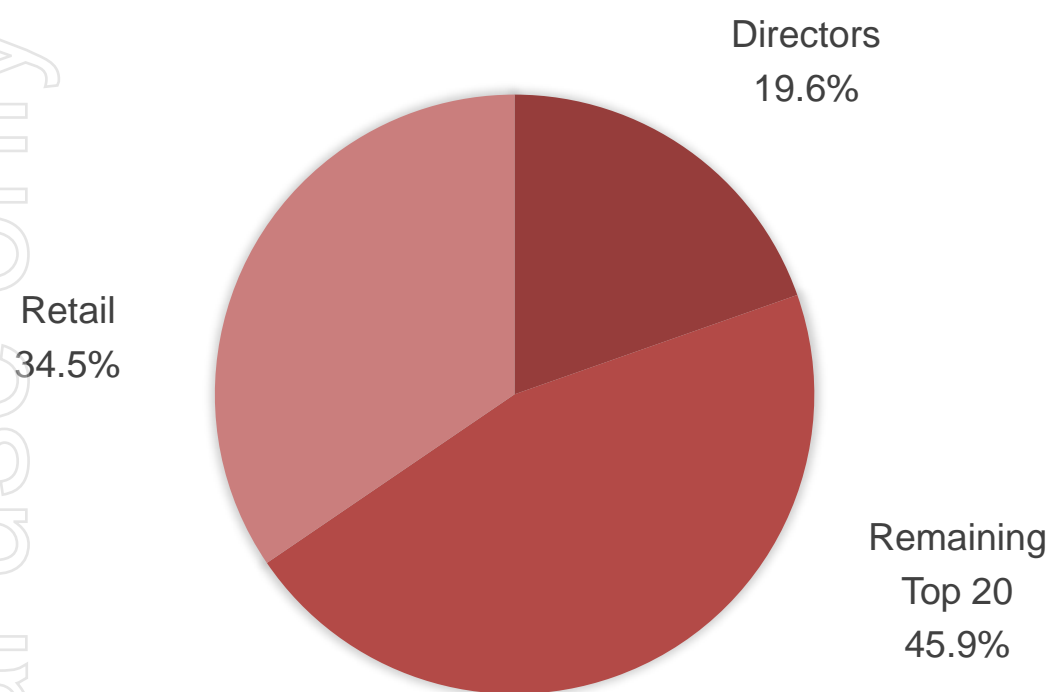
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## Heavy Minerals Limited (HVY) is an Emerging Industrial Minerals Explorer with Projects adjacent to world class deposits in pro-mining jurisdictions

- Western Australia – Port Gregory Project: JORC Mineral Resource 135 MT @ 4.0% THM containing **4.9 Mt Contained Garnet**
- Western Australia – Port Gregory Project adjacent to GMA mine, which supplies 30% of global Almandine Garnet<sup>1</sup>
- Mozambique – Inhambane Project: JORC Inferred Mineral Resource of 90 Mt @ 3% THM - Adjacent to Rio Tinto and Savannah Resources Heavy Mineral Sands Projects



# Capital Structure<sup>1</sup>



**ASX CODE**  
HVY

**SHARES ON ISSUE<sup>2</sup>**  
51.3M

**MARKET CAP<sup>2</sup>**  
\$11.03M

**CASH<sup>2</sup>**  
\$2.95M

**DEBT<sup>2</sup>**  
nil

**EV<sup>2</sup>**  
\$8.08M

Position	Holder Name		% IC
1	J P MORGAN NOMINEES AUSTRALIA PTY LIMITED	3,725,000	6.91%
2	CHRISTOPHER ADAM SCHOFIELD	3,604,283	6.69%
3	VALENS INTERNATIONAL PTY LIMITED	3,360,000	6.24%
4	METAL TIGER PLC	2,725,198	5.06%
5	BT PORTFOLIO SERVICES LIMITED <MR MATHEW JASON HILL A/C>	2,548,236	4.73%
6	GLENN SIMPSON & KERRY SIMPSON <SIMPSON FAMILY S/F A/C>	1,984,367	3.68%
7	GNJ CONSULTING PTY LTD <GNJ CONSULTING A/C>	1,579,078	2.93%
8	MR KENNETH JOSEPH HALL <HALL PARK A/C>	1,450,000	2.69%
9	BNP PARIBAS NOMINEES PTY LTD <IB AU NOMS RETAILCLIENT DRP>	1,425,738	2.65%
10	MAURICE DOMINIC MATICH	1,425,000	2.65%
<b>Total Top 20</b>		<b>34,297,215</b>	<b>63.63%</b>
<b>Total Issued Capital - selected security class(es)</b>			<b>100.00%</b>



<sup>1</sup>As at 31<sup>st</sup> May 2022, <sup>2</sup>As at 31<sup>st</sup> March 2022 (25cps)

# Board of Directors

## **Adam Schofield** Non-Executive Chairman

Mr. Schofield is a mining company executive with over 20 years' experience in the resources sector in Australia and Africa. He has significant experience in conducting feasibility studies and taking projects from feasibility stage into operations. He has extensive experience in Mineral Sands, Gold, Copper, and Iron Ore. Adam is an Executive Director and the CEO of Nelson Resources Limited (ASX:NES) and a Non-Executive Director of Kingfisher Mining Limited (ASX:KFM).

## **Maurice (Nic) Matich** Executive Director and CEO

Mechanical engineer and finance professional, 15+ years of varied experience in the resources sector, including the provision of engineering, risk consulting and insurance services to numerous Tier 1 mining companies with operations in Mineral Sands, Talc, Iron Ore, Gold, Lithium and Zinc. Nic has a deep understanding of the industrial minerals thematic having covered the sector as an analyst for Patersons Securities. Nic is also a Director of Mobile Crisis Construction Limited, an Australian Charity that operates Internationally.

## **GLENN SIMPSON** Non-Executive Director

Mr. Simpson has been a Chartered Accountant for over 32 years, with global experience in accounting with a strong mining focus. His experience includes managing the Touché Ross & Co (Deloitte) practice in Bougainville, Papua New Guinea for 3 years and establishing his own large commercial accounting practice in West Perth & Kalgoorlie. Over the last decade, he established a large insurance broking and underwriting business from Perth that operated Nationally. These businesses were sold to a "national brand" underwriting and broking companies. He is a sophisticated investor and has been involved in many commercial / mining ventures including capital raising and business start-ups. He has also mentored many small cap companies.

## **GREG JONES** Non-Executive Director

Over 25 years' experience as a mineral sands Geologist with Iluka Resources in senior resource estimation/management roles and in the capacity of Competent Person for the reporting and management of Mineral Resources and Ore Reserves. Has helped develop a number of new discoveries into reportable Mineral Resources including Jacinth-Ambrosia. He is a 20+ year member of the AusIMM, holding the grade of Fellow, sitting on review committees and has co-authored multiple technical and resource estimation mineral sands papers. For the past eight years, Greg has held various consulting roles, firstly establishing GNJ Consulting Pty Ltd which specialised in geological, metallurgical and resource estimation consulting services to the mineral sands sector, then joining IHC Robbins where he is currently the Commercial and Business Development Manager.

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**Port Gregory Project**  
**135 MT @ 4.0% THM<sup>1</sup>**  
**4.9 Mt contained garnet**



<sup>1</sup>HVY ASX announcement 2<sup>nd</sup> May 2022

## Port Gregory Garnet Project

(100 km North of Geraldton, Western Australia)

- 4.9 Mt contained Garnet (~5 years of Global demand)
- Upside potential along 50 km of underexplored coastline with 226 km<sup>2</sup> of contiguous tenure – including the recently discovered “Red Hill Prospect”
- Adjacent to world-class GMA Garnet mine and the Lucky Bay Mine (under construction)

## Inhambane Heavy Mineral Sands Project

(17 km Southeast of Inhambane, Mozambique)

- Inferred JORC Mineral Resource 90 million tonnes @ 3.0% THM (2.7 Mt HM)<sup>1</sup>
- Mining application pending
- Adjacent to HV power infrastructure
- Road Infrastructure and Port

Two projects with the potential to grow into globally significant mineral sands resources. Both Projects adjacent to Tier 1 Assets (GMA, RDG & Rio Tinto).



<sup>1</sup>HVY.ASX announcement 6<sup>th</sup> December 2021.



1,100,000 Tonne Worldwide consumption in 2021<sup>1</sup>

## ALLUVIAL ALMANDINE GARNET UNIQUE QUALITIES

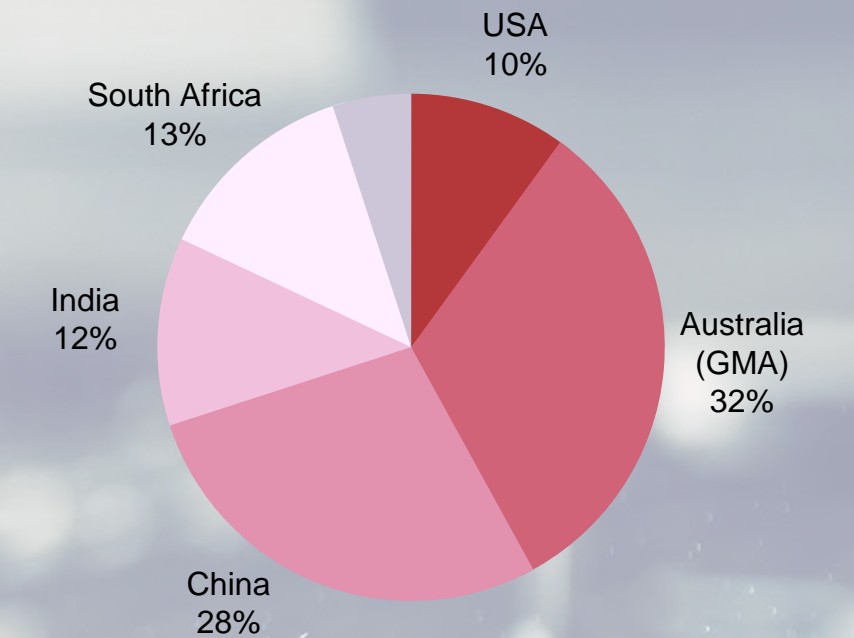
**Superior hardness** (7.5 Mohs hardness<sup>3</sup>)

- = **High productivity** (lower abrasive consumption)
- = **Low dust** (OH&S requirement)
- = **Recyclable** (Almandine Garnet can be recycled several times)

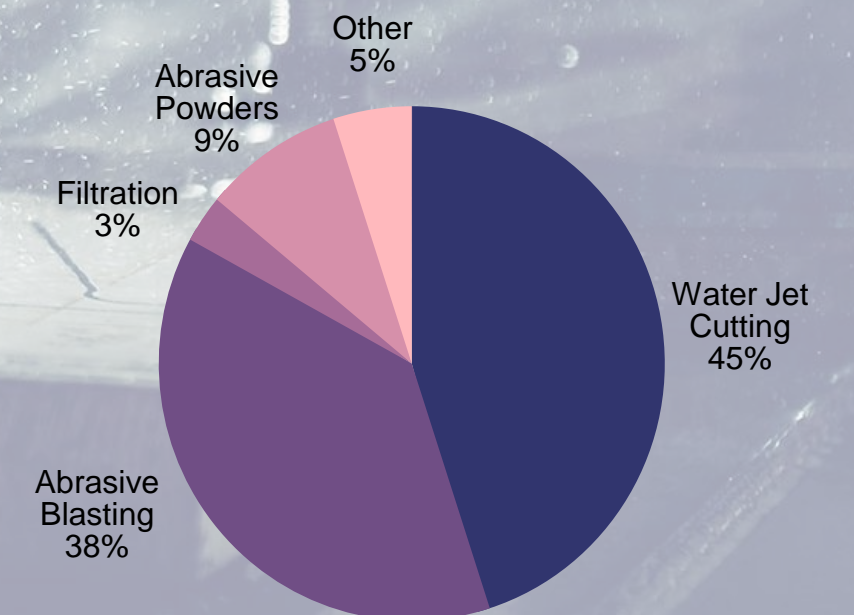
## **Inert**

- = **Environmentally friendly** (no hazardous by products)
- = **Minimal health and Safety Risks** (OH&S requirement)

## Garnet Production by Region<sup>1</sup>



## Garnet Use by Category 2019<sup>2</sup>

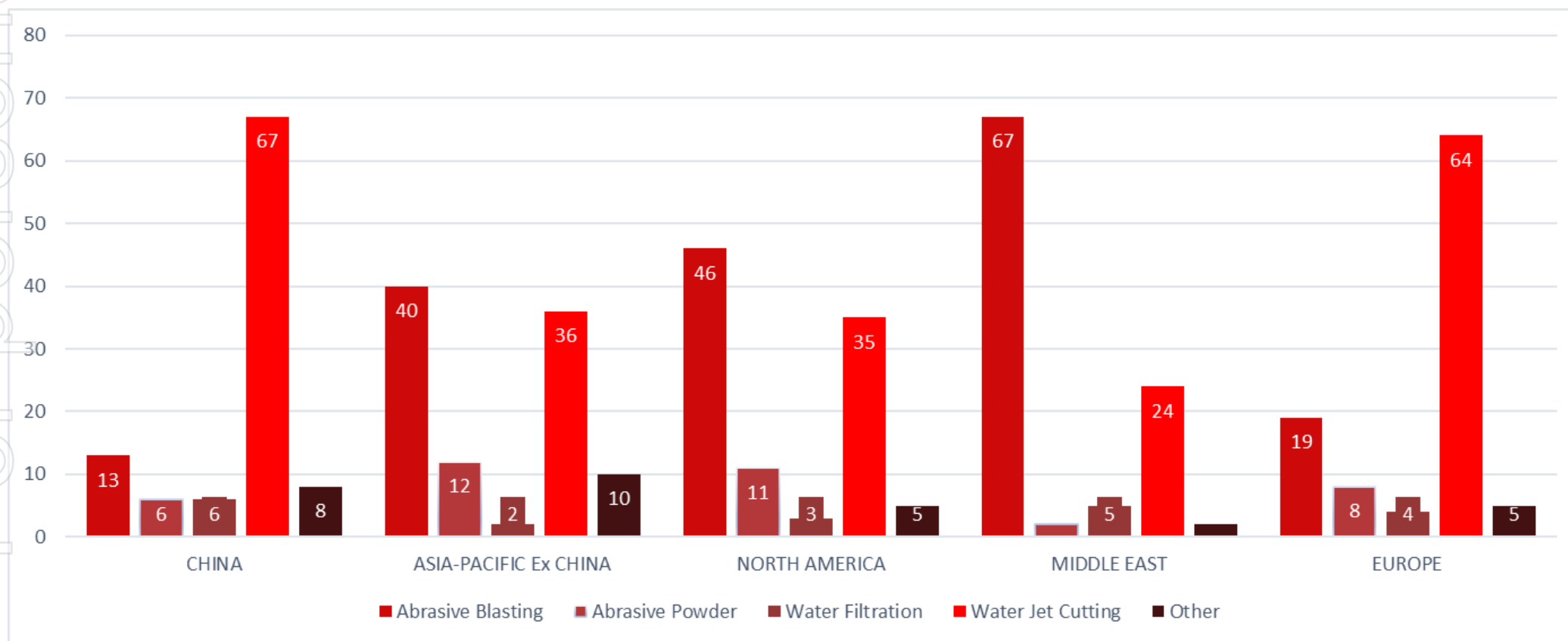


# Garnet Market

Refined (sized) garnet commands a premium of up to 100% on unrefined products (US\$300-US\$500+ per tonne)<sup>3</sup>. To be explored in Scoping Study

8.7% CAGR in pricing 2016-2021<sup>4</sup>

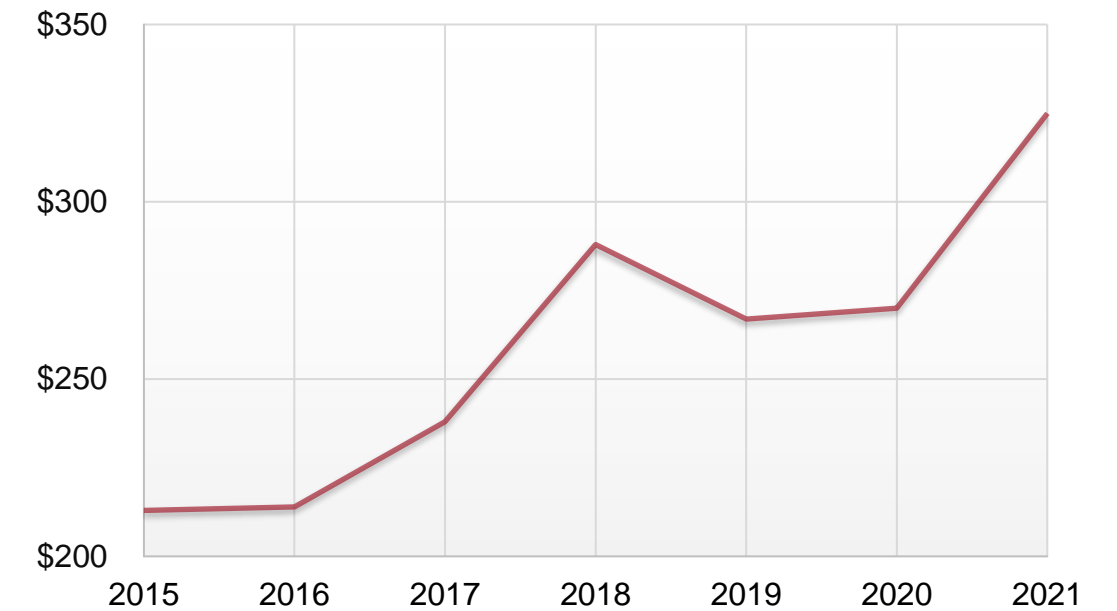
**Water Jet cutting drives current demand** and is the dominant end-use in advanced manufacturing (Europe & China)<sup>1</sup>



## Major Markets

USA, EU, Asia and Middle East

US\$ per tonne (unrefined)<sup>2</sup>



World Garnet Production (kt)<sup>2</sup>



<sup>1</sup> TZMI Garnet Market Data (Project 11759) Jan 2021 & USGS Minerals Handbook 2021 (Global Average 2015-2019, USA 2020)

<sup>2</sup> USGS Minerals Handbook 2004 – 2022

<sup>3</sup> 2016 USGS Minerals Yearbook and HVY extrapolations

<sup>4</sup> HVY calculations

# Garnet to 2030

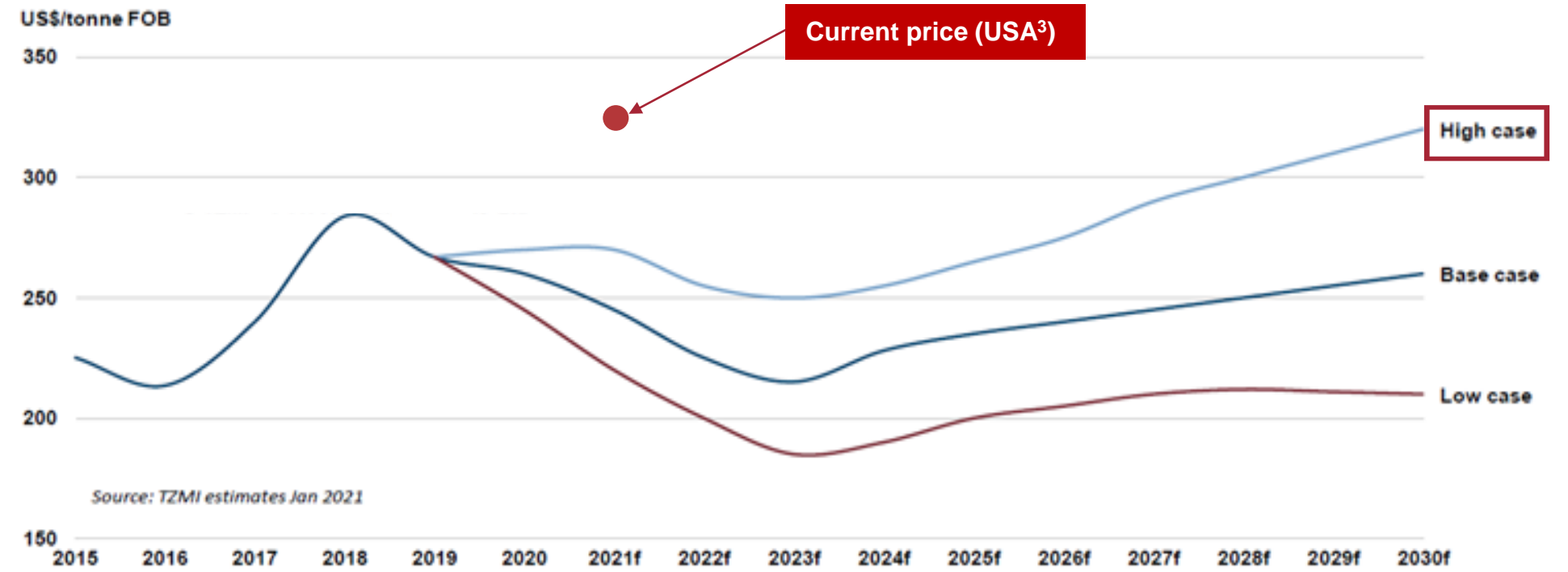
**HVY'S unique opportunity is the significant and widening supply deficit forecast from 2022 onwards<sup>2</sup>**

**540 kt deficit** in 2030 without new sources of supply

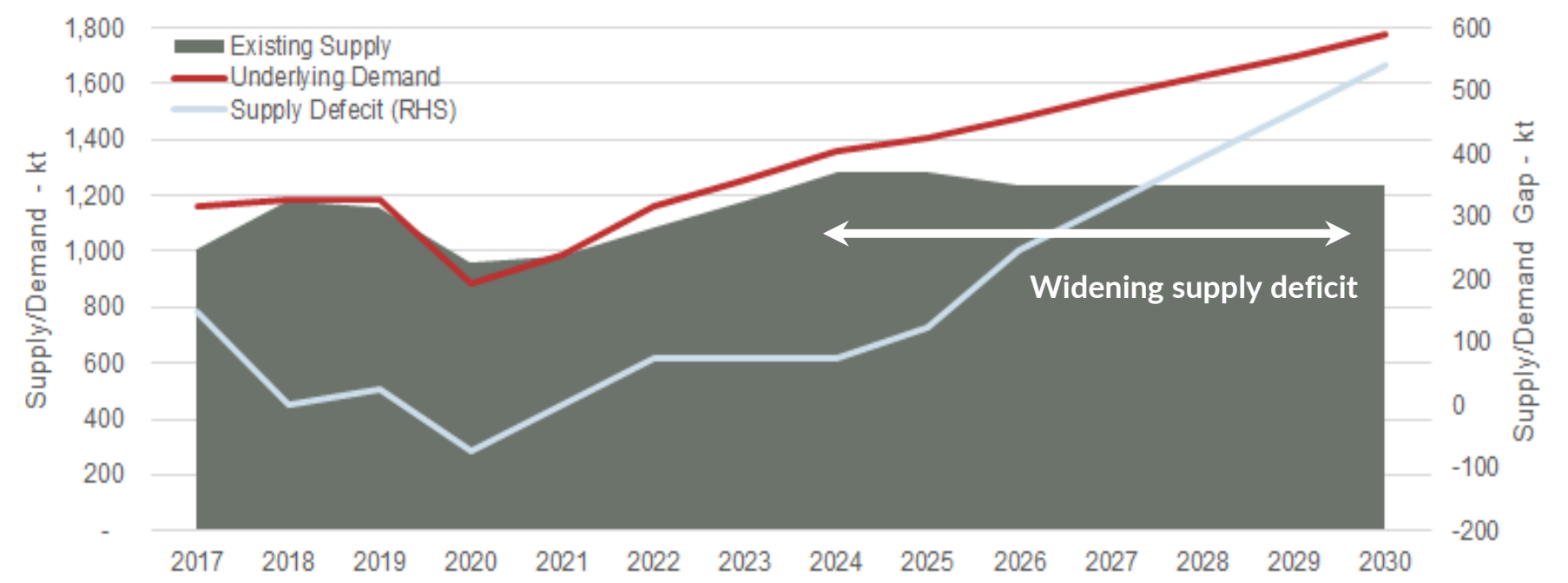
TZMI 2021 long-term forecast price of US\$210 per tonne (indexed to 2020) for unrefined product

USA 2021 average pricing trending well in excess of TZMI "High Case"<sup>3</sup>

**Global average (nominal) Garnet price (unrefined)<sup>1</sup>**



**Garnet Supply / Demand Forecast<sup>2</sup>**



<sup>1</sup>TZMI Garnet Market Data (Project 11759) Jan 2021, <sup>2</sup>TZMI Garnet Market Data (Project 11759) Jan 2021 & Internal forecasting, <sup>3</sup>USGS Minerals Handbook 2021 – Not converted to 2020 real dollars

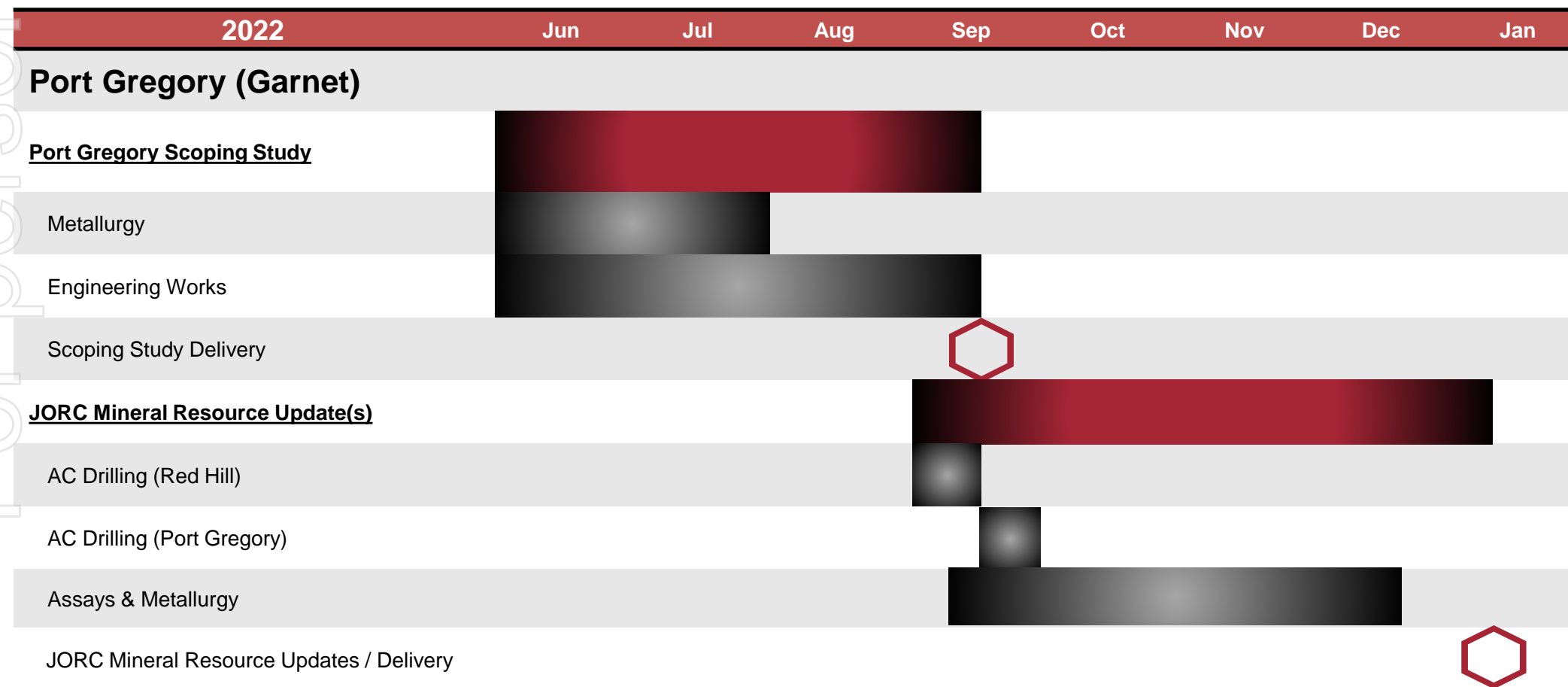
# Port Gregory Garnet Project

**Largest tenure holder (226 km<sup>2</sup>) in the region targeting garnet**

**JORC RESOURCE**  
4.9 Mt contained garnet  
“Red Hill” discovery

**Adjacent to world's largest garnet mine (GMA) and the Lucky Bay garnet mine (RDG.ASX)**

## Proposed Timeline (Port Gregory)



JORC Mineral Resource 135 MT @ 4.0% THM

**4.9 Mt contained garnet (96% VHM fraction in THM)**

Mineralisation open to the North and South with-in HVY's 100% owned tenure (E70/5160 & E70/5934)

Mineralisation from surface – Potential free digging operation

## Notable properties of the Resource

- ☑ Large resource (4.9 MT)
- ☑ High Grade
- ☑ Shallow / mineralised from surface
- ☑ Thick mineralised intercepts (30m+)
- ☑ Open along strike within HVY tenure
- ☑ 90% garnet in THM
- ☑ Zircon / Rutile / Ilmenite credit
- ☑ 96% valuable heavy mineral (VHM) component of THM

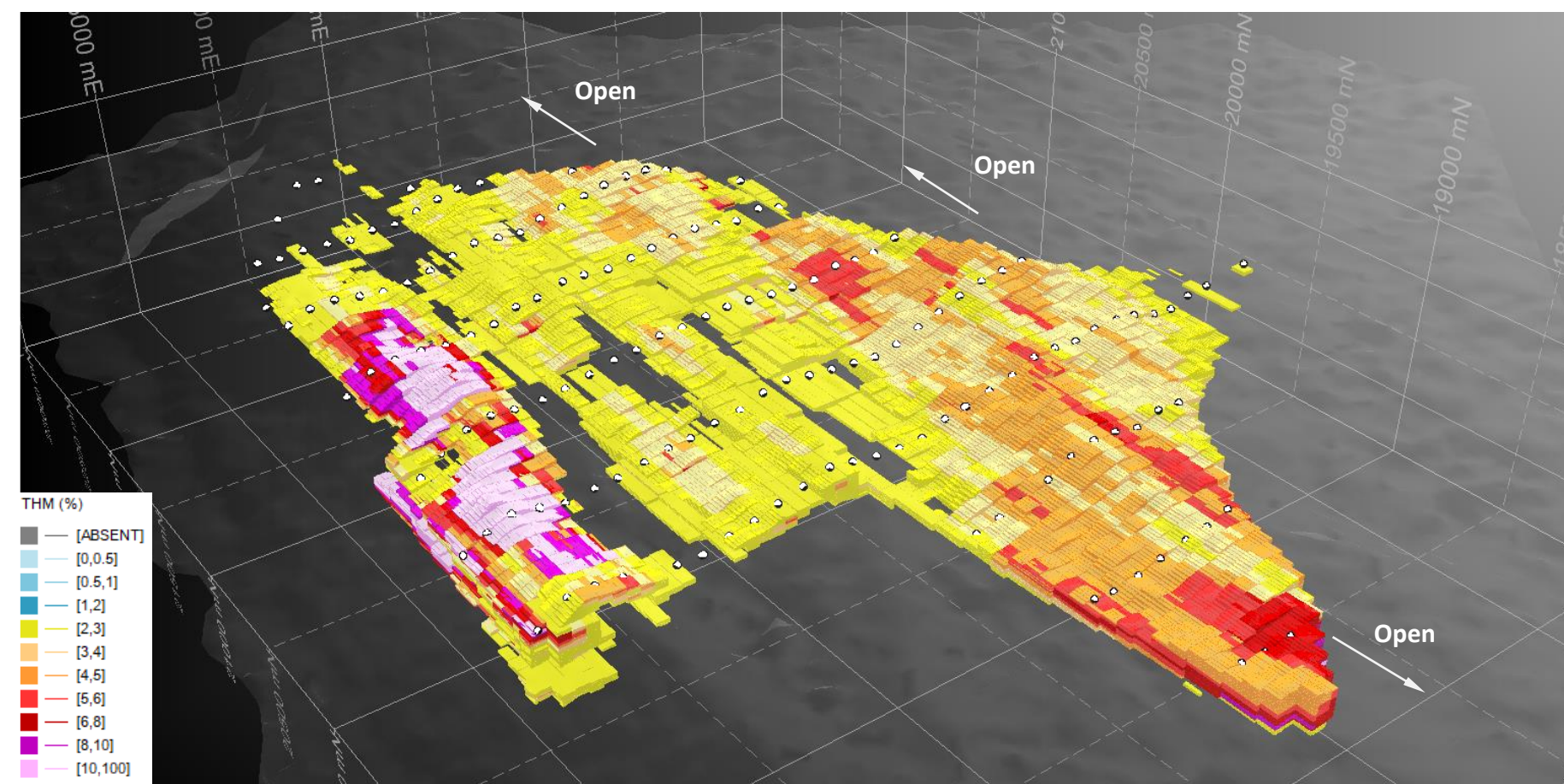
## Mineral Resource Estimate for Port Gregory Project as at 2<sup>nd</sup> May 2022

Classification	Summary of Mineral Resource estimate <sup>(1)</sup>											
	In Situ		In Situ		THM Assemblage <sup>(2)</sup>							
	Material (Mt)	THM (Mt)	Garnet (Mt)	THM (%)	SL (%)	OS (%)	Garnet (%)	Ilmenite (%)	Zircon (%)	Rutile (%)	Anatase (%)	Other (%)
Indicated	88	3.3	3.0	3.8	10	9	89	4	0.6	2	0.4	4
Inferred	47	2.1	1.9	4.5	10	11	91	4	0.5	1	0.2	3
<b>Grand Total</b>	<b>135</b>	<b>5.4</b>	<b>4.9</b>	<b>4.0</b>	<b>10</b>	<b>10</b>	<b>90</b>	<b>4</b>	<b>0.6</b>	<b>1</b>	<b>0.3</b>	<b>4</b>

### Notes:

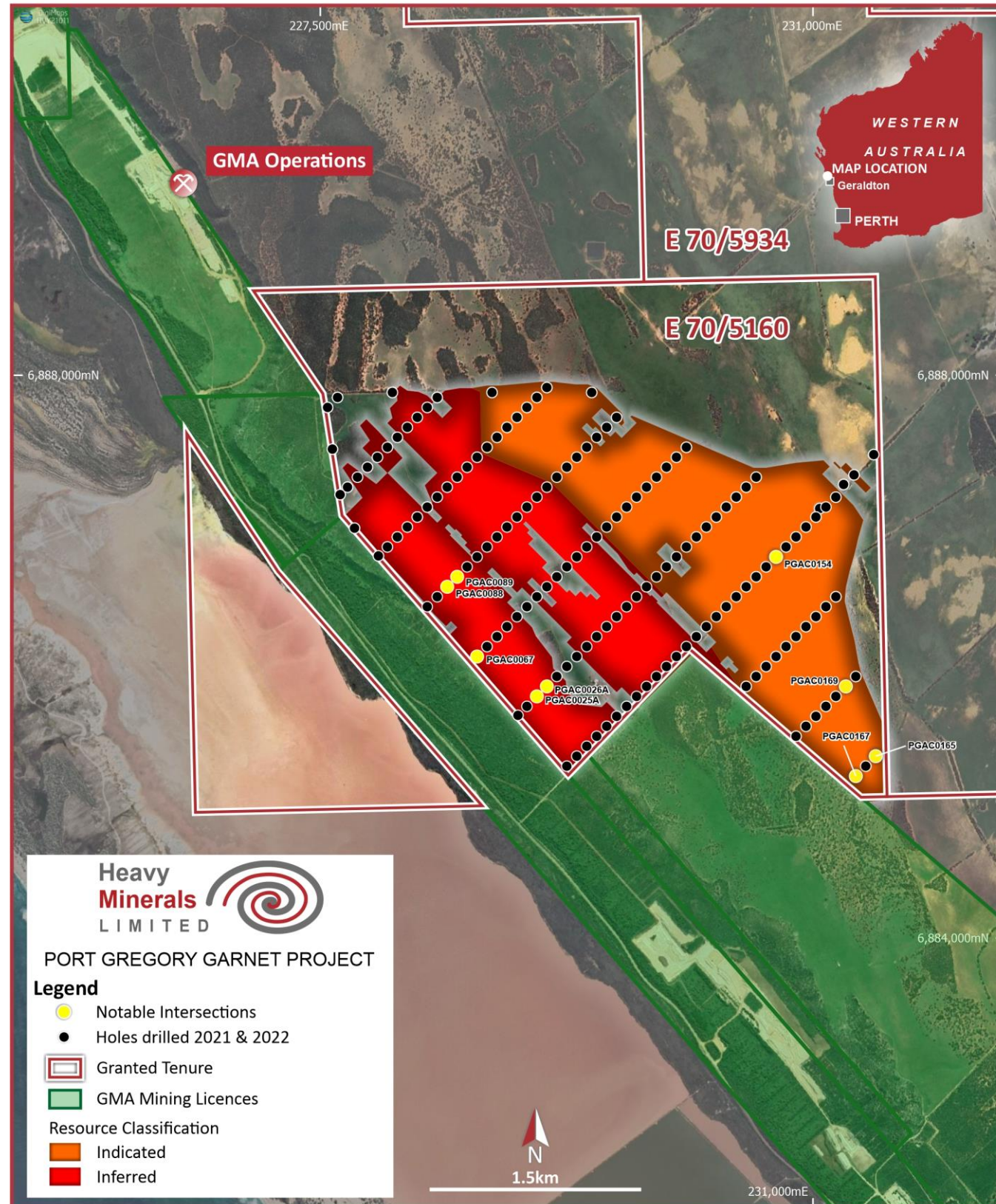
- (1) Mineral Resource reported at a cut-off-grade of 2.0% THM.
- (2) Mineral assemblage is reported as a percentage of in situ THM content.

## Resource Block Model<sup>1</sup>



<sup>1</sup>HVY ASX announcement 2nd May 2022, <sup>1</sup>Port Gregory block model @ 2% THM cut-off (HVY.ASX release 2<sup>nd</sup> May 2022),

## Mineral Resource Categories & Collars



## Notable intersections from maiden drilling campaign<sup>1</sup>

	Hole ID	GRADE (THM)	Interval (m)	From (m)
Western Intercepts	PGAC0067	11.3%	23	12
	PGAC0025A	17.9%	13	0
	PGAC0089	12.9%	14	0
	PGAC0088	13.3%	12	0
	PGAC0026A	39.5%	3	0
Eastern Intercepts	PGAC0154	5.7%	27	1
	PGAC0169	7.7%	15	0
	PGAC0165	9.3%	12	0
	PGAC0167	5.7%	19	0

**High grade, shallow and thick intercepts are properties of a mineral sands deposit that typically leads to low CAPEX and OPEX mining operations**

<sup>1</sup>HVY.ASX releases 7<sup>th</sup> Feb 2022 & 14<sup>th</sup> March 2022. Intercepts ordered Grade x Meters

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HVY will continue exploration of its tenure for garnet and other industrial minerals



**Red Hill prospect:** 37 km south of Port Gregory Project

High grade garnet from surface

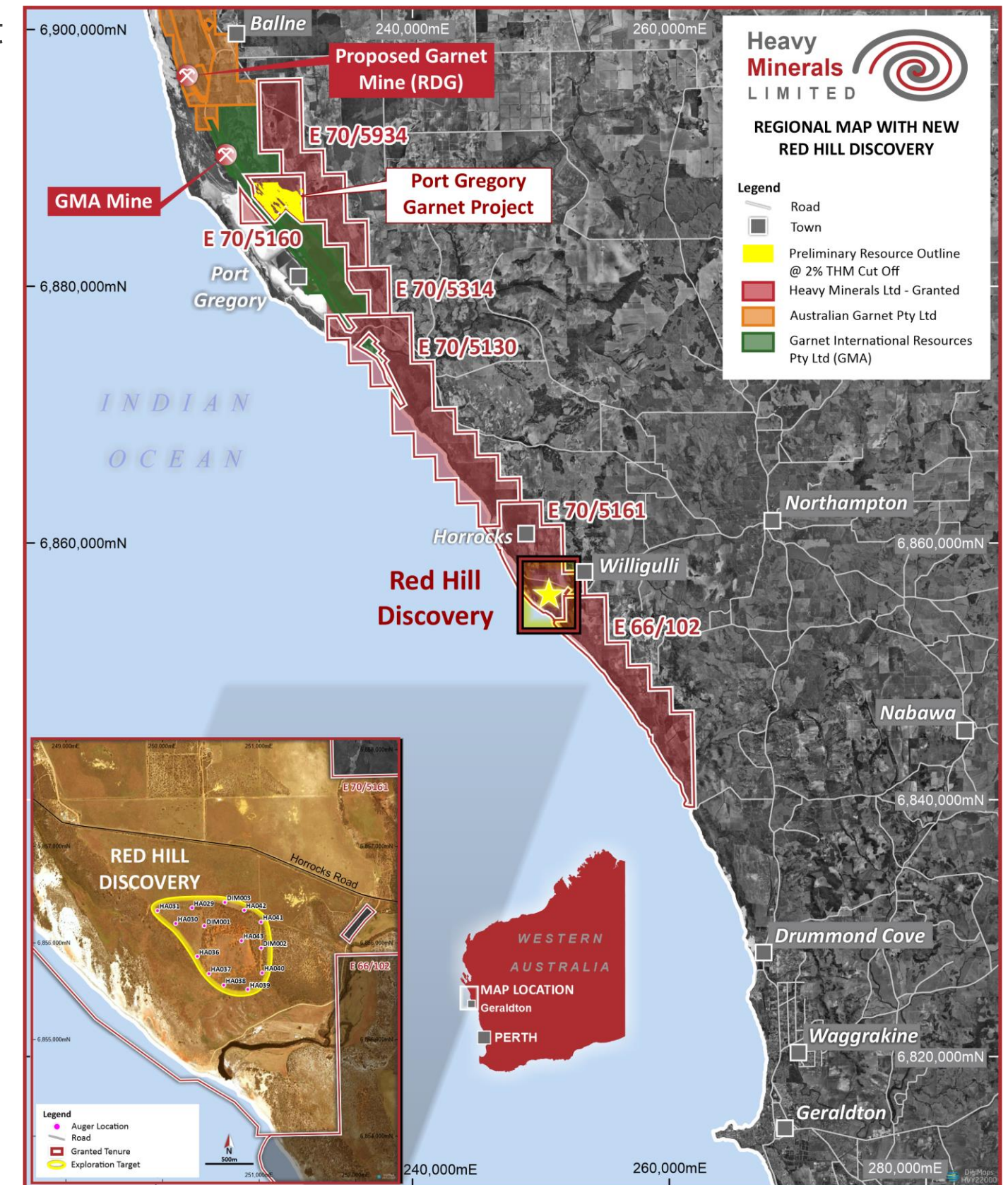
Analogous to the Port Gregory Project

High Priority Exploration target

AC drilling in Q3 2022

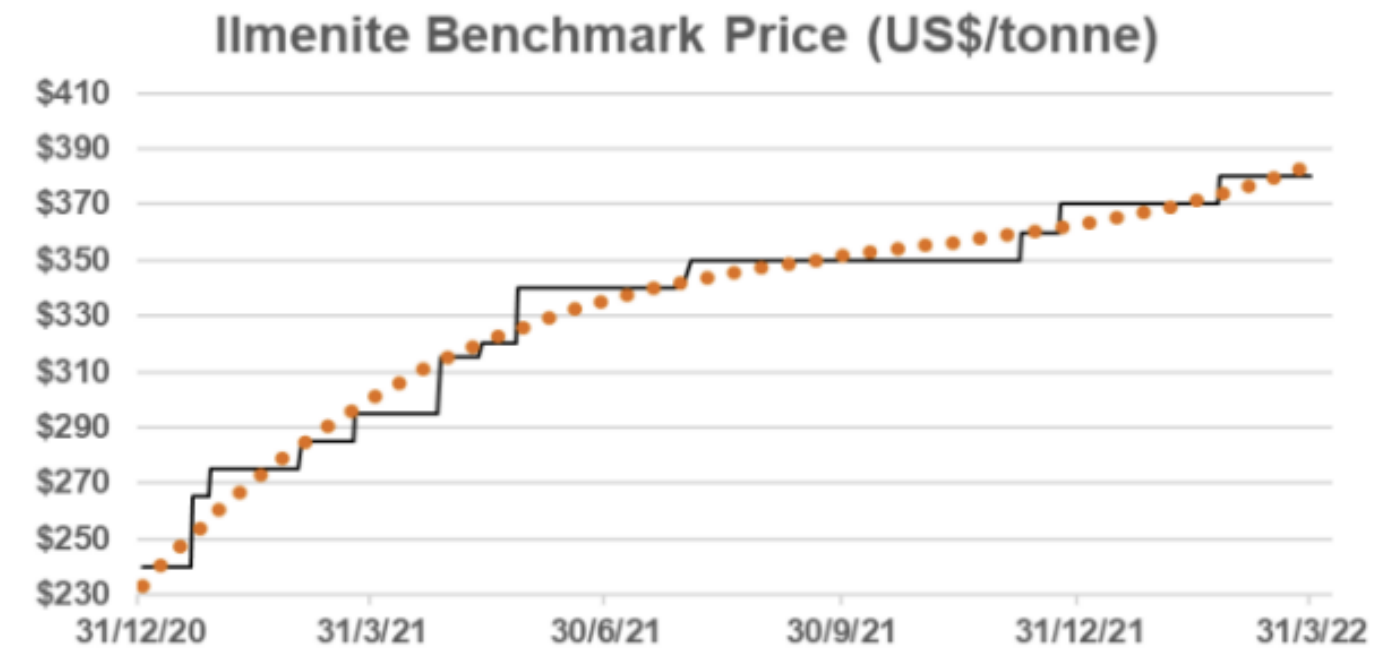
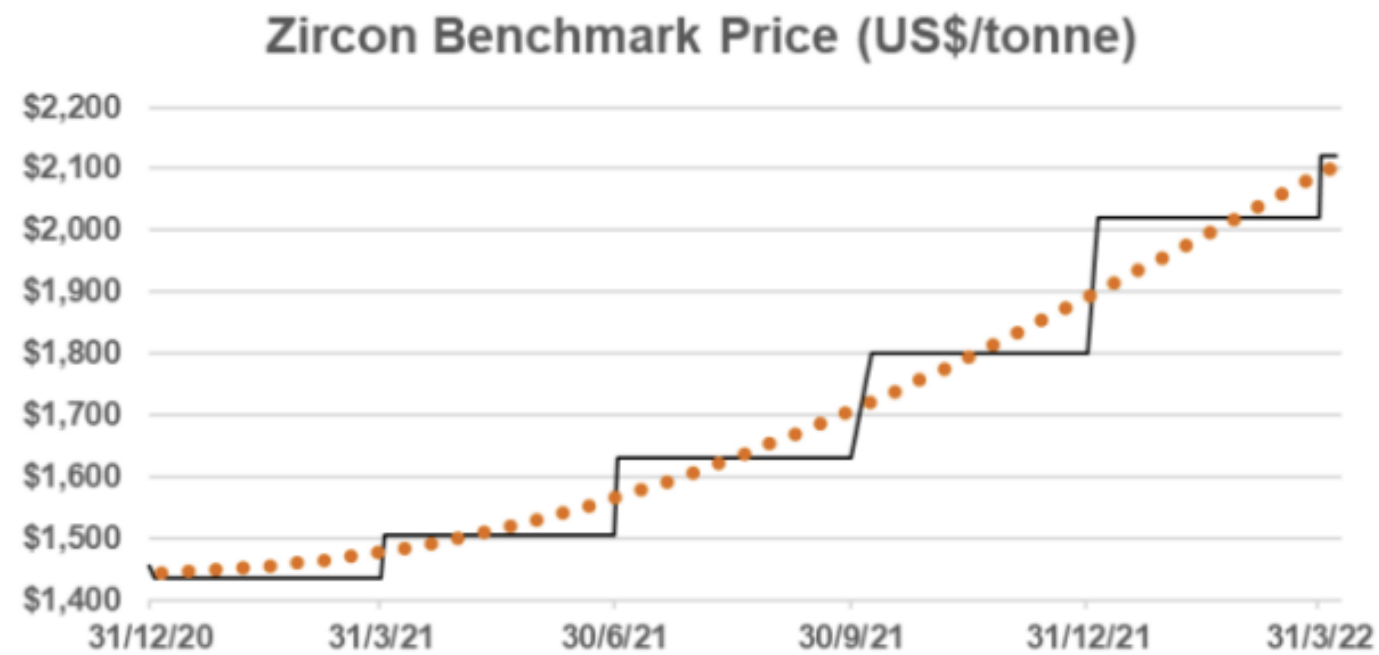
Red Hill highlights the prospectivity of HVY's extensive and underexplored tenure package that stretches over 50 km along the coast in a homogeneous geological setting

Hole ID	GRADE (THM)	Interval (m) <sup>1</sup>
HA037	6.9%	2
HA040	4.8%	1.5
HA029	4.1%	2.3
DM001	5.7%	1



<sup>1</sup>HVY.ASX release 26<sup>th</sup> Apr 2022, all intervals are from surface

## Heavy Mineral Sands Market Dynamics – Rapid uplift in pricing over the last 18 - 24 months



Existing producers are seeing an increase in pricing on the full suite of valuable heavy minerals (VHM) with strong gains seen since October 2020<sup>1</sup>

Full suite of valuable heavy minerals (VHM) have seen growth over the previous five years highlighting supply side constraints

<sup>1</sup>Image Resources (IMA.ASX) ASX release 29/04/2022

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## Titanium Dioxide

Ilmenite accounts for 90% of the world's consumption of titanium minerals<sup>1</sup>. Inhambane mineral assemblage contains 60% ilmenite

Chinese imports of titanium concentrates increased by 21% YOY in 2021<sup>4</sup>  
19% YOY in 2020<sup>5</sup>

China is the largest TiO<sub>2</sub> pigment producer in Asia  
added 260kT of TiO<sub>2</sub> capacity in 2019<sup>6</sup>



## Zircon

**Urbanisation** is driving demand for tiled flooring in Asia

**China** accounts for 55% of Global demand<sup>2</sup> and has seen GDP growth per capita of > 5% YOY since 1995<sup>7</sup>

Zircon used in Foundry and Refractories for steel manufacture

# Inhambane Mineral Sands Project

**213.8 km<sup>2</sup> of tenure under mining application:**

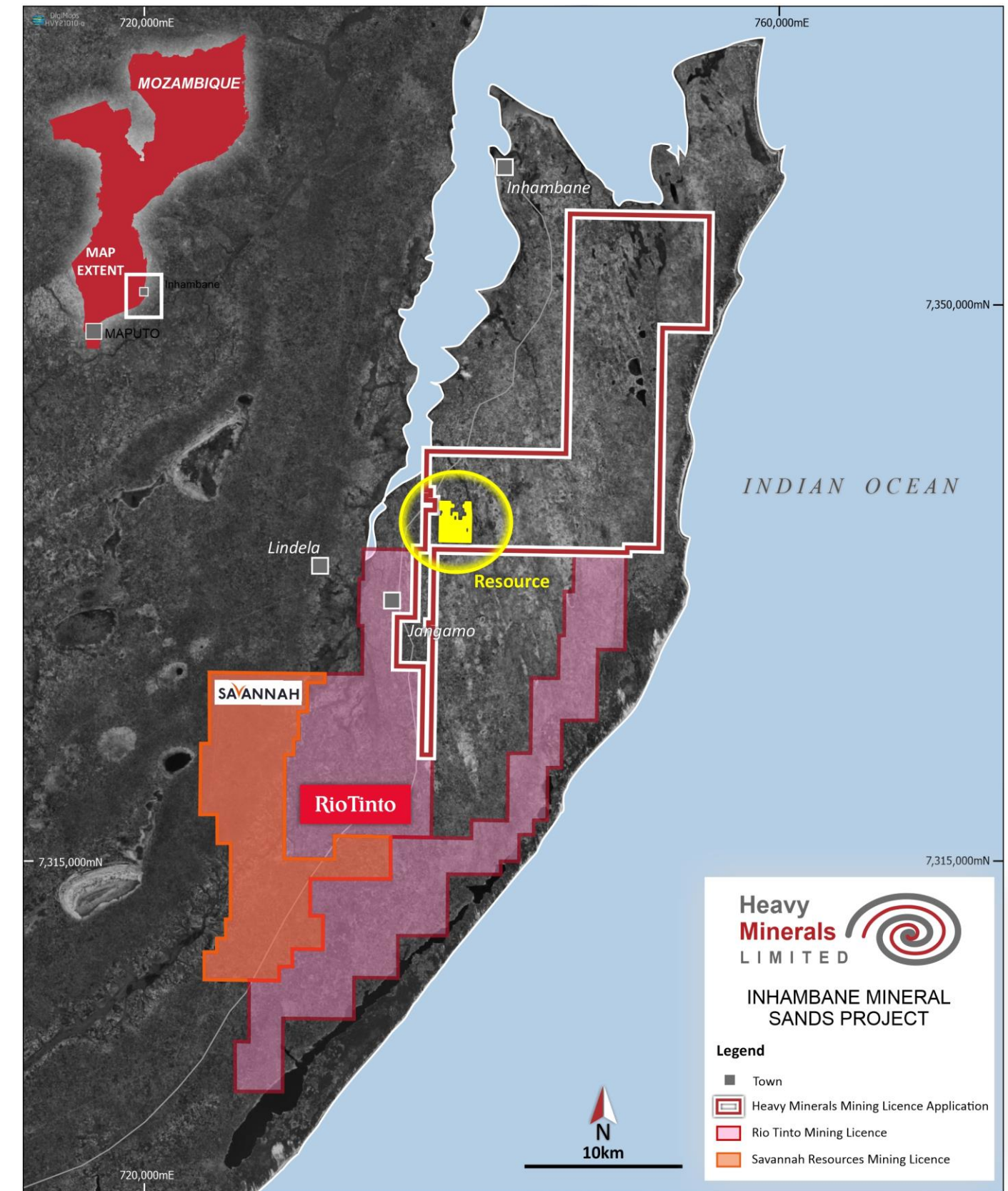
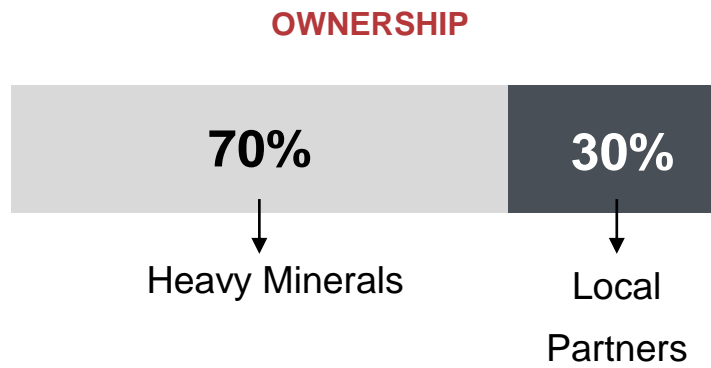
Adjacent to HV power, road and the Port of Inhambane.  
Mining Concession application lodged (25-year tenure),  
pending regulatory approvals

JORC Inferred Mineral Resource of **90 million tonnes @ 3.0% THM** (2.7 Mt contained HM)  
defined in a fraction of the concession. Sought after assemblage

**Ilmenite** accounts for **90% of the world's consumption** of **titanium** minerals<sup>1</sup>



Adjacent to two Tier 1 Mineral Sands Projects:



<sup>1</sup>Iuka Resources Full Year 2020 Results Presentation

## Inhambane 2022 metallurgy results<sup>1</sup> – Highly marketable product suite (No roasting):

**Primary ilmenite** containing 49.8% TiO<sub>2</sub>, 0.6% SiO<sub>2</sub>, 0.4% Al<sub>2</sub>O<sub>3</sub> and <0.1% Cr<sub>2</sub>O<sub>3</sub>

**Zircon** containing 66% ZrO<sub>2</sub> with < 500ppm U + Th

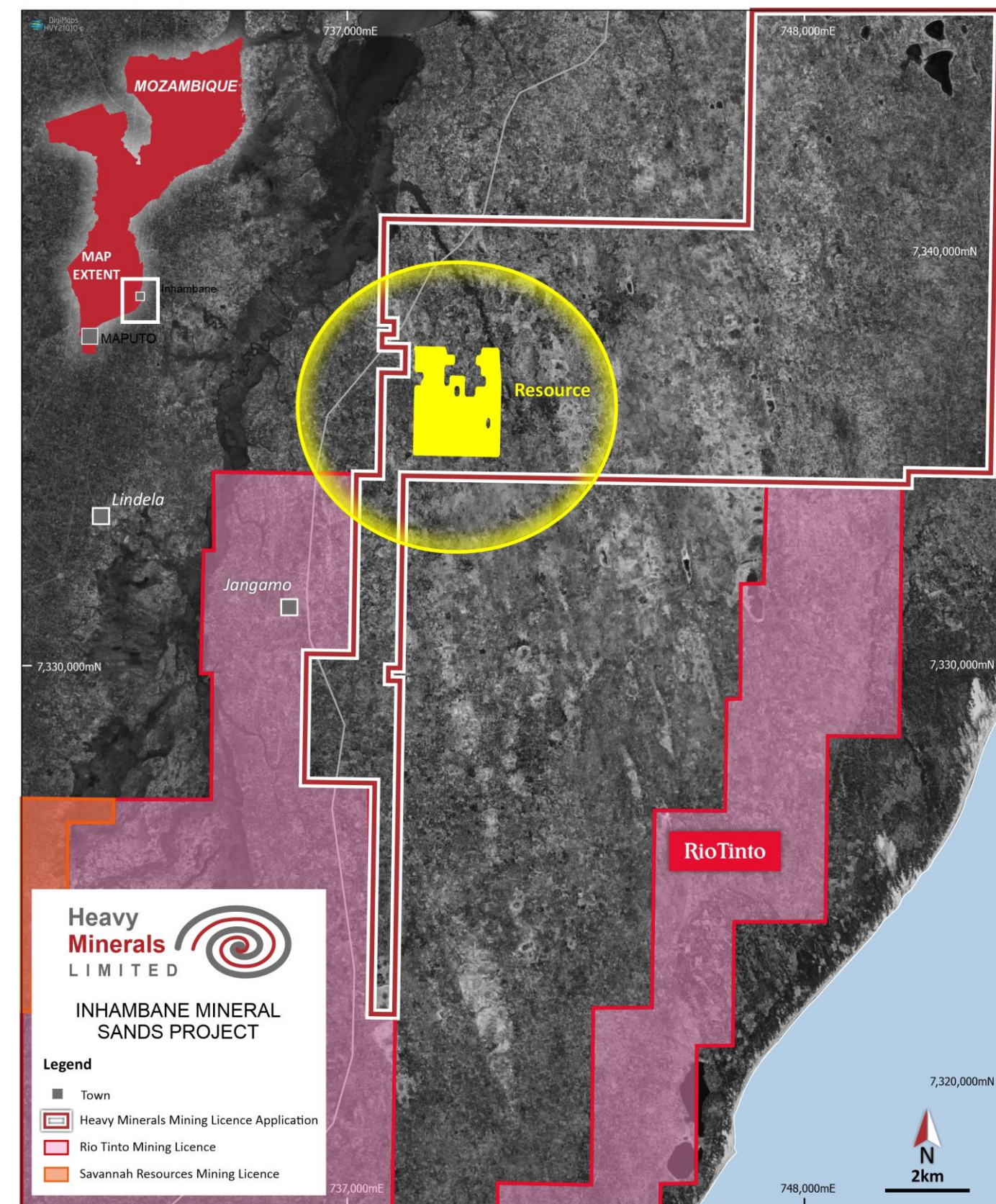
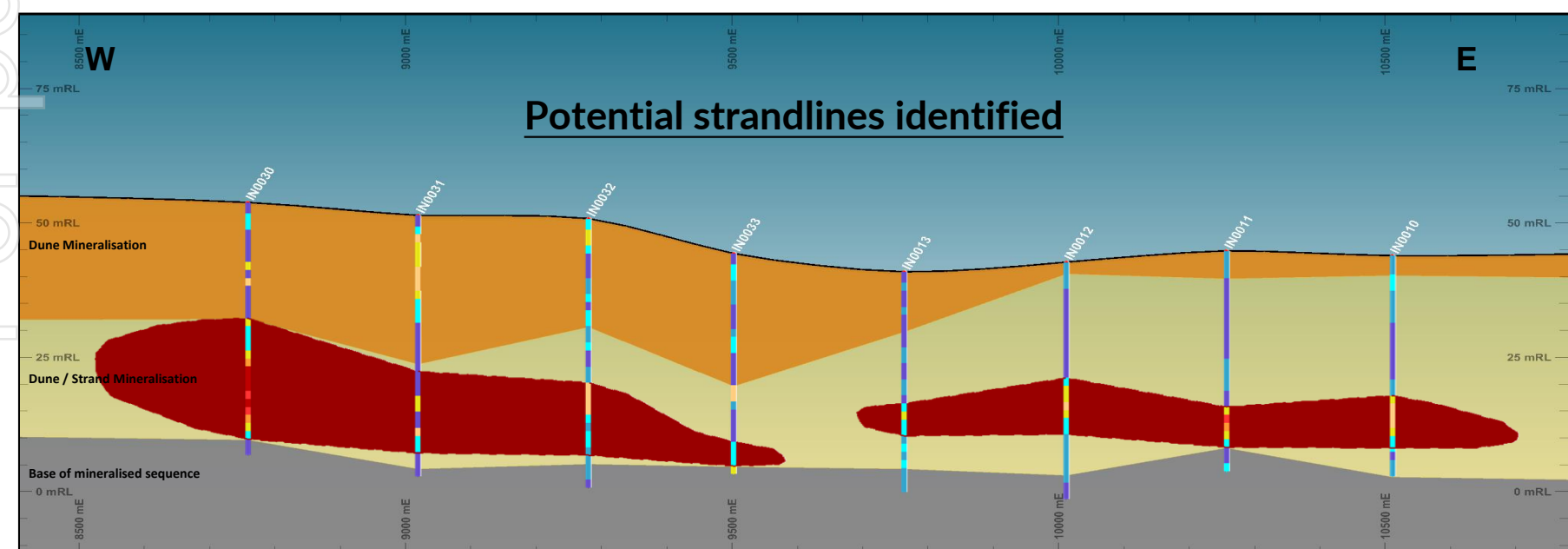
**High Titanium product** containing > 90% TiO<sub>2</sub>

MINERAL RESOURCE SUMMARY FOR INHAMBANE PROJECT AS AT DECEMBER 2021

Mineral Resource Category	Summary of Mineral Resources <sup>(1)</sup>					HM Assemblage <sup>(2)</sup>					
	Material (Mt)	In Situ THM (Mt)	THM (%)	SL (%)	OS (%)	Altered Ilmenite (%)	Primary Ilmenite (%)	Rutile (%)	Leucoxene (HiTi) (%)	Zircon (%)	Others (%)
Inferred	90	2.7	3.0	5	0	29	31	2	4	5	29
<b>Grand Total<sup>(3)</sup></b>	<b>90</b>	<b>2.7</b>	<b>3.0</b>	<b>5</b>	<b>0</b>	<b>29</b>	<b>31</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>29</b>

**Notes:**

- (1) Mineral resources reported at a cut-off-grade of 1.7% THM.
- (2) Mineral assemblage is reported as a percentage of in situ THM content.
- (3) HVY has a 70% interest in the Inhambane heavy mineral sands project



<sup>1</sup>HVY.ASX announcement 30<sup>th</sup> May 2022.

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