

**Hastings Technology Metals Ltd ASX:HAS** 

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#### Yangibana Project Economics Update Integrated tolling and offtake agreement

16 February 2024

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#### **COMPETENT PERSONS' STATEMENT**

The information in this presentation relating to Mineral Resources and Ore Reserves have been prepared by a Competent Person in accordance with the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code") and have been extracted from the release title 'Annual Report to shareholders' dated 28 September 2023 which is available to view at www.asx.com.au under the code "HAS" (the original release). The Company confirms that it is not aware of any other new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Hastings confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

The information that relates to Mineral Resources is based on information compiled by David Princep and Lyn Widenbar. Both Mr. Princep and Mr Widenbar are independent consultants to the Company and members of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Princep and Mr Widenbar have sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this announcement and to the activity which they are undertaking to qualify as a Competent Person as defined in the JORC Code.

The information that relates to the Ore Reserves at Bald Hill, Simon's Find, Fraser's, Auer, Auer North, Yangibana and Yangibana North is based on information reviewed or work undertaken by Mr. Stephen O'Grady. Mr O'Grady is an independent consultant to the Company and a member of the AusIMM, and a Director of Intermine Engineering Consultants. Mr O'Grady 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. Mr O'Grady consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

The scientific and technical information that relates to process metallurgy is based on information reviewed by Ms. Narelle Marriott (General Manager Process Development) of Hastings Technology Metals Limited. Ms. Marriott is a member of the AusIMM and has sufficient experience 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 by the JORC Code. Ms. Marriott owns shares in the company and participates in the company employee share plan. Ms. Marriott consents to the inclusion in this announcement of the matters based on their information in the form and context in which it appears.

The information that relates to Exploration Results in relation to the Yangibana Project is based on information compiled by Dr. Louis Schürmann (PhD) (Chief Geologist) of Hastings Technology Metals Limited. Dr. Schürmann is a Fellow of the AusIMM and has sufficient experience that is relevant to the activity being undertaken to qualify as a Competent Person as defined in the JORC Code. The Qualified Person has verified the data disclosed in this release, including sampling, analytical and test data underlying the information contained in this release. Dr. Schürmann consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

## **STRATEGIC HIGHLIGHTS**

Integrated tolling and offtake agreement supports enhanced economics and builds on de-risking milestones for Yangibana Project

Project execution strategy significantly de-risked	<ul> <li>Senior management team in place with strong track record of project delivery</li> <li>Yangibana Project is 'shovel ready' with \$120 million<sup>1</sup> invested to date in completion of critical non-processing infrastructure</li> <li>\$22 million<sup>1</sup> invested to date in ordering long-lead critical path equipment</li> <li>Engineering Procurement Construction ("EPC") contract in place with leading engineering and construction company GR Engineering Services</li> </ul>
Innovative tolling and offtake agreement providing higher payabilities	<ul> <li>Hastings to receive rare earth oxides' prices minus highly competitive tolling fees for multi-stage processing of concentrate to mixed rare earth carbonate and separated oxides</li> <li>Rare earth oxides' prices realised with lowered operational risk</li> <li>96% of Hastings revenue basket comes from higher value rare earth elements including neodymium (Nd), praseodymium (Pr), dysprosium (Dy), and terbium (Tb)</li> </ul>
Improved project economics underpinned by highly competitive processing fees	<ul> <li>61% increase in post-tax NPV<sub>11</sub> to \$865 million</li> <li>14% increase in post-tax IRR to 31.28%</li> <li>82% increase in life of mine cashflow to \$3,345 million</li> <li>Capital payback period reduced by 23% to 3.4 years</li> </ul>

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Photo: Kurrbili Village at dusk

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### **INTEGRATED TOLLING AND OFFTAKE AGREEMENT** Higher rare earth oxide revenue achieved through competitive and fixed price offshore toll processing

<b>ncreased payability for the Yangibana Project's concentrate</b> through outsourcing multi- stage processing to mixed rare earth carbonate and rare earth oxides			Key Terms	
tage processing to mixed rare earth carbonate and rare earth oxides			Company	Baotou Sky Rock Rare Earth New Material Co., Ltd ("Baotou Sky Rock")
<b>No upfront capital cost required</b> for hydrometallurgical and oxide separation plant				Established in 2006, Baotou Sky Rock is a privately-owned Chinese high-tech enterprise specialising in the production and research and
Stage 1 – Yangibana Project	Integrated Tolling an	d Offtake Agreement	Description	development of rare earth metals and permanent magnet materials. Its main products are sintered neodymium baron and sintered samarium cobalt magnets.
<b>Mining and Beneficiation</b> Rare Earth Concentrate	<b>Hydrometallurgy</b> Mixed Rare Earth Carbonate	Oxide Separation Rare Earth Oxides	Products	Minimum of 10,000tpa of rare earth concentrate, commencing upon Hastings' certification that the mine has been successfully commissioned
			Term	Seven years commencing on date of execution of the term sheet, with an option to extend for another five years at Hastings' election
Indicative Domestic Operating Costs <sup>1</sup>	~US\$13 to 27/kg REO	~US\$2 to 6/kg REO	Pricing	Rare earth oxide pricing to be based on 15-day average market pricing for neodymium, praseodymium, dysprosium and terbium oxides recovered, less a competitive capped hydrometallurgical process and
Indicative China Processing Costs <sup>2</sup>	Up to 75% lower	Up to 70% lower	Payment Structure	oxide separation fee



## **IMPROVED STAGE 1 PROJECT ECONOMICS**

The Yangibana Project is fully permitted, long-life and high-margin

Key Financial Outcomes (AUD)	Integrated Tolling and Offtake Model (February 2024) <sup>1</sup>	Profit-Sharing Model (May 2023)	Variation
Post-tax NPV <sub>11</sub> (ungeared)	\$865 million	\$538 million	61%
Post-tax IRR (ungeared)	31.28%	27.54%	14%
Payback Period	3.4 years	4.4 years	23%
Capital Costs (incl. \$142 million spent as of 31 December 2023)	\$503 million	\$470 million	7%
Remaining Capital Costs (excl. \$142 million spent as of 31 December 2023)	\$361 million	\$383 million	6%
Net Revenue (LOM)	\$9,639 million	\$7,201 million	34%
Free Cash Flow (LOM)	\$3,345 million	\$1,835 million	82%
Average EBITDA per annum	\$258 million	\$174 million	48%

#### Key Material Assumptions / Updates

The Updated Stage 1 Yangibana Project Economics relies on the Base Case Financial Model ("BCFM") and the assumptions adopted in the Staged Development Study released in connection with the BCFM on 31 May 2023. Those assumptions continue to apply and have not materially changed, other than in respect of the following matters:

- Offtake and payabilities: Shift from domestic profit-sharing model to rare earth concentrate sale and third-party processing (hydrometallurgical and oxide separation) to achieve a full rare earth oxide basket price, on terms expected in the Term Sheet for the Integrated Arrangement. Adjustments to yields and costs may be required following pre-production pilot test work, as contemplated in the Term Sheet.
- Spent capital cost: \$142 million of capital cost estimate incurred as of 31 December 2023
- Commodity price: Average 10-year blended neodymium and praseodymium ("NdPr") oxide price (Wood Mackenzie, CRU, Adamas Intelligence) of US\$121/kg real, 2024\$ (reduction from US\$129/kg adopted in the Staged Development Study)

- **Stage 1 standalone:** The impact of Stage 2 for the Yangibana Project (i.e. the potential hydrometallurgical plant) is excluded from the economic analysis.
- Mining: Mine schedule optimisation for the first five years of mining targets lower strip ratio zones of the Yangibana Project's ore bodies, while maintaining the grade to the beneficiation plant. The mine life remains at 17 years, and annual average production of rare earth concentrate remains at 37,000tpa ("Existing Targets"). Refer to per ASX announcements 'Yangibana Ore Reserves Increase by 25%' dated 6 February 2023 and 'Corporate Presentation – Staged Development Strategy' dated 31 May 2023
- Macroeconomics: FX Forward (Bloomberg January 2024), 10-year average AUD:USD 0.65
- Cost assumptions: Incorporation of MREC and oxide separation fees based on the fees provided in the Term Sheet, updated power tariffs (40% renewable) from Independent Power Producer, and other revisions for escalation

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#### **Robust project economics**

Improved metrics driven by move from previous domestic profit-sharing model (50:50) to realising 100% of net revenue, as well as lower processing fees under the integrated tolling and offtake model

#### > Mine schedule optimisation

Focus on initial five years to identify cost savings through targeting lower strip ratio zones, while maintaining the grade to the beneficiation plant

#### **Concentrate dryer**

Addition to suit external offtake requirements for concentrate with a moisture content of between 6-8% - reducing concentrate transport costs

#### > Updated capital cost

Increase of \$33 million to \$503 million consisting of additions of the concentrate dryer facility, escalations, warranty extensions, earthwork rates, EPC indirects and holding costs.

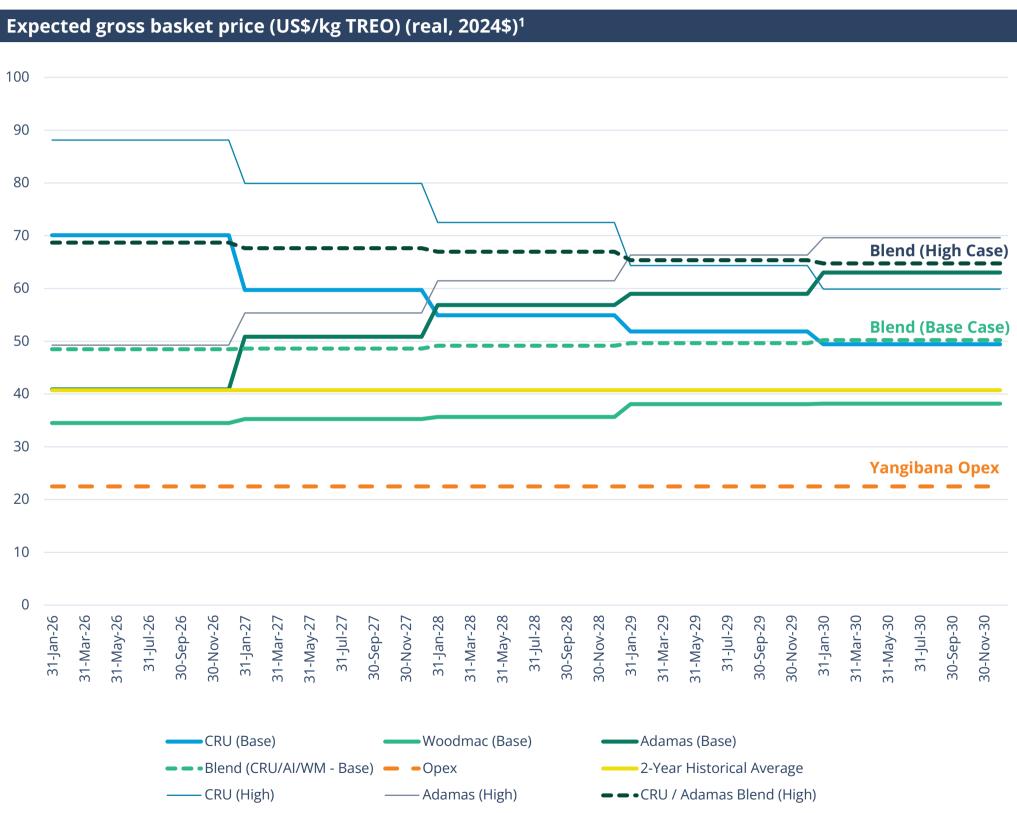
### YANGIBANA PROJECT'S BASKET PRICE FORECAST Based on market consultants and the expected element composition for the Yangibana Project

#### Average basket price and opex from first production to 2030<sup>1</sup>

Consultant / source	Market Consultant	Base Case US\$/kg TREO <sup>1</sup>	High Case US\$/kg TREO <sup>1</sup>
CRU	CRU	57.3	72.9
Adamas Intelligence	Ai	54.3	60.4
Woodmac	$\bigcirc$	36.4	N/A <sup>2</sup>
Blend	CRU, Al, Woodmac	49.3 <sup>3</sup>	66.7
OpEx (incl. MREC processing and oxide separation costs)		22.5	22.5

#### Up to 52% NdPr composition in certain parts of the orebody >

- High-value NdPr composition leads to higher realised rare > earth oxide basket price
- Yangibana Project will be one of the highest margin producers > globally once in production – first quartile on global margin curve as assessed by CRU

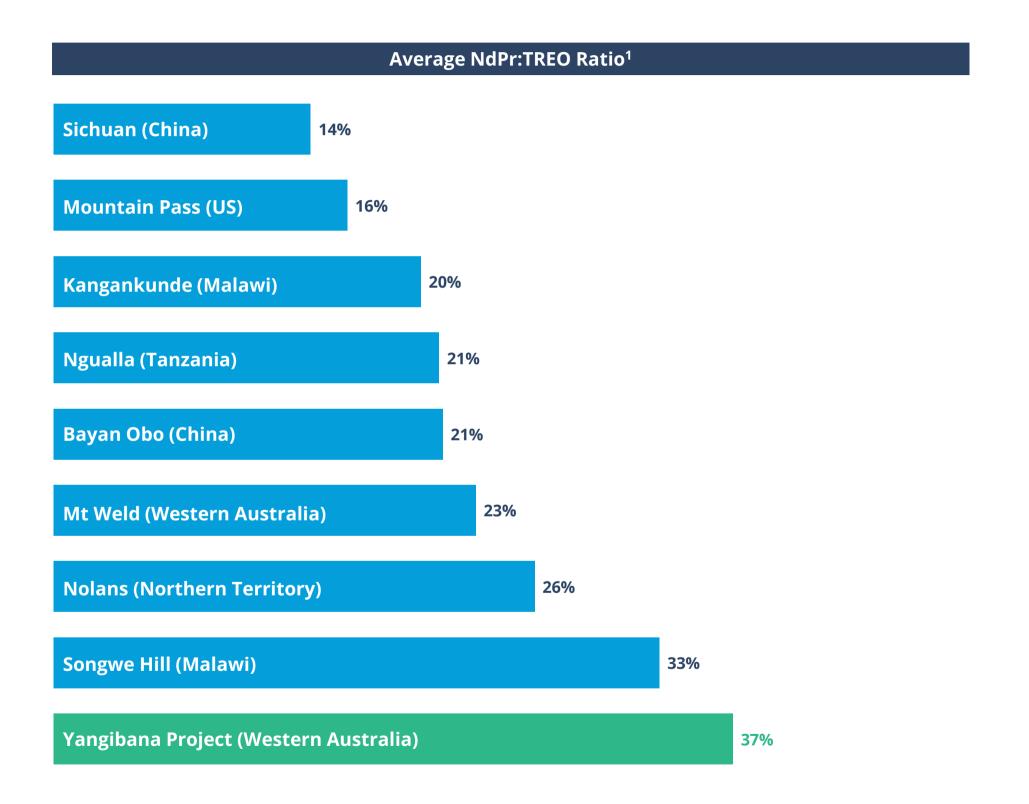


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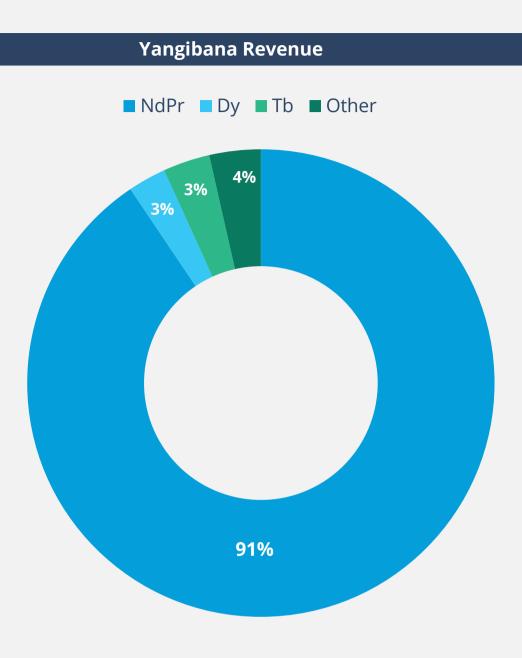
<sup>1</sup> Pricing includes 13% VAT <sup>2</sup> Woodmac does not publish a high case <sup>3</sup>Hastings' modelling adopts the blend (CRU, AI and Woodmac) base case forecast Source: Wood Mackenzie (January 2024) Global rare earths short-term outlook, CRU (August 2023) Updated REE Prices and Margin 2023, Adamas Intelligence (Q1/2024) Rare earth pricing quarterly outlook Average 10-year blended NdPr oxide price (Woodmac, CRU, Adamas Intelligence) of US\$121/kg real 2024\$

## **WORLD-CLASS ASSET**

The Yangibana Project's average NdPr:Total Rare Earth Oxide ("TREO") ratio surpasses most global projects







#### > Hastings' Revenue Basket

96% anticipated to come from the 'Big Four' rare earth magnet elements (Nd, Pr, Dy, Tb)

#### 'Big Four' Rare Earth Elements

Neodymium, praseodymium, dysprosium and terbium are critical elements in green technologies, defence applications and digital devices

## ADVANCED PROJECT DEVELOPMENT

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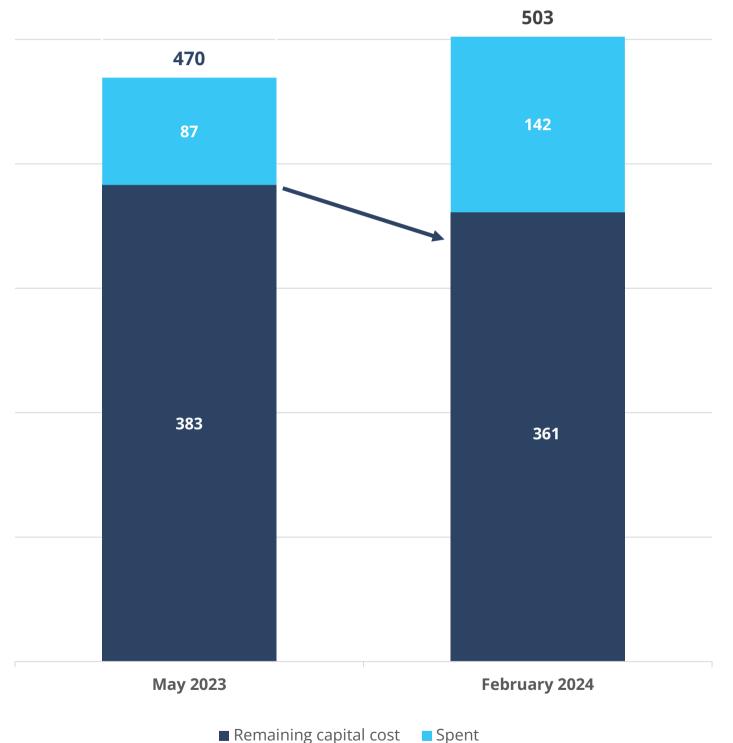
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## **STRONG BASE TO RAMP UP CONSTRUCTION** \$142 million invested to date<sup>1</sup> for Stage 1 of the Yangibana Project

<b>De-risked project delivery</b> Slight increase in capital cost to \$503 million due to addition of a concentrate dryer to meet product specifications and additional holding costs – remaining capital of \$361 million	500
	400
Development ready	
Fully permitted to begin construction with first concentrate	
production in 2026	300
	A\$m
Non-Processing Infrastructure	200
<ul> <li>\$120 million invested to date<sup>1</sup> in finalising early site works</li> <li>Kurrbili Accommodation Village</li> <li>Yangibana Airstrip</li> </ul>	200
SipHon Well Borefield	
Site Access Roads	100
<ul> <li>Critical path equipment</li> <li>\$22 million invested to date<sup>1</sup> in long lead items</li> <li>In Transit/Delivered – SAG Mill and Regrind Mill</li> <li>Fabrication – Flotation Cells, Thickener, Mill Liner Handler</li> </ul>	0



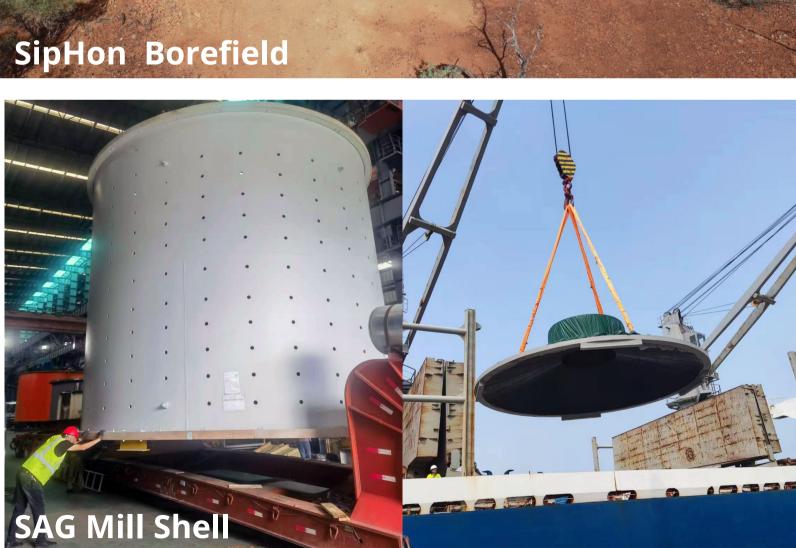


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## YANGIBANA PROJECT'S PROGRESS





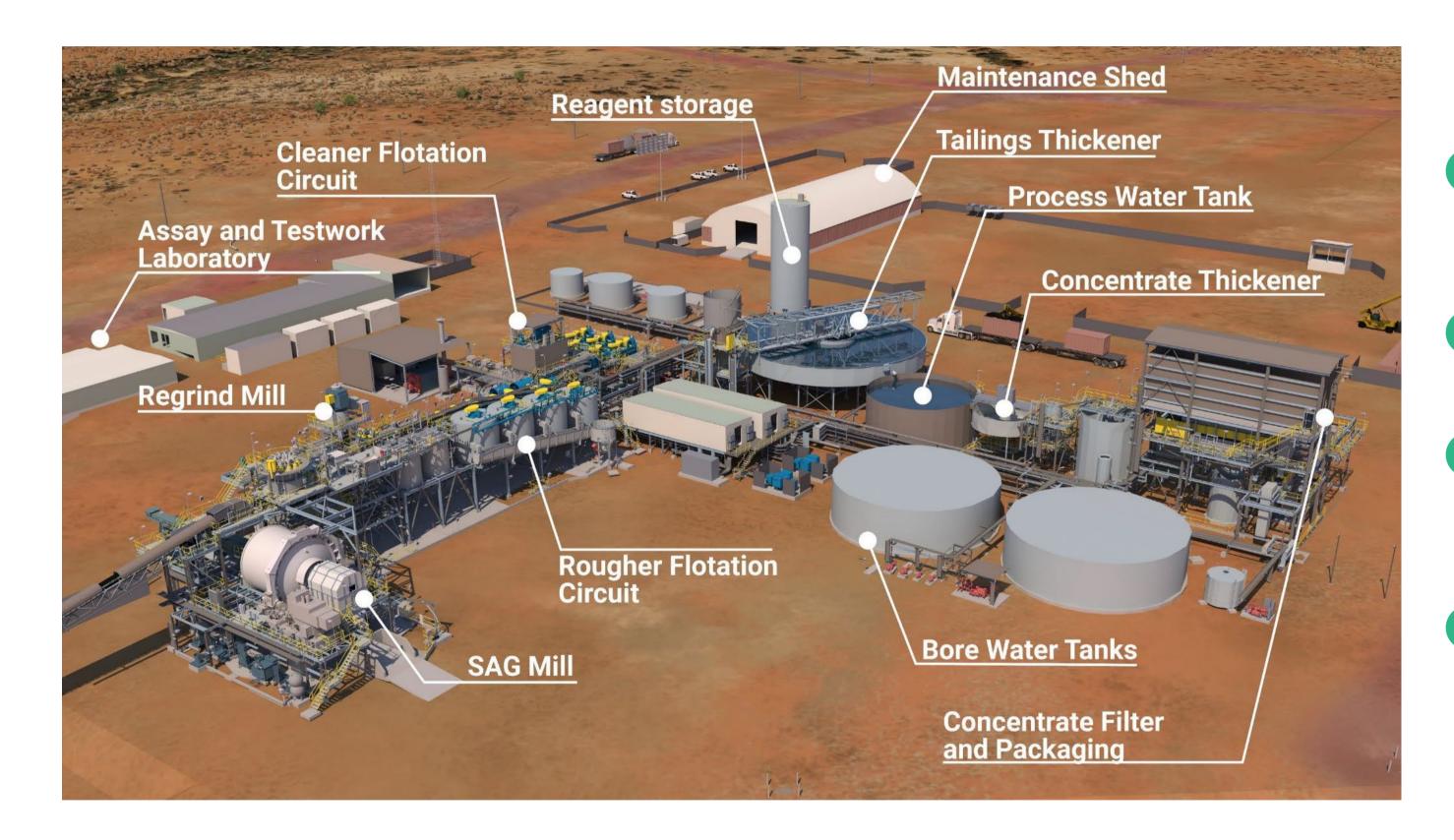




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### **BENEFICIATION PLANT CONSTRUCTION** \$210 million Engineering, Procurement and Construction contract in place with GR Engineering Services<sup>1</sup>





Refer ASX announcement "Hastings Reduces Yangibana Delivery Risk Awards EPC Process Plant Contract to GR Engineering", dated 3 May 2023

#### GR Engineering Services

Leading engineering and contracting company with strong track record of delivering integrated project solutions



Fixed price component of \$180 million (~85%)

#### Key benefits

Lowers project delivery risks, provides greater certainty on timeframe and process and product quality guarantees



#### Early works agreement

Detailed engineering and design work for beneficiation plant ahead of schedule at 81% complete

## APPENDIX

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## **RESOURCES AND RESERVES**

Yangibana Rare Earths Project

TOTAL JORC (2012) MINERAL RESOURCES (30 OCT 22) <sup>1</sup>				
Category	mt	%TREO	%NdPr	TREO tonnes
Measured	4.97	0.96	0.37	47,721
Indicated	19.51	0.88	0.32	171,936
Sub-total	24.49	0.90	0.33	219,657
Inferred	5.45	1.05	0.31	57,298
TOTAL	29.93	0.93	0.32	276,955

TOTAL JORC (2012) ORE RESERVES BY DEPOSIT (6 FEB 23) <sup>1</sup>				
Deposit	mt	%TREO	%NdPr	NdPr: TREO
Bald Hill	8.12	0.79	0.32	41
Fraser's	1.77	1.01	0.43	43
Simon's Find	2.69	0.53	0.28	53
Auer	2.83	0.96	0.34	35
Yangibana	1.31	0.79	0.37	47
Yangibana North	4.21	1.29	0.34	26
TOTAL	20.93	0.90	0.33	37

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<sup>1</sup> Refer ASX announcement "Yangibana Ore Reserves Increase by 25%", dated 6 February 2023; numbers may not add due to rounding; for reference that the Ore Reserves stated is included as part of the Mineral Resources Disclaimer: There is no certainty that further exploration work will result in the determination of Mineral Resources (or Ore Reserves)

### **SOURCE DOCUMENTS** References

PEER COMP	RISON – NDPR:TREO RATIC	)						
Mine	Ownership	Ticker	Stage of Development	Capex (A\$m)	Reserves Tonnage (mt)	TREO Grade	Category	Nd
Yangibana	Hastings Technology Metals Ltd	HAS:ASX	Pre-production	503	20.93	0.90%	Proven and Probable	
Songwe Hill	Mkango Resources Ltd	MKA:TSXV	Feasibility	479	18.15	1.16%	Proven and Probable	
Nolans	Arafura Rare Earths Ltd	ARU:ASX	Pre-production	1,680	29.50	2.90%	Proven and Probable	
Mt Weld	Lynas Rare Earths Ltd	LYC:ASX	Production	N/A	19.7	8.60%	Proven and Probable	
Bayan Obo	China Northern Rare Earth Group High-Tech Co Ltd	600111:CH	Production	N/A	>2,200	2.55%	Proven and Probable	
Ngualla	Peak Rare Earths Limited	PEK:ASX	FEED Completed	441	18.5	4.8%	Proved and Probable	
Kangankunde	Lindian Resources Limited	LIN:ASX	Stage 1 Feasibility due Q1/2024	N/A	261 (Resource)	2.19%	Inferred	
Mountain Pass	MP Materials Corp	MP:NYSE	Production	N/A	29.3	6.32%	Proven and Probable	
Sichuan	Rising Nonferrous Metals Share Co. Ltd	600259:CH	Production	N/A	N/A	N/A	N/A	

HYDROMETALLURGICAL AND SEPARATION COSTS OF DOMESTIC DEVELOPERS AND OPERATIONS					_
Mine	Ownership	Ticker	Total Costs / Processing Costs (\$m)	REO Production (tpa)	Source
Nolans	Arafura Rare Earths Ltd	ARU:ASX	US\$138m	4,919t	7 February 11 Novem
Mt Weld	Lynas Rare Earths Ltd	LYC:ASX	A\$346.2m	16,780t	12 Octobe
Eneabba	Iluka	ILU:ASX	A\$160m	12,400t	4 April 202

Note: Cost indication range was based on Hastings' Onslow Hydrometallurgical study and desktop analysis of peers' processing costs escalated to 2024 real\$. Note estimates are a desktop study only. AUD/USD rate of 0.65 was adopted.

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dPr:TREO ratio	Source
37%	6 February 2023: ASX Announcement: "Yangibana Ore Reserves Increase by 25%"
33%	<b>5 July 2022:</b> SEDAR Announcement: "Mkango Announces Results of Definitive Feasibility Study For The Songwe Hill Rare Earths Project In Malawi - NPV of US\$559.0 Million And IRR of 31.5%"
26%	<ul> <li>11 November 2022: ASX Announcement: "Nolans Project Update"</li> <li>13 December 2023: ASX Announcement: "Arafura Rare Earths: Equity Raise Presentation"</li> </ul>
23%	<b>6 August 2018:</b> ASX Announcement: "Lynas announces a 60% increase to Mt Weld Ore Reserves, one of the world's richest sources of Rare Earths"
21%	<b>15 December 2020:</b> Ord Minnett Report, "Hastings Tech Metals, Thematic Firing" S&P Capital IQ Pro: Property ID 31805 Reserves and Resources
21%	24 October 2022: ASX Announcement: "Ngualla Rare Earths Project Completion of Bankable Feasibility Study Update" 30 November 2023: ASX Announcement: "Completion of FEED Study"
20%	<b>3 August 2023:</b> ASX Announcement: "Maiden Mineral Resource" <b>7 Feb 2024:</b> ASX Announcement: "Indaba Mining Conference Presentation"
16%	<b>28 February 2023:</b> SEC Filing: Form 10-K – Annual Report,
14%	15 December 2020: Ord Minnett Report, "Hastings Tech Metals, Thematic Firing"

ary 2019: ASX Announcement: "Nolans DFS Delivers Robust Project Economics" ember 2022: ASX Announcement: "Nolans Project Update"

ber 2023: ASX Announcement "2023 Annual Report"

**2022:** ASX: Announcement "Eneabba Rare Earths Refinery – Final Investment Decision Presentation"





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