

## ASX ANNOUNCEMENT

16 JANUARY 2023

### RAZORBACK PROJECT OPTIMISATION STUDIES

#### Highlights:

- **Engineering reports received for larger scale development**
- **Optimisation studies on schedule for Q1 2023 completion**
- **Infrastructure pathways defined and undergoing refinement**
- **Key stakeholders engaged to secure access and de-risk infrastructure opportunities**

### RAZORBACK IRON ORE PROJECT OPTIMISATION STUDIES

Magnetite Mines Limited (ASX:MGT) is pleased to provide a progress update on the optimisation studies commenced in September 2022 and scheduled for completion by the end of Q1 2023.<sup>1,2</sup>

As announced on 13 September 2022<sup>1</sup>, the Company refocused its Razorback Iron Ore Project (Project) development strategy in line with evolving market conditions and downstream industry feedback. A suite of optimisation studies were commenced aimed at defining the go-forward scope for a refocused DFS (Definitive Feasibility Study).

The key objectives of the optimisation studies are to:

- Increase and optimise Stage 1 production, with a minimum 5Mtpa capacity, to enhance project economics via economies of scale, while taking advantage of the 5.7 billion tonne Project resource base<sup>2,3</sup>;
- Increase Project attractiveness to potential iron and steel industry partners and customers, institutional investors, and project financiers;
- Access potential to re-estimate Ore Reserves as a direct result of expanded production scale; and
- Improve ESG credentials through enhanced concentrate specifications that support downstream iron and steelmaking decarbonisation, and potential electrification of major equipment supported by larger-scale development.

### OPTIMISATION STUDIES PROGRESS

The Company is pleased to report that all studies are progressing to plan, with initial AACE Class 5 engineering estimates received on time from the Company's engineering partners. A staged development philosophy has been maintained throughout, commencing with a manageable but robustly economic start-up capacity, expanding thereafter to meet market demand.

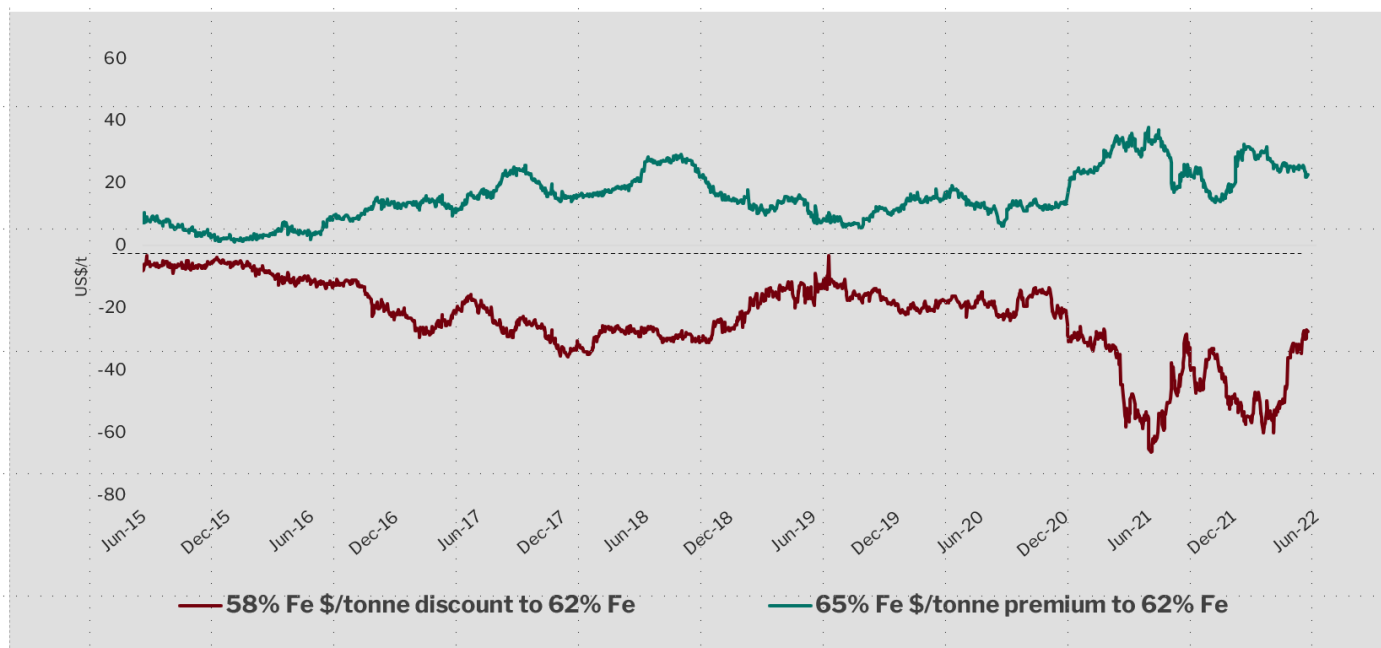
Key Study outcomes achieved so far which are subject to further testing include:

**Plant Optimisation:** Magnetite processing specialists Hatch are leading the plant optimisation studies with respect to assessing larger scale production scenarios.<sup>4,5</sup> A key focus of these studies has been the assessment of alternative front-end crushing options and the investigation of opportunities for early-stage rejection of waste and low-grade material via dry magnetic separation.

Hatch are also completing parallel studies with respect to tailings storage facility configurations, with both conventional and thickened tailings options currently being investigated.

Progress on flotation and tailings rheology metallurgical testwork has been affected by laboratory delays related to COVID and staffing shortages. This work is now almost complete and final results will be released to the market once received and reviewed by the Company.

**Concentrate Grade:** In addition to comprehensive comminution, flotation and rheology investigations, the metallurgical testwork program is assessing the ore's amenability to producing Direct Reduction (DR) grade concentrates.<sup>6</sup> Access to high-grade iron ore feeds with low levels of deleterious impurities is key to the iron and steelmaking industry's decarbonisation agenda with high-grade concentrates attracting a premium in the market. These premiums are now starting to emerge (Figure 1) and are forecast to increase as the transition from traditional blast furnace to DR technologies gains momentum over the coming years, increasing the demand for high-grade iron ore feed.<sup>7</sup>



**Figure 1: Fastmarkets iron ore index grade spreads (US\$/tonne)**

This forecast demand for high-grade concentrates, along with associated pricing premiums, is now enabling the economic development of the Razorback Iron Ore Project. The Company has commissioned expert advice to assess both the expected pricing premiums and the decarbonisation benefits that may result from Razorback concentrates to ensure the Project meets both the economic and Environmental, Social and Governance (ESG) criteria demanded by the market and necessary to attract investment.

**Concentrate Transport:** To determine the optimum concentrate transport configuration, several alternative scenarios have been estimated to Class 5 accuracy and are being assessed in line with the staged development philosophy; e.g., low capital cost truck haulage initially, followed by bulk transport solutions in later years aligned with increased production capacity.

**Access to Supporting Infrastructure:** The Company is currently engaged in confidential negotiations with a range of key stakeholders necessary to secure sustainable access to land, power, water, rail and port facilities. These relationships and arrangements are fundamental to the successful delivery of the Project and are now being addressed as a priority as the Company settles on the optimum Project configuration.

### Study Timing

The full suite of optimisation studies remains on schedule for completion by the end of March 2023. The balance of current work programs include:

- Class 4 engineering estimates for each concentrate transport scenario;
- Engineering optimisation and capital estimation for Processing Plant comminution options;
- Dry magnetic separation assessments, for early-stage rejection of waste material;
- “Value-in-use” assessments of proposed concentrates, inclusive of both environmental benefits (downstream carbon intensity reduction) and expected pricing premiums;
- Finalisation of metallurgical testwork;
- Optimised mine planning and scheduling; and
- Peer and Ore Reserve review of mining scenarios

The optimisation studies have benefited from the significant DFS-level engineering and metallurgical testwork completed in 2022, significantly reducing costs for the studies, which are being completed well within budgeted estimates.

The Company looks forward to updating the market once all studies have been completed and a go-forward Project configuration has been decided.

**This announcement has been authorised for release to the market by the Board.**

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### References

1. ASX Announcement – 13/09/22: Magnetite Mines Transforming To Meet Growing High-Grade Market
2. ASX Announcement – 21/05/21: Razorback Iron Ore Project Mineral Resource Upgrade
3. ASX Announcement – 03/11/22: Muster Dam Mineral Resource Estimate
4. ASX Announcement – 24/10/22: Quarterly Report 30 September 2022
5. ASX Announcement – 21/12/22: Peer Review Confirms Razorback Process Plant Design
6. ASX Announcement – 21/07/22: Positive Interim Metallurgical Test Results
7. McKinsey Horizons September 2022: Iron and steel’s US\$1.4 trillion shot at decarbonisation