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ASX ANNOUNCEMENT

9 JUNE 2023

IRON PEAK STRENGTHENS RAZORBACK PROJECT ECONOMICS

Highlights:

- **Razorback Project economics updated; reinforced by high-quality Iron Peak Ore Reserve**
- **Base Case 5Mtpa operation re-estimated to deliver*:**
  - **High-grade 20% mass recovery for first ten years of operations**
  - **Competitive US$46- $55 per tonne value-in-use operating cost (62% Fe equivalent)**
  - **91-year mine life**
  - **Direct entry to emerging premium-price DR-grade pellet feed market**
  - **US$1.0 - $1.3b pre-production capital requirement**
- **Improved economics support attractiveness to potential strategic partners**
- **Infrastructure de-risking advancing ahead of Definitive Feasibility Study and partnering**

*Refer to cautionary statements on pages 5 to 6 and definitions in Table 1 (page 2)

Magnetite Mines CEO Tim Dobson commented:

"We are positioning our 100%-owned, high-value and long-life Razorback Iron Ore Project to align with the transition occurring in the global iron and steelmaking sector. South Australia is fast emerging as a desired Tier 1 location for regional steel producing nations to establish 'green iron' hubs based on proximity, existing infrastructure, stable regulatory environment, mandated 100%-renewable energy, emerging green hydrogen availability and abundant potential for high-grade magnetite concentrate production. Within this transition, Razorback is ideally positioned at the front of the pack of next-generation magnetite producers.

"This project update combines the successful delivery of the optimisation study phase with the just-announced maiden Ore Reserve for the high-quality Iron Peak deposit, which is now prioritised for production in the project plan and improves the first ten years economics significantly. Our financial modelling has been deliberately conservative, incorporating adequate contingencies and acknowledging the recent inflationary cycle, while also reflecting emerging product price premiums for premium-grade iron ore products that are forecast to increase over the coming years as the global steel industry delivers on its urgent decarbonisation commitments.

"Our next steps are to de-risk the final elements of Razorback's infrastructure requirements, which will allow us to complete a Definitive Feasibility Study and commence a partnering process aimed at sharing capital and marketing risk with quality partners to deliver the best possible outcome for Magnetite Mines shareholders."

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Summary

Magnetite Mines Limited (ASX: MGT) is pleased to provide an update of its 100%-owned Razorback Iron Ore Project, located in the Braemar Iron Ore Province of South Australia. This update incorporates the results of recently completed optimisation studies[1] and is underpinned by a revised Ore Reserve estimate that includes the separately announced maiden Ore Reserve for the Iron Peak deposit[2]. Iron Peak is the highest-quality deposit within the Razorback Project to date and has delivered a significant positive impact on overall project economics, particularly in the critical first ten years of operations.

Key outcomes are summarised below:

- Two magnetite concentrate production scenarios have been modelled:
  - **Base Case**: fixed output 5Mtpa operation with no expansion
  - **Expansion Option**: staged expansion from 5Mtpa to 10Mtpa after five years
- Key Project physical and financial metrics:

Table 1. Key Project Metrics

Physical Metrics	Unit	Base Case	Expansion Option
Concentrate production rate	dry Mtpa	5	10
Life of mine	Years	91	39
Mining rate (first 10 years)	Mtpa	57	91
LOM ore mined	Mt	2,268	2,268
LOM strip ratio	t:t	0.35	0.35
Nominal plant feed at scale	Mtpa	25	67
First 10 years yield (mass recovery)	%	19.8%	18.7%
LOM yield (mass recovery)	%	14.6%	14.6%
LOM concentrate produced	Mt	331	331
Financial Metrics	**Unit**	**Base Case**	**Expansion Option**
Value-in-use price premium [a]	US$/t	41	41
Value-in-use operating cost (62% Fe eq.) [b]	US$/t	46 – 55	39 – 48
Pre-production capital [c]	US$B	1.0 – 1.3	2.3 – 2.8

a. *Value-in-use price premium is the forecast 2027 quality adjustment premium over and above the 62% iron ore index reference price as calculated by Wood Mackenzie for Razorback Project concentrate specification.*
b. *Value-in-use operating cost (62% Fe eq.) represents the total operating cost per tonne of concentrate produced for the first ten years of operations at scale, inclusive of freight, royalties, lease costs and sustaining capital, with the value-in-use price premium (see a. above) subtracted, enabling direct comparison with the benchmark 62% iron ore index reference price.*
c. *Pre-production capital represents the capital expenditure required to achieve production. For the Expansion Option, pre-production capital is the combined total for both initial and expanded production stages.*

- Costs estimates are based on recently updated information from suppliers and incorporate the impacts of the recent inflationary period as well as contingencies.

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- Early year cash flows, capital costs and operating costs have been significantly improved by the prioritisation of Iron Peak ore resulting in a breakeven cost profile that remains competitive throughout the commodity price cycle (Figure 1).

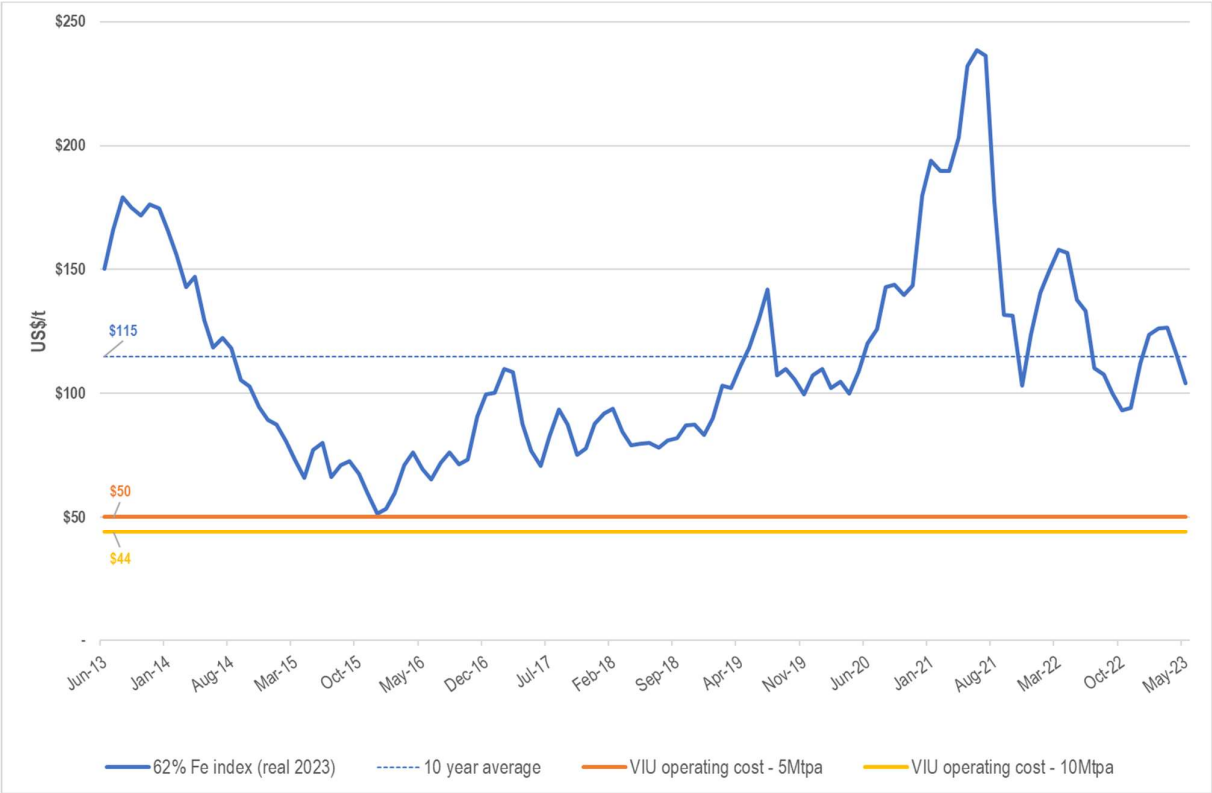

Figure 1. Value-In-Use operating cost relative to ten year iron ore price trend (62% Fe, CFR China)

- Razorback ore is relatively soft compared to Banded Iron Formation (BIF) hosted magnetite deposits such as those being mined in Western Australia. Additionally, Razorback's life of mine strip ratio is extremely low at 0.35 tonnes of waste per tonne of ore mined.
- Mining operations will use well-established open pit mining methods incorporating drill and blast, truck and shovel operations, with ore production from surface.
- Optimised process plant configuration utilising well-proven technologies, including the choice of integrated HPGR / ball mill primary grinding circuit, is supported by recent metallurgical test work[3,4]; produces premium-grade concentrates (67.5-68.5% Fe), necessary for "green iron" production, over life-of-mine (LOM).
- Transport of concentrates to Whyalla port for export has been assumed and will utilise existing, Commonwealth-controlled, open-access rail infrastructure with truck haulage to existing rail siding for Base Case and installation of rail spur line to site with balloon loop for the Expansion Option[5].
- ESG and sustainability considerations such as carbon intensity, water use, stakeholder relationships and waste management have been a core consideration throughout the studies. Key opportunities identified include access to the South Australian electricity grid with high

renewables penetration[6]; support for downstream customer decarbonisation through the supply of high-grade iron ore[7]; the potential use of wastewater offtake for mineral processing; and partnering relationships with key stakeholders including First Nations, local communities, suppliers and landowners[8].

- Financial modelling updated using revised capital and operating cost estimates completed by Hatch and GHD up to AACE Class 4 level of accuracy.

Next steps

Optimisation studies are now complete, with geology[9] and metallurgy[3,4] now completed to Definitive Feasibility Study (DFS) level standards, and Ore Reserves re-estimated to include Iron Peak[2], the Company is now undertaking the following activities to enable the completion of a DFS and project partnering process:

a) securing / de-risking critical infrastructure including water supply and port capacity;
b) value engineering to further reduce Project capital and operating costs for the new project configuration;
c) confirming land access arrangements.

Acknowledgement of Country

MGT acknowledges the Ngadjuri People as the Traditional Owners of the lands on which the Razorback Project is located. We respect their continuing custodianship of this Country and their spiritual and cultural beliefs and practices.

Background to this release

The work underpinning this Razorback Project update was initiated by MGT in September 2022 with a program of optimisation studies designed to reset the Project's configuration with an increased production capacity of at least 5Mtpa, up from 2.5Mtpa contemplated in previous studies[1].

The decision to increase the Project's initial production capacity was driven by strong market feedback related to near-future market demand for high-grade magnetite concentrates aligned with iron and steelmaking decarbonisation commitments.

In concert with the optimisation studies, the Project's Mineral Resource[9] and Ore Reserves estimates[2] were comprehensively revised and completed to JORC 2012 standards. Crucially, the 2022 Iron Peak deposit drilling and metallurgical test work program[3,4] results were incorporated into the revised Razorback Project Mineral Resource and Ore Reserves estimates. Iron Peak is now the highest-quality deposit in the Razorback Project portfolio of deposits and has been prioritised within in a new LOM production schedule that underpins this update. The financial results of this Economic Release are separate to the financial outcomes of recently announced Ore Reserve[2], with the financial models based on the same Mineral Resource block models[9] and modifying factors.

The aim of the optimisation studies and resource upgrade programs undertaken since September 2022 was to produce the most economically beneficial production scenario while balancing capital intensity and project execution risk. This period also coincided with an intense inflationary cycle within global

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supply chains. Engineering estimates have been updated to include up-to-date capital and operating cost information that incorporates inflationary changes.

Cautionary Statement

The project update referred to in this announcement is a preliminary technical and economic study of the potential viability of the Razorback Project to proceed with more definitive studies. It is based on PFS-level technical and economic assessment that is not sufficient to support the estimation of Ore Reserves beyond the Probable Ore Reserves referred to in the Company's ASX Announcement dated 9 June 2023[2]. Further evaluation work and appropriate studies are required before the Company will be able to provide any assurance of an economic development case.

The project update is based on the material assumptions outlined elsewhere in this announcement and those set out in the Company's ASX Announcement dated 20 March 2023[1]. While the Company considers all material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated in this project update will be achieved.

To complete the proposed feasibility studies and achieve the potential mine development outcomes indicated in this project update, additional funding will be required. Investors should note there is no certainty that the Company will be able to raise funding when needed. It is also likely that such funding may only be available on terms that may be dilutive or otherwise affect the value of the Company's existing shares. It is also possible that the Company could pursue other value realisation studies such as sale, partial sale, or joint venture of the Project. If it does, this could materially reduce the Company's proportional ownership of the project.

Given the uncertainties involved, investors should not make any investment decisions based solely on the result of this project update.

Disclaimer

This announcement contains "forward-looking information" that is based on the Company's expectations, estimates and projections as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to this project update, the Optimisation Studies outcomes[1], the Company's business strategy, plan, development, objectives, performance, outlook, growth, cashflow, projections, targets and expectations, mineral resources, ore reserves, results of exploration and related expenses. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as, 'anticipate', 'project', 'target', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this announcement are cautioned that such statements are predictions, and that the Company's actual future results or performance may be materially different.

The Company believes the forward-looking information in this announcement is based on reasonable grounds having regard to the fact all production targets and forecast financial information are underpinned by 100% JORC (2012) Mineral Resource Estimates[9] with Indicated (85.2%) and Inferred (14.8%) proportion making up the life of mine (LOM) mining schedule and the first ten years of proposed production composed of 83.0% Indicated and 17.0% Inferred. For the Expansion Option, all production targets and forecast financial information are underpinned by 100% JORC (2012) Mineral Resource Estimates with 85.2% Indicated and 14.8% Inferred proportion making up the life of mine (LOM) mining

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schedule and the first ten years of proposed production composed of 91.3% Indicated and 8.7% Inferred. The Company does not make or gives any representation, assurance or guarantee that the production targets or expected outcomes in this announcement will ultimately be achieved.

There 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.

The forward-looking information in this announcement is subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking information. Such risks include but are not limited to future prices and demand of iron and other metals; foreign exchange rates; availability of funding; results of further activities (including further studies, exploration and metallurgical work); changes in project parameters as plans continue to be optimised; failure of plant; equipment or processes to operate as anticipated; possible variations of ore grade or recovery rates; accident, labour disputes and other risks of the mining industry; delays in obtaining governmental approvals or financing or in the completion of development or construction activities and general business, economic, competitive, political and social uncertainties.

This release may contain forward looking statements including statements regarding Wood Mackenzie's intent, belief or current expectations. Members of the public are cautioned not to place undue reliance on these forward looking statements. Wood Mackenzie does not undertake any obligation to publicly release the result of any revisions to these forward looking statements to reflect events or circumstances after the date hereof. While due care has been used in the preparation of forecast information, actual results may vary in a materially positive or negative manner. Forecasts and hypothetical examples are subject to uncertainty and contingencies outside Wood Mackenzie's control. Past performance is not a reliable indication of future performance.

A number of steps must be completed in order to achieve the production scenarios detailed in this project update. Investors should note that if there are delays associated with completing these steps, or completion of the steps does not yield the anticipated results, the actual estimated production and forecast financial information may differ materially from this project update results presented in this announcement.

These risks are not exhaustive of the factors that may affect or impact future results. These and other factors should be considered carefully, and readers should not place undue reliance on such forward-looking information. The Company disclaims any intent or obligations to revise any forward-looking statements whether because of new information, estimates, options, events or results or otherwise, unless required to do so by law.

Production Targets

The production targets, and the forecast financial information derived from those production targets, referred to in this announcement are based on 100% Indicated (85.2%) and Inferred (14.8%) as per JORC (2012) compliant Mineral Resource Estimates[9]*. The economic case is further supported by the recently updated Probable Ore Reserve which underpins the production cases discussed[2]. The Ore Reserve has been released to the market in a separate updated Ore Reserve statement and contemplates an alternative production scenario, utilising alternative mining assumptions[2]. The Mineral Resource Estimates underpinning the production targets were previously prepared by a Competent Person in accordance with the JORC Code 2012[9].

**There 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.*

Project Background and History

MGT is an iron ore exploration and development company that aims to deliver value for shareholders via the sustainable development of the Razorback Project.

The iron ore deposits that make up the Razorback Project were first explored by the South Australian Mines Department in the 1950s and 1960s. MGT acquired the tenements in 2009 and has since methodically defined a combined Razorback Project Mineral Resource Estimate of 3.2 billion tonnes[9] inclusive of 2.0 billion tonnes in Probable Ore Reserves[2].

The Project is a large magnetite iron ore development and differs from hematite iron ores that are commonly found in the Pilbara and are shipped to market with minimal or no processing. Direct-shipping hematite ores typically have an in-ground iron (Fe) grade in the range 56-65% Fe.

Magnetite iron ore is typically concentrated at the mine site by taking advantage of the magnetic properties of the mineral and can produce very high-grade concentrates up to 67.5% to 68.5% Fe[3,4], with very low impurities. This quality of iron ore product is increasingly in demand by the global iron and steelmaking industry as it transitions to new technologies that allow it to meet urgent decarbonisation commitments[7]. The increasing demand is resulting in rising premiums for high-grade products and hence creates the environment for the development of high-quality magnetite projects.

In developing such a large, long-life and significant project, the Company aims to build on a foundation of sustainability leadership with a well-structured and respectful approach to stakeholder relations including with First Nations peoples, pastoral landowners and local communities. This project update has been prepared with a view to creating long-term opportunities for these stakeholders.

Magnetite iron ore is able to be processed at the mine site to a very high-grade concentrate with very low deleterious elements and therefore generally attract significant premiums in the market for iron and steelmaking feedstock[3,4].

The Project is located 240km north-east of Adelaide in South Australia's North East Pastoral district (Figure 2). The mineralisation of the Project falls within the Adelaide Geosyncline and, within it, the Neoproterozoic Braemar Iron Formation. The Project is located close to potential dormitory and service towns of Peterborough and Burra and 200km from the mining town of Broken Hill, NSW.

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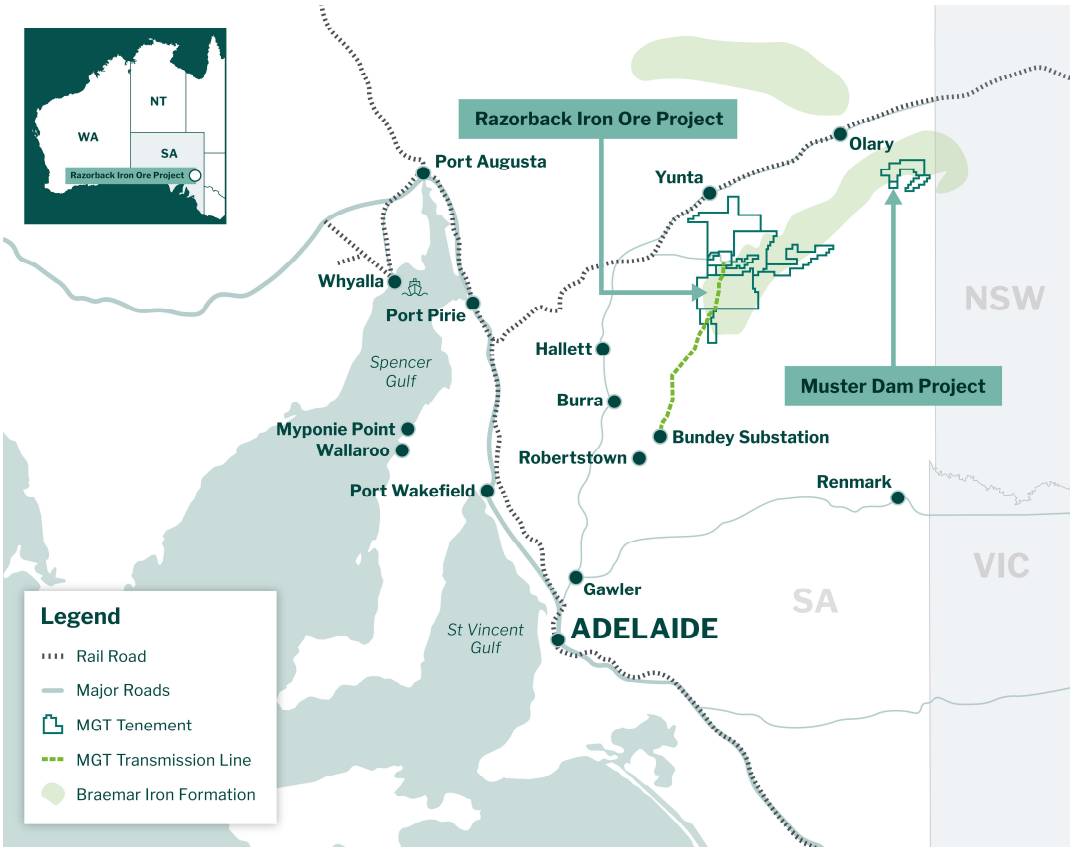

Figure 2. Project Location

Updated Project Configuration and Capacity

The revised production scenarios described in this announcement remain largely in line with previous iterations assessed by the Company: conventional open pit mining followed by conventional magnetite ore processing to produce a high-grade concentrate product[3,4] (67.5% to 68.5% Fe) and a tailings stream for on-site storage[1]. Concentrate truck haulage to existing rail infrastructure is planned for the 5Mtpa (Base Case) operation, with rail transport to the port at Whyalla for export via transhipping. The installation of a rail spur to site is planned for the proposed Expansion Option increase in production to 10Mtpa.

Experienced magnetite processing engineering consultancy Hatch was commissioned to determine the optimal plant configuration for the increased production scenarios. This project update includes several key optimisations related to process plant and tailings storage facility configurations.

Moving away from a modular plant design, the optimal 5Mtpa plant was configured to return the best economies-of-scale benefits in terms of capital cost while maintaining practical operational outcomes. Capital and operating estimates were completed to AACE Class 4 levels of accuracy (+/-25%) for capital intensive items.

Two economic cases have been assessed and are presented in this project update: a fixed 5Mtpa production scenario (Base Case); and an expansion scenario, expanding from 5Mtpa to 10Mtpa after five years (Expansion Option):

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Table 2. Razorback Project configurations

Project Element	Base Case	Expansion Option [a]
Process Plant Feed capacity	25 Mtpa	25Mtpa → 67Mtpa
Concentrate production [b]	5 Mtpa	5Mtpa → 10Mtpa
Mining	Contract - Truck/shovel	Contract - Truck/shovel
Processing	1x 25Mtpa feed processing module	1 x 25Mtpa feed processing module 1x 42Mtpa feed processing module TOTAL: 67Mtpa processing capacity
Logistics	Road haulage to rail siding Rail freight to Whyalla Port Transhipping to Capesize vessels for international export	5Mtpa: Road haulage to rail siding, rail freight to Whyalla Port 10Mtpa: Rail freight from site to Whyalla Port Transhipping to Capesize vessels for international export
Power	275kV transmission line	275kV transmission line (unchanged)
Water	Seawater and wastewater options available	Seawater duplication of pipeline required

a. *The project update assumes the expansion stage occurs in year 5*
b. *Concentrate production capacities are averages that may not be always realised due to ore body variability*

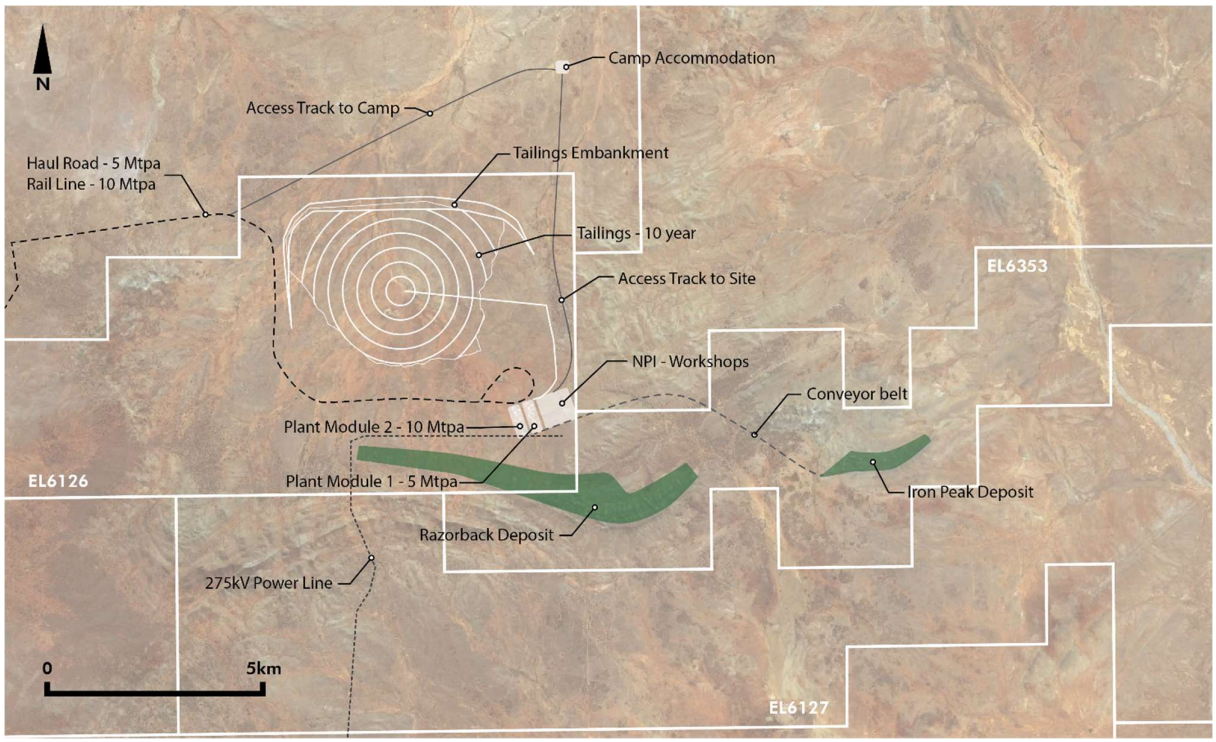

Figure 3. Site general arrangement showing location of Iron Peak deposit relative to the Razorback deposit and proposed location of Project process plant

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The Razorback Project comprises the Razorback Ridge and Iron Peak deposits, which combined contain 3.2 billion tonnes of Indicated and Inferred Resources (JORC 2012)[9]. Both production scenarios have been generated from mine schedules that produce ~2.3 billion tonnes of life-of-mine ore from these Mineral Resources. For the Base Case 85.2% is in the Indicated Resource category and 14.8% is Inferred. For the first ten years of production, 83% of the contributing run-of-mine (ROM) material is currently categorised at Indicated and 17% Inferred. For the Expansion Case 85.2% is Indicated and 14.8% Inferred making up the life of mine (LOM) mining schedule and the first ten years of proposed production composed of 91.3% Indicated and 8.7% Inferred.

All financial analysis completed for this project update has been based on verifiable, data-driven assumptions. Capital and operating costs were based on conventional estimation techniques and included contingencies where appropriate. Capital estimates were derived from recent engineering and estimation work completed by Hatch, GHD and other contributors. All capital estimates met the requirements of AACE Class 4 and 5, with more than 90% of the capital completed to AACE Class 4 level of accuracy or through direct vendor quotations.

For the Expansion Option, the following key elements were incorporated into the design and cost estimates:

- an additional 5Mtpa processing plant module (with expanded front-end crushing);
- construction of a rail spur between the mine and existing rail (~50km) with balloon loop and train load-out facility installed at site; and
- expanded camp facility.

The financial returns of each production scenario produce positive returns across a range of macroeconomic assumptions. This project update's base assumptions include US$115/t for the 62% Fe iron ore reference price, a US$41/t quality adjustment premium and a 0.68 AUD:USD currency exchange rate.

In line with its sustainability leadership aspirations, the Company has designed the Razorback Project to include ESG-conscious project development decisions and sustainable operating practices, particularly with respect to its carbon footprint:

- The Project will target production of premium-grade concentrates with the lowest net-embodied carbon levels globally
- Renewable energy driven electricity supply will be sourced via the South Australian grid[6,10] from the Bundey substation, with Electranet confirming availability of capacity and offtake, subject to no material developments in the interim. In 2022, 70% of power generation in South Australia was from renewable sources, which is forecast to reach 100% by 2030[6].
- Use of a central tailings discharge (CTD) storage facility to improve water recovery through filtration and reduced breach risk[1].

Mineral Resources and Ore Reserves

The mining and production scenarios described in this project update are based the Company's current JORC (2012) Mineral Resources and Ore Reserves[2].

The Mineral Resource (Table 3) and Ore Reserves (Table 4) estimates were disclosed by the Company under the JORC (2012) code and guidelines on the 9 Feb 2023[9] and 9 June 2023[2] respectively. No changes to the Mineral Resource Estimate have been made on the basis that MGT is not aware of new information or data that materially affects the information included in the Mineral Resource

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announcement and all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

The Razorback Project covers sedimentary lithologies of the Adelaide Geosyncline, a linear north-south to north-east trending tectonic rift basin comprising sediments deposited during the late Proterozoic and early Cambrian Eras. The host rock to the magnetite at Razorback is Neoproterozoic glaciogenic meta-sediment of the Braemar Iron Formation.

Mineralisation within the Braemar Iron Formation forms a simple dipping tabular body with minor faulting, folding and intrusives. Grades, thickness, dip and outcropping geometry remain very consistent over kilometres of strike. While the bedded magnetite has the highest in-situ iron content, typically 19-35% Fe, the tillitic unit, at typically 15-26% Fe, is diluted by the inclusion of lithic fragments such as granite and metasedimentary drop stones.

Summaries of the Razorback Project Mineral Resource and Ore Reserves estimates are outlined in Tables 3 and 4 respectively.

Table 3. Razorback Project Mineral Resource Estimate at 11% eDTR cut-off grade[9]

Razorback Project (Razorback and Iron Peak deposits combined)
Widenbar and Associates, 9 Feb 2023

Classification	Tonnes (Mt)	Mass Rec (eDTR%)	Fe %	SiO_2 %	Al_2O_3 %	P %	LOI %	Magnetite %
INDICATED	1,675	15.95	18.36	48.02	8.06	0.18	5.46	15
INFERRED	1,570	16.09	17.74	48.6	8.23	0.18	5.53	15.6
TOTAL	3,245	16.02	18.06	48.3	8.15	0.18	5.49	15.3

All figures quoted at an 11% eDTR cut-off. Magnetite Mines Limited is not aware of any new information or data that materially affects the information included in the resource announcement dated 24 May 2021 and all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

Table 4. Probable Ore Reserve - June 2023[2]

Probable Ore Reserves*	Tonnes Mt	eDTR %	Fe %	Mag %
Weathered	149	12.9	17.9	10.7
Primary	1,828	14.8	17.5	13.9
TOTAL	**1,977**	**14.6**	**17.5**	**13.7**

All figures quoted at an 8% eDTR cut-off

Mining

The mining strategy for the Razorback Project is consistent with the overall development approach to achieve low-capital expenditure and low-risk operations. This is achieved via the application of conventional open pit mining methods, using mining contractors to simplify development and leverage the inherent advantage of an outcropping resource that provides a low strip ratio and short, flat hauls.

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The mining analysis used in this project update included the optimisation of:

1. Pit Shells
2. Mining Rates
3. Plant Cut-off Grades

Deswik Pseudoflow software was used to generate pit shells targeting an unlimited mine-life, constrained by the Mineral Resource. Deswik's Direct Block Scheduler tool was then used to develop a sequence of unrefined stages according to predetermined tonnage for each stage, fixed cost inputs per ton, a discount rate (8%) and a flow model for the mine, including stockpiling. From there, Deswik's Phase Bench Scheduler was used to develop more practical pit stages.

The optimisation, prioritised Iron Peak material and generated a single pit at the Iron Peak deposit (see Figures 3 and 4) and three distinct pits within the Razorback deposit: Razorback West, Razorback Central and Razorback East.

A key feature of this Project update is the benefit provided by improved mass recoveries available from the Iron Peak deposit. The Iron Peak deposit is located 4km immediately to the east of the Razorback Deposit. The deposit was recently upgraded following a metallurgical and shallow infill drilling program which was completed in 2022. The results of the drilling program indicated that Iron Peak features higher grades and mass recoveries. As a result, the Iron Peak deposit was included in the mine plan and features heavily in the early years of production.

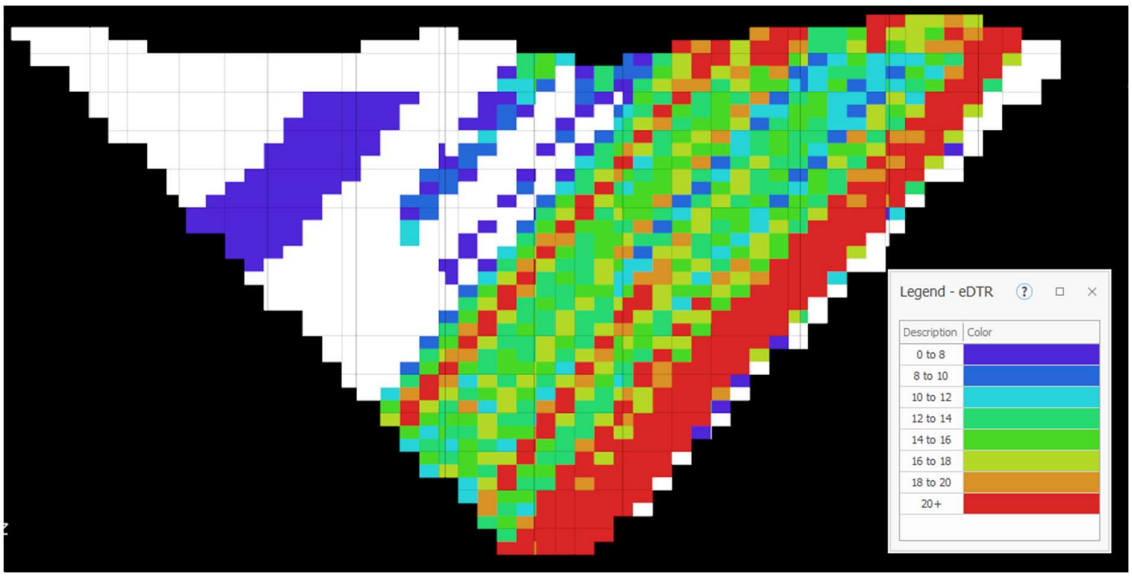

Figure 4. Diluted 10m x 15m blocks (as used in "bulk" mining scenario for Reserves Case) through Iron Peak

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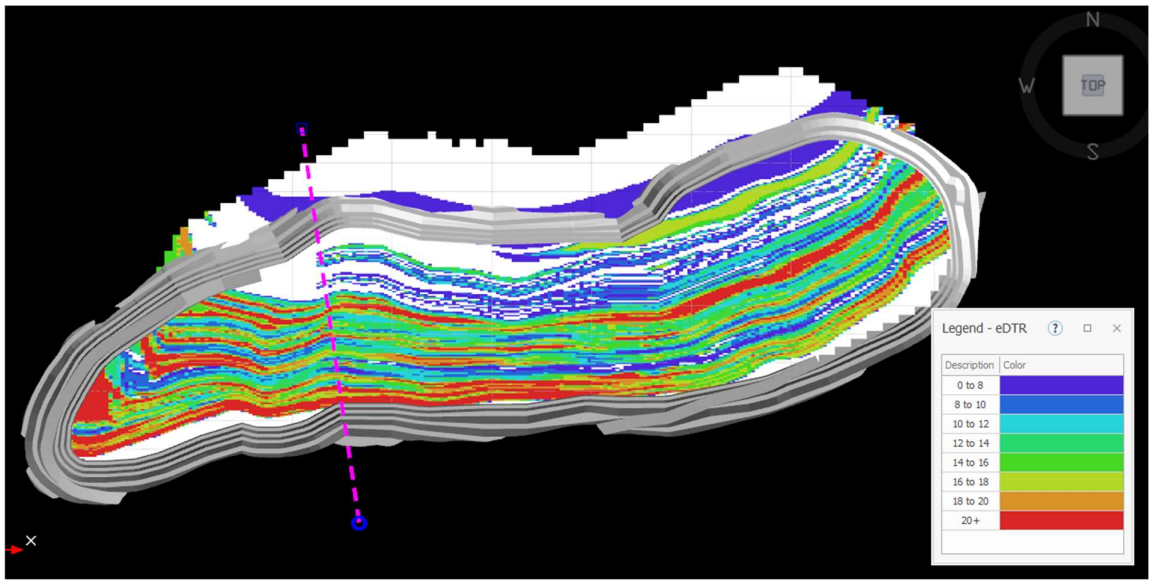

Figure 5. Section shown in pink overlain on Iron Peak pit and block model

The cut-off grade used for all ore was 8% eDTR, consistent with the Ore Reserve. The mine scheduling software selects a dynamic cut-off grade based on maximising NPV for the mine life, meaning minimum cut-off grade may change on a year-to-year basis.

Mine life achieved for the Base Case 5Mtpa production scenario was 91 years and mine life for the Expansion Option to 10Mtpa production scenario was 39 years.

Strip ratio, the ratio of total waste mined to total ore mined, for both production scenarios, was 0.35 despite some material being directed to waste classified as "ore". The strip ratio at the Project is best described as the ratio "uneconomic material: economic material" to align with the typical waste: ore ratio used at other operations.

Mining costs are summarised below:

- A$1.81/t for loading, ancillary equipment, drill and blast, geological drilling and other mine costs.
- A$1.00/t for rehandle
- Waste haul costs have been based on the depth of a block (in the geological block model) below the surveyed surface at Razorback. The cost for waste haul commences at A$0.83/t at surface and increases by A$0.026/t for every 10m of depth.

LOM mass recovery (grade) is 14.6% for both cases, inclusive of a 3% dilution factor. In total, 3,064Mt of material is mined in each case and total feed to the plant is approximately 2,270Mt for a total concentrate production of 331Mt. For modelling purposes, the revenue per tonne from the Iron Peak and Razorback deposits was assumed to be equal. The revenue assumption assumes a US$41/t premium applied to the 10-year, real, average 62%Fe price of US$115/t.

Metallurgy and Processing

The Razorback Project process plant flowsheet has been designed to target 67.5% to 68.5% Fe concentrate grades. A range is expected due to the Project's variable mineralisation across the orebody and mass recovery characteristics across the mine life.

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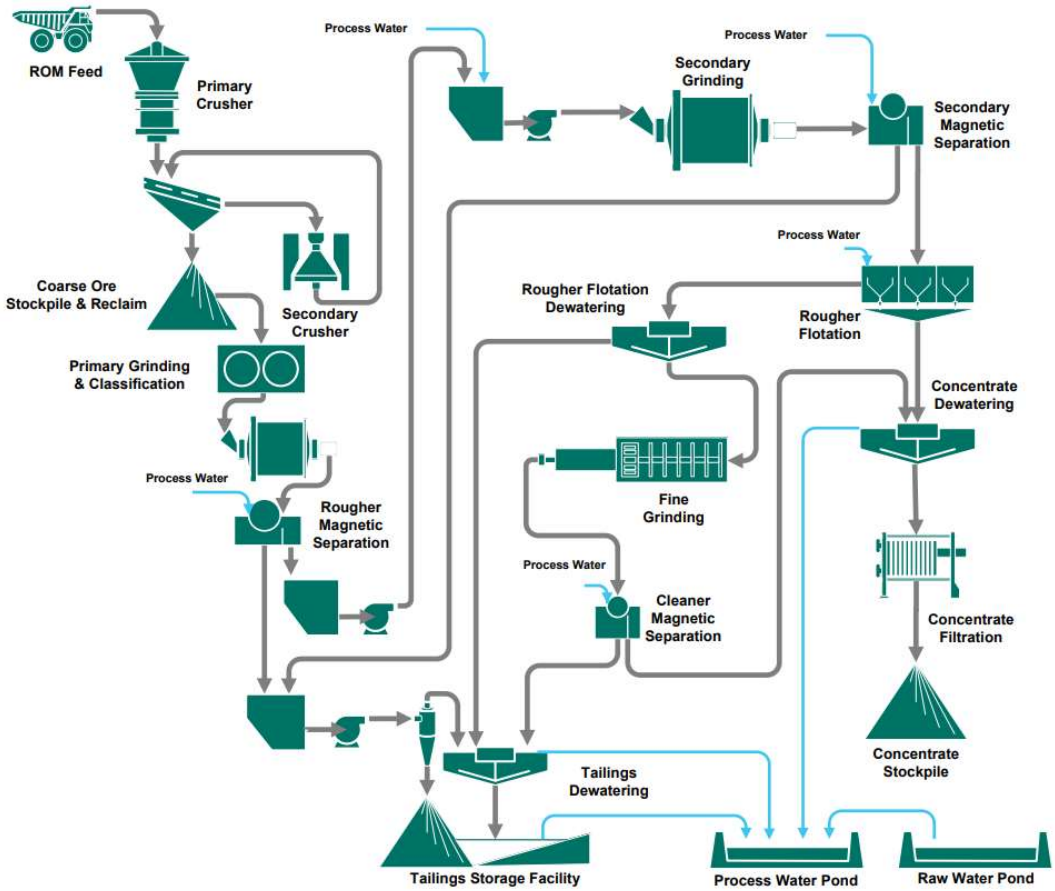

Figure 6. Schematic Razorback Project flow sheet

The flowsheet also continues MGT's philosophy of only adopting mature, well-proven technologies and common industrial equipment to minimise technical risk:

- **Crushing** – Primary and secondary crushing circuit that crushes blasted ore received from the mine (80% passing 800mm) to 80% passing 32mm.
- **Primary Grinding and Classification** – Integrated High Pressure Grinding Roll (HPGR) / and ball mill circuit for further size reduction to 140 microns.
- **Rougher Magnetic Separation** – Initial magnetic separation at 140 microns with mid-stage rejection of waste material for tailings wall construction, rejecting 50%-55% of non-magnetic material.
- **Secondary Grinding** – Ball mill circuit for a further size reduction of magnetics to 45 microns.
- **Secondary Magnetic Separation** – Magnetic separation at finer grind sizes, rejecting 30%-40% of non-magnetic material in circuit feed.
- **Rougher flotation** – Froth flotation circuit to recover high-grade hematite and magnetite particles, rejecting remaining silica and complex, low-grade particles.
- **Cleaner circuit** – Fine grinding and magnetic separation circuit applied to a small component of Rougher Flotation concentrate, fine grinding to 15 microns using IsaMills®, with cleaner magnetic separation to produce a premium-grade magnetite concentrate.

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Tailings

The Tailings Storage Strategy (TSF) strategy was designed and costed during the Optimisation Study stage to AACE Class 4 standards and designed to meet 2019 ANCOLD standards[1]. Both conventional wet tailings (dam) and Central Thickened Discharge (CTD) tailings were appraised, with CTD tailings presenting the best economic, environmental and water recovery option. The CTD utilises a single tailings pipeline, which will deposit the tailings from a central point approximately in the centre of the proposed ultimate CTD tailings impoundment footprint.

For the CTD option, higher-density thickened tailings will be deposited from an elevated central point, thereby forming a conical tailings beach radiating outwards toward the downstream containment embankments. The tailings embankment walls will utilise, natural soils won from cut and fill or borrow areas, waste rock from the pit and classified sand tailings manufactured from the rougher rejects stream.

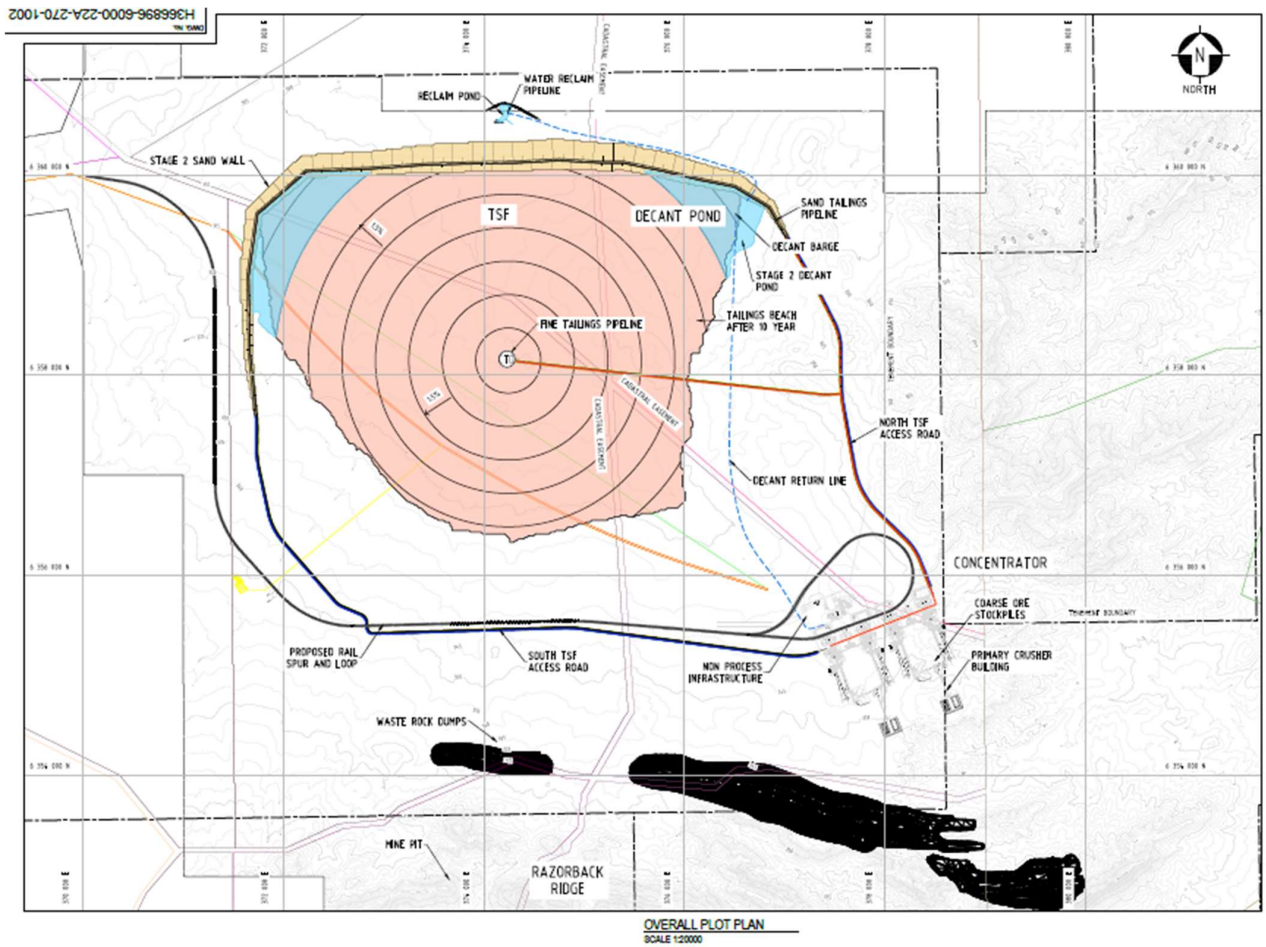

Figure 7. The Razorback tailings dam with CTD design after ten years deposition, relative to access road, rail loop, process plant and mine pits

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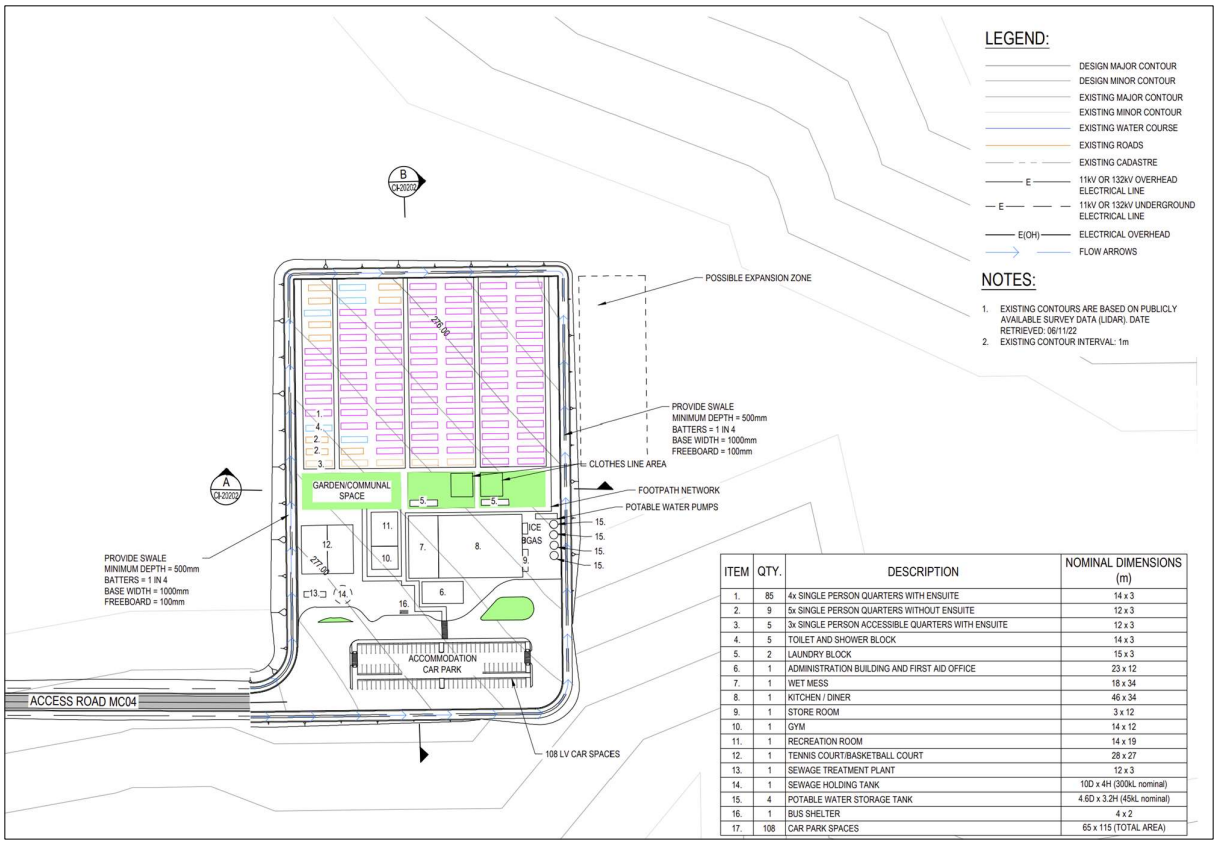
Site Infrastructure

Cost estimates for site infrastructure were based on updated capital estimates for the expanded 5Mtpa production base case, completed by GHD in early 2023. Site infrastructure included workshops, site accommodation and site-wide power reticulation for 11kV powerlines.

The camp accommodation is located to the north of the processing plant and TSF, with an access road linking plant and living quarters. Camp accommodation is inclusive of accommodation, kitchen and mess, administration, laundry and recreational areas. The camp has been designed to facilitate ~400 personnel operating on a DIDO/FIFO roster basis.



ITEM	QTY.	DESCRIPTION	NOMINAL DIMENSIONS (m)
1.	85	4x SINGLE PERSON QUARTERS WITH ENSUITE	14 x 3
2.	9	5x SINGLE PERSON QUARTERS WITHOUT ENSUITE	12 x 3
3.	5	3x SINGLE PERSON ACCESSIBLE QUARTERS WITH ENSUITE	12 x 3
4.	5	TOILET AND SHOWER BLOCK	14 x 3
5.	2	LAUNDRY BLOCK	15 x 3
6.	1	ADMINISTRATION BUILDING AND FIRST AID OFFICE	23 x 12
7.	1	WET MESS	18 x 34
8.	1	KITCHEN / DINER	46 x 34
9.	1	STORE ROOM	3 x 12
10.	1	GYM	14 x 12
11.	1	RECREATION ROOM	14 x 19
12.	1	TENNIS COURT/BASKETBALL COURT	28 x 27
13.	1	SEWAGE TREATMENT PLANT	12 x 3
14.	1	SEWAGE HOLDING TANK	10D x 4H (300kL nominal)
15.	4	POTABLE WATER STORAGE TANK	4.6D x 3.2H (45kL nominal)
16.	1	BUS SHELTER	4 x 2
17.	108	CAR PARK SPACES	65 x 115 (TOTAL AREA)

Figure 8. Site accommodation general arrangement

Power

Total site demand is 140MW for the Base Case scenario and 280MW for the Expansion Option scenario, with electrical infrastructure capital costs estimated to AACE Class 5 by GHD. Electricity will be supplied to the mine site substation via a 400MW, 275kV high voltage monopole overhead transmission line using an 'orange' conductor to accommodate both Base and Expansion Option demands. The planned 126km transmission line follows previous disclosures on alignment and offtake point at the Bundey Substation site as owned and operated by ElectraNet and currently under construction[10].

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A mine site substation with 150 MVA capacity has been included in the project capital cost estimate with site reticulation using 11kV to supply plant and ancillary infrastructure. A build-own-operate (BOO) model for the transmission line and mine site transformer, commonly adopted for large-scale mining operations, has been assumed for this project update.

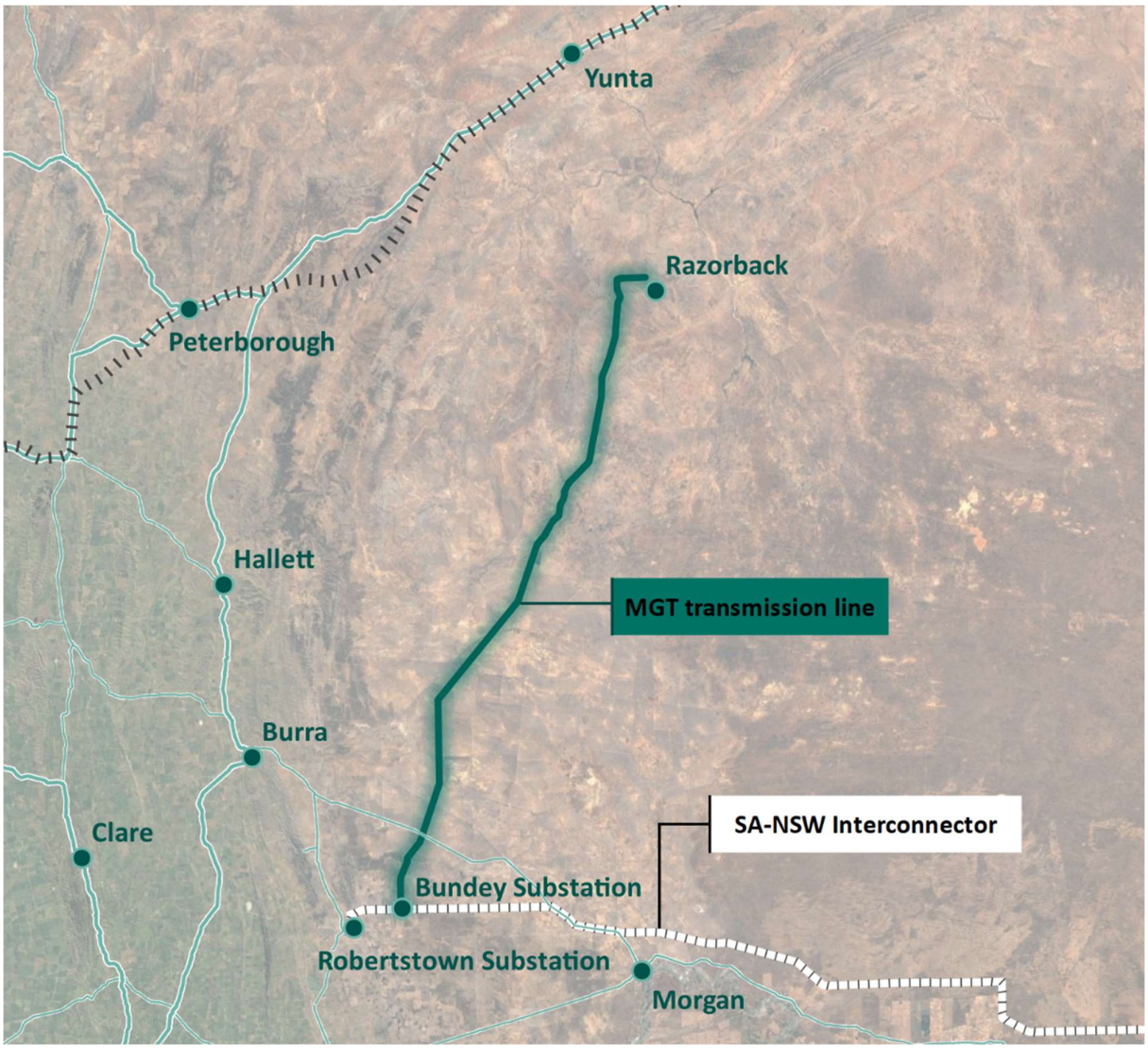

Figure 9. Proposed overhead transmission line alignment, Razorback to Bundey Substation

Water supply

Water is required for mining and processing activities and a sustainable and affordable water supply for the Project has long been recognised as a key technical risk. Total water requirements for the Base Case production scenario is estimated at 10GL/year. The Expansion Option will require an additional 10GL/y for a total of 20GL/y, following the expansion.

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In line with the Company's commitment to sustainable development and ESG goals that include water efficiency, the process design, equipment selection and tailings placement methodology have been carefully selected to maximise water recovery and reuse.

The Company is currently assessing three large-volume water supply options that have been identified for the Project:

1. Coastal supply – Delivering desalinated or partially-desalinated water to the mine site from the Spencer Gulf via pipeline;
2. Groundwater supply – Sourcing groundwater, via bore fields and pipeline, from the Murray Basin, located at various distances from the Project (50km to 100km), where groundwater resources are understood to be more prospective; and
3. Option 3 (preferred) – currently subject to 'commercial in confidence' negotiations. The Company will provide details of this option when security of supply is confirmed.

The 5Mtpa production scenario (i.e. the Base Case and underpinning the Expansion Option) will require a combination of local ground water for construction and processing purposes together with large-scale offtake from the final selected option, each of which will require a pipeline and desalination/water-treatment facility. Capital costs have been estimated by GHD to Class 5 level of accuracy for these options.

Product Logistics

Trucking, rail, conveyor and slurry pipeline options were tested as part of the optimisation study cost analysis. A truck haulage solution has been selected for the Base Case scenario. This option reduces initial capital costs and will require the development of a dedicated haul road running from the Hillgrange rail siding area to the mine site[5].

The expanded production of 5Mtpa to 10Mtpa (Expansion Option) will require the development of a dedicated rail spur line and balloon loop as well as a train load-out (TLO) facility to enable direct loading of concentrates onto the train for delivery to port, minimising rehandle costs and expanding throughput.

The above logistics strategy consists of tried-and-tested methods of haulage, transhipment and shipment and makes use of existing infrastructure that has spare capacity to support the proposed expansion. Internal analysis was used to estimate the operating costs of increased rail, port and shipping throughput. The cost of building a rail loop to site from a connection point along the Crystal Brook-Broken Hill railway is discussed below. The haul road constructed for the Base Case is intended to serve as the primary mine access road and therefore would not become redundant infrastructure in later stages.

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Table 5. Summary of Base Case and Expansion Option logistics options

	Base Case 5Mtpa	Expansion Option 5-10Mtpa
Road	Road haulage to rail a siding connecting to the Crystal Brook-Broken Hill railway	*Haul road used for site access only*
Rail	Rail haulage from Hillgrange rail siding to Whyalla Port	Rail freight directly from site to the Whyalla Port via a newly-constructed balloon loop linking in the Crystal Brook-Broken Hill railway
Port	Whyalla Port - Transhipment to Capesize vessels	
Shipping	Shipment on Capesize vessels to customer-designated ports	

The investment case for replacing road and rail haulage with rail haulage only, by building a rail connection directly to the mine site, becomes attractive at higher production rates. The capital expenditure of constructing a rail or balloon loop to site from the Crystal Brook-Broken Hill railway as well as the TLO facility adjacent to the processing complex is significant at almost $200 million. However, the investment is readily justifiable at production levels above of 5Mtpa or more as the initial outlay is estimated to have less than a five-year payback due to lower operating costs, exemplifying potential scale economies.

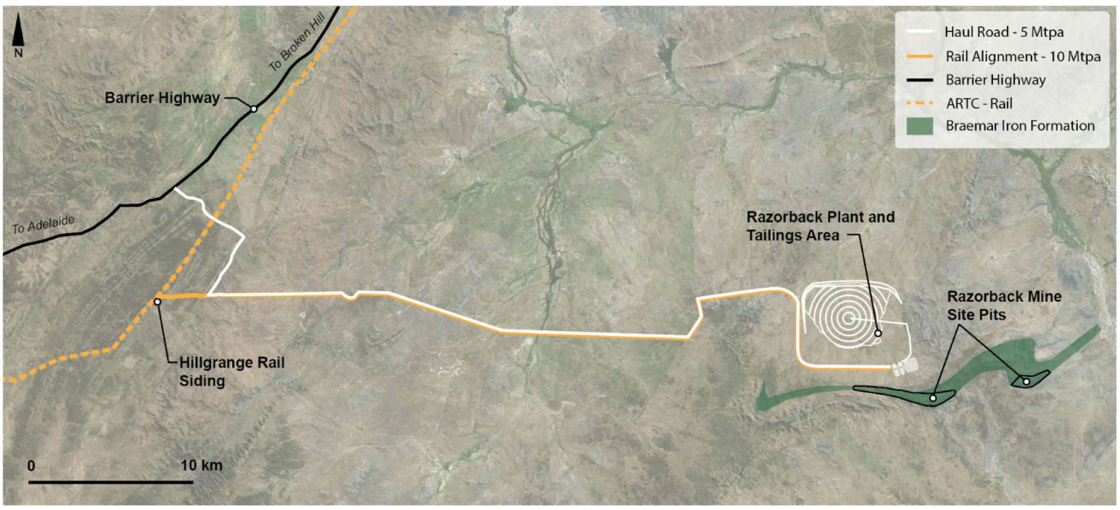

Figure 10. Schematic haul road and rail design and alignment

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Operating Philosophy

The Project will operate as a hybrid fly-in-fly-out, drive-in drive-out operation to a local airstrip followed by a bus service to the mine site. A 400-person accommodation village described above will be constructed at the site. A total of 500 full-time operational positions are envisaged on a roster basis.

Development Pathway

Given the scale of the Project, the Company is committed to a comprehensive and high-accuracy development pathway to minimise project execution risk.

- **Value Engineering:** The value engineering process is being applied to the new go-forward Project configuration and comprises a systematic and structured approach to cost and design optimisation prior to embarking on the more cost-intensive, large-scale engineering design and cost estimation required for the definitive feasibility study. This reduces engineering, stakeholder and cost risk.

  The primary objective of this stage is to enhance the Project's value proposition by maximising functionality, quality, and performance while minimising costs, waste, and inefficiencies. For the Razorback Project, cost-reduction studies and access negotiations will be completed to confirm critical elements such as land access for plant and tailings location, confirmation of water offtake and costs, as well as power and haul road alignments. This value engineering process will also provide an opportunity to further optimise mine scheduling, geotechnical data collection and Mineral Resource development.

- **Definitive Feasibility Study (DFS):** The geological model, JORC Resource and Reserves, and metallurgy have now been completed to DFS level. The Company plans to complete a DFS for the new, larger scale project configuration following the value engineering stage and once critical infrastructure, including water and port capacity, have been more confidently secured. This work is well underway.

  The DFS will provide a comprehensive assessment of the technical, economic, and financial viability of the proposed project, and capable of supporting a financing and partnering process. The Company aims to bring the critical capital items of the Project to AACE Class 3 levels of accuracy (+-10%).

  Due to the extensive Project knowledge base and DFS-level work completed to date, the Company is well positioned to fast-track this aspect of the Project development.

Cost analysis

The capital and operating cost estimates used to model the Base Case and Expansion Option scenarios have been largely based on data and analysis determined by Hatch and GHD during the recently completed optimisation study phase, with appropriate adjustments and re-estimates for the larger scale and the scope differences set out above.

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Table 6. Key Financial Metrics

Financial Metrics	Unit	Base Case	Expansion Option
Value-in-use price premium [a]	US$/t	41	41
Value-in-use operating cost (62% Fe eq.) [b]	US$/t	46 – 55	39 – 48
Pre-production capital [c]	US$B	1.0 – 1.3	2.3 – 2.8

d. *Value-in-use price premium is the forecast 2027 quality adjustment premium over and above the 62% iron ore index reference price as calculated by Wood Mackenzie for Razorback Project concentrate specification.*

e. *Value-in-use operating cost (62% Fe eq.) represents the total operating cost per tonne of concentrate produced for the first ten years of operations at scale, inclusive of freight, royalties, lease costs and sustaining capital, with the value-in-use price premium (see a. above) subtracted, enabling direct comparison with the benchmark 62% iron ore index reference price.*

f. *Pre-production capital represents the capital expenditure required to achieve production. For the Expansion Option, pre-production capital is the combined total for both initial and expanded production stages.*

Capital cost estimate: All quotations solicited for the capital cost estimate are current and accommodate cost increases incurred in the recent inflationary cycle. Furthermore, a 20% contingency rate has been added to all development capital costs, including the cost of each processing module, the tailings storage facility, water infrastructure and site infrastructure costs, to reflect the level of accuracy of the engineering estimates. Ranged capital figures (+10% / -10%) are provided in the table below given the uncertainty associated with early-stage studies and long-term equipment pricing trends.

Table 7. Ranged estimate of development capital costs

	Base Case 5 Mtpa – A$'000	Expansion Option 10Mtpa – A$'000
Mining	18 – 22	18 – 22
Process plant	927 – 1,133	2,071 – 2,531
TSF	33 – 41	35 – 43
NPI	42 – 52	68 – 83
Road	44 – 53	44 – 53
Rail	-	159 – 195
Port	4 – 5	4 – 5
Water	211 – 258	423 – 517
Land acquisition	5 – 6	5 – 6
Sub-Total	**1,283 – 1,569**	**2,826 – 3,454**
Contingency (20%)	257 – 314	565 – 691
Total A$	**1,540 – 1,882**	**3,391 – 4,145**
Total US$ (FX 1:0.68)	**1,047 – 1,280**	**2,306 – 2,818**

Notes: (a) Exchange rate assumption AUD:USD = 0.68

Operating cost estimate: The operating cost has been calculated on a Value-In-Use (VIU) basis, frequently used to compare global iron production on a common basis, and is calculated by adjusting the total operating cost including freight to China, lease costs, sustaining capital and royalties, then adjusted for product quality relative to the 62% Fe reference price (VIU premium or discount).

Wood Mackenzie have calculated the current VIU premium (relative to the 62% Fe iron ore reference price, CFR China) for a product with the Razorback concentrate specification (iron, alumina, silica and phosphorus content) to be US$41.42.

Table 8 provides unit operating cost estimates for the first ten years of the Razorback Project operations for both production scenarios, and the consequent estimate of operating costs on a VIU basis to allow direct comparison with the benchmark 62% Fe reference price. Given the uncertainty associated with early-stage studies, the costs are expressed in ranges (-5% / +5%).

Table 8. Ranged estimate of operating cost (VIU basis)

	Base Case 5 Mtpa – US$/t	Expansion Option 10Mtpa – US$/t
Mining	25 – 28	23 – 25
Processing	19 – 21	21 – 23
Tailings	1.2 – 1.3	2.2 – 2.4
Concentrate transport – road	5.6 – 6.2	-
Concentrate transport – rail	10 – 11	11 – 12
Port costs	4.5 – 5.0	3.6 – 4.0
Sea Freight (China)	9 – 10	9 – 10
Transmission line (lease)	2.1 – 2.3	1.6 – 1.8
G & A	1.9 – 2.1	1.4 – 1.6
Royalties	8.0 – 8.8	7.9 – 8.7
Total Operating Cost [a]	**87 – 96**	**81 – 89**
Value-in-use price premium [b]	41	41
Operating Cost (VIU basis)	**46 – 55**	**39 – 48**

a. *Exchange rate assumption AUD:USD = 0.68; inclusive of sustaining capital*
b. *Value-in-use price premium is the forecast 2027 quality adjustment premium over and above the 62% iron ore index reference price as calculated by Wood Mackenzie for Razorback Project concentrate specification.*

Key Risks and Opportunities

Processing

The processing plant is subject to further engineering design and optimisation. Ore body variability and operational methodology may impact mass recovery and concentrate quality. Further work to de-risk processing plant efficiencies and delineate ore body variability will be required as the Project progresses through successive study phases.

Tailings

Tailings at the Razorback Project present a moderate technical risk due to the geography (very low population density) and benign (non-acid forming) nature of the tailings. The Project TSF as outlined in this project update has been designed to ANCOLD (2019) standards and to AACE Class 4 engineering standards. Work is underway to optimise storage locations around embankment construction and

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pumping costs. Stakeholder consultation and environmental impact studies continue in-line with current study objectives.

Power

Expanding the Project will require greater power supply to the site, especially the process plant. Various power supply options will be considered in further studies including those that may become technically feasible between now and Project final investment decision. There are several renewable energy generation projects currently planned in South Australia that the Company is closely tracking. As such there is considerable potential upside in power cost and renewables composition.

Water

Each 5Mtpa processing module will require approximately 10GL make-up water per year to operate. Although no technical constraints were identified during the Optimisation Study, further work would be required to assess and ensure security of supply and establish engineering requirements for necessary infrastructure. Past/historical flows may not necessarily represent future flow volumes from schemes and additionally flow rates and volumes may be impacted by operational decisions and planned maintenance activities, among other things. Future studies are expected to prioritise sustainable sources.

Logistics

Replacing combined road and rail haulage with rail haulage is a key driver of the improved returns in the Expansion Option relative to the Base Case. While capital estimates for a rail spur to site have been included, detailed rail modelling would be required to confirm arrangements for shipping the higher concentrate throughput contemplated in this project update on the Crystal Brook-Broken Hill Railway.

Sustainability and ESG aspects

Through the company's ESG initiatives, the environmental and social impacts of its operations will be baselined against global best practice on Scope 1, 2 and 3 emissions profiles. This will be a key area of focus in future studies.

Approvals

It is anticipated that the mine and processing expansion elements will be contained within the Mining Lease area granted for the Base Case, thus only requiring amendments to the operating permits under the SA Mining Act 1971 and other secondary statutes should a decision be made to progress to the Expansion Option. Additional developments, such as new electrical transmission, water supply and rail infrastructure, will require new consents, licensing and operating approvals. These new consents and licences will likely be secured pursuant to the SA Mining Act 1971 as ancillary development to the existing Mining Lease while other regulatory approvals and consents (State and/or Commonwealth) may also be required. There is, however, a risk of approvals delay or unknown environmental controls that may become apparent with further data collection and/or Federal and State regulatory updates.

This announcement has been authorised for release to the market by the Board of Magnetite Mines Ltd.

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ABOUT MAGNETITE MINES

Magnetite Mines Ltd is an ASX-listed iron ore company focused on the development of magnetite iron ore resources in the highly prospective Braemar iron region of South Australia. The Company has a 100%-owned Mineral Resource of 6 billion tonnes of iron ore and is developing the Razorback Iron Ore Project, located 240km from Adelaide, to meet accelerating market demand for premium iron ore products created by iron and steel sector decarbonisation, with the potential to produce high-value Direct Reduction (DR) grade concentrates. Razorback is set to become a very long-life iron ore project with expansion optionality in a Tier 1 jurisdiction that will produce a superior iron ore product sought by steelmakers globally. For more information, visit magnetitemines.com.

References

1. ASX Announcement – 20 Mar 2023 - Optimisation Transforms Razorback Iron Ore Project
2. ASX Announcement – 9 Jun 2023 – Iron Peak Deposit Maiden Ore Reserve
3. ASX Announcement – 21 July 2022 - Positive Interim Metallurgical Test Results
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8. ASX Announcement – 5 May 2023 - Landmark Community MOU Signed for Razorback Project
9. ASX Announcement – 9 Feb 2023 - Iron Peak Mineral Resource Significantly Improved
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APPENDIX 1

The table below emphasises the benefit of Iron Peak mineralisation across the Mineral Resource Estimate[9], current Ore Reserves[2] diluted model and the financial case utilised in the Economic Update based on 4x4m blocks. This tables highlights the tonnages of higher grade material potentially available at higher cut-off grades, subject of further mining optimisation.

	In-Pit Mineral Resource Estimate - Indicated		**Ore Reserves Diluted Model**		**Economic Update Diluted Optimisation (4x4m)**	
	Iron Peak		Iron Peak		Iron Peak	
Cut Off Grade	Tonnes (Mt)	eDTR %	Tonnes (Mt)	eDTR %	Tonnes (Mt)	eDTR %
8	344	17.6	362	16.8	363	16.9
10	308	18.6	339	17.4	333	17.6
12	261	20.0	298	18.3	290	18.6
14	216	21.4	247	19.6	237	19.8