Cautionary Statement

The Updated Scoping Study the subject of this announcement has been undertaken for the purpose of initial evaluation of a potential development of the Oakover Manganese Project. The Scoping Study is a preliminary technical and economic study of the potential viability of the Oakover Manganese Project as a manganese producer. The Scoping Study outcomes, production target and forecast financial information referred to in this release are based on low accuracy level technical and economic assessments that are insufficient to support estimation of Ore resources.

The Scoping Study has been completed to a level of accuracy of +/- 35% in line with a scoping level study accuracy. While each of the JORC modifying factors was considered and applied, there is no certainty of eventual conversion to Ore Reserves or that the production target itself will be realised. Further exploration and evaluation work and appropriate studies are required before the Company will be in a position to estimate any Ore Reserves or to provide any assurance of an economic development case. Accordingly, given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study. Given that the results of the Scoping Study are subject to the qualifications above (including assumptions as to accuracy), any results reported in this release should be considered as approximates and subject to variances having regard for the assumptions referred to in this release. The Company has reasonable grounds for disclosing a Production Target, given that approximately 99% of the Life-of-Mine (LOM) Production Target is in the Indicated Mineral Resource category, and 1% is in the Inferred Mineral Resource category. The production target stated in this announcement is based on Firebird's current expectations of future results or events and should not be relied upon by investors when making investment decisions. Further evaluation work and studies are required to establish sufficient confidence that the production target will be met. Firebird confirms that the financial viability of the Oakover Manganese Project is not dependent on the inclusion of Inferred Resources in the Scoping Study.

The Company considers all the material assumptions in this Study (which are set out in pages 6-33 of this announcement) to be based on reasonable grounds. These include assumptions about the availability of funding. While Firebird considers all of the 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 by the Scoping Study will be achieved. To achieve the range of potential outcomes indicated in the Scoping Study, funding of in the order of $123 million (excluding working capital and finance costs) will likely be required. Investors should note that there is no certainty that Firebird will be able to raise that amount of funding when needed. However, the Company has concluded it has a reasonable basis for providing the forward-looking statements included in this announcement and believes that it has a "reasonable basis" to expect it will be able to fund the development of the Project. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Firebird's existing shares. It is also possible that Firebird could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce Firebird's proportionate ownership of the project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study.

The Mineral Resources underpinning the production target in the Scoping Study have been prepared by a competent person in accordance with the requirements of the JORC Code (2012). The Competent Person's Statement is found on page 5 of this announcement. For full details of the Mineral Resources estimate, please refer to Firebird's ASX release dated 10th March 2022 and 23 March 2023.

Firebird has confirmed that it is not aware of any new information or data that materially affects the information included in that release. All material assumptions and technical parameters underpinning the estimates in that ASX release continue to apply and have not materially changed.

ASX ANNOUNCEMENT

30 August 2023

UPDATED DMS CONCENTRATE SCOPING STUDY DELIVERS OUTSTANDING RESULTS, CONFIRMS OAKOVER AS A STANDOUT MANGANESE OPERATION

HIGHLIGHTS

- Updated Dense Media Separation (DMS) Manganese Concentrate Scoping Study ('SS' or 'Study') results **confirm flagship Oakover Project as long-life, tier-one manganese operation.** Key results include:
  - **18-year Life of Mine**
  - **Approximate A$741.3 M NPV at a discount rate of 8%**
  - **Impressive IRR of 73.1%, with pay back in 16 months**
  - **~4Mt annual processing, ~1.2 Mt of 30-32 % Manganese (Mn) concentrate annually**
  - **Capex estimated of A$123 million**
  - **Low mine strip ratio of 0.45:1**
  - **Indicated material accounts for 99.2% of the material processed**

- **Results place Firebird in a strong position to execute its vision of becoming a global leader in the manganese industry, combining mining and downstream processing with a dedication to the advancement of EV battery sector**

- Updated Study follows an 80% uplift in Indicated Resource at Oakover to 105.8Mt
  - 58.8 Mt @ 10.4% Mn Indicated Resource at Sixty Sixer deposit [1]
  - 33.9 Mt @ 9.7% Mn Indicated Resource at Karen deposit[2]
  - 13.1 Mt @ 9.7% Mn Indicated Resource at Jay Eye deposit[2]

- Study assessed two scenarios, both utilising DMS beneficiation:
  - **Scenario one: Full production from start-up**
    - ~4Mt annual processing, ~1.2Mt of 30-32% Mn concentrate annually
  - **Scenario two: 2-Stage development, with a low-cost capital start-up**
    - ~1.5Mt annual processing for first 3 years, ramping up to 4Mt for following 17 years
    - Processing plant to produce ~500kt for the first 3 years then ramping up to ~1.2Mt of 30-32% Mn concentrate annually

- **FRB Board to pursue scenario one, due to highly attractive economics and commencement of full-scale production at Oakover from year one**

- Strong ESG credentials, with proposed renewable energy package delivering significantly lower processing costs and a long-term sustainable footprint

- Battery Grade MnSO4 Oakover Scoping Study well advanced, with results expected H2 2023

[1] For full details refer ASX announcement dated 10/3/2022
[2] For Full details refer ASX announcement dated 23/3/2023

Firebird Metals Limited (**ASX: FRB**, "**Firebird**" or "**the Company**") is pleased to announce successful completion of the Updated Scoping Study ("SS" or "Study") to produce manganese concentrate at its flagship Oakover Project, located 85km East of Newman, Western Australia.

Completion of the Study followed an 80% increase in the Oakover Indicated Mineral Resource Estimate (MRE), which stands at 105.8 Mt @ 10.1% Mn. Combined with an Inferred MRE of 70.9Mt, the total Oakover Resource is 176.7Mt @ 9.9% Mn (all using a 7% Mn cut-off).[1] [2]

The Board assessed two production scenarios in the Study, both utilising DMS beneficiation, to determine the most efficient and profitable path forward at Oakover.

Scenario one assessed the requirements, economics and production profile of full-stage production from year-one, where ~4Mt would be processed and ~1.2Mt kt of 30-32% Mn concentrate would be produced annually.

Scenario two evaluated a two-stage ramp-up to full production, with stage one being an initial lower capex option, comprised of ~1.5Mt annual processing for first 3 years and following this, stage two would commence where ~4Mt would be processed annually for the following 17 years. In the first three years, Oakover would produce ~500kt of 30% Mn concentrate annually and then ramp up to ~1.2 Mt kt of 30- 32% Mn concentrate annually.

Following assessment of both scenarios, the Firebird Board made the decision to progress with scenario one, which will see full-scale production commence from year-one. **The results generated from scenario one confirmed Oakover as a long-life operation with strong project economics, highlighted by an 18-year Life of Mine, approximate $741.3 M NPV and impressive IRR of 73.1%.**

Importantly, results from the Study have set a strong platform for the Company to successfully deliver on its vision to become a global leader in the manganese industry, combining mining and downstream processing with a dedication to the advancement of Li-ion battery sector.

Firebird Managing Director Mr Peter Allen commented: *"We are very pleased with the results from our updated manganese concentrate scoping study, as it has reinforced the world-class nature of our Oakover Project, which contains all the necessary elements to become a significant manganese operation.*

"Following major growth in the Oakover Indicated resource, which was lifted by 80% to 105.8 Mt in March this year, the Board believed it was prudent to recomplete the concentrate Scoping Study. The decision has been vindicated as we have nearly doubled the life-of-mine at Oakover from 10-years to 18-years, NPV has grown from $329 M to $741.3 M NPV and the IRR has increased from 47% to 73.1%. These are excellent numbers and a great result for the Company and our stakeholders.

"Importantly, we have set a strong platform to deliver on our vision to become a global leader in the manganese industry, combining mining and downstream processing with a dedication to the advancement of EV battery sector. We are developing and pushing ahead with Oakover at the right time, as the use of manganese in EV batteries is growing rapidly. Batteries such as NCM, LMO and LMFP continue to be used more and more by car manufacturers and Tesla has stated plans for two thirds of their batteries to be manganese based.

"LMFP batteries are forecasted for the biggest growth rise of all the manganese-based batteries, due to the fact it meets the key criteria of car manufacturers - cheap, safe and delivers good range. 2023 is seen by many industry participants as the beginning of the new era of Li-ion batteries by commercialising LMFP and we look forward to benefiting greatly from this demand."

Forward-looking Statements

This announcement contains forward-looking statements which are identified by words such as 'may', 'could', 'believes', 'estimates', 'targets', 'expects', or 'intends' and other similar words that involve risks and uncertainties. These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions regarding future events and actions that, as at the date of this announcement, are considered reasonable. Such forward-looking statements are not a guarantee of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, the Directors and the management. The Directors cannot and do not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will actually occur and investors are cautioned not to place undue reliance on these forward-looking statements. The Directors have no intention to update or revise forward looking statements, or to publish prospective financial information in the future, regardless of whether new information, future events or any other factors affect the information contained in this announcement, except where required by law or the ASX listing rules.

Firebird has concluded that it has a reasonable basis for providing these forward-looking statements and the forecast financial information included in this release. To achieve the range of Oakover Manganese Project outcomes indicated in the 2023 Scoping Study, funding of in the order of an estimated $123 million will likely be required by the Company. Based on the current market conditions and the results of studies to date there are reasonable grounds to believe the Project can be financed via a combination of debt and equity, as has been done for numerous comparable projects in Western Australia in recent years. Debt may be secured from several sources including Australian banks, international banks, the high yield bond market, resource credit funds, and in conjunction with product sales of offtake agreements. It is also possible the Company may pursue alternative funding options, including undertaking a corporate transaction, seeking a joint venture partner or partial asset sale.

There is, however, no certainty that Firebird will be able to source funding as and when required. Whilst no formal funding discussions have commenced the Company has engaged with a number of potential financiers on the Oakover Manganese project and these potential financiers have expressed an interest in being involved in the funding of the project. No commercial terms have been agreed between the parties, the discussions are incomplete, and there can be no certainty that any agreement or agreements can be reached or that any transaction will eventuate from these discussions. Accordingly, no investment decision should be made on the basis of this information. As the discussions mentioned above are at an early stage and are incomplete, any announcement of the details of these discussions would be premature and speculative.

This ASX release has been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions, including sufficient progression of all JORC modifying factors, on which the production target and forecast financial information are based have been included in this ASX release.

This announce has been approved for release by the Board.

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Competent Persons Statements / JORC Compliance Statement

This announcement contains references to Exploration Results and Mineral Resource Estimates, which have been extracted from previous ASX announcements as referenced. For full details of Exploration Results and Mineral Resource Estimates in this release that have been previously announced, refer to those announcements. For details of the Company's previous scoping study for the Oakover project, which the updated study replaces, refer to the Company's announcement dated 20 July 2022.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the said announcements, and in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

Scoping Study Introduction

The Scoping Study contemplates mining, processing and exporting manganese concentrate from the Oakover Project ('Oakover' or 'the Project'), which is located 85 km east of Newman in the Eastern Pilbara region of Western Australia. Access to the Project is via Great Northern Highway, Marble Road and Jigalong Road.

Oakover comprises of three granted exploration licenses, with the central license E52/3577 holding the Sixty Sixer, Jay Eye & Karen prospects, which host an MRE of 176.7 Mt @ 9.9% Mn, with 105.8 Mt @ 10.1 % Mn in the Indicated Mineral Resource category and 70.9 Mt at 9.6 % Mn in the Inferred Mineral Resource category.

The MRE is based on the results from a total of 482 drill holes (22,918 m) comprising 473 (22,630.2 m) reverse circulation percussion (RCP) and 9 (287.6 m) diamond drilling (DD) holes completed between 2010 and 2022. Drilling, logging and sampling defined revealed the geology of the Oakover project to predominantly comprise shales of the Balfour Formation.

These shales are variously enriched in manganese, with a higher grade, semi-massive manganiferous domain that is semi-continuous along and across strike at both Sixty-Sixer/Jay-Eye and Karen. This domain is sub-horizontal, approximately 10 - 15m thick and contains grades that range from 10-14% Mn. Immediately beneath the semi-massive horizon is a lower grade manganiferous shale unit with grade averaging 5-10% Mn. A thin, discontinuous supergene duricrust domain also occurs over Karen and Sixty-Sixer (though is absent at Jay-Eye) averaging ~5m thick with grades ranging up to 28% Mn.

There remains a significant number of exploration targets on the Oakover tenement that require further work and could potentially extend the mine life of the Project (Figure 1: Oakover Historical Drilling and Rock Chips / Stage 2 Exploration targets).

The recommended mining method is conventional open cut mining using truck and shovel, to focus on the semi-massive manganese and supergene duricrust domain, without sterilising the potentially economic Manganiferous Shale domain. This is a very common method which allows better targeting of the highest-grade ore and specific rock types, depending on the processing plant throughput requirements and customer contract specifications.

The Study considered two scenarios, the first scenario of processing 4Mt per annum and second scenario of staging CAPEX and processing 1.5Mt tonne per annum for three years then ramping up to 4Mt per annum manganese concentrate, processing includes crushing, scrubbing and DMS.

Firebird is targeting a renewable energy power generation for its processing plant, incorporating solar, wind and battery energy storage system. A diesel/solar hybrid power plant will be used for the first phase of production.

The Logistics Study explored the requirements to transport approximately 0.5Mt to 1.2Mt per annum of bulk manganese concentrate from the Oakover mine site to Port Hedland export facilities.

The Study included identification of the haul route from the mine to the Port of Port Hedland, including the establishment of road ownership (Main Roads WA or Local Government Authority) and confirmation of route approved vehicle and axle mass ratings. Road ownership was considered to seek, in principle, acceptance of the Accredited Mass Management Scheme level three operations.

Furthermore, this included the review of proposed haulage configuration options with the highest maximum net payload with consideration to Performance Based Standards vehicle assessment framework.

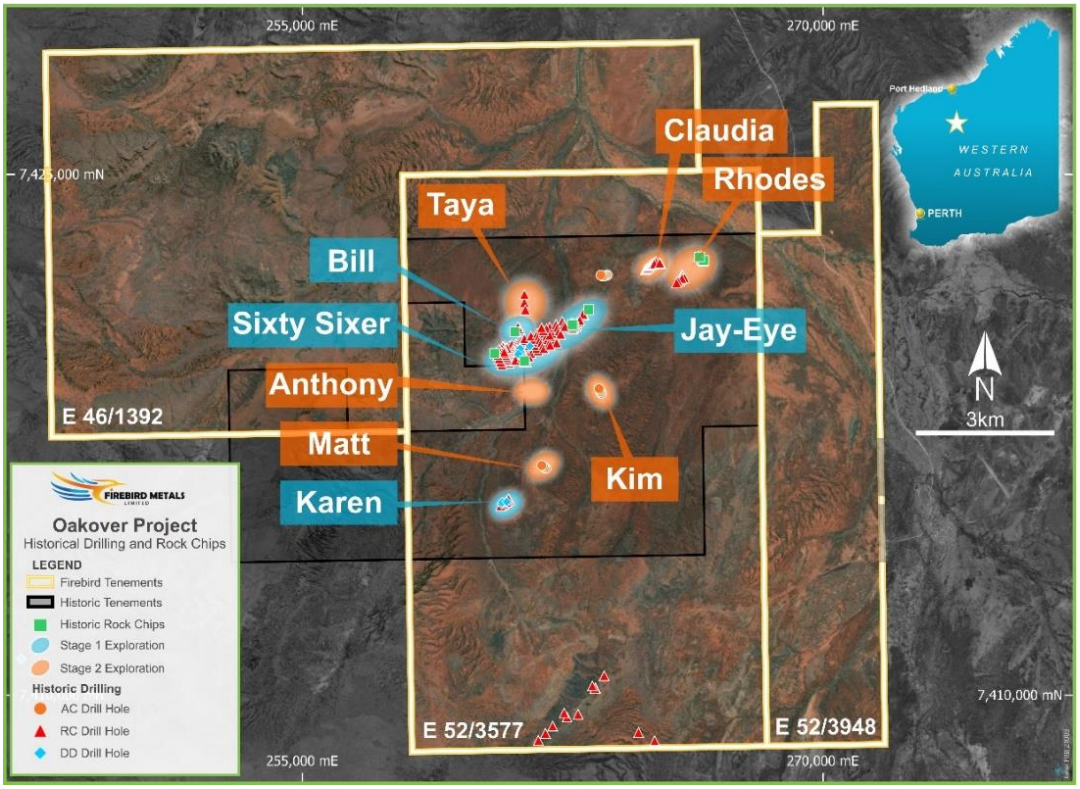

Figure 1: Oakover Historical Drilling and Rock Chips

Environment, Social and Governance (ESG)

ESG methodologies and future objectives form a significant reflection in how Firebird plan and conduct business, including corporate governance systems, people management systems, support for local communities and management of our operations.

Firebird identifies the importance of ESG affairs while advancing the Oakover Project and this Study has been approached with key ESG metrics in mind.

Key consideration will be the integration of clean energy technologies where possible. A strategy plan for energy consumption / energy management has been developed by engaging suitably qualified expert consultants.

Our energy management plan will ensure the local population and environment are of core consideration. Where integration of clean energy technologies and processes can improve the local quality of life, Firebird will endeavour to incorporate them.

The Oakover projects sits approximately 10 kilometres from the Jigalong community. Significant and ongoing consideration and engagement will be made with the community as Firebird develops Oakover in line with our key ESG principals.

Our aim is to work with the communities to develop training and apprenticeship programs for the locally based people and Firebird will endeavour to employ local personnel from nearby communities wherever possible.

As Firebird grows, systems and processes will be implemented to support and develop the Company's workforce through employee assistance programs, traineeships, apprenticeships, graduate recruitment and training. We will continue to review capabilities and prioritise courses that align with our corporate performance indicators.

Figure 2: Jigalong School children with donated sporting goods

Geology

Oakover is situated in the Collier Basin near the edge of the Pilbara Craton. A major portion of the tenement is covered by Quaternary cover with some calcrete along drainages. Several outcrops of the Middle Proterozoic Bangemall Group (Manganese subgroup), including various sediments of the Balfour Formation, Jigalong Formation and the Stag Arrow Formation are found on E52/3577 (Rohde, 2010).

The manganese mineralisation occurs as multiple seams or bands of varying thickness within a highly weathered shale (Balfour Formation). The mineralisation was generally found to be shallow (mostly within 20 m of the surface), gently dipping and laterally extensive across the target area. The lateritic profile and subsequent manganese mineralisation show the zonation within the regolith and distribution of manganese mineralisation. The higher-grade (or nearer-surface supergene/lateritic) manganese material is generally located within the upper portion of the regolith profile at shallow depths (0–15 m).

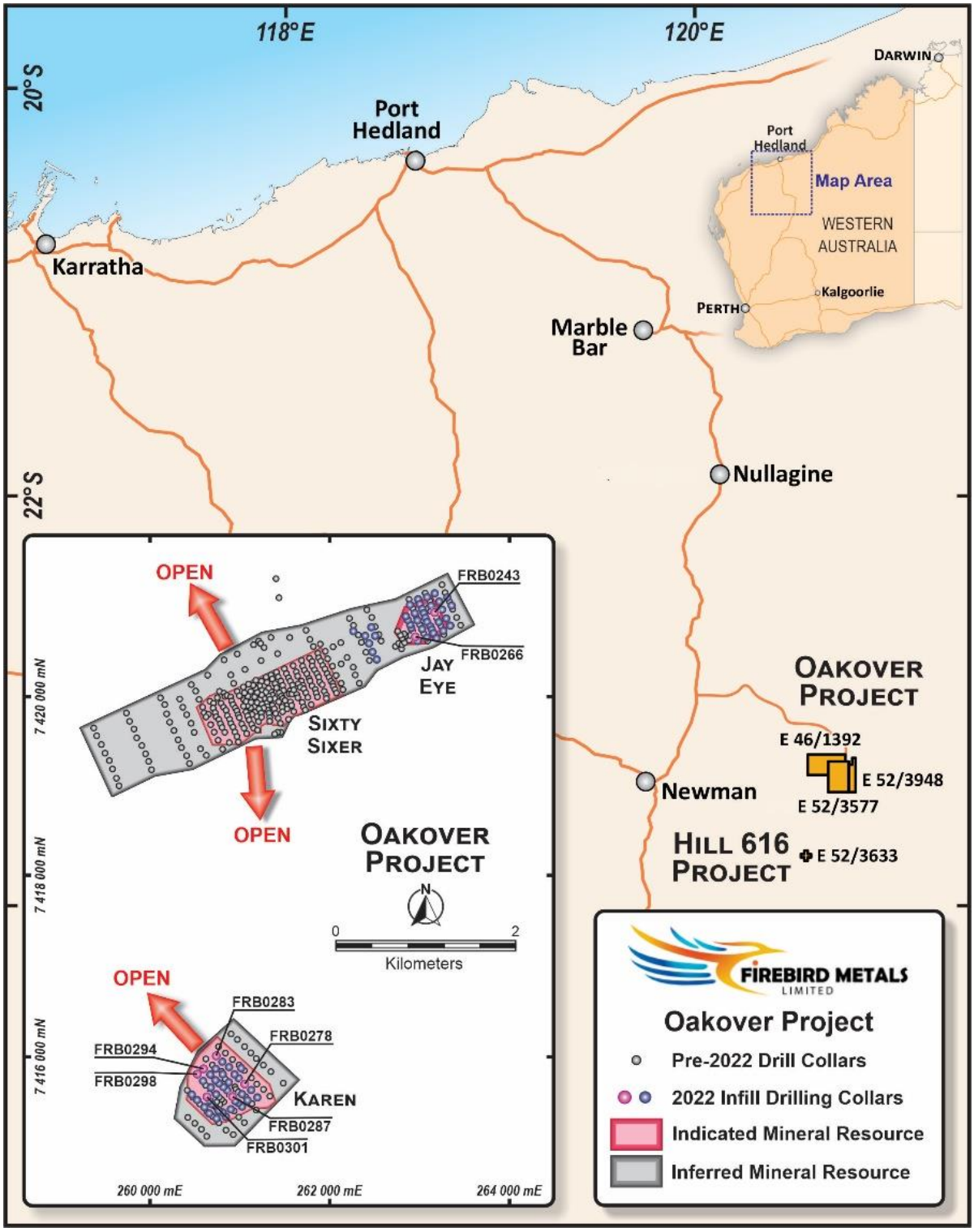

Figure 3: Oakover Project Mineral Resource

Area	Mineral Resource classification	Tonnes (Mt)	Mn (%)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)
Sixty Sixer	Indicated	58.8	10.4	9.2	40.2	10.1	0.1
Sixty Sixer	Inferred	43.7	9.4	8.5	38.3	9.7	0.11
Sixty Sixer	**Sub-Total**	102.5	10	8.9	39.4	9.9	0.11
Jay Eye	Indicated	13.1	9.7	7.6	34.2	8.3	0.1
Jay Eye	Inferred	22.1	10.1	6.9	31.5	8.8	0.06
Jay Eye	**Sub-Total**	35.2	10	7.1	32.5	8.6	0.07
Karen	Indicated	33.9	9.7	8.9	39.4	9.9	0.1
Karen	Inferred	5.1	8.2	9.1	42.3	10.5	0.11
Karen	**Sub-Total**	39	9.5	9	39.8	10	0.1
Oakover	Indicated	105.8	10.1	8.9	39.2	9.8	0.1
Oakover	Inferred	70.9	9.6	8	36.5	9.5	0.09
Oakover	**Grand Total**	176.7	9.9	8.6	38.1	9.7	0.1

Table 1: Oakover Mineral Resource Estimate – March 2023

Notes:

- *Mineral Resources reported at a cut-off grade of 7% Mn.*
- *Due to the effects of rounding, the total may not represent the sum of all components.*
- *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 will be realised.*

The MRE is based on the results from a total of 482 drill holes (22, 918 m) comprising 473 (22,630.2 m) reverse circulation percussion (RCP) and 9 (287.6 m) diamond drilling (DD) holes completed between 2010 and 2022.GDA94 Zone 51S coordinate system was used for the Project. Drilling, logging and sampling has defined a number of geological/mineralisation domains at the project.

Basal lithologies at the project are manganiferous shale of the Balfour Formation, with total grades ranging from 5-10% Mn. Mineralisation is hosted with lenticular layers of ferruginous/manganiferours shale, within host silty / cherty shale.

The higher grade semi-massive manganese domain is a sub-horizontal shale horizon that has been preferentially enriched with manganese oxides and is ~15 m thick. This domain sits beneath a thin veneer of waste shale (silty/cherty shale) that is generally unmineralized and ranges from 0-10 m thick. Grades of the semi-massive domain vary from 10-15% Mn. A surficial duricrust of supergene enriched lateritic manganese occurs discontinuously over the top of Sixty-Sixer and Karen deposits but is notably absent at Jay-Eye. This final mineralised domain is up to 15 m thick (though averages 2-5 m) and has grades that very widely up to 28% Mn.

The Mineral Resource of the Oakover Project has been classified using the JORC Code guidelines. The Mineral Resource was classified as a combination of Indicated and Inferred based upon the

geological understanding of the deposit, geological and mineralisation continuity, drillhole spacing, search and interpolation parameters and analysis of available density information. Material that has been classified as Indicated has a drill spacing between 50 m x 50 m and 100 m by 50 m in X and Y directions. The variograms for areas with a drill spacing of 50 m x 50 m demonstrate good grade continuity along and across strike. The area also contains sufficient density data to be estimated by ordinary Kriging. Preliminary metallurgical test work has been encouraging, but not conclusive and further test work is in progress. Areas with a drill spacing of 100 m by 50 m demonstrates good geological continuity, however grade continuity is not well demonstrated. Infill drilling will help improve the grade continuity in these areas.

Material that has been classified as Inferred has a drill spacing wider than 100 m by 50 m in X and Y directions. Geological continuity and grade continuity are considered implied based on the sampling pattern and assigned density were largely used in these areas.

Mining

The recommended mining method is conventional open cut mining using truck and shovel, to focus on the two current economical rock domains, without sterilising the potentially economic manganiferous shale rock domain.

This very common method allows better targeting of the highest-grade and specific rock types, depending on processing plant throughput requirements and customer contract specifications.

The Scoping Study has demonstrated the Project is economically viable, with 22.3Mt of 30 to 32% Manganese product generated over an 18 to 20-year life of mine. The optimised shell captured 100% of the modelled Supergene material above an 8% Mn cut off and 91% of the Massive Manganese material. This is due to the shallow ore body, thin overburden on top of the ore and persistent grade throughout the mineralised zone.

The generated phases have the Indicated Resource of Sixty Sixer pit mined first, followed by Karen and lastly Jay-Eye. A mining rate for scenario one of between approximately 4.6 to 9.5Mt per annum will provide the required feed of the proposed processing plant fixed capacity of 4Mt per annum, with a stockpile of no greater than 426,000 tonnes of Indicated materials when looking at 6-monthly periods.

A mining rate for scenario two of between approximately 3.7 to 8.4Mt per annum will provide the required feed of the proposed processing plant capacity of 2Mt per annum for the first three years and a ramp-up of 4Mt per annum the fourth year, with a stockpile of no greater than 418,000 tonnes of Indicated materials when looking at monthly periods.

Indicated material accounts for 99.2% of the material processed, approximately 70.95Mt, with Inferred making up the remaining 0.8%.

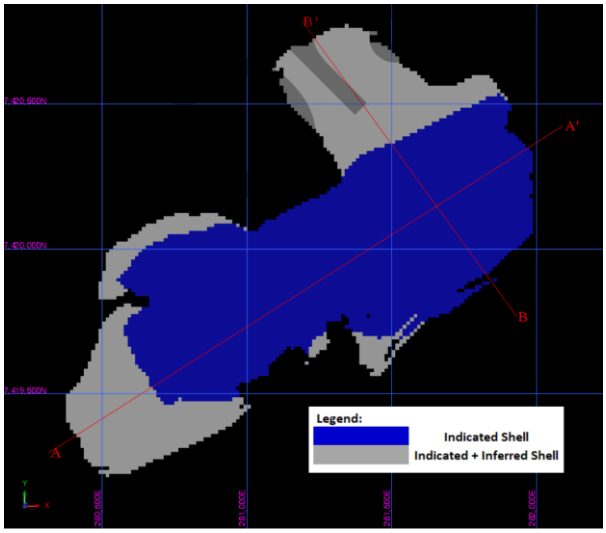

Figure 4: Sixty Sixer Indicated and Inferred

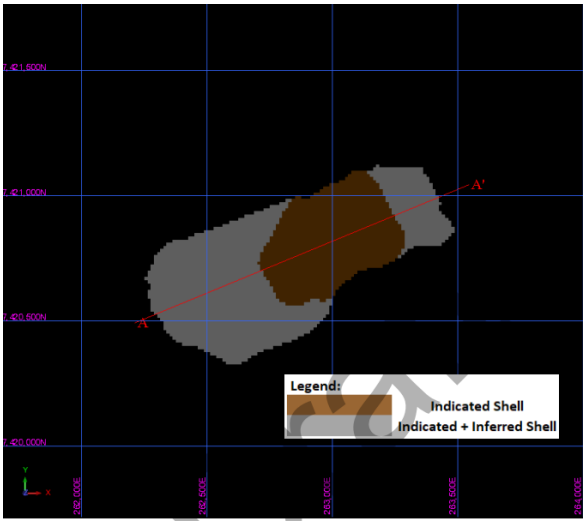

Figure 5: Jay Eye Indicated and Inferred

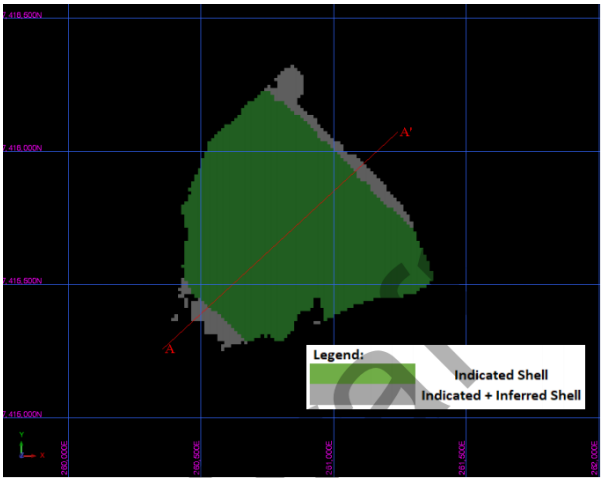

Figure 6: Karen Indicated and Inferred

Test Work

The Study has been based on metallurgical test work conducted on composite batches derived from diamond (PQ) core taken from Sixty Sixer, Jaye Eye and Karen[3].

Figure 7: Manganese ore concentrate

Metallurgical testing included ore sorting trials on two composite samples sourced from diamond core. Scrubbing and screening was employed to generate feedstock (-32+8mm) for ore sorting test work, which delivered excellent product grades up to 31% Mn. Preliminary heavy liquid beneficiation test work was completed on -8+1mm material, which also delivered excellent product grades up to 32.8% Mn.

Composites generated from the diamond core available represent a mix of manganiferous shale, massive manganese and internal gangue dilution from the Sixty Sixer and Karen deposits; typically the deeper manganiferous shales are of a lower grade than massive ore zones which are near surface. The core composites were crushed to a top size of 32 mm, to ensure adequate feed presentation to the ore sorters. Future work proposes a much coarser crush top size circa 50-70 mm. Crushed products were then, scrubbed and screened at 8 mm and 1 mm. Beneficiation test work employed ore sorting for coarse material (-32+8 mm) and heavy liquid separation for the finer material (-8+1 mm).

[3] Refer to the Company's ASX announcement dated 17/01/22 for full details.

The manganese grade for each batch processed increases through each stage of the test work process, indicating a highly liberated manganese mineral and potential for a low capital processing route at Oakover, to produce a concentrate product that is saleable to the steel industry.

This Scoping Study is based on the current early metallurgical test work. The available metallurgical test work utilised composite drilling samples and have been combined with standard industry practice and engineers experience, to develop the process plant flowsheet and design criteria.

Processing

The Scoping Study evaluated a manganese concentrator including crushing, scrubbing and DMS recovery with an initial smaller plant built to minimise capex and optimise the process and transport and logistics allowing for a subsequent upgrade.

Following further metallurgical testing and modelling during the next stage of development, the optimised flow sheet will be selected. The Company looked to incorporate all possible industry learnings into design and equipment selection to ensure a robust design criteria.

Process Description – Crushing and DMS

Run of mine (ROM) fresh ore (minus 800 mm) will be delivered by truck to the ROM pad and placed in 'fingers' to accommodate blending of the various ore types and head grades prior to feeding into the process plant. The ore will be fed to a ROM bin equipped with a stationary grizzly. The grizzly apertures will be larger than 800 mm in size to protect the jaw crusher from over size material. Over size material will be removed from the static grizzly by the ROM loader and then stockpiled before being broken by a mobile crusher.

Ore will be withdrawn at a controlled rate from the ROM bin by a vibrating feeder followed by vibrating grizzly. Oversize will fall into the primary jaw crusher, where it will be crushed. The expected closed side setting (CSS) of the jaw crusher is 125 mm. The proposed primary jaw crusher will have the capacity to process all ore in the event of a non-operational vibrating grizzly.

In the case of high clay composition, undersize from the vibrating grizzly and the primary crushed ore will be conveyed to a scrubber with trommel system and will pass through a scalping screen. Over size material will be fed to secondary or tertiary crushers (feed dependent on material size). After secondary and tertiary crushed ore will then pass through a DMS sizing screen, over size material will be re-fed into the secondary & tertiary crushers. Under size material will be sent to crushed ore stockpiles.

Following the 3-stage crusher system, the material is screened on the DMS preparation screen to remove any fines particles before entering the mixer box. A dense medium (a suspension of ferrosilicon in water), is prepared in the correct medium tank to achieve the desired density (measured and controlled with a density monitoring system). The prepared dense medium is pumped to the mixer box where it is mixed with the feed material. After separation the dense medium is recirculated and reused in the process.

The prepared feed material is introduced into a mixer box, where it is mixed with the dense medium at a predetermined medium to ore ratio. From the mixer box the mixture is pumped to a dense medium cyclone where the dense medium creates a stratified density gradient in the cyclone, with lighter particles floating and heavier particles sinking. The lighter particles, or waste, reports to the waste drain and rinse screen and the heavier particles, or concentrate, reports to the concentrate drain and rinse screen.

After separation, the dense medium is recovered for reuse on the drain and rinse screens. The screens are separated in a drain section and rinse section. The underflow from the drain section reports back to the tank. In the rinse section, material is washed with spray water to get rid of any additional dense media that is still adhering to the material. The underflow from the rinse section reports to a magnetic separator where ferrosilicon is recovered and reintroduced to the CM tank. Magnetic separator effluent is combined with the preparation screen underflow and pumped to slimes handling processes.

The separated products are rinsed on the two drain and rinse screens, from where the oversize from the concentrate screen on the Primary DMS is transported to the secondary DMS for further processing, and the oversize from the concentrate screen on the secondary DMS is conveyed to a stockpile. The waste material, or oversize from the waste drain and rinse screen is conveyed to a stockpile.

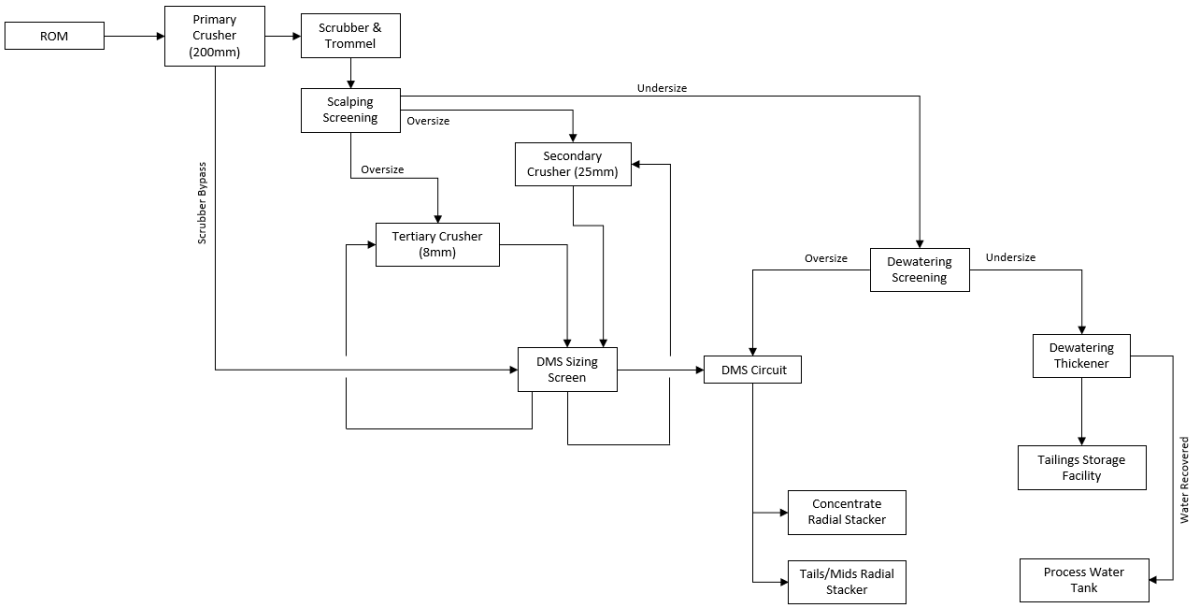

Figure 8: Crushing and DMS Block Flow Diagram

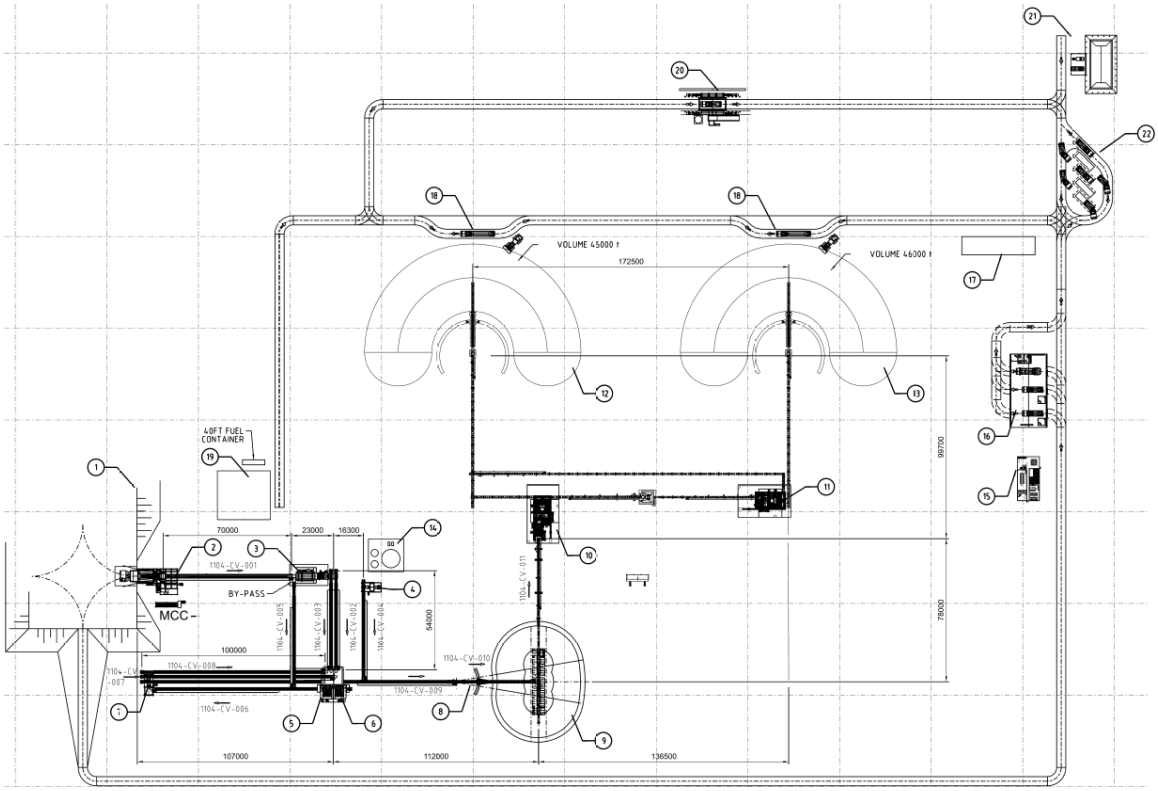

Figure 9: Plant Layout

Energy

The basis for scenario one is 6 MW solar, 2 MW wind, and 3MW battery storage (and the startup case diesel generators) allowing for up to 100% renewable power usage. For the scenario two is for 1 MW of solar, 2 MW of diesel and 500 kWh battery storage in stage 1. This is expected to save ~25% of diesel usage over using diesel generators alone. To coincide with the plant ramp up of stage 2 under scenario two, the model includes an allowance to upgrade this to 6 MW solar, 2 MW wind, and 3MW battery storage (and the startup case diesel generators) allowing for up to 100% renewable power usage. Although renewable energy technologies come with a higher Capex consideration, availability and market costs have reduced dramatically over recent years, now making them a viable alternative to traditional diesel generation on mine sites with a projected life of 20 years.

Financial modelling of a renewable energy solution against a diesel option highlighted a clear opportunity to unlock a short return on investing in a higher CAPEX solution across the life of mine. Firebird is targeting the highest possible renewable energy penetration possible, and it is conceivable to have a mine processing operation 100% powered by renewable energy.

Modelling was based on a 6MW power system, allowing for an operating load of 4,000kW/ 4MW for the processing plant and 1,000kW for camp and mining operations. The different scenarios looked at solar, wind, battery energy storage system and temporary diesel integration solutions. The startup small diesel generator will remain onsite to facilitate black start requirements after scheduled maintenance shutdowns or unplanned system shutdowns.

Base Case OPEX indicated a significant diesel cost which clearly indicated that a high renewable penetration solution was favourable and also financially achievable. The exact solar, wind and

battery ratio is currently being finalised, with a key consideration in design and modelling to allow for future expansion.

The modelling has been based on and checked against similar hybrid projects in the Pilbara region, with up-to-date equipment pricing. Personnel with a solid understanding of the construction challenges in the Pilbara region have complied these estimates.

The Study is based on solar and wind data currently available for the region. There is wind rose data from the town of Newman, 85km west of the site, which indicates a predominant wind direction from the east. The 6 MW solar farm is located to the North of the turbines so no shading will occur. The final combination of the renewable technologies will be optimised based on factors such as the areas wind and solar resource along with Firebird's expansion aspirations over future years. During the initial start-up phase a detailed wind survey will be carried out to allow the optimisation of the final renewable power solution.

Environment, Native Title and Heritage

Oakover is located within lands of the Nyiyaparli People. Heritage surveys have been undertaken as part of the approval process for exploration activities. Future heritage studies will continue to include the Traditional Owners, archaeological and ethnographical expertise, to identify and assess the significance of Aboriginal heritage in all areas that may be impacted should the Project be developed.

Following completion of Phase 1 of the baseline environmental studies in Q4 2022, work during 2023 has focused on identification of species through taxonomic specialists and finalisation of technical reports in accordance with Environmental Protection Authority guideline requirements.

Phase 2 of the study will include 2nd season flora and vegetation and terrestrial fauna surveys that will commence in coming months. Phases 2 and 3 of the sub terranean fauna surveys have been completed during Q2 2023 with survey reports still to be finalised pending taxonomic identifications.

Onsite surface and ground water investigations are planned for late 2023, early 2024. These studies will include drilling of bores within mine pit areas to determine dewatering volumes and targeted groundwater surveys to identify operational water supplies.

Consultation with government approval agencies commenced during first half 2023, with Project presentations provided to the Department of Water and Environmental Regulation, Department of Mining, Industry Regulation and Safety and the Commonwealth Department of Climate Change, Energy, the Environment and Water. The Project presentations were welcomed by all agencies who provided valuable advice and guidance to facilitate effective and timely Project approvals.

Over the coming field season the following environmental activities are planned:

- Targeted Flora and vegetation surveys
- Targeted Terrestrial fauna surveys
- Hydrological / hydrogeological investigations
- Waste material characterisation
- Greenhouse gas emissions assessment

Logistics

The Logistics Study explored the requirements to transport approximately 0.5 to 1.2 Mt per annum of bulk manganese concentrate from the Oakover mine site to Port Hedland export facilities.

The Port of Port Hedland is the world's largest bulk export port, with exports including iron ore, lithium and salt and is located approximately 600 kilometres from the Oakover mine accessed via the Great Northern Highway, Marble Bar road and the Jigalong Road.

The tenement and processing plant will be located approximately 6 kilometres from the well-formed gravel Jigalong road.

The Study included identification of the haul route from the mine to the Port of Port Hedland, including the establishment of road ownership (Main Roads WA or Local Government Authority) and confirmation of route approved vehicle and axle mass ratings. Road ownership was considered to seek, in principle, acceptance of the Accredited Mass Management Scheme level three operations.

Furthermore, this included the review of proposed haulage configuration options with the highest maximum net payload with consideration to Performance Based Standards vehicle assessment framework.

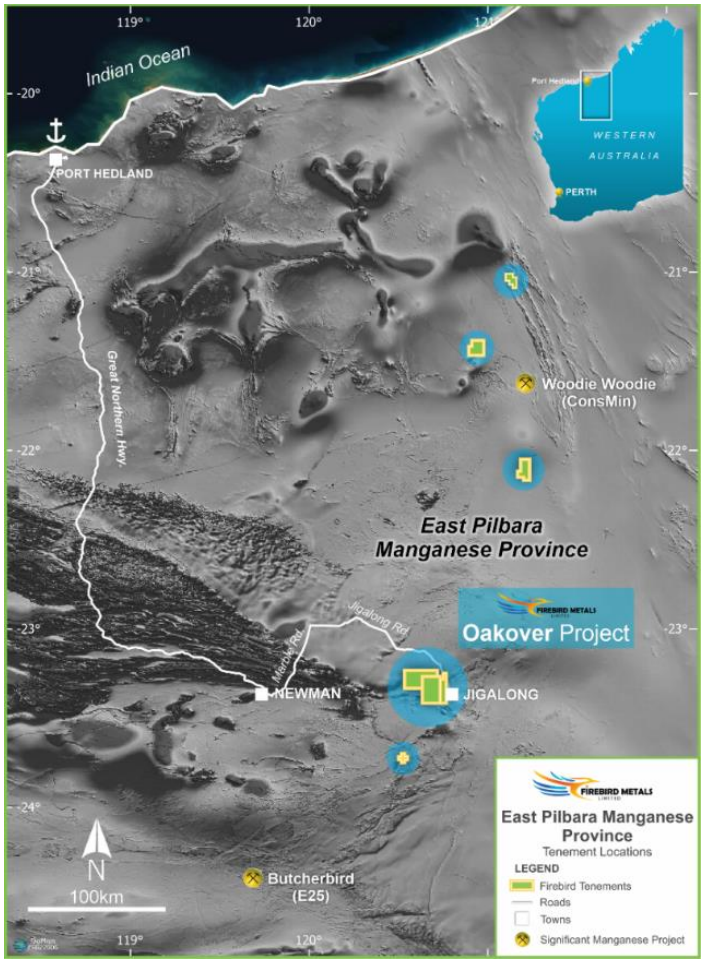

Figure 10: Oakover Project to Port Hedland Access Route

Subsequent to the best-case transportation configuration being established, the logistics estimate was developed to include:

- Round trip cycle times
- Nett payloads
- Fleet size
- Guide to cost per tonne (+/- 10-15%)
- Manpower
- Required infrastructure
- Port interface storage and export

The Study has allocated capital requirements for upgrades to a section of Marble Bar road, Jigalong road and mine site access road and maintenance.

The Company has included assumptions in base case that shipment to buyers will be made on a CIF basis in shipment parcel sizes of 60,000 to 70,000 wet metric tonne.

Manganese Market

South Africa, Australia, Brazil, Ghana and Gabon are major producing countries of global manganese ore. It is generally accepted that seaborne manganese can be classified as high, medium and low grades in terms of their manganese contents. Below is a summary of their classification:

- High grade > 44% Mn
- Medium grade between 30% and 44% Mn; and
- Low grade < 30% Mn.

China is the largest importer of manganese ore and concentrates and is also the largest producer of manganese alloys. According to International Manganese Institute, China imported more than ~30 million tonnes of manganese ore in 2022. This is a substantial increase from around 10 million tonnes of manganese 10 years earlier. The significant increase in import is mainly due to a combination of depleting domestic mines and stricter environmental regulations. The concentrate produced at Oakover is expected to fit into the medium grade classification.

Manganese is an industrial metal that has a wide range of applications. The most significant use of manganese is in steel production (about 90%) where every tonne of steel requires approximately 1-2% of manganese in the form of manganese alloys.

Manganese acts as deoxidiser and desulfuriser agents in steel production, to remove oxygen and sulphur to increase the quality of steel products. Specifically, manganese helps to prevent corrosion, make steel more resistant to abrasion and increases the hardenability rate.

Manganese ore is predominantly mined in the form of carbonate, semi-carbonate or an oxide and is smelted into a manganese alloy, with the main types of manganese alloys being:

- Silicomanganese (SiMn) – Most common alloy consumed and is used principally in the production of construction steels, such as long steels products like rebar. Typically contains up to 2% carbon
- High carbon ferromanganese (HCFeMn) – Used mainly in flat-steel products destined for manufacturing and consumer appliances. Typically contains up to 8% carbon

- Refined Alloys being Medium carbon (MCFeMn) and Low carbon ferromanganese (LCFeMn) – Used mainly in higher-quality steels sector where impurities need to be closely controlled

The concentrate produced at Oakover is expected to be very suitable as feed stock in the production of SiMn.

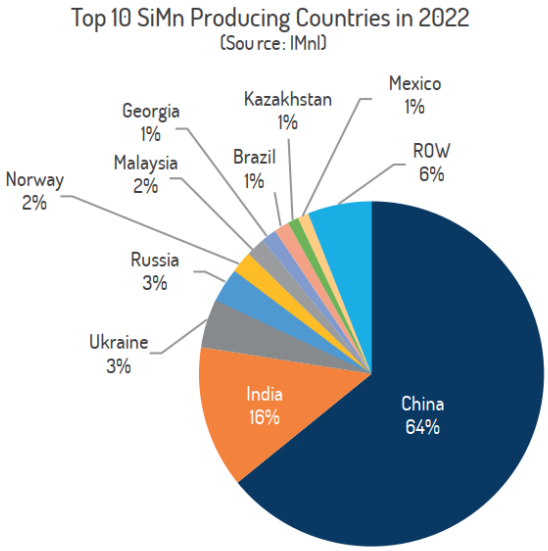

Figure 11: Top 10 SiMn Producing Countries (Source: IMnI)

Importantly, the use and demand for manganese in batteries for EVs is growing rapidly. Manganese is a key and critical element required in the production of cathodes for lithium-ion batteries, which are at the centre of the clean energy transition. The use of these batteries in EVs continues to grow exponentially, forming a major market for supply and consumption of battery grade manganese sulphate (MnSO4). Historically the main consumption and use of MnSO4 has been within Ternary cathodes, for example Nickel Cobalt Manganese (NCM) and Lithium Manganese Oxide (LMO) cathodes.

Figure 12: Manganese content (kg) in per battery in each vehicle above (Source: Benchmark Mineral Intelligence)

Research and advocates for manganese rich batteries is on the rise, due to Manganese being abundant and relatively inexpensive compared with nickel and cobalt. For example, Tesla plans to have 2/3 of their batteries as manganese based.

According to a projection by Benchmark Mineral Intelligence in 2023, the demand for manganese in batteries is predicted to rise significantly, surpassing the demand for key battery metals such as lithium, nickel, and cobalt (Benchmark Mineral Intelligence).

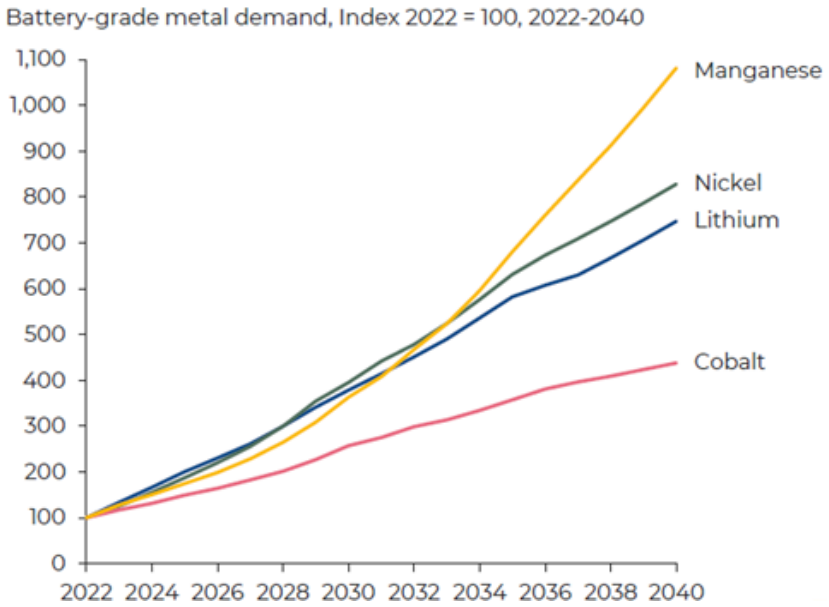

Figure 13: Battery-grade metal demand forecast (source: Benchmark Mineral Intelligence 2023)

Manganese and Study Pricing

Seaborne trade is mostly priced on a US$ CIF (Cost Insurance and Freight, port of destination) basis, with the quoting price being in dry metric tonne unit (dmtu), effectively being the price for each 1% of manganese content. The price typically reflects the manganese content of the ore, however, important impurity ratios of manganese to iron ratio (Mn:Fe), manganese to phosphorous ratio (Mn:P) and manganese to silica ratio (Mn:SiO2) also drive pricing calculations for ore / concentrate.

The price used in this study is based on the Company's assumption of a Manganese concentrate price of US$4.80 CIF per dmtu for 30 to 32% manganese fines concentrate. The Company's assumption is based on the same base long term forecast for the previous Scoping Study announced 20 July 2022[4] and considers the manganese grade, sizing and key impurity levels that can attract pricing premiums.

[4] For full details refer to ASX announcement dated 20/7/2022

Financials and Foreign Exchange

Key		Pre Tax
NPV	@ 8%	~$741 M
IRR		73.1 %
Payback		< 1.3 Years
EBITDA (annual average)		~ $86.6 M per annum
Annual Treatment		~ 4Mtpa
Annual Production dry tonnes		~ 1.2 Mtpa
AUD/USD Assumed Exchange rate		0.70
30% Lump Conc Price Assumption – CIF Basis		A$205.70 / t - US$4.80 /dmtu
30% Conc All In Cost - CIF Basis		A$ 139.22 / t - US$3.25 /dmtu

Table 2: Key Financial metrics

The Scoping Study is based on a Management assumption for AUD/USD exchange rate of 0.70 for the entire project.

Capital Cost Estimate (Scenario One)			
Process Plant			
	Crushing & Screening	$14.9 M	
	Wet Scrubbing	$5.7 M	
	DMS Module Plant	$24.5 M	
	Tailings Recovery	$4.1 M	
	Utilities	$2.1 M	
	Non-Process Infrastructure	$2.2 M	
	Mobile Equipment	$1.4 M	
	EPCM	$6.7 M	
	Other	$4.3 M	
	Total		**$65.9 M**
Infrastructure			
	Hybrid Power Plant	$29.2 M	
	Roads	$18.7 M	
	Camp	$5.5 M	
	Tailings	$0.9 M	
	Other Infrastructure	$2.9 M	
	Total		**$57.1 M**
Total (including Contingency)			**$123.0 M**
Sustaining Capex (Public Road Maintenance and Tailings Storage over life of project)			**$59.7 M**

Table 3: Capital Estimates Summary – Scenario One[5][6]

[5] *Excluding working capital and finance costs*

[6] *Based on Q3 2023 costings and has no allowance for inflation or deflation*

Capital Cost Estimate – Scenario Two Stage 1			
Process Plant			
	Crushing & Screening	$10.8 M	
	Wet Scrubbing	$5.7 M	
	DMS Module Plant	$16.2 M	
	Tailings Recovery	$3.4 M	
	Utilities	$2.1 M	
	Non-Process Infrastructure	$2.2 M	
	Mobile Equipment	$1.4 M	
	EPCM	$6.7 M	
	Other	$4.1 M	
	Total		**$52.6 M**
Infrastructure			
	Hybrid Power Plant	$5.0 M	
	Roads	$8.1 M	
	Camp	$5.5 M	
	Tailings	$0.6 M	
	Other Infrastructure	$2.5 M	
	Total		**$21.7 M**
Total (including Contingency)			**$74.3 M**

Capital Cost Estimate – Scenario Two Stage 2			
Process Plant			
	Crushing & Screening	$4.1 M	
	Wet Scrubbing	$0.0 M	
	DMS Module Plant	$8.4 M	
	Tailings Recovery	$0.7 M	
	Utilities	$0.0 M	
	Non-Process Infrastructure	$0.0 M	
	Mobile Equipment	$0.0 M	
	EPCM	$6.7 M	
	Other	$2.9 M	
	Total		**$22.7 M**
Infrastructure			
	Hybrid Power Plant	$27.3 M	
	Roads	$10.6 M	
	Camp	$0.0 M	
	Tailings	$0.0 M	
	Other Infrastructure	$0.3 M	
	Total		**$38.2 M**
Total (including Contingency)			**$60.9 M**

Table 4: Capital Estimates Summary – Scenario Two [7][8]

[7] *Excluding working capital and finance costs*

[8] *Based on Q3 2023 costings and has no allowance for inflation or deflation*

All In Sustaining Cost Summary			
C1 CASH COSTS	Unit	LOM – ROM TONNE	LOM – CONC TONNE
Mine Costs	$/t	$3.80	$12.19
Crusher Feed	$/t	$0.80	$2.56
Processing	$/t	$4.02	$12.87
G and A	$/t	$2.27	$7.27
Freight - Land	$/t	$20.70	$66.34
Freight - Sea	$/t	$7.00	$22.42
C1 CASH COST (CIF BASIS)	$/t	**$38.59**	**$123.65**
AISC	Unit	**LOM**	**LOM**
C1 Cash Cost	$/t	$38.59	$123.65
Sustaining	$/t	$0.87	$2.60
Royalty	$/t	$4.33	$12.98
ALL IN-SUSTAINING COSTS	$/t	$43.88	$139.22

Table 5: Project Opex – Financial Model – Scenario 1

Sensitivities

The Scoping Study is most sensitive to the manganese price, concentrate grade, exchange rate and haulage costs, while being relatively insensitive to operating and capital costs.

The Scoping Study pricing for the 4Mt processing scenario has a NPV of approximately A$741.3 M, an exceptional IRR of 73.1% and an average EBITDA of approximately $85.6M per annum.

- 10% increase in price increases NPV to approximately A$874.8 M
- 10% decrease in price decreases NPV to approximately A$607.8 M
- 10% increase in cost decreases NPV to approximately A$697.5 M
- 10% decrease in cost increases NPV to approximately A$785.2 M

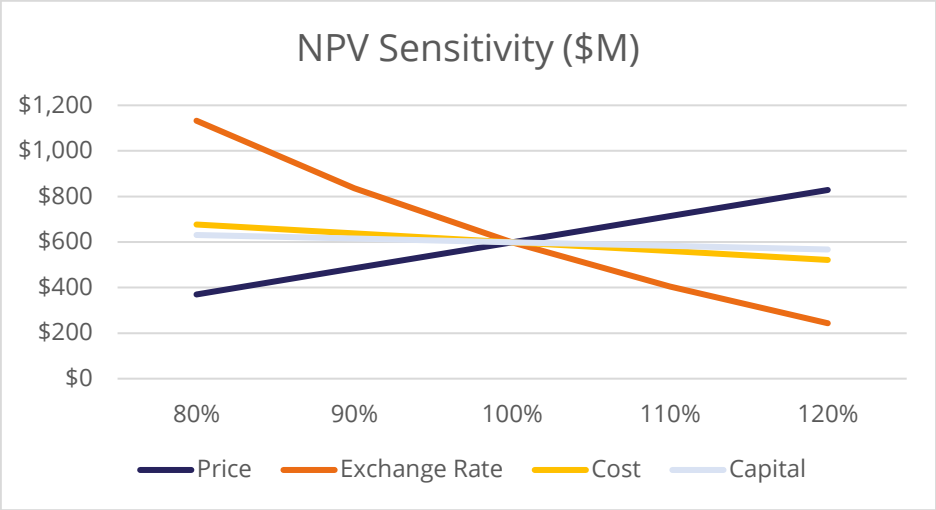

Table 6: Sensitivities (AUD $M)

Project Funding

The Oakover Project's low risk, technically simple and strong economic fundamentals provide a strong platform for Firebird to source traditional financing through debt and equity markets, in addition to pursuing other financing strategies should this be to the benefit of shareholders.

There is, however, no certainty that Firebird will be able to source funding as and when required. No formal funding discussions have commenced; however, Firebird has engaged with a number of financial institutions which have expressed a high level of interest in being involved in the funding of the Project. To achieve the range of outcomes indicated in the Scoping Study, pre-production funding of approximately $123M. It is envisioned that a working capital / shipment financing of approximately $35M will be required during commencement of mining and processing, finance costs of these funds have been built into the financial model. Typical project development financing would involve a combination of debt and equity. Firebird has formed the view that there is a reasonable basis to believe that requisite future funding for development of Oakover will be available when required.

There are grounds on which this reasonable basis is established including:

- Global debt and equity finance availability for high-quality projects remains robust
- The Oakover Project is low risk, technically simple and has a rapid payback of only less than 2 years from commercial production
- The very strong pre-tax cashflows of approximately $86.6M per annum and rapid payback would support a high level of conventional debt financing for Project development
- Oakover has significant exploration potential to grow the Mineral Resource base that forms this Scoping Study, which will likely further strengthen the potential Project economics
- Release of the Scoping Study results provides a platform for Firebird to discuss the outcomes with potential financiers
- Firebird believes the significant investment in infrastructure upgrades that equate to approximately half of the potential capital requirements that are being considered as part of this Scoping Study, are expected to have flow on benefits to local communities. The company believes that the infrastructure upgrades will form a strong alignment with Northern Australia Infrastructure Facility's (NAIF) mandate and Firebird intends on formally approaching NAIF at the appropriate time for support
- The Firebird board and management team has extensive experience in mine development, financing and production in the resources industry.
- Members of the Board were involved in the funding and development of New Century Resources Ltd (ASX:NCZ), Benz Mining Corporation (ASX:BNZ), Vital Metals Ltd (ASX:VML) and Boss Energy Ltd (then known as "Boss Resources Limited") (ASX:BOE).
- Australia is a stable mining and investor friendly jurisdiction, with a history of successful traditional debt financing of bulk raw material developments

Key Inputs

Source of Key Inputs		
Category		**Source**
Geology	Mineral Resource Estimate	CSA Global Pty Ltd and Earth And Sound / Dr Mathew Cobb
Mining	Mining Conceptual Study	CSA Global Pty Ltd
Processing	Processing	SBC Metallurgy
Processing	Engineering	Mincore Pty Ltd
	Energy	Galetech Energy Services
Infrastructure		Increva Pty Ltd
Logistics	Road Infrastructure	Wyntak Pty Ltd
	Load & Road Haulage	Wyntak Pty Ltd
	Ocean Freight	FRB Management Assumption
	Stevedoring	Quote
Exchange Rate		FRB Management Assumption
Sales price		FRB Management Assumption

Table 7: Source of Key inputs for Opex and Capex

Estimated Timeline to Production

Activity	23	CY 2024				CY 2025			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Met Test Work	■	■	■						
Environmental Baseline Surveys		■	■						
Feasability Study	■	■	■						
Environmental Approvals	■	■	■	■	■				
Secondary approvals (Mining, Water, Heritage, Works Approval)				▒	■	■			
Detailed Engineering & Procurement			▒	■	■	■			
Construction						▒	■	■	■
Commissioning									▒

■ Full Quarter

▒ Part Quarter

Table 8: Estimated Development Timeline

Project Opportunities

The following opportunities have been identified for further investigation:

• Investigate ongoing logistics innovations and opportunities for trucking configurations and efficiency improvements
• Geotechnical drilling to provide accurate pit design parameters
• Hydrology investigation to confirm water supply options and site water balance
• Further metallurgical optimisation

Exploration licence E52/3633 forms the Hill 616 Project covering 5 blocks or approximately 15.7 km2 of the established mineralogical terrain in the South-Eastern Pilbara Mining District and is located approximately 85km south-east of Newman and only 35km South of Oakover.

The Hill 616 Project has undergone extensive RC drilling, with 112 holes completed for 3,727 metres. The drilling was conducted over a wide–spaced (100m × 200m) grid pattern. Significant widths of manganiferous mineralisation were intersected over the entire strike length of 2.6km covered by the drilling program.

Zone	Mineral Resource classification	Tonnes (Mt)	Mn (%)	Fe(%)	SiO_2 (%)	Al_2O_3 (%)	P (%)	LOI (%)
Manganiferous shale	Inferred	49.3	11.4	17.3	40.0	8.5	0.13	7.6
Supergene manganese	Inferred	8.1	17.4	16.8	30.1	9.4	0.09	9.9
Total	Inferred	57.5	12.2	17.2	38.6	8.6	0.13	8.0

Table 9: Hill 616 Mineral Resource Estimate

Notes:

- *Mineral Resources reported at a cut-off grade of 8% Mn.*
- *Fe_2O_3 converted to Fe% using a factor of 0.6994 calculated from atomic mass and molecular weight.*
- *P_2O_5 converted to P% using a factor of 0.4364 calculated from atomic mass and molecular weight.*
- *Due to the effects of rounding, the total may not represent the sum of all components.*
- *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 will be realised*
- *Assumption is all the Fe occurs in the form of Fe2O3 and P occurs in the form of P2O5*
- *For full details refer ASX announcement dated 1/12/2021*