ASX / MEDIA ANNOUNCEMENT 20/7/2022

IMPRESSIVE RESULTS FROM MANGANESE CONCENTRATE SCOPING STUDY AT OAKOVER

Cautionary Statement

The 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 73% of the Life-of-Mine (LOM) Production Target is in the Indicated Mineral Resource category, and 27% 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.

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. However, 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 $143.8 million 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 4 of this announcement. For full details of the Mineral Resources estimate, please refer to Firebird's ASX release dated 10th March 2022.

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.

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Highlights

- **Scoping Study confirms manganese concentrate production underpins Firebird's strategy to develop a manganese hub at Oakover, including high-purity manganese sulphate production**
- **Robust financials using conservative assumptions to achieve:**
    - NPV of approximately A$329M at a discount rate of 8% [4]
    - Exceptional IRR of 47%, based on CIF US$5.27 CIF per dmtu for 30% manganese lump concentrate
    - Average EBITDA of approximately $72.7 M per annum, with EBITDA increasing to approximately $125M [5] per annum based on recent pricing (March / April)
    - Payback in less than 3years and within forecast production from Indicated Resource
- **Mining & production profile**
    - Low mine strip ratio of 0.9:1
    - Envisages processing plant throughput of ~4 Mt annually, to produce ~900 kt of 30% Manganese (Mn) concentrate annually
    - 10 year Life of Mine
        - Based on Mineral Resource Estimate at Sixty Sixer, with approximately first 6.5 years of production based on 30.5Mt Indicated Resource and following years based on 11.9Mt Inferred Resource
- **Potential near-term upside to NPV**
    - Potential to significantly extend LoM through conversion of inferred to indicated at Jay-Eye and Karen, which combined, host 62.9Mt of Inferred Resources [1]
    - Infill drilling at Jay-Eye and Karen to be completed through remainder of 2022
    - Company has a high level of confidence of increasing Indicated Resources, following strong success of the 2021 infill drilling program, which converted 96% of Sixty Sixer inferred Resource to Indicated Resource [1 & 6]

  CAPEX estimated at a modest A$143.8M including $14.3M contingency
    - A$73.4M for plant
    - A$70.4M for renewable power plant, road upgrades and other infrastructure
- **Strong ESG credentials, with proposed renewable energy package delivering significantly lower processing costs and a long-term sustainable footprint**

Notes

1. The Mineral Resource estimate reported in accordance with the JORC Code 2012 Edition and announced on 10th March 2020 forms the basis of the mining and financial estimates referred to in this announcement.

2. The Scoping Study utilised the Indicated and Inferred tonnages as the basis for completion.

3. Technical and economic estimates in the Scoping Study are based on low level technical and economic assessments that are sufficient to support estimation of Ore resource

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4. Management assumption for the Manganese concentrate price of US$5.27 CIF per dmtu for 30% manganese lump concentrate with a ~4% discount for Fines production. Management assumption takes into account the manganese grade and key impurity levels that can attract pricing premiums.
5. March and April Pricing referenced as per Petra Capital of US$8.00 CIF China per DMTU for 44% Grade price factored to Study concentrate grade of 30% combined with study base case costs
6.. Brumby ASX announcement 8th June 2012, Sixty Sixer Inferred JORC resource of 61MT @ 10% Mn

Firebird Metals Limited (**ASX: FRB**, **"Firebird"** or **"the Company"**) is pleased to announce a significant milestone, with the Company delivering an impressive Scoping Study to produce manganese concentrate at its flagship Oakover Project.

Completion of the Scoping Study follows the recent and significant 170% increase in the Oakover Mineral Resource Estimate (MRE) to 172 Mt @ 9.9% Mn (7% Mn cut-off).

Firebird Managing Director Mr Peter Allen commented: *"The excellent results from the scoping study have confirmed the outstanding potential of our flagship Oakover project and the exciting opportunity to establish a significant, long-term WA manganese operation that will deliver significant value to all our stakeholders.*

"The sizeable MRE upgrade at Oakover from our successful maiden drill program enabled the opportunity for Firebird to consider large-scale production over a long life of mine. We believe Oakover has all the necessary requirements and characteristics which include resource size, near-surface, gently dipping geology and multiple processing options, provide a suitable production pathway, which If successfully executed and developed, will ultimately deliver superior long-term value and position Firebird as key supplier of high-quality manganese to a growing market.

"I am very proud of the effort from our team to deliver the Scoping Study and furthermore, the performance and progression of the Company since we listed a little over a year ago. We are dedicated and focused on executing our growth strategy at Oakover and importantly, continue to tick the boxes required to progress towards the development stage. The future is very exciting for Firebird and we look forward to updating the market as we achieve further milestones in the busy months ahead."

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.

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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 2022 Scoping Study, funding of in the order of an estimated $143.8 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.

Competent Persons Statements

The information in this announcement that relates to the Oakover Mineral Resources is based on and accurately reflects information compiled by Mr Mark Pudovskis and Mr Aaron Meakin. Mr Mark Pudovskis is a full-time employee of CSA Global Pty Ltd and is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Aaron Meakin is a full-time employee of CSA Global Pty Ltd and is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Mark Pudovskis and Mr Aaron Meakin have sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Mark Pudovskis and Mr Aaron Meakin consent to the disclosure of the information in this announcement in the form and context in which it appears. Mr Mark Pudovskis assumes responsibility for matters related to Sections 1 and 2 of JORC Table 1, while Mr Aaron Meakin assumes responsibility for matters related to Section 3 of JORC Table 1.

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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 172.3 Mt @ 9.9% Mn, with 58.7 Mt @ 10.4 % Mn in the Indicated Mineral Resource category and 113.6 Mt at 9.6 % Mn in the Inferred Mineral Resource category.

The Scoping Study focusses solely on the Indicated and Inferred Resource at Sixty Sixer. Both Karen and Jay-eye inferred resources offer significant upside opportunity to convert to Indicated Tonnes and extend Life of Mine.

The MRE is based on the results from a total of 400 drill holes (20,089.8 m) comprising 391 (19,802.2 m) reverse circulation percussion (RCP) and 9 (287.6 m) diamond drilling (DD) holes completed between 2010 and 2021. Drilling, logging and sampling defined six geological domains. Domains 1, 4 and 6 are background zones comprising the mixed shale, ferruginous manganese shale, shale chert and other shale lithologies. Domains 2, 3 and 5 are mineralised units.

Domain 2 is a higher-grade massive manganiferous rich unit, which is reasonably continuous along and across strike, averaging approximately 15 m in thickness. Manganese grades within Domain 2 range between 10% Mn and 14% Mn. The supergene / lateritic manganese mineralisation is a near surface (Domain 5) unit, with lenticular shale plaquettes and manganese grades up to 28%. The supergene unit averages approximately 5 m in thickness and varies between 1 m and 14 m. This mineralisation has been defined at Sixty Sixer and Karen. Domain 3 is the lower grade basal manganiferous shale unit, located below the massive manganiferous unit averaging approximately 11 m in thickness with grades ranging between 7% Mn and 10% Mn.

Firebird is confident of converting further Inferred Tonnes to Indicated Tonnes based on previous infill drilling results. Infill drilling at Jay-Eye and Karen is planned for the second half of 2022.

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 two current economical rock domains (domains 2 and 5), without sterilising the potentially economic Manganiferous Shale rock 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 processing options, both evaluating a 4,000,000 tonne per annum manganese concentrator including crushing, scrubbing, ore sorting and conventional gravity recovery.

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- Option 1: Contemplates ore sorting of scrubbed lump material (-50+8mm) with jigging of the fine fraction (-8+1mm) and is considered the base case given historical testwork
- Option 2: Contemplates crushing to 8mm to and conventional gravity separation

The financial model and Scoping Study is based on Option 1 (ore sorting and jigging combination), however both options deliver a robust financial outcome.

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 the design and equipment selection to ensure a robust design criteria.

Firebird is targeting renewable energy power generation for its processing plant, incorporating solar, wind and battery energy storage system. The plan includes requirement for a small diesel generator onsite, to facilitate black starts after scheduled maintenance shutdowns or unplanned system shutdowns.

The Logistics Study explored the requirements to transport approximately 750,000 to 1,000,000 tonnes 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.

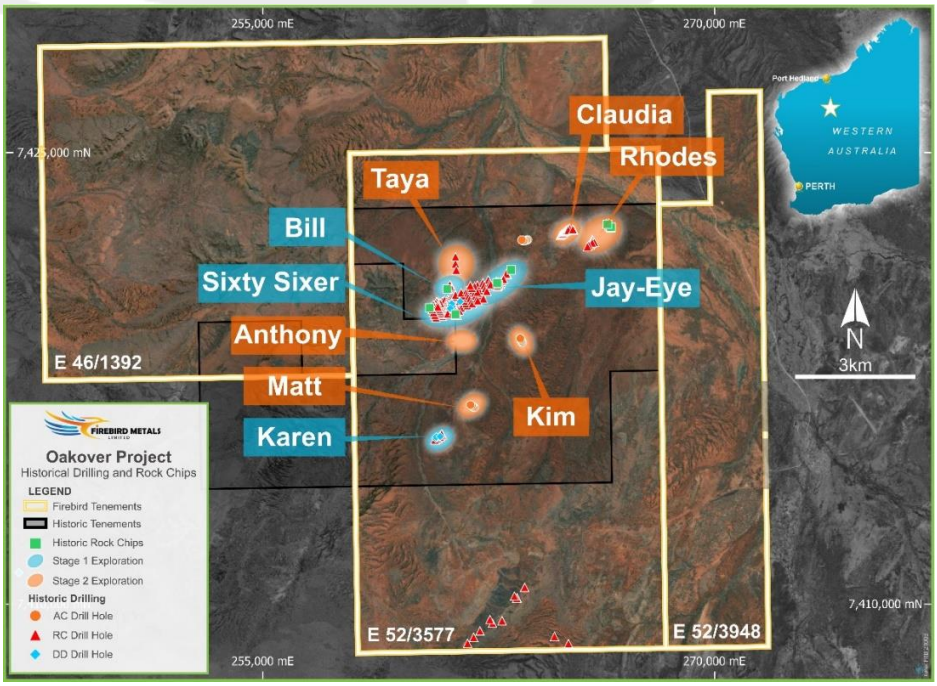

Figure 1: Oakover Historical Drilling and Rock Chips

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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

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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).

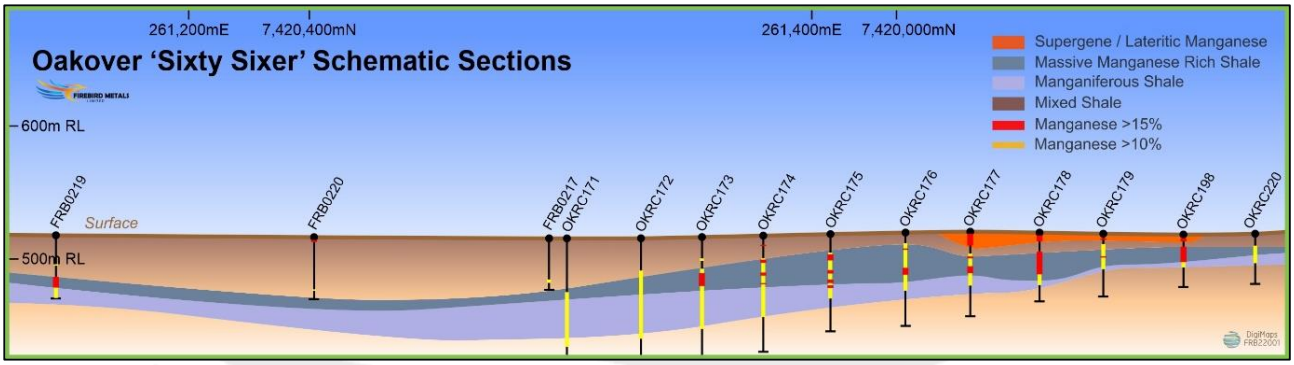

Figure 3: Oakover 'Sixty Sixer' Schematic Sections

Area	Mineral Resource classification	Tonnes (Mt)	Mn (%)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)	LOI (%)
Sixty Sixer	Indicated	58.7	10.4	9.2	40.2	10.1	0.10	13.2
Sixty Sixer	Inferred	50.7	9.6	8.5	38.9	9.9	0.11	15.0
Sixty Sixer	**Sub-Total**	**109.4**	**10.1**	**8.9**	**39.6**	**10.0**	**0.11**	**14.1**
Jay Eye	Indicated	-	-	-	-	-	-	-
Jay Eye	Inferred	22.0	9.5	8.5	40.0	9.8	0.11	14.2
Jay Eye	**Sub-Total**	**22.0**	9.5	8.5	40.0	9.8	0.11	14.2
Karen	Indicated	-	-	-	-	-	-	-
Karen	Inferred	40.9	**9.5**	**9.3**	**42.7**	**10.5**	**0.11**	**12.0**
Karen	**Sub-Total**	**40.9**	**9.5**	**9.3**	**42.7**	**10.5**	**0.11**	**12.0**
Oakover	Indicated	58.7	10.4	9.2	40.2	10.1	0.10	13.2
Oakover	Inferred	113.6	9.6	8.8	40.4	10.1	0.11	13.8
Oakover	**Grand Total**	**172.3**	**9.9**	**8.9**	**40.4**	**10.1**	**0.11**	**13.6**

Table 1: Oakover Mineral Resource Estimate – March 2022

Notes:

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- *Mineral Resources reported at a cut-off grade of 7% Mn.*
- *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.*

The MRE is based on the results obtained from a total of 400 drill holes (20,089.8 m) comprising 391 (19,802.2 m) reverse circulation percussion (RCP) and 9 (287.6) diamond drilling (DD) holes completed between 2010 and 2021. GDA94 Zone 51S coordinate system was used for the Project.

Drilling, logging and sampling has defined six geological domains for the Sixty Sixer, Jay Eye and Karen prospects.

Domains 1, 4 and 6 are the background zones comprising the mixed shale, ferruginous manganese shale, shale chert and other shale lithologies.

Domains 2, 3 and 5 are the mineralised units. Domain 2 is a higher grade massive manganiferous rich unit reasonably continuous along and across strike, averaging approximately 15 m thick. Mn grades within Domain 2 range between 10% Mn and 14% Mn. Domain 3 is the lower grade basal manganiferous shale unit located below the massive manganiferous unit, averaging approximately 11 m in thickness and grades ranging between 7% Mn and 10% Mn.

The supergene / lateritic manganese mineralisation is a near surface (Domain 5) unit with lenticular shale plaquettes and Mn grades up to 28%. The supergene unit averages approximately 5 m in thickness and varies between 1 m and 14 m. This unit is absent in the Jay Eye prospect, but has been defined at Sixty Sixer and Karen prospects.

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.

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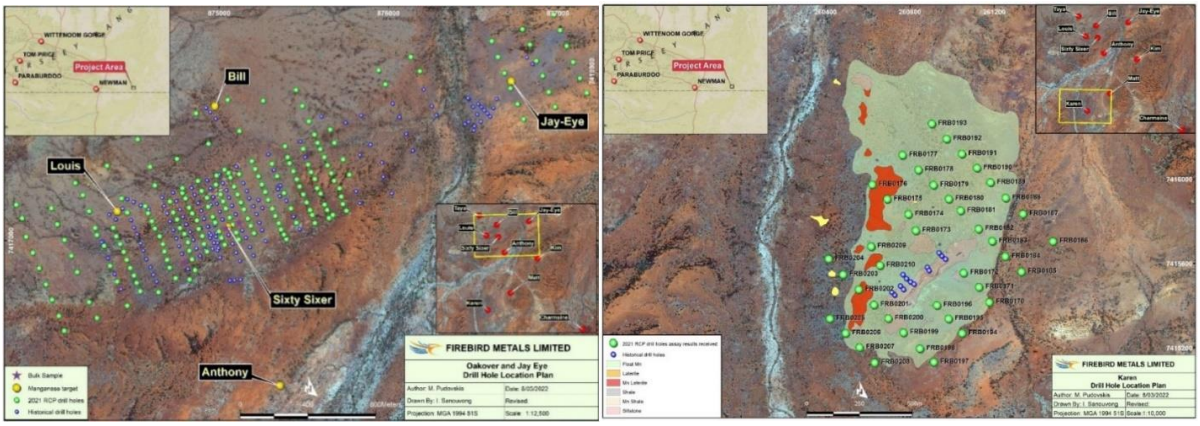

Figure 4: Sixty Sixer and Jaye Eye and Karen drill hole location plan

The conceptual and approximate first six and half year's of production is from the Sixty Sixer Indicated Resource, followed by the Sixty Sixer Inferred Resource. The Inferred Mineral Resource is delineated on an approximate 200m by 100m drill spacing grid. In the opinion of Mr Mark Pudovskis, one of the Competent Persons that gave the statement on page 4, there is no material difference between geology and mineralisation of the Inferred Resource against Sixty Sixer, which comprises the Indicated Mineral Resource proportion.

The Sixty Sixer Indicated is underpinned by an appropriate 50m by 50m / 100m by 50m drill spacing grid and in the opinion of the Competent Person, there are reasonable grounds that infilling Karen and Jay-Eye to a similar grid as Sixty Sixer, will lead to a good proportion conversion from Inferred Resource to Indicated Resource. Infill drilling at Karen and Jay Eye is planned for the second half of 2022.

On this point, Firebird is of the opinion that the Inferred Mineral Resource does not pose a material risk to the Project's viability at the level of a Scoping Study.

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 9.2 million tonnes of 30% Manganese product generated over a 10-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 Inferred Resources.

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Figure 5: Sixty Sixer deposits cut into Stages

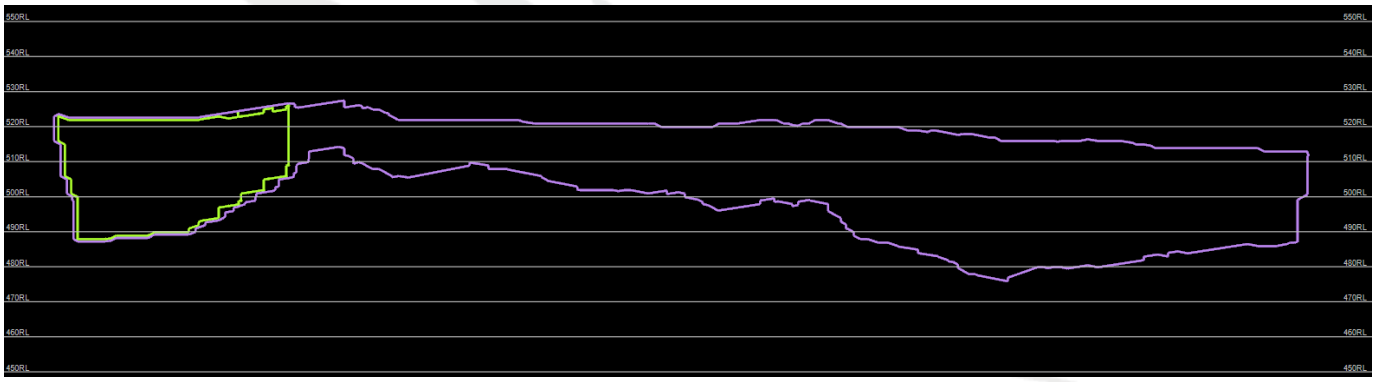

Figure 6: Cross Section 1 (for clarity 5 times vertical exaggeration has been applied)

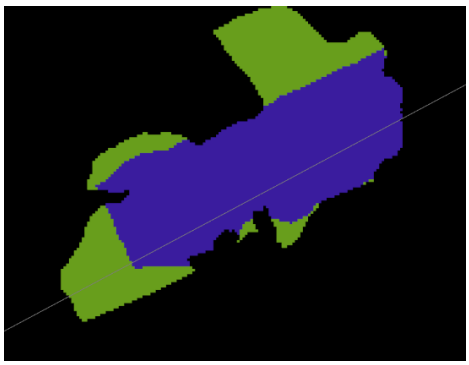

Figure 7: Cross Section 1 location

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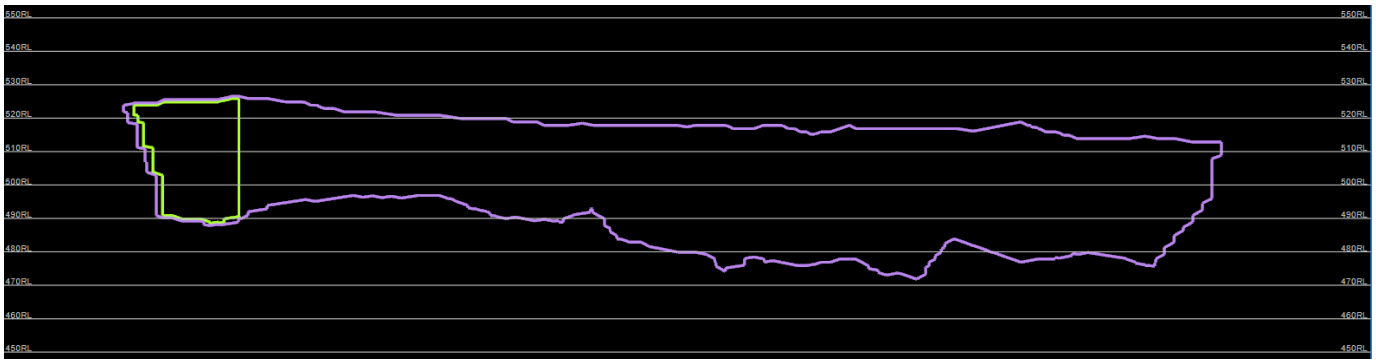

Figure 8: Cross Section 2 (for clarity 5 times vertical exaggeration has been applied)

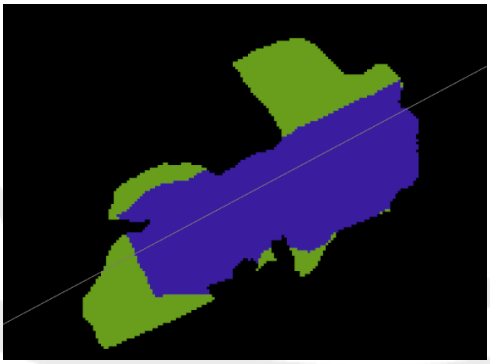

Figure 9: Cross Section 2 location

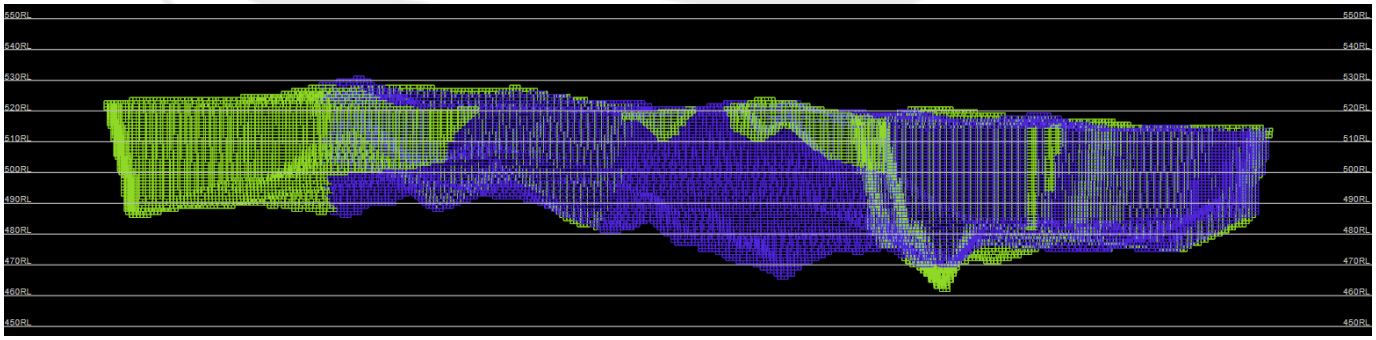

Figure 10: Full thickness Cross Section of Block Model (for clarity 5 times vertical exaggeration has been applied)

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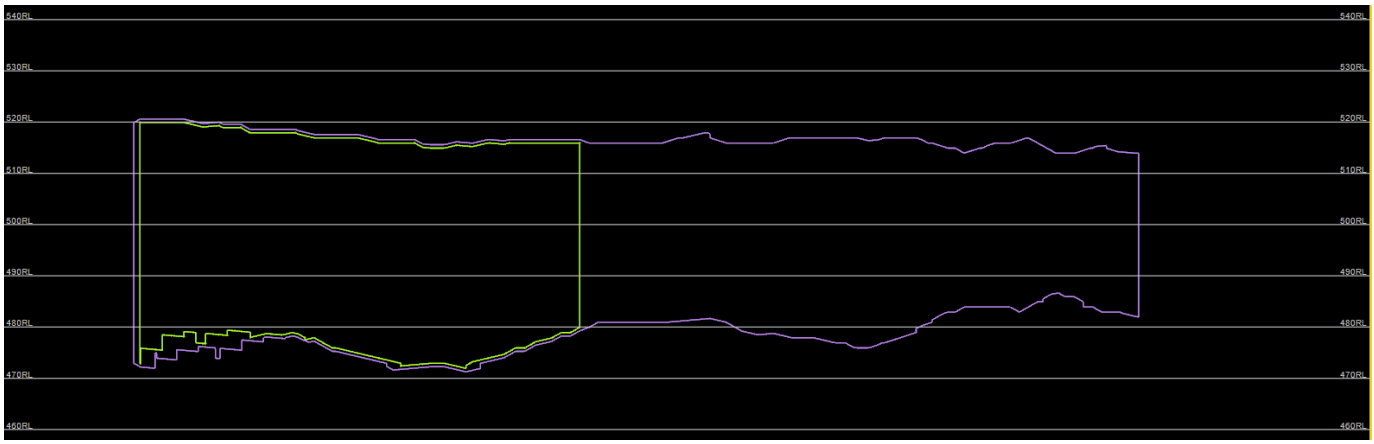

Figure 11: Cross Section 3 (for clarity 5 times vertical exaggeration has been applied)

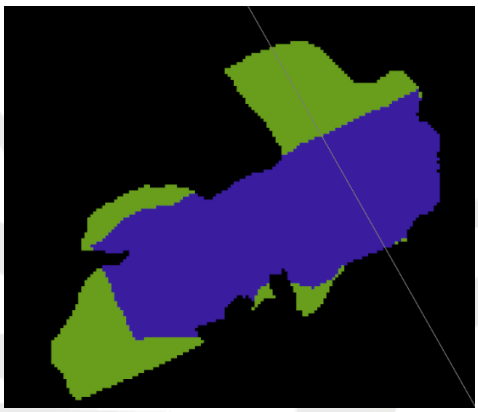

Figure 12: Cross Section 3 location

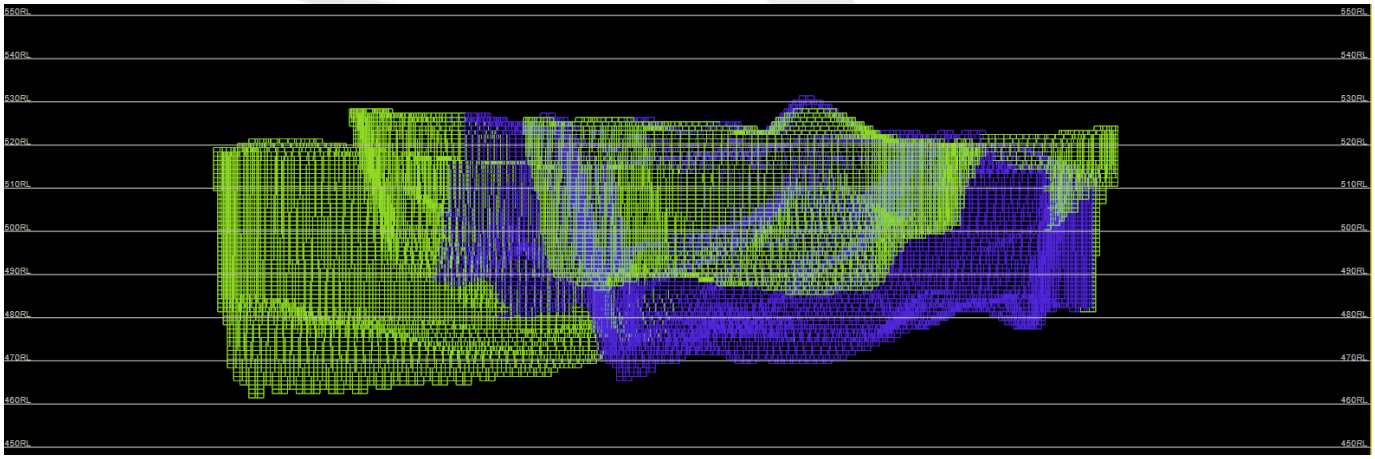

Figure 13: Full Thickness Looking NE (for clarity 5 times vertical exaggeration has been applied)

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A mining rate of between approximately 6.3 to 11.3 million tonnes per annum (mtpa) will provide the required feed for the proposed processing plant capacity, with a stockpile of no greater than 0.35 million tonnes when looking at yearly periods.

Indicated material accounts for 73% of the ore processed, approximately 30.5 million tonnes, with Inferred making up the remaining 27%. The breakdown of the ore mined by domain and resource category are shown below in Table 2. The Company assumes that due to expected ground conditions and near surface geology, approximate 50% of mining will require drill and blast.

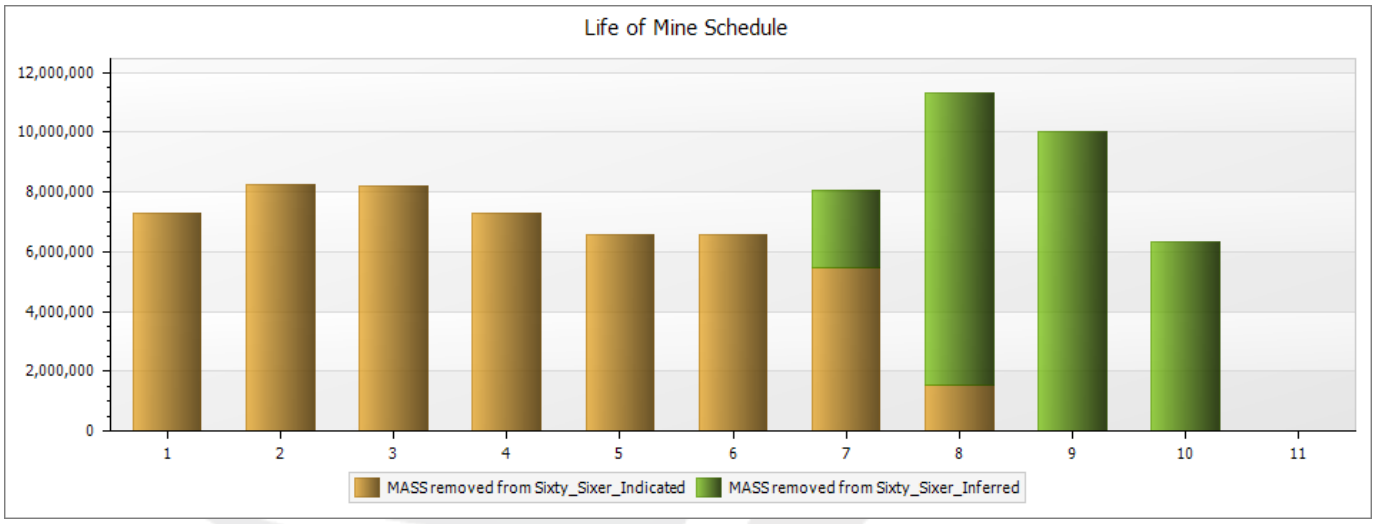

Figure 14: Life of Mine Schedule by Phase, in tonnes

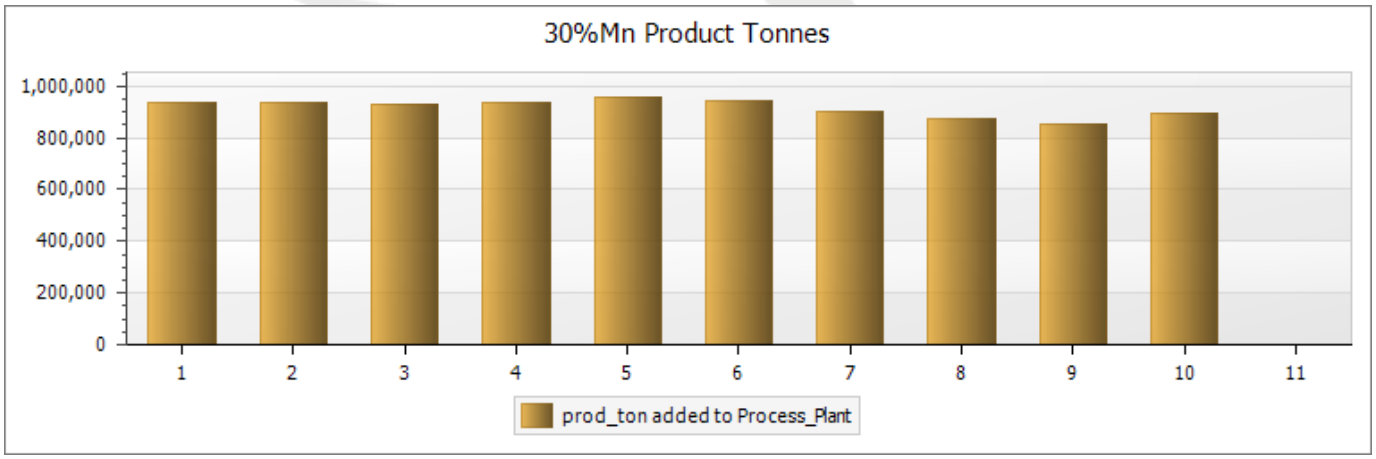

Figure 15: 30%Mn Product Tonnes

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Period	Waste Tonnes	Ore Tonnes	Mining BCMs	Product Tonnes	Indicated Tonnes	Inferred Tonnes
1	2.94M	4.36M	3.21M	936K	4.36M	-
2	3.94M	4.29M	3.48M	937K	4.29M	-
3	4.21M	4.00M	3.47M	927K	4.00M	-
4	2.95M	4.35M	3.03M	939K	4.35M	-
5	2.39M	4.18M	2.68M	958K	4.18M	-
6	2.37M	4.22M	2.65M	943K	4.22M	-
7	3.67M	4.36M	3.38M	902K	3.91M	0.44M
8	7.28M	4.05M	4.79M	873K	1.19M	2.85M
9	6.00M	4.03M	4.12M	855K	-	4.03M
10	2.21M	4.12M	2.54M	895K	-	4.12M
Totals	**37.97M**	**41.96M**	**33.35M**	**9.17M**	**30.5M**	**11.46M**

Table 2: Mining and Processing Physicals including Ore Tonnes Mined by Resource Category

The Company is confident in the developed mine plan being based on 57% Indicated Resource and the remaining 43% as Inferred Resource.

The proposed mine plan is underpinned by a MRE comprising a proportion of Indicated (73%) and Inferred (27%) Mineral Resource. The MRE has been prepared by a competent person or persons in accordance with the requirements in the JORC Code.

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.

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.

Figure 16: Manganese ore concentrate

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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).

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. (Refer to the Company's ASX announcement dated 17/01/22 for full details)

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.

Further test work is planned with bulk sampling completed during the March 2022 quarter, targeting feed representing proposed early-stage mining operation. A total of approximately 30 tonnes of sample from six separate locations has been extracted and transported to Perth for larger scale ore sorting and heavy liquid separation test work. The scope of this bulk test work program includes ore variability assessment and equipment optimisation trials.

Processing

The Scoping Study considered two processing options, both evaluating a ~4,000,000 tonne per annum manganese concentrator including crushing, scrubbing and conventional gravity recovery.

- **Option 1**: Contemplates ore sorting of scrubbed lump material (-50+8mm) with jigging of the fine fraction (-8+1mm) and is considered the base case given historical test work
- **Option 2:** Contemplates conventional crushing to 8mm to and gravity separation

The financial model is based on Option 1 (ore sorting and jigging combination), however both options deliver a robust financial outcome.

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.

A high-level desktop study was completed to compare conventional gravity separation techniques of Jigging and DMS. The outcome demonstrated that while jigging potentially had a lower capital component and operating cost, this was offset against expected lower recoveries and the expected higher production of concentrate through DMS.

Derived NPV for both options were very similar.

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Process Description – Crushing - Ore Sorting and Jig

ROM ore 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 by front-end loader from the ROM stockpile to a ROM bin equipped with a stationary grizzly. Oversize material will be removed from the static grizzly by the ROM loader and then stockpiled, before being broken by a mobile rock breaker.

Ore will be withdrawn at a controlled rate from the ROM bin by a vibrating feeder followed by a vibrating grizzly with an aperture of 70 mm. Oversize will fall into the primary jaw crusher, where it will be crushed. The primary jaw crusher will be sized to process all ore in-case of a blinded vibrating grizzly. The ore will be conveyed to a single deck vibrating screen.

Screen oversize will be conveyed to the secondary crusher feed bin. The material will be withdrawn by a vibrating feeder feeding the secondary cone crusher.

A self-cleaning type tramp metal magnet will be installed at the screen feed conveyor to remove any tramp metal. Fixed tramp metal magnets will be installed on both the crusher feed bin conveyors to protect the secondary crusher. All magnets will be installed at conveyor head end.

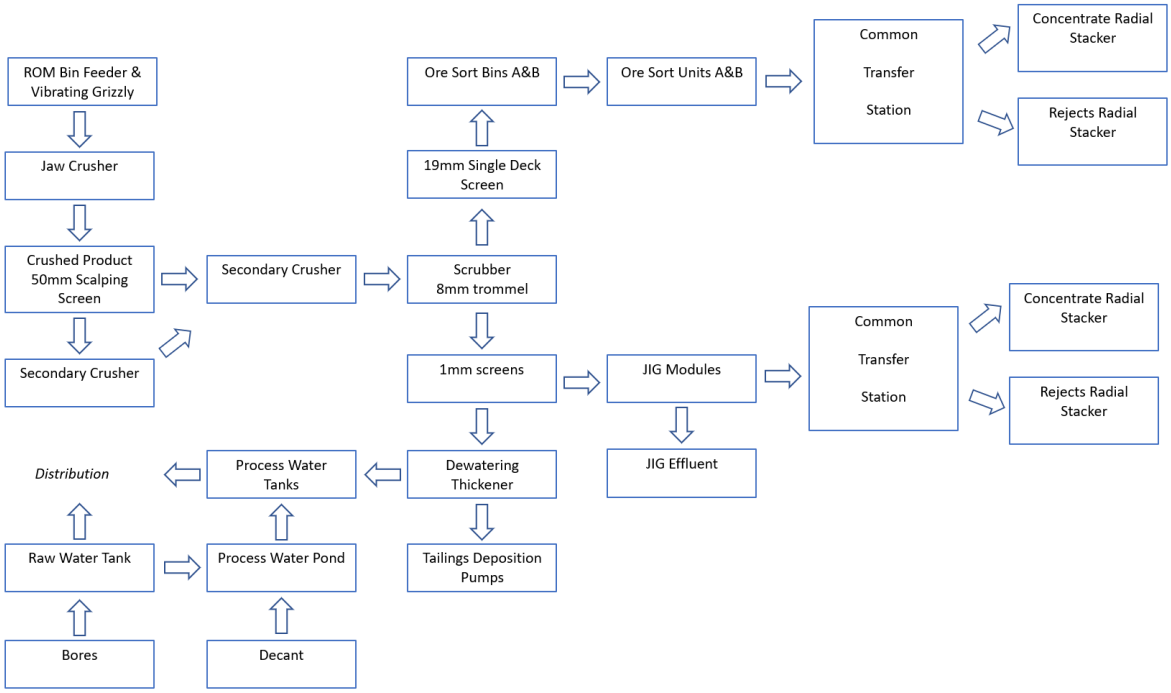

Figure 17: Option 1 Ore Sorting Lump & Jig Fines Block Flow Diagram

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Process Description - Crushing - Option 2 – Conventional Gravity Recovery

ROM ore 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 by front-end loader from the ROM stockpile to a ROM bin equipped with a stationary grizzly. Oversize material will be removed from the static grizzly by the ROM loader and then stockpiled before being broken by a mobile rock breaker.

Ore will be withdrawn at a controlled rate from the ROM bin by a vibrating feeder followed by vibrating grizzly with an aperture of 70 mm. Oversize will fall into the primary jaw crusher, where it will be crushed. The primary jaw crusher will be sized to process all ore in-case of a blinded vibrating grizzly. The ore will be conveyed onto a double deck vibrating screen.

Screen oversize from the screen top deck (+20 mm) will be conveyed to the secondary crusher feed bin. The material will be withdrawn by a vibrating feeder feeding the secondary cone crusher. Screen bottom deck oversize (-20 mm +10 mm) will be conveyed into the tertiary crusher feed bin. The material will be withdrawn by a vibrating feeder feeding the tertiary cone crusher. Each cone crusher includes a 25 t feed bin.

A self-cleaning type tramp metal magnet will be installed on the screen feed conveyor to remove any tramp metal. Fixed tramp metal magnets will be installed on both the crusher feed bin conveyors to protect the secondary and tertiary crushers.

Screen bottom deck undersize (-10 mm P80 -8mm) will be conveyed to the crushed ore stockpile.

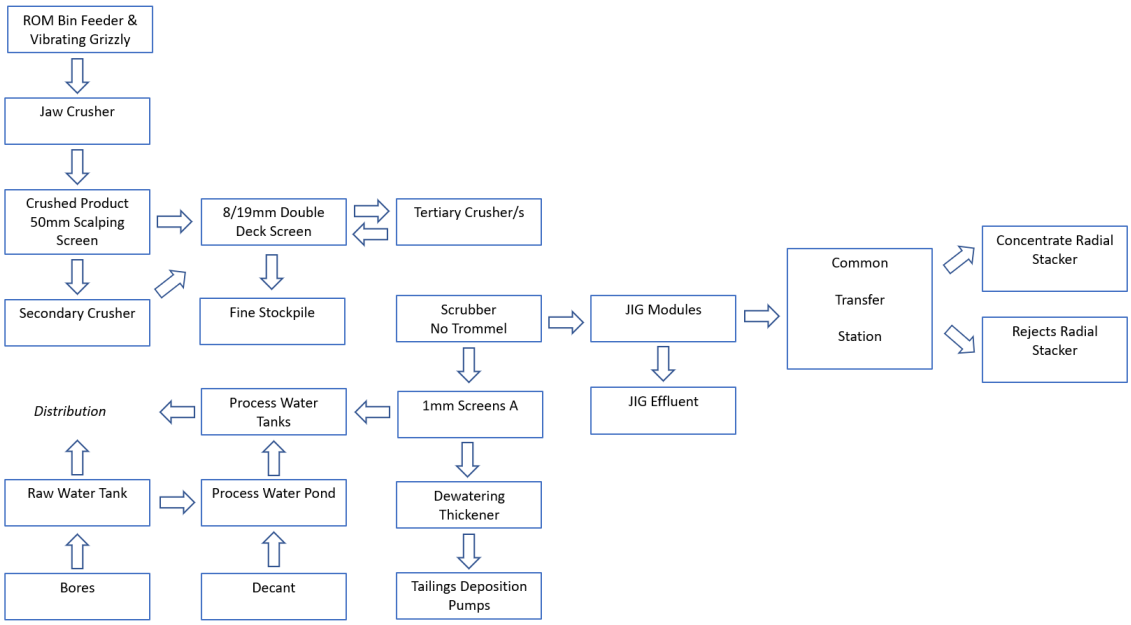

Figure 18: Option 2 Block Flow Diagram – Conventional Gravity Recovery

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Scrubbing

Reclaimed ore from the surge bin/stockpile is fed to a single stage, open circuit rotary scrubber. The continuous lifting and dropping action combined with water helps to abrade, scrub, and break down deleterious contaminants from the target mineral. The scrubber has a diameter of 4.0 m and effective 'grinding' length of 10 m fitted with a 750 kW motor.

Scrubber discharge slurry will pass through the 10 mm aperture trommel, coupled with high pressure spray water. Trommel screen undersize will gravitate to the 1 mm fine classification screen where over size will gravitate to the fines concentration circuit feed conveyor. Trommel oversize will gravitate via static dewatering panels to a conveyor feeding the lump concentration circuit. For the fines only option, where product is already nominally less than 10 mm, trommel oversize will be collected in a skip for disposal or re-treatment. Slurry material passing the fines classification screen (ultrafines) will be pumped to the dedicated tailings thickener using duty and stand-by pumps.

Ore Sorting | Lump

Figure 19: Ore sorting machine at Steinert

The ore sorting flowsheet treats only lump material (-50+8mm). Scrubbed and sized lump material feeds the lump concentration circuit via 19 mm classification screen, which separates the lump into more manageable size bands for the ore sorting process.

After screening both undersize and oversize is conveyed to 25 tonne bins ahead of the ore sorting plant. Vibrating feeders equipped with air knives downstream will provide the ore sorters with a feed stream low in moisture to enhance sensor performance.

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Sensor-based ore particle sorting offers a method for pre-concentration or waste rejection without the requirement for high powered comminution processes or alternative processing routes. The ore sorting technology analyses each and every rock particle on-line for unique physical and chemical properties and separates the particles by high pressure air jets.

Four ore sorters, two for each of the sized streams (+/-19 mm) are required to treat a normal duty circa 200 tonnes per hour. Three 255 kW compressors supply the four ore sorters providing more than 8,000Nm3 high pressure airflow at 9 bar.

Jig Concentrator | Fines

Both flowsheet options use jigs to treat fine material (-8+1mm), which is fed to a small bin ahead of the pre-jig sizing screen. A vibrating feeder is used to control feed to the jigs via a 5 mm classification screen used to separate the material into more manageable size bands, which improves the jigging process efficiency.

After screening, both undersize and oversize gravitate to dedicated jigs. The finer size fraction is first passed over a static dewatering screen to remove water and provide improved feed control to the jig.

Jigging for concentrating minerals is based exclusively on the differences in density of the particles. The simplest form is an open tank, filled with water with a thick bed of coarse heavy particles (ragging) placed on a perforated horizontal jig screen. The feed material enters from the top. Water is pulsated up and down (the jigging action) by pneumatic or mechanical plunger. The feed moves across the jig bed and heavier particles penetrate through the ragging and screen to settle down quickly as concentrate. The concentrate is removed from the bottom of the device. The jigging action causes the lighter particles to be carried away by the crossflow supplemented by a large amount of (hutch) water continuously supplied to the concentrate chamber.

The distinctive feature of the selected (Baum) jig is the fact that the pulsations of water are produced with compressed air. The jig box is U-shaped, on one side of the U, near the top, is a perforated screen plate on which the separation is effected and on the other side is a sealed chamber in which the air initiates the pulsations. The bottom of the U forms the hutch compartment and the U acts as a passageway through which the pulsations from the sealed chamber are delivered to the materials resting on the screen. The box usually is divided longitudinally into compartments and cells.

The jig selected for Oakover duty are multi-compartment (3) cells, each 8 m in length and a width of 2.5 m. Each jig is supported by centrifugal pump capable of delivering up to 600 cubic metres of hutch water. Compressed air is supplied by dedicated 90 kW air compressors, one for each jig.

A desktop study was carried out comparing DMS and Jigging. Both options demonstrated comparable NPV. Following further metallurgical testing and modelling during the next stage of development the optimised flow sheet will be selected.

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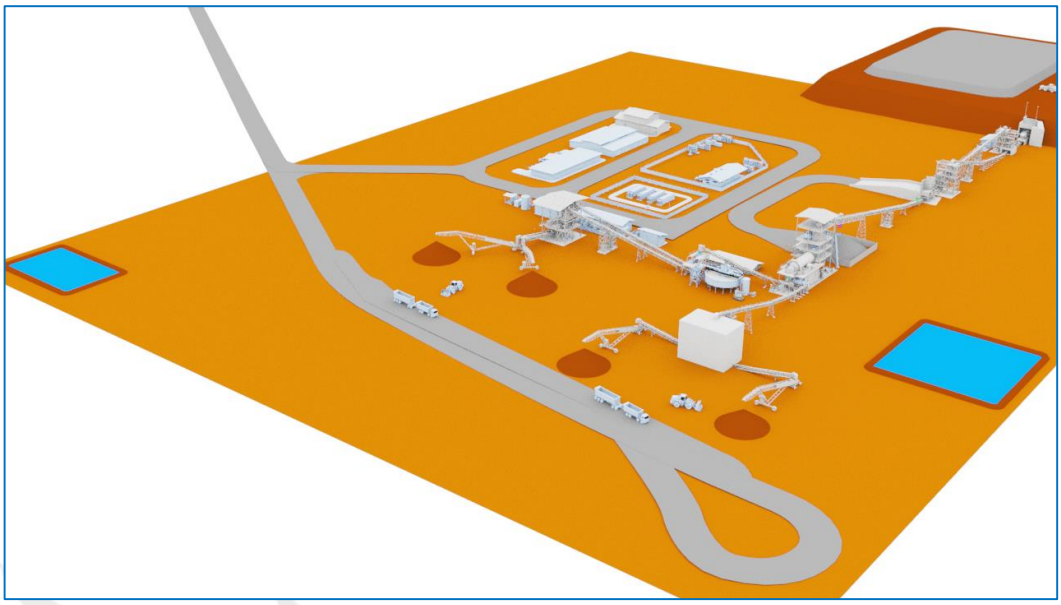

Figure 20: Potential Layout for Ore sort and Jig operations

Energy

The initial basis for the Scoping Study and starting base case was built on 100% diesel power generation. Similar start-up operations traditionally integrate 'rented' diesel generation, due to their simplicity and quick deployment. This diesel option follows a traditional model where the expenditure for the overall mining operation is pushed into OPEX. 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 10+ years.

Financial modelling of a renewable energy solution against a diesel rental 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. There will be a requirement for a small diesel generator onsite to facilitate black start requirements after scheduled maintenance shut downs 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.

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The Study is based on solar and wind data currently available for the region. There is wind rose data from the town of Newman, 100km west of the site, which indicates a predominant wind direction from the east. The 7MW 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 Firebirds expansion aspirations over future years.

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, so as to identify and assess the significance of Aboriginal heritage in all areas that may be impacted should the Project be developed.

Over the coming 2022 field season the following environmental activities are planned:

- Flora and vegetation surveys
- Terrestrial fauna surveys
- Short range endemic fauna surveys
- Subterranean fauna surveys
- Hydrological / hydrogeological investigations
- Waste material characterisation
- Greenhouse gas emissions assessment

Logistics

The Logistics Study explored the requirements to transport approximately 750,000 to 1,000,000 tonnes 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.

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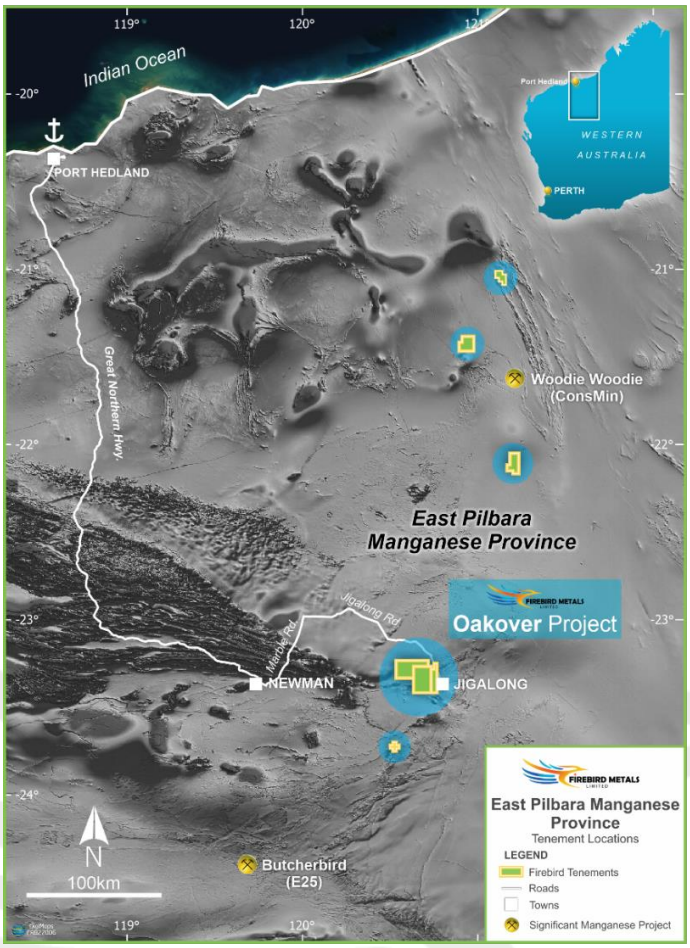

Figure 21: Oakover Project to Port Hedland Access Route

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.

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

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- 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

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.

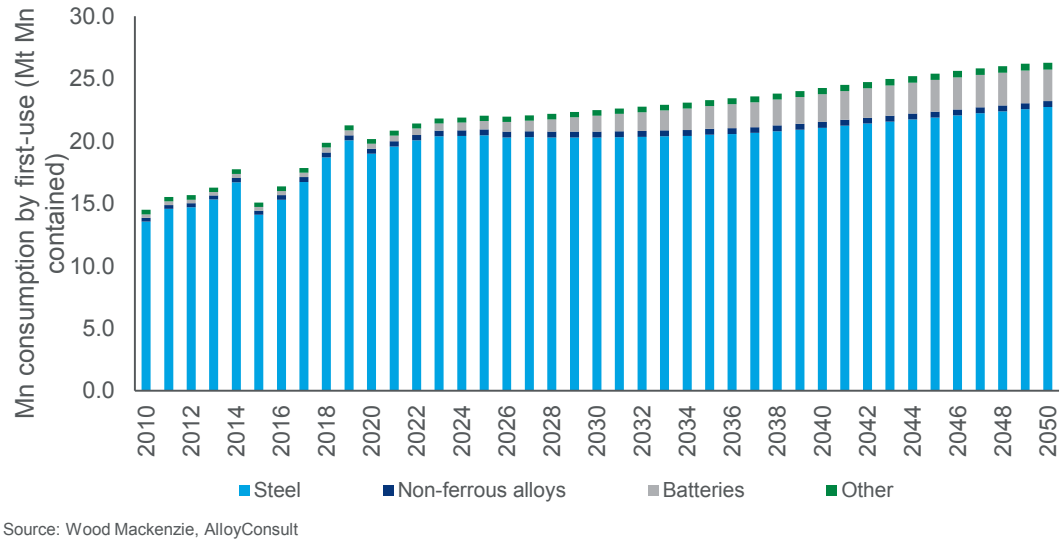

Figure 22: The Foregoing Graph was Obtained From Bulk Steel Alloys, a Product of Wood Mackenzie, Mn Consumption By First-Use (Mt Mn Contained)

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

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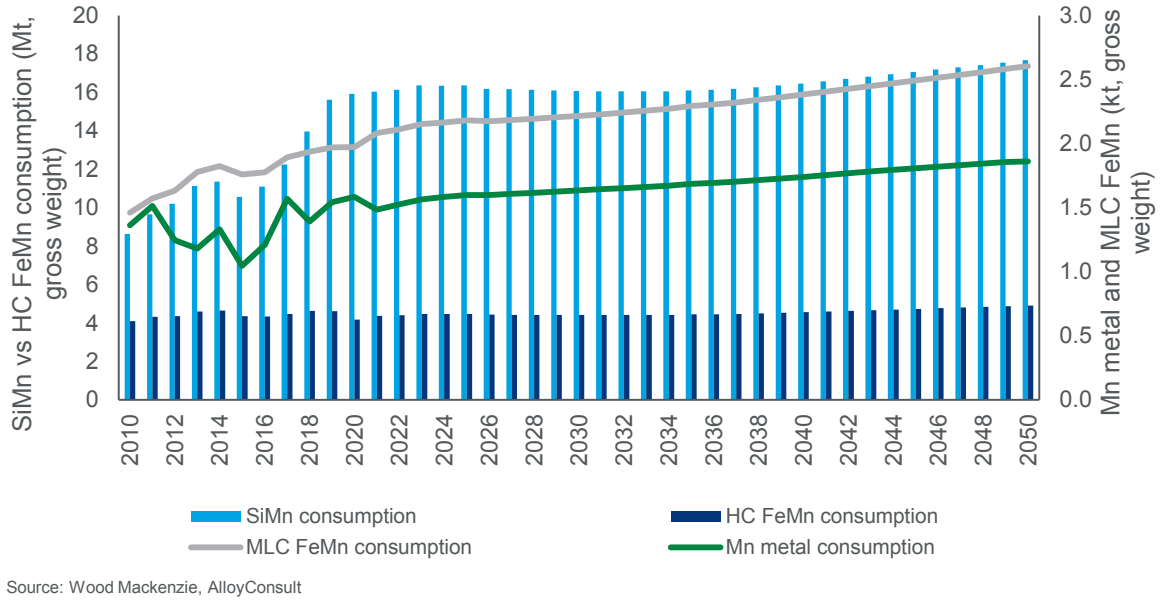
- Refined Alloys being Medium carbon (MCFeMn) and Low carbon ferromanganese (LCFeMn) – Used mainly in higher-quality steels sector where impurities need to be closely controlled



Source: Wood Mackenzie, AlloyConsult

Figure 23: The Foregoing Graph was Obtained From Bulk Steel Alloys, a Product of Wood Mackenzie, SiMn vs HC FEMn Consumption (Mt. gross weight)

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

Increasingly, manganese is being consumed in energy storage sector as a key raw material for both dry cell batteries through Electrolytic Manganese Dioxide (EMD) and High-Purity Manganese Sulphate (HPMS) for lithium-ion batteries.

EMD is produced through the process of electrolysis with sulfuric acid leaching removing impurities and is the main cathode ingredient for dry cell batteries. EMD can also be used in lithium-ion cathode in the form of lithium-ion manganese oxide.

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 2019. 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

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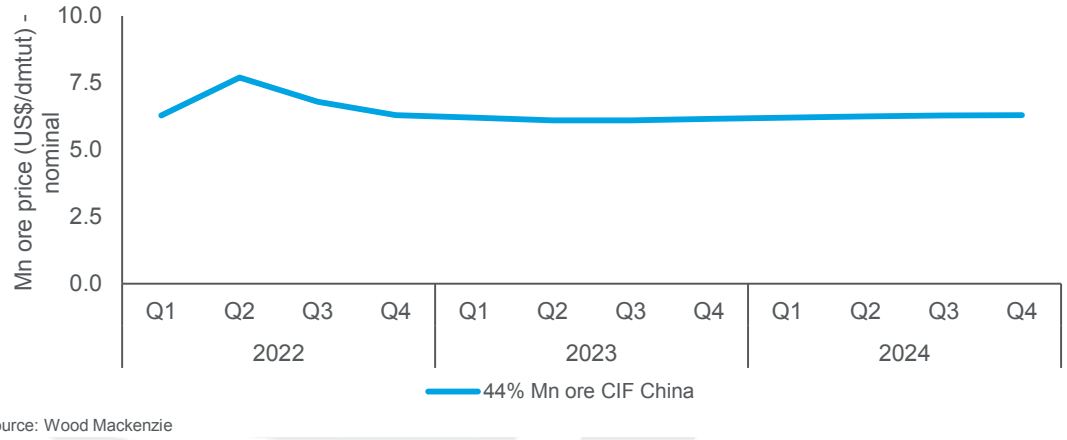
and stricter environmental regulations. The concentrate produced at Oakover is expected to fit into the medium grade classification.

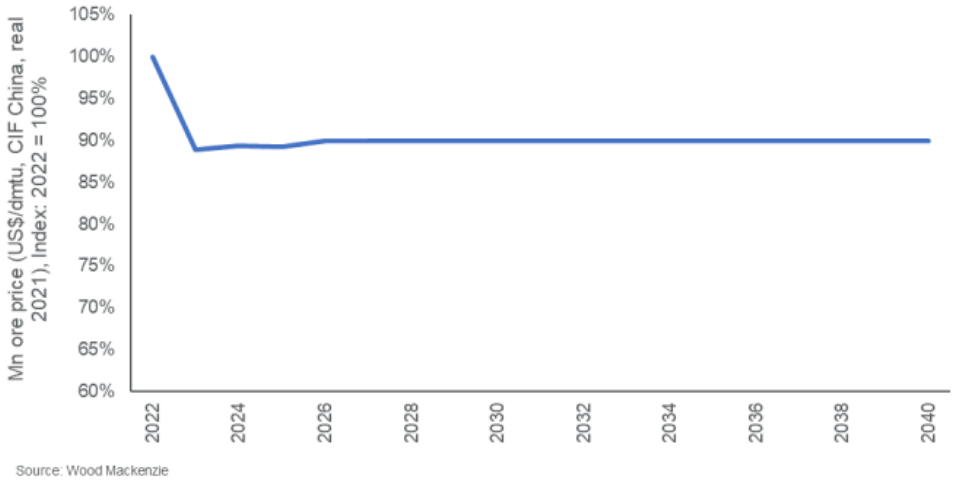
Manganese and Study Pricing

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.



Source: Wood Mackenzie

Figure 24: The foregoing graph was obtained from Bulk Steel Alloys, a product of Wood Mackenzie – Mn Ore price (US$/dmtu) – nominal



Source: Wood Mackenzie

Figure 25: The foregoing graph was obtained from Bulk Steel Alloys, a product of Wood Mackenzie – Indexed long-term outlook price forecast

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Note: With respect to Figure 22, Figure 23, Figure 24 and Figure 25, "The data and information provided by Wood Mackenzie should not be interpreted as advice and you should not rely on it for any purpose. You may not copy or use this data and information except as expressly permitted by Wood Mackenzie in writing. To the fullest extent permitted by law, Wood Mackenzie accepts no responsibility for your use of this data and information except as specified in a written agreement you may have entered into with Wood Mackenzie for the provision of such of such data and information".

The price used in this study is based on the Company's assumption of a Manganese concentrate price of US$5.27 CIF per dmtu for 30% manganese lump concentrate with a ~4% discount for Fines production. The Company's assumption takes into account the manganese grade and key impurity levels that can attract pricing premiums.

Financials and Foreign Exchange

Key		Pre Tax
NPV	@ 8%	~329 $M
IRR		47 %
Payback		< 3 Years
EBITDA (annual average)		~ $72.7 M per annum
Annual Treatment		~ 4Mtpa
Annual Production		~ 900 kt
AUD/USD Assumed Exchange rate		0.70
30% Lump Conc Price Assumption – CIF Basis		A$226.00 / t - US$5.27 /dmtu
30% Conc All In Cost - CIF Basis		A$ 154.0 / t - US$3.59 /dmtu

Table 3: Key Financial metrics

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

Capital Cost			
Process Plant			
	Bulk Earthworks	$1 M	
	Crushing & Stockpiles	$9.3 M	
	Scrubbing & Classification	$10.4 M	
	Ore Sorting | Lump	$17.8 M	
	Jigging | Fines	$6.1 M	
	Tailings Disposal	$2.7 M	
	Plant Services	$3.0 M	
	Non Process Infrastructure	$2.0 M	
	Mobile Equipment	$1.3 M	
	EPCM	$9.7 M	
	Other	$10.1 M	
	Total		**$73.4 M**
Infrastructure			
	Renewable Power plant	$25.3 M	
	Road(s) Upgrades	$36.0 M	
	Camp	$3.0 M	
	Tailings	$4.0 M	
	Other infrastructure	$2.1 M	
	Total		**$70.4 M**
Total Capex (including Contingency)			**$143.8 M**
Sustaining Capex (Road Maintenance and Tailings Storage over life of project)			$49.9 M

Table 4: Capital Estimates Summary

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Ore Sort and Jig - All In Sustaining Cost Summary			
C1 CASH COSTS	Unit	LOM – TONNE	LOM – CONC TONNE
Mining			
Power	$/t	0.0	0.1
Mining Labour | Salaries	$/t	0.3	1.5
Ore	$/t	4.5	19.9
Processing			
Reagents	$/t	0.1	0.4
Grinding Media & Liners	$/t	0.3	1.3
Consumables	$/t	0.1	0.3
Maintenance	$/t	0.4	1.9
Power	$/t	0.5	2.1
ROM Activity	$/t	1.3	5.8
Vehicles	$/t	0.0	0.2
Analytical	$/t	0.4	1.6
Process Labour | Salaries	$/t	1.6	7.1
Administration			
General Admin	$/t	0.5	2.0
Power inc camp	$/t	0.0	0.1
Admin Labour | Salaries	$/t	0.4	1.8
All Labour | On Costs	$/t	0.8	3.5
All Labour | Travel & Accom	$/t	0.5	2.3
Conc/Metal Transport & Treatment			
Transport to Port & FOB Costs	$/t	14.1	62.1
Sea Freight	$/t	5.0	22.1
C1 CASH COST (CIF BASIS)	$/t	**30.9**	**136.1**
AISC	Unit	**LOM**	**LOM**
C1 Cash Cost	$/t	30.9	136.1
Royalties	$/t	2.6	11.4
Sustaining Capital	$/t	1.3	5.9
Corporate Costs	$/t	0.1	0.6
ALL IN SUSTAINING COSTS	$/t	**35**	**154.0**

Table 5: Project Opex – Financial Model

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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.

Scoping Study pricing has a NPV8 of approximately A$329 M, an exceptional IRR of 47% and an average EBITDA of approximately $72.7M per annum.

- 10% increase in price increases NPV8 to approximately A$468 M
- 10% decrease in price decreases NPV8 to approximately A$190M
- 10% increase in cost with 10% decrease in price decreases NPV8 to approximately $155 M
- 10% decrease in cost with a 10% increase in price increases NPV8 to approximately $503 M
- Recent pricing from March and April 2022, of US$8.00 CIF China per DMTU for 44% Grade price factored to Study concentrate grade combined with study base case costs has a NPV8 of approximately A$695 M and annual average EBITDA of approximately $125M (pricing sourced from Petra Capital)
- Jan 2021 to May 2022 month average price of US$5.50 CIF China per DMTU for 44% Grade price factored to Study concentrate grade combined with study base case costs has a NPV8 of approximately A$169 M and annual average EBITDA of approximately $49M (pricing sourced from Petra Capital)

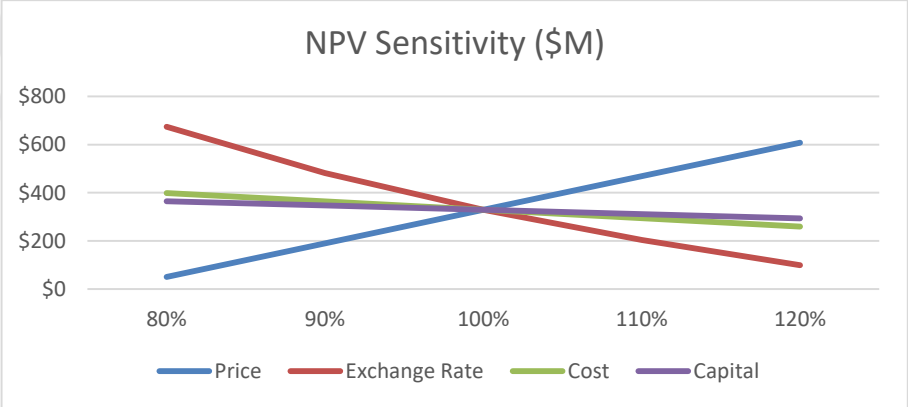

Table 6: Sensitivities (AUD $M)

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 $143.8M may be

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required. 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 3 years from commercial production
- The very strong pre-tax cashflows of US$72.7M 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

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Key Inputs

Source of Key Inputs		
Category		**Source**
Geology	Mineral Resource Estimate	CSA Global Pty Ltd
Mining	Mining Conceptual Study	CSA Global Pty Ltd
Processing	Processing	SBC Metallurgy
	Energy	Galetech Energy Services
Infrastructure		Increva Pty Ltd
Logistics	Road Infrastructure	Wyntak Pty Ltd
	Load & Road Haulage	Wyntak Pty Ltd
	Ocean Freight	Management Assumption
	Stevedoring	Quote
Exchange Rate		Management Assumption
Sales price		Management Assumption

Figure 26: Source of Key inputs fir opex and Capex

Estimated timeline to production

Activity	CY 2022			CY2023				CY 2024			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Met Test Work											
Environmental Baseline Surveys											
Infill Drilling											
Feasability Study											
Environmental Approvals											
Secondary approvals (Mining, Water, Heritage, Works Approval)											
Detailed Engineering & Procurement											
Construction											
Commissioning											

Full Quarter

Part Quarter

Figure 27: Estimated Development Time line

Opportunities

Significant opportunities to extend project life of mine and add value by potentially including the Karen and Jay-Eye prospects at Oakover and Hill 616 Project, by transporting mined tonnes from these areas to the Oakover processing plant.

The Jay-Eye and Karen Prospects sit within Exploration licence E52/3577 and are only 1km and 4km East and South respectively of the Sixty Sixer proposed pit. Jay-Eye hosts 22Mt @ 9.5% Mn and Karen hosts 40.9Mt @9.5% Mn Inferred Mineral Resource Estimate (***Table 1: Oakover Mineral Resource Estimate – March 2022***).

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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 7: Hill 616 Mineral Resource Esimate

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*

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