ASX / MEDIA ANNOUNCEMENT 10/3/2022

GAME CHANGING RESOURCE UPGRADE AT OAKOVER

Highlights

- **Significant 108 Mt increase in Oakover Mineral Resource to 172 Mt at 9.9% Mn, representing 170% increase from historical resource**
- **Resource upgrade a result of successful drill programs completed across key Oakover deposits:**
  - **Sixty Sixer**
    - **80% increase in Mineral Resource to 109.4 Mt at 10.1% Mn**
    - **58.7 Mt at 10.4% Mn in Indicated category**
  - **Karen**
    - **Maiden Mineral Resource of 40.9 Mt at 9.5% Mn**
  - **Jay Eye**
    - **600% increase in Mineral Resource to 21.9 Mt at 9.5% Mn**
- **80.7 Mt at 11.2% Mn defined as massive (Domain 2) and supergene/ lateritic (Domain 5) manganese across entire Oakover project**
- **Total JORC reportable manganese resource across Oakover and Hill 616 projects increased by 90% to 229 Mt**
- **Growth in resources at Oakover are well above initial expectations and provides compelling opportunity for Firebird to establish a long-life manganese operation**
- **Development strategy pivot to focus and evaluate establishing a 20+ year operation to develop a significant manganese production hub**
- **Firebird to commence Scoping Studies shortly, with completion of Manganese Ore Study expected in June quarter and Sulphate Study in September quarter**

Firebird Metals Limited (**ASX: FRB**, **"Firebird"** or **"the Company"**) is pleased to announce a significant milestone with the Company delivering a 170% increase in Resource at its flagship Oakover Project, following successful completion of a 233-hole, 10,145m reverse circulation percussion (RCP) drill program at Sixty Sixer, Jay Eye and Karen deposits.

The Oakover resource has grown to 172 Mt @ 9.9% Mn (7% Mn cut-off) from 64 Mt @ 10% Mn (8 % Mn cut-off). Importantly 58.7 Mt at 10.4 % Mn at the Sixty Sixer deposit is now in the Indicated category.

Commenting on the major resource upgrade, Firebird Managing Director Mr Peter Allen described the result as 'game changing' for the Company: *"This resource has come in well beyond our expectations and speaks volumes to the broader potential of Oakover and the opportunity to establish a major WA manganese operation.*

"The size of the MRE upgrade provides us with a compelling opportunity to pivot from our current Rapid Development Program strategy and focus instead on completing the relevant studies to assess Oakover as a 20+ year operation, producing both manganese ore and higher-value manganese sulphate. While this

is a shift from our early cashflow strategy, we think the size of the resource and simple near surface gently dipping geology provides a simple pathway to production that now warrants financial assessment that is anticipated to ultimately deliver superior value to shareholders.

"Importantly, we will be able to leverage the work already completed from current rapid development workstreams to quickly complete the necessary Scoping Studies, that will focus on a long-life manganese ore and sulphate production operation. We expect to complete the Manganese Ore Study in the June quarter and the Sulphate Study in the September quarter.

"I am very proud of our team and their ongoing determination and hard work. We continue to tick all the boxes to develop Oakover and deliver long-term value to all our stakeholders. The future is very exciting for the Company and we look forward to updating the market as we work through the busy months ahead."

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	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	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:

- *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.*

RESOURCE UPGRADE OVERVIEW

Firebird commenced and completed broad scale drilling programs across the Sixty Sixer, Jay Eye and Karen deposits, with the primary objective of growing the Mineral Resource at Oakover during the second half of 2021.

A 233-hole, 10,145m RCP infill and extensional drilling campaign commenced in August 2021 and was completed in 3 months across the Sixty Sixer, Karen and Jay Eye deposits, delivering excellent results.

Following receipt of all assay and geophysical results from the drill programs, CSA Global Pty Ltd (CSA Global) was engaged by Firebird to prepare a Mineral Resource estimate (MRE) for Oakover, which lies within Exploration Licence E52/3577.

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 m) diamond drilling (DD) holes drilled between 2010 and 2021.

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

Area	Mineral Resource classification	Domain	Tonnes (Mt)	Mn (%)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)	LOI (%)
Sixty Sixer	Indicated	2	31.6	11.6	10.2	41.9	10.6	0.11	10.5
Sixty Sixer	Indicated	3	25.7	8.8	7.8	38.3	9.6	0.11	16.7
Sixty Sixer	Indicated	5	1.3	14.7	12.9	37.0	10.4	0.06	9.9
Sixty Sixer	**Indicated**		**58.7**	**10.4**	**9.2**	**40.2**	**10.1**	**0.10**	**13.2**
Sixty Sixer	Inferred	2	19.3	11.0	9.7	40.6	10.2	0.12	12.0
Sixty Sixer	Inferred	3	30.7	8.7	7.6	37.8	9.7	0.10	17.0
Sixty Sixer	Inferred	5	0.7	13.4	12.0	36.8	12.7	0.05	9.6
Sixty Sixer	**Inferred**		**50.7**	**9.6**	**8.5**	**38.9**	**9.9**	**0.11**	**15.0**
Sixty Sixer	**Indicated + Inferred**		**109.4**	**10.1**	**8.9**	**39.6**	**10.0**	**0.11**	**14.1**
Jay Eye	Inferred	2	9.3	10.9	9.5	40.9	9.9	0.13	11.5
Jay Eye	Inferred	3	12.7	8.5	7.8	39.3	9.7	0.10	16.1
Jay Eye	Inferred	5	-	-	-	-	-	-	-
Jay Eye	**Inferred**		**22.0**	**9.5**	**8.5**	**40.0**	**9.8**	**0.11**	**14.2**
Karen	Inferred	2	18.0	10.6	10.0	43.9	10.6	0.10	10.1
Karen	Inferred	3	22.3	8.6	8.6	41.6	10.6	0.11	13.7
Karen	Inferred	5	0.5	14.1	11.8	44.0	9.6	0.07	8.2
Karen	**Inferred**		**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 2: Oakover Mineral Resource Estimate broken down by domain - March 2022

Notes:

- *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.*

STRATEGY UPDATE & NEXT STEPS

Firebird has been progressing its Rapid Development Program to evaluate a low-capital, fast start up at Oakover, to deliver early-stage cash flow.

The program commenced in June 2021 and since then, several key workstreams have been completed, including maiden drill programs at Sixty Sixer, Jay Eye and Karen. Essentially, the drill programs, along with successful metallurgical test work has led to the outstanding growth in numbers announced today, including the upgrade to an indicated status at Sixty Sixer.

Following the substantial growth in Resource and upgrade in classification status, Firebird has considered the development options available at Oakover and has made the prudent decision to pivot its growth strategy and now focus on completing key workstreams to assess a larger long-term (20+ years) operation to create a substantial manganese hub.

Importantly, Firebird is in a strong position to fast-track relevant Scoping Studies by incorporating several key study workstreams which have been commenced as part of the Rapid Development Program. Firebird expects to complete the Manganese Ore Study in the June quarter and the Sulphate Study in the September quarter.

Disclosure as per ASX listing rule 5.8 relating to reports of Minerals Resources for material mining projects are provided in Appendix 1 to this announcement.

A JORC Table 1 is included as Appendix 2 to this market announcement.

Drill hole location plans for Sixty Sixer and Jay Eye, and Karen are included as Figure 1 and Figure 2 respectively.

A full list of the 2021 drill hole collar details was provided in ASX announcement 2 and 8 February 2022.

ENDS-

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About Firebird Metals Limited

Firebird Metals Limited (ASX:FRB) is a West Australian company focused on the exploration and development of its 100% owned project portfolio, comprising of four highly prospective manganese projects in the renowned East Pilbara Manganese province of Western Australia:

- Oakover Manganese Project
- Hill 616 Manganese Project
- Disraeli Manganese Project
- Raggard Hills Manganese Project

The Company's primary focus is on the development of the Oakover and Hill 616 Manganese Projects, which are located approximately 85 km east and southeast of Newman and together cover approximately 375 km2. These two projects give the company a significant total Mineral Resource Estimate of 229.7 million tonnes:

- Oakover Project – 172.2 Mt @ 9.9% Mn
  - 58.7 Mt @ 10.4 % Mn Indicated Mineral Resource Estimate
  - 113.6 Mt at 9.6 % Mn Inferred Mineral Resource Estimate
- Hill 616 Project - 57.5 Mt @ 12.2% Mn Inferred Mineral Resource Estimate

The total Mineral Resources Estimate of 229.7 million tonnes provides a solid technical foundation for further development as the company targets production of manganese for two key markets:

a) manganese sulphate for use in the growing lithium ion battery market that is used in electric vehicles, where manganese is a critical battery raw material; and

b) manganese ore/concentrates for consumption in the global steel industries, where manganese plays an important and un-substitutable role in the strength and hardness of steel

Firebird is focused on creating and growing sustainable value for our stakeholders through the application of best practices in exploration and our commitment to protecting the health and wellbeing of our employees, the environment and the communities where we work.

Appendix 1 - Understanding the Reporting of Material Mineral Resource Estimates (ASX LR 5.8)

Geology and Geological Interpretation

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.

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).

Drilling, logging and sampling has defined six geological domains for 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 with 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.

Sampling and Sub-Sampling Techniques

Historical Drilling

RCP and air core samples submitted in 2011 were collected from a 3-tier riffle splitter attached to the cyclone on the side of the rig. A sample of approximately 2 kg was retained from the drilled material and the rest was left in a green bag on site. The riffle splitter was checked every metre and cleaned if necessary. No sample weights were recorded on site. Samples received at the mineral processor Nagrom laboratory weighed between 0.138 kg and 9.136 kg with an average sample weight of approximately 2.647 kg and a median weight of 2.399 kg. Field duplicates were taken every 20th sample by splitting the original sample at the rig into half using a rifle splitter. Field duplicates were submitted to the laboratory as a separate batch and with non-sequential sample numbers. Standards were inserted as every 20th

sample. All samples were submitted to Nagrom laboratory in three batches. Sample preparation for the RC and air core samples was as follows:

1. Samples were dried at 105^{0}C for 8-10 hours.
2. No crushing was necessary since maximum grain size was 2 mm.
3. Sample were split t through a 50:50 bench rifle splitter and sample weights recorded.
4. One split was pulverised and the other one retained.
5. Samples were dried for a minimum of 1 hour, then desiccated.
6. A sub sample was weighed for analysis (0.8g sample, 8g flux).

Modern Drilling

Nine of the ten diamond holes (OKDM002 - OKMD010) drilled by Topdrive Drillers Australia in 2011 were re-logged by CSA Global in June 2021 and submitted for analysis in 2021. Sampling intervals ranged from 0.3 m to 2.77 m. The core was split into two longitudinal cuts which were then quartered. Quarter core samples were dispatched to Nagrom in August 2021. The core recovery from the nine drill holes averaged 87.7%. Sample preparation was as follows:

7. Samples were received and sorted.
8. One quarter core was crushed to a nominal top size of 6.3 mm.
9. All crushed samples were riffle split.
10. Samples were pulverised to 80% passing 75 µm.

Samples were submitted to Nagrom laboratory in Kelmscott. Sample preparation for the RC and air core samples was as follows:

11. Samples were dried at 105^{0}C.
12. Samples were coarse crushed to top size of 6.3mm.
13. Sample were rifle and pulverised to 80% passing 75 microns.
14. The pulp was submitted for XRF analysis.

Drilling Techniques

Drilling on E52/3577 has been carried out on the Project since 2010. RCP, air core and DD drilling methods were used to collect samples on the tenement. Only RC and DD drilling methods were used to collect samples within the immediate area of the Project. All drilling carried out between 2010 and 2012 will be referred to as “Historical drilling” in this report and drilling carried out in 2021 will be termed “Modern drilling”.

Diamond drilling was carried out by Topdrive Drillers Australia using the PQ3 core diameter (8.3cm) in 2011. Historical RCP holes (5 ½ “ bit with a face sampling hammer) were drilled under the Brumby Resources. Firebird drilled 233 holes between August and October 2021. RCP drilling was carried out by K-Drill Pty Ltd using a Schramm 685 RC drilling rig with 5 ½ “ bit with a face sampling hammer. A drill hole summary is included as 3.

Table 3: Oakover Resource Drill Hole summary by year

Area	Year	Drill Type	Number of holes	Minimum Depth (m)	Maximum Depth (m)	Average Depth (m)	Total Depth (m)
Sixty Sixer	-	RC	6	29.0	70.0	48.2	289.0
	2010	RC	27	40.0	120.0	60.5	1,634.0
	2011	DD	4	34.8	45.3	37.8	151.2
	2011	RC	54	33.0	122.0	77.3	4,174.0
	2012	RC	41	10.0	99.0	53.0	2,171.0
	2021	RC	173	15.0	78	42.9	7,713.1
Sixty Sixer	Total		305	10.0	122.0	52.7	16,132.3
Jay Eye	2010	RC	17	20.0	50.0	36.0	612.0
	2011	DD	2	25.0	28.8	26.9	53.8
	2021	RC	18	40.0	48.0	40.9	736.1
Jay Eye	Total		37	20.0	50.0	37.9	1,401.9
Karen	2010	RC	13	40.0	100.0	59.8	777.0
	2011	DD	3	21.3	34.0	27.5	82.6
	2021	RC	42	40.0	48.0	40.4	1,696.0
Karen	**Total**		**57**	**21.3**	**100.0**	**44.1**	**2,555.6**
Oakover	**Grand Total**		**400**	**10.0**	**122.0**	**50.2**	**20,089.8**

Mineral Resource Classification Criteria

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 but 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.

Sample Analysis Methodology

Historical drilling

Samples were fused for 15 minutes at 1050C to form a X-Ray Fluorescence (XRF) bead. A second bead was made from the same pulp for laboratory repeats approximately every 20th sample. Samples were analysed for Mn, Fe, Al2O3, As, Ba, Ca, Cl, Co, Cr, Cu, Mg, Na, Ni, P, Pb, S, Si, Sn, Sr, Ti, V, Zn and Zr. Loss on Ignition (LOI) was determined gravimetrically at 11000C. The laboratory used GIOP31 and SARM17 standards.

Modern Drilling

The DD drill samples were dried, crushed, ring pulverised and analysed by XRF and Thermogravimetric analysers (TGA). Prepared samples were fused in lithium borate flux with lithium nitrate additive and the resultant glass bead was analysed by XRF. The elements determined by XRF were Mn, Fe, Al2O3, As, BaO, CaO, Cr, Cu, Cr2O3, CO3O4, K2O, MgO, Na2O, Ni, P2O5, S, SiO2, SrO, TiO2, Zn, ZrO2 and V2O5. LOI was determined using the thermogravimetric method at 11000C after initially deriving of moisture at 105oC. LOI is packaged with XRF suites to achieve close to 100% characterisation. XRF and TGA analysis is the industry standard method for manganese.

Estimation Methodology

Samples were flagged with codes representing the wireframes for each mineralisation domain. Mineralisation wireframes were used to select the drill holes samples, and these were assigned the field 'DOM'. The drill holes were also flagged with codes representing the prospect areas and these were assigned the field "AREA". A composite length of 1 m was selected based on the most common sampling length. Sixty Sixer and Jay Eye are on the same strike and their data was combined for statistical analysis and estimation process

One block model was created covering the drilled area for Sixty sixer, Jay Eye and Karen with a parent cell dimension of 25 m E by 25 m N x 1 m RL and sub-cells of 12.5 m E by 12.5 m N x 0.5 m RL. A smaller block size was chosen to give a better estimation of the volume of the deposit considering the wireframe boundaries and the variable domain widths.

Ordinary kriging was used to interpolate grades into the block model cells using composited grades. Three search passes were used for the estimation with an increase in search radii for each subsequent search pass and a reduction in sample numbers for the third search pass. Quantitative Kriging Neighbourhood Analysis (QKNA) was used to optimise the estimation parameters for all variables. Estimation was confined to domain boundaries. No estimation was carried out in Domain 6 due to limited sampling, and a grade of 0.005% was assigned for all variables.

Density values were interpolated into the block model cells using ordinary Kriging of composited density values derived from downhole geophysics. Estimation was confined to domain boundaries. Only one search pass with a radius adopted from the variogram ranges was used. The single search pass prevents density smearing into the unsampled area. Cells which were not interpolated were assigned global average domain density values. Density estimation was carried out for Sixty Sixer, Jay Eye and Karen Prospects.

The block model was validated by visual checks, statistical comparisons, and swath plots to ensure that the block model was a good representation of the drill hole composite data. Validation checks were carried out for all variables.

Cut-Off Grades and Reasonable Prospects

Clause 20 of the JORC Code (2012) requires that all reports of Mineral Resources must have reasonable prospects for eventual economic extraction (RPEEE), regardless of the classification of the Mineral Resource. The Competent Person believes there are reasonable prospects for eventual economic extraction of the Mineral Resources based on the following:

- Sixty Sixer and Jay Eye mineralisation is continuous and has been delineated by drilling on a strike of approximately 4 km. Karen mineralisation is continuous for a strike of about 1 km.

- The mineralisation occurs at shallow depths and remains open to the northeast of Jay Eye, southeast of the Sixty Sixer and northwest of Karen.
- A reporting cut-off of 7% Mn has been applied in the MRE which is used for the Element 25 Butcherbird Manganese Project. The Butcherbird project is in production and is located in the South Pilbara area of Western Australia.
- Phase 1 metallurgical test work results for the Oakover Project were encouraging and the results support the conceptual flow sheet for Phase 2 metallurgical programme. The test work has shown that Domain 2 and Domain 5 material upgrades to a manganese product using a simple metallurgical process and further test work is still ongoing.
- Material from Domain 3 is aligned to the hydrometallurgy method which has been proven internationally but is not common in Australia. This has been reported as achievable by (Element 25, Butcherbird ASX announcement 28 November 2018) which is of similar geological and mineralisation setting as for Oakover Domain 3. (Source:https://www.element25.com.au/site/PDF/a456d29c-cc67-453f-8489-1365501c22e8/FirstHighPurityElectrolyticManganeseMetalProduced)
- Another example of a project utilising a lower grade Mn resource to produce electrolytic manganese metal EMM, or high purity manganese sulphate monohydrate (HPMSM) is Euro Manganese Inc. Chvaletice Manganese Project in the Czech Republic which grades approximately 7.3% Mn. Source (https://www.mn25.ca/chvaletice-project).

Mining and Metallurgical Methods

No mining has been completed. The metallurgical work history is described below.

Historical metallurgical testwork was carried out by Brumby Resources between 2011 and 2013. A first pass metallurgical beneficiation test to determine the possibility of upgrading manganese ore was completed in 2011. Six RC samples from Sixty Sixer and three from Karen prospects were selected and the analysis was completed by ALS-Ammtec Metallurgy Laboratories in Balcatta, Perth. The results were analysed by Ozmet, Perth. Three samples from Sixty Sixer returned results greater than 35% Mn and two returned results above 33.3% Mn. The results indicated that samples of varying feed grades (>15% Mn) can be beneficiated to an average 35.9% Mn product that is low in iron and contaminants.

In 2012 Nagrom completed the characterisation of manganese ore from the Sixty Sixer prospect. A total of 370 kg of RC chip samples from the prospect was used for initial characterisation test work. Samples were subjected to heavy liquid separation (HLS) and dry magnetic characterisation using the Variable Gauss Dry Disc Rapid Magnet. The processes reported an Mn grade of 26.07% at a deportment of 59.33% to 53.05% of the mass.

The 2013 metallurgical test work aimed at understanding the leaching behaviour of the ore samples. The test work was completed by ALS Metallurgy using two mineralisation samples from the previous test work and an additional sample that was supplied by Brumby Resources. The results showed that all samples had less than 40% of the manganese from the solution reporting to the solids and that the assays of the solids vary between 15 and 35% manganese.

In 2021, Firebird planned two phases of metallurgical test work to support project development:

- Phase 1 involves detailed work to characterise recovery and liberation characteristics of the manganese
- Phase 2 is aimed at verifying the preliminary flow sheet and defining suitable products for vendors and marketing groups in line with the Pre- Feasibility Study (PFS) and Definitive Feasibility Study (DFS).

2021 Metallurgical Test work

A Phase 1 metallurgical test work programme was completed in January 2022. Two samples; FB01 and FB02, obtained from historical diamond PQ core, were used for the metallurgical test work. FB01 was obtained from Sixty Sixer, Jay Eye and Karen while FB02 was from Sixty Sixer and Jay Eye. The samples were collected from the supergene and layered mineralised domains. The samples represented Domain 2 and Domain 5. Both samples obtained a circa grade of 12% Mn. This grade is relatively in line with the global head grade.

The test work can be summarised below:

- Both samples were crushed to 100% passing 32mm then scrubbed in an ISO scrubber for 10 minutes to remove ultrafine and slime minerals.
- The crushed and scrubbed product was screened at 8mm and 1mm to generate two streams of feedstock for test work:
    - Lump -32 +8 mm for ore sorting test work
    - Fine -8 + 1 mm for HLS beneficiation test work
    - Ultrafines less than 1 mm were not examined other than assay for mass balancing purposes.

2021 Metallurgical Test Work Results

The Phase 1 metallurgical programme confirmed proof of concept for upgrading of the ore to potential direct shipping grades using scrubbing and ore sorting for -32mm +8mm lump and scrubbing and gravity separation (simulating Dense Media Separation) for the -8mm +1mm fines. Key upgrade data from the Phase 1 test work program is summarised in the Table 4 and Table 5 below;

	Mn %		
		-32+8 mm upgraded Products	
	Head grade	Scrubbing	Ore Sort
FRB 01	11.4	16.7	26.5
FRB 02	11.4	19.8	31.0

Table 4: Phase 1 "Proof of Concept" ore sorting results

	Mn %		
		- 8+1 mm upgraded products	
	Head Grade	Scrubbing	Heavy Liquid Separation
FRB 01	11.4	17.1	31.6
FRB 02	11.4	16.8	32.8

Table 5: Phase 1 Heavy Liquid beneficiation results

**Ref: ASX release dated 17/1/2022*

The Phase 2 metallurgical test work program using approximately 15 tonnes of shallow supergene ore extracted from six separate sampling locations (three from Sixty Sixer and three from Karen) has commenced. Feed preparation is underway, comprising crushing, screening, scrubbing and then re-screening to produce -8mm +50mm lump for ore sorting tests and -1mm +10mm feed for heavy liquid separation tests.

Competent Persons Statement

The information in this report that relates to the Oakover Mineral Resources is based on 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 report 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.

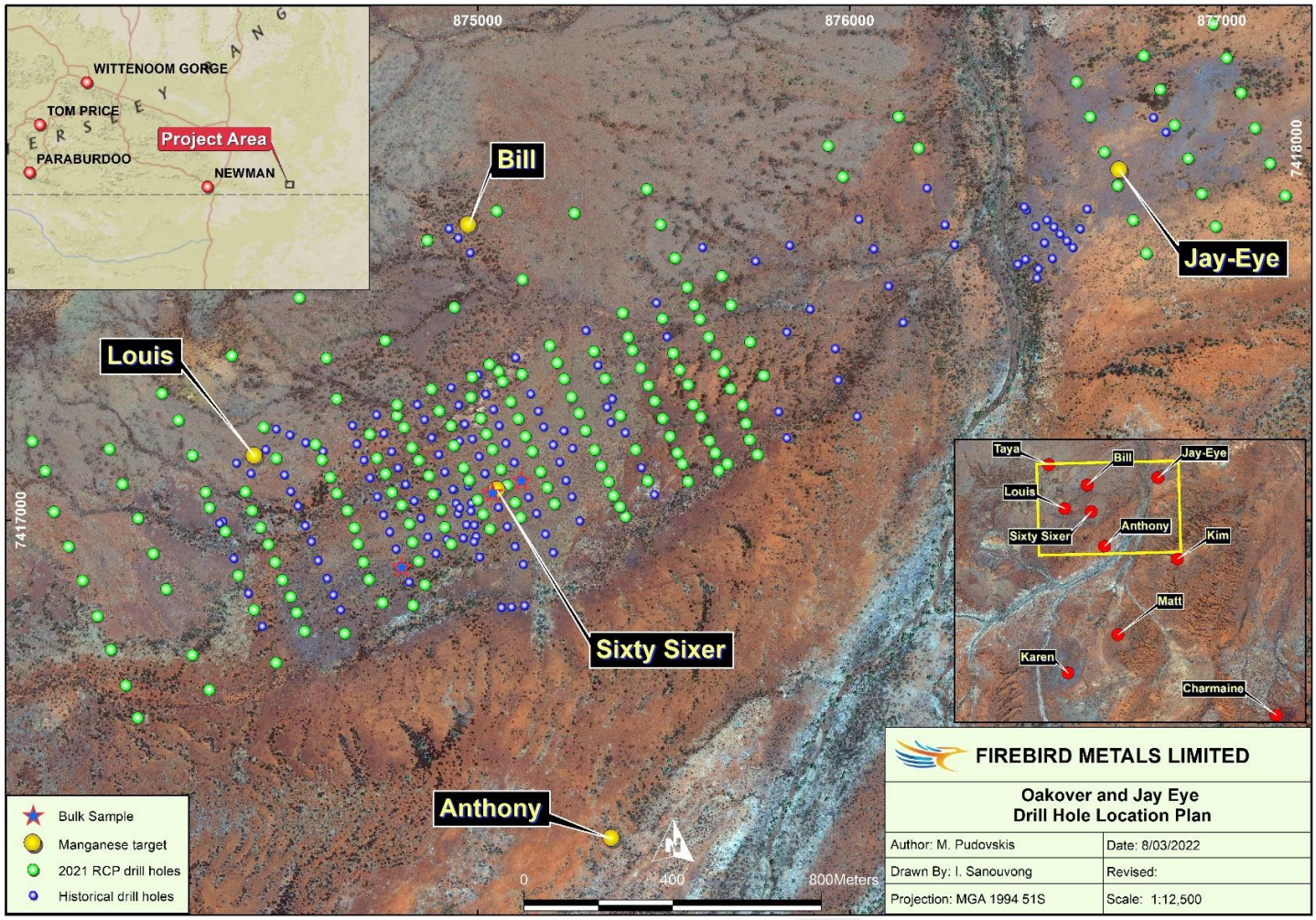

Figure 1: Sixty Sixer and Jaye Eye drill hole location plan

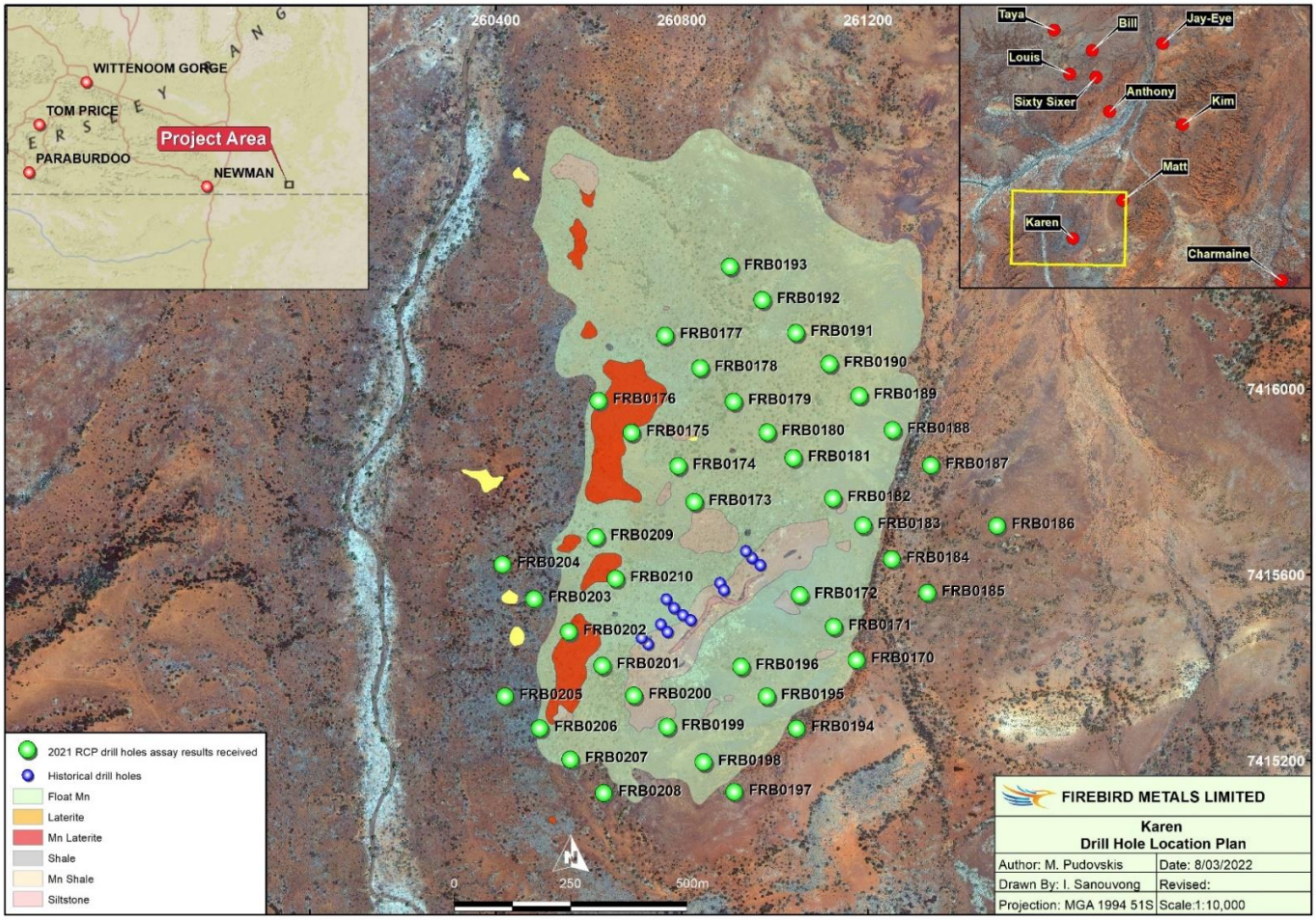

Figure 2: Karen drill hole location plan

Appendix 2: JORC Code Table 1

Section 1: Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Reverse circulation (RC) and diamond drilling (DD) methods were used to collect samples within the immediate area of the Oakover Manganese project. Drilling carried out between 2010 and 2012 is referred to as "Historical drilling" and drilling carried out from 2021 is be termed "Modern drilling" in this table. Historical diamond drilling was carried out by Topdrive Drillers Australia in 2011 using PQ3 core diameter (8.3 cm) and RCP drill methods. Historical holes (were drilled when the project was owned by Brumby Resources. Modern drilling was completed by K-Drill Pty Ltd between August and October 2021 using a Schramm 685 RC drilling rig. A total of 399 RC and 9 DD holes for 20480 m were completed within the tenement. The Competent Person considers that the sampling techniques adopted are appropriate for the style of mineralisation.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	RC samples were collected on 1 m intervals using a cyclone splitter. DD samples Sampling intervals ranged from 0.3 m to 2.77 m based on CSA Global's DD core sampling procedure.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done; this would be relatively simple (e.g. "RC drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay"). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Samples received at the mineral processor (Nagrom) laboratory in Kelmscott Western Australia were weighed, crushed and pulverised to 80% passing 75 microns. Assaying was completed using the industry standard XRF analysis.
Drilling techniques	*Drill type (e.g. core, RC, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	RC drilling with a 5 ½ "bit hammer was used to collect samples used for the estimation for the historical and modern. The drilling undertaken been vertical which is appropriate given the relatively shallow dip of the geology. Diamond drilling using the PQ3 core diameter (8.3 cm) was used to collect samples that were used for the preliminary metallurgical test work. The Competent Person considers that the drilling techniques adopted were appropriate for the style of mineralisation and for reporting a Mineral Resource.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	No information is available about sample recoveries for the historical drilling programs, although there was no reported evidence of poor sample recoveries.

Criteria	JORC Code explanation	Commentary
		The core recovery from the nine DD holes relogged by CSA Global averaged 87%. Modern drill sample recoveries were recorded qualitatively with no material evidence of poor sample recoveries.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Continual visual observations were made by the site geologists. Any sampling issues were addressed and rectified immediately.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There was no reported evidence of sample bias due to loss of sample.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	All RC drillhole logging was qualitative with lithology, texture, grain size and colour recorded. RC drillholes were fully logged. DD holes originally logged in 2011 by Brumby Resources were later geologically and geotechnically logged by CSA Global in 2021 to a level of detail sufficient to establish appropriate domaining for planned metallurgical test work. The Competent Person considers logging appropriate for the reporting of the Mineral Resource.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative in nature. No RC photos are available. Core photos from drill holes OKDM001 to OKDD010 were viewed.
	The total length and percentage of the relevant intersections logged.	20,479.8 m of samples used in the Mineral Resource estimate have logging records representing 78% of the total logged intervals.
Subsampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	The core was split into two longitudinal cuts which were then quartered. Quarter core samples were dispatched to Nagrom laboratory.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Historical RC samples were collected on 1 m intervals using a 3-tier riffle splitter. Modern RC samples were collected on 1 m intervals using a cyclone splitter.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Historical and modern samples were analysed at Nagrom laboratory. Samples received at the laboratory were weighed, dried at 105°c, coarse crushed to top size of 6.3 mm, riffle split and pulverised to 80% passing 75 µm. The pulp was then submitted for XRF analysis – (Nagrom XRF103 code) and LOI 1000 (CGA003 code).
	Quality control procedures adopted for all subsampling stages to maximise representivity of samples.	CRMs were inserted as every 20th sample for the Historical drilling and two types of CRMs, BMYS-01 and GMN-01 were used. Field duplicates were collected as every 20th sample. Firebird inserted appropriate blanks (approximate 1 in 30), CRM material (1 in 25) and collected field duplicate samples (1 in 20).
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.	Historical field duplicate samples were collected by rifle splitting the original sample collected at the rig into half. Modern field duplicate sample were collected from the cone splitter at the drill rig.

Criteria	JORC Code explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate to the grain size of the material being sampled.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	Historical drilling samples were sent to Nagrom in Kelmscott analysis (Fusion/XRF) of analytes Fe, SiO2, Al2O3, TiO2, P2O5, S, MgO, CaO, K2O, Na2O, V2O5, Co3O4, Cr, Ni, Cu, Pb, Zn, As, BaO, SrO, ZrO2. Loss on Ignition (LOI) was determined gravimetrically at 11000C Modern drill samples were analysed by XRF and Thermogravimetric analyses (TGA). Prepared samples were fused in lithium borate flux with lithium nitrate additive and the resultant glass bead was analysed by XRF. The elements determined by XRF were Mn, Fe, Al2O3, As, BaO, CaO, Cr, Cu, Cr2O3, CO3O4, K2O, MgO, Na2O, Ni, P2O5, SiO2, SrO, TiO2, Zn, ZrO2 and V2O5. LOI was determined using the thermogravimetric method at 11000C after initially deriving of moisture at 105°C. The analytical techniques are industry standard for manganese and considered total.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	A downhole geophysics programme was completed by ABIM Solutions Pty Ltd who captured short (SSD) and long spaced density (LSD), caliper, magnetitic susceptibility and natural gamma.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	A total of 100 CRMs (GMN-01 and 116 BMYS-01) were analysed between 2011 and 2012. 11% of the Mn, Al2O3, Fe and SiO2 results outside the +/- 3SD limit. 15% of P results were outside the +/- 3SD limit. 33% of LOI results for GMN-01 were outside the +/- 3SD limit. Firebird submitted 221 GMN-04 CRMs, 220 OREAS173 CRMs, 276 blanks and 552 field duplicate samples for quality control checks during the analytical process. In addition, Nagrom completed internal laboratory CRM, blank and pulp duplicates analyses. The results can be summarised as follows: • More than 96% of the Mn, Fe, Al_2O_3, LOI, P_2O_5 and SiO_2 the results were within the acceptable +/-3SD. • The blanks results did not show any contamination. • The Competent Person considers the nature and quality of assaying and laboratory procedures appropriate for reporting a Mineral Resource.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	The sampling and assaying have not been verified by an independent third party.
	The use of twinned holes.	There has been no twin drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	CSA Global has randomly checked the laboratory raw data against the database assays and found no issues.
	Discuss any adjustment to assay data.	P assays has been converted by the Competent Person from the assayed P_2O_5.

Criteria	JORC Code explanation	Commentary
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	233 (53%) hole collars were located using a differential global position system (DGPS), 137 (31%) of the drill holes were located using a hand-held global position system (GPS), 9 (2%) of the drill holes were located using a digital terrain model (DTM), 1 drill hole (0.2%) was estimated while the survey method for 56 (13%) holes was not recorded. The DGPS method was used for all the 233 drill holes drilled by Firebird in 2021. The topography is flat and collar positions were used to generate a topographic DTM. 21 of the drill holes were inclined and they were surveyed using an unspecified down hole camera. Downhole deviation was not completed for the remaining vertical holes but deviation is not considered material given the shallow nature of the drillholes. The Competent Person considers a relatively high level of confidence can be placed in the location of data points.
	Specification of the grid system used.	The project utilised the GDA94 Zone 51S coordinate system.
	Quality and adequacy of topographic control.	The topography used for Mineral Resource estimation was generated using the collar points for the RC and DD holes. The Competent Person considers the topography to be adequate at this stage of exploration.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drill spacing varies over the deposit ranging from approximate 50 m by 50 m to 200 m by 100 m along strike and across strike at the Sixty Sixer prospect. The dominant drill spacing on the Jay Eye and Karen prospects is 200 m by 100 m along strike and across strike.
	Whether the data spacing, and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The Competent Person considers the drill spacing appropriate for reporting a Mineral Resource.
	Whether sample compositing has been applied.	95% of the sample were 1 m in length and a composite length of 1 m was selected to maintain the natural variability of the data.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	The deposit is a relatively shallow and gently dipping sequence of supergene mineralised manganiferous shale. There is no evidence of major structures disrupting the continuity of the mineralisation. The Competent Person considers the vertical drilling and spacing as appropriate for reporting a Mineral Resource.

Criteria	JORC Code explanation	Commentary
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The relationship between the drilling orientation and the orientation of key mineralised structures is unlikely to have introduced a sampling bias.
Sample security	*The measures taken to ensure sample security.*	Samples were securely packed on site and recorded before being dispatched to the laboratory. Sample submission forms confirming the number and list of samples were sent to the laboratory. The laboratory confirmed the receipt of sample upon receipt. The Competent Person considers the chain of custody and security measure taken from the field capture to delivery to Nagrom appropriate.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No independent field audits or reviews have been undertaken. CSA Global completed an office-based project review in October 2021 and considered the level of exploration completed appropriate for reporting a Mineral Resource.

Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*	The Oakover Manganese Project consists of one Exploration Licence (E52/3577) in the East Pilbara Shire of Western Australia, located approximately 100 km east of Newman and 15 km northwest of the Jigalong Community. The licence is held by Firebird Metals Limited.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The licence covers 54 blocks and was applied for on 13 September 2017. The license was granted on 11 March 2019 with an expiry date of 10 March 2024. The Competent Person can confirm that according to Department of Mines, Industry Regulation and Safety (DMIRS) Mineral Titles Online that all rents and rates have been paid and that the tenement is in good standing The Competent Person can confirm that according to Department of Mines, Industry Regulation and Safety (DMIRS) Mineral Titles Online that all rents and rates have been paid and that the tenement is in good standing. The Competent Person has not verified any potential social or environmental pediments to progressing the Project.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Errawarra Pty Ltd (Errawarra), operating as Hannans Reward Limited, completed the most meaningful exploration relevant to the Sixty Sixer, Jay Eye and Karen deposits. Exploration comprised regional exploration including air core, RC and DD drilling. Mapping and geophysics was completed between 2008 and 2011 when the tenement was held as E52/1939 between 17 May 2007 and 16 May 2017. Work specific to the Exploration Results areas on Sixty Sixer, Jay Eye and Karen comprised RC drilling completed in 2010 and 2011: o Sixty Sixer 55 drill holes for 4,177 m on a variable 200 m by 100 m to 100 m by 50 m spaced grid. o Jay Eye: 20 drill holes for 772 m (clustered variable 50 m by 50 m grid in southwest) o Karen 13 drill holes for 777 m (clustered variable 50 m by 25 m to 200 m by 25 m spaced grid) o 10 PQ3 diamond core holes (OKDM0001 to OKDM0010 completed in 2011, designed to collect representative samples across the Mineral Resource for metallurgical test work. o Sixty Sixer: 5 drill holes for 201m o Jay Eye: 2 drill holes for 53.8m o Karen: 3 drill holes for 82.6m This core was not metallurgically analysed until Firebird completed preliminary test work on half core samples in 2021 (quarter core analysed by XRF). A Mineral Resource estimate completed in August 2012 by H & S Consultants Pty Ltd (H&SC) who estimated an Inferred Mineral Resource (using an 8% Mn cut-off) of 64.1 Mt grading 11.5% Mn, 10.1% Fe, 10.5% Al2O3 and 41.3% SiO2. A Scoping Study for the Oakover project was completed in 2015 by GR Engineering Services Limited, on behalf of Brumby Resources. The study was to estimate capital and operating costs associated with the design and construction of a 1 million tonnes per annum (Mtpa) hydrometallurgical manganese processing facility and related infrastructure and services. **Firebird (2021 to present)** RCP drilling reporting in this Mineral Resource report. Preliminary metallurgical proof-of-concept ore sorting trials and preliminary heavy liquid test work on two metallurgical composite batches (FRB01 and FRB02) derived from historical diamond (PQ) core

Criteria	JORC Code explanation	Commentary
		Bulk-sampling of near surface, higher grade massive manganese supergene material at the Karen and Sixty Sixer deposits (approximately 15 tonnes).
Geology	*Deposit type, geological setting and style of mineralisation.*	The manganese mineralisation occurs as multiple seams or bands of varying thickness within a highly weathered shale (Balfour Formation). Significant zones of manganese were still being intersected at Sixty Sixer, Jay Eye and Karen. 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). The Competent Person is of the opinion that the understanding of the Project's geology is detailed and well established.
Drillhole information	*A summary of all information material to the understanding of the Exploration Results including a tabulation of the following information for all Material drillholes:* • *Easting and northing of the drillhole collar* • *Elevation or RL (Reduced Level – Elevation above sea level in metres) of the drillhole collar* • *Dip and azimuth of the hole* • *Downhole length and interception depth* • *Hole length.*	The collar summary of RC and DD holes completed the Sixty Sixer, Jay Eye and Karen deposits which were used in the Mineral Resource estimate is presented in the ASX announcement 2 and 8 February 2022. This includes the diamond drillholes which were used to guide mineralisation trends. A drillhole location plan is included as Figure 1 and Figure 2.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exploration Results are not being reported.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	Exploration Results are not being reported.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Exploration Results are not being reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Exploration Results are not being reported.
	These relationships are particularly important in the reporting of Exploration Results.	Exploration Results are not being reported.

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	*If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.*	The manganiferous horizons are relatively flat lying. Drilling has intersected the manganese generally at a high angle.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. "downhole length, true width not known").	Exploration Results are not being reported.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.*	A project, tenement and drillhole location plan are included as Figure 1 and Figure 2.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Exploration Results are not being reported.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Other exploration work completed is described above in "Exploration done by other parties".
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	The Competent Person recommends infill drilling in areas with a grid spacing wider than 100 m x 50 m grid to improve the confidence in the Mineral Resource. Extensional drilling is recommended northeast part of Jay Eye, south-eastern and north-western parts of Sixty Sixer, and north-western parts of Karen where mineralisation remains open. More density measurements should be collected to cover the extents and depth of mineralised domains. A high-resolution topographic survey is recommended.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Diagrams showing the location of the drilled holes and tenement have been included in this report.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	A Microsoft Access digital database is maintained by CSA Global. All drillhole data required for the Mineral Resource was extracted from the Access database.

Criteria	JORC Code explanation	Commentary
		Data validation included checks for incorrect hole depths, overlapping intervals, missing survey data, missing data. Cross checks were made between the original assay certificates and the final Microsoft Access database. The data was inspected in three-dimensional software to ensure there are no issues with database mapping.
	Data validation procedures used.	Data was checked for duplicate intervals, missing assays, and that the sample intervals did not extend below end of hole depth. All holes were displayed in Datamine. The collar elevation for OKRC187 was corrected from 514.5 m to 516.8 m to match the elevation of the recently surveyed FRB0134 which is approximately 2 m away. A superseded assay interval was available for OKDM002 from 2.07 m to 3 m and on OKDM002 from 3 m to 4 m were deleted. No significant errors were found with the data.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person has visited Firebird Oakover projects in October 2021
	If no site visits have been undertaken indicate why this is the case.	Not applicable.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The geological interpretation was based on drill assay results, modern and historical logging. Geological interpretation includes a near-surface higher-grade supergene/ lateritic geological domain, higher grade massive manganese rich shale, and lower grade manganiferous shale geological domain, which were estimated and reported. Background domains comprising mixed shale, ferruginous manganiferous shale, chert shale and shale were identified.
	Nature of the data used and of any assumptions made.	Geological data used for interpretation was gathered from drilling with detailed geological core logging and assay data.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Additional infill drilling will be used to refine the current interpretation; however, this is unlikely to result in any significant changes.
	The use of geology in guiding and controlling Mineral Resource estimation. *The factors affecting continuity both of grade and geology.*	Geological domaining to guide the Mineral Resource estimation used a combination of assays historical logging, and modern logging . The mineralisation is reasonably continuous along and across strike.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The Sixty Sixer and Jay Eye prospects have been drilled over a strike length of 4 km in a northeast-southwest direction. Drilling at Sixty Sixer extends about 900 m across strike while at Jay Eye the drilling extends approximately 600 m.

Criteria	JORC Code explanation	Commentary
		Drilling on Karen extends about 1 km in the northeast-southwest directions and bout 700 m in the southeast-northwest direction. The mineralisation extends from surface to about 50 m below surface and varies in thickness from section to section. The average thickness of the higher-grade massive manganese rich shale is about 15 m, the manganiferous shale averages 11 m and the supergene/lateritic manganese averages 5 m.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	The Mineral Resource estimation process is summarised below: • Surfaces and solid wireframes were used generate six geological domains for Oakover Project. • Drillhole data was flagged with domain wireframes. Domain interpretations were created using geological logging, assays, and surface mapping. • Drill hole data was also flagged with Prospect codes for Sixty Sxer, Jay Eye and Karen. • 1 m compositing length was selected as 95% of all sample intervals were 1 m in length. • No top cuts were applied to Mn, Fe, Al_2O_3, LOI, P_2O_5 and SiO_2 data in all domains since the coefficient of variation (CV) was low ranging between 0.02 and 1.40 at Sixty Sixer and between 0.11 and 1.24 at Karen. The elevated CVs of 1.24 and 1.4 were associated with domain 1. • Variograms for Mn, Fe, Al_2O_3, LOI, P_2O_5 and SiO_2 were created for each domain. • Variogram models and search ellipses were used for grade interpolation. • Three search passes were employed to ensure most block cells were estimated. • Grades for Mn, Fe, Al_2O_3, LOI, P_2O_5 and SiO_2 were estimated using ordinary kriging into 25 mE x 25 mN x 1 mRL blocks with sub-cells of 12.5 mE x 12.5 mN x 0.5 mRL. A block discretisation of 4 x 4 x 2 was used for the parent cell array. • P_2O_5% was converted to P%. A factor of 0.4364 calculated from atomic mass molecular weights to align with Mn reporting.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	A Mineral Resource estimate for Jay Eye and Oakover was completed in 2012 by H & S Consultants Limited for Brumby Resources. 64 mt at 10% Mn were reported at a cut-off grade of 8% Mn
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No other elements were estimated at this stage.

Criteria	JORC Code explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A parent block size of 25 mE x 25 mN x 1 mRL with sub-cells of 12.5 mE x 12.5 mN x 0.5 mRL was adopted after consideration of the drillhole spacing and geometry of the orebody.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding modelling of selective mining unit.
	Any assumptions about correlation between variables	Mn, Fe, LOI, P_2O_5 and SiO_2 were estimated, and a check of the drillhole data showed: • Mn and Al_2O_3 are negatively correlated (-0.57) • Mn and Fe are positively correlated (0.30) • Mn and SiO_2 are negatively correlated (-0.62) • SiO_2 and Fe are negatively correlated (-0.48) • SiO_2 and LOI are strongly negative correlated (-0.81).
	Description of how the geological interpretation was used to control the resource estimates.	Estimation was confined to geological domains.
	Discussion of basis for using or not using grade cutting or capping.	No top cuts were applied to Mn, Fe, Al_2O_3, LOI, P_2O_5 and SiO_2 data in all domains since the CV was low, ranging between 0.11 and 1.24 at Karen and 0.02 to 1.40 at Sixty Sixer and Jay Eye. Elevated CVs of 1.24 and 1.40 are in Domain 1.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	The block model grades were visually compared with the coded drillhole grades in section. The block model was also validated on screen against the geological wireframes and drillholes to check that the domain allocation was concurrent with the drillhole lithology. Another validation stage involved a comparison of the drillhole and the model statistics. Swath plots comparing the drillhole average grades and the block model grades in slices were generated for all the estimated variables within their respective domains. The block model and drillhole grades for all domains show trends consistent with effective grade interpolation. Areas with low sample numbers generally show higher variance between model and drillhole mean grades. As no mining has taken place at Oakover Project, there is no reconciliation data available.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Moisture has not been measured. Tonnage was estimated on an in-situ moist basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	A 7% Mn reporting cut-off grade has been selected following preliminary high-level assessment of the likely mining and processing methods. 7% aligns with the natural cut-off for the raw data statistics and the inflexion point of the Oakover grade tonnage curve. A cut-off of 7% Mn has also been used for the Element 25 Butcherbird Manganese Project which is in production and located in South Pilbara of western Australia.

Criteria	JORC Code explanation	Commentary
		CSA Global considers that the Mineral Resource as reported fulfills the reasonable prospects for eventual economic extraction requirement for reporting Mineral Resources in accordance with the JORC Code.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an , explanation of the basis of the mining assumptions made.*	It is assumed that the mining method for Oakover Project will be shallow open pit conventional mining.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	The Phase 1 metallurgical test work programme was completed in February 2021 with the aim of characterising recovery and liberation characteristics of the manganese. Two samples; FB01 and FB02, obtained from PQ core, were used for the metallurgical test work. Results are summarised below. FB01 samples require significantly more liberation (fine size crush) to attain sailable concentrate grades of 30% or more whilst maintaining reasonable yields. Flow sheets exploring a crush size down to 8 mm should be explored. Dense media cyclones will produce an improved cut-point control required to achieve final concentrate grades with composite particles. Sample FB02 shows improved liberation and a lump separation pathway. The cost-effective jig option may be a better option than the dense media cyclone proposed for FB01. While the results for FB01 could be discounted as an anomaly due to sample representivity; careful consideration of domains and mine planning will be an important part of the Oakover PFS. Lower-grade basal manganiferous shale: It is reasonable to assume that a high purity electrolytic manganese metal and battery grade manganese sulphate may be produced through hydrometallurgy. This has been reported as achievable by (Element 25, Butcherbird ASX announcement 28 November 2018) which is of similar geological and mineralisation setting as Hill 616. https://www.element25.com.au/site/PDF/a456d29c-cc67-453f-8489-1365501c22e8/FirstHighPurityElectrolyticManganeseMetalProduced

Criteria	JORC Code explanation	Commentary
		Another example of a project utilising a lower grade Mn resource to produce electrolytic manganese metal or high purity manganese sulphate monohydrate is the Euro Manganese Inc. Chvaletice manganese project in the Czech Republic which grades approximately 7.3% Mn. https://www.mn25.ca/chvaletice-project Additional metallurgical test work is currently in progress as Phase 2 30t bulk sample.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	The Project is at early stages and environmental impacts have not been considered. It is assumed that waste will be disposed according to a mine plan.
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Density measurements were collected using a well logging tool that provides a continuous record of a formation's bulk density along the length of a borehole. The geophysics tool captured short, spaced density (SSD) and long spaced density (LSD), magnetitic susceptibility and natural gamma. There was no moisture data available, so the densities are considered wet. The densities were estimated into the block model using the ordinary kriging method. Average density values were assigned to the blocks without estimated values. An average value of 2.38 t/m3 was assigned to Domain 1, 2.53 t/m3 to Domain 2, 2.86 t/m3 to Domain 3, 2.61 t/m3 to Domain 4, 2.79 t/m3 to Domain 5 and 2.38 t/m3 to Domain 6. Domain 6 is the basement unit and did not have density values. The average density for Domain 1 was t assigned to Domain 6.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Not applicable.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	There was no moisture data available, so the densities are considered moist.

Criteria	JORC Code explanation	Commentary
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The Mineral Resource has been classified using JORC Code guidelines. The Mineral Resource was classified as a combination of Indicated and Inferred following consideration of geological confidence, grade continuity, drillhole spacing, QC results, search and interpolation parameters, and an analysis of available density information. Material has been classified as Indicated where the drilling spacing is between 50 m x 50 m and 100 m by 50 m in the X and Y directions. In this area, there is also sufficient density data to support estimation by ordinary kriging. Preliminary metallurgical test work on the material has been encouraging but is not conclusive and further test work is in progress. Areas with a drill spacing of 100 m by 50 m demonstrates good geological continuity and grade continuity is confidently modelled. Infill drilling will help improve confidence in variogram models in these areas. Material that has been classified as Inferred is based on a drill spacing wider than 100 m by 50 m in X and Y directions. Although the variography showed long ranges, confidence in the variograms is not high and assigned density were largely used in these areas.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The classification considered data quality, variography, geological and grade continuity, drill hole spacing and analysis of available density information.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	CSA Global believes that the classification appropriately reflects its confidence in the quality of the grade estimates
Audits or reviews	*The results of any audits or reviews of MREs.*	There has been no independent audit of the Mineral Resource. The Mineral Resource methodology and reporting has been subjected to internal peer review at CSA Global.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the MRE using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The available data supports 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. All factors that have been considered when classifying the Mineral Resource are discussed in Sections 1, 2 and 3 of this Table.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statement refers to global estimates for the deposit and grade was estimated for each block in the block model.

Criteria	JORC Code explanation	Commentary
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No production has occurred, and no mining data is available.