FIREFLY ANNOUNCES PLANNED DEMERGER AND IPO OF ITS NON-CORE OAKOVER MANGANESE ASSET

Demerger set to create a separate new ASX-listed manganese-focused company Firebird Metals, creating substantial additional value for Firefly shareholders

Key Points:

- **Firefly to demerge its 100%-owned Oakover Manganese Project and create a separate ASX-listed manganese-focused company, Firebird Metals.**
- **Firefly shareholders will receive an in-specie distribution of 25 million shares in Firebird Metals.**
- **Firefly shareholders will also be entitled to participate in a Priority Issue of shares in Firebird Metals' Initial Public Offering (IPO), planned for Q1, 2021.**
- **Experienced board and management team identified to lead Firebird Metals.**
- **Substantial value of approximately $5.5 million expected to be created for Firefly shareholders through the demerger.**

Firefly Resources Ltd **(ASX: FFR; Firefly** or **the Company)** is pleased to advise that, following consultation with the Australian Securities Exchange (ASX), the directors have resolved to demerge the Company's 100%-owned Oakover Manganese Project in Western Australia, subject to shareholder and other approvals.

The decision follows a thorough review of Firefly's assets that considered a range of options and ultimately concluded that the demerger via a standalone manganese-focused company would deliver optimal value to Firefly shareholders.

The proposed demerger will establish an ASX-listed manganese-focused company called Firebird Metals (**FBM**), with its own independent and experienced board and management team.

Subject to shareholder approval and the receipt of necessary waivers from the ASX, Firefly shareholders registered on the record date (to be advised in due course) will receive an in-specie distribution of 25M shares in FBM. It is intended that Firefly shareholders will also be given a priority entitlement to subscribe for FBM shares under the IPO. The nature and extent of the priority entitlement will be provided to Firefly shareholders in due course.

It is proposed that Firebird Metals will have an independent board and management team, with several high-quality candidates already identified. Further announcements will be made in due course.

Oakover Manganese Project – to be 100%-owned by Firebird Metals

The Oakover manganese project was Brumby Resources', now Firefly Resources, main focus between 2009 and 2016. Brumby spent over $4 million on the Oakover Project, which today has an Inferred Resource of 64Mt at 10% Mn (JORC 2012) as set out in the table below.

Prospect	Tonnes (Mt)	Mn (%)	Fe (%)	Al_2O_3 (%)	BaO (%)	SiO_2 (%)	Resource Category
Sixty Sixer	61	10.0	9.0	10.0	0.1	40.0	Inferred
JayEye	3	10.6	9.2	12.0	0.1	44.5	Inferred
Total	64	10.0	9.0	10.1	0.1	40.2	Inferred

**Figures may not sum due to rounding, significant figures do not imply an added level of precision*

Table 1. Oakover Manganese Project Mineral Resource* (JORC Code 2012)

*The original mineral resource estimate for Oakover was released publicly on June 08th 2012 by Brumby Resources Ltd (ASX: BMY), now Firefly Resources Ltd (ASX: FFR). The document is titled "140% increase in Mineral Resource Estimate tonnage announced at Brumby Resources' Oakover Mn Project". An independent resource consultant and Competent Person has reviewed the original mineral resource estimate "MRE" (JORC 2004) as released by Brumby Resources on 08th June 2012, and in their opinion deemed that the MRE meets the requirements of the JORC 2012 Code without the need for additional exploration work.

The Oakover project is located 85km east of Newman and some 200km south of the Woodie Woodie Manganese Mine. There are several known deposits in the region, including the Nicholas Downs (50km), Anthill and Sunday Hill manganese deposits (100km) and E25's Butcherbird Manganese Project (130km).

Figure 1. **Oakover Manganese Project Location**

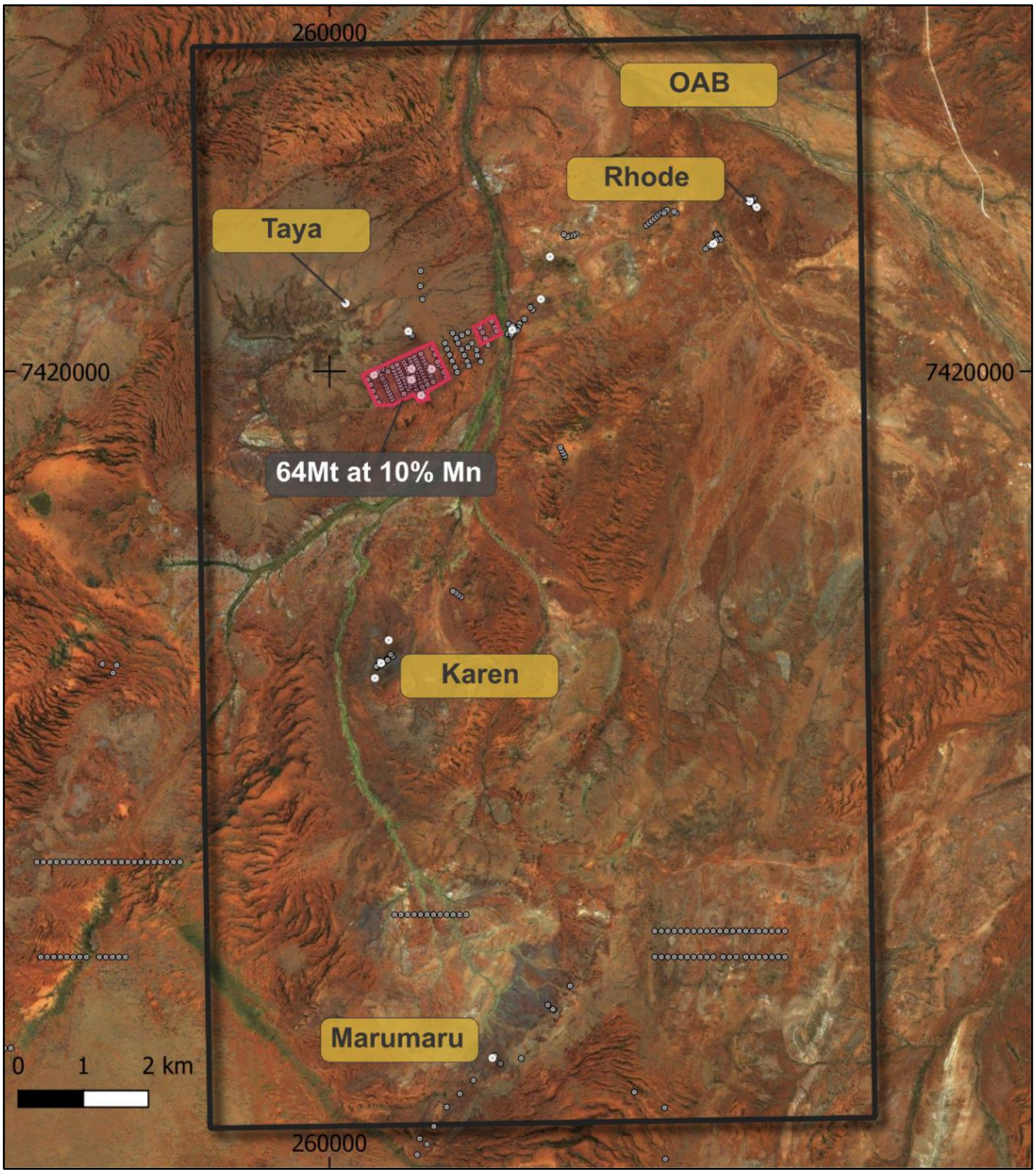

Figure 2. Oakover Manganese Project Prospects. Note the original tenure boundary during Brumby Resources ownership (not shown) was limited to the extents of the original resource footprint. Firefly has significantly increased ownership of the potential extensions to the Oakover resource and added additional Mn prospects, including the Marumaru prospect in the south.

Oakover Mineral Resource Estimate (JORC 2012) Notes

Geology and Geological Interpretation

The manganese mineralisation at Oakover appears to be partially regolith-controlled supergene enrichment of epigenetic manganese mineralisation of the underlying Balfour shale, where very rich (up to 55% Mn) surface layers overlie thicker deposits of layered manganese in shales varying in manganese content.

Drilling Techniques & Spacing

Drill traverses over the Sixty Sixer project area is generally 154^{O} to 334^{O} oblique south southeast to north-northwest in the GDA94 grid system consistent with mineralization trends.

As can be seen in **Figure 3**, the drill hole spacing varies to only a small degree over the area with the drill spacing generally conforming to a 50m drill hole spacing's along lines and 100m drill hole spacing's between lines. Drill coverage at depth is variable approaching the maximum drilled depth of 122m.

The drilling density is considered appropriate at this stage of development to broadly define the geometry and extent of the larger scale continuity of the mineralisation for the purpose of estimating manganese resources given the understanding of the local project geology, structure and confining formations. It is understood that further drilling will be undertaken in future as deemed appropriate in-line with project development and company strategy to define more clearly the limits, geometry and style of the mineralisation present in all project areas.

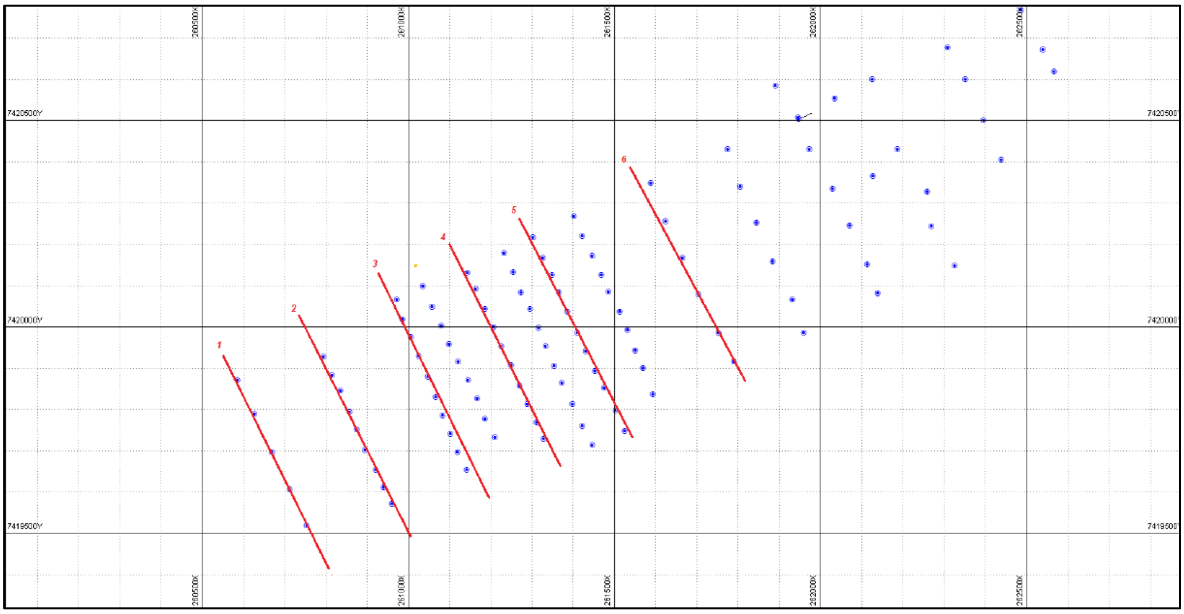

Figure 0. Drilling Pattern at Sixty Sixer & Jay Eye Prospects (with Cross Section Lines 1 – 6)

Sampling and Sub-sampling

All RC drill holes samples were collected from a 3-tiered riffle splitter that was attached to the cyclone on the side of the rig, with air-assisted vibration system attached to the side. A sample of approximately 2 kg was retained from the drilled material, with the remainder being collected in a green bag and left on site. Each sample delivered to the laboratory weighed between 0.14 and 9.14 kg, with an average sample weight of approximately 2.64 kg and a median weight of 2.40. The splitter was checked every metre and cleaned if necessary, then cleaned thoroughly after every rod.

Duplicates were taken of every 20th sample by putting the original sample collected at the rig through a 50/50 riffle splitter, a process that was only undertaken on the duplicate samples. As a result, duplicate samples were approximately half the weight of the collected raw samples. No recording of sample weights was undertaken on site.

Sample Analysis Method

4,459 samples were submitted to Nagrom Laboratory. The samples were dispatched to the laboratory in a series of three batches with duplicates submitted as a separate batch and with non-sequential sample numbers. Standards were inserted as every 20th sample, with BMYS-01 and GMN-01 used.

At the laboratory, the samples were dried at 105°C for 8 – 10 hours. The samples were not crushed because the lab assessed that the maximum grain size was only 2mm. Samples were split through a 50:50 bench riffle splitter and the sample masses were recorded. One split was retained, the other was pulverised. Duplicates were not taken. When ready for analysis, the samples were dried for a minimum of 1 hour, then desiccated and a sub-sample weighed for analysis (0.8g sample, 8g flux). Samples were fused for 15 min at 1050°C to

form XRF bead, with a second bead made from the same pulp as lab repeats approximately every 20th sample. LOI was determined gravimetrically at 1100°C. The laboratory used GIOP31 and SARM17 standards.
Sample received at the lab weighed up to 9kg, although the mean weight was just over 2kg. The distribution of data is appended. The laboratory appears to have split the samples for pulverisation approximately 50:50 where they weighed less than 2kg on receipt and split out approximately 1 – 2kg where they weighed more than approximately 2kg.

Assay Data

Samples were analysed for Mn, Fe, Si, Al, Ti, P, S, Mg, Ca, K, Ba and Na by XRF, reported as oxides for Si, Al, Ti, Mg, Ca, K, Ba and Na, and for LOI by thermogravimetric analysis, all with a detection limit of 0.001%. The data is not normalised (e.g. to a range between 99.5% and 100.5%). The assay totals (sum of oxides, assuming Fe is as Fe_2O_3, Mn is as Mn_3O_4, and S is included in the LOI) indicate that there are no other elements present at rock-forming concentrations and that these elements generally total around 100%.
The laboratory repeat results were good with less than one standard deviation relative error (low) for all analytes where concentrations are well above the detection limit (all analytes apart from P, S, BaO and Na_2O) and bias was found to be negligible.

Bulk Density

Bulk density was determined from hydrostatic weights of 50 core samples from across the various Mn geological domains. A discrete average bulk density was assigned to each domain base on the results of the hydrostatic testing.
The assignment of density values to the data set was via lithological coding whereby three dominant lithological codes were defined in-line with the domain strategy. The three codes and subsequent average density values are, MnO Zones = 2.4344, Layer Zone = 2.3256 and the Mn Shales = 2.6485.

Estimation Methodology

The geological interpretation was compiled from field geological observations during drill sample logging, mineralogical investigation, and interpretation of sample assay data. The mineral resource was constrained by the topographical surface and the underlying basement.
Resources have been estimated by Ordinary Kriging (OK) for the near-surface mineralisation. Search criteria were customised within the resource model to be oriented parallel to the strike and dip of the mineralisation.
The grades were estimated into blocks with dimensions 12.5m (east) by 12.5m (north) by 2m (elevation). The resource extends to approximately 111 metres below the surface down to the 401m RL locally. Estimates of manganese resources are reported at a cut-off grade of 8% Mn.

Resource Classification

Resources have been categorised as Inferred Resource as the drilling data is generally of a preliminary nature on a 50mNW-SE x 100mSW-NE grid pattern. The drilling density is considered appropriate at this stage of development to broadly define the geometry and extent of the larger scale continuity of the mineralisation for the purpose of estimating manganese resources given the understanding of the local project geology, structure and confining formations.

Cut-off Grade

Estimates of manganese resources are reported at a cut-off grade of 8% Mn.

Mining and Metallurgical Method and Parameters

Limited Metallurgical test work has been completed so far. Mining Method is anticipated to be via open cut mining given the shallow nature of mineralisation.

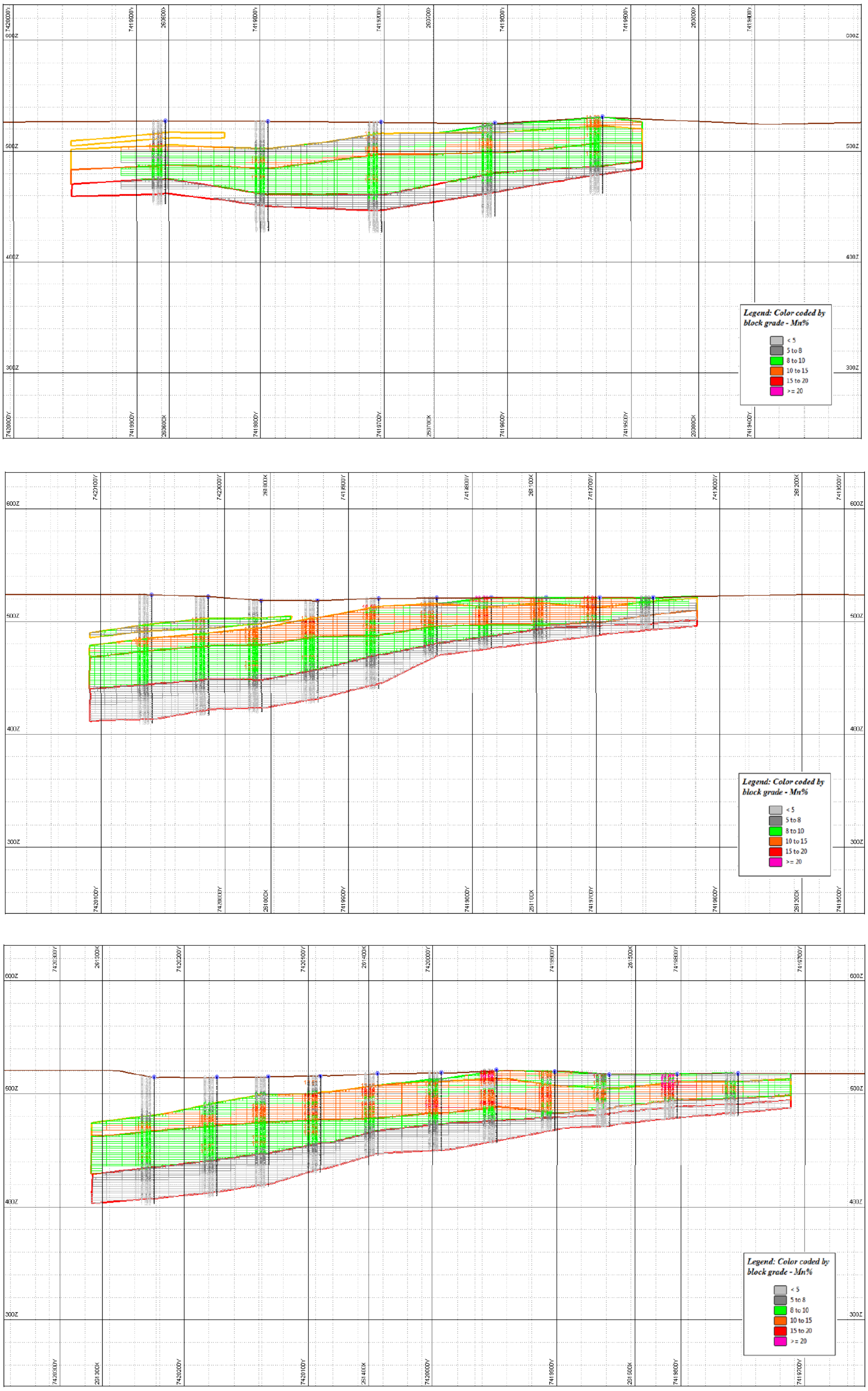

Figure 4. Cross sections 1 and 3 and 5 (top to bottom) through the Oakover MRE illustrating Mn% and consistent geometry.

Other Proposed Assets of Firebird Metals:

Firebird has also signed an option and exclusivity agreement to acquire two additional high-grade manganese exploration concessions (one still in application) within proximity to the Oakover Project. The option agreement is with Mr Peter Gianni and Mining Equities Pty Ltd (**Vendors**) to acquire E52/3633 and E46/1370.

On exercise of the option and satisfaction of the conditions below, FBM has agreed to pay $400,000 for the concessions. This payment will be satisfied through the issue of 2,000,000 new FBM shares at a deemed issue price of $0.20.

The asset purchases are conditional on:

- Completion of technical and commercial due diligence by Firefly and the Vendors;
- The FBM IPO being successfully completed through the raise of $5.5M in new equity; and
- FBM receiving conditional listing approval from the ASX.

Full details of these assets will be included in the Notice of Meeting with respect to the demerger and the IPO prospectus that is currently being prepared by Firebird Metals and its advisors.

Firebird Metals' Priorities:

Upon listing, Firebird Metals' focus will be to:

- Undertake in-fill drilling of the current Resource and along strike extensional drilling over an identified 4km strike;
- Assess multiple advanced regional prospects that have undergone limited drill testing to date;
- Undertake additional metallurgical beneficiation testing in parallel with assessment of DSO (Direct Shipping Ore) opportunities to potentially increase overall project scale; and
- Assess consolidation opportunities in the region.

The case for the Oakover Manganese Project as a standalone corporate asset:

- Systematic shift in global manganese markets over the past decade:
  - South Africa, the largest manganese exporter globally, has faced significant challenges with logistics, labour and fiscal regime;
  - Existing Australian operations are facing higher operational costs, declining head grades and/or reaching the end of their mine life.
  - Manganese head grades declining globally; and
  - Demand for manganese continues to grow as key and un-substitutable element within steel production
- Overlaying supply-side challenges with the uptake in Li-ion battery utilisation significantly enhancing investor understanding of the importance of manganese.

- Oakover Manganese Project is uniquely positioned to capitalise on projected demand and potential supply shortfall through:
    - Focus on exploration and development of DSO opportunities;
    - Depth of market experience in manganese at operational and marketing capacity is unparalleled amongst peer explorers;
    - Expansion capacity through evaluation of beneficiation processes to upgrade medium-grade mineralisation.
    - Tier one mining jurisdiction, ideally located with short shipment time to key Asian markets ; and
    - Significant Resource expansion potential already defined based on targeting model.

Proposed Demerger and In-specie Distribution:

It is proposed that Firefly will hold 25 million shares in Firebird Metals prior to the in-specie distribution being voted on by Firefly shareholders at a meeting to be convened in February 2021. At an issue price of $0.20, this implies a value of $5 million for Firefly's shareholding in Firebird Metals.

In addition, Firefly will receive $500,000 in cash from Firebird Metals from the IPO proceeds, as partial reimbursement for historical development expenditure incurred on the Oakover Project.

The in-specie distribution is conditional upon:

- Receipt of Firefly shareholder approval;
- A short-form prospectus being issued by Firefly to facilitate the in-specie distribution;
- The FBM IPO being successfully completed; and
- FBM receiving conditional listing approval from the ASX.

More details about the demerger timetable and additional information will be announced to the market in due course.

Management Comment:

Firefly Managing Director, Simon Lawson, said the demerger was a win-win for the Company, enabling Firefly to crystallise shareholder value from the non-core Oakover asset, while ensuring management time and resources remained focused on the Company's flagship Yalgoo Gold Project.

"With the market currently ascribing little or no value to Firefly on the Oakover Manganese Project, this demerger represents an outstanding opportunity to release substantial value to Firefly shareholders as a standalone ASX-listed vehicle," he said.

"The demerger will enable shareholders to retain exposure to this high-quality manganese exploration and development opportunity, while also allowing Firefly management to focus its efforts on the flagship Yalgoo Gold Project and drilling of our exciting Paterson Province assets in early 2021."

Competent Person's Statement

The information in this Report that relates to Exploration Results and Mineral Resources of the Company is based on, and fairly represents, information and supporting documentation that has been reviewed and prepared by Robert Wason, who is a member of AusIMM. Mr Wason has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity, which they are undertaking to qualify as an Expert and Competent Person as defined under the VALMIN Code and in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code 2012"). Mr Wason consents to the inclusion in this announcement of the matters based on the information in the form and context in which they appear.

Authorised by Simon Lawson, Managing Director – Firefly Resources Ltd

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Appendix A: JORC Code (2012) 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.*	• Sampling was undertaken using Industry-standard practices utilising mostly Reverse Circulation drilling (RC). Drilling was undertaken by Brumby Resources (2010-2012. • Rock chip sampling was also undertaken by Brumby Resources (2010 – 2011).
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• Drillhole coordinates are in Map Grid of Australia (MGA) as applied to GDA94 datum zone 51.
	• *Aspects of the determination of mineralisation that are Material to the Public Report.*	• Most of the drilling was vertical except for some initial drill holes.
	• *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation 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.*	• Sampling appears to have been carried out using industry-standard practise. • Samples were collected from a 3 tiered riffle splitter that was attached to the cyclone on the side of the rig, with an air-assisted vibration system attached to the side. • The splitter was checked every metre and cleaned if necessary, then cleaned thoroughly after every rod.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, 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).*	• The drilling was completed using mostly RC drilling apart from 10 Diamond drill holes and 13 air-cored holes. • From the information reviewed, it appears that drilling was conducted using industry-standard techniques.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *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.*	• Recovery estimated from split sample size received at the laboratory. • No bias was noted between sample recovery and grade. • From the information reviewed, it appears that drilling was conducted industry-standard for Inferred category mineral resource.
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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Logs for the RC drill holes were generally of reasonable quality. • Qualitative logging of lithology, alteration, mineralisation, regolith and veining was undertaken at various intervals. • Drill holes were fully logged and all chip trays photographed and interpretation checked by another geologist.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of*	• Samples collected from a 3-tiered riffle splitter that was attached to the cyclone on the side of the rig, with an air-assisted vibration system attached to the side. • The splitter was checked every metre and cleaned if necessary, then cleaned thoroughly after every rod. • Samples were dry. • Duplicates were taken of every 20th sample by putting the original sample collected at the rig through a 50/50 riffle splitter, a process that was only undertaken on the duplicate samples.

	the material being sampled.	Standards were inserted every 20th sample. • Sampling appears to have been carried out using industry-standard practise.
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.* • *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.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Assaying and laboratory procedures undertaken at Nagrom Laboratory, an independent commercial laboratory. • XRF technique used for assaying. • Analysis of standards shows a slight positive bias for Mn (overall results are higher than certified) and SiO2, but little bias for other elements. Generally speaking, results fall within three certified standard deviations of the mean, and the standard deviation of laboratory results is generally less than that certified. There is therefore no overall problems with the standards. • The laboratory repeat results were good, and within one standard deviation relative error, which is low for all elements where concentrations are well above the detection limit.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• All chip trays were inspected by a second geologist. • No twinned holes were identified from the data reviewed, although given the early stage of exploration this is to be expected. • No adjustments have been made to original assay data.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Holes collar locations were from GPS pick up, and RLs were determined from a digital terrain model (DTM) derived from an ASTER image.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• The Drillhole collars of the holes used in the Mineral Resource estimation are drilled on a grid pattern 100m x 50m. • The drill hole spacing is considered appropriate, given the style of mineralisation, to establish geological and grade continuity as appropriate for an Inferred Resource.
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.* • *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.*	• Orientation is considered appropriate for this style of mineralisation.
Sample security	• *The measures taken to ensure sample security.*	• Details of measures taken for the chain of custody of samples is unknown for the previous explorers' activities.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• All digital data audited by an independent consultant.

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 project comprises of one granted exploration licenses (E 52/3577). The project covers 54 blocks or approximately 165km2. • The Oakover Project is located 85 km east of

Criteria	JORC Code explanation	Commentary
	• *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.*	Newman in the Eastern Pilbara region of Western Australia and about 100 km south of the Ant Hill manganese deposit and about 50 km from the Nicholas Downs (formerly known as Balfour Downs) manganese deposit. • Firebird has an agreement to purchase 100% of the project as part of the IPO.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• See Section 3.5 of this report. • A list of recent exploration activities and associated WAMEX "A" report numbers are included in the references to this report
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Mn mineralisation is stratiform and hosted by dolomite-rich shale beds. The mineralisation is tabular in form, dips gently approximately 10 degrees to the northwest. • See Section 3.3 of this report for regional geological setting and Section 3.4 for the local geological setting.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.* • *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.*	• Significant drill results have been identified in Section 3.5 of this report. • No relevant data has been excluded from this report.
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.* • *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.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Significant intersections (>8% Mn) have been calculated with a minimum of 5m downhole length. • No metal equivalent values are reported
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• Downhole lengths are reported during drilling. Most of the drill holes used for resource modelling were drilled vertically. • The Mn mineralisation is hosted in a regular tabular, gently dipping to the north manganese shale lithology, with an oxidised, enriched Mn supergene domain at the surface where the manganese shale outcrops.
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 drill hole collar locations and appropriate sectional views.*	• Appropriate plans are included in this report – See Section 3.0

Criteria	JORC Code explanation	Commentary
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.*	• Significant exploration drill results are included in this report.
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.*	• To date, only exploration drilling and geophysical and geochemical surveys (and associated activities) have been undertaken on the project. • No other modifying factors have been investigated at this stage.
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).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further work will include further systematic exploration drilling. • Appropriate plans are included in Section 3.0 of this report. • See Section 3.10 and Section 7 for recommended future exploration activities.

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.* • *Data validation procedures used.*	• All digital data audited by an independent consultant.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Site Visit was completed by H&S Consultants at the time of mineral resource reporting in 2012. • Subsequently, no site visit was completed as a site visit won't add additional information. Based on its professional knowledge, lack of surface expression of geological attributes, experience and the availability of extensive databases and technical reports made available by various Government Agencies and the early stage of exploration, Mining Insights considers that sufficient current information is available to allow an informed appraisal to be made without such a visit.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• RC chips were logged on the rig by a geologist and recorded in spreadsheets for validation before upload to the Access database. • The confidence in the geological logging is moderate to high. Domain boundaries were interpreted based on lithology, grade, depth, and descriptions of minor geological features. • The Mn mineralisation is hosted in a regular tabular, gently dipping to the north manganese shale lithology, with an oxidised, enriched Mn supergene domain at the surface where the manganese shale outcrops. Intercepts of Mn grade >8% appear to thin out to the north and at depth, but the eastern and western edges of the mineralisation have not been defined.
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 Mineral Resource comprises mineralisation from a length of 500m along strike, 400m down-dip and mineralisation depth vary between outcropping at the surface and 75m depth.

Criteria	JORC Code explanation	Commentary
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 availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Ordinary Kriging was employed in part due to the very low coefficients of variation of the mineralised domains. No top cutting was employed and domaining was defined using lithological coding. Search radii employed were 50mEx50xNx3mRL with an expansion factor of 0.75. Data was confined by an octant search strategy of 14x4x32 data. • There are no available production records, check estimates. Previous historical estimates are available. • No assumptions regarding the recovery of by-products have been made • Estimates for Fe and Si have been included in the mineral resource as these are elements used in determining the various specifications for Mn products. • Block sizes employed were equivalent to a function of the drilling density, with the block being 12.5mEx12.5mNx2mRL within a gridded drilling pattern of 50mEx50mNx1mRL. • Individual elements were modelled using unique variogram analysis for each element, all elements were modelled within manganese mineralised domains dictated by lithological coding. • Block model was validated on section and in the plan against the informing data. • No reconciliation data was available to use to check the block model.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are based on average specific gravities determined by the hydrostatic weighing method. Samples used were thoroughly dried and sealed before weighing, and tonnages are therefore estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A minimum 8% Mn cut off was chosen based on the geological continuity of mineralised intercepts at this grade.
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.*	• No assumptions have been made.

Criteria	JORC Code explanation	Commentary
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.*	• No assumptions have been made.
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.*	• No assumptions have been made.
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.* • *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.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Bulk density was determined from hydrostatic weights of 50 core samples from across the various Mn geological domains. A discrete average bulk density was assigned to each domain base on the results of the hydrostatic testing.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie 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).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The classification of the resource as 'Inferred' category was based on the drillhole spacing, preliminary estimations of geological continuity and the results of the QAQC analysis. • The results reflect the Independent Geologist's view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• No audit or reviews were undertaken.

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate 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 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.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The Inferred Mineral Resource reported is considered an appropriate level of confidence.