



## ASX Announcement

11 October 2022

# Drilling along 8km long Bald Hill - Fraser's trend Increases Indicated Mineral Resources by 50%

## Highlights

- 8km long Bald Hill – Frasers trend now contains 15.38Mt of Mineral Resources
- Indicated Mineral Resource tonnes increased by 50% for the Bald Hill – Frasers trend
- NdPr:TREO ratio increases to 42% along Bald Hill – Frasers trend which includes the world class Simon's Find deposit at 52% NdPr:TREO
- Yangibana's Mineral Resource (all deposits) increased to 29.93Mt containing 277,000kt of rare earth oxides
- Opportunity remains to convert current Inferred category to Indicated category
- Ore Reserve update has commenced with completion during Q4 2022

Australia's next rare earths producer, Hastings Technology Metals Ltd (**ASX: HAS**) (**Hastings** or the **Company**), is pleased to announce an increase in the Mineral Resource Estimate at its Yangibana Rare Earths Project (**Yangibana**) in Western Australia's Gascoyne region.

The new Mineral Resource estimate (Table 1) is the result of a successful 13,334m drilling campaign at Yangibana during 2021-2022 targeting the 8km long Bald Hill – Simon's Find – Fraser's trend (Figures 1 and 2) which is in close proximity to the process plant and vital for the ore feed required upon project commissioning scheduled for H2 2024.

The drilling program increased the Indicated Mineral Resources along the Bald Hill - Simon's Find - Frasers deposits by 50% to 9.84Mt or by a 31% increase for the Measured + Indicated Mineral Resources to 14.16Mt for the same deposits (Table 2.)

Total Mineral Resources at the Yangibana project now stand at 29.93Mt @ 0.93% TREO (Table 1).

Table 1: Total (all 10 deposits) JORC (2012) Mineral Resources October 2022

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	4.97	0.96	0.37	47,721
Indicated	19.51	0.88	0.32	171,936
<b>sub-total</b>	24.49	0.90	0.33	219,657
Inferred	5.45	1.05	0.31	57,298
<b>TOTAL</b>	<b>29.93</b>	<b>0.93</b>	<b>0.32</b>	<b>276,955</b>

- Numbers may not add up due to rounding. Includes JV tenement contributions.
- Reporting of Minerals Resources for Auer, Auer North, Bald Hill, Fraser's, Simon's Find and Yangibana is at a cut-off grade of 0.24% total rare earth oxides (TREO).
- Reporting of Mineral Resources for all other deposits is at 0.2% Nd<sub>2</sub>O<sub>3</sub>+Pr<sub>6</sub>O<sub>11</sub> cut-off grade.

Table 2 Updated Bald Hill, Simon's Find and Fraser's Mineral Resources

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	4.31	0.89	0.37	38,542
Indicated	9.84	0.68	0.29	66,497
<b>sub-total</b>	14.16	0.74	0.32	105,039
Inferred	1.23	0.66	0.27	8,126
<b>TOTAL</b>	15.38	0.74	0.31	113,165

- Numbers may not add up due to rounding. Includes JV tenement contributions.

## Summary

The updated Yangibana Mineral Resource Estimate has been estimated use drilling covering the Bald Hill, Simon's Find, and Fraser's deposits. Auer, Yangibana, Yangibana North-West, Kane's Gossan, Gossan, Lion's Ear and Hook Mineral Resources are unchanged to those previously announced (ASX: Measured and Indicated Mineral Resource Tonnes Up by 54% 5 May 2021).

The drilling program conducted from November 2021 to February 2022 was targeting remaining areas of Inferred Mineral Resource category material along the 8km long Bald Hill - Simon's Find - Fraser's trend. Drilling also targeted extensions to mineralisation outside of the currently defined mineralised envelopes at depth (ASX: Resource definition drilling commences at Yangibana 8 October 2021, Drilling extends mineralisation with exceptional quality 9 June 2022 and Higher grades extend Bald Hill mineralisation 25 July 2022).

The 400m interval between Bald Hill and Bald Hill Southeast where 6 new holes encountered strong REE mineralisation has been classified as an Inferred Mineral Resource in this update.

All Yangibana project deposits outcrop at surface, with no overburden or waste stripping required and contain large coherent linear geological domains comprising high contents of Neodymium and Praseodymium rare earth elements.

The work undertaken to re-estimate the deposits was completed by David Princep of Gill Lane Consulting and incorporates all of the information and data that was used in the previous Mineral Resource estimate plus the 2021-2022 drill program data (ASX: Measured and Indicated Mineral Resource Tonnes Up by 54% 5 May 2021).

Hastings' is currently focussed on updating Ore Reserves from the updated Mineral Resources targeting extensions to Yangibana's proposed mine life of high-grade NdPr concentrate production beyond the current defined 15 years.

**Andrew Reid, Hastings' Chief Operating Officer, said:**

"We are very pleased with the increase in the reported Mineral Resource of Yangibana to 30Mt. The result reinforces Yangibana as a premier rare earths asset that is well funded and has already completed substantial early works activities on the ground. This new Mineral Resource estimate highlights the exciting extension potential we see at the project. There is a myriad of exploration targets spread right across the tenement package which will further add resource additions with the completion of further drilling."

We look forward to delivering an updated Ore Reserve in the current quarter and further drilling thereafter in line with our development and growth plans for our rare earths business".

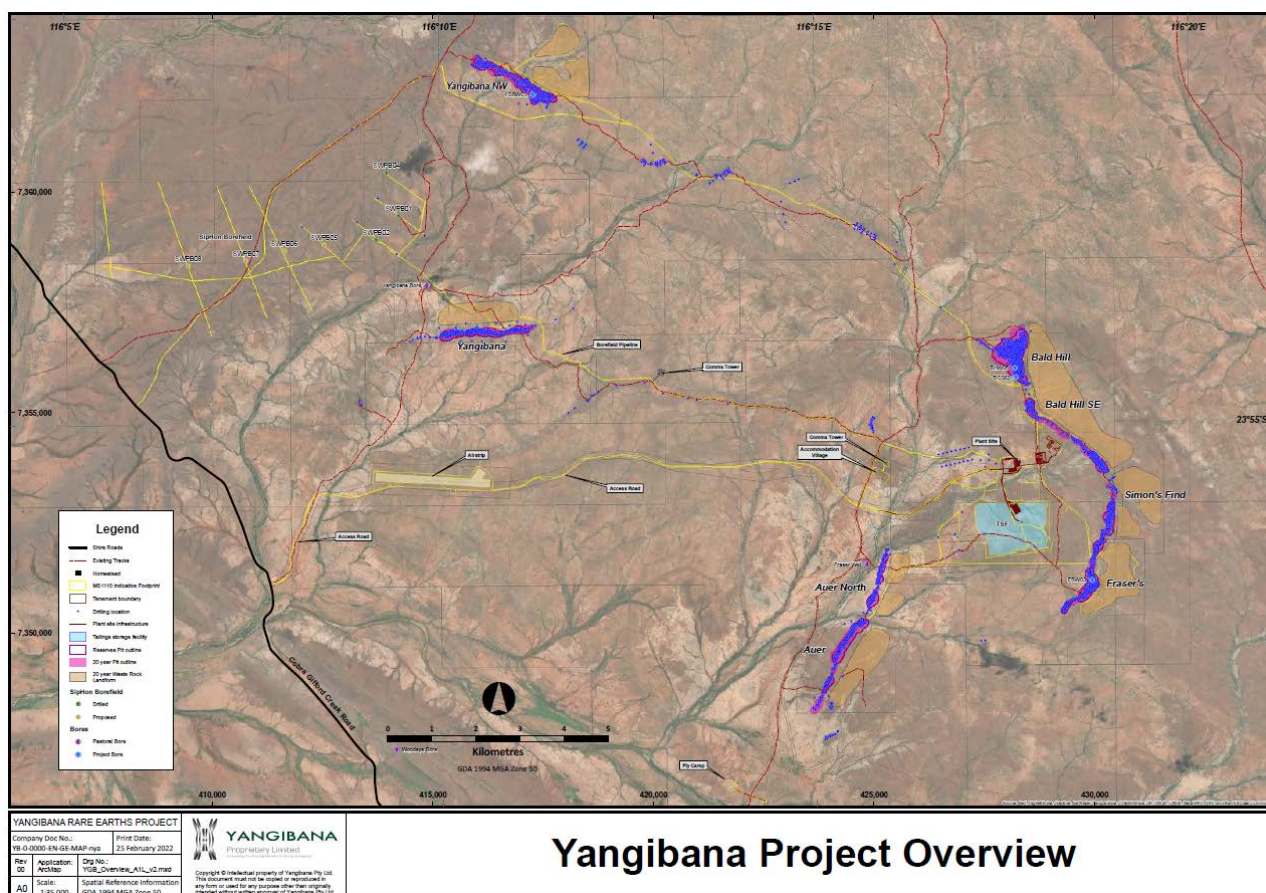


Figure 1. Map showing location of Yangibana deposits and planned site infrastructure.



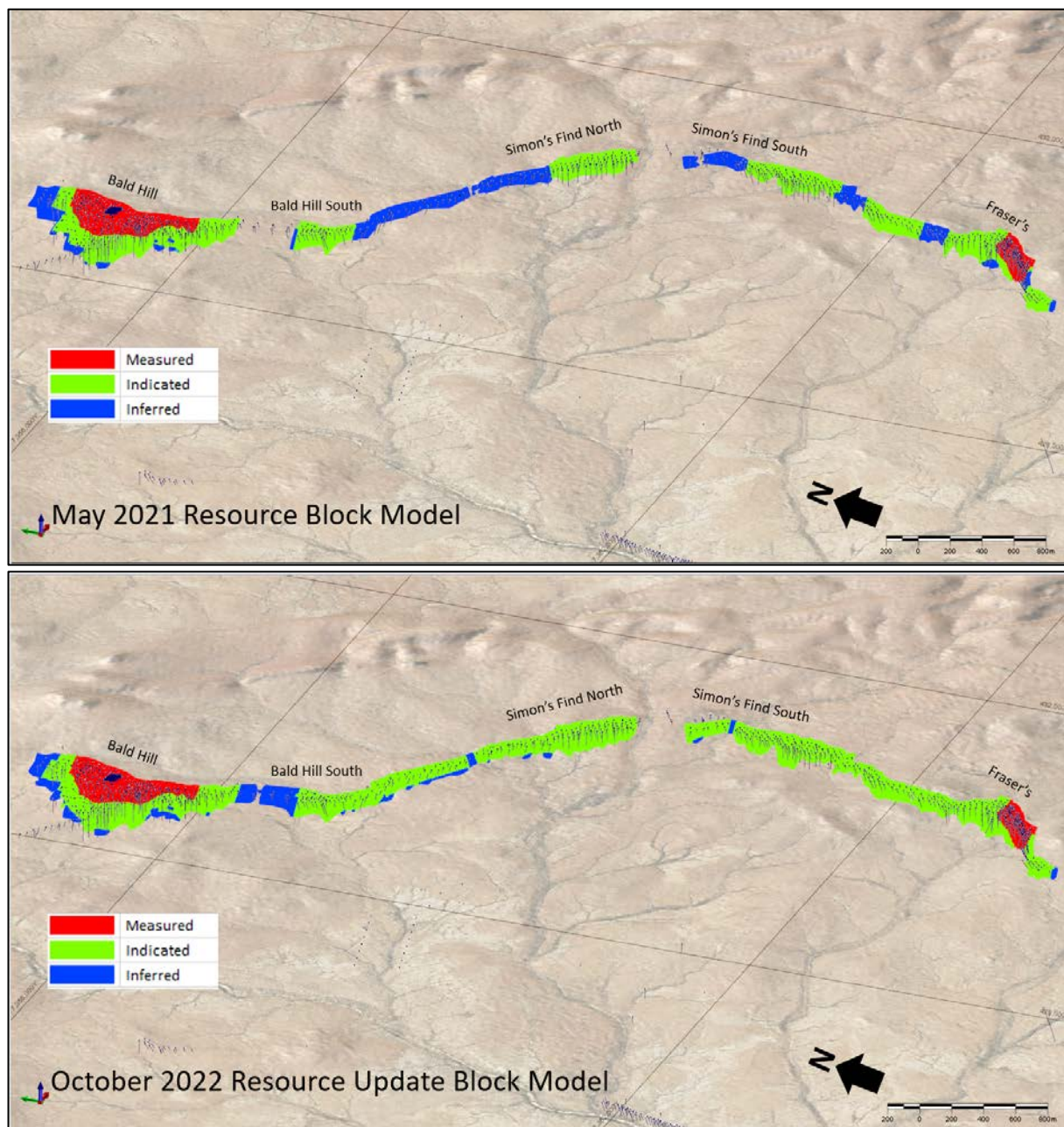


Figure 2. Oblique Bald Hill to Fraser's Long Section (looking east) showing Resource Classifications from 2021 block model (top) and updated 2022 block model (bottom). and October 2019 wireframe outlines. 2022 model contains significantly less blue Inferred Mineral Resource Category and fewer gaps in the resource model than the 2021 estimate.



## Geology

The near surface mineralisation throughout the Yangibana Project is hosted by iron oxides and hydroxides termed ironstone, being the alteration products of the primary hosts ferro-carbonatite and phoscorite intrusive veins. The main rare earths-bearing mineral is monazite which has locally undergone alteration at shallow depths (to 25m depth) to its hydrous equivalent rhabdophane and to rare earths-bearing aluminium-phosphates such as florencite.

The deposits occur as narrow but strike extensive veins that have a range of dips from almost horizontal (10-20°) to sub-vertical. The Fraser's deposit has the most extreme range from 5° in portions towards its north-eastern end to 65° at its southwestern end. Average true thickness varies from 2.2m to 3.5m throughout the Yangibana deposits although locally true thicknesses in excess of 20m occur.

## Drilling

Hastings completed an extensive drill program between November 2021 and February 2022 comprising 170 holes for 13,334m of reverse circulation (RC) drilling. The results from the program have successfully extended current known mineralisation down dip within the Bald Hill – Simon's Find – Fraser's trend below the currently defined Mineral Resource base as well as infilling near-surface portions which previously had insufficient drilling and were subsequently classified as Inferred Mineral Resources (>50m by 50m drill spacing).

Drillholes were a mix of vertical and inclined (between 50-70 degrees) to optimise the mineralised zone intersection angle as close to true thickness as possible. Internal downhole surveys were carried out at 30m intervals downhole by the drilling contractors using a Reflex electronic multishot survey tool.

Collar surveys were carried out and collected by Survey Group using DGPS utilising a locally established control point. Accuracies of the drillhole collar locations collected by Survey Group is better than 0.1m.

Downhole density data was collected on a large suite of holes utilising a Geovista FDSB-4620 downhole density tool on a continuous basis giving 1cm data resolution. Data from this portion of the program is still being collated with the downhole density data being calibrated by an external geophysical consultant.

RC holes were drilled using a nominal 5¼ inch diameter face-sampling bit. Samples were collected through a built-in cyclone with a triple-tier riffle-splitting system providing a large sample of approximately 25kg and a sub-sample of 2-4kg from each metre drilled, of which selected samples were sent for analysis, from each metre drilled. Field duplicates, blanks and Reference Standards were inserted at a rate of approximately 1 in 20.

## Sampling

Samples were routinely sent to Intertek Genalysis in Perth for analysis using techniques considered appropriate for the style of mineralisation. Samples were analysed for the range of rare earths, rare metals (Nb, Ta, Zr), thorium and a range of common rock-forming elements (Al, Ca, Fe, Mg, Mn, P, S, Si, Sr).

Once assay data were returned, the elemental values were converted to oxides using standard factors.

## Quality Control

In total, the quality control regime executed has provided reasonable support for the accuracy and precision of the assay results underpinning the Mineral Resource estimate. The vast majority of results for standards remain within the normal control limits of 2 standard deviations.

Bulk density measurements were completed previously by either the Company or at independent laboratories on core from each of the main deposits. Samples from each of the oxidised, partially oxidised, and fresh mineralisation zones were tested with results feeding into the Mineral Resource estimations based on weathering surfaces as defined by the Company.

During the 2020 and the recent 2021-2022 drilling program 191 drill holes were downhole logged using a gamma – gamma density probe in order to provide additional bulk density values. The geophysically derived density values were compared to existing and new physically measured density values as well as to known geology (quartz veining in particular) and was found to be a reliable indication of in-situ bulk density. A review of the total bulk density dataset showed variations in density in line with the type of mineralisation that was encountered in the diamond drilling. The incorporation of a significant amount of downhole density data into the Mineral Resource estimate dataset has allowed for the derivation of density factors with respect to vertical depth for both mineralised and non-mineralised intervals. These have been used in the updated Mineral Resource estimate to define the position of the weathered, transitional and fresh material zones.

## Interpretation of Geology

The mineralisation at Yangibana comprises a series of narrow vein high grade deposits with strike extents up to several kilometres. Individual mineralised zones are 1 to 15m wide and extend down dip for at least 125m with dips varying from sub-horizontal to sub-vertical. During the estimation process a minimum mineralisation width of 2m was used to define the mineralisation wireframes.

Confidence in the geological interpretation is considered to be good. The interpretation is based on drilling that ranges from a 25 m by 25 m spacing to 50 m by 50 m spacing. The interpretation also incorporates data gathered from surface mapping of exposures. The mapping has assisted in understanding the controls on mineralisation to improve the confidence in the geological interpretation. All available data from drilling and mapping is used in the geological interpretation. An iterative process has been adopted with respect to the geological interpretation to ensure that it reflects the current understanding of the geology and controls on mineralisation.

Each of the three (3) re-modelled deposits was assessed for grade and geological continuity and the mineralised wireframes were defined around a combination of TREO grades and, where TREO grades were low and mineralisation continuity was believed to exist, Fe grades were used as a substitute for mineralisation. In all cases a minimum thickness of 2m was applied.

The drilling data was limited to selected assay intervals with large sections of the drilling unsampled in areas where no mineralisation was believed to exist. Within the Mineral Resource estimate data set the unsampled zones within the drilling were replaced with zero values. In a limited number of instances, for geological consistency, the mineralised envelopes were carried through areas within drill holes that had not been sampled. In these cases, the minimum thickness of intercept was assumed to be 2m and, in common with the rest of the drilling, these intervals were assumed to be at zero grade.

In a limited number of cases where the assay values did not meet the TREO cut-off grade criteria for wireframing, an assessment of the mineralisation was defined using elevated Fe values. This was done to enable a consistent mineralised envelope with the low TREO (and other element) values incorporated into the estimation dataset. In general, these areas are of limited extent.

### **Cut-Off Grades**

Based on the methodology applied to the previous Yangibana Mineral Resource estimates, wireframing of all deposits was conducted using a TREO cut-off grade in order to improve the geological and grade consistency of the modelled wireframes. In this instance a TREO grade of approximately 0.20% was chosen for the wireframing value as this was considered to represent the transition between consistently mineralised and unmineralised material. In cases where a lower grade was adjacent to significantly higher grades, the lower grade interval was incorporated into the wireframe as these were constructed around the final 1m composites rather than the original selective sampling.

This process created a level of conservatism whereby lower grades of  $\text{Nd}_2\text{O}_3 + \text{Pr}_6\text{O}_{11}$  were incorporated into the wireframe. Additional conservatism was added by only allowing the wireframes to be extrapolated down dip below the last drill hole, using the geological convention of 50% of the local drill hole spacing and applying a minimum mineralised width of 2m.

Following the commencement of mine planning studies an updated reporting cut-off grade of 0.24% TREO has been able to be defined. This value was initially based on a net smelter return (NSR) calculation using all of the component elements making up the TREO value, with additional work allowing this to be simplified to a singular TREO value. The cut-off grade is based on Hastings' view on the individual prices for the various rare earth elements, individual processing recoveries and overall processing costs.

### **Comparison with Previous Mineral Resource Estimate**

The previous Mineral Resource Estimate (announced in May 2021) was for the majority of deposits completed by Gill Lane Consulting. Differences between the Mineral Resource estimate released in this announcement and the May 2021 estimate are resultant from additional drilling conducted by Hastings at Bald Hill, Simon's Find and Fraser's.

### **Block Modelling Parameters – Bald Hill, Simon's Find and Fraser's Mineral Resources only**

Due to the complexity and generally narrow nature of the mineralisation the Mineral Resource estimates were undertaken on 'flattened' block models following the allocation of block proportions from the updated mineralisation wireframes. This flattening process allowed for the use of Ordinary Kriging estimation techniques. One metre down hole compositing based on the assay data and wireframes was used to regularise the assayed intervals. Summary statistics for each deposit were used to identify the presence of outliers. Due to the distribution of grades within the mineralisation and the relatively un-skewed data population no top cuts were deemed necessary.

For each deposit, variograms of TREO were defined and used in the mineral resource estimate. In all instances the directional trends evident in the variogram maps are evident to some extent in plan views of the sample data, and they normally conform to the orientation of the mineralisation within the wireframes. As expected, variogram model ranges in the vertical direction are relatively short due to the predominantly thin nature of the



mineralisation. The majority of variograms display reasonable structure, with anisotropies reflecting those observed in the variogram maps.

All re-estimated Mineral Resources were created with the same original block size of 2m x 2m x 1m. This size was chosen as a compromise between the average drill spacing (up to 50m x 50m in some areas), size of the mineralisation wireframes (in order to limit resulting low mineralised proportions), orientation of mineralisation (ideally, the blocks would have been orientated with the mineralisation however this results in a model that is unusable for pit optimisation purposes), grade distribution within the mineralisation and the models' ultimate use for mine planning purposes. A re-blocked (to 4m x 4m x 2m) model was provided for mine planning purposes in order to reduce the overall size of the Mineral Resource models, this resulted in the addition of minor amounts of dilution being incorporated into these models. The reporting within this announcement is based on the re-blocked models in order to provide a more direct comparison to any future Ore Reserve estimates.

The Mineral Resources have been classified in the Measured, Indicated and Inferred categories, in accordance with the 2012 Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC 2012) by the Competent Person. A range of criteria was considered in determining the classification including geological and grade continuity, data quality, drill hole spacing, and modelling technique and kriging output parameters.

As a general rule, the following spacings characterise the Mineral Resource classification.

- Infill drilling between 20m by 20m and 35m by 35m – Measured Category
- Drill spacing up to 50m by 50m – Indicated Category
- Drill spacing 100m by 50m to 100m by 100m – Inferred Category

### Re-Estimated (JORC 2012) Mineral Resources – by Deposit

The following tables represent those deposits that have been re-estimated and updated from the May 2021 Mineral Resource estimate. Numbers may not add up due to rounding and are reported at a 0.24% TREO cut-off grade.

**Table 3: Bald Hill Re-Estimated Mineral Resource, total**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t	% Change in Tonnes
Measured	3.55	0.82	0.34	29,136	+1.4
Indicated	5.23	0.75	0.30	39,290	+38.4
Inferred	1.17	0.67	0.27	7,787	-0.01
<b>TOTAL</b>	<b>9.96</b>	<b>0.77</b>	<b>0.31</b>	<b>76,212</b>	<b>+17.7</b>



**Table 4: Simon's Find Mineral Resource, 100% Hastings**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t	% Change in Tonnes
Measured	-	-	-	-	
Indicated	3.14	0.52	0.27	16,206	+75.3
Inferred	0.05	0.60	0.31	295	-92.1
<b>TOTAL</b>	<b>3.19</b>	<b>0.52</b>	<b>0.27</b>	<b>16,501</b>	<b>+31.7</b>

**Table 5: Frasers Re-Estimated Mineral Resource, 100% Hastings**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t	% Change in Tonnes
Measured	0.75	1.25	0.53	9,407	+3.4
Indicated	1.47	0.75	0.32	11,001	+46.0
Inferred	0.01	0.60	0.25	44	-97.1
<b>TOTAL</b>	<b>2.24</b>	<b>0.91</b>	<b>0.39</b>	<b>20,452</b>	<b>+12.4</b>

### JORC (2012) Mineral Resources, not updated in this announcement– by Deposit

The following Tables represent those deposits that have not been updated or altered since the May 2021 Minerals Resource announcement. Numbers may not add up due to rounding. Yangibana and Auer are reported at a 0.24% TREO cut-off grade, whilst Yangibana North, Gossan, Lion's Ear, Hook and Kane's Gossan are reported at a 0.20% Nd<sub>2</sub>O<sub>3</sub>+Pr<sub>6</sub>O<sub>11</sub> cut-off grade.

**Table 6: Auer Mineral Resource, 100% Hastings**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	-	-	-	-
Indicated	3.54	0.93	0.32	32,796
<b>sub-total</b>	<b>3.54</b>	<b>0.93</b>	<b>0.32</b>	<b>32,796</b>
Inferred	1.10	0.76	0.24	8,297
<b>TOTAL</b>	<b>4.64</b>	<b>0.89</b>	<b>0.30</b>	<b>41,093</b>

**Table 7: Yangibana Mineral Resource, Total**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	-	-	-	-
Indicated	1.98	0.71	0.34	14,034
<b>sub-total</b>	<b>1.98</b>	<b>0.71</b>	<b>0.34</b>	<b>14,034</b>
Inferred	0.33	0.64	0.31	2,146
<b>TOTAL</b>	<b>2.31</b>	<b>0.70</b>	<b>0.33</b>	<b>16,180</b>

Comprising: Yangibana M09/165 (100% Hastings)

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	-	-	-	-
Indicated	1.82	0.72	0.34	13,168
<b>sub-total</b>	<b>1.82</b>	<b>0.72</b>	<b>0.34</b>	<b>13,168</b>
Inferred	0.09	0.78	0.37	714
<b>TOTAL</b>	<b>1.91</b>	<b>0.73</b>	<b>0.34</b>	<b>13,882</b>

Comprising: Yangibana M09/163 (70% Hastings)

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	-	-	-	-
Indicated	0.16	0.54	0.25	866
<b>sub-total</b>	<b>0.16</b>	<b>0.54</b>	<b>0.25</b>	<b>866</b>
Inferred	0.24	0.59	0.29	1,431
<b>TOTAL</b>	<b>0.40</b>	<b>0.57</b>	<b>0.28</b>	<b>2,298</b>

**Table 8: Yangibana North Mineral Resource, Total**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	0.66	1.39	0.36	9,179
Indicated	4.15	1.41	0.36	58,609
<b>sub-total</b>	<b>4.81</b>	<b>1.41</b>	<b>0.36</b>	<b>67,788</b>
Inferred	0.97	1.43	0.37	13,914
<b>TOTAL</b>	<b>5.78</b>	<b>1.41</b>	<b>0.36</b>	<b>81,702</b>

**Comprising: Yangibana North M09/160 (100% Hastings)**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	0.29	1.35	0.35	3,862
Indicated	1.66	1.43	0.37	23,824
<b>sub-total</b>	<b>1.95</b>	<b>1.42</b>	<b>0.37</b>	<b>27,686</b>
Inferred	0.60	1.43	0.37	8,548
<b>TOTAL</b>	<b>2.55</b>	<b>1.42</b>	<b>0.37</b>	<b>36,234</b>

**Comprising: Yangibana North M09/159 (JV Tenement 70% of Total to Hastings)**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Measured	0.38	1.42	0.36	5,317
Indicated	2.49	1.40	0.36	34,785
<b>sub-total</b>	<b>2.87</b>	<b>1.40</b>	<b>0.36</b>	<b>40,101</b>
Inferred	0.37	1.45	0.37	5,366
<b>TOTAL</b>	<b>3.24</b>	<b>1.41</b>	<b>0.36</b>	<b>45,467</b>

**Table 9: Mineral Resources regional prospects, 100% Hastings, all Mineral Resources are Inferred Only**

Category	M Tonnes	%TREO	%Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO t
Gossan	0.25	1.43	0.35	3,518
Lion's Ear	0.71	1.54	0.39	10,934
Hook	0.29	1.52	0.33	4,393
Kane's Gossan	0.57	1.04	0.29	5,970
<b>TOTAL</b>	<b>1.82</b>	<b>1.39</b>	<b>0.34</b>	<b>24,814</b>

This announcement has been approved by the Board for release to the ASX.

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## About Hastings Technology Metals Limited

Hastings Technology Metals Limited (ASX: HAS) is a well-managed Perth based rare earths company primed to become the world's next producer of neodymium and praseodymium concentrate (NdPr). NdPr is a vital component used to manufacture permanent magnets used every day in advanced technology products ranging from electric vehicles to wind turbines, robotics, medical applications, digital devices and more.

Hastings' flagship Yangibana project, in the Gascoyne region of Western Australia, contains one of the most highly valued NdPr deposits in the world with NdPr:TREO ratios of up to 52%. The site is permitted for long-life production and with offtake contracts signed and debt finance in advanced stage. Construction is scheduled to take 27 months from Q3 2022.

Hastings also owns and operates the Brockman project, Australia's largest heavy rare earths deposit, near Halls Creek in the Kimberley. For further information on the Company and its projects visit [www.hastingstechmetals.com](http://www.hastingstechmetals.com) Hastings Mineral Resource and Reserve have been reported in compliance with the JORC code.

For further information on the Company and its projects visit [www.hastingstechmetals.com](http://www.hastingstechmetals.com)

## Competent Person Statements

The information in this announcement that relates to Exploration Results in relation to the Yangibana Project is based on information compiled by Mr. Andrew Ford BSc (Hons), a Competent Person, who is a member of the Australian Institute of Mining and Metallurgy. Mr. Ford is a full-time employee of the company and has sufficient experience that is relevant to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves. The Qualified Person has verified the data disclosed in this release, including sampling, analytical and test data underlying the information contained in this release. Mr. Ford consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to Mineral Resources is based on information compiled by David Princep and Lynn Widenbar. Both Mr Princep and Mr Widenbar are independent consultants to the Company and members of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Princep and Mr Widenbar have sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this announcement and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code"). Consent by Mr Widenbar to include statements in this announcement have been provided in previous announcements entitled "Increase in Measured and Indicated Resources at Yangibana Project" dated 28 November 2018.

## TERMINOLOGY USED IN THIS REPORT

**Total Rare Earths Oxides, TREO**, is the sum of the oxides of the light rare earth elements lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), and samarium (Sm) and the heavy rare earth elements europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb), lutetium (Lu), and yttrium (Y).



## JORC Code, 2012 Edition – Yangibana project deposits

### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>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 down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Samples used to assess the numerous deposits of the Yangibana Project have been derived from both reverse circulation (RC) and diamond drilling. Fourteen drilling programmes have been completed to date with more than 2,500 holes drilled for &gt;130,000m.</li> <li>Samples from reverse circulation drilling were collected from each metre from a rig mounted cyclone and split using a 3-level riffle splitter from which 2-4kg samples were sent for analysis. Field duplicates, blanks and Reference Standards were inserted at a rate of approximately 1 in 20.</li> <li>Samples are prepared by drying, crushing, weighing splitting and pulverising the split samples to produce a representative sample for sodium peroxide fusion and ICP-MS, ICP-OES analysis.</li> <li>Field duplicates, blanks and Reference Standards were inserted at a rate of approximately 1 in 20.</li> <li>RC and diamond drilling leading to the establishment of JORC 2012 Mineral Resources has been carried out at Bald Hill, Simon's Find, Frasers's, Yangibana North-West, Auer, Auer North, and Yangibana, within tenements held 100% by Hastings, and at Yangibana and Yangibana North West, Gossan, Lion's Ear, Hook, Kane's and Gossan in tenements in which Hastings has a 70% interest.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>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.).</li> </ul>	<ul style="list-style-type: none"> <li>Reverse Circulation drilling at the various targets utilised a nominal 5 ¼-inch diameter face-sampling hammer.</li> <li>Diamond drilling at various targets has been NQ and HQ diameter.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Recoveries are recorded by the geologist in the field at the time of drilling/logging.</li> <li>If poor sample recovery is encountered during drilling, the geologist and driller have endeavoured to rectify the problem to ensure maximum sample recovery. Visual assessment is made for moisture and contamination. An integrated cyclone and splitter system were used to ensure representative samples and were routinely cleaned.</li> <li>Sample recoveries to date have generally been reasonable, and moisture in samples minimal. Insufficient data is available at present to determine if a relationship exists between recovery and grade.</li> <li>Some holes returned low sample weights on some 1m samples within the significant intercept most likely related to cavities.</li> </ul>

Criteria	JORC Code explanation	Commentary
Logging	<ul style="list-style-type: none"> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>All drill chip samples are geologically logged at 1m intervals from surface to the bottom of each individual hole to a level that supports appropriate future Mineral Resource studies.</li> <li>Logging (geological) is considered to be semi-quantitative given the nature of reverse circulation drill chips.</li> <li>All RC and diamond drill holes were logged in full.</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>The RC drilling rig is equipped with an in-built cyclone and triple tier riffle splitting system, which provided one bulk sample of approximately 25kg, and a sub-sample of 2-4kg per metre drilled.</li> <li>All samples were split using the system described above to maximise and maintain consistent representivity. Most samples were dry. For wet samples the cleanliness of the cyclone and splitter was constantly monitored by the geologist and maintained to avoid contamination.</li> <li>Bulk samples were placed in green plastic bags, with the sub-samples collected placed in calico sample bags.</li> <li>Field duplicates were collected directly from the splitter as drilling proceeded through a secondary sample chute. These duplicates were designed for lab checks as well as lab umpire analysis.</li> <li>A sample size of 2-4kg was collected and considered appropriate and representative for the grain size and style of mineralisation.</li> <li>Diamond core was cut in half using a diamond core saw, with half placed in a calico bag and dispatched to the assay laboratory.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Intertek Genalysis (Perth) was used for all analysis work carried out on the 1m drill chip samples and drill core. The laboratory techniques below are for all samples submitted to Genalysis and are considered appropriate for the style of mineralisation defined at the Yangibana REE Project: FP6/MS</li> <li>Blind field duplicates of RC samples were collected at a rate of approximately 1 duplicate for every 40 samples that are to be submitted to Genalysis for laboratory analysis. Field duplicates were split directly from the splitter as drilling proceeded at the request of the supervising geologist.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>At least two company personnel verify all significant intersections.</li> <li>All geological logging and sampling information is entered into OCRIS logging software in the field on a Surface Pro laptop computer and uploaded following QA/QC checks into a proprietary database managed by Expedio. Electronic copies of all information are backed up daily.</li> <li>No adjustments of assay data are considered necessary.</li> </ul>

Criteria	JORC Code explanation	Commentary
Location of data points	<ul style="list-style-type: none"> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>Final drillhole collars completed were collected by Survey Group Surveyors using DGPS utilising a locally established control point. Accuracies of the drillhole collar locations collected by Survey Group Surveyors is better than 0.1m.</li> <li>Down hole surveys were conducted by the drill contractors using a gyro system. The instrument is not affected by magnetic lithologies.</li> <li>Holes drilled in 2021-2022 were downhole surveyed by ABIM Solutions using a density probe, magnetic susceptibility probe and a natural gamma probe providing 10cm readings.</li> <li>Grid system used is MGA 94 (Zone 50)</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>Substantial areas of the Fraser's, Simon's Find and Bald Hill deposit have been infill drilled at a staggered 25m x 50m pattern, giving an effective 40m x 40 spacing. In general, and where allowed by the kriging parameters and data quality, this would allow portions of the deposit to be classified in the Measured category. Areas of 50m x 50m spacing are generally classified as Indicated, while zones with wider spacing or where blocks are extrapolated are generally classified as Inferred category.</li> <li>No sample compositing of RC samples is used in this report, all results detailed are the product of 1m downhole sample intervals. DD holes were composited to 1m intervals in order to provide for equivalent samples.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Most drill holes in the recent programme are angled and collared at -60° or -90° in order to appropriately intersect the mineralization.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>The chain of custody is managed by the project geologist who places calico sample bags in polyweave sacks. Up to 10 calico sample bags are placed in each sack. Each sack is clearly labelled with:               <ul style="list-style-type: none"> <li>Hastings Technology Metals Ltd</li> <li>Address of laboratory</li> <li>Sample range</li> </ul> </li> <li>Samples were transported by RM Transport from site to Perth and delivered Genalysis.</li> <li>The freight provider delivers the samples directly to the laboratory. Detailed records are kept of all samples that are dispatched, including details of chain of custody.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>An audit of sampling has been completed following major drilling campaigns in 2020 and reviewed as part of the May 2021 Resource Update.</li> </ul>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The updated resources are from the Hastings Technology Metals Ltd Yangibana REE Project. Frasers, Simon's Find and Bald Hill Areas lie within M09/158, E09/2018, E09/1943, M09/157, and M09/162. These tenements are wholly owned by Yangibana Pty Ltd or Gascoyne Metals Pty Ltd, both wholly owned entities of Hastings Technology Metals Limited. Some drilling was also carried out on M09/161 which is held in a Joint Venture between Mojito Resources Limited (30%) and Gascoyne Metals Limited (70%).</li> <li>The tenements are in good standing and no known impediments exist.</li> </ul>
Exploration done by other parties	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>All RC and Diamond Drilling on the tenement has been undertaken by Hasting's Technology Metals. The discovery and delineation of Mineral Resources at Frasers, Simon's Find and Bald Hill is entirely the result of work performed by Hastings Technology Metals.</li> </ul>
Geology	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>REE mineralisation at the Yangibana REE Project is hosted within carbonatites and associated phosphorite dykes emplaced within a variety of rock types but predominantly in granites.</li> <li>Economic mineralisation is hosted within in the completely weathered and oxidised portions of the carbonatite-phosphorite rocks which occur as ironstones.</li> <li>The nature of weathering and oxidation means that all resources occur in the near surface. Transitional zones from completely weathered ironstones to primary carbonatite have rarely been intersected in drilling across the Yangibana REE Project as drilling has focused primarily on relatively shallow mineralisation.</li> </ul>
Drill hole Information	<ul style="list-style-type: none"> <li>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:             <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole of down hole length and</li> <li>hole depth</li> </ul> </li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as no exploration results are being announced.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as no exploration results are being announced</li> </ul>



Criteria	JORC Code explanation	Commentary
	<p>grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</p> <ul style="list-style-type: none"> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>True widths are generally estimated to be about 70% of the down-hole width.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li>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 view.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as no exploration results are being announced.</li> <li>Exploration results incorporated into the mineral resource estimates the subject of this announcement were previously reported to the ASX on the 8th October 2021 titled 'Resource definition drilling commences at Yangibana', 9th June 2022 titled 'Drilling extends mineralisation with exceptional quality' and 25th July 2022 titled 'Higher grades extend Bald Hill mineralisation'.</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as no exploration results are being announced.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable as no exploration results are being announced</li> </ul>
Further work	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>Further work will include infill and step out drilling. This work will be designed to improve confidence in, and test potential extensions to the current mineral resource estimates and to provide necessary sample material for additional and ongoing metallurgical studies</li> </ul>

### 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.	<ul style="list-style-type: none"> <li>Data was provided as a .csv data dump from an externally managed database and was digitally imported into Micromine Mining software. Micromine validation routines were run to confirm validity of all data.</li> <li>Individual drill logs from site have been previously checked with the electronic database on a random basis to check for validity.</li> <li>Analytical results have all been electronically merged to avoid any transcription errors.</li> </ul>
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.	<ul style="list-style-type: none"> <li>The Competent Person for the updated and re-estimated Mineral Resources has not yet visited the project area. The Mineral Resource estimate detailed in the announcement was undertaken as a confirmation of the Mineral Resource estimate used in the DFS and there was insufficient time to carry out a site visit. It is expected that a site visit will be undertaken in due course.</li> <li>Mr Lyn Widenbar who completed the Mineral Resources that were not updated was the Competent Person who visited site from 15-16th December 2016 and reviewed geology, drilling etc.</li> </ul>
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.	<ul style="list-style-type: none"> <li>Confidence in the geological interpretation is considered to be high.</li> <li>Detailed geological logging and surface mapping allows extrapolation of drill intersections between adjacent sections.</li> <li>Alternative interpretations would result in similar tonnage and grade estimation techniques.</li> <li>Geological boundaries are determined by the spatial locations of the various mineralised structures.</li> <li>Continuous ironstone units comprising iron oxides and hydroxides, minor quartz rich zones, and locally carbonate and apatite host the rare earths mineralisation and are the key factors providing continuity of geology and grade. The mineralised zones may be described as visually distinctive anastomosing iron rich veins with excellent strike and down dip continuity.</li> </ul>
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.	<ul style="list-style-type: none"> <li>Bald Hill mineralisation dips shallowly (maximum 30°) but variably to the southwest and ranges from 1m to 10m thick. Maximum depth of the resource is to a vertical depth of 80 metres below surface.</li> <li>Fraser's mineralisation dips steeply (70-80°) in the western portion becoming more shallow (to 30°) in the east and ranges from 1m to 6m thick. Maximum depth of the resource is to a vertical depth of 140 metres below surface.</li> <li>Simon's Find mineralisation dips shallowly (variably between 30° and 40°) to the west and southwest and ranges from 2m to 11m thick. Maximum depth of the resource is to a vertical depth of 70 metres below surface.</li> </ul>
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.	<ul style="list-style-type: none"> <li>The mineral Resources detailed in this announcement were estimated using Ordinary Kriging (OK) techniques.</li> <li>The OK parameters used were a primary block size of 2m x 2m x 1m and an escalating search generally starting at 25m and increasing to 100m radius. Search directions were orientated to align with the main directions within the mineralised wireframes.</li> <li>The block models and sample data were flattened in Micromine for the estimation run in order to remove the variable dips</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</p> <p>The assumptions made regarding recovery of by-products.</p> <p>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</p> <p>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</p> <p>Any assumptions behind modelling of selective mining units.</p> <p>Any assumptions about correlation between variables.</p> <p>Description of how the geological interpretation was used to control the resource estimates.</p> <p>Discussion of basis for using or not using grade cutting or capping.</p> <p>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</p>	<p>encountered in the mineralisation and preserve the local grade variability.</p> <ul style="list-style-type: none"> <li>Data analysis was conducted in order to derive element correlations to enable a reduction in the number of variogrammes required within the estimation process. As a result, variography was performed on the TREO value, using this process allowed for maintenance of element correlations when calculating final estimate TREO, HREO and LREO values.</li> <li>Estimation has been carried out for the following economic variables:  CeO<sub>2</sub>_ppm, Dy<sub>2</sub>O<sub>3</sub>_ppm, Er<sub>2</sub>O<sub>3</sub>_ppm, Eu<sub>2</sub>O<sub>3</sub>_ppm, Gd<sub>2</sub>O<sub>3</sub>_ppm, Ho<sub>2</sub>O<sub>3</sub>_ppm, La<sub>2</sub>O<sub>3</sub>_ppm, Lu<sub>2</sub>O<sub>3</sub>_ppm, Nd<sub>2</sub>O<sub>3</sub>_ppm, Pr<sub>6</sub>O<sub>11</sub>_ppm, Sm<sub>2</sub>O<sub>3</sub>_ppm, Tb<sub>4</sub>O<sub>7</sub>_ppm, Tm<sub>2</sub>O<sub>3</sub>_ppm, Y<sub>2</sub>O<sub>3</sub>_ppm, Yb<sub>2</sub>O<sub>3</sub>_ppm, LREO_ppm, HREO_ppm, TREO_% and Nd<sub>2</sub>O<sub>3</sub>+Pr<sub>6</sub>O<sub>11</sub>_% along with rock composition major elements, U, Th, Nb and Ta.</li> <li>Drill hole spacing is variable, and the block sizes were chosen to reflect the best compromise between spacing and the necessity to define the geological detail of each deposit. In general, block sizes are 2 m along strike, 2m across strike and 1m vertically.</li> <li>As a result of the mineralisation distribution within the wireframes and element populations no top cuts were employed.</li> <li>Following the initial estimation, the block model was re-blocked to a block size of 4m x 4m x 2m in order to limit the total size of the model for mine planning purposes. In order to maintain consistency with the mining model the re-blocked model has been reported in this announcement.</li> <li>Block model validation has been carried out by several methods, including: <ul style="list-style-type: none"> <li>Drill Hole Plan and Section Review</li> <li>Model versus Data Statistics by Domain</li> <li>Easting, Northing and RL swathe plots</li> <li>Comparison to previous Mineral Resources</li> </ul> </li> <li>All validation methods have produced acceptable results.</li> <li>As these Mineral Resource estimates were completed following on from the previous OK and MIK estimates and a reasonable correlation exists between the two it can be taken that the previous estimates substantially validate the updated Mineral Resource estimate given that there is no change in the underlying data.</li> </ul>
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	<ul style="list-style-type: none"> <li>Tonnages are estimated on a dry basis.</li> </ul>
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul style="list-style-type: none"> <li>A nominal downhole cut-off of 0.20% TREO has been used in conjunction with logging of ironstone to define mineralised intersections. This is a departure from the previous OK estimate and negates the need to add an encompassing dilution skin. For reporting purposes, a 0.24% TREO cut-off has been applied to the updated Bald Hill, Fraser's and Simon's Find Resource Estimate based on NSR values derived from mining studies. The NSR calculations used Hastings commodity prices and recoveries for all</li> </ul>

Criteria	JORC Code explanation	Commentary
		of the elements comprising the TREO value along with defined processing costs.
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.	<ul style="list-style-type: none"> <li>• Mining is assumed to be by conventional open pit mining methods</li> <li>• It is expected that conventional ore loss and dilution would be applied to the Mineral Resource estimate as a modifying factor during pit optimisation and mine planning work.</li> </ul>
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.	<ul style="list-style-type: none"> <li>• The initial process flowsheet design was developed using samples from Bald Hill and Fraser's deposits. A large composite created from RC drilling materials was used for this work. Subsequent variability testwork was undertaken on samples from Bald Hill, Fraser's, Auer, Auer North, Yangibana, Yangibana North and West, Bald Hill South and Simon's find. A mix of both RC chips and drill core was used for these variability samples. Drill core samples were also collected for comminution testwork.</li> <li>• Beneficiation testwork has shown that the rare earths mineralisation (largely monazite) can be upgraded readily using standard froth flotation techniques and commercially available reagents. Hydrometallurgical testwork has demonstrated that the monazite concentrate can be treated through an acid bake and water leach process to crack the monazite mineral and selectively separate the rare earths elements into a high grade Mixed Rare Earths Carbonate (MREC) product. Optimisation and variability testwork programs have been undertaken to understand impacts of deleterious gangue minerals and elements on the beneficiation and hydrometallurgical process flowsheets, and mitigation strategies developed where required.</li> <li>• Individual deposit variability testwork results have been used for metallurgical performance (recovery, grade and operating cost) parameters. Where new drilling programs have extended resources, an assessment whether the existing testwork sample set is representative of the new drilling results or if additional samples should be tested to ensure that the metallurgical testwork has been carried out on a representative sample set.</li> <li>• Pilot plant campaigns have been undertaken on both the Beneficiation process flowsheet and the Hydrometallurgical process flowsheet. Pilot plant campaigns were used to understand scaleup and continuous operation of the process flowsheets, to collect engineering data and to produce samples for subsequent testwork and customer analysis.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Environmental studies have been carried out on site with Level 1 Flora and Fauna surveys and Level 2 Flora and Fauna surveys</li> </ul>



Criteria	JORC Code explanation	Commentary
	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.	completed. No declared rare species or threatened ecological communities have been identified. <ul style="list-style-type: none"> <li>Subterranean fauna studies have located both troglofaunal and stygofauna with most species occurring both inside and outside of the expected pit areas.</li> </ul>
Bulk density	<p>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.</p> <p>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.</p> <p>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</p>	<ul style="list-style-type: none"> <li>Bulk density/specific gravity have been measured by the Company on core from Yangibana North, and at independent laboratories on core from Bald Hill, Bald Hill South, Fraser's, Yangibana, Auer, Auer North and Yangibana West. Samples have been taken from each of oxidised, partially oxidised and fresh mineralisation with results feeding into the resource estimations.</li> <li>Bulk density/specific gravity measurements have also been carried out at an independent laboratory on samples of oxidised, partially oxidised and fresh host rock, granite. In situ bulk densities for the individual deposits have ranged from 1.70 to 3.50 tonnes per cubic metre.</li> <li>During the 2020 drilling some 55 drill holes were downhole logged for density using a gamma – gamma tool and in 2021-2022 121 holes were logged. The downhole gamma derived density values were validated against both logged geology and existing measured bulk densities and were found to be consistent. Data was logged at 1cm intervals and composited to 1m values and used to define bulk density factors for each of the deposits estimated. These factors were used to assign bulk density values by depth within the block models for both mineralised and un-mineralised intervals. Final calibration of the downhole gamma density values is being carried out by an external geophysical consultant.</li> </ul>
Classification	<p>The basis for the classification of the Mineral Resources into varying confidence categories.</p> <p>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).</p> <p>Whether the result appropriately reflects the Competent Person's view of the deposit.</p>	<ul style="list-style-type: none"> <li>The Mineral Resource has been classified in the Measured, Indicated and Inferred categories, in accordance with the 2012 Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC Code). A range of criteria has been considered in determining this classification including:               <ul style="list-style-type: none"> <li>Geological and grade continuity</li> <li>Data quality.</li> <li>Drill hole spacing.</li> <li>Modelling technique and kriging output parameters.</li> </ul> </li> <li>The Competent Person is in agreement with this classification of the resource.</li> </ul>
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	<ul style="list-style-type: none"> <li>A review of previous Mineral Resource estimates has been completed as part of the DFS financing process and the updated Mineral Resource estimate incorporates feedback from the review. It is expected that the Mineral Resources outlined in this announcement will be similarly reviewed.</li> </ul>
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral	<ul style="list-style-type: none"> <li>The relative accuracy of the various resource estimates is reflected in the JORC resource categories.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p>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.</p> <p>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.</p> <p>Documentation should include assumptions made and the procedures used.</p> <p>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</p>	<ul style="list-style-type: none"> <li>• At the Measured and Indicated Resource classification level, the resources represent local estimates that can be used for further mining studies.</li> <li>• Inferred Resources are considered global in nature.</li> </ul>