HASTINGS
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SUCCESSFUL COMPLETION OF YANGIBANA DEFINITIVE FEASIBILITY STUDY

Highlights

- **The Yangibana resource (21 million tonnes, JORC Code 2012) will support an initial mine life of 8 years on 100% held ground with further scope to expand production and extend the life of mine**
- **The Project has an after-tax net present value of A$466 million at a discount rate of 8%, an internal rate of return of 78% and a payback period of 2.3 years**
- **Probable Reserves (JORC Code 2012) of 5.15 million tonnes on 100% owned ground**
- **The Yangibana Project has one of the highest known Neodymium (Nd) & Praseodymium (Pr) to TREO Ratios of 41%**
- **Nd-Pr metallurgical recovery of 75.6% achieved in metallurgical pilot test plant**
- **Plan to produce up to 15,000 tons per annum of Mixed Rare Earths Carbonate on site in Yangibana**
- **Pre-production capital expenditure of A$335 million and operating costs of A$17.06/kg TREO (US$12.8/kg)**
- **Three off take MoUs signed with customers in China representing 40% of production volume**
- **Native Title Agreement signed for the entire tenement area of 650sqkm covering all rare earths minerals mined and sold**

Hastings Technology Metals Limited (ASX: HAS; Hastings or the Company) is pleased to announce the release of its Definitive Feasibility Study (DFS) for the Yangibana Rare Earths Project (the Project) in Western Australia. The Project will produce a Mixed Rare Earths Carbonate (MREC) rich in Neodymium (Nd) and Praseodymium (Pr), critical materials used in the manufacture of permanent magnets, which are found in electrical components of many new technology products, from electric vehicles (EV), renewable energy wind turbines and electronic consumer products.

The DFS demonstrates attractive economics using conservative price projections for the key rare earths of Nd-Pr which the company anticipates will have solid demand based on the strong trending growth of EV and wind turbines in particular, as well as other technological innovations. The DFS furthermore demonstrated the technical viability of the Yangibana flow sheet.

The DFS has made significant improvements against the operating cost estimated during the Pre-Feasibility Study (PFS) completed in June 2016, with a total DFS operating cost of A$142 million per annum compared against a PFS operating cost of A$202 million per annum. This represents a reduction of 30% in operating costs from the PFS stage.

The capital expenditure (CAPEX) of A$335 million has improved significantly when compared to the PFS, with the DFS CAPEX now approximately 20% lower than at PFS stage.

The DFS calculations are based on the Maiden JORC Ore Reserves of 5.15 million tonnes at 1.12% Total Rare Earths Oxide (TREO) for the first six years of operations, along with a Production Target for years 7 and 8 based on additional JORC Measured and Indicated Resources. All the Ore Reserves and Mineral Resources included in the DFS lie within tenements owned 100% by Hastings covering an area of approximately 50sqkm out of a total tenement area of 650sqkm.

The Probable Ore Reserves at Bald Hill and Fraser's deposits are based on the JORC Resources shown in Tables 1 and 2, that form part of the Total Yangibana Project resources as announced on 22nd November 2017 that total 21.0 million tonnes. Apparent discrepancies might appear due to rounding.

Tenement	Category	Tonnes	%Nd_2O_3+Pr_6O_{11}	%TREO
M09/157	Measured	2,700,000	0.40	1.00
	Indicated	1,890,000	0.40	1.01
	Inferred	1,110,000	0.33	0.88
	TOTAL	**5,700,000**	**0.39**	**0.98**
M09/162	Indicated	160,000	0.44	1.04
	Inferred	230,000	0.42	1.06
	TOTAL	**400,000**	**0.43**	**1.05**

Table 1 – JORC Resources at Bald Hill Deposit, November 2017

Tenement	Category	Tonnes	$\%Nd_2O_3+Pr_6O_{11}$	%TREO
M09/158	Measured	220,000	0.68	1.60
	Indicated	650,000	0.65	1.52
	Inferred	660,000	0.31	0.74
	TOTAL	**1,530,000**	**0.51**	**1.20**
E09/2018	Inferred	40,000	0.18	0.39
	TOTAL	**40,000**	**0.18**	**0.39**

Table 2 – JORC Resources at Fraser's Deposit, November 2017

The Modifying Factors used to estimate the Ore Reserves are provided in Table 1 Section 4 of the JORC Code (2012).

68% of the initial 8-year operating life underpinned by Ore Reserves.

The Mining focus is high ore recovery and conventional drill and blasting methods will be employed.

The Project is comprised of three main rock types:

- The upper horizon is a saprolite, this does not require blasting.
- The lower weathered and fresh granite horizons require blasting.
- Ironstone (not all of which is ore), RC grade control drilling is required.

The ore dips at between 10 and 45 degrees and varies in thickness between 1m and 20m at Frasers and 1m and 30m at Bald Hill, with an average thickness of 4m. The ore zone (ironstone) is visually distinct from the host rock, providing some control for ore identification.

RC grade control drilling will be done on a 10m x 10m grid, prior to ore delineation.

Selective blasting and mining around the ore zones are designed to remove the hanging-wall as cleanly as possible to expose the ore.

The ore is then mined to the footwall contact using selective mining. Due to the high value of the ore, a high ore recovery is the focus of mining. As such, a 50cm skin of dilution is added to the ore mined to enable a 98% ore recovery assumption.

The ground water at Frasers has a pre-mining static level at 309 metres reduced level (mRL) is 45m below the mining surface and at Bald Hill the pre-mining static level is at 309 mRL and is 45m below the mining surface. Pits will be dewatered ahead of mining using bores to provide a dewatered rock mass at no more than 8 litres per sec pumped from each pit. Stormwater will be managed in pit using sumps and consider pumping up to 10 litres per sec pumped from sumps in each pit.

Waste from each pit is stored in adjacent waste dumps. Some of the Bald Hill pit is backfilled to minimise haulage distances. Ore is transferred either directly to the Run-Of-Mine (ROM) pad, or to a low-grade stockpile, with the mining trucks (as the distance travelled is reasonably low).

Pit optimisations were completed to determine the economic mining limits for each deposit. Only Measured and Indicated Resources were considered for processing. Pits were then designed in stages to enable higher grades to be targeted and waste extraction to be deferred. Both Bald Hill and Frasers are approximately 125m deep. The main Bald Hill pit is approximately 1,100m long and 600m wide. The Frasers pit is approximately 600 m long and 250m wide. The waste dumps are located to minimise haulage distances and were constrained by lease boundaries (Bald Hill) and water courses. The Bald Hill dump covers an area of 100 hectares (ha), and the Frasers dump is 86ha.

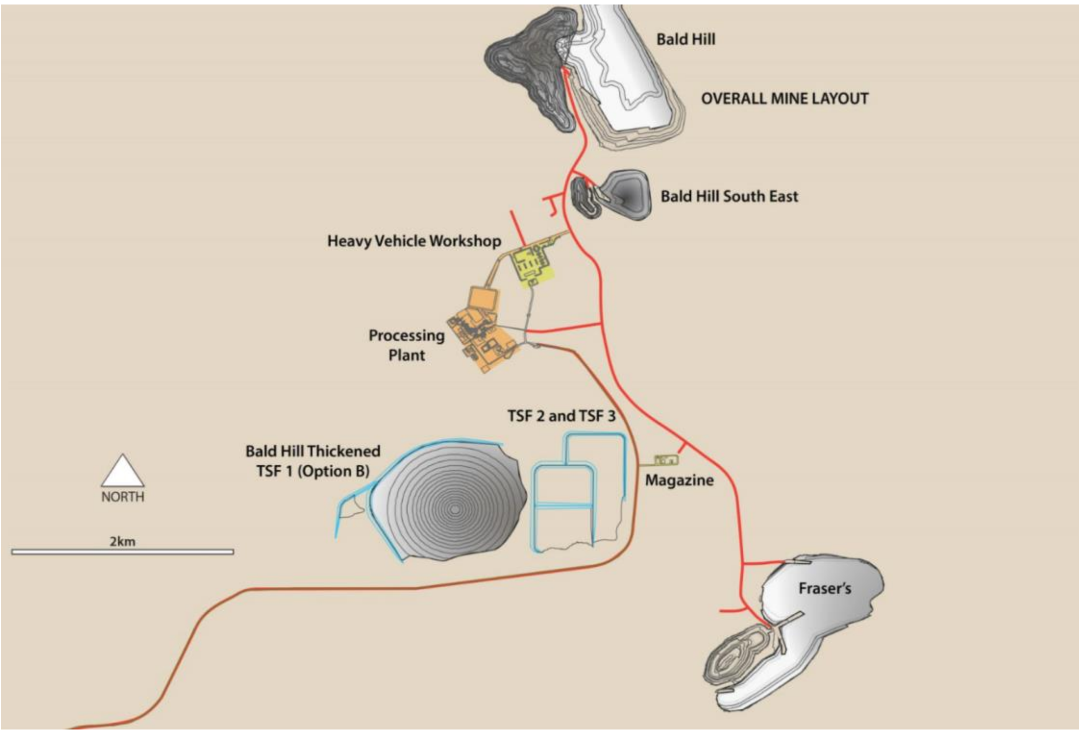

Figure 1 – Pit Designs, Bald Hill and Fraser's and Plant and Tailings Dam Layouts

The Company has completed extensive metallurgical testwork culminating in pilot plant tests on a composite sample of material from Bald Hill and Fraser's. This testwork has defined a route entailing crush, grind, flotation, acid bake with water leach and precipitation of a Mixed Rare Earths Concentrate. The key parameters are shown in Table 3.

Definitive Feasibility Study Parameters	
Bald Hill and Fraser's JORC Resources	Measured and Indicated
Mining Method	Open Pits
Mining Dilution – 0.5m skin on HW and FW incorporated in resource estimation	variable
Mining Recovery	98%
Processing Route	Flotation, Acid Bake – Water Leach and MREC Precipitation
Overall Processing Recovery (TREO) – Ore to MREC	74.9%
Target Production Rate (Mixed Rare Earths Concentrate)	15,000 tpa
Target Contained Nd_2O_3+Pr_6O_{11}	3,400 tpa
Pre-Production Capital Costs	A$335.3m
Production Capital Costs	A$13.1m
Operating Costs	A$17/kg
Basket Value	Bald Hill US$31.70/kg Fraser's US$32.15/kg
Exchange Rate US$:A$	0.75
Discount Rate	8%

Table 3 – Summary of Key Parameters Used To Establish Probable Ore Reserves

All environmental studies and approvals processing are progressing as required. The cut-off grade for the project was determined based on calculating revenue, selling and processing costs on a block-by-block (diluted) basis. Blocks with revenue greater than the sum of the processing and selling costs were considered to be above cut-off.

Based on the resources in Tables 1 and 2 and the Modifying Factors, Snowden has estimated the Probable Ore Reserves as shown in Table 4.

Item	Bald Hill	Fraser's	Total
Tonnes (kt)	4,380	780	**5,160**
TREO (%)	1.04	1.58	**1.12**
Nd_2O_3 (ppm)	3,330	5,320	**3,630**
Pr_6O_{11} (ppm)	783	1,380	**873**
Eu_2O_3 (ppm)	79	83	**79**
Gd_2O_3 (ppm)	189	197	**190**
Sm_2O_3 (ppm)	376	436	**385**
CeO_2 (ppm)	4,150	6,900	**4,560**
La_2O_3 (ppm)	1,200	1,200	**1,200**
Dy_2O_3 (ppm)	62	68	**63**
Tb_4O_7 (ppm)	19	21	**19**
Ho_2O_3 (ppm)	7	7	**7**
Er_2O_3 (ppm)	10	11	**10**
Tm_2O_3 (ppm)	1	1	**1**
Yb_2O_3 (ppm)	5	5	**5**
Lu_2O_3 (ppm)	1	1	**1**
Y_2O_3 (ppm)	158	169	**160**

Table 4 – Bald Hill and Fraser's Ore Reserves, November 2017

Financial evaluation provides the outcome as shown in Table 5.

Operating Life	8 years
Net Present Value (NPV)	A$466m
Internal Rate of Return (IRR)	78%
Payback Period	2.3 years

Table 5 – Yangibana Project Definitive Feasibility Study Key Economics

The shallow mineralisation at Yangibana is amenable to standard open pit mining consisting of conventional drilling and blasting, operated by mining contractors. The project is designed to bring approximately 1 million tonnes per annum of ore to the Run Of Mine (ROM) pad where the flowsheet process begins. Early stages comprise comminution and beneficiation, resulting in a beneficiated concentrate upgrade by 20 times from the ROM ore, as demonstrated through the DFS, to a 25% TREO concentrate. This concentrate is further processed downstream through a hydrometallurgical process that involves acid bake, water leaching, impurity removal and precipitation to produce up to 15,000 tpa of MREC. The MREC will contain up to 3,400 tpa of neodymium oxide (Nd_2O_3) + praseodymium oxide (Pr_6O_{11}) representing 41% of contained TREO. Hastings will sell this Nd_2O_3+Pr_6O_{11} rich MREC to rare earths oxides separators or other customers further along the rare earth supply chain.

Mr. Charles Lew, Executive Chairman of Hastings, said, *"We are very pleased that the DFS demonstrates the Yangibana project to be economically and technically viable and Hastings is focused on becoming the second source of Nd-Pr supply from Australia. We have already signed three MOUs with Chinese customers and we have ongoing discussions to sell our MREC to customers worldwide."*

He continued, "*The DFS has gone a long way to de-risk the Yangibana Project. We have importantly demonstrated to our shareholders and customers that we can produce a Nd-Pr rich MREC in Australia, while at the same time gathering important processing data points to proceed to the next stage with the design and development of the Yangibana Project. We will now turn our focus on some early stage infrastructure work, obtaining the remaining permits and approvals and securing the financing to undertake the Project. With the increasing sales of EV, Hastings is well positioned to capture a piece of this massive market where there is a strong demand for permanent magnets to make electric motors."*

Recently a number of countries announced policy targets to replace fossil-fuel vehicles with EV over the next decade, and with the innovation in electric motors utilising permanent magnets, the International Energy Agency expects an increase in electric vehicle numbers of between 120 – 200 million by 2030 from 2 million at the end of 2016. Hastings anticipates that these trends will underpin the solid demand for Nd-Pr and its production at Yangibana.

DFS Outcomes

The Project is estimated to generate annual sales revenue of A$379 million, an NPV of A$466 million (discount rate of 8%), an Internal Rate of Return (IRR) of 78% and a 2.3-year payback. These project economics provide a compelling case for an economically viable project.

Revenue streams are highly dependent on Nd-Pr prices – accounting for 85-90% of projected revenue. Together with Dy-Tb, the Nd-Pr-Dy-Tb contribution accounts for 92% of revenue generation.

The Company will continue to work on identifying areas where capital expenditure can be further reduced. Significant gains have been achieved on operating expenses, with a reduction of 30% achieved from the PFS. With estimated annual operating expenses at A$142 million per year, the average operating cost for the project is A$17.0/kg TREO (US$12.8/kg), including all fixed and variable costs.

The DFS financial model assumes an average long-term US$/A$ exchange rate of US$0.75 and price forecasts from 2017 to 2027 for rare earths prices from Argus Media, an independent provider of price information, market data and business intelligence for the global resource industry. Hastings anticipates an increase in some of the key rare earths prices, especially Nd-Pr over the next decade. The price rises seen in 2017 demonstrate that the Chinese authorities are having a degree of success in shutting down illegal production in China and Hastings expects the emphasis on sustainable production to continue in China and be supportive of Nd-Pr prices.

Next Steps

With the conclusion of the DFS, Hastings' management has a number of key focus areas. The company will continue working towards the completion of the remaining permits and approvals, co-ordinating the process by utilising the Lead-Agency Project (LAP) status that the project has been granted by the Western Australian state government. The Yangibana project is not only a high priority for the rare earth and clean energy industries, but also to the local Gascoyne community eagerly anticipating both direct and in-direct work opportunities. Management's objective is to work to ensure a smooth process to commence production by late 2019. Design and procurement activities will also commence in line with the development timeline as outlined in the DFS. Early work on infrastructure and the preparation of the site around Yangibana is expected to commence after the rainy season in March/April 2018.

The company will now focus on the remaining fund raising necessary to complete the project. Hastings is confident that following the release of the DFS, it will be able to secure the required funds to commence construction of the production plant. The Project's economics and financials as reported in the DFS are compelling and strong interest is expected from investors and financiers, given that the rare earth products from Yangibana will be used in renewable and clean energy technologies that have been identified as a strong growth sector. Based in Australia, with a AAA/Aaa sovereign credit rating, high corporate governance and a solid history of successful mining projects, Yangibana offers strategic value to downstream customers in the rare earths supply-chain both in China and outside of China.

Hastings currently has a market capitalisation of approximately A$230m, with A$18m in the bank and no debt. It has a track record of raising A$46m of equity capital since May 2014 and is confident that it will continue to be able to raise the remaining equity capital needed for the Project's capital costs. The company has also undertaken discussions with financial institutions since the completion of the PFS in June 2016, and these discussions will proceed to more formal levels once these institutions have access to the completed DFS. Presently the DFS anticipates a debt-to-equity split of 65%-35%, however this ratio may change depending on advancing negotiations including terms and conditions of loan facilities. Any change in the debt-to-equity ratio may impact the dilution realised by current and future equity investors and will change the overall cost of capital for the Company.

Government agencies in AAA/Aaa sovereign jurisdictions with a mandate to promote renewable and clean energy technologies have indicated interest to provide credit support and/or fund part of the Yangibana Project. Hastings has had discussions with these parties and further progression of these discussions will follow with the release of the DFS.

Compliance Statement

Forward Looking Statements

This announcement and the DFS contain certain statements with respect to future matters and which may constitute "forward looking statements". Such statements are only predictions and are subject to inherent risks and uncertainties which could cause actual values, results, performance or outcomes to differ materially from those expressed, implied or projected. Investors are cautioned that such statements are not guarantees of future performance and accordingly not to put undue reliance on forward-looking statements due to the inherent uncertainty therein.

Competent Person Statements

The information in this announcement and DFS that relates to Resources is based on information compiled by Lynn Widenbar. Mr Widenbar is a consultant to the Company and a member of the Australasian Institute of Mining and Metallurgy. The information in this announcement and DFS that relates to Exploration Results is based on information compiled by Andy Border, an employee of the Company and a member of the Australasian Institute of Mining and Metallurgy.

Each has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this announcement and DFS 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"). Each consent to the inclusion in this announcement and DFS of the matters based on his information in the form and context in which it appears.

The information in this announcement and DFS that relates to the Fraser's and Bald Hill Ore Reserve is based on information reviewed or work undertaken by Mr Frank Blanchfield, FAusIMM, and an employee of Snowden Mining Industry Consultants. Mr Blanchfield has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the preparation of mining studies to qualify as a Competent Person as defined by the JORC Code 2012. Mr Blanchfield consents to the inclusion in this announcement and DFS of the matters based on his information in the form and context in which it appears.

The scientific and technical information in this announcement and DFS that relates to process metallurgy is based on information reviewed by Mr Dale Harrison MAusIMM, who is a metallurgical consultant and employee of Wave International. Mr Harrison has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the JORC Code 2012. Mr Harrison consents to the inclusion in this announcement and DFS of the matters based on his information in the form and context in which it appears.

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About Hastings Technology Metals

Yangibana Project

Hastings Technology Metals (ASX:HAS, the Company) is advancing the Yangibana Rare Earths Project towards production following the completion of a positive Definitive Feasibility Study. The Yangibana Project hosts rare earths deposits rich in neodymium and praseodymium, elements vital to permanent magnets that provide many critical components of wide ranging high-tech products, including electric vehicles, renewable energy wind turbines, robotics, medical applications and others. The Company aims to be the next significant producer of neodymium and praseodymium outside of China.

The established Yangibana reserves and resources are predominantly within tenements held 100% by Hastings, with the majority in granted Mining Leases. Lesser resources are held in a joint venture in which Hastings holds a 70% interest and has management control.

The Definitive Feasibility Study has established JORC Probable Reserves of 5.15 million tonnes at 1.12% total rare earths oxides (TREO) including 41% neodymium and praseodymium oxides (Nd_2O_3+Pr_6O_{11}). This reserve is the basis of the initial operation at a planned production rate of up to 15,000 tonnes per annum (t.p.a.) MREC including 3,400 t.p.a. of Nd_2O_3+Pr_6O_{11}.

Including the above Reserves, the Company has JORC Measured, Indicated and Inferred Resources of 21.0 million tonnes at 1.17% TREO including 0.40% (Nd_2O_3+Pr_6O_{11}). From this Resource, an Additional Production Target (APT) of a further 2.5 million tonnes from 100% owned ground, from Measured and Indicated resources, will add to feed for the production plant in later years.

Many more areas of the Company's deposits have the potential for additional resources and exploration programmes are in place to evaluate these areas in future plus the numerous other targets identified to date.

Brockman Project

The Company is also progressing a Mining Lease application over the Brockman Rare Earths and Rare Metals Project.

The Brockman deposit, near Halls Creek in Western Australia, contains JORC Indicated and Inferred Resources totalling 41.4 million tonnes (comprising 32.3 million tonnes Indicated Resources and 9.1 million tonnes Inferred Resources) at 0.21% TREO, including 0.18% HREO, plus 0.36% Nb_2O_5 and 0.90% ZrO_2.

The Company aims to capitalise on the strong demand for critical rare earths created by the expanding demand for new technology products.

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JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg 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.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.*	• Samples used to assess the numerous deposits of the Yangibana Project have been derived from both reverse circulation (RC) and diamond drilling. Seven drilling programmes have been completed since 2014 to date. • Samples from each metre were collected in a cyclone and split using a 3-level riffle splitter. Field duplicates, blanks and Reference Standards were inserted at a rate of approximately 1 in 20. • RC and diamond drilling leading to the establishment of JORC Resources has been carried out at Bald Hill, Frasers's, Yangibana West, Auer, Auer North, Yangibana, and Simon's Find within tenements held 100% by Hastings, and at Yangibana North, Gossan, Lion's Ear, Hook and Kane's Gossan. In addition, drilling has been carried out at Hatchett, Demarcay, Mosander Terry's Find and Yangibana South prospects.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	• Reverse Circulation drilling at the various targets utilised a nominal 5 1/4 inch diameter face-sampling hammer. • Diamond drilling at the various targets has been HQ diameter.
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.*	• Recoveries are recorded by the geologist in the field at the time of drilling/logging. • 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. A cyclone and splitter were used to ensure representative samples and were routinely cleaned. • Sample recoveries to date have generally been high, and moisture in samples minimal. Insufficient data is available at present to determine if a relationship exists between recovery and grade.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral*	• All drill chip samples are geologically logged at 1m intervals from surface to the bottom of each individual hole to a level that support appropriate

Criteria	JORC Code explanation	Commentary
	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.*	future Mineral Resource studies. • Logging is considered to be semi-quantitative given the nature of reverse circulation drill chips. • All RC drill holes in the current programme are logged in full.
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 the material being sampled.*	• 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. • 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. • Bulk samples were placed in green plastic bags, with the sub-samples collected placed in calico sample bags. • 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. • A sample size of 2-4kg was collected and considered appropriate and representative for the grain size and style of mineralisation.
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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Genalysis (Perth) was used for all analysis work carried out on the 1m drill chip samples and the rock chip samples. 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 • Blind field duplicates were collected at a rate of approximately 1 duplicate for every 20 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.
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.*	• At least two company personnel verify all significant intersections. • All geological logging and sampling information is completed firstly on to paper logs before being transferred to Microsoft Excel spreadsheets. Physical logs and sampling data are returned to the Hastings head office for scanning and storage. Electronic copies of all information are backed up daily. • No adjustments of assay data are considered necessary.

Criteria	JORC Code explanation	Commentary
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.*	• A Garmin GPSMap62 hand-held GPS is used to define the location of the drill hole collars. Standard practice is for the GPS to be left at the site of the collar for a period of 5 minutes to obtain a steady reading. Collar locations are considered to be accurate to within 5m. Collars will be picked up by DGPS in the future. Down hole surveys are conducted by the drill contractors using a Reflex electronic single-shot camera with readings for dip and magnetic azimuth nominally taken every 30m down hole, except in holes of less than 30m. The instrument is positioned within a stainless steel drill rod so as not to affect the magnetic azimuth. • Grid system used is MGA 94 (Zone 50) • Topographic control is based on the detailed 1m topographic survey undertaken by Hyvista Corporation in 2016.
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.*	• Hole collars were initially laid out at 50m centres. In areas considered to have potential to increase to Measured plus Indicated resources intermediate holes have been drilled to provide 37.5m hole spacing. Collar locations were varied slightly dependent on access at a given site. • No sample compositing is used in this report, all results detailed are the product of 1m downhole sample intervals.
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.*	• Most drill holes in the current programme are vertical (subject to access to the preferred collar position) or collared at -60º or -70º in steeper mineralised areas such as Auer and Auer North.

Sample security	• *The measures taken to ensure sample security.*	• 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:
		    • Hastings Technology Metals Ltd
		    • Address of laboratory
		    • Sample range
		• Samples were delivered by Hastings personnel to the Nexus Logistics base in order to be loaded on the next available truck for delivery to Genalysis. 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.

Criteria	JORC Code explanation	Commentary
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audit of sampling data has been completed to date but a review will be conducted once all data from Genalysis (Perth) has been received. Data is validated when loading into the database and will be validated again prior to any Resource estimation studies.

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	• *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 security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• Drilling has been undertaken on numerous tenements within the Yangibana Project. • All Yangibana tenements are in good standing and no known impediments exist.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Ten of the Yangibana prospects were previously drilled to a limited extent by Hurlston Pty Limited in joint venture with Challenger Pty Limited in the late 1980s. Auer and Auer North were first drilled by Hastings in 2016. Simon's Find was first drilled by Hastings in 2017.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Yangibana ironstones within the Yangibana Project are part of an extensive REE-mineralised system associated with the Gifford Creek Carbonatite Complex. The lenses have a total strike length of at least 12km. • These ironstone lenses have been explored previously for base metals, manganese, uranium, diamonds and rare earths. • The ironstones are considered by GSWA to be coeval with the numerous carbonatite sills that occur within Hastings tenements, or at least part of the same magmatic/hydrothermal system.

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:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material*
		• N/A

Criteria	JORC Code explanation	Commentary
	and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	• *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.* • *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.*	• All intervals reported are composed of 1m downhole intervals and as such are length weighted. A lower cut-off grade of 0.20%Nd_2O_3+Pr_6O_{11} has been used for assessing significant intercepts, and no upper cut-off grade was applied. • Maximum internal dilution of 1m was incorporated in reported significant intercepts. • The basis for the metal equivalents used for reporting are provided in the body of the ASX announcement. .
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 (eg 'down hole length, true width not known').*	• True widths for mineralisation have not been calculated and as such only downhole lengths have been reported. • It is expected that true widths will be less than downhole widths, due to the apparent dip of the mineralisation.
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 maps and sections are available in the body of this ASX announcement.
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.*	• Reporting of results in this report is considered balanced.
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.*	• Geological mapping has continued in the vicinity of the drilling as the programme proceeds.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions, depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling*	• Numerous targets exist for expansion of the current JORC Resources within the Yangibana Project, as extensions to defined deposits, new targets identified from the Company's various remote sensing surveys, and conceptual as yet untested targets at depth.

Criteria	JORC Code explanation	Commentary
	areas, provided this information is not commercially sensitive.	

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

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.*	• Data was provided as a validated Access Database and was digitally imported into Micromine Mining software. Micromine validation routines were run to confirm validity of all data. • Individual drill logs from site have been checked with the electronic database on a random basis to check for validity. • Analytical results have all been electronically merged to avoid any transcription errors.
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.*	• The Competent Person visited site from 15-16th December 2016 and reviewed geology, drilling etc.
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.*	• Confidence in the geological interpretation is considered to be high. • Detailed geological logging and surface mapping allows extrapolation of drill intersections between adjacent sections. • Alternative interpretations would result in similar tonnage and grade estimation techniques. • Geological boundaries are determined by the spatial locations of the various mineralised structures. • 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.
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.*	• Bald Hill mineralisation dips shallowly (maximum 30º) 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. • Fraser's mineralisation dips steeply (70-80º) in the western portion becoming more shallow (to 30º) 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. • Yangibana West mineralisation dips shallowly (maximum 30º) but variably to the south and ranges from 1m to 5m thick. Maximum depth of the resource is to a vertical depth of 100 metres below surface. • Auer has three discontinuous, steeply dipping zones of mineralisation extending North-South over a total strike length of approximately 3.5 km and to a depth of 150m below surface. • Auer North has two discontinuous, steeply-dipping zones of mineralisation extending north-south over a total strike length of approximately 1.4 km and has been tested to a depth of 120m below surface. • Yangibana mineralisation strikes east-west over a length of approximately 2 km, dipping at 40 to 45° to the north. The

Criteria	JORC Code explanation	Commentary
		zone extends to a depth of approximately 150m. The zone is relatively thin, typically 2 to 3m. • Simon's Find consists of 3 separate mineralisation zones over a total strike length of 2 km. The zones vary in dip from 40 to 80° to the south and west, and extend approximately 100m below surface. The zones are relatively thin, typically 2 to 5m. • Yangibana North mineralisation dips shallowly (maximum 30º) but variably to the south and ranges from 1m to 5m thick. Maximum depth of the resource is to a vertical depth of 140 metres below surface. • Gossan – the Inferred Resources at Gossan are based on limited drilling that has identified mineralisation over 300m of strike length, 100m down dip and ranging from 1-4m wide. Maximum depth of the resource is to a vertical depth of 80 metres below surface. • Lion's Ear - the Inferred Resources at Lion's Ear are based on limited drilling that has identified mineralisation over 520m of strike length, 80m down dip and ranging from 1-4m wide. Maximum depth of the resource is to a vertical depth of 140 metres below surface. • Hook - the Inferred Resources at Hook are based on limited drilling that has identified mineralisation over 380m of strike length, 100m down dip and ranging from 1-4m wide. Maximum depth of the resource is to a vertical depth of 130 metres below surface. • Kane's Gossan - the Inferred Resources at Kane's Gossan are based on limited drilling that has identified mineralisation over 550m of strike length, 100m down dip and ranging from 1-4m wide. Maximum depth of the resource is to a vertical depth of 130 metres below surface.
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*	• Due to the variable dip and strike of the various deposits, an "unfolding" technique has been used to simplify setup of search ellipse and modelling parameters • Statistical analysis and variography has been carried out in unfolded coordinates to define parameters for an Ordinary Kriging estimation. • All analysis and estimation has been constrained by the geological interpretation of the ironstone units. Separate estimation has been carried out for 0.5m thick dilution skins on the hangingwall and footwall of the mineralisation. • Kriging Neighbourhood Analysis was carried out for each deposit to determine optimal search and kriging parameters • All estimation was carried out using Micromine software (MM 2016 Sp5) • Kriging parameters were defined using Nd_2O_3 and Pr_6O11 as the primary variables. • Estimation has been carried out for the following variables : • Ce_2O_3_ppm, Dy_2O_3_ppm, Er_2O_3_ppm, Eu_2O_3_ppm, Gd_2O_3_ppm, Ho_2O_3_ppm, La_2O_3_ppm, Lu_2O_3_ppm, Nd_2O_3_ppm, Pr_6O_{11}_ppm, Sm_2O_3_ppm, Tb_4O7_ppm, Tm_2O_3_ppm, Y_2O_3_ppm, Yb_2O_3_ppm, ThO_2_ppm, U_3O_8_ppm, Al_per, Ca_per, Fe_per, Mg_per, Nb_ppm, P_per, S_per, Si_per, Sr_ppm, Ta_ppm, Zr_ppm • 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 12.5 m along strike, 10m down dip and 2.5 across strike.

Criteria	JORC Code explanation	Commentary
	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.*	• As there are no extreme values no capping has been applied. • Block model validation has been carried out by several methods, including: o Drill Hole Plan and Section Review o Model versus Data Statistics by Domain o Easting, Northing and RL swathe plots • All validation methods have produced acceptable results.
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 estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A nominal downhole cut-off of 0.20% Nd_2O_3+Pr_6O_{11} has been used in conjunction with logging of ironstone to define mineralised intersections.
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.*	• Mining is assumed to be by conventional open pit mining methods • Based on previous and on-going mining studies by Snowden, a 0.5m dilution skin has been added to both the footwall and hangingwall contacts of the mineralisation. • The dilution material is independently interpolated and is subsequently added to the mineralised domain to produce a diluted resource.
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.*	• Beneficiation and hydrometallurgical test work has been carried out on samples from the Eastern Belt (comprising Bald Hill, Bald Hill Southeast and Fraser's deposits). Mineralisation at Auer and Auer North is considered compatible with the Eastern Belt-style mineralisation, based on variability testwork. • Test work to date has shown that the rare earths mineralisation (largely monazite) can be upgraded readily using standard froth flotation techniques and readily available reagents..
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*	• Environmental studies have been carried out on site with Stage 1 Flora and Fauna surveys and Stage 2 Flora and Fauna surveys completed. No environmental issues have been identified. • Subterranean fauna studies have located both troglofauna and stygofauna but no unique or endangered species have been encountered.

Criteria	JORC Code explanation	Commentary
	not been considered this should be reported with an explanation of the environmental assumptions 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/specific gravity have been measured by the Company on core from Yangibana North, and at independent laboratories on core from Bald Hill South, Fraser's and Yangibana West. Samples have been taken from each of oxidised, partially oxidised and fresh mineralisation with results feeding into the resource estimations. Mineralisation at Auer and Auer North is considered to be similar to these areas. • 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 2.30 to 2.80 tonnes per cubic metre and have been assigned into the models based on weathering surfaces and assigned rock types.

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 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:
		  ○ Geological and grade continuity
		  ○ Data quality.
		  ○ Drill hole spacing.
		  ○ Modelling technique and kriging output parameters.
		• The Competent Person is in agreement with this classification of the resource.

Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• No audit of the current resources has been carried out at this time.
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 relative accuracy of the various resource estimates is reflected in the JORC resource categories. • At the Measured and Indicated Resource classification level, the resources represent local estimates that can be used for further mining studies. • Inferred Resources are considered global in nature.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3 also apply to this section.)

<table>
<tr><th>Item</th><th>Comments</th></tr>
<tr><td>Mineral Resource for conversion to Mineral Reserves</td><td>The resource models used for mine planning were:
• Bald Hill - BH_ALL_12_07_2017.dm
• Fraser's - FR_ALL_14_07_2017.dm
Only Measured and Indicated Resources were considered for inclusion in the Ore Reserve.</td></tr>
<tr><td>Site visits</td><td>Site visits were completed by the following Competent Persons:
<table>
<tr><th>Competent Persons</th><th>Items</th><th>Date of site visit</th></tr>
<tr><td>Frank Blanchfield</td><td>Mining</td><td>December 2015</td></tr>
<tr><td>Lynn Widenbar</td><td>Resources</td><td>December 2016</td></tr>
<tr><td>Dale Harrison</td><td>Metallurgy</td><td>N/A</td></tr>
</table>
The metallurgy Competent Person did not visit the site and was comfortable relying on the report of staff who has visited the site.</td></tr>
<tr><td>Study status</td><td>The Yangibana REO Project is currently under technical investigation as a Definitive Feasibility Study (DFS).</td></tr>
<tr><td>Cut-off parameters</td><td>The cut-off grade for the project was determined based on calculating revenue, selling and processing costs on a block-by-block (diluted) basis (parameters are below). Blocks with revenue greater than the sum of the processing and selling costs were considered to be above cut-off.</td></tr>
<tr><td>Mining factors and assumptions</td><td>The following Modifying Factors were considered in relation to the development of the Fraser's and Bald Hill Ore Reserves:
• Geotechnical: For pit optimisation, a 28° overall wall angle was applied for Saprolite, and 35° to 40° was applied to weathered and fresh granite.
• Dilution and ore loss: Dilution was applied by adding a 50 cm skin on the hanging wall and footwall sides of the orebody. A 2% ore loss was applied also.
Bald Hill – Measured and Indicated Resources only
<table>
<tr><th>Item</th><th>Geological model</th><th>Mining model</th><th>Difference</th></tr>
<tr><td>Tonnes (kt)</td><td>3,924</td><td>4,670</td><td>+19%</td></tr>
<tr><td>TREO (%)</td><td>1.19</td><td>1.01</td><td>-15%</td></tr>
<tr><td>Nd_2O_3 (ppm)</td><td>3,826</td><td>3,250</td><td>-15%</td></tr>
<tr><td>Pr_6O_{11} (ppm)</td><td>902</td><td>765</td><td>-15%</td></tr>
</table>
Fraser's – Measured and Indicated Resources only
<table>
<tr><th>Item</th><th>Geological model</th><th>Mining model</th><th>Difference</th></tr>
<tr><td>Tonnes (kt)</td><td>749</td><td>857</td><td>+14%</td></tr>
<tr><td>TREO (%)</td><td>1.77</td><td>1.54</td><td>-13%</td></tr>
<tr><td>Nd_2O_3 (ppm)</td><td>5,975</td><td>5,185</td><td>-13%</td></tr>
<tr><td>Pr_6O_{11} (ppm)</td><td>1,549</td><td>1,343</td><td>-13%</td></tr>
</table>
• Processing parameters as detailed below.
• Sales parameters as detailed below.
• Administration costs as detailed below.
• Cut-off grades as detailed above.</td></tr>
<tr><td>Metallurgical factors and assumptions</td><td>Following a Prefeasibility Study (PFS) investigating a wide range of process flowsheet options, an optimum process flowsheet has been developed for the Yangibana Rare Earth Project to DFS level. The process comprises ore beneficiation followed by hydrometallurgical (hydromet) extraction to produce a valuable Mixed Rare Earths Carbonate (MREC) product.</td></tr>
</table>

Item	Comments
	The beneficiation process consists of crushing, screening, grinding, rougher flotation, regrinding and cleaner flotation. Crushing, screening and grinding reduces the ore to below 90 micron required by the flotation rougher circuit. Rougher flotation selectively separates the valuable rare earths minerals from the gangue minerals. Regrinding of the rougher concentrate reduces the rougher concentrate to below 20 micron for feed to the flotation cleaner circuit which allows further rejection of the undesirable minerals to produce a higher grade rare earth flotation concentrate. The hydrometallurgy process consists of acid bake, water leach, impurity removal and MREC product precipitation. Acid bake entails mixing the beneficiation concentrate with concentrated sulphuric acid and baking in a rotary kiln to produce soluble rare earths sulphates. The rotary kiln product is then agitated with water in the water leach circuit to dissolve the soluble rare earths sulphate into aqueous solution and leave most of other impurities in residue. A small amount of iron, phosphate, thorium, uranium and aluminium are also dissolved during the leaching process and are removed by the subsequent impurities removal processes. The purified rare earths sulphate solution is finally precipitated with ammonium bicarbonate to produce a MREC. The simple and effective metallurgical process flowsheet developed with the best known available technology and industrial practice by Hastings Technical Team has been well tested in both laboratory scale and pilot scale with representative samples. Testwork for the scoping study, PFS and DFS has been completed at a number of commercial laboratories in Australia. Beneficiation testwork has been completed at Nagrom, KYSPY Met and ASL Metallurgy, with the pilot plant conducted at ALS Metallurgy. Hydromet testwork has been completed at HRL testing, ALS Metallurgy, SGS Minerals Metallurgy and ANSTO, with the pilot plant operation completed at ANSTO. Scoping study testwork programs kicked off in mid-2014 and testwork has been ongoing since that time. The majority of the DFS testwork was completed in the period from May 2016 to July 2017. With identified grade of deposits, 1.0% to 1.4% TREO has been set for the feed grade to the beneficiation plant to ensure stable process performance and produce a constant mass of concentrate to hydromet. Flotation testwork indicated that Calcium Oxide (CaO) level has significant impact to the concentrate grade, a CaO to TREO ratio has been set for the feed to beneficiation plant to stabilise the concentrate grade. A minimum 25% TREO of concentrate has been designed for hydromet process according to hydrometallurgical test results for different grade of concentrate. Beneficiation continuous pilot plant testing has successfully validated the simple and effective flowsheet of Yangibana flotation process. The pilot plant ran at a rate of 150 kg per hour, for 24 hours per day continuously over eight days. The pilot operation confirmed 70% TREO recovery at a final concentrate grade of 23% TREO. With further improvement through optimised flotation circuit chemistry, the beneficiation process has achieved over 85% TREO recovery at a final concentrate grade of 27% TREO. Over 300 kg of flotation concentrate generated in beneficiation pilot plant was treated through the hydromet pilot plant in three phases over a total of 12 days. All three phases achieved or exceeded targeted rare earths recoveries which are 94% for acid bake and water leach, 95% for impurity removal and 99% for carbonate precipitation. The major product impurities of manganese, iron, thorium and uranium were removed or controlled within acceptable product range. Over 50 kg of high-purity MREC produced from the pilot plant which has been sent to 11 customers for evaluation. The product quality is acceptable to separation plant operators. The unit processes selected for inclusion in the beneficiation and hydromet process flowsheet are based on known technologies, both in the rare earth industries and other mining applications. The main value bearing mineral in the ore is monazite, a rare earth phosphate mineral. The flowsheet of flotation using a fatty acid collector, followed by acid bake, water leach and impurity removal is not novel. Once the unit processes were selected, testwork focused on determining reagent types and process conditions that were suitable for treating the specific mineralogy of the ore. Three tailings streams will be produced from the process plant as follows: • Tailings from beneficiation plant Rougher and Cleaner 1 flotation, • Tailings from beneficiation plant Cleaner 2 to Cleaner 4 flotation, and • Tailings (combined residue and solution) from hydromet plant.

Item	Comments
	A test program for the three tailings using the samples generated from pilot plant operation was undertaken by ATC Williams (ATCW) in July and August 2017 to characterise the three materials and establish parameters to predict tailings beach slope, slurry pumping requirements, decant return and overall deposited density. In conjunction with the laboratory tests undertaken by ATCW, pilot plant tailings samples were tested by Outotec in Perth for the purpose of tailings thickener design. Subsamples of the hydromet tailings and decant provided to ATCW were sent to ALS laboratories in Melbourne for preliminary geochemical characterisation. In addition, a program of geochemical testing has been completed on the beneficiation plant tailings and decant by Graeme Campbell and Associates (GCA). As the Yangibana ore and the associated tailings produced during processing contain naturally occurring radioactive materials (NORM), a program of radiological testing was initiated by Hastings which was undertaken by Radiation Professionals (Radpro) and ANSTO. Radiological assessments have been completed both for activity concentration and exposure classification. In addition to radiological assessment, ANSTO also completed elemental assays of the beneficiation pilot plant and hydromet pilot plant tailings solids and the hydromet plant residue solution (decant).
Environmental	This DFS was updated for the Environmental and Social Baseline section and includes data from the 2014 PFS but has been updated to reflect: • Baseline flora and fauna: Flora and fauna surveys have been conducted over 55,650 ha of tenements. No significant impact will occur to conservation significant terrestrial flora or fauna. • Baseline ground and surface water: A hydrology study has determined that mining and the majority of infrastructure falls outside flood impact zones. Water from fractured rock aquifers to meet approximately 20% of the Project's water demands. Remaining 80% of the water demands will be sourced from paleochannel bore-field. • Baseline soil and radiation: Baseline radiation surveys and radiation waste characterisation studies have determined that naturally occurring radioactive materials (NORM) are associated with the orebody. The product does not classify as being radioactive. • Waste rock geochemical characterisation: All Project mine pit lithologies have been characterised geochemically and classify as benign and non-acid forming. The mineralogy of the project is not associated with asbestiform minerals. Erodibility parameters were determined for waste rock and topsoil, and inform the waste rock landforms' design. • Baseline air quality: A baseline air quality assessment and greenhouse gas emissions assessment has been completed. A radiation impact assessment has determined that dust containing NORM will not pose a risk to the surrounding environment. • Cultural heritage: No impacts to known significant heritage sites will occur as a result of implementing the Project. • Closure: A Landform Evolution Study has identified landform design specifications that aim to ensure site landforms will maintain their integrity for 1,000 years post-closure. • Permits required and status of permits: A formal environmental impact assessment is currently set at a Public Environmental Review (PER) level of assessment by both the state and commonwealth government. The PER documentation is currently being prepared.
Infrastructure	The Yangibana Project is located approximately 200 km north of Gascoyne Junction in the Upper Gascoyne Region. The process plant is located is located on a greenfield site and all supporting infrastructure must be constructed. The proposed infrastructure for the Project will include: • Comminution plant • Beneficiation plant • Hydromet plant • Access and site roads • Water supply bore-field • Tails storage facility and evaporation plant • Mining buildings • Fuel storage • Security and fencing • Bore-field

<table>
<tr><th>Item</th><th>Comments</th></tr>
<tr><td></td><td>

Employee housing and transportation
Water treatment and mine site sewage
Data and communications infrastructure
LNG fuelled power station.

</td></tr>
<tr><td>Costs</td><td>
Operating costs
Mining
A contract mining cost for mining at Bald Hill and Fraser’s of A$4.09/dmt mined was estimated by Snowden.
Process
Based on DFS modelling, a processing costs are the same for both Bald Hill and Fraser’s:

A$75.50/t ore, made up of A$23.42/t ore for beneficiation and A$52.08/t ore for fixed costs
A$16.92/t TREO in-situ for the hydromet processing, and carbonate transport. Since the TREO content of the carbonate is constant, the yield to carbonate will vary with TREO head grade and recovery.

Selling costs
A royalty cost of 2.5% was applied.
Additionally, a separation charge (inclusive of impurity removal) of US$2.50/TREO in carbonate was applied, based on the November 2017 separation quote from REHT-International. For modelling purposes, this cost was applied to each rare earth oxide separately.
Opex summary (LOM – unescalated)
<table>
<tr><th>Item</th><th>A$ million</th><th>Average A$/t of ore</th></tr>
<tr><td>Mining costs</td><td>274</td><td>53.15</td></tr>
<tr><td>Labour</td><td>98</td><td>19.01</td></tr>
<tr><td>Flights, messing and accommodation</td><td>27</td><td>5.24</td></tr>
<tr><td>Power</td><td>52</td><td>10.09</td></tr>
<tr><td>Process fuel</td><td>30</td><td>5.82</td></tr>
<tr><td>Mining fuel (incl. in mining costs)</td><td>12</td><td>2.33</td></tr>
<tr><td>Maintenance</td><td>19</td><td>3.69</td></tr>
<tr><td>Consumables</td><td>12</td><td>2.33</td></tr>
<tr><td>Equipment hire</td><td>16</td><td>3.10</td></tr>
<tr><td>Product transport</td><td>16</td><td>3.10</td></tr>
<tr><td>Contract/General expenses</td><td>26</td><td>5.04</td></tr>
<tr><td>Corporate costs</td><td>12</td><td>2.33</td></tr>
<tr><td>Mine closure costs[1]</td><td>30</td><td>5.82</td></tr>
<tr><td>Reagents</td><td>226</td><td>43.84</td></tr>
<tr><td>Total operating costs</td><td>849</td><td>164.69</td></tr>
</table>
Note 1: Stated closure costs are for the Bald Hill and Fraser’s pits and waste dumps only. Closure cost estimate for the plant and all associated site infrastructure has been calculated as part of the feasibility study, but are not stated as part of the above LOM costs, as further Measured and Indicated resources (excluding this Probable Reserve) are available to support additional mine life.
Other operating costs (LOM – unescalated)
<table>
<tr><th>Item</th><th>A$ million</th></tr>
<tr><td>Taxation</td><td>72</td></tr>
<tr><td>Total royalties</td><td>49</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Item</th><th>Comments</th></tr>
<tr><td>Costs (continued)</td><td>
Capital costs summary
Pre-production capital costs (LOM – unescalated)
<table>
<tr><th>WBS L2</th><th>Description</th><th>A$ million</th></tr>
<tr><td></td><td>Mining</td><td>4.0</td></tr>
<tr><td></td><td>Process Plant</td><td>130.1</td></tr>
<tr><td></td><td>Non-process infrastructure</td><td>81.4</td></tr>
<tr><td></td><td>Tailings facility</td><td>19.8</td></tr>
<tr><td></td><td>Total direct costs</td><td>235.3</td></tr>
<tr><td></td><td>Indirect costs</td><td>56.3</td></tr>
<tr><td></td><td>Subtotal – Project Costs</td><td>291.6</td></tr>
<tr><td></td><td>Contingency</td><td>43.7</td></tr>
<tr><td colspan="2">Total Pre-production Project Costs (-5% + 15%)</td><td>335.3</td></tr>
</table>
Production capital costs (LOM – unescalated)
<table>
<tr><th>Item</th><th>A$ million</th></tr>
<tr><td>Plant sustaining</td><td>-</td></tr>
<tr><td>Tailings storage facility and evaporation pond – additional cells and lifts</td><td>5.9</td></tr>
<tr><td>Shire access road upgrade</td><td>7.2</td></tr>
<tr><td>Total LOM Production Costs</td><td>13.1</td></tr>
<tr><td>TOTAL PROJECT CAPITAL COSTS</td><td>348.4</td></tr>
</table>
Note 2: Major plant sustaining capital costs are not predicted to occur within the first six-year mine life of the process plant. The DFS has costed all light vehicle and mobile plant on a hire basis within the operating cost estimate.
</td></tr>
<tr><td>Revenue factors</td><td>
The Project will provide a MREC product for sale.
Separated rare earth oxide prices were applied in the pit optimisation. The source of the metal prices is the BAIINFO market prices for the period of August 2017. The corresponding TREO basket values were calculated as stated below:
TREO Basket Price
<table>
<tr><th>Deposit</th><th>2017 Basket Value (US$/kg TREO)</th></tr>
<tr><td>Bald Hill</td><td>31.70</td></tr>
<tr><td>Fraser's</td><td>32.15</td></tr>
</table>
The annual MREC production volume (as kg TREO) is calculated through the application of beneficiation and hydromet elemental recovery factors (derived from pilot plant and laboratory testing) to a quarterly mining schedule.
The MREC revenue is calculated as:
TREO Basket Price
minus Customer Separation Quote
minus Customer Impurity Removal Charges
= MREC Product Price
Hastings has previously announced that three offtake MOUs have been entered with Ganzhou Qiandong Rare Earth Group, China Rare Earth Holdings Limited and Baotou Sky Rock Rare Earth for approximately 6,000 tonnes of the planned annual TREO production volume.
</td></tr>
<tr><td>Market assessment</td><td>
The Yangibana Project will produce a MREC product that has a high Neodymium (Nd) and Praseodymium (Pr) content (~41% of TREO content) as the predominant value elements. It is estimated that Pr_6O_{11}, Nd_2O_3, Tb_4O_7 and Dy_2O_3 will contribute between 85% and 90% of the economic value per kilogram of production.

It is particularly in the Nd_2O_3 and Pr_6O_{11} oxides where substantial supply shortages and rapid demand growth are anticipated in the decade of the 2020s.
Argus Media supplied price forecasts for rare earth oxides in October 2017 covering the period 2017 to 2027.
The plant has a design capacity of 15,000 tonnes of MREC per annum.

</td></tr>
</table>

<table>
<tr><th>Item</th><th>Comments</th></tr>
<tr><td></td><td>

- Hastings has previously announced that three offtake MOUs have been entered with customers covering approximately 6,000 tonnes of the planned annual MREC production volume, with separated oxide prices used for MREC product pricing to be confirmed.

</td></tr>
<tr><td>Economic</td><td>

The key financial metrics for the DFS consisting of Bald Hill and Frasers (excluding any production target) of the project are the $IRR_{8\%}$Real of 70% and $NPV_{8\%}$Real of A$316 million.

The separated oxide prices used for the economic evaluation are the Argus Media forecasts for the period 2017 to 2020. Annual year-on-year escalation was applied on an individual rare earth oxide basis, as supplied in the forecasts. The derived MREC basket price applied in the evaluation, using the formula stated in Revenue Factors, is shown below:

MREC Basket Price used in evaluation (2020)

<table>
<tr><th>Deposit</th><th>2020 Basket Value (US$/kg TREO)</th></tr>
<tr><td>Bald Hill</td><td>36.06</td></tr>
<tr><td>Fraser's</td><td>36.67</td></tr>
</table>

- A NPV discount rate of 8% was used for the financial analysis.
- A US$:A$ exchange rate of 0.75:1 was used for the financial analysis.

A sensitivity analysis on the NPV is provided below.

<table>
<tr><th rowspan="2">Item</th><th rowspan="2">Units</th><th colspan="2">Low</th><th colspan="2">Mode</th><th colspan="2">High</th></tr>
<tr><th>Input</th><th>NPV</th><th>Input</th><th>NPV</th><th>Input</th><th>NPV</th></tr>
<tr><td>Nd_2O_3 price escalation</td><td>%</td><td>-11%</td><td>(5)</td><td>3%</td><td>316</td><td>15%</td><td>872</td></tr>
<tr><td>Nd_2O_3 oxide price</td><td>US$</td><td>40.34</td><td>100</td><td>60.00</td><td>316</td><td>80.33</td><td>537</td></tr>
<tr><td>Exchange rate</td><td>A$/US$</td><td>0.62</td><td>524</td><td>0.75</td><td>316</td><td>0.88</td><td>171</td></tr>
<tr><td>P_6O_{11} oxide price</td><td>US$</td><td>58.76</td><td>256</td><td>77.00</td><td>316</td><td>117.0</td><td>449</td></tr>
<tr><td>Mining costs</td><td>%</td><td>70%</td><td>358</td><td>100%</td><td>316</td><td>130%</td><td>275</td></tr>
<tr><td>Nd_2O_3 beneficiation recovery</td><td>%</td><td>79%</td><td>276</td><td>86%</td><td>316</td><td>88%</td><td>325</td></tr>
<tr><td>Pr_6O_{11} price escalation</td><td>%</td><td>4%</td><td>300</td><td>9%</td><td>316</td><td>7%</td><td>1</td></tr>
</table>

</td></tr>
<tr><td>Social</td><td>

Hastings is implementing a Stakeholder Engagement Plan. The overall response to the Project has been very positive. A Land Access Agreement has been negotiated and entered into with the pastoral lessee. A Native Title Agreement has been negotiated and entered into with the Native Title claimants.

The workforce will be recruited from the region, and where this is not possible, more broadly with most plant operations specialists sourced from Perth.

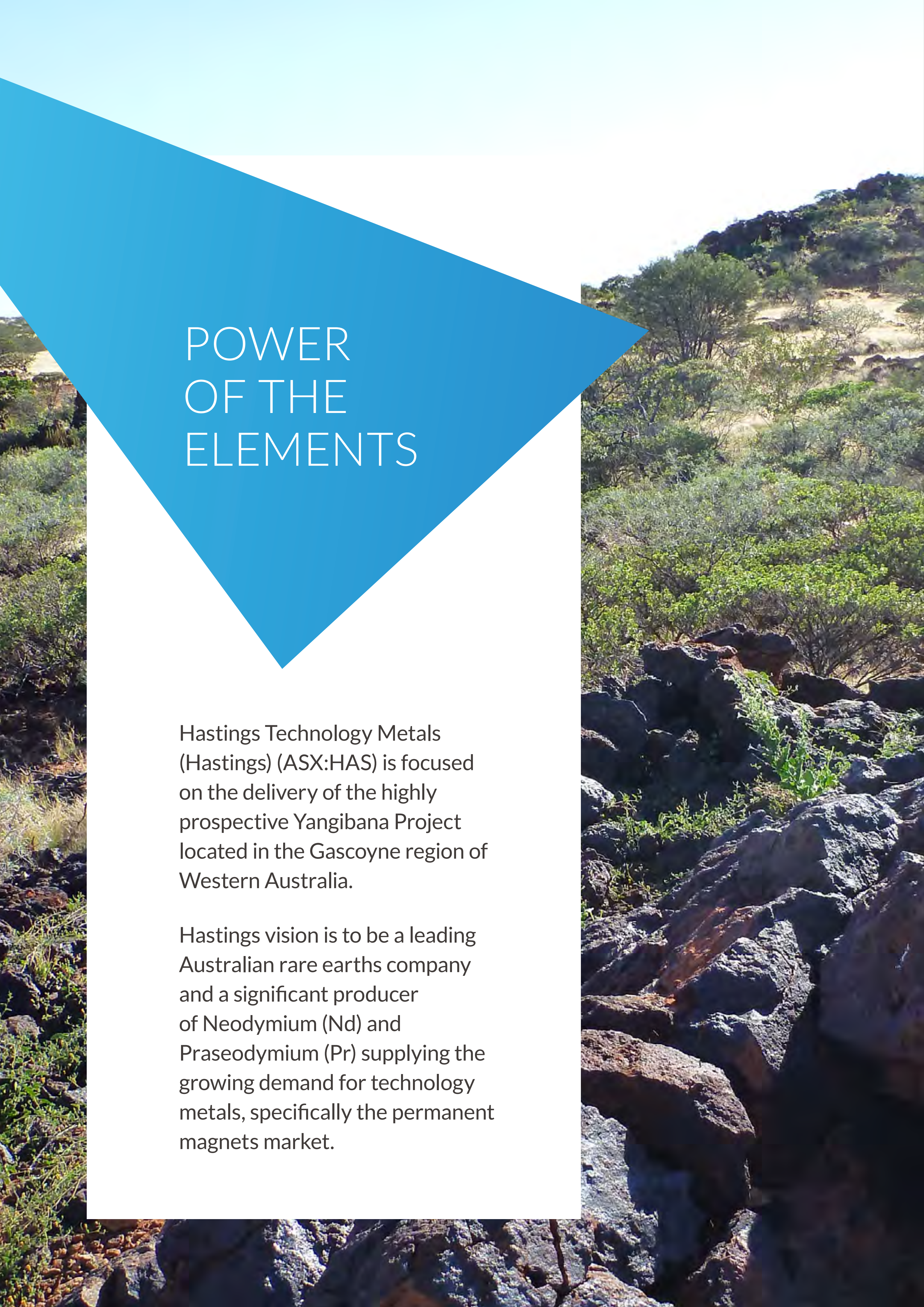
Hastings is currently developing systems and processes to ensure it maintains its social licence to operate, to ensure its workforce are competent in their respective roles and have a culture of safety and compliance.

</td></tr>
<tr><td>Classification</td><td>The Mineral Reserve is classified as a Probable Ore Reserve using the guidelines of the JORC Code (2012). The conversion of Measured Resources to Probable Reserves is primarily based on the need for production reconciliation of the selective ore deposit and reconciliation of the complex processing method.</td></tr>
<tr><td>Audits or reviews</td><td>No external audits or reviews of the 2017 DFS have been undertaken.</td></tr>
<tr><td>Relative accuracy/ confidence</td><td>The estimates in this study relating to mining, processing and cost performance are underpinned by a comprehensive DFS which has a confidence range of +/-15%.</td></tr>
</table>

HASTINGS
Technology Metals Limited

YANGIBANA PROJECT

DEFINITIVE FEASIBILITY STUDY
EXECUTIVE SUMMARY



POWER OF THE ELEMENTS

Hastings Technology Metals (Hastings) (ASX:HAS) is focused on the delivery of the highly prospective Yangibana Project located in the Gascoyne region of Western Australia.

Hastings vision is to be a leading Australian rare earths company and a significant producer of Neodymium (Nd) and Praseodymium (Pr) supplying the growing demand for technology metals, specifically the permanent magnets market.

CONTENTS

HIGHLIGHTS

DFS confirms Yangibana as high value MREC project

JORC Resources Tonnage Output

21M

ND-PR /TREO Ratio

41%

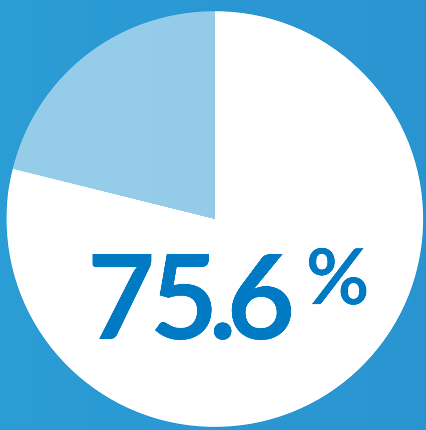
Off-take MOU's in place

3

Life of Mine

8 yrs

NdPr Metallurgical Recovery



Pre-production Capital

A$335M

OPEX Cost

A$17.06 /kg TREO

IRR

78%

over an 8 year mine life

Native Title Agreement in place

Project Economic Value

NPV

A$466M

Years to pay back

2.3

Production Ramp

2020

INTRODUCTION

Hastings Technology Metals Limited (ASX: HAS; Hastings or the Company) is pleased to announce the release of its Definitive Feasibility Study (DFS) for the Yangibana Rare Earths Project (the Project) in Western Australia. The Project will produce a Mixed Rare Earth Carbonate (MREC) rich in Neodymium (Nd) and Praseodymium (Pr), critical materials used in the manufacturing of permanent magnets, which are found in important components of many new technology products, from Electric Vehicles (EV), renewable energy wind turbines and electrical consumer products.

The DFS confirms a high value Project with significant exploration potential that will come online at a time when demand for the currently emerging permanent magnet market is expected to enter a significant growth phase due to increased demand for EV and market penetration of large scale renewable energy wind turbines.

The Project's 650sqkm tenement package is located approximately 270km east-northeast of Carnarvon on Gifford Creek Station in the Gascoyne region of Western Australia, and covers most of the area geologically known as the Gifford Creek Ferrocarbonatite Complex.

The Project is comprised of significant deposits across the tenement holdings - Bald Hill, Frasers, Yangibana West, Yangibana and Auer – all 100% owned by Hastings (The areas mentioned herein represents approximately 50sqkm out of the total of 650sqkm). In addition, Hastings holds a controlling 70% stake in other tenements held in a Joint Venture arrangement in the greater Yangibana area, although these have not been considered in this DFS study. These Joint Venture tenements may be readily developed as upside to increase mine life in the future.

The Project deposits have one of the highest rare earth basket values in the world when compared to other projects. Whilst the Mineral Resources contains 16 rare earth elements, Hastings has identified a combination of four elements (neodymium, praseodymium, dysprosium and europium) as having most significant economic value in relation to growth expectations in the near and medium term. In particular, Nd and Pr account for approximately 85-90% of rare earth basket value.

"Hastings is positioned to become a leading Australian rare earths company supplying the growing rare earths permanent magnet sector."

The DFS evaluates the development of the mine, process plant (incorporating beneficiation and hydrometallurgy) and supporting infrastructure. The project is designed to mine 1 Million t.p.a. of ore (Refer to table 16-2) and a process plant that can produce up to 15,000t of Mixed Rare Earths Carbonate (MREC) per annum from the Bald Hill and Frasers deposits. In addition to the DFS Probable Reserves Production Target comprising the first 6 years of mine life, Hastings has also evaluated the economic benefit of mining an Additional Production Target comprising of the Yangibana, Auer, Auer-North and Yangibana West deposits, which will increase mine life to 8 years.

Having acquired its original interest in the Yangibana Project in 2011, the Company has significantly increased its landholding since commencing work in 2012 and now holds interests in tenements covering the majority of the GCFC area.

Hastings has completed the following work on the site:

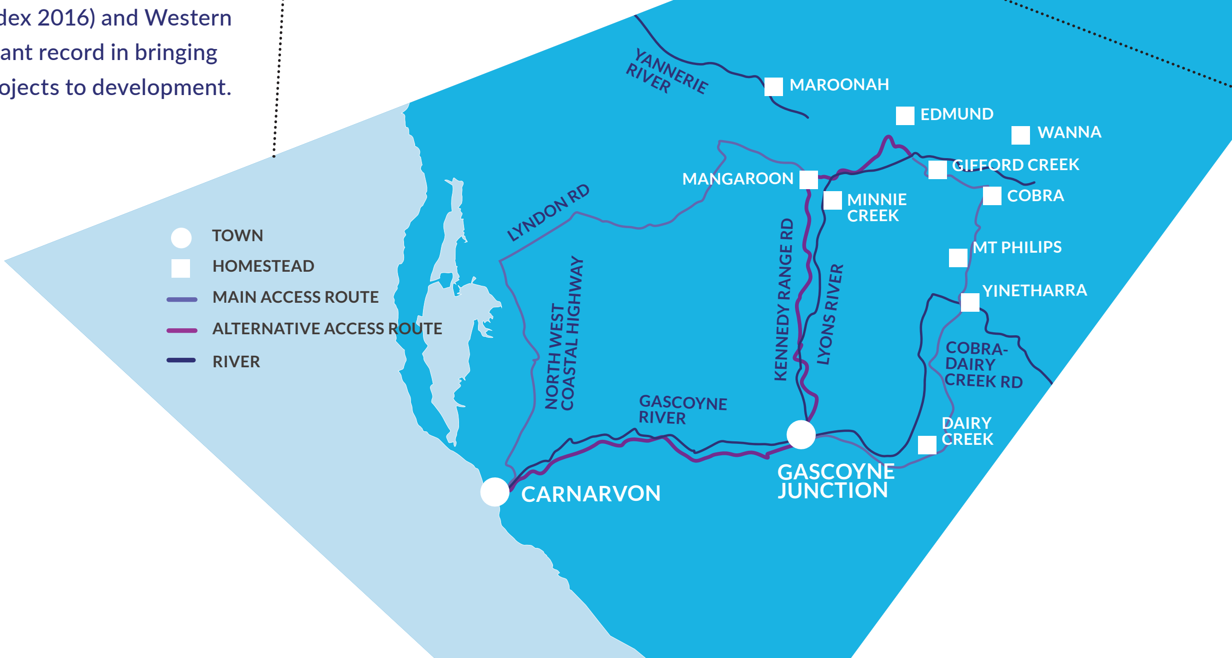
- mapping,
- rock chip sampling,
- commissioned a major hyperspectral survey,
- topographic and aerial photo surveys, and
- aeromagnetic and radiometric survey and interpretation over the GCFC.

Six phases of drilling - both reverse circulation and diamond drilling - have been completed by Hastings, with each phase increasing the JORC resources of the various deposits and providing samples for metallurgical test work. With

LOCATION

The Yangibana Project covers an area of 650sqkm and is located 270km east-northeast of Carnarvon on Gifford Creek Station in the Gascoyne region of Western Australia. It is best accessed via Gascoyne Junction.

Australia has an AAA Sovereign Risk Rating (S&P Global) and is highly ranked for corporate governance and rule of Law (WJP Rule of Law index 2016) and Western Australia has significant record in bringing successful mining projects to development.



shallow mineralisation, mining will be conventional drill and blast, operated by a mining contractor. This will be carried out in two pits, namely Bald Hill and Frasers.

On-site processing activities will include comminution, followed by beneficiation, with the concentrate then being treated in a hydrometallurgical process using an acid bake, water leach, impurity removal and precipitation to produce a MREC which will then be sold to customers with separation facilities (the MREC is separated and refined into individual rare earth oxides) further down the rare earth supply chain.

The positive Definitive Feasibility Study (DFS) result for the Yangibana Project establishes Hastings as an important future supplier of critical rare earths to the high growth EV and renewable energy sectors. Following government agreements at the Paris Climate Conference in 2015 a great deal of emphasis has been placed on the reduction of fossil-fuels in transportation and energy generation. A number of countries have recently announced policy targets to transform their fossil-fuel vehicles to electric over the next one or two decades, most notably Norway, India, United Kingdom and France. China is expected to make similar policy announcements soon, having flagged its intention to do so in September 2017. At the same time, innovation in electric motors utilising permanent magnets has resulted in lighter and more efficient EV which are increasingly in demand from consumers around the world. In 2016, it was estimated that 2 million EVs were on the road – a number that the International Energy Agency expects will increase to between 120 – 200 million by 2030. Hastings anticipates that these trends will underpin the solid demand for Nd-Pr and with the completion of the DFS, it is well positioned to take advantage of this burgeoning market in EV.

The Hastings management team will now proceed to the next stage of the development of the project, commencing with initial infrastructure works on site at Yangibana, finalising remaining permits and approvals, procurement of key and long lead time equipment and importantly securing the financing to commence construction of the project. Following the DFS, the Company is focused on implementing its plan with the key objective of coming into production by late 2019 or 1Q 2020.

STUDY CONTRIBUTORS

The work completed in this DFS builds on previous studies commissioned by the Company. A number of independent and experienced global consultants have contributed to deliver the Yangibana DFS and Hastings would like to acknowledge their significant contributions.

AREA	CONTRIBUTOR
Project management and DFS Study Lead	Wave International
Geology and Resource Evaluation	Hastings Technology Metals, Widenbar and Associates
Geophysical Interpretation	Southern Geoscience
Reserve Estimation	Snowden Mining Industry Consultants
Mine Planning and Design	Snowden Mining Industry Consultants
Geotechnical	ATC Williams, Snowden Mining Industry Consultants
Tailings Management	ATC Williams
Metallurgical Processing and Process Design	Hastings Technology Metals
Pilot Plant and Metallurgical Test Work	ALS, ANSTO, KYSPY Met, SGS Minerals
Process Plant Design and Utilities	Tetra Tech Proteus
Infrastructure	Tetra Tech Proteus, Wave International
Environment	Enperitus Radpro, JHI, Bennelongia, Ecoscape
Surface Water Hydrology	JDA
Groundwater Hydrogeology	Groundwater Resource Management
Mine Closure Cost Estimates	Trajectory
Capital and Operating Cost	Tetra Tech Proteus, Wave International
Market Analysis	Hastings Technology Metals, Argus Metals International
Logistics Study	Qube Logistics

TENURE AND LAND ACCESS

WA MINING CONTEXT

Western Australia is one of the most attractive mining investment destinations in the world. It has a rich endowment of natural resources, vibrant mining industry, stable institutions, and a highly skilled workforce

Ownership of mineral rights and access to lands is administered under several Acts of Parliament including:

- The Mining Act of 1978
- Mining Regulations 1981
- Environmental regulations,
- Minerals safety regulations and
- Health and Safety regulations.

Mining tenure is granted by the Western Australian Government and requires interested parties to liaise and negotiate with other stakeholders, including Native Title parties, pastoral lessees and the holders of joint venture mining tenements.

LAND ACCESS

Hastings Technology Metals has been granted all the Mining Leases required to develop the Bald Hill and Frasers deposits.

The land is held by the Crown and is under pastoral lease as Gifford Creek Station. A land access agreement was entered into on 12 May 2017 between the pastoral leaseholder and Hastings.

The Project lies within the registered native title claim on behalf of the Thiin-Mah Warriyangka, Tharrkari, and Jiwarli people of the Yangibana area. A project-wide Native Title Agreement was entered into on 9 November 2017 between the traditional owners and Hastings.

LEGAL STRUCTURE

The greater Yangibana Project is comprised of tenements 100% owned by Hastings - and in part of tenements owned in a production joint venture, 70% owned and managed by Hastings and 30% owned by UK-AIM listed Cadence Minerals PLC (previously known as Rare Earth Minerals (REM)) through its subsidiary Mojito Resources Limited.

Most of the tenements within the project are held by Gascoyne Metals Pty Ltd, a 100% owned subsidiary of Hastings Technology Metals Ltd, and its wholly owned subsidiary Yangibana Pty Ltd.

The scope of work that is the subject of this DFS was confined exclusively to Mineral Resources and Ore Reserves located on 100% owned tenure.

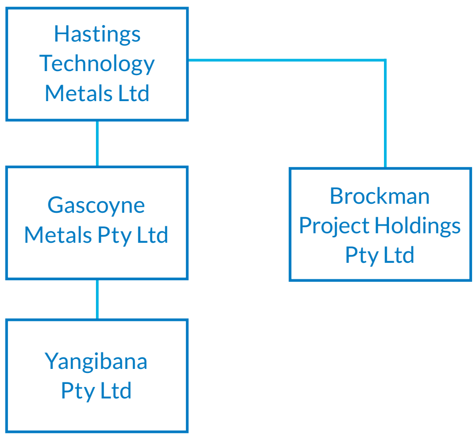


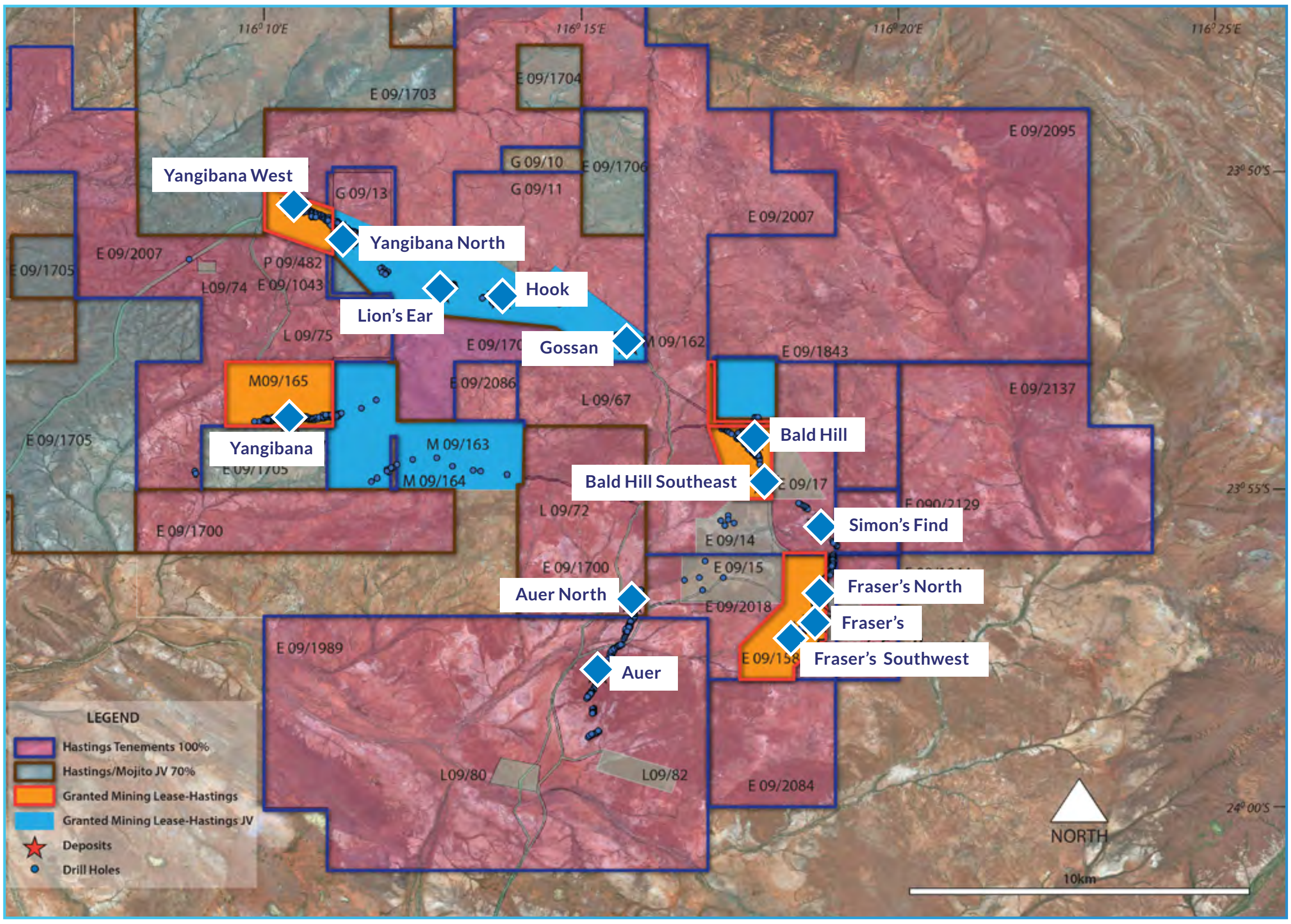
Table 2-1: Greater Yangibana Project Tenement Holdings

TENEMENT	STATUS	COMMENCEMENT DATE	EXPIRY DATE	HOLDER	AREA (HA)
Mining Leases					
M 09/157	Live	7/1/2015	6/30/2036	Gascoyne Metals Pty Ltd	289.5
M 09/158	Live	7/1/2015	6/30/2036	Yangibana Pty Ltd	539.15
M 09/159	Live	7/1/2015	6/30/2036	Gascoyne Metals Pty Ltd/ Mojito Resources Ltd	1479.5
M 09/160	Live	11/17/2015	11/16/2036	Gascoyne Metals Pty Ltd	234.2
M 09/161	Live	2/25/2016	2/24/2037	Gascoyne Metals Pty Ltd/ Mojito Resources Ltd	313.35
M 09/162	Live	2/25/2016	2/24/2037	Yangibana Pty Ltd	47.99
M 09/163	Live	2/25/2016	2/24/2037	Gascoyne Metals Pty Ltd/ Mojito Resources Ltd	1329.5
M 09/164	Live	2/25/2016	2/24/2037	Gascoyne Metals Pty Ltd	20.76
M 09/165	Live	2/25/2016	2/24/2037	Gascoyne Metals Pty Ltd	533.55
General purpose Leases					
G 09/10	Live	3/11/2016	3/10/2037	Gascoyne Metals Pty Ltd	167.25
G 09/11	Live	3/11/2016	3/10/2037	Gascoyne Metals Pty Ltd / Mojito Resources Ltd	1302.5
G 09/13	Pending [1]	-	-	Gascoyne Metals Pty Ltd / Mojito Resources Ltd	277.2003
G 09/14	Pending [1]	-	-	Gascoyne Metals Pty Ltd	286.0789
G 09/16	Pending [1]	-	-	Yangibana Pty Ltd	389.8312
G 09/17	Pending [1]	-	-	Yangibana Pty Ltd	176.676
G 09/18	Pending [1]	-	-	Yangibana Pty Ltd	158.91
Miscellaneous Licences					
L 09/66	Live	5/6/2016	5/5/2037	Gascoyne Metals Pty Ltd	108.131
L 09/67	Live	12/8/2015	12/7/2036	Gascoyne Metals Pty Ltd	6.7884
L 09/68	Live	12/11/2015	12/10/2036	Gascoyne Metals Pty Ltd	18.0188
L 09/69	Live	7/1/2016	6/30/2037	Gascoyne Metals Pty Ltd	115.4744
L 09/70	Live	12/11/2015	12/10/2036	Gascoyne Metals Pty Ltd	25.2619
L 09/71	Live	12/11/2015	12/10/2036	Gascoyne Metals Pty Ltd	5.6534
L 09/72	Live	12/11/2015	12/10/2036	Gascoyne Metals Pty Ltd	16.2428
L 09/74	Live	12/11/2015	12/10/2036	Gascoyne Metals Pty Ltd	15.63
L 09/75	Live	5/6/2016	5/5/2037	Gascoyne Metals Pty Ltd	24.4977
L 09/80	Live	27/10/2017	26/10/2038	Gascoyne Metals Pty Ltd	232.865
L 09/81	Live	27/10/2017	26/10/2038	Gascoyne Metals Pty Ltd	153.615
L 09/82	Pending [1]	-	-	Gascoyne Metals Pty Ltd	136.9298
L 09/83	Pending [1]	-	-	Gascoyne Metals Pty Ltd	2.1827
Exploration Licenses					Blocks
E 09/1043	Live	12/1/2004	11/30/2017	Gascoyne Metals Pty Ltd / Mojito Resources Ltd	2
E 09/1700	Live	5/20/2011	5/19/2021	Yangibana Pty Ltd	11
E 09/1703	Live	4/1/2011	3/31/2021	Gascoyne Metals Pty Ltd / Mojito Resources Ltd	13
E 09/1704	Live	4/1/2011	3/31/2021	Gascoyne Metals Pty Ltd / Mojito Resources Ltd	1

E 09/1705	Live	4/1/2011	3/31/2021	Gascoyne Metals Pty Ltd / Mojito Resources Ltd	13
E 09/1706	Live	4/1/2011	3/31/2021	Gascoyne Metals Pty Ltd / Mojito Resources Ltd	8
E 09/1943	Live	12/31/2012	12/30/2017	Yangibana Pty Ltd	3
E 09/1944	Live	12/31/2012	12/30/2017	Yangibana Pty Ltd	2
E 09/1989	Live	6/13/2014	6/12/2019	Gascoyne Metals Pty Ltd	27
E 09/2007	Live	11/27/2013	11/26/2018	Gascoyne Metals Pty Ltd	48
E 09/2018	Live	6/28/2013	6/27/2018	Yangibana Pty Ltd	5
E 09/2084	Live	10/31/2014	10/30/2018	Hastings Technology Metals Ltd	4
E 09/2086	Live	10/31/2014	10/30/2018	Hastings Technology Metals Ltd	1
E 09/2095	Live	11/18/2014	11/17/2019	Hastings Technology Metals Ltd	21
E 09/2129	Live	6/12/2015	6/11/2020	Hastings Technology Metals Ltd	1
E 09/2137	Live	9/7/2015	9/6/2020	Gascoyne Metals Pty Ltd	13
Prospecting Licenses					
P 09/482	Live	10/7/2014	10/6/2018	Hastings Technology Metals Ltd	40.8989

[1] Leases or license applications shown as "Pending" were the subject to objections by the traditional owners of the land. Under terms of the Native Title Agreement signed on 9 November 2017, these objections will be withdrawn and it is expected that they will subsequently be granted by DMIRS.

Figure 2-1: Tenement Map



RARE EARTHS MARKET OVERVIEW

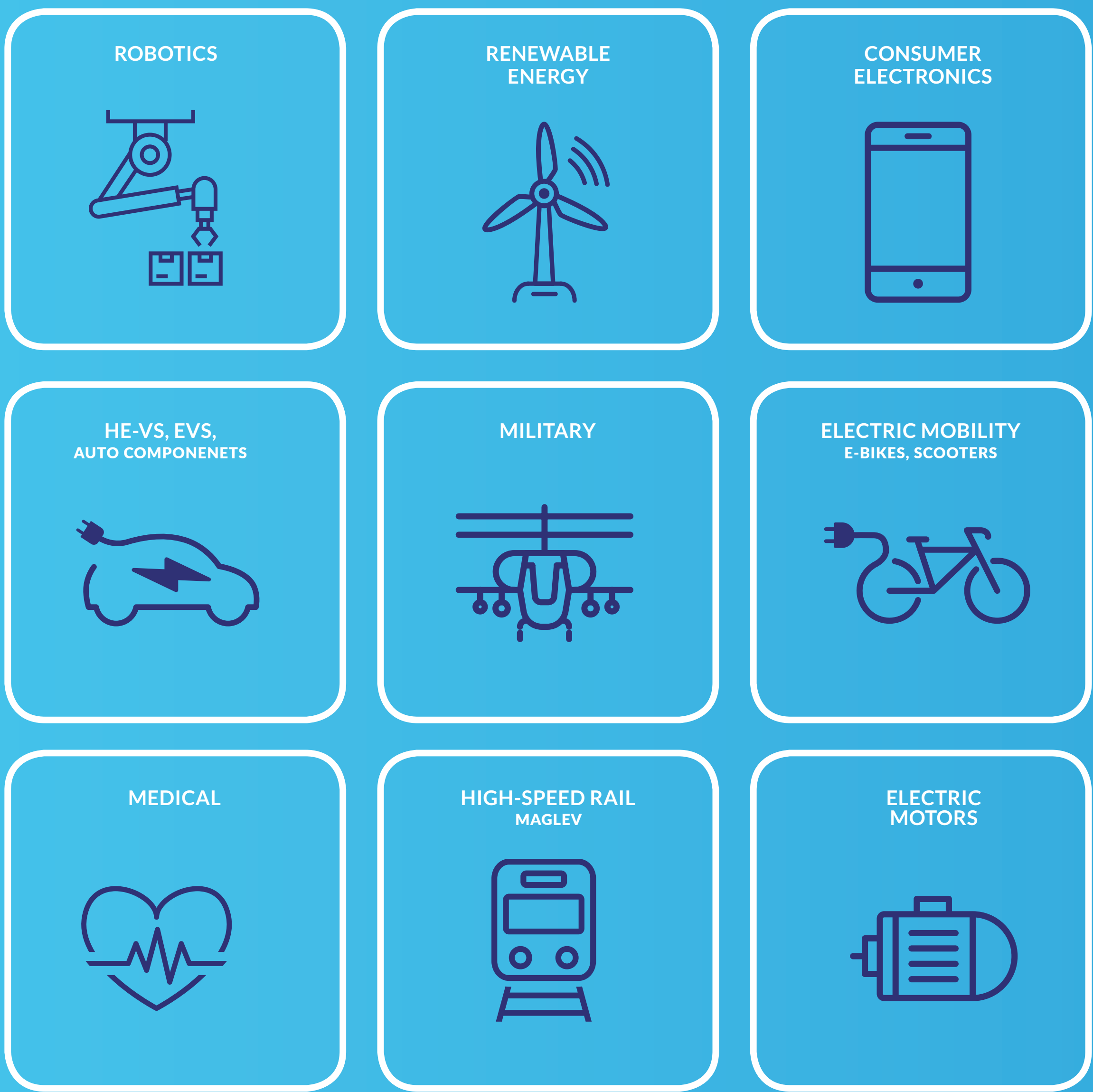
PERMANENT MAGNET APPLICATIONS

In the past few years, rare earths have emerged as important resources, driven by the technology revolution and more recently the increasingly growing market for EV and renewable energy generation. The increased demand of EV is underpinned by the government policies of India, France, United Kingdom, Norway and China to only allow new electric or electric hybrid vehicles to be registered for use, between 2030 and 2050.

China accounts for the majority share of overall global rare earth resources and mining activity, while at the same time it is also the largest consumer of rare earths along the entire supply chain. Outside of China there are few other projects in development, and only one other notable producer, Lynas Corporation Ltd, based in Australia and Malaysia.

New applications in many key sectors are anticipated to continue to fuel demand for rare earths, notably in renewable

RARE EARTHS USED IN CONSUMER PRODUCTS

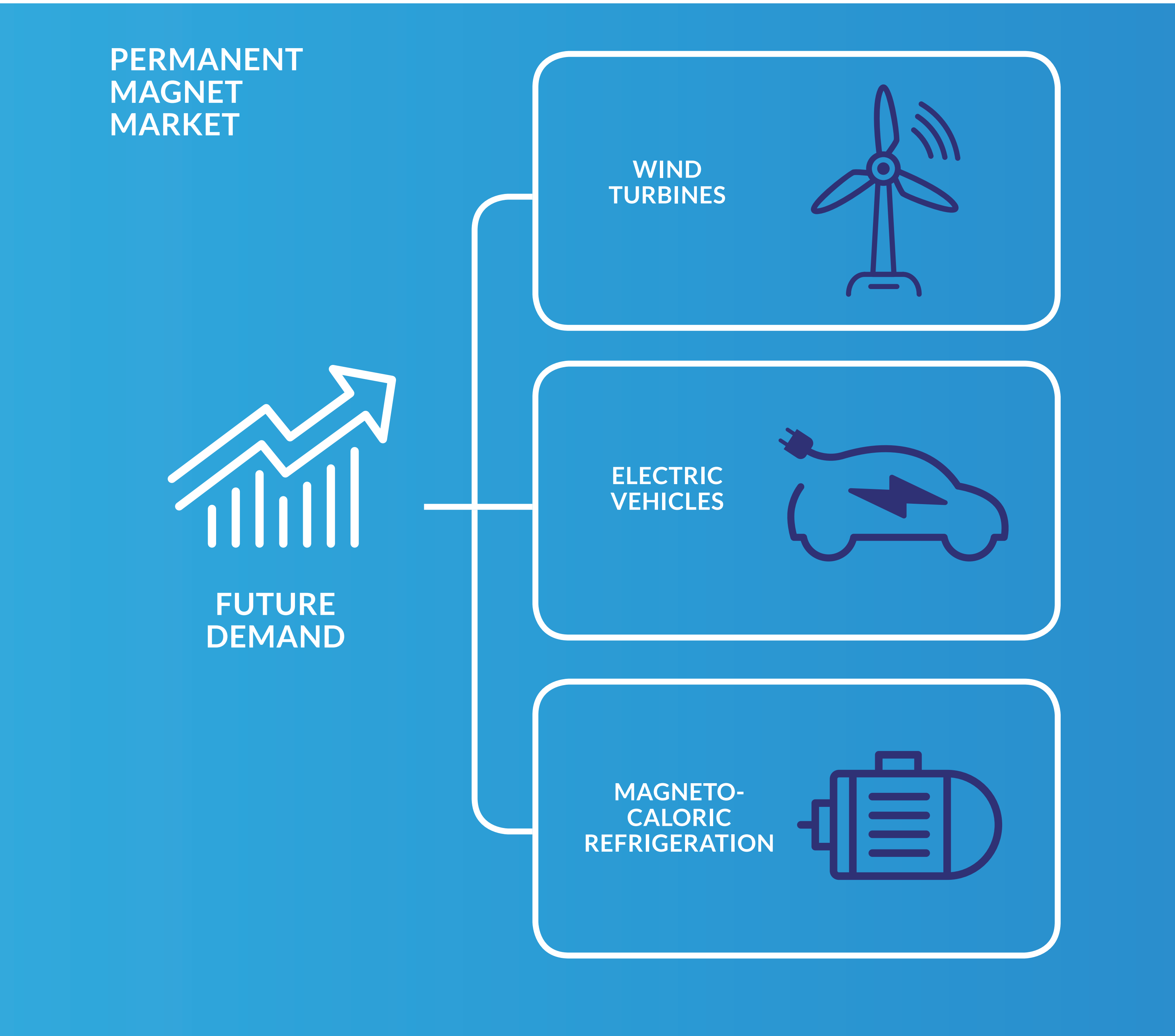


"According to Roskill information Services Rare Earths Global Market Outlook to 2026, in the short term to 2012, permanent magnet demand is forecast to grow strongly."

energy, electric vehicles, robotics, medical devices, consumer electronics and appliances, military applications, catalysts in the chemical industry, glass and ceramic polishing and automotive industry components. Importantly, Nd and Pr are key materials used in the production of the permanent magnets. Market demand for permanent magnets is driven by new technologies notably in renewable energy, electric vehicles, robotics, medical devices, consumer electronics and appliances, military applications, catalysts in the chemical industry, glass and ceramic polishing, Internet of Things (IOT) applications and automotive industry components.

Demand for Nd-Pr for magnet applications is forecast to be the biggest contributor across applications by 2027 based on expected growth in EV and wind turbines.

Further details around demand factors and supply forecast are considered as part of the marketing strategy in Section 12.



GEOLOGY AND MINERALISATION

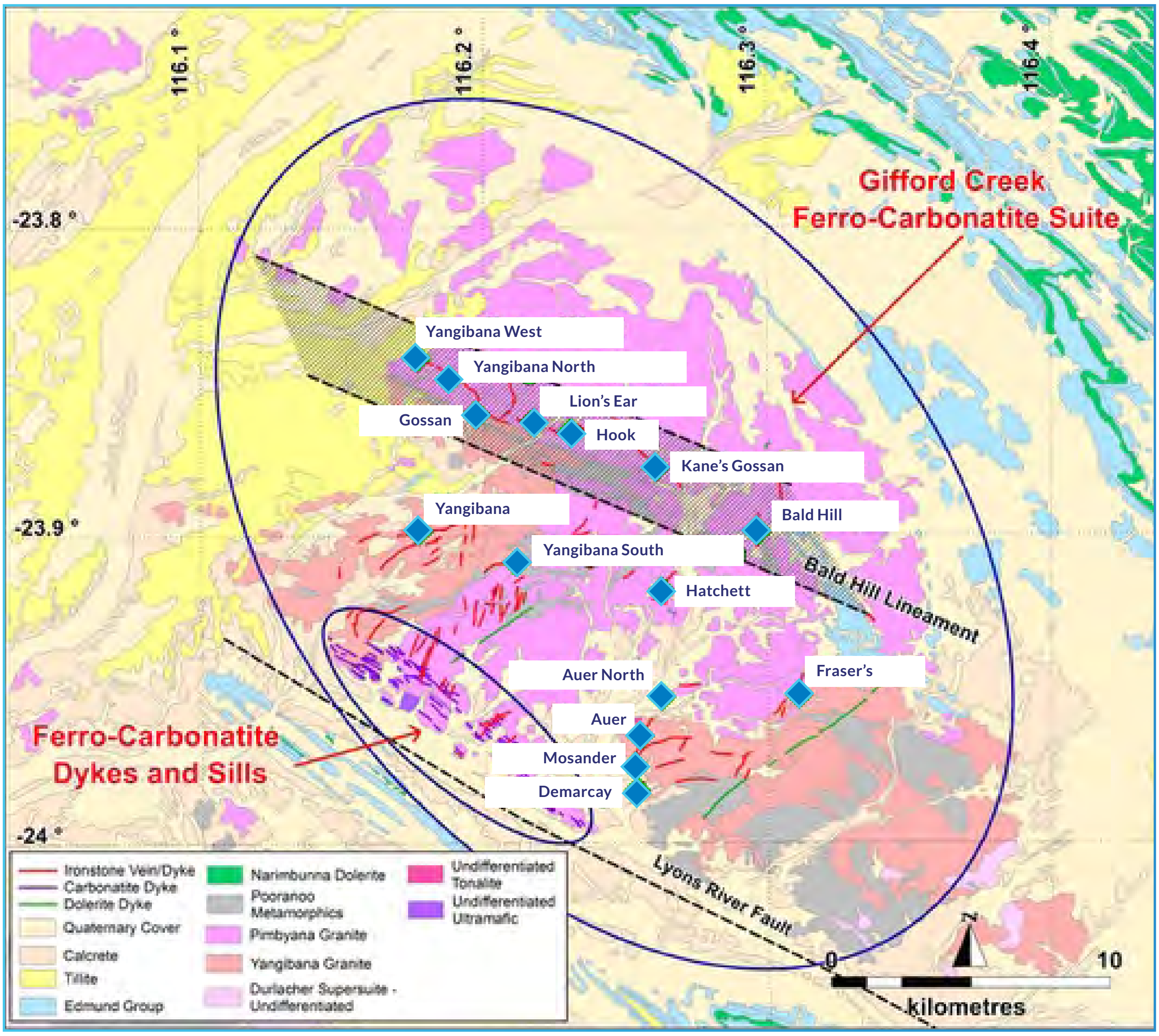
REGIONAL GEOLOGY

One of the key features of the Project area is the widespread occurrence of ironstone dykes that are spatially associated with the ferrocarbonatite intrusions.

The image of Frasers deposit on the right shows the most prominent outcrop of ironstone within the Project, at the Frasers deposit. The ironstone dykes are surrounded by relatively narrow haloes of fenitic alteration, and locally associated with quartz veining. Fenitic alteration haloes are characterised by the presence of feldspars and/or Na-amphiboles and magnetite. The ironstone dykes consist predominantly of goethite, hematite, and magnetite, and are locally weakly radioactive.

The ferrocarbonatites and ironstones occur as sinuous pods and veins generally less than 10m wide, traceable cumulatively for up to 25 kilometres. The ironstones of the GCFS have historically been the focus of exploration activity in the area due to enrichment in Rare Earths Elements (REE).

Regional Geology: Figure 4-1: Rare Earths-Bearing Minerals in Yangibana



"Ferroncarbonatites and ironstones occur as sinuous pods an veins traceable for up to 25kms."

PROJECT GEOLOGY

Rare earths mineralisation at Yangibana is predominantly hosted by monazite, a phosphate mineral. Soon after acquiring its initial interest in the Yangibana Project Hastings identified that there is a significant difference between the rare earths-bearing monazite and the various deposits that form the Yangibana Project.

The belt of semi-continuous outcropping ironstone between Yangibana West and Kane's Gossan hosts light rare earths-rich mineralisation dominated by Ce-monazite, whereas the ironstones at the other deposits and prospects host light rare earths predominantly in Nd-monazite. This has led to the in-house classification of deposits as being either Western Belt-style or Eastern Belt-style.

MINERALISATION

Eastern Belt-style mineralisation (Nd-monazite dominated) occurs at Bald Hill, Frasers, Auer and Auer North, Simon's Find, Yangibana and Yangibana South deposits.

Western Belt-style mineralisation (Ce-monazite dominated) occurs at Yangibana West, Yangibana North, Gossan, Lion's Ear, Hook and Kane's Gossan deposits.

To date, most work has concentrated on the Eastern Belt-style deposits at Bald Hill and Frasers.

Table 4-1: Rare Earth Bearing Minerals in Yangibana

MINERAL	FORMULA	GENERAL REO CONTENT (%)
Monazite	$(Ce,La,Nd,Th)PO_4$	71
Bastnasite	$(Ce,La,Nd)(CO_3)(OH,F)$	76
Plumbogummite Group		32
• Florencite	$Nd,Ce,La,Sm)Al_3(PO_4)2(OH)_6$	
• Crandallite	$CaAl_3(PO_4)_2(OH)_5{\cdot}(H_2O)$	
• Gorceixite	$BaAl_3(PO_4)(PO_3OH)(OH)_6$	
• Goyazite	$SrAl_3(PO_4)2(OH)_5{\cdot}(H_2O)$	
• Plumbogummite	$PbAl_3(PO_4)2(OH)_5{\cdot}(H_2O)$	
Brockite	$(Ca,Th,Ce)(PO_4)(H_2O)$	
Rhabdophane	$(Ce,La)(PO_4)(H_2O)$	

EXPLORATION

EXPLORATION HISTORY

Exploration of the Yangibana area was originally assessed for base metals by a prospecting syndicate in 1972. Uranium exploration commenced in the area in 1973 when Noranda Australia Limited (Noranda) investigated an ironstone outcrop with an elevated total count radiometric response. After limited work, Noranda determined that the radiometric anomalism was largely due to thorium and undertook no further exploration.

Commercial exploration for base metals was undertaken in the Project area by Newmont Pty Ltd from 1974 to 1975, with rock chip sampling and limited diamond drilling undertaken. Rock chip sampling results identified lead (Pb)- and zinc (Zn)-rich gossans with values up to 3% Pb and 1% Zn at the Yangibana, Yangibana South, and Frasers deposits. Diamond drilling at Frasers intersected minor base metal mineralisation with 0.23m at 0.65% Zn, 0.55% Pb, 5g/t silver (Ag) reported, hosted by a carbonate-rich, magnetite-muscovite schist.

HASTINGS EXPLORATION

Hastings acquired the Yangibana Project in 2011, and undertook a review of previous exploration results and identified a significant difference in the rare earths, which was further established following rock chip geochemistry carried out on the main ironstone outcrops. This work confirmed the difference between the 12km long, WNW-trending zone between Yangibana North and Kane's Gossan deposits (subsequently termed the Western Belt) and other deposits at Bald Hill and Frasers, Yangibana and Yangibana South (subsequently termed the Eastern Belt).

The Western Belt deposits were found to host rare earths with ratios of between 16-22%Nd_2O_3:TREO (Total Rare Earth Oxide) compared to Eastern Belt deposits where ratios of between 34-38%Nd_2O_3:TREO:TREO occur.

Yangibana and Yangibana South show even higher ratios of between 43-44%Nd_2O_3:TREO. Although Western Belt TREO grades were higher than those for the Eastern Belt, Yangibana and Yangibana North, it was apparent that, assuming similar metallurgical characteristics, any concentrate produced from the latter sources would have a significantly higher Nd_2O_3 and Pr_6O_{11} content.

Figure 4-2: Nd_2O_3 and Pr_6O_{11} Concentration Plots

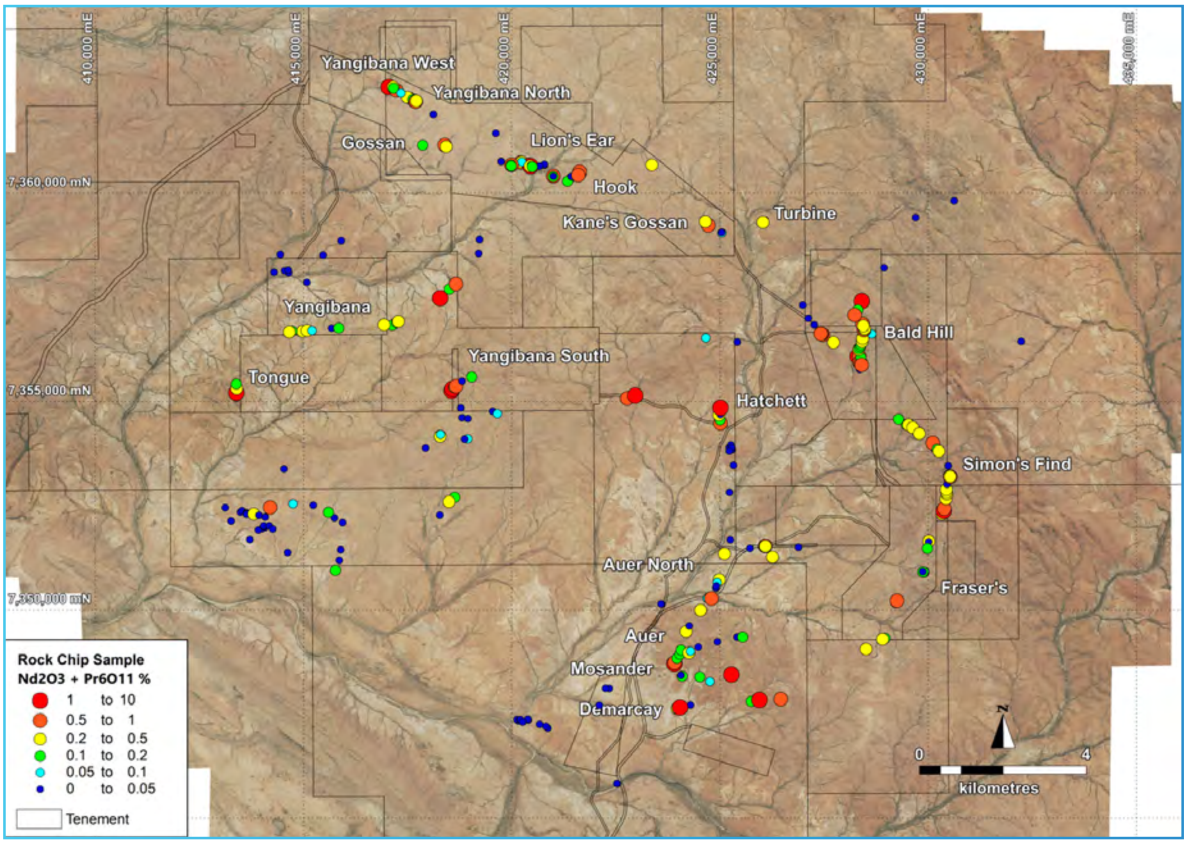
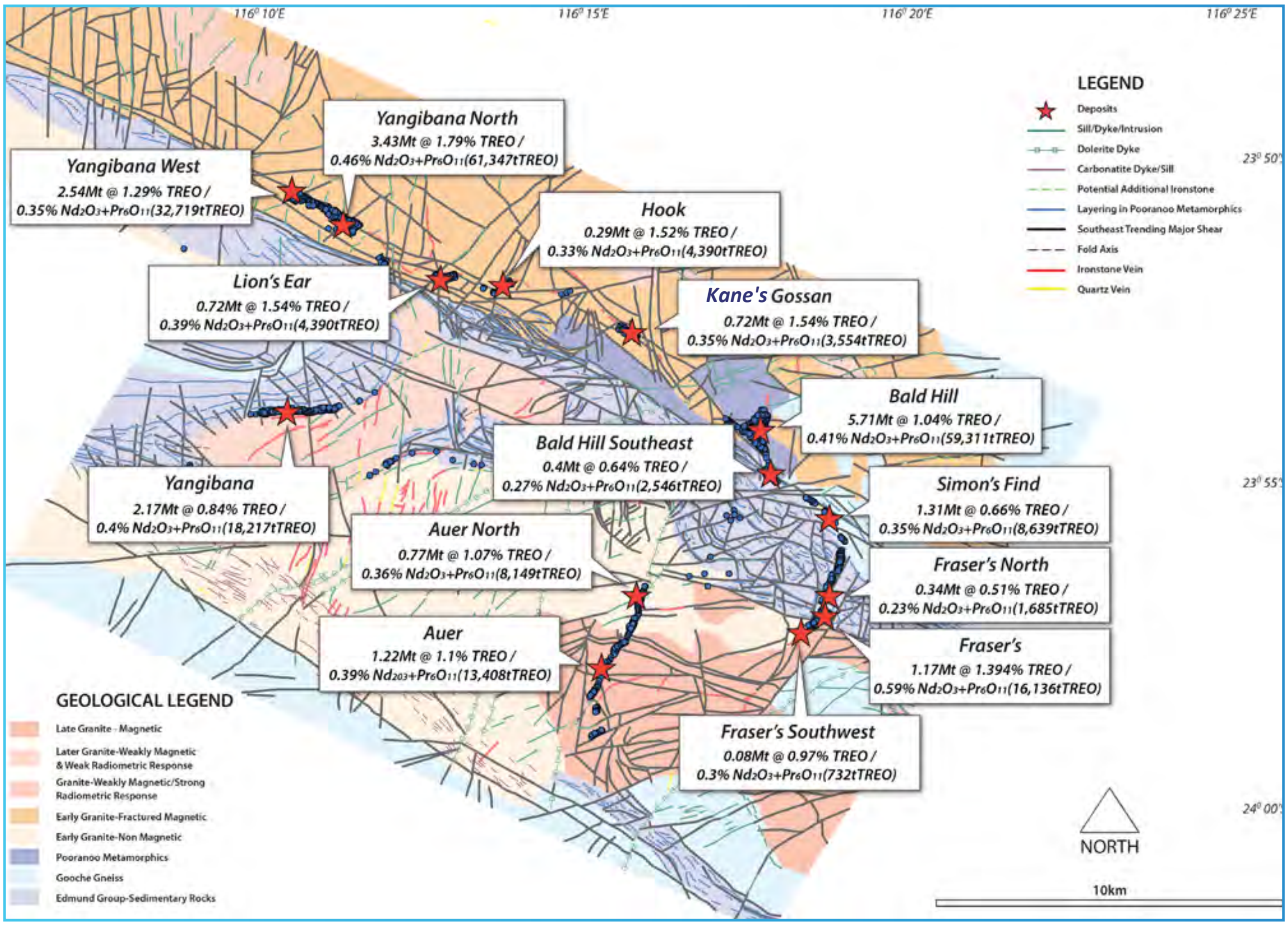


Figure 4-3: Geology and Deposits



DRILLING PHASES

Six phases of drilling have been completed between May 2014 and June 2017 using both reverse circulation and diamond drilling. Each drilling programme has increased the JORC resources of the various deposits and provided samples for metallurgical test work.

- **May 2014:** Shallow-dipping mineralisation at Yangibana North prospect tested to verify the quality of the previous exploration drilling.
- **August and October of 2014:** Drilling tested five Western Belt prospects comprising Yangibana North, Gossan, Lion's Ear, Hook, Kane's Gossan, and two Eastern Belt prospects comprising Bald Hill, and Frasers.
- **May to August 2015:** Drilling focused on increasing resources within 100%-held deposits at Bald Hill, Frasers, and Yangibana West.
- **May and November 2016:** Drilling focused on 100%-held deposits in the Eastern Belt at Bald Hill and Frasers to provide a bulk composite sample for metallurgical test work and to upgrade the resource status at these deposits. New targets to the southwest of Frasers were tested following rock chip sampling earlier in the year.
- **April to May 2017:** Drilling focused on infill and extension of 100%-held deposits in the Eastern Belt at Bald Hill and Frasers, and extension at the Western Belt deposits Yangibana West (100%) and Yangibana North (70%).
- **May to August 2017:** Drilling focused on identifying additional resources within the 100%-held tenements at Auer and Auer North, and in establishing the first resources at Yangibana and Simon's Find deposits, each of which hosts mineralisation expected to be of Eastern Belt-style.

RESOURCE ESTIMATION

Following the completion of each phase of drilling, Hastings has commissioned JORC Resource Estimations. The first three were completed by CoxsRocks Pty Limited and the last three by Widenbar and Associates Pty Limited. Based on the first six drilling programmes the current JORC Resources are as shown in Table 4-2.

Table 4-2: JORC Resources July 2017

RESOURCE CLASSIFICATION	TONNES	TREO %	$ND_2O_3+PR_6O_{11}$ %
Measured	3,900,000	1.19	0.42
Indicated	8,600,000	1.25	0.42
Inferred	8,400,000	1.09	0.36
TOTAL	**21,000,000**	**1.17**	**0.40**

A cut-off grade of 0.2% $Nd_2O_3+Pr_6O_{11}$ was used in the determination of Mineral Resources. Resources are inclusive of reserves.

The priority deposits for the DFS are Bald Hill and Frasers. These deposits have received the most test work to date and formed the basis for the design of the proposed metallurgical processing plant.

EXPLORATION POTENTIAL

Hastings' exploration to date has identified the significant potential of the Yangibana Project to host much larger tonnages of resources compared to the current figures. Existing Inferred Resources are not confined to at-depth projections of the main deposits, but include sparsely-drilled deposits that can readily be upgraded by infill drilling.

Hastings conducted hyperspectral, aeromagnetic and radiometric surveys and its database has identified many near-surface targets, most of which remain to be assessed.

It should also be noted that drilling to date includes few holes deeper than 100m below surface. Results that have been obtained from the existing deeper holes indicate potential for higher grade mineralisation, sometimes associated with more massive ferrocarbonatite-hosted mineralisation and/or phoscorite-hosted mineralisation.

With the Lyons River Fault known to be a conduit for mineralising fluids from the mantle, this depth extension potential is a high-priority exploration target.

The recent intersection of high grade niobium mineralisation in drilling at Simon's Find, allied to earlier anomalous rock chip samples from Spider Hill and Hatchett prospects indicate new exploration potential in these barely-tested portions of the Project.

Table 4-3: Metres drilled and number of holes completed or resource estimation

	NUMBER OF HOLES DRILLED	METRES DRILLED
Bald Hill	334 holes	17,784m
Frasers	134 holes	7,2332m

"68% of 8 year mine life underpinned by Ore Reserves."

MINING

METHOD

The Mining focus is high ore recovery and conventional drill and blasting methods will be employed.

The Project is comprised of three main rock types:

- The upper horizon is a saprolite, this does not require blasting.
- he lower weathered and fresh granite horizons require blasting.
- Ironstone (not all of which is ore), RC grade control drilling is required.

The ore dips at between 10 and 45 degrees and varies in thickness between 1m and 20m at Frasers and 1m and 30m at Bald Hill, with an average thickness of 4m. The ore zone (ironstone) is visually distinct from the host rock, providing some control for ore identification.

RC grade control drilling will be done on a 10m x 10m grid, prior to ore delineation.

Selective blasting and mining around the ore zones are designed to remove the hanging-wall as cleanly as possible to expose the ore.

The ore is then mined to the footwall contact using selective mining. Due to the high value of the ore, a high ore recovery is the focus of mining. As such, a 50cm skin of dilution is added to the ore mined to enable a 98% ore recovery assumption. The bulk and selective mining areas of each deposit are demonstrated in Figure 5-1 and Figure 5-2.

The ground water at Frasers has a pre-mining static level at 309 metres reduced level (mRL) is 45m below the mining surface and at Bald Hill the pre-mining static level is at 309 mRL and is 45m below the mining surface. Pits will be dewatered ahead of mining using bores to provide a dewatered rock mass at no more than 8 litres per sec pumped from each pit. Stormwater will be managed in pit using sumps and consider pumping up to 10 litres per sec pumped from sumps in each pit.

Waste from each pit is stored in adjacent waste dumps. Some of the Bald Hill pit is backfilled to minimise haulage distances. Ore is transferred either directly to the Run-Of-Mine (ROM) pad, or to a low-grade stockpile, with the mining trucks (as the distance travelled is reasonably low).

Figure 5-2: Selective Mining Bald Hill

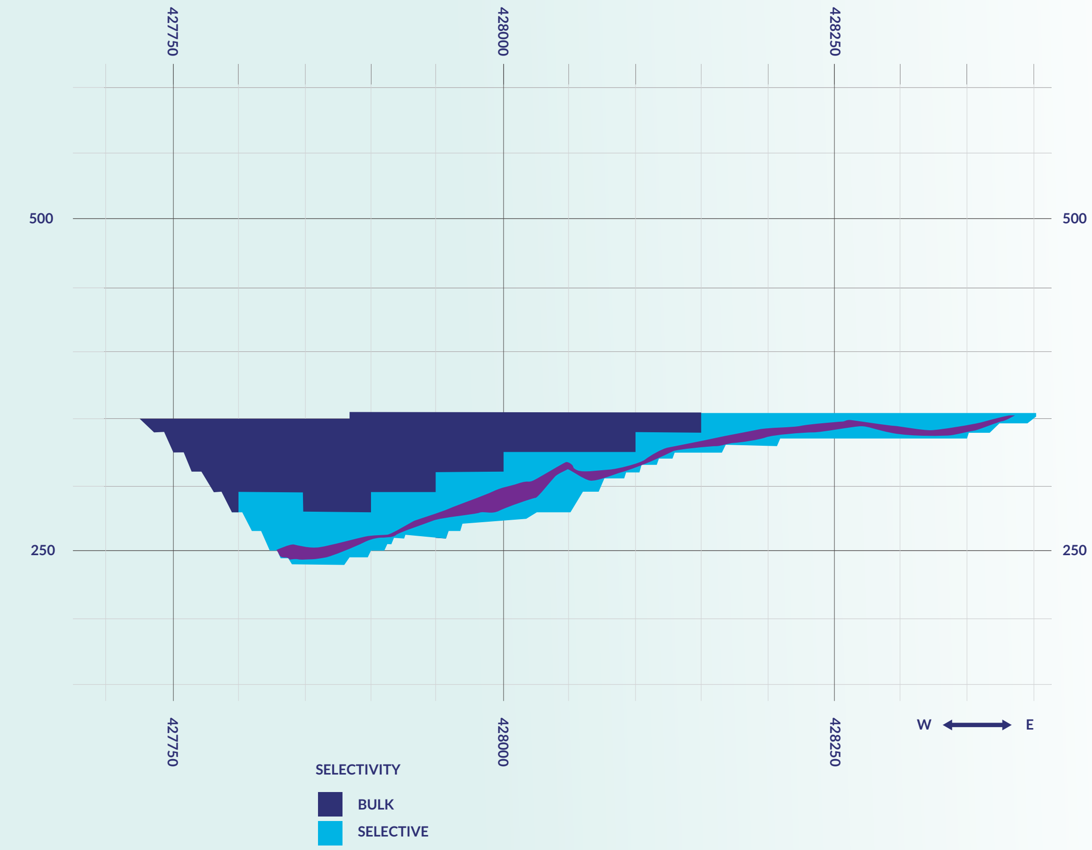
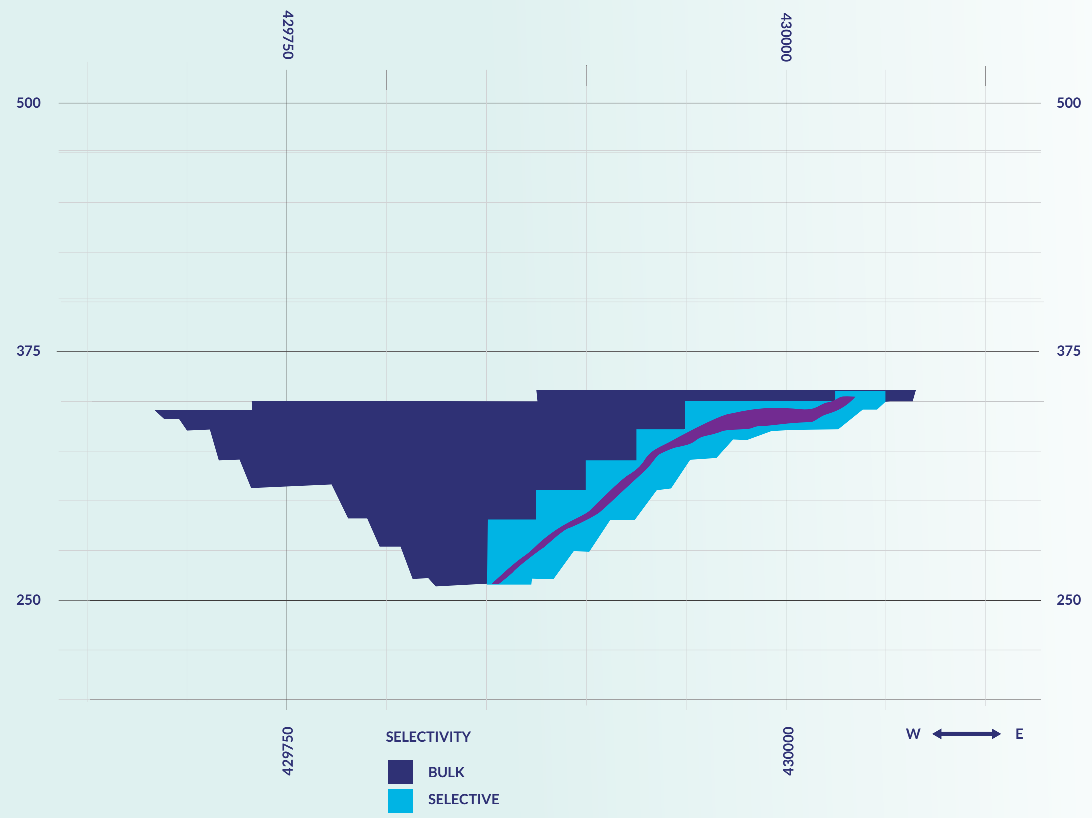


Figure 5-1: Selective mining at Frasers



MINE DESIGN

Pit optimisations were completed to determine the economic mining limits for each deposit. Only Measured and Indicated Resources were considered for processing. Pits were then designed in stages to enable higher grades to be targeted and waste extraction to be deferred. Both Bald Hill and Frasers are approximately 125m deep. The main Bald Hill pit is approximately 1,100m long and 600m wide. The Frasers pit is approximately 600 m long and 250m wide. The waste dumps are located to minimise haulage distances and were constrained by lease boundaries (Bald Hill) and water courses. The Bald Hill dump covers an area of 100 hectares (ha), and the Frasers dump is 86ha.

Figure 5-3: Overall Mine Layout

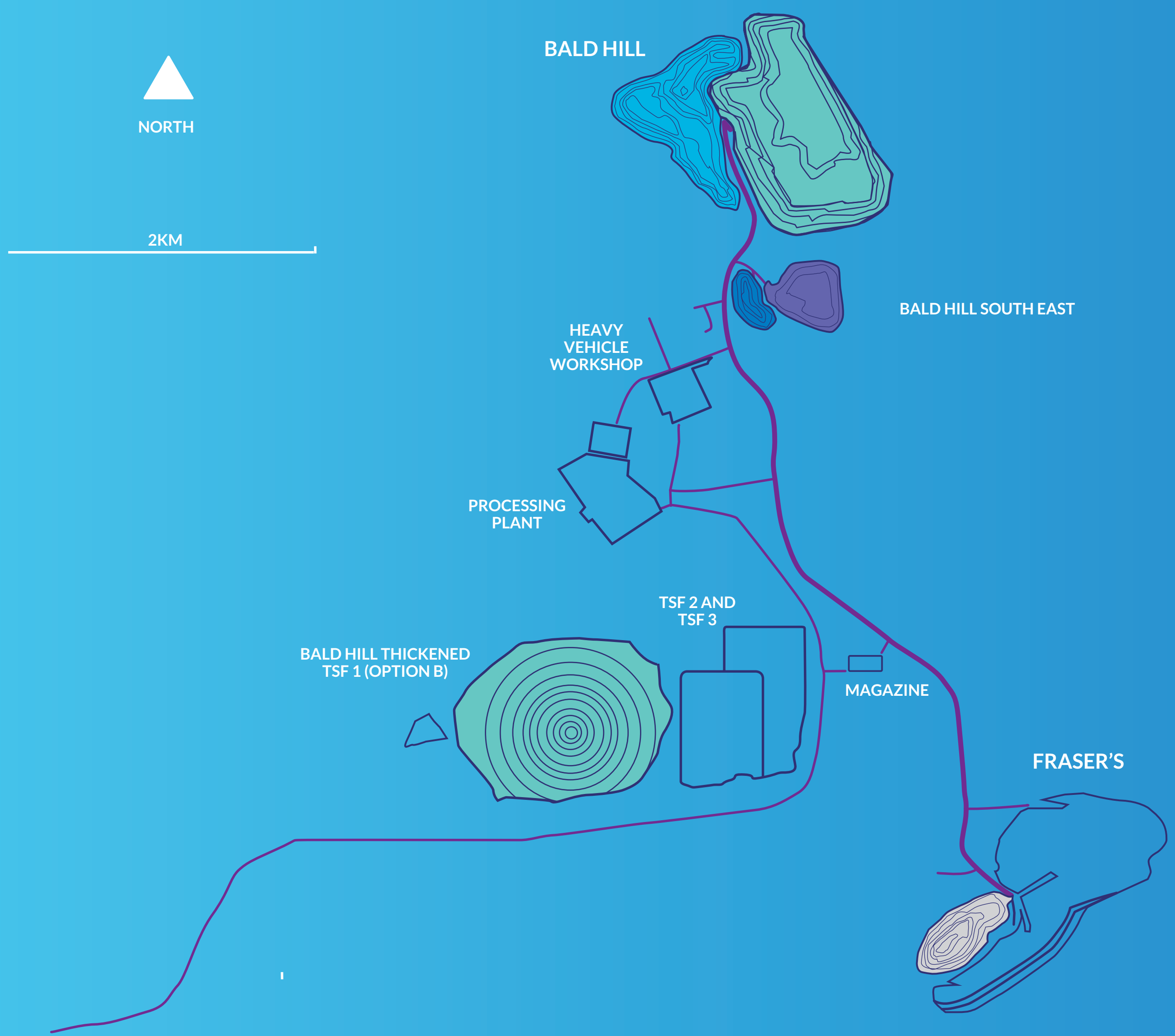
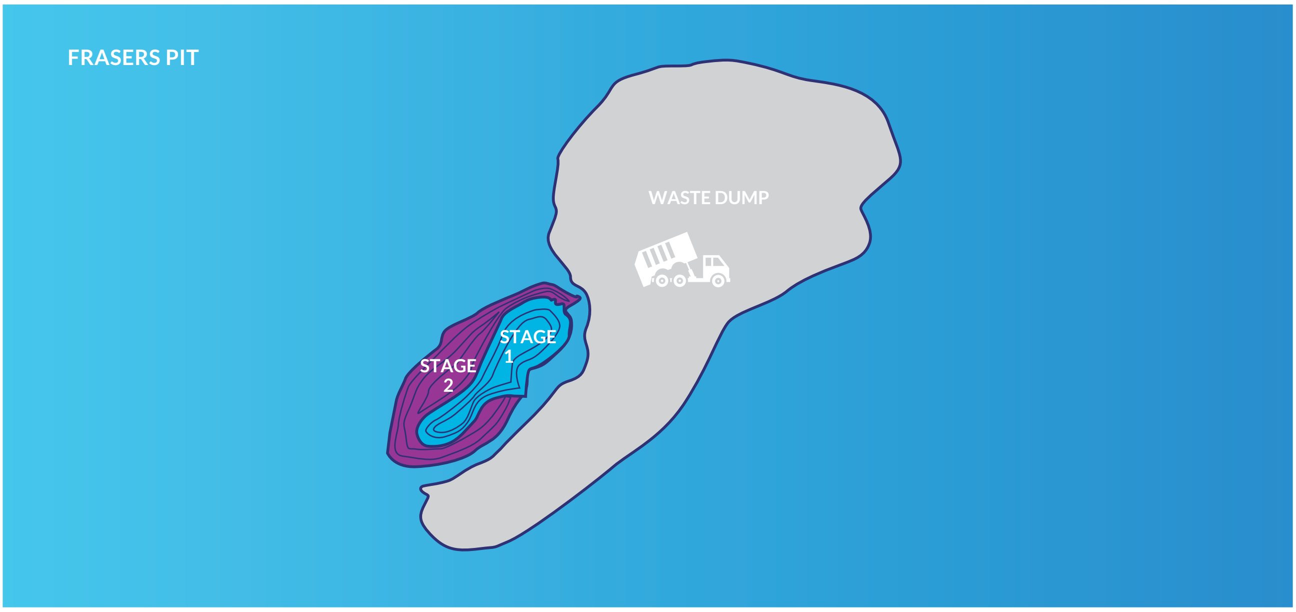


Figure 5-3: Pit Layout Plan



ORE RESERVES

All Measured and Indicated Resources within the economic mine designs are considered Probable Ore Reserves and were reported using the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC Code 2012). The total Ore Reserve is 5,160 kt at 1.12% TREO including 3,630 ppm Nd_2O_3 and 873 ppm Pr_6O_{11} (Table 5-1)

The overall strip ratio for the Project is 11.7 (waste/ore), including 9.7 for Bald Hill and 23.0 for Frasers.

Table 5-1: Probable Ore Reserve

ITEM	BALD HILL	FRASERS	TOTAL
Tonnes (kt)	4,380	780	5,160
TREO (%)	1.04	1.58	1.12
Nd_2O_3 (ppm)	3,330	5,320	3,630
Pr_6O_{11} (ppm)	783	1,380	873
Eu_2O_3 (ppm)	79	83	79
Gd_2O_3 (ppm)	189	197	190
Sm_2O_3 (ppm)	376	436	385
CeO_2 (ppm)	4,150	6,900	4,560
La_2O_3 (ppm)	1,200	1,200	1,200
Dy_2O_3 (ppm)	62	68	63
Tb_4O_7 (ppm)	19	21	19
Ho_2O_3 (ppm)	7	7	7
Er_2O_3 (ppm)	10	11	10
Tm_2O_3 (ppm)	1	1	1
Yb_2O_3 (ppm)	5	5	5
Lu_2O_3 (ppm)	1	1	1
Y^2O^3 (ppm)	158	169	160

Note: Mineral Resources are inclusive of Ore Reserves. Numbers are reported to three significant figures. Small discrepancies may occur due to the effects of rounding.

MINING SCHEDULE

The mining schedule is based on creating maximum value, by seeking to bring forward grade and defer waste where possible.

The mining schedule considers one quarter (three months) of pre-strip ahead of production. This is mined from Bald Hill and supplies enough ore to commission the plant, and build the necessary haul roads. After six months of mining, movement is equally split between Bald Hill and Frasers (Figure 5-4) Upon exhausting the Frasers pit (after production year 3), all mining is concentrated at Bald Hill. Mining ramps down in production year 5 at Bald Hill when waste stripping is complete.

The plant ramps up over the course of 24 months to a maximum rate equivalent to 1.0 million t.p.a. (Figure 5-5). Initially (after the first six months of processing), the feed grade is relatively high (1.40% TREO) due to the inclusion of high-grade Frasers ore. After production year 2, the ore feed grade drops to approximately 1.00% TREO for the remainder of the mine life.

Figure 5-4: Ore Processing

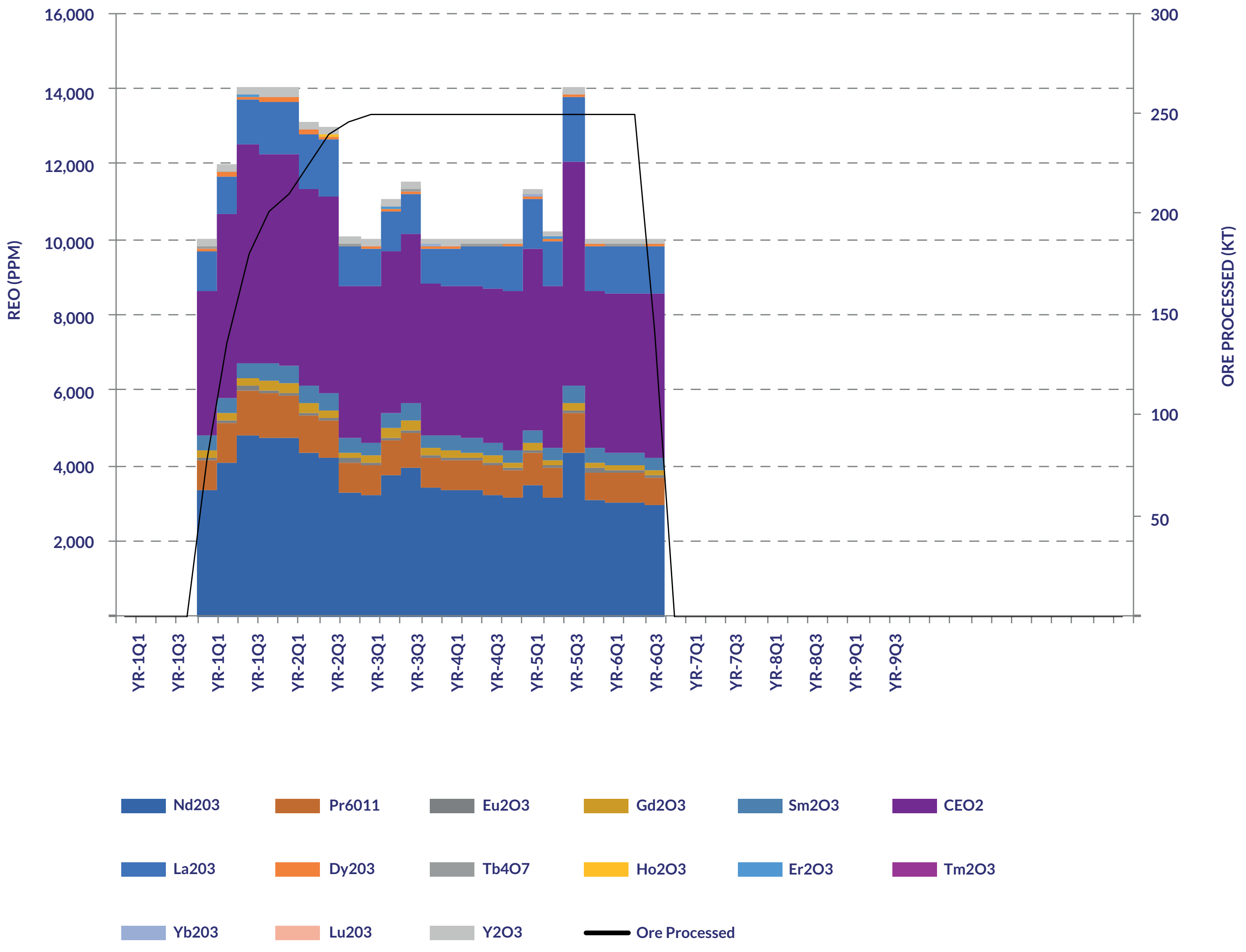
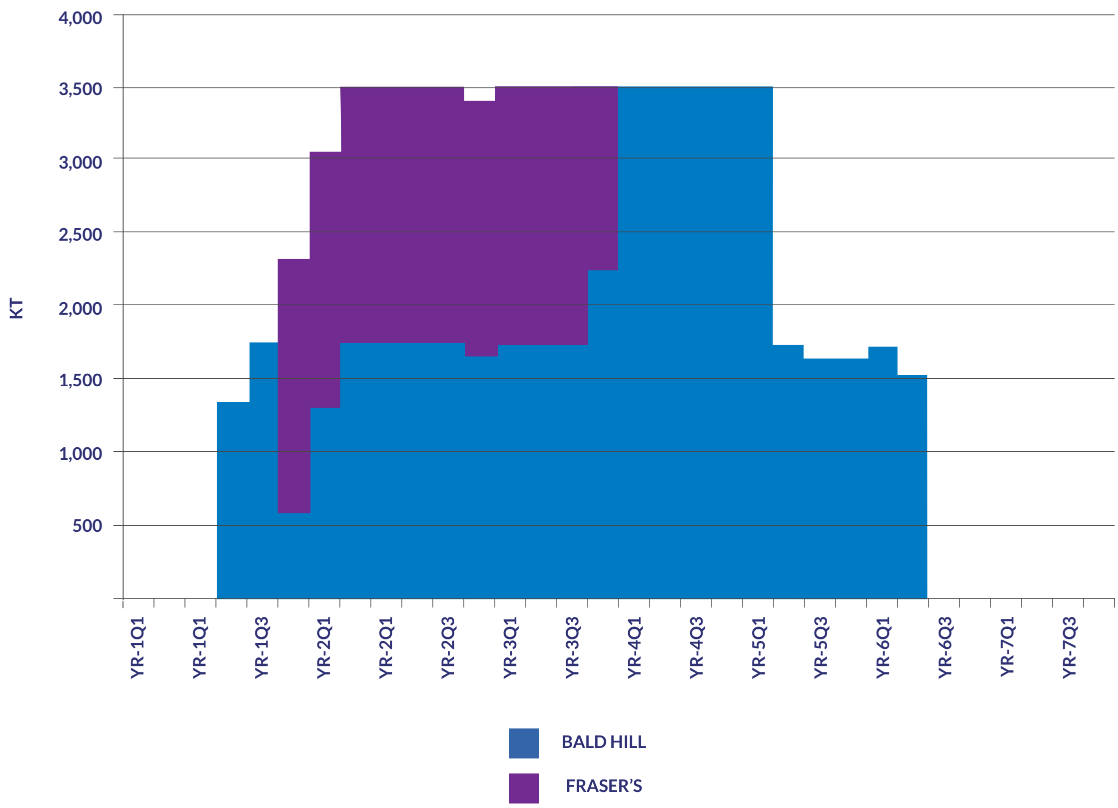


Figure 5-5: Quarterly Mine Movement



MINE REQUIREMENTS

The equipment outlined below has been selected to provide maximum flexibility to mine the deposit with both bulk and selective options.

MINE COSTS

Costs were built up from quotations provided by three mining contractors, based on a preliminary mine plan, and adapted to the final mining schedule.

Table 5-2: Key Mining Requirements

REQUIREMENT	QUANTITY
Excavator	1 x 110 t (operating weight) machine 1 x 190 t machine
Trucks	10x 90 t (payload) machines
Drills	1 x 180 t (operating weight) platform rig 3 x 24 t track rig
Manning	105 (peak), 90 (average)
Fuel	1.9 ML/q (peak), 1.5 ML/q (average)
Explosives	950 t/q (peak), 660 t/q (average)

METALLURGICAL PROCESSING DEVELOPMENT

Extensive metallurgical development work has been carried out for the Yangibana Project through the Pre-Feasibility Study (PFS) and DFS study phases. PFS laboratory scale test work explored a range of processing options, with the PFS delivering a preferred processing flowsheet. Laboratory test work between the PFS and DFS further optimised the selected process flowsheet, resulting in the final flowsheet as shown in Figure 9.

During the DFS, laboratory test work has further defined the process flowsheet, examining the effect of varying ore samples and variable set-points. Pilot plant operations have been undertaken on the beneficiation and hydrometallurgical process flowsheets to understand scale-up of the unit processes, impact of continuous operation and general operability of the selected flowsheet.

Test works were undertaken at several Australian based commercial laboratories.

Early development test work was completed on blended composite samples from the Frasers and Bald Hill deposits. A large-scale blended composite was created for the pilot plant operation. Individual drill hole samples were used for variability test work, to understand the variation in the ore and impact on metallurgical performance. Hydrometallurgical test work has been carried out on flotation concentrates produced from these ore samples.

The extensive mineralogy analysis for the samples used in both bench and pilot scale test work programs have shown that the rare earths are present in the mineral monazite. This monazite is readily upgraded by the selected beneficiation flowsheet and rare earths are extracted from the minerals though the hydrometallurgical flowsheet. Variations in beneficiation performance have been seen in the variability test work, and blending of ores to smooth the variation is possible and provides consistent metallurgical performance.

The process flowsheet is relatively simple, it is a novel combination of known technologies. Test work has defined the steps required to deliver the specific flowsheet for the Yangibana Project ore; all unit processes are industry standard. Pilot plant operations have shown that the process flowsheet can be scaled up and operated on a continuous basis.

"Final concentrate above 25% at greater than 80% TREO recovery."

BENEFICIATION PILOT PLANT

Since the PFS release in April 2016, ongoing laboratory test work has been carried out at KYSPY with Kwan Wong, in Adelaide, South Australia; and ALS Metallurgy in Balcatta, Western Australia. After establishing optimum process conditions at laboratory scale, pilot plant testing was undertaken at ALS Metallurgy in February 2017. Test work has shown that the rare earth bearing monazite mineralisation can be significantly upgraded using froth flotation with a fatty acid collector. The flowsheet developed in test work delivers a final concentrate above 25%TREO at greater than 80% TREO recovery. This is an upgrade of more than 20 times.

The beneficiation step rejects the majority of the ore mass to a waste tailings stream, with less than 5% of the ore (but over 80% of the contained Rare Earths) progressing forward to hydrometallurgical processing. This results in a reduced size for hydrometallurgical processing facilities, lower reagent consumption and improved rare earths recovery through the hydrometallurgical circuit.

Froth flotation using fatty acid collector reagents is common for beneficiation of monazite rare earths ores. The flotation flowsheet developed consists of a rougher flotation stage, followed by regrinding of the rougher concentrate and a four-stage cleaning circuit. Each of the flotation stages are open circuit, meaning waste streams are not reprocessed, keeping the circuit simple and reducing recirculating loads within the processing plant.

Bench scale flotation test work studies showed that a moderate grind size, common flotation reagents and a simple flotation flowsheet can achieve significant upgrades in rare earth content of the concentrates at around 25% TREO with 80% recoveries with high rejection of mass to the tailings.

The impact of site water quality on beneficiation circuit performance was tested at bench scale. A small decrease in flotation kinetics was seen when using site water, however this was overcome by making a small adjustment in reagent additions. Site water was also used to create a simulated recycled process water, and tested using the standard Hastings bench scale flotation test. The results showed that beneficiation process water can be recycled within the beneficiation process flowsheet with no negative impact on metallurgical performance. This outcome will result in a reduction in bore water requirements for the beneficiation processing plant.

The beneficiation pilot plant treated a blended Bald Hill and Frasers composite sample. A total of 16.2 tonnes were processed though the flotation circuit at ALS Metallurgy, at a rate of 150 kilograms per hour, 24 hours a day. The pilot plant circuit consisted of a ball mill comminution circuit, followed by rougher flotation, regrind and four-stage flotation cleaning circuit. The main aims of the pilot plant were to produce a bulk concentrate product for hydrometallurgical testing and pilot plant operation, produce bulk tailings samples for equipment vendor test work, confirm performance and scale-up of the laboratory developed flowsheet and to gain an insight into the operability of the reagent scheme and flowsheet.

A total of 300 kilograms of final flotation concentrate were produced from the beneficiation pilot plant operation.

The beneficiation pilot plant operation was successful in:

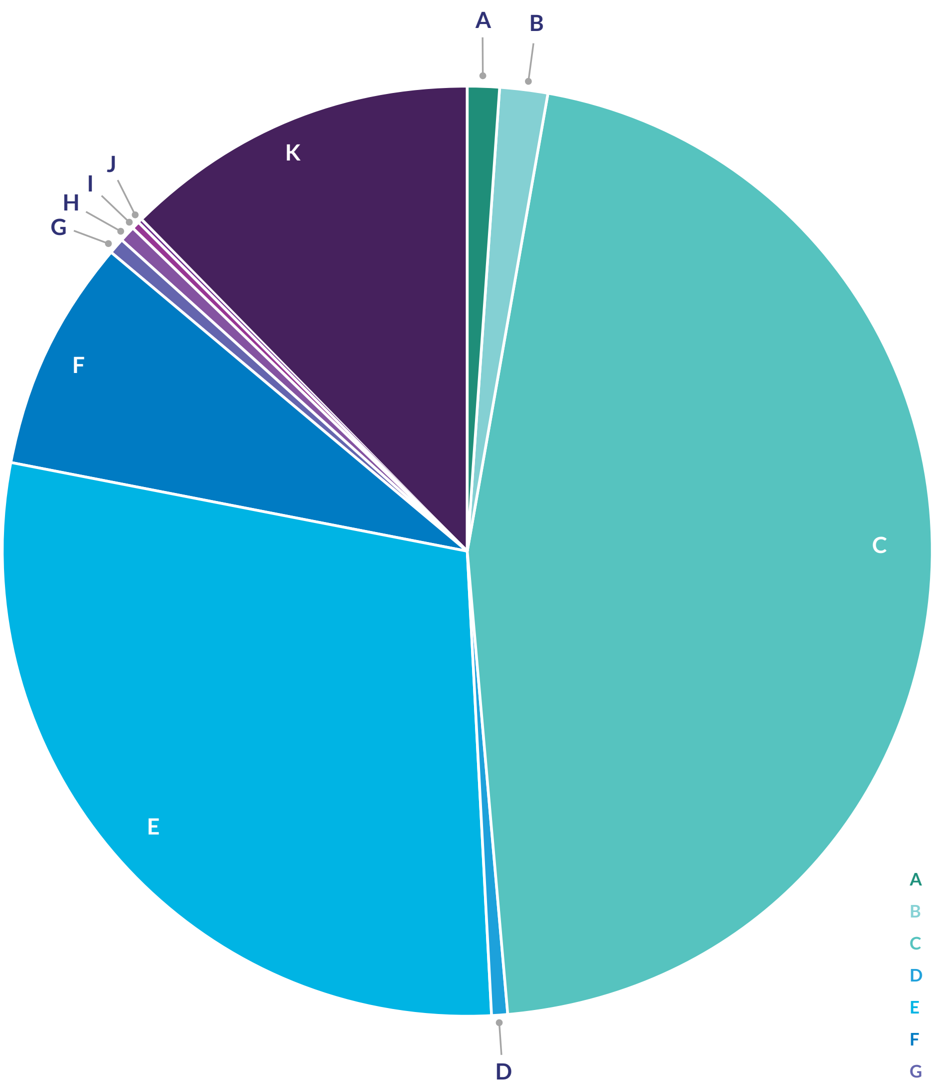
- confirming and validating the flowsheet of Yangibana flotation process;
- producing concentrate for hydrometallurgical test work and pilot operation;
- generating the process parameters for process scaling up and engineering design and
- identifying potential operational issues which have now been mitigated through engineering design. In particular, the importance of flotation cell design, fatty acid collector dosing system design and inclusion of an online analyser to give immediate assaying results of process streams were confirmed from the pilot plant operation.

MINERALOGY

The beneficiation process works at the mineral scale. It takes advantage of differences in the ore minerals, concentrating the rare earths bearing mineral into a low mass stream and the gangue minerals into a low rare earths, high volume tailings stream. Understanding the mineralogy of the ores is important for developing a beneficiation flowsheet that can be applied across the ore deposits.

Analysis of the Bald Hill and Frasers ore has shown that the majority of the rare earths are hosted in monazite – a rare earths phosphate mineral. Mineralogical assessment was undertaken at ALS Metallurgy, using the QEMSCAN technology. This analysis uses a scanning electron microscope and proprietary software analysis to examine the ores at micrometre scale. This gathers information on the rare earth content within the monazite, gangue mineral identification in the ore and liberation of monazite mineral particles from gangue minerals. The mineralogical compositions of the blended pilot plant concentrate and the ore feed show that the beneficiation plant demonstrated successful concentration of monazite into a concentrate while discarding Fe-oxides/oxyhydroxides/carbonates and silicates into the tailings.

Ore Composition Chart



A	TREO%	1.25%
B	P2O5	1.6%
C	FE2O3	46.18%
D	CAO	0.56%
E	SIO2	28.88%
F	AL2O3	8.27%
G	BAO	0.43%
H	MNo2	0.68%
I	THo2	0.06%
J	U3o8	0.03%
K	LOI and Other	12.09%

HYDROMETALLURGY

Hydrometallurgical (Hydromet) test work was carried out at ALS Metallurgy, in Balcatta, Western Australia, SGS Minerals Metallurgy in Malaga, Western Australia and ANSTO Minerals (a subsidiary of Australia Nuclear Science and Technology Organisation), in Lucas Heights, New South Wales. Test work was carried out on flotation concentrates produced in the beneficiation test work and pilot plant program. Test work has shown that a high quality MREC product can be produced from a +25%TREO flotation concentrate at more than 88% TREO recovery.

The flowsheet was developed based on the best known available technology, industrial practice and bench scale test work which includes Acid Bake, Water Leach, Impurity Removal, Impurity Removal Residue Re-leaching, Uranium Removal and MREC Precipitation. All of the proposed process unit operations are standard technology currently used in the rare earth industry or other metallurgical industries.

Hydrometallurgical process parameters have been well defined through bench scale optimisation and confirmed with pilot plant operation. The defined rare earths recoveries are 94% for water leach, 95% for impurity removal and 99% for MREC precipitation.

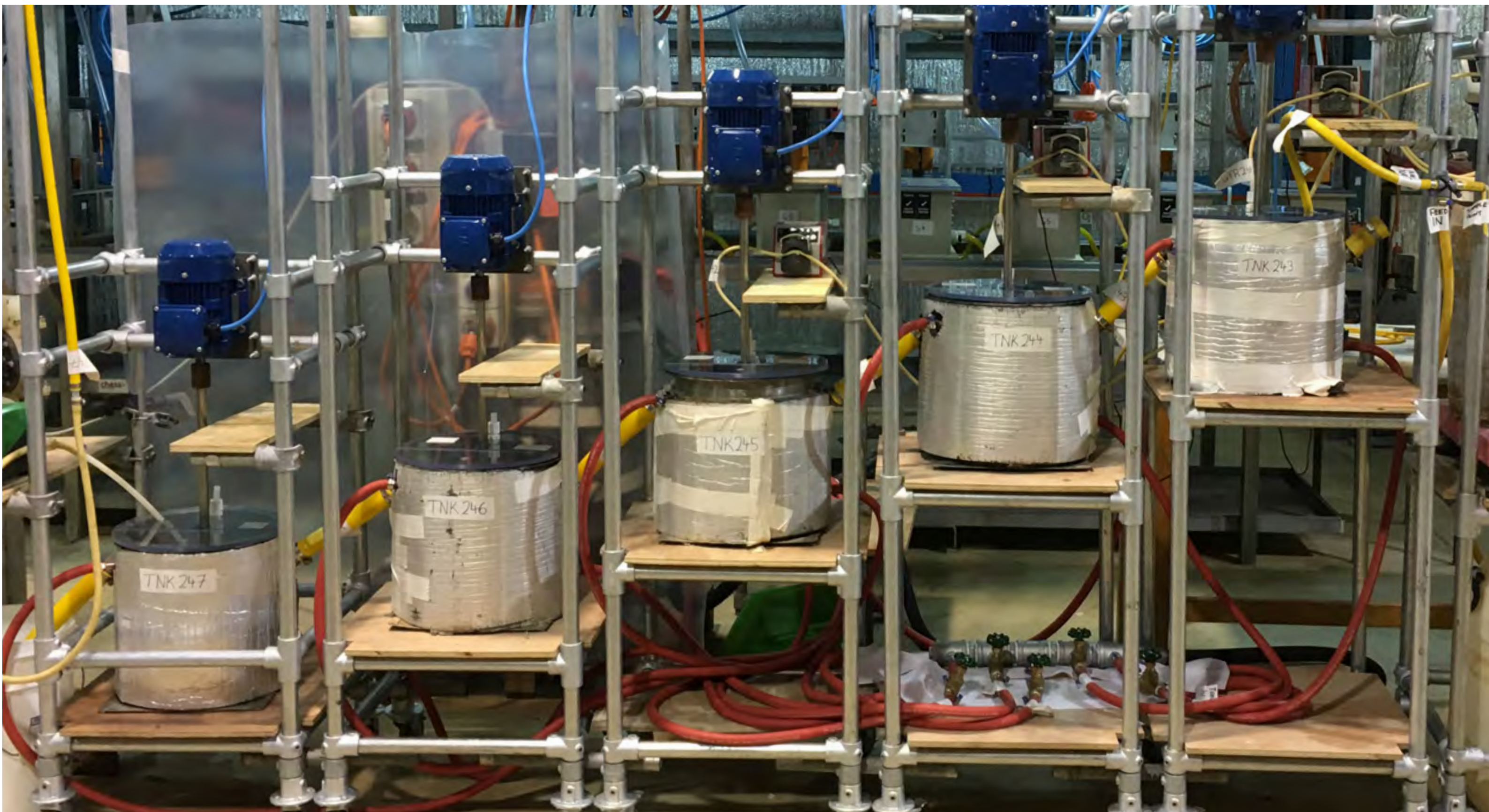
The specification of MREC product impurities, such as calcium, magnesium, manganese, iron, zinc, thorium and uranium were defined based on customers feedback and industrial practice.

The hydrometallurgical pilot plant operation was completed at ANSTO Minerals, Lucas Heights, New South Wales, using flotation concentrate from the Beneficiation pilot plant operation. The main aims of the pilot plant operation were to produce final product for customer testing, prove scaleup and continuous operation and gain an operational insight for the selected flowsheet.

The pilot plant operation was broken into three phases and completed sequentially:

- Acid Bake
- Water Leach, Impurity Removal (Magnesium Oxide Neutralisation) and Re-leach
- Uranium Ion Exchange (IX) and MREC precipitation

Each phase was operated continuously on a 24-hour basis over a total of 12 days.



FINAL PRODUCT

The final product from the Hastings metallurgical flowsheet is a MREC. The composition of the product produced during the pilot plant operation is shown in Table 6-1. Samples of the MREC have been sent to potential customers for testing and assessment. The quality of the pilot plant MREC samples was found to be acceptable for use in existing customer separation plants.

Table 6-1: MREC Product Composition

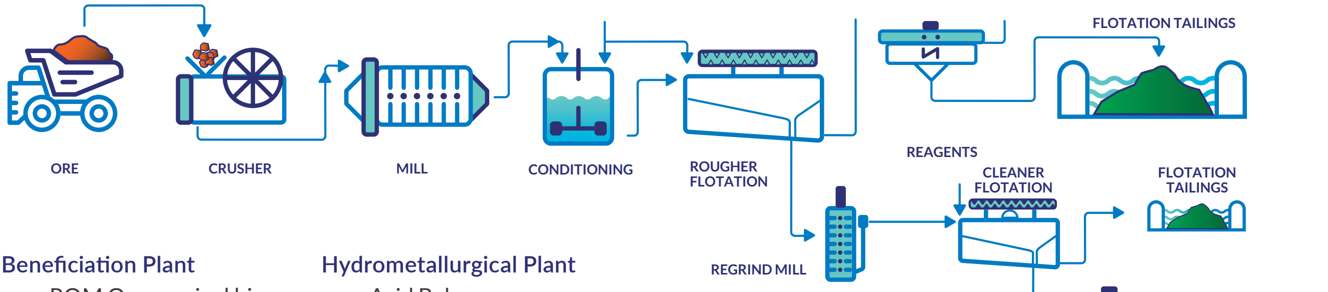
PARAMETER	METHOD#	UNIT OF MEASUREMENT	CONCENTRATION
TREO		%	59.7
La_2O_3/TREO	XRF	%	11.0
CeO_2/TREO	XRF	%	41.2
Pr_6O_{11}/TREO	Digest/ICP-MS	%	7.8
Nd_2O_3/TREO	Digest/ICP-MS	%	33.3
Sm_2O_3/TREO	Digest/ICP-MS	%	3.3
Eu_2O_3/TREO	Digest/ICP-MS	%	0.57
Gd_2O_3/TREO	Digest/ICP-MS	%	1.58
Tb_4O_7/TREO	Digest/ICP-MS	%	0.12
Dy_2O_3/TREO	Digest/ICP-MS	%	0.32
Ho_2O_3/TREO	Digest/ICP-MS	%	0.031
Er_2O_3/TREO	Digest/ICP-MS	%	0.043
Tm_2O_3/TREO	Digest/ICP-MS	%	<0.02
Yb_2O_3/TREO	Digest/ICP-MS	%	0.025
Lu_2O_3/TREO	Digest/ICP-MS	%	<0.02
Y_2O_3/TREO	Digest/ICP-MS	%	0.71
SO_4	Digest/ICP-MS	%	14.4
SiO_2	Digest/ICP-OES	%	0.38
Fe	Digest/ICP-OES	%	0.045
Al	Digest/ICP-MS	%	0.46
Zn	Digest/ICP-OES	%	0.017
Ca	Digest/ICP-OES	%	0.17
Mg	Digest/ICP-OES	%	0.01
Mn	Digest/ICP-OES	%	0.01
Th	Digest/ICP-MS	Ppm	<15
U	Digest/ICP-MS	Ppm	<8
Specific Activity*	Gamma spectrometry, alpha spectrometry, DNA, XRF	Bq/g	<1.0

* per radionuclide in the ^{232}Th, ^{238}U and ^{235}U decay chains

method is for the individual element only
DNA: delayed neutron analysis

PROCESSING FACILITIES

The process flowsheet includes a beneficiation and hydrometallurgical plant consisting of the following main components:

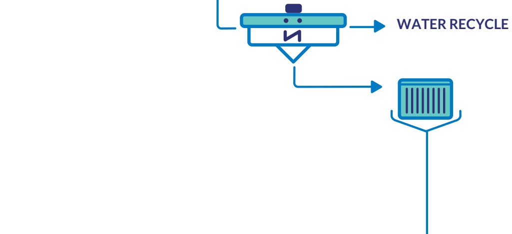


Beneficiation Plant

- ROM Ore receival bin
- Crushing and screening
- Grinding
- Flotation
- Tailings handling

Hydrometallurgical Plant

- Acid Bake
- Off Gas Treatment
- Water Leach
- Impurity Removal
- Uranium Removal
- Mixed Rare Earths Carbonate precipitation
- Waste handling



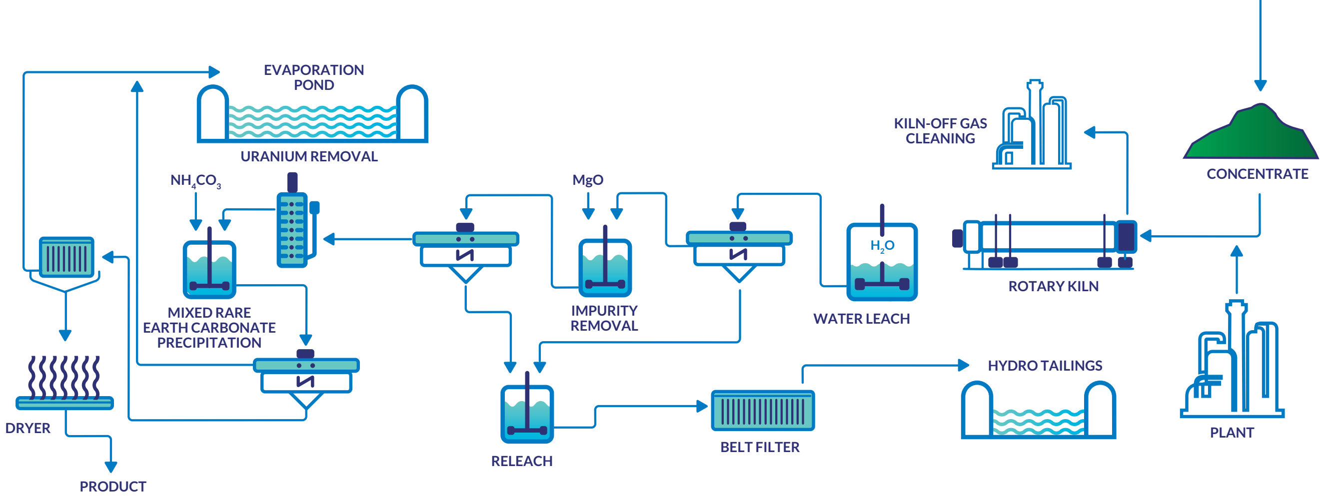
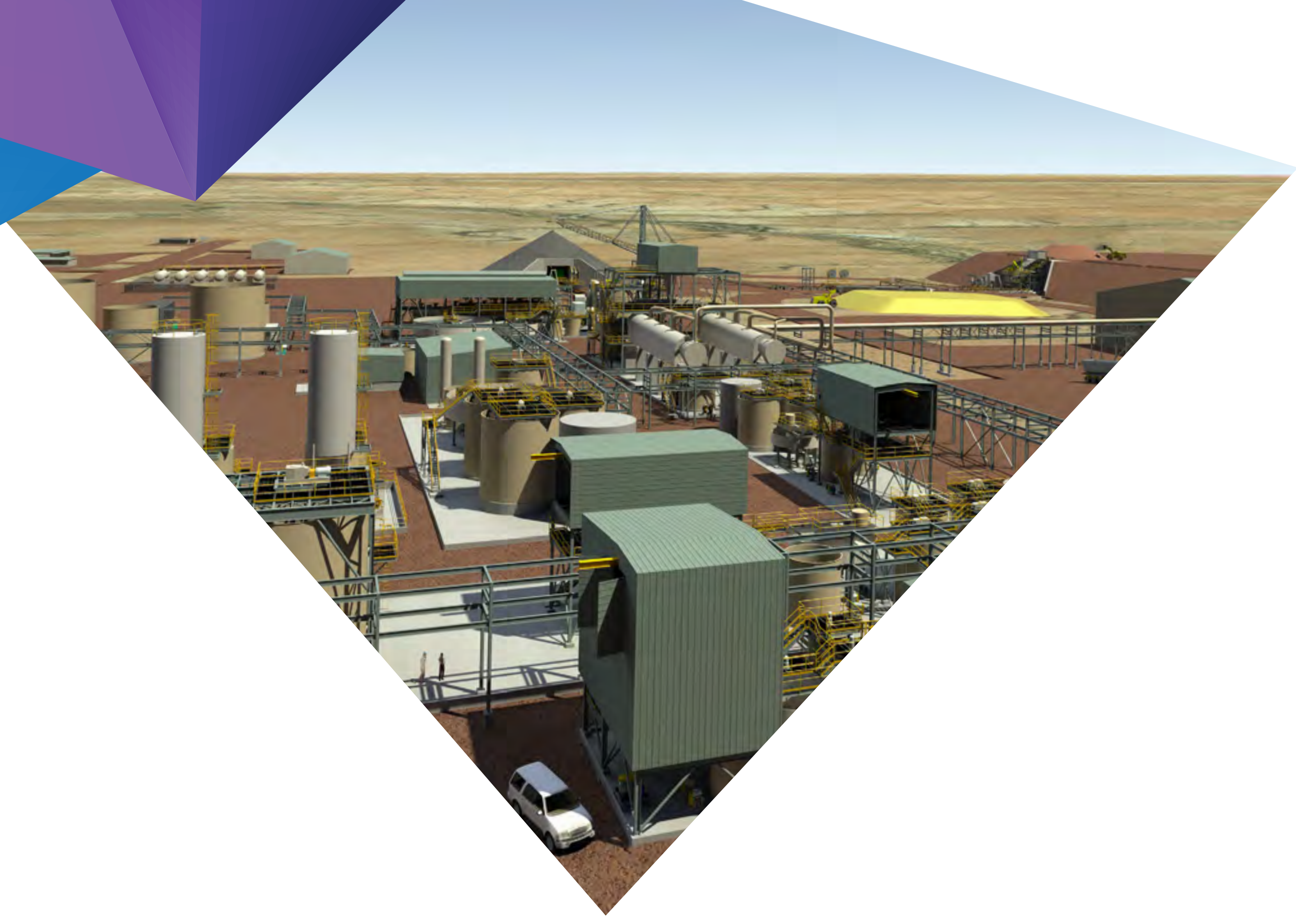


Table 7-1: Process plant design parameters

ORE FEED THROUGHPUT PER ANNUM	1,000,000T
ROM grade % TREO	1.13%
Beneficiation Plant concentrate production per annum	38,300t
Beneficiation concentrate grade (% TREO)	27%
Nd-Pr beneficiation recovery	86.38%
Nd-Pr hydrometallurgical recovery	87.48%
Nd-Pr overall recovery	75.57%
TREO beneficiation recovery	80.35%
TREO hydrometallurgical recovery	87.94%
TREO overall process recovery	70.66%



BENEFICIATION PLANT

The mining contractor will transport Run of Mine (ROM) ore to the ROM pad where the ore will be tipped onto fingers on the ROM stockpile according to TREO grade. A Front-End Loader will reclaim from stockpiles, to achieve a TREO ore grade of 1.13% TREO and transfer into the ROM bin. The ROM bin will feed two mobile crushing plants, configured as a single stage crusher operating in open circuit, with each unit able to meet the plant average throughput of 159 tph. A single 3.6MW SAG mill will grind the crushed re to a size of 80% passing 90μm.

Slurry from the SAG mill cyclone overflow will be pumped to the flotation rougher cells. Rougher concentrate will be pumped to the regrind circuit classifying cyclones. The coarse material from the cyclone will be pumped to a regrind mill to achieve 80% passing 20μm . Mill discharge will be directed to the classifying cyclones. The fine stream, cyclone overflow, will then be pumped to the four-stage cleaner flotation cells.

Concentrate from the final cleaner flotation cells will be pumped to a pressure filter to produce a damp concentrate filter-cake, which will be subsequently dried in a dryer.

HYDROMETALLURGICAL PLANT

The dried concentrate filter-cake will be mixed with concentrated sulphuric acid, discharging into the acid bake kiln. The acid bake will be performed at 350°C to 'crack' the monazite mineral, allowing the rare earths to be readily leached in water. Leach residue will be thickened and the underflow finally combined with the re-leach residue after solid/liquid separation and washing. The overflow pregnant rare earth leach solution (PLS) will undergo impurity removal where the pH of the solution will be increased with magnesia to reject impurities. The purification residue will be separated from the PLS by filtration, and the PLS passed to an ion exchange column to remove residual uranium. The purification residue will be re-leached to recover any rare earths that co-precipitated with the impurities and then combined with the water leach residue. The final combined residue will be treated with limestone and lime before pumped to the residue disposal facilities.

Ammonium bicarbonate will then be used to precipitate the rare earths from the purified PLS. The MREC will be thickened, filtered and washed and dried and bagged for export.

Off gas produced from the acid bake rotary kiln containing SO_3 and SO_2 will be treated through a gas cleaning unit. SO_3 will be recovered and reused in process as 60% H_2SO_4 (Sulphuric Acid) whilst the SO_2 will be recovered and concentrated through a patented technology, with the concentrated SO_2 recycling to the acid plant.

REAGENTS

The following reagents are used in the process plant and delivered to site either bulk or in bulka bags or isotainers:

- 43% Sodium silicate
- RE-60 Flotation Collector
- 50% Sodium hydroxide
- Flocculant
- Depressant
- 98% Sulphuric acid (produced from Sulphur Burning Acid Plant on site)
- Magnesia
- Ammonium Bicarbonate
- Lime, and
- Limestone.

TAILINGS MANAGEMENT

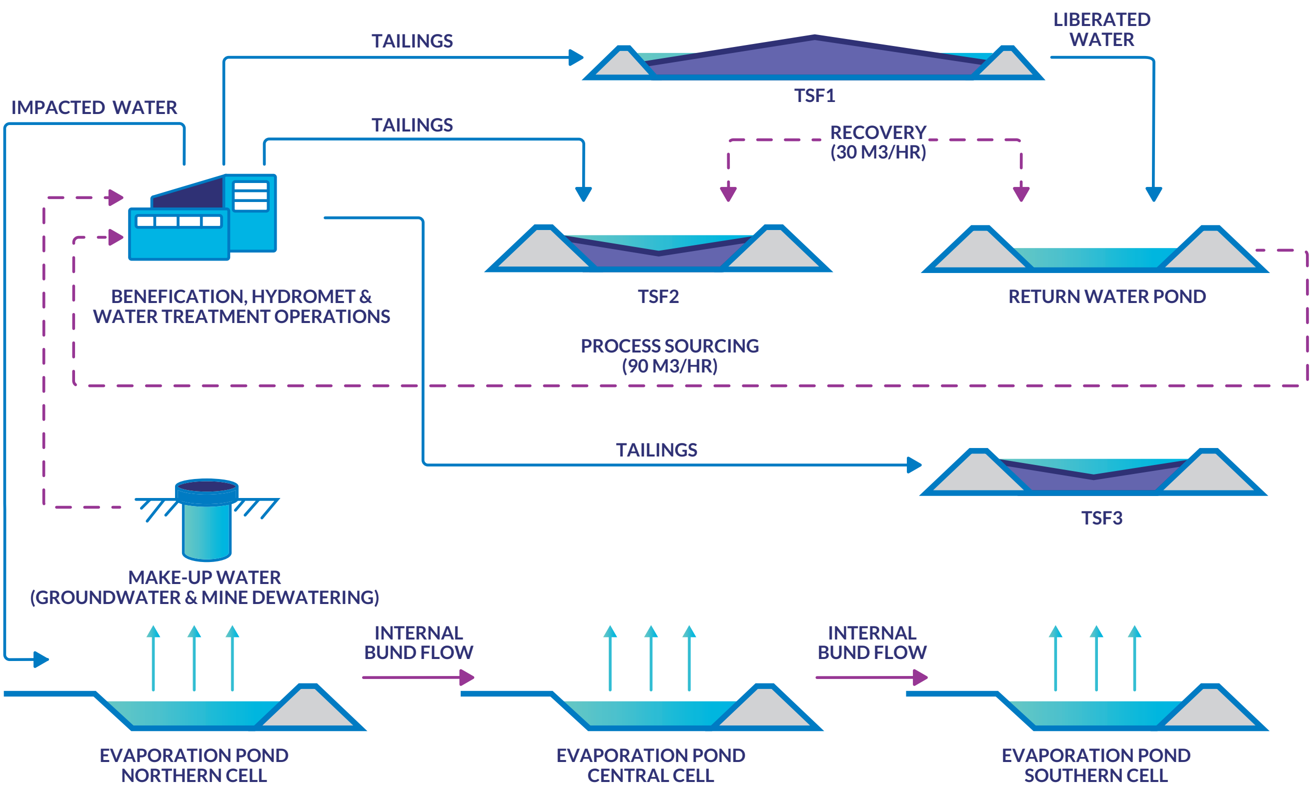
Three tailings streams will be produced and sent to separate tailings storage facilities (TSF):

- Beneficiation plant Rougher and Cleaner 1 flotation cells tailings which reports to TSF1,
- Beneficiation plant Cleaner 2 to Cleaner 4 flotation cells tailings which reports to TSF 2, and
- Combined residue and solution from the hydrometallurgical plant which reports to TSF 3.

Tailings from the beneficiation plant will comprise 95% of the total slurried tailings disposal.

Waste water from the hydrometallurgical process and reverse osmosis effluent from the water treatment plant will not be of suitable quality for re-use in the processing circuits and will be discharged to an evaporation pond.

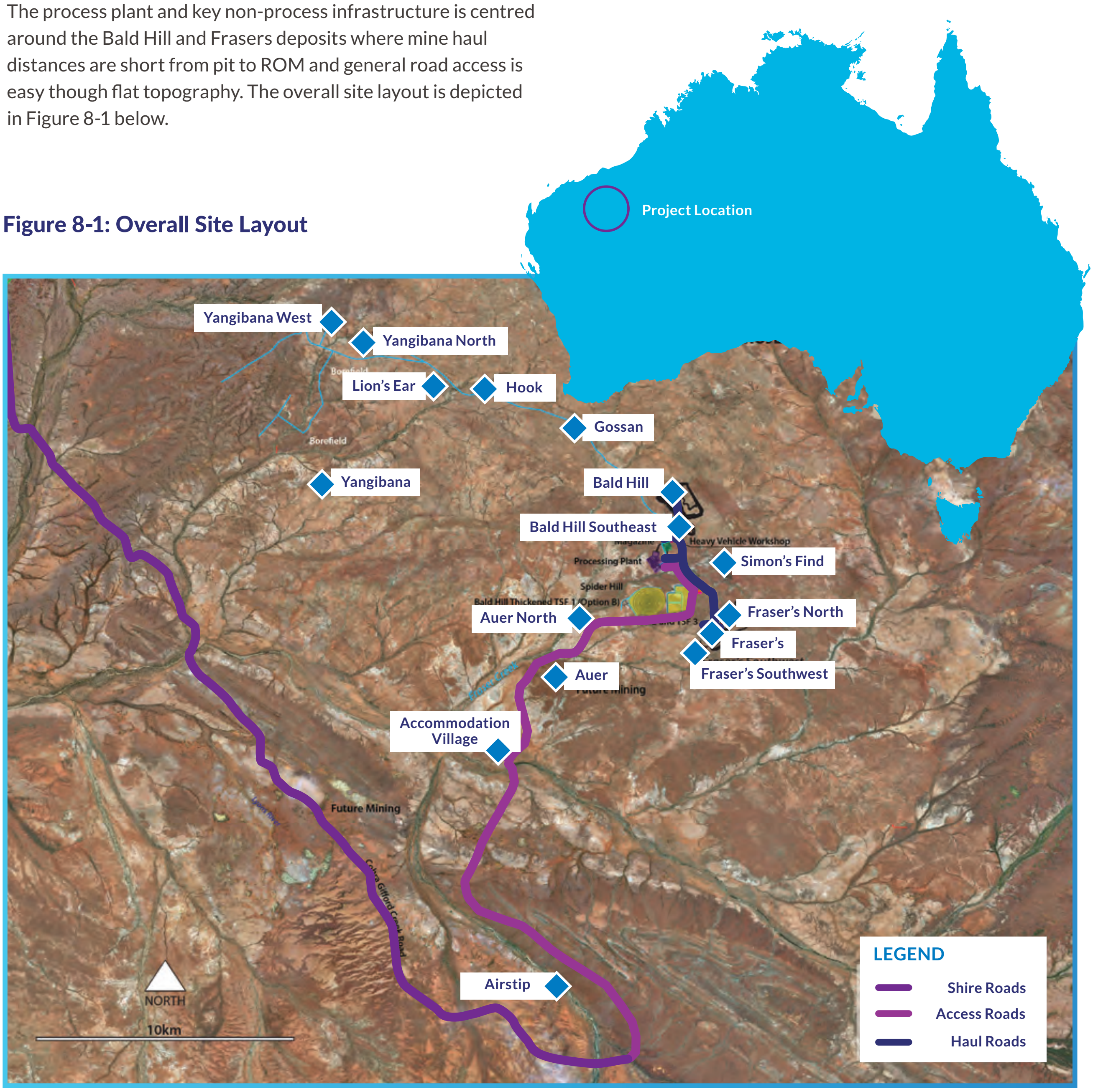
Figure 7-2: Tailings Management Flowsheet



NON-PROCESS INFRASTRUCTURE

The process plant and key non-process infrastructure is centred around the Bald Hill and Frasers deposits where mine haul distances are short from pit to ROM and general road access is easy though flat topography. The overall site layout is depicted in Figure 8-1 below.

Figure 8-1: Overall Site Layout



ROAD ACCESS

Road transport will be used to import equipment and materials during the construction phase and reagents, consumables and product during the operational phase.

The existing State road network is suitable for all road transport between Fremantle port and the town of Carnarvon. Between Carnarvon and the Project site, the sealed Carnarvon-Mullewa Road and unsealed Ullawarra Road/Cobra-Gifford Creek roads provide access to within 28 km of the process plant. A new unsealed access road will be constructed from the Cobra Gifford Creek Road to the process plant. These roads have a RAV 9 network rating.

A road access agreement will be required with the Shire of Upper Gascoyne and contributions to ongoing maintenance have been costed and allowed for in the DFS capital and operating cost estimates.

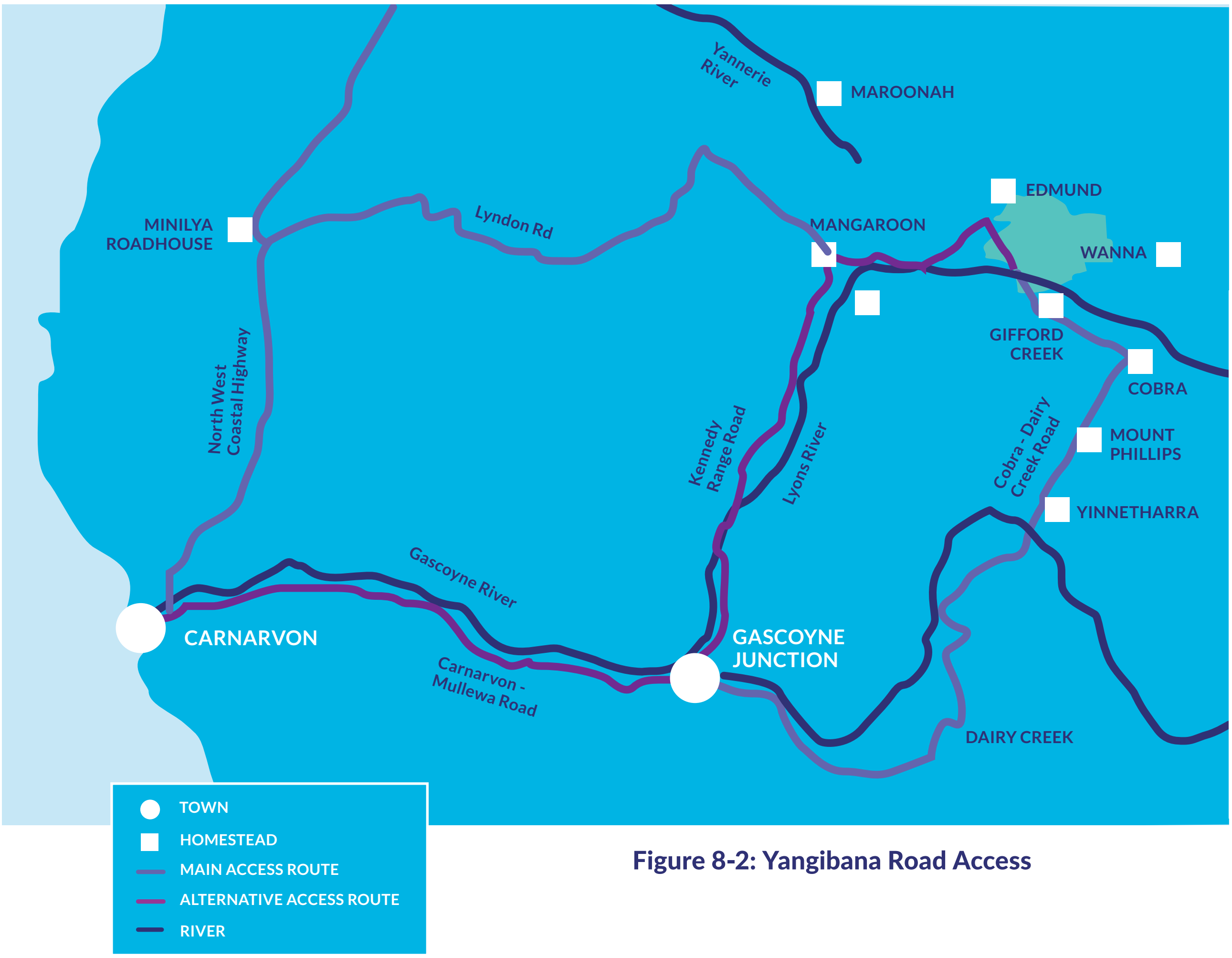


Figure 8-2: Yangibana Road Access

AIRSTRIP

For the initial period of construction, and the first three years of the operations, the existing Gifford Creek airfield (YGIF) approximately 30km southeast of the process plant will be used for Fly in Fly out (FIFO) construction and operational personnel. The unsealed runway will require minor up-grading and an aerodrome safety inspection to enable its use for regular passenger transport.

The airstrip upgrade has been fully costed based on an engineering design and tendered rates at a direct cost of A$1.6M Operational flight costs have been based on flight costs provided by suitable FIFO service providers. The use of a turbo-propeller engine plane capable of carrying no more than 30 passengers is proposed.

ACCOMMODATION VILLAGE

Hastings will seek to employ suitably skilled people locally wherever possible, from the local community and nearest towns including Gascoyne Junction, Carnarvon and Geraldton. However, DFS operating cost estimate modelling is based on a 100% FIFO rostered workforce due to the remoteness of the site. To house both the construction and operations' personnel an accommodation village (the Village) will be constructed to accommodate up to 240 people. The Village will be supported by additional temporary rooms during peak construction currently estimated at 60.

The proposed Village facilities and level of quality is consistent with similar junior mine Villages to ensure the attraction and retention of key staff. The Village will include full supporting facilities such as reception/first aid rooms, kitchen/dining (dry messing), gymnasium, wet mess and multipurpose sports court.

Supply and installation quotations together with assessments of some second-hand building supply opportunities have been sourced and support the capital cost estimates. Village operation and management costs have also been sourced from the market, and these have been developed into messing rates for personnel on site. These costs have been captured under the operating cost estimate for the Project.

POWER SUPPLY AND FUEL STORAGE

The power supply for the site comprises an onsite purpose-built LNG power station and accommodation village power station, which will service the mine and processing plant, and the camp respectively.

The Mine and Process Plant Power Station is located adjacent to the processing facility. It is designed for a peak generating capacity of 10.7MW (1/2hr estimated peak load), made up of 7 gas (LNG) modular 2MW gensets (reciprocating diesel-type units running on LNG), generating at 11kV.

The Camp Power Station has a generating capacity of 1400kW at 400V, made up of 4 modular, containerised 350kW gensets. The power supply is via a local 400V outdoor switchboard. The battery limit for the Camp Power Supply are the outgoing terminals of the outdoor 400V switchboard. Hastings personnel will operate and maintain the power stations, with a technician from the vendor during the first year of operation on site to provide the experience in the operation and maintenance of the stations.

Onsite LNG fuel storage capacity will be through 7 x 350kL (804 tonne) LNG storage and vaporisation facility. The facility is sized for at least 15-days storage. The LNG will be delivered to site via road tankers from a Kwinana gas processing plant.

WATER SUPPLY AND TREATMENT

Total Project water demand is estimated at 1.7GL per annum. This will be predominantly sourced from a borefield (the SipHon Borefield) located within a palaeotributary aquifer, which forms part of the vast Lyons Palaeodrainage System. The borefield is located 26km north west from the process plant and 8km south south west of Yangibana North mining area. Water exploration drilling, pump testing and ground water modelling work, completed in November 2017, concludes the aquifer will supply sufficient long-term supply with extraction having little environmental impact. The salinity of the aquifer is fresh to brackish and will not require treatment for the process plant, and minimal treatment required for potable water use.

WET SEASON ACCESS

The unsealed roads are affected by seasonal rainfall. After heavy rainfall events the Shire may choose to close the roads to avoid damage. On average closure lasts for 2-3 days, but closures have been known to last for longer than a week. A joint road inspection was undertaken with the Shire to assess the areas that require immediate upgrading to improve wet-weather recovery and this has been allowed for in the capital cost estimate. Site storage capacity for all reagents, fuel and consumables has been designed for 15 days (14 storage + 1 operation day) to allow for periodic closure of the access road.

The road will be continuously upgraded during the operational stage to improve the post wet-weather performance and this has been included as a capital expense in the capital cost estimates.

ENVIRONMENTAL AND SOCIAL

WESTERN AUSTRALIAN STATE GOVERNMENT

A formal Environmental Impact Assessment (EIA) is currently underway as required under Part IV of the Environmental Protection Act 1986 (WA). The Western Australian Environmental Protection Authority (EPA) has set the level of assessment for the Yangibana Project at Public Environmental Review (PER) with a public advertisement period of four weeks. Hastings is currently preparing the PER documentation to comply with the requirements of the EPA in preparation for the public advertisement period.

A preliminary Mine Development Proposal (MDP) was lodged with WA Department of Mines, Industry Regulation and Safety (DMIRS) in April 2017.

Several other secondary approvals are also required under subordinate legislation. These include permits under the Rights in Water and Irrigation Act 1914, Mining Act 1978 and Part V of the Environmental Protection Act 1986.

COMMONWEALTH GOVERNMENT

A formal EIA is also currently being assessed under the Commonwealth Environment Protection and Biodiversity Act 2000. The Commonwealth and State governments have a 'One Stop Shop' Initiative for the formal EIA processes, which allows the Project to follow the state EIA process and forms the one set of documentation.

Hastings has voluntarily entered into a Native Title Agreement (NTA), under the Native Title Act 1993 (Commonwealth), with the Thiin-Mah Warriyangka, Tharrkari and Jiwarli (TMWTJ) People. The NTA was ratified by the TMWTJ People and Hastings on 9 November 2017.

ENVIRONMENTAL CONTEXT

Hastings has conducted extensive environmental studies over its tenements as described below.

- Flora and fauna: Flora and fauna surveys have been conducted over 55,560 Ha within and outside of impact areas. No threatened flora, or Threatened Ecological Communities (TEC) listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act; Cwth) and Wildlife Conservation Act 1950 (WC Act; WA) were recorded in the study area. Five species of conservation significance listed as Schedule 1 and 5 under the WC Act were recorded in the fauna study area. These species may be displaced to surrounding areas. The habitat types were mapped and the Project will not significantly impact on any habitat type. No fauna species recorded in the fauna study area are listed as Threatened under the EPBC Act. The Project will not significantly impact flora or fauna values in the local area.

- Subterranean fauna: The Project occurs within the boundary of the Gifford Creek Priority Ecological Community (PEC), a network of shallow calcrete aquifers that support a stygofauna community. A thorough assessment of indirect impacts from pit dewatering and water abstraction activities has determined that there will not be a significant impact to the PEC.

- Terrestrial environmental quality: Naturally occurring radionuclide materials (NORM) associated with the ore body become concentrated during processing of the ore, and thus a small percentage of the tailings (~9%) have elevated levels (> 1Bq/g) of radionuclides. The storage of tailings with elevated levels of radionuclides has been the focus of an assessment of impacts during the operations phase, and over a 1000-year post-closure period. The Tailings Storage Facilities have been designed to ensure the integrity and encapsulation of the tailings over the long term. Detailed waste characterisation studies have determined that radionuclides are not elevated in the tailings pore water, which ensures that any seepage will not result in exposure of radionuclides to the surrounding soils and waters.

- Human health: A radiation impact assessment has determined that workers and members of the public will not be exposed to radionuclides above regulatory limits during operations. Regardless, Hastings will implement Radiation Management Plans to reduce radiation exposure to 'As Low As Reasonably Practical' (ALARP).

- Social surroundings (heritage): Heritage surveys have been conducted over the majority of the Project area.

Several significant heritage sites have been identified, however, the Project will not impact on any of the known heritage sites.

- Air quality: The total scope 1 greenhouse gas emissions associated with the normal operating scenario are 12,937.4 tCO2-e and are expected to contribute approximately 0.002% of the 2014 Australian emissions. These emissions also represent approximately 0.087% for the mining sector, 0.016% of Western Australia and around 0.003% of the Australian Government's 2020 emissions target. There are no scope 2 emissions associated with the proposal. Hastings will implement a continual improvement process to reduce emissions to ALARP.

- Hydrology and hydrogeology: The Yangibana Project landscape comprises of the Lyons River and a network of tributary channels. The waterways are ephemeral and only flow during heavy rainfall and flood events, which occur during the summer months. A hydrology assessment shows that the mining and majority of infrastructure areas occur outside of flood affected areas. Hastings will source its water requirements from fractured rock aquifers associated with the resource, and a palaeochannel system. Detailed hydrogeological modelling is based on pump testing and water parameters collected from bores developed during the water exploration programme.

ENVIRONMENTAL MANAGEMENT

Environmental Management Plans (EMPs) have been developed based on outcomes from environmental studies, risk assessment, Hastings Environmental Policy and legal compliance. The EMPs describe measures to mitigate potential impacts to the environment by the Project activities. These EMPs will form a component of the Environmental Management System, along with the task-specific work instructions, forms and registers.

CLOSURE

A Preliminary Mine Closure Plan (MCP) has been developed in accordance with the Department of Mines, Industry Regulation and Safety (DMIRS) and Environmental Protection Authority (EPA) (2015) Guidelines for Preparing Preliminary Mine Closure Plans (the Guidelines).

Closure implementation will occur progressively throughout the life of mine and will be integrated into mine planning to ensure that resources (materials, machinery and personnel) are available to complete rehabilitation and closure tasks in accordance with the post mining land use. The closure cost liability estimates (CCLE) were developed via a rehabilitation works estimating model. The cost model was developed to align with the MCP whereby the Project is divided into domains, which deal with various spatial, activity-types and post closure aspects of the Project.

Completion criteria have been developed to ensure the overall and specific objectives for closure are achievable, and have been designed to allow effective monitoring, reporting and auditing for a definitive endpoint on rehabilitation activities. The qualitative completion criteria will be refined during further studies and during operations.

“Hastings has worked closely with Traditional Owners.”

COMMUNITY AND STAKEHOLDER RELATIONS

Hastings has undertaken a community consultation program and maintains strong relationships with relevant shires and local communities and will continue to ensure these relationships are enhanced for the mutual benefit of the Project and stakeholders. It is committed to ongoing communication, engagement and consultation with interested parties through the planning and approvals phase, and through the construction and operational phases of the Project. A Stakeholder Engagement Management Plan ensures a pragmatic and planned program providing access to government, to facilitate community partnering, to enable access to land, and a myriad of other objectives to develop and protect the Company’s reputation. Hastings recognises that stakeholder engagement is a process that continues for the life of the Project and beyond to mine closure and post-mining rehabilitation.

A strong relationship with the pastoralist has been developed since the inception of its exploration program. On-going consultation has enabled consideration of infrastructure location to ensure insignificant impacts with pastoral activities during the operations of the Project. A Land Access Agreement has been entered into between the pastoralist and Hastings on 12 May 2017.

Hastings has worked closely with the Traditional Owners to ensure no impact to significant heritage sites: Thorough heritage surveys of all planned exploration disturbance areas and most of the Project areas has involved archaeologists, anthropologists and representatives of the Traditional Owners. Several heritage sites have been identified and will not be impacted by the Project. A NTA was signed on 9th November this year with the TMWTJ People.

Hastings has presented and provided information to the Shire of Upper Gascoyne (Shire) about the Project development. A Community Forum was also held at Gascoyne Junction to provide information about the Project. The Shire is keen to work with Hastings to ensure public roads between the Yangibana Project area and Gascoyne Junction are maintained during the construction and operations phases. During the exploration phase, Hastings has engaged local contractors and service providers wherever practicable.

Hastings works closely with Commonwealth, State and Local governments, with the aim of achieving an effective and seamless Approvals process. Regular and relevant meetings are held with various individuals, including the Minister for Environment and Minister for Mines, through various levels of government to project officers processing approvals and permit application documentation.

Image 9-1 Signing of Native Title Agreement with the Thiin-Mah Warriyangka, Tharrkari and Jiwarli People.

PROJECT IMPLEMENTATION PLAN

PROJECT ENVIRONMENTAL APPROVALS AND LICENCES

A detailed schedule for primary and secondary approvals has been developed in the DFS and approvals are on track. The environmental approval for the Project is currently partway through a Public Environmental Review (PER). Hastings anticipates approvals without due delays, with positive support expressed by Government departments for the Project. Further to the strong government support received to date, Hastings will continue to work closely with regulatory agencies to expedite the approvals process further.

A section 41A (EP Act 1986) approval for Preliminary and Minor Works stage will commence March 2018 with access roads and some accommodation facilities.

SCHEDULE

Key Milestones include;

Commencement of Preliminary Works	**March 2018**
Detailed Design Completion	**March 2019**
On Site Construction Start	**August 2018**
On Site Commissioning Completion	**January 2020**

The Project's critical path is driven by the Sulphuric Acid Plant Engineering; followed by procurement, manufacturing, delivery, construction and finally commissioning.

EXECUTION STRATEGY – DETAILED DESIGN AND PROCUREMENT

Hastings will form a Project Management Team (PMT) to support the project execution.

Hastings has adopted a contracting strategy that seeks to reduce project risk by implementing a phased approach in which large Engineering, Procurement, Construction and Commissioning (EPCC) contractors will be selected to participate in a competition phase for the bulk of the project scope; the beneficiation and hydrometallurgical process plant.

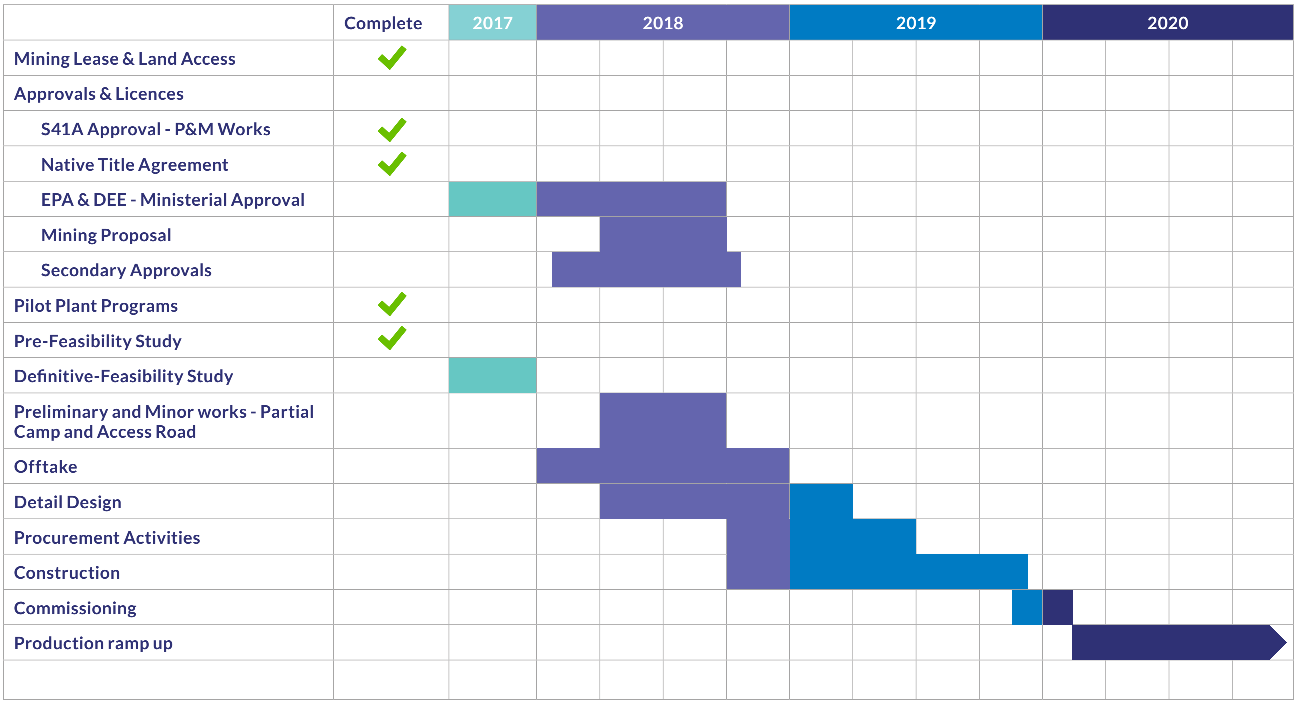
This competition phase will last for approximately 12 weeks. The EPCC bidders' teams will work jointly with PMT to prepare the Basic Engineering Design using the technical deliverables from the DFS. The successful EPCC contractor is expected to be awarded in March 2018 to commence the detailed design and procurement activities required to facilitate detailed design work.

During the competition phase the PMT may need to place orders for Long Lead Equipment, which are on the critical path of the schedule. To date critical equipment identified includes the Rotary Kiln and the Sulphuric Acid Plant. Such pre-ordered Long Lead Equipment will be novated to the successful EPCC Contractor.

The PMT will directly manage the remaining non-process contract packages and coordinate all interface activities with the main EPCC contractor.

By July 2018 detailed design is expected to be well advanced and the procurement of long lead time items largely complete. Offsite fabrication of long lead items are planned to commence in August 2018.

Figure 10-1: Project Implementation Schedule



PROJECT CONSTRUCTION

The preliminary works construction program will focus on the construction of the early works required to support the ongoing exploration activities and investigative works on site prior to construction commencement. This will include the development of:

- a construction water supply;
- a 16km long access road;
- the Lyons River floodway crossing;
- aerodrome upgrade and
- the establishment of an initial 100 room accommodation village.

The on-site construction of the beneficiation and hydrometallurgical processing plants, and associated services and infrastructure is scheduled to commence in August 2018.

MINING OPERATIONS

Optimisation of mine designs and schedules will continue during the detailed engineering design and construction phases. This will be followed by the engagement of a suitably qualified mining contractor. Mining operations are scheduled to commence in July 2019 to provide a stockpile of ore for the commissioning and production ramp up.

COMMISSIONING

A staged approach will be taken to commissioning the process plant and associated non-process infrastructure. The power plant will be the first major item to be commissioned, to supply power to the process plant.

Commissioning of the sulphuric acid plant and the beneficiation plant will follow to enable the development of a stockpile of mineral concentrate for the subsequent commissioning of the hydrometallurgical plant. All process plant commissioning is planned to be completed by January 2020 for final handover to the operations team and the commencement of ramp-up to full nameplate capacity.

PRODUCTION RAMP UP

Following successful commissioning of both the beneficiation and hydrometallurgical plants, the Hastings Operations team will begin the process of ramping up the facilities to nameplate capacity. This process is expected to take 24 months for the beneficiation plant and 16 months for the hydrometallurgical plant. The beneficiation plant and hydrometallurgy plant are forecast to achieve 71% and 86% of nameplate capacity respectively in 12 months.

OPERATING PHILOSOPHY

Hastings will develop the Yangibana Project as an owner-operator with specialist contractors providing support services.

A core team of personnel will operate and maintain the process plant, power plant and non-process infrastructure on a 24-hour basis. Personnel will be engaged under an enterprise bargaining agreement direct hire contract, based on a FIFO, 2-weeks on and one-week off roster from Perth. The maintenance activities will be based on a high level of planned maintenance concentrating on assembly change-out rather than component repair on site. This will necessitate additional spares holding on site of complete assemblies. Component assemblies will be sent off-site for overhaul.

A specialist mining contractor will be contracted to provide all mining equipment, carry out all maintenance of the mining fleet and provide their own supervision, operators and tradesmen. The Hasting's Mining Production team will manage the contractor, plan and verify the quantity and grade of the ore extracted from the mine pits.

The accommodation village will also be managed by a specialist contractor who will provide F&B catering and cleaning services.

Other services to be contracted out include engineering design and modifications, shutdown support, power station technical support, condition monitoring program establishment and data analysis, freight forwarding and road transport.

OPERATIONS

The processing plant will be broken into three main areas:

- Crushing area operations;
- Processing area operations; and
- Site laboratory and process engineering.

The process plant is designed to be an automated facility with most of the operating tasks conducted from the process Control Room.

The heart of the automated processing will be the Distributed Control System (DCS) located in the main Control Room. The DCS will gather all monitoring parameters, and will automate the response of open/shut using the set-points set in the DCS.

TRAINING

Training will be a key strategic and tactical issue for the business. With operational Rare Earth Elements plants not common in Australia, training will be essential and chosen personnel will be required to have a high degree of mechanical and chemical aptitude to fully realise the operational requirements.

OPERATIONAL READINESS

Following completion of commissioning of the plant, sustained production from the Yangibana Project requires a capable Operations Group who can take over the facilities and continue to improve and optimise operations to maximise the return on the investment. This requires the operation to be developed and ready in parallel with the design, construction and commissioning of the facilities.

The Operational Readiness phase of the Yangibana project is a critical project within the overall project, with defined responsibilities, budget and schedule. The responsibility for establishment of the Operation lies with the Director Mining Operations.

Initially the site will have limited facilities until the Operations facilities have been commissioned. Therefore, the Operational Readiness activities will initially be located off-site where the focus will be on system development and procurement activities. Once major off-site tasks have been completed and site facilities are available these activities will be relocated to site, Initial training may also be located off-site depending on the availability of suitable facilities. Further work will be conducted during the Basic Engineering Design phase to finalise the approach.

LOGISTICS

Project logistics incorporates the shipping and road transport requirements of construction phase materials and equipment, operational phase reagents and other consumables, and product export.

CONSTRUCTION PHASE

During the construction phase the Port of Fremantle will be the main inbound port. The Port has adequate capacity and provides the most economical options to breakbulk cargo such as steel and machinery. The Port of Fremantle has adequate hardstand laydown areas suitable for the discharge and consolidation of equipment and materials, and provides shed options for the temporary undercover storage, if required.

OPERATIONAL PHASE

Hastings intends to consolidate the import of reagents, consumables and export of its MREC product through the Port of Fremantle via Singapore. This strategy will involve the Company engaging a specialist shipping service to manage consolidation of materials in Singapore prior to being shipped to Fremantle. This will ensure that the minimum tonnage of cargo can be shipped on a dedicated shipping service between Singapore and Fremantle, on a monthly basis.

Road trains will be used to transport reagents and consumables. All dry reagents for the operational phase of the Project, except for limestone, will likely be imported in standard 20ft shipping containers. A combination of carried-owned and shipper-owned containers will be used to facilitate reagent movements into the site. Reagents such as limestone and consumables such as diesel and LPG will be transported to site in bulk side tippers and road tankers.

“Hastings is positioned to become a leading Australian producer of Nd and Pr.”

MARKETING STRATEGY

Nd-Pr-Tb-Dy represents approximately 85-90% of Yangibana's rare earth basket value.

The Company has signed off-take MOUs with three Chinese rare earth producers this year, namely (i) Baotou Sky Rock Rare Earth (1 August); (ii) China Rare Earth Holdings (1 September); and (iii), Ganzhou Qiandong Rare Earth (13 September) to sell a total of 6,000 tonnes of MREC p.a.

Hastings is on track to establish its rare earths production plant from Yangibana in Western Australia targeting the commencement of production in the Q4 2019 – Q1 2020. The production plant has a design capacity to produce up to 15,000 t.p.a. of MREC containing up to 8,500 tonnes of total TREO which has a high proportion of Nd and Pr. These two are the critical rare earths essential in the production of permanent magnets, which in turn provide the electrical motor components for many renewable and clean energy applications amongst other next-generation technologies. Along with Terbium (Tb) and Dysprosium (Dy), two additional rare earths, Nd-Pr-Tb-Dy account for 90% of Yangibana's rare earth basket value.

Pilot plant test work was successfully completed in May 2017, producing an MREC sample containing over 40% Nd-Pr of the TREO. The sample has received very favourable acceptance from potential customers, and three MOUs for off take agreements have been signed thus accounting for 40% of the annual production from Yangibana. Hastings continues negotiations with more customers to secure further off take agreements. From the Yangibana site, Hastings will mine, beneficiate and undertake the hydrometallurgical process to produce MREC.

The Hastings marketing strategy will engage customers with separation facilities as well as customers further downstream in the rare earths supply chain. Downstream supply chain customers have indicated keen interest to secure rare earths from alternative suppliers to diversify and secure their supply chains.

The Yangibana production plant will provide an estimated 5% of additional global supply to meet some of the anticipated increase in demand for rare earths materials.

COMPETITIVE ADVANTAGE

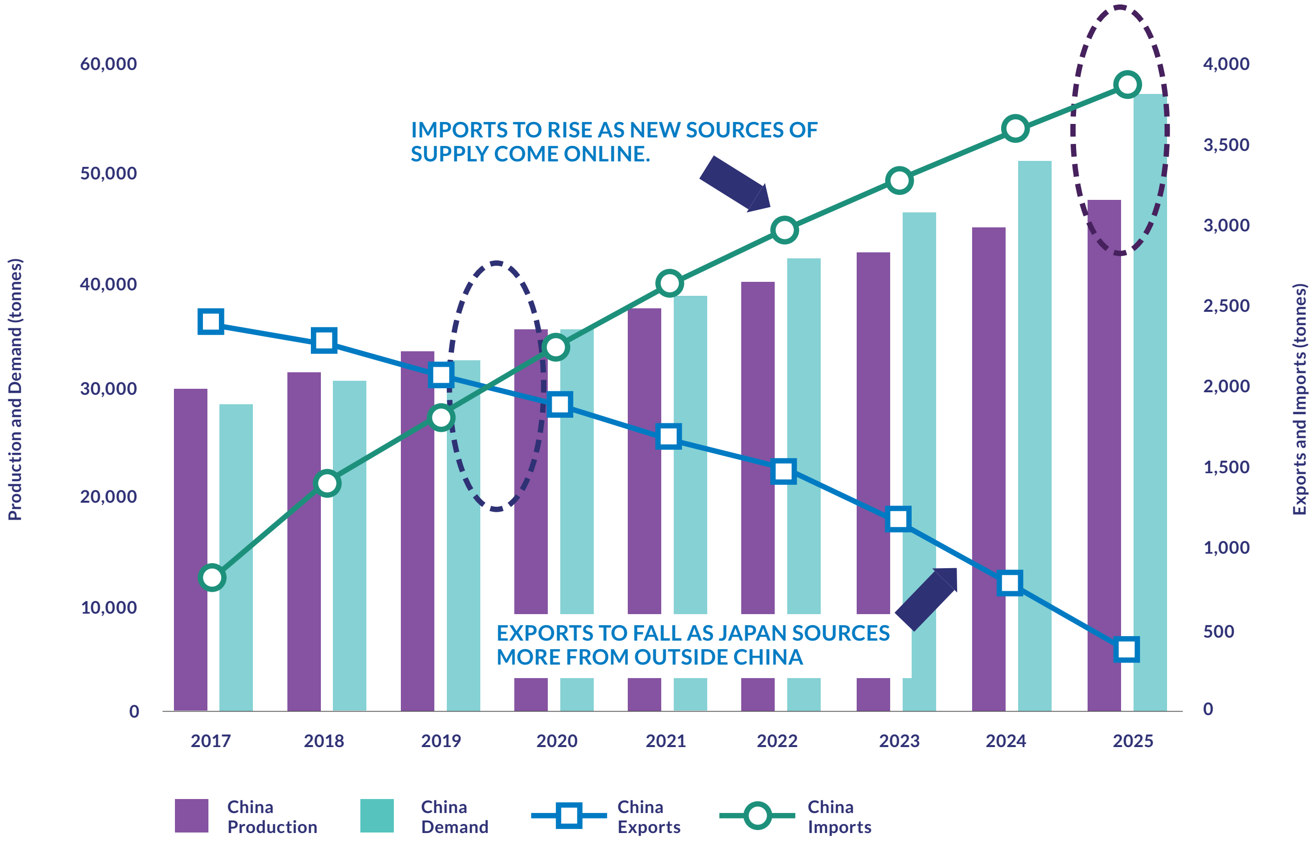
Hastings has three key economic advantages:

- Australian sovereign risk - enables the Company to achieve a lower cost of capital as it seeks to complete its capital raising requirements. Western Australia has well-established infrastructure and is historically supportive of mining projects.
- The Project has a high bascket percentage of Nd-Pr: TREO ratio from a monazite mineralisation.
- Beneficiation process simple and well-established - enabling an upgrade in concentration from an average 1.18% in-ground grade to well over 25% in the beneficiated concentrate.

The high Nd-Pr ratio gives Hastings one of the highest basket prices per kilogram produced compared with other LREO (Light Rare Earth Oxides) producers around the world.

At the recent 14th International Rare Earths Conference held in Hong Kong, Adamas Intelligence, one of the leading rare earth research firms highlighted that the Chinese domestic market for Nd-Pr consumption is likely to increase dramatically as China transitions from a primary manufacturing export economy to a high technology services and domestic consumption economy. This transition will drive the demand for technology devices as highlighted by the “Made in China 2025” policy. Furthermore, this will also lead to a reduction to the available Nd-Pr stock that can be exported to other traditional industrial consumers outside of China. Figure 12-1 below illustrates the predicted supply-demand scenario for Nd-Pr.

Figure 12-1: China import-export forecast for Nd-Pr



Source: Adamas Intelligence 2017

Table 12-1 below forecasts the demand for various applications to 2027 and highlights the rare earths used. Demand for Nd-Pr for magnet applications is forecast to be the biggest contributor across applications by 2027 based on expected growth in EV and wind turbines.

Table 12-1: Consumption of rare earths forecast to 2027

APPLICATION	MAIN RE ELEMENT	DEMAND (KT REO)				COMPOUND ANNUAL GROWTH RATE (%PER YEAR)		
		2012	**2017e**	**2022f**	**2027f**	**2012-17**	**2017-22**	**2022-27**
Magnets	Nd, Pr, Dy	24.3	37.5	50.1	57.9	9.1	5.9	2.9
Catalysts	La, Ce	23.8	30.3	37.4	42.5	5	4.3	2.6
Polishing	Ce	14.3	15.1	17	19.7	1.2	2.3	3
Batteries	La, Ce	8.4	10.8	14.4	11.7	5.2	5.9	-4
Metallurgy	Ce, La	9.1	9.8	10.6	11.8	1.4	1.6	2.2
Glass	Ce, La, Er	8.1	9.5	11.8	14.7	3.3	4.5	4.4
Ceramics	Y, Ce, Nd	5.5	7.8	9.8	12.4	7.3	4.6	4.8
Phosphors	Y, Pr, Ce, La	6	2.7	2.7	2.8	-14.9	0.1	0.8
Other	Ce, La, Y	7.2	13.1	18.6	25.6	12.8	7.2	6.6
Total		**106.5**	**136.3**	**172.3**	**199.2**	**5**	**4.8**	**2.9**

Source: Roskill 2017

NEODYMIUM - PRASEODYMIUM: CRITICAL FOR PERMANENT MAGNET PRODUCTION

The market in high strength and high performance permanent magnets made from Nd-Pr has been commercially available since the 1980s but is has been the recent developments in EVs and wind turbine technology that has driven substantial new demand. BCC Research forecasts an 8.7% compound annual growth rate (CAGR) in permanent magnets from 2017 to 2022, in electric motors and generators applications, and the highest growth region being Asia-Pacific.

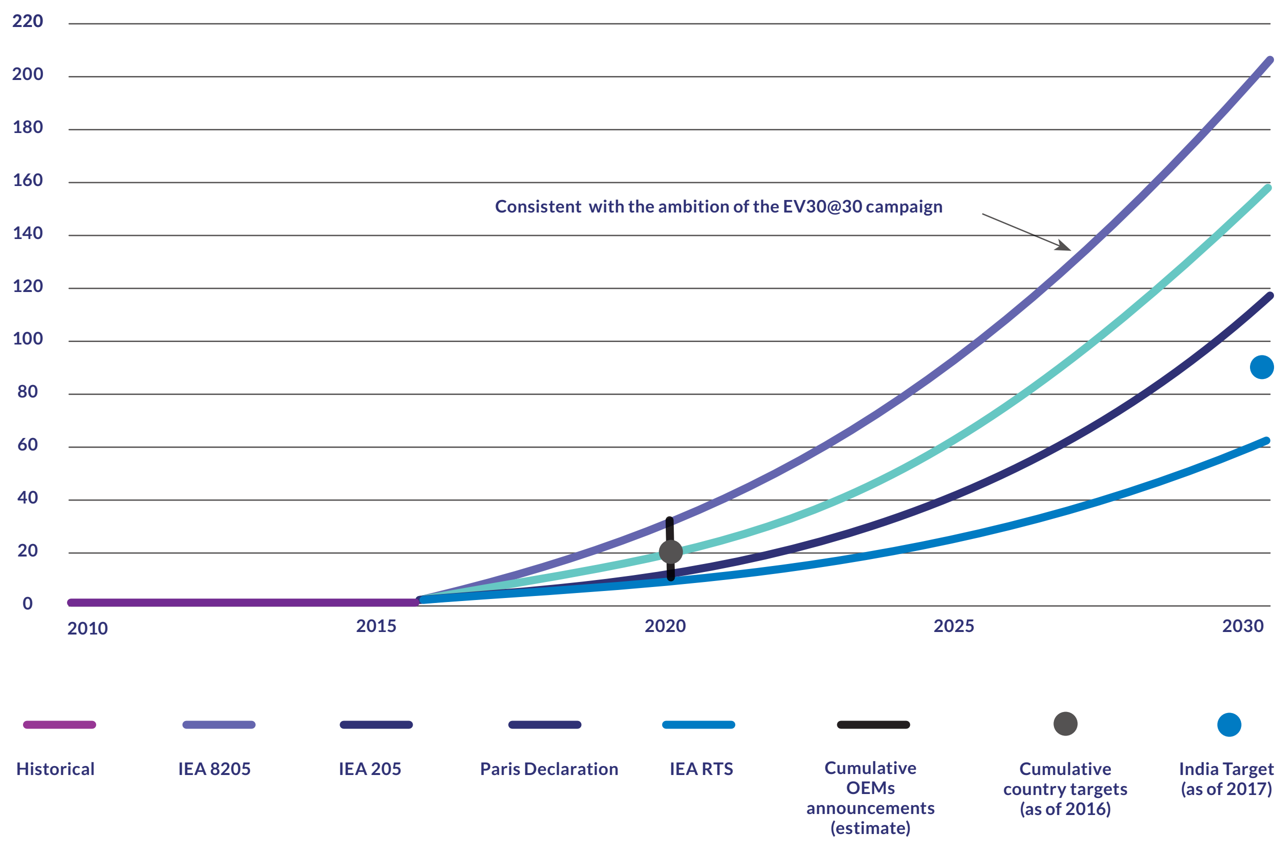
Following COP21 (Paris Climate Conference in December 2015), the Paris (Climate) Agreement entered into force on 4 November 2016, with 158 countries now having signed and ratified, signifying legal intent to be bound by its terms.

Signatory nations moved in 2016/17 to develop national policies to meet their Paris undertakings for reduction in carbon emissions. In April 2017, India was the first country to announce a target of an all-EV fleet by 2030. This was followed by similar announcements from France, United Kingdom, Norway and China. This changing macro environment was further augmented with announcements from Volvo that it would go all electric from 2019 and Volkswagens plans to leapfrog Tesla and become the leader in electric cars by 2025.

As a result, the International Energy Agency updated its forecast for the amount of EVs on the road by 2030 ranging between 120-200 million, an almost 100 times increase from the 2 million EVs on the road in 2016.

Figure 12-2: Predicted EV uptake required to meet climate change targets.

Figure 12-2 Deployment scenarios for the stock of electric cars to 2030



Source: IEA, Global EV Outlook 2017. Two million and counting.

Hastings is well positioned to be a major supplier of key rare earth oxides of Nd and Pr, critical for the manufacture of permanent magnets in electric motors.

The increase in demand for Nd-Pr for wind applications over the next decade could also be substantial. China alone has targeted of 20% non-fossil fuel energy sources by 2030. The Global Wind Energy Council anticipates 2,110 gigawatts of wind energy installations by 2030, with most of that expansion coming from China.

Demand for robotic motors will further add to growth for permanent magnets and again China is anticipated to lead the way as it shifts production from labour to machine driven production. Forecasts for use of permanent magnets in consumer electronics anticipate 8% CAGR over the next five years. Robust growth for smartphones and other miniature electronic devices are expected too. Growth is also anticipated from drone applications, the Internet of Things (IOT) applications and the number of electric motors in a standard autonomous vehicle are expected to increase and require more permanent magnets. Additional applications include magneto-caloric refrigeration technology, an interesting application potentially providing CFC free and energy efficient cooling systems.

GLOBAL SUPPLY STRUCTURE CHANGES

Changes in the global supply structure are currently dominated by two key issues:

- China's continued crackdown on illegal mining to better manage the production of rare earths and manage the long-term sustainability of its natural resource. Simultaneously the crackdown on illegal mining aims to control environmental damage and pollution with the introduction of stricter environmental controls that will inevitably lead to an increase in production costs for legally produced rare earth products.

- The second big policy initiative entails the redistribution of the production of rare earth products. The "Made in China 2025" policy introduced in 2015, identifies ten strategic industrial sectors where the anticipated Chinese production over the next decade will include increased emphasis on upgrading and advancing the production of high-end finished goods rather than lower end components and parts. Ultimately a larger portion of rare earth production will shift towards Chinese industry set up to meet domestic demand and production and thus less will be available for use in exports of semi-finished and finished products from China. Hastings is gearing to meet this anticipated gap in the supply of Nd-Pr from Australia to many customers both inside and outside of China.

MARKETS AND APPLICATIONS FOR OTHER RARE EARTHS IN THE YANGIBANA MREC

Outside of Nd-Pr, Hastings anticipates that there will be demand for the remaining underlying rare earths contained in the MREC production. Dy-Tb will remain an important part of certain permanent magnet technology where magnets are required in high performance applications regarding magnetic coercivity. Lanthanum (La) has many applications, as a glass polisher, in water treatment, as a catalyst for cracking in the petrochemical industry and for very selective medical purpose. Approximately 10% of the TREO in the MREC from Yangibana will comprise Lanthanum. Cerium is another substantial contributor, accounting for approximately 40% of the TREO in the MREC. Ce has applications in the petrochemical industry and is used in FCC (fluid catalytic cracking), fuel cells, glass polishing, and water treatment. Ce-La provide important components in NiMH batteries.

PRODUCTION AND PRICING OF MREC

The pricing mechanism includes provisions for the independent surveying on site at Yangibana of each batch of production. This will be done to ensure the quality of the MREC product and to ensure the underlying composition of rare earth oxides as these will be priced individually according to the prevailing three-month average price as published in various rare earth publications, including BAIINFO, Asian Metal, etc. The financials of the DFS are based on price forecasts from Argus Media. Hastings considers that these price forecasts reflect the anticipated shortage in the market of Nd-Pr over the next decade. The price projections used in the financial model include a cost to separate the MREC into individual rare earths oxides. Hastings is currently in discussions that form the basis of the off-take agreement negotiations and has based separation costs in the DFS on indicated current separation costs from its customers. The production schedule of anticipated production is published below, expanded for the individual rare earth oxides contained within the MREC. Basket prices per year reflect the forecast prices for that year as per Argus forecasts of individual rare earths oxides. A separation fee of A$3.33/kg TREO (US$2.50/kg) has been included in the MREC price calculation.

The projected production of TREO, shown per RE element as well as total TREO kg produced is showed in Table 12-3 below. The predicted MREC price per kg TREO is also included.

Table 12-3: TREO Production Summary

		DFS PRODUCTION TARGET - PROBABLE ORE RESERVE						ADDITIONAL PRODUCTION TARGET – MEASURED AND INDICATED MINERAL RESOURCES	
Rare Earth Oxide	**Unit**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027-2028**
Y_2O_3	kg	49,538	64,721	56,053	51,611	61,580	49,172	35,572	31,280
CeO_2	kg	2,380,394	3,554,599	3,444,054	3,622,628	3,342,950	2,250,171	1,527,224	1,688,455
La_2O_3	kg	561,827	961,978	781,916	1,030,566	1,463,797	2,056,108	2,292,819	3,170,042
Pr_6O_{11}	kg	483,186	676,402	666,540	658,340	702,035	561,467	497,805	474,815
Nd_2O_3	kg	1,997,043	2,842,099	2,730,735	2,682,276	3,063,820	2,337,260	2,208,449	1,708,273
Sm_2O_3	kg	184,053	277,782	253,744	260,206	379,495	300,789	295,198	221,734
Eu_2O_3	kg	34,021	52,781	47,185	49,055	70,717	57,809	54,096	47,138
Gd_2O_3	kg	75,797	119,330	105,717	106,686	145,514	115,892	102,608	97,320
Dy_2O_3	kg	20,300	30,624	26,858	24,808	29,531	22,473	15,705	15,790
Tb_2O_3	kg	6,494	9,918	8,825	8,324	10,286	7,831	5,926	6,166
Ho_2O_3	kg	2,082	3,112	2,686	2,464	2,901	2,244	1,545	1,434
Er_2O_3	kg	1,969	2,895	2,435	2,268	2,546	2,088	1,367	1,241
Tm_2O_3	kg	35	53	42	41	40	32	19	18
Yb_2O_3	kg	160	247	192	189	182	138	89	79
Lu_2O_3	kg	18	29	23	22	21	16	11	10
Total TREO Produced	**kg**	**5,796,916**	**8,596,570**	**8,127,005**	**8,499,482**	**9,275,415**	**7,763,489**	**7,038,433**	**7,463,796**
TREO MREC Price (Nominal)	**US$/kg TREO**	**36.5**	**37.6**	**38.5**	**37.3**	**37.7**	**34.8**	**36.7**	**30.4**

Pre-production Capital

A$335M

CAPITAL COST ESTIMATE

BASIS OF ESTIMATE

The Capital Cost Estimate (CCE) for the Project scope was developed to meet the requirements of a Class 2 estimate as defined by the American Association of Cost Engineers' (AACE) Cost Estimation Classification System (as applied for the Mining and Mineral Processing Industries) with an accuracy range of approximately -5% to +15%. At the upper limit of the accuracy range there is an 85% confidence level of completion within a given cost. The CCE Base Date is July 2017; and all cost data presented is in Australian dollars (A$).

The overall estimate was compiled by Wave International with key contributions from several experienced consultants covering the entire project scope. The estimate contributors include:

AREA	CONTRIBUTOR
Project management and DFS Study Lead	Wave International
Mining	Snowden Group Mining Industry Consultants
Tailings Management	ATC Williams
Process Infrastructure	Tetra Tech Proteus
Non-Process Infrastructure	Tetra Tech Proteus, Wave International

ESTIMATE METHODOLOGY

The Capital Cost Estimate (CCE) was structured in accordance with the Project's Work Breakdown Structure (WBS) which was developed and agreed prior to commencement of the DFS. The WBS encapsulates the entire project scope. The CCE was developed using a combination of methodologies outlined in the Table 13-1 below.

Table 13-1: Level of Engineering development and cost estimating method

DISCIPLINE	LEVEL OF DESIGNS	COST ESTIMATE METHOD
Earthworks	Preliminary 3D (12D) modelling with bill of quantities from model.	Multiple quotes for supply unit rates and all-in labour gang rates for installation
Concrete works	Preliminary 3D modelling with bill of quantities from model.	Multiple quotes for supply unit rates and all-in labour gang rates for installation
Mechanical equipment	Preliminary equipment specifications and datasheets	Multiple budgetary quotes
Structural steel supply	Preliminary 3D modelling with material take-offs from model.	Multiple quotes for supply unit rates and all-in labour gang rates for installation
Platework	Preliminary 3D modelling with material take-offs from model.	Based on in-house rates for similar projects
Piping	Preliminary 3D modelling for pipe lengths with equipment take-offs from preliminary P&ID's	Multiple quotes for supply unit rates and all-in labour gang rates for installation
Electrical control and instrumentation	Preliminary 3D modelling for cable lengths with material take-offs from preliminary P&ID's	Multiple quotes for supply unit rates and all-in labour gang rates for installation
Freight	None	Based on benchmarked freight rates
Buildings	Architectural 2D drawings	Multiple budgetary and EPC quotes
Project indirect costs	Factored provisions from similar benchmarked data	
Contingency	Qualitative determination based on the quality of vendor information received and the DFS process followed as per the AACE Class 2 Estimate principles	

ESTIMATE STRUCTURE

The CCE can be divided into three major cost areas which make up the total capital budget. These are:

- Direct costs
- Indirect costs
- Project contingency

DIRECT COSTS

All costs related to the Process Plant and Non-Process Infrastructure are defined as direct costs and are directly attributable to the project scope items and include the supply of equipment and materials, freight to site and construction labour.

INDIRECT COSTS

Indirect costs are typically costs that accrue on a time basis and not directly allocated to individual cost items. Non-construction personnel, vehicles, overheads, plant & equipment; are all based on the project schedule and bulk quantity development. Based on industry norms the indirect costs are then factored to arrive at an estimate.

The indirect costs include the following:

- **Temporary construction facilities –** buildings, utilities, construction camp
- **Owners costs –** the owner's implementation team

during implementation, third party consultants, legal and insurance

- **First fills –** reagents and consumables required for sustained operations
- **Equipment spares –** initial, capital and insurance spares
- **Design, procurement and construction management –** including indirect labour costs associated with the design and procurement and construction management activities required to implement the project.
- **Commissioning –** costs associated with commissioning the plant to a completed wet commissioning stage and first feed of ore. It does not include the plant ramp-up, which is the first operational stage after completion of the wet commissioning stage.

PROJECT CONTINGENCY

The contingency is a provision for unforeseen items of work; or work that is not adequately defined and quantified due to the level of project definition. Apart from the Indirect Costs; a bottom up estimate was deemed the most appropriate for this CCE as it is generated from detailed equipment lists and material take-offs. Vendor quotations and contractor estimates were assessed and included where valid.

CAPITAL COST SUMMARY

Total pre-production capital required to implement the project has been estimated at A$335.2M (including contingency of A $43.7M) a summary of which is presented in Table 13-2 below.

Table 13-2 shows the total Direct and Indirect costs with WBS Level 1 cost distribution, whilst Figure 13-1 shows the distribution of capital costs.

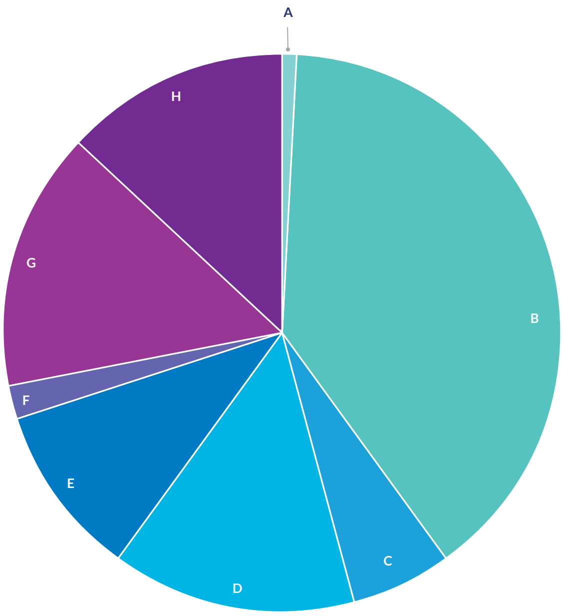
Table 13-2: Pre-production capital cost estimate

WBS	PROCESS PLANT	A$ M $130.1
21 000	Crushing and Screening	$3.6
22 000	Grinding	$14.1
23 000	Flotation	$27.0
24 000	Beneficiation	$4.1
25 000	Hydrometallurgy	$50.9
26 000	Hydrometallurgy Reagents	$8.1
28 000	Reagents Plants	$19.7
29 000	Pipe Racks	$2.7
WBS	**INDIRECT COST**	**A$ M $56.3**
61 000	Spares & First Fills	$5.9
71 000	EPCM Costs	$37.6
72 000	Owners Costs / Pre Production	$7.9
74 000	Vendor Support / Commissioning	$3.6
79 000	Project Insurances	$1.2

WBS	NON PROCESS INFRASTRUCTURE	A$ M $105.1
11 000	Haul Roads	$0.0
19 000	Mine Infrastructure	$3.9
31 000	TSF 1,2 and 3	$19.5
32 000	Return Water (Incl in 51 000)	$0.0
33 000	Evaporation Pond	$0.3
41 000	Accommodation Village	$14.6
42 000	Roads	$22.3
43 000	Aerodrome	$1.6
44 000	Plant / Mining Buildings	$9.8
51 000	Water Supply	$9.2
52 000	Power Supply	$17.0
53 000	ICT	$0.9
54 000	Other Services (Gas, Air, Etc)	$6.2
	Contingency	$43.7
	Total Pre-Production CAPEX [1]	**$335.3**

[1] Pre-production capital costs exclude pre-production financial costs (capitalised interest / sunk costs / working capital)

Figure 13-1: Distribution of pre-production capital cost



A Mining 1%
B Process Plant 39%
C Trailings Facility 6%
D Infrastructure 14%
E Services 10%
F Other Costs 2%
G Indirect Costs 15%
H Contigency 13%

Excludes provision for pre-production financial costs.

SUSTAINING CAPITAL AND MINE DEVELOPMENT COSTS

Allowance has been made for ongoing sustaining capital cost during the life of mine to sustain operations. The main sustaining costs include:

- Construction of additional TSF and evaporation Ponds cells and wall lifts, mainly in year 3.
- Ongoing road upgrading to the Ullawarra Road to improve wet weather trafficability.

The annualised sustaining capital and mine development costs have been included in the financial model as project capital items.

Sustaining capital costs over the operational mine life are shown in Table 13-3.

Table 13-3: Sustaining Capital Costs

Sustaining capital item	TOTAL						
	1	2	3	4	5	6	(A$M)
Mine Development	-	-	-		-	-	-
Process Plant & Infrastructure	1.2	1.2	1.2	1.2	1.2	1.2	7.2
TSF and Evaporation Ponds additional cells and lifts	0.1	0.1	3.1	-	-	2.7	5.9
Total	**1.3**	**1.3**	**4.3**	**1.2**	**1.2**	**3.9**	**13.1**

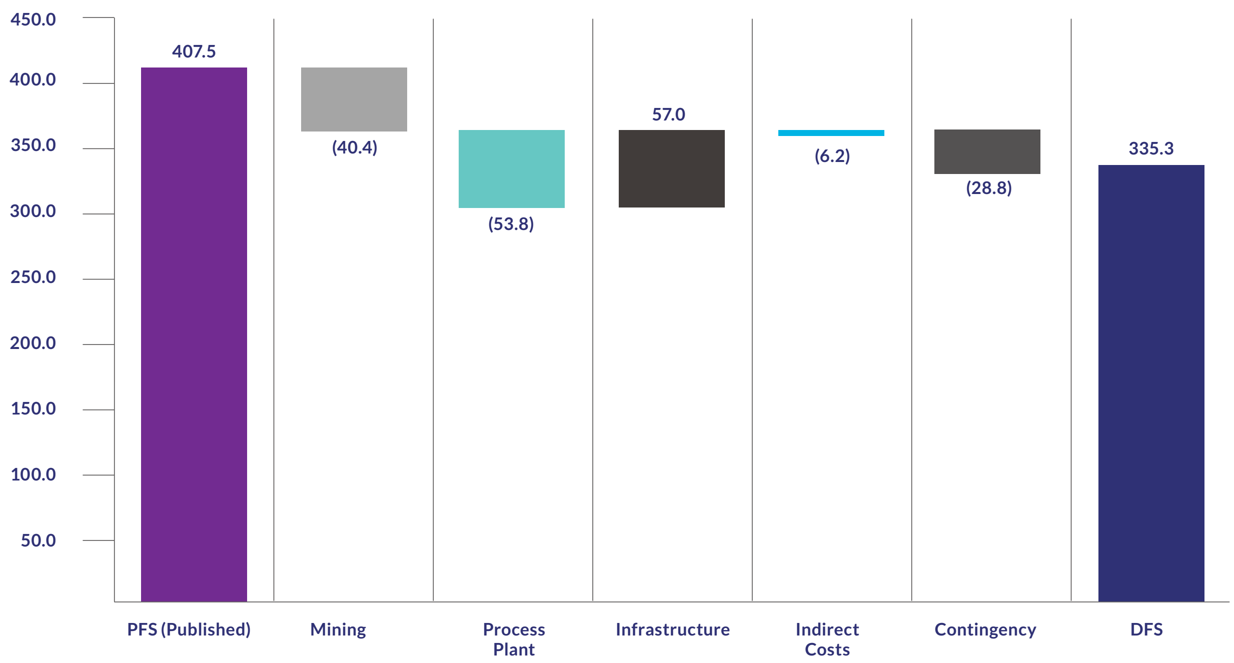
COMPARISON WITH PFS CAPITAL COSTS

A comparison of the Yangibana Project Capital Cost PFS publication (dated 8 April 2016) against the DFS Capital Cost (November 2017) is shown in Figure 13-2.

Major variances include the following:

- **Mining –** The decision to move to Contract mining has reduced the capital cost, this now forms part of operational expenditure and is included in Opex.
- **Process Plant –** The optimisation of the flowchart, selection of Chinese vendors and removal of standby equipment (redundancy) resulted in a reduced Capex.
- **Infrastructure –** The requirement for Tailings facilities and an evaporation pond together with the associated indirects resulted in increased infrastructure costs.
- **Indirect Costs –** This is a function of direct costs
- **Contingency –** The contingency reduction is the result of improved definition, cost and quantity accuracy.

Figure 13-2: Comparison between PFS and DFS Capital Cost (A$M)

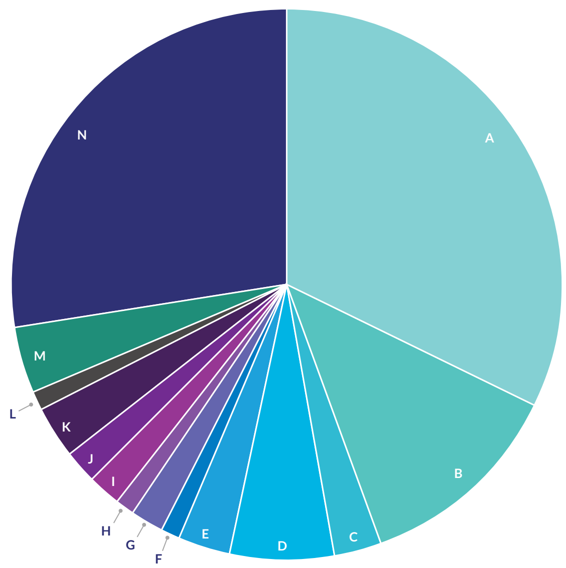


OPERATING COST ESTIMATE

The operating cost estimate (OPEX) was developed as a "bottom-up" estimate. All significant and measurable items are itemised. However, smaller items are factored as per industry practice. The level of effort for each of the line items allows meets the class 3 estimate as defined by the American Association of Cost Engineers and the extent of work performed allows for a +/- 15% accuracy. The OPEX was generated utilising the information from the mass balance and the equipment for the CAPEX. The organisational chart was developed with Hastings and the wages were sought from a variety of agencies in Perth. The manning was used, together with multiple vendor quotes, to derive flights and accommodation costs. The equipment sizing was used to generate a load list, from which the power usage and costs were derived.

OPEX has been allocated against 14 main cost centres, as shown in Figure 14.1 below:

Figure 14-1: OPEX by Cost Centre



A	Mining Costs	32%
B	Labour	12%
C	Flights, Messing, Accommodation	3%
D	Power	6%
E	Process Fuel	3%
F	Exploration Programmes	1%
G	Maintenance	2%
H	Consumables	1%
I	Equipment Hire	2%
J	Product Transport	2%
K	Contract/General Expenses	3%
L	Corporate Office Costs	1%
M	Mine Closure and Rehabilitation Costs	4%
N	Reagents	27%

OPEX Cost

A$17.06

/kg TREO

The average operating cost for the project is A$17.06 /kg TREO (US$12.8/kg) including all fixed and variable costs.

Table 14-1: Average operating cost by cost centre over DFS Life of Mine

COST CENTRE	COST CENTRE LIFE OF MINE A$M	A$ MILLION / YEAR	A$ MILLION / YEAR A$/KG ND_2O_3 + PR_6O_{11}	US$/KG TREO	A$/KG TREO	%
Mining Costs (Including Fuel)	274	46	13.4	4.1	5.5	32%
Labour	98	16	4.8	1.5	2.0	12%
Flights, Messing & Accommodation	27	5	1.3	0.4	0.5	3%
Power	52	9	2.6	0.8	1.1	6%
Process Fuel	30	5	1.4	0.4	0.6	3%
Exploration Programmes	12	2	0.6	0.3	0.2	1%
Maintenance	19	3	0.9	0.3	0.4	2%
Consumables	12	2	0.6	0.2	0.2	1%
Equipment Hire	16	3	0.8	0.2	0.3	2%
Product Transport	16	3	0.8	0.2	0.3	2%
Contract/General Expenses	26	4	1.3	0.4	0.5	3%
Corporate Office Costs	12	2	0.6	0.2	0.2	1%
Mine Closure and Rehabilitation Costs	30	5	1.5	0.5	0.6	4%
Reagents	226	38	11.1	3.4	4.5	27%
Total annual direct operating costs (2017 Base Date)	**849**	**142**	**41.6**	**12.8**	**17.0**	**100%**

In order to understand the cost profile better, each component of the OPEX was reviewed and a split between fixed and variable costs was estimated. As the bulk of the total OPEX is mining, reagents, fuel and power, the overall estimated split equates to 29% fixed costs.

The key items that will affect the OPEX are therefore the mining costs, reagents, labour, fuel and power figures. Even significant percentage changes to the other items will have little effect on the overall OPEX. As part of the financial evaluation of the project a sensitivity analysis was undertaken on the OPEX costs to understand the impact on project economics.

Table 14-2: Fixed and Variable Cost Split

COST AREA	TOTAL A$M	A$ MILLION / YEAR	A$/KG ND_2O_3 + PR_6O_{11}	US$/KG TREO	A$/KG TREO	%
Fixed Cost	252	42	12.3	3.8	5.0	29%
Variable Cost	597	100	29.3	9.0	12.0	71%

LABOUR

Labour estimates were developed from the project organisational chart and identified a number of positions and personnel for both Hastings employed personnel, as well as the staff relating to the mining and village management contracts. As a junior miner, it is expected that Hastings would operate with a lean workforce. Estimates are based on a 3 panel shift roster, consisting of a week of days, a week of nights and a week off, as is common amongst junior miners.

MINING COSTS

Mining costs were developed from request for quotation (RFQ) issued to three mining contractors for drill and blast open-cut operations. Annual costs were calculated from the mining schedule and are summarised in Table 14-4 below.

Table 14-3: Project Labour Estimates

POSITION	POSITION	PERSONNEL NUMBERS	EMPLOYEE COSTS (A$ M / YEAR)
Mining and Geology [1]	9	10	1.5
Process Plant Operations	19	45	5.9
Maintenance, Engineering and Power Plant [2]	18	28	4.3
Surveying	3	4	0.6
Laboratory	5	12	1.3
HSE, Training and Community	3	4	0.6
Management, Administration and Projects	12	14	2.1
Total Hastings	69	117	16.3
Contractor for mining production [1]	59	129	-
Contractor for village operations [2]	13	17	-
Total Contractor	72	146	-
Project Total	**141**	**263**	**16.3**

[1] Contractor labour cost for mining production included in mining production cost
[2] Contractor labour cost for village support services included in accommodation cost

Table 14-4: Mining Cost Summary

MINING COST AREA	A$/TON	LIFE OF MINE TOTAL A$ / YEAR
Mob/Demob	0.01	0.8
Miscellaneous	0.08	5.2
Drill and Blast	0.89	58.5
Load and Haul	2.17	142.3
Contractor overheads	0.32	21.2
Dayworks	0.17	11.4
Grade control	0.10	6.5
Fuel	0.35	23.1
Project Total	**4.09**	**269.0**

REAGENT COSTS

Annual reagent consumption was taken from the mass balance for each reagent required after optimisation through pilot and laboratory test work. Multiple budget quotes were sought for each chemical, as well as suitable package sizes. Most of the reagents are readily available commercial bulk reagents available competitively worldwide. Collector reagents have proprietary chemical formulations and to manage any potential supply risk, reagents from two separate suppliers have been assessed in laboratory tests and process performance has been successfully replicated with both. The process reagents and their annual costs are listed in Table 14-5 below:

Table 14-5: Mining Cost Summary

REAGENT TYPE	A$ M / YEAR
Collector	11.2
43% Sodium Silicate	2.3
50% Sodium Hydroxide	1.2
Tails Flocculant	0.1
95% Lime	6.4
90% Magnesium Oxide	3.3
99% Sulphur	4.4
99% Ammonium Bicarbonate	3.9
85% Calcium Carbonate	4.8
Total	**37.7**

30%

REDUCTION IN OPERATING COSTS

POWER COSTS

The project power station will be based on a Hastings self-generation option where the power plant is owned and operated by the Company. Both diesel and LNG fueled options were considered in the DFS and after vendor quotes were received the LNG option was selected as the most economical option.

The total annual expected power draw was calculated to be 76,686 MWh per year. Of this, only the nine top loads are in excess of 1000 MWh/yr. These drives, together with their average 24-hour power draw, are listed in Table 14-6 below:

Table 14-6: Nine top loads in excess of 1000MWh per year

DRIVE	AVERAGE 24 HOUR POWER DRAW (KW)	MEGAWATT HOURS / YEAR
SAG Mill	3,379	27,275
Regrind Mill	511	4,125
Gas Scrubber Fan	423	3,416
Acid Plant Main Blower	420	3,397
Accommodation Village	375	3,027
Sulphuric Acid Plant (remaining drives)	365	2,943
Gas Scrubber re-circulation Pump	220	1,773
Flotation Hot Water Recirculation Pump	190	1,534
Cyclone Feed Pump	148	1,191

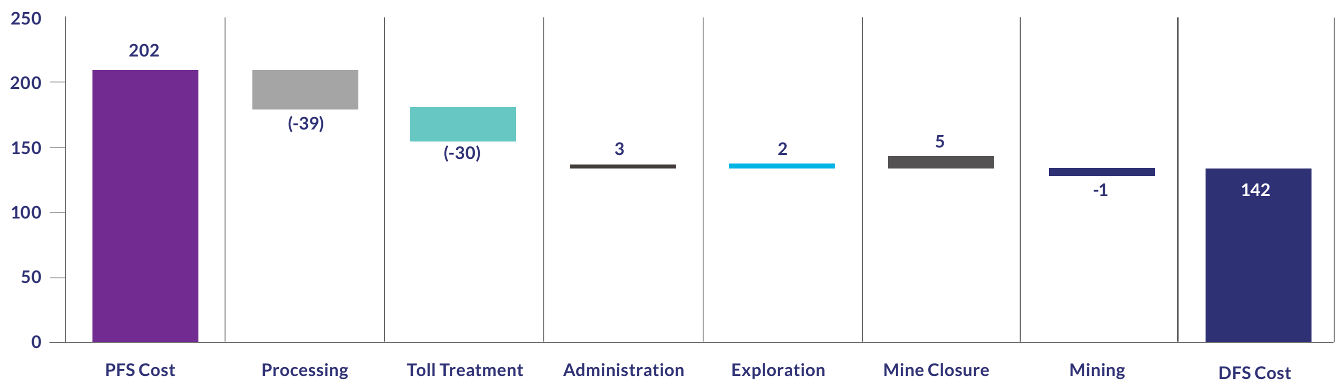
COMPARISON OF DFS OPEX AGAINST PFS OPEX

The DFS has made significant improvements against the operating cost estimated during the PFS study completed in April 2016, with a total DFS operating cost of A$142M pa compared against a PFS operating cost of A$202M pa.

The main areas of difference are:

- **Processing Costs –** ongoing metallurgical test work has achieved significant reductions in the reagent consumption and reagent types required for metallurgical processing of the ore. Costs have reduced by 47%
- **Toll Treatment –** The PFS contemplated offshore toll treatment of the product to sell a separated RE oxide. The DFS product is a MREC which no longer requires an offshore toll treatment.
- **Administration and General –** The DFS has minor increases in the general costs, largely due to the inclusion of corporate head-office recharge in the OPEX as well as minor labour cost movements.
- **Exploration Programmes –** The project has significant exploration prospects to increase production targets and an annual allowance for this cost has been included in the DFS, where previously none was made in the PFS.
- **Mine Closure –** The DFS has calculated detailed mine closure costs and allowance has been made in the operating costs for these to occur at the end of the mine life, including all process plant and non-process infrastructure. It should be noted that the DFS only considered mining the Probable Ore Reserve for the first 5 years of mine life and the project has significant Measured, Indicated and Inferred Resources that should extend the mine life to well beyond the DFS period. This will dilute the annual cost impact of mine closure significantly.
- **Mining Costs -** have seen a minor improvement against the DFS levels – mostly as a result of more detailed vendor quotes received from the market.

Figure 14-2: PFS vs DFS Operating Cost Comparison



PROJECT FUNDING

Hastings believes that following the release of the DFS, there are reasonable grounds to assume that the company will be able to secure the funds required to complete the construction of the production plant and commence operations.

Presently, the DFS anticipates a debt-to-equity split of 65%-35%, however this ratio may change depending on how negotiations advance. The Board acknowledges it will take into account a prudent level of debt financing whilst also taking into consideration shareholder dilutions and is aware that any change in the debt-to-equity ratio will impact the dilution realised by current and future equity investors and will change the overall cost of capital for to the Company.

The project's economics and financials, as reported in the DFS are compelling and strong interest is expected from investors and financiers, given that the rare earth products from Yangibana will be used in renewable and clean energy technologies that have been identified as a strong growth sector. In particular, as set out in the DFS, Hastings will produce a MREC which has one of the highest Nd-Pr content relative to its peers. Three independent research firms are predicting either tight supply-demand balance or a shortage of these two critical materials, especially due to the demand increases for permanent magnets in EV and wind turbines. The Company considers the economic climate and anticipated high demand for the Company's products will assist in attracting investors and funding post-DFS.

Based in Australia, with a AAA/Aaa sovereign credit rating, high corporate governance and a solid history of successful mining projects, Yangibana offers a "safe" investment proposition to equity investors and debt providers. This is further augmented in being a second non-China source of supply for downstream customers in the rare earth supply-chain.

Hastings currently has a market capitalisation of approximately A$200m with A$18m cash in the bank and zero debt. It has a track record of raising A$46m of equity capital since May 2014 and is confident that along with the continued support from current and future major shareholders, it will continue to be able to raise further equity capital for the Project. Since the completion of the PFS in April 2016, the Company has been in discussions with several financial institutions that are well credentialed in financing mining projects, and although no material binding agreements have been signed to date, it is anticipated that these discussions will proceed to more formal levels once these institutions have access to the completed DFS.

Additionally, the Company has identified strategic interested parties including government agencies in AAA/Aaa sovereign jurisdictions to fund and/or provide credit support to the project with a mandate to promote renewable and clean energy technologies. Hastings has had several discussions with these parties and further progression of these discussions is contingent on the DFS release.

For the reasons stated above the Company is of the opinion that there are reasonable grounds to assume the future funding for the development of the project as contemplated in this announcement.

INVESTMENT EVALUATION

FINANCIAL MODELLING

The DFS financial evaluation has considered two scenarios. The first scenario relates to the production targets based only on the Bald Hill and Frasers deposits that were upgraded through the DFS to a Probable Ore Reserve of 5,155 Mt (DFS Production Target). The second scenario includes the addition of a production target of a further 2,460 Mt of plant feed from the Auer, Auer-North, Yangibana West and Yangibana deposits (Additional Production Targets).

The Additional Production Target was developed on Measured and Indicated Mineral Resources at the tenements and no Inferred Mineral Resources were included. These deposits were selected as the Mineral Resources in these deposits have been demonstrated, through variability test work programmes, to be compatible with the process flowsheet developed in the DFS. Preliminary modifying factors were applied during a pit optimisation of the Mineral Resources to develop the Additional Production Target tonnage and subsequently, a mining schedule was developed from the optimised pits and used in the financial evaluation of the project.

A summary of the Mineral Resources and their utilisation as either Production Target or Additional Production Target in the financial evaluation is provided in Table 16-1 below.

Table 16-1- Production Targets by Deposit

DEPOSIT	MINERAL RESOURCES (T)				PRODUCTION TARGET (T)	
	Measured	Indicated	Inferred	Total	DFS Production Target from Probable Ore Reserve	Additional Production Target from Measured and Indicated Mineral Resources
Bald Hill	2,700,000	2,050,000	1,340,000	6,100,000	4,375,000	
Frasers	220,000	650,000	700,000	1,580,000	780,000	
Auer		260,000	960,000	1,220,000		142,000
Auer North		300,000	460,000	760,000		159,000
Yangibana		1,180,000	720,000	1,900,000		808,000
Yangibana West	110,000	1,660,000	760,000	2,540,000		1,346,000
Total	**3,030,000**	**6,100,000**	**4,940,000**	**14,100,000**	**5,155,000**	**2,455,000**

Resources shown do not represent the total Mineral Resources and are inclusive of Ore Reserves. Deposits not used in the economic evaluation have been excluded from Mineral Resources. Rounding errors may appear.

The processing schedule by deposit for the 8 year scenario is shown in Figure 16-1 below.

The financial model was derived from a quarterly mine scheduled diluted ROM feed grade per rare earth element. The mining schedule was developed to reflect production ramp up periods and process feed requirements. Figure 16-2 below illustrates the percentage contribution to process plant feed from the various deposits.

Figure 16-1 – Ore Processing Schedule for DFS Reserve plus Production Target

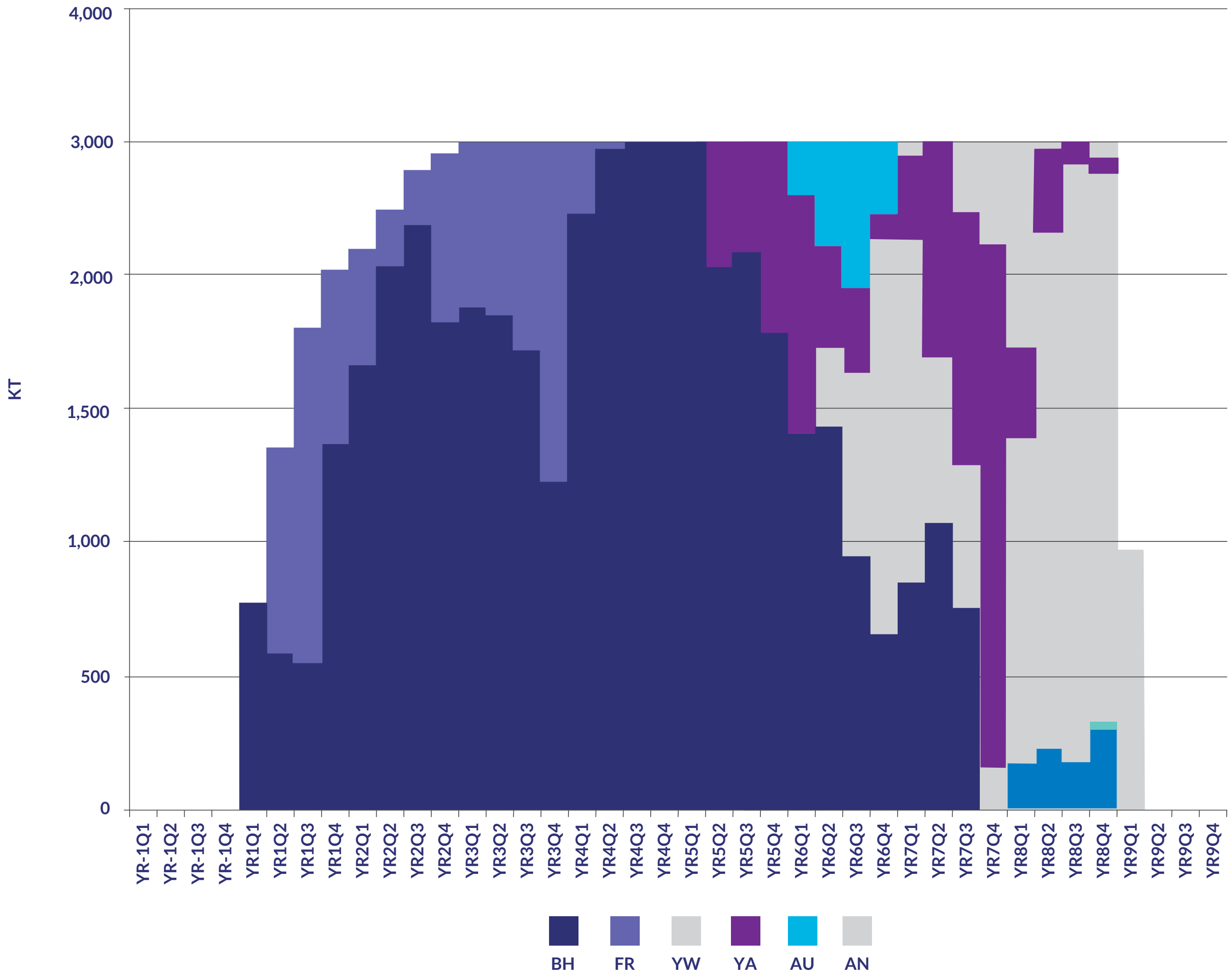
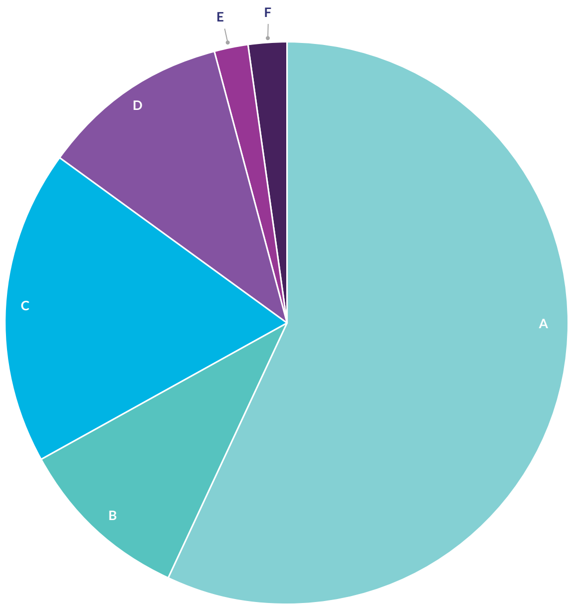


Figure 16-2: DFS Production Target + Additional Production Target plant feed by deposit



A	Bald Hill	5 7%
B	Fraser's	10%
C	Yangibana West	18%
D	Yangibana	11%
E	Auer	2%
F	Auer North	2%

The key parameters from the mining and production schedule are summarised in Table 16-2 below:

Table 16-2: Processing and production parameters from DFS Production Target + Additional Production Target feed

PRODUCTION PARAMETERS	
Ore processed LOM (Including dilution)	5,155 Mt from Ore Reserves Production Target 2,460 Mt from Additional Production Target
Average LOM head grade (Diluted)	1.13% TREO
Average annual plant ROM feed	1 million t.p.a.
Life of Mine	6 years based on Ore Reserves Production Target 8 years based on Ore Reserves Production Target and the Additional Production Target
Beneficiation plant Nd-Pr recovery	86.4%
Hydrometalurgical plant Nd-Pr recovery	87.5%
Total Nd-Pr recovery	75.6%
Annual average Nd-Pr production	3,036 tons
Beneficiation plant TREO recovery	85.5%
Total TREO recovery	74.9%
Annual average TREO production	7,820 tons
Annual average MREC production	13,254 tons

The financial evaluation was based on the following key parameters:

Discount Rate	8%	State Mineral Royalty Rate	2.5%
Corporate Tax Rate	30%	US$: A$ Exchange Rate	0.75

The separated oxide prices used for the economic evaluation are the Argus Media forecasts for the period 2017 to 2027. Annual year-on-year escalation was applied on an individual rare earth oxide basis, as supplied in the forecasts. The derived MREC basket price applied in the evaluation is shown in Table 12-3.

The financial modelling of the project (Ore Reserves Production Target and the Additional Production Target) indicates that the project has very attractive financial metrics with a IRR of 78% over an 8 year mine life, generating a nominal after-tax NPV of A$466M. An EBITDA payback of 3.3 years from first drawdown was demonstrated in the modelling.

The key financial parameters are shown in Table 16-3 below:

Table 16-3: Key financial parameters

		5 YEAR DFS PT		8 YEAR DFS PT +APT	
NPV8% Nominal (post tax, incl. royalties)	A$M	351		466	
IRR Real (post tax, incl. royalties)	%	72		78	
Payback from first drawdown	Years	3.3		3.3	
Pre-production capital [1]	A$M	335.2		335.2	
		A$	**US$**	**A$**	**US$**
MREC basket price [2]	($/kg TREO)	50	37	47	35
Total LOM revenue	($M Nominal)	2,164	1,623	2,957	2,218

DFS PT = Production Target based on Probable Ore Reserves as set out above in Table 16-1
APT = Additional Production Target based on pit optimised portion of Measured and Indicated Mineral Resources the proportions of which are set out above in Table 16-1
[1] Pre-production capital costs exclude pre-production financial costs (capitalised interest / sunk costs / working capital)
[2] MREC basket price has been averaged over the life of mine

SENSITIVITY ANALYSIS

A Financial sensitivity has been completed on the project to assess the sensitivity to key financial modelling parameters. The results of the sensitivity analyses are detailed below with all amounts shown in A$M.

The main financial sensitivities are:

- Nd-Pr Product Price Annual Growth
- US$: A$ exchange rate
- Inflation rate

The main operational sensitivities are:

- Mining cost
- Beneficiation plant Nd and Pr recovery
- Flotation collector reagent

The results of the analysis are shown graphically in figures 16-3 and 16-4 below

Figure 16-3: Sensitivity Analysis on IRR

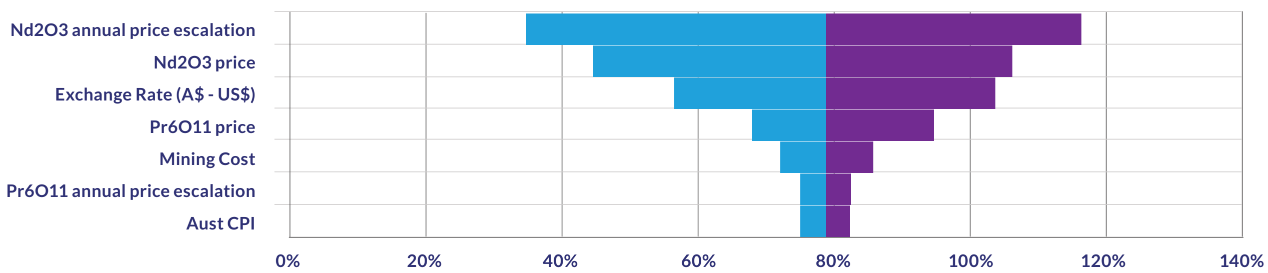
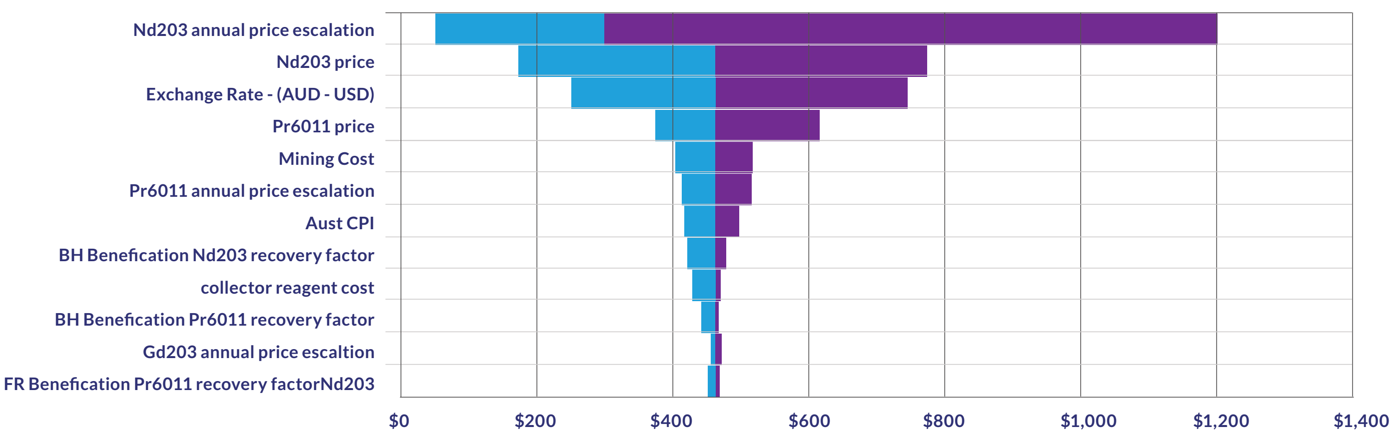


Figure 16-4: Sensitivity Analysis on NPV



POTENTIAL FOR OPTIMISATION AND UPSIDE

The DFS identified that several opportunities still exist for further optimisation of the project which may yield further benefits, particularly those that will reduce the operating costs or increase mine life. The main opportunities are:

- Preliminary assessment of alternative gas-cleaning technology has shown potential for reduced reagent consumption
- Use of on-site Calcrete rather than importing Lime could reduce reagent costs if necessary approvals are secured.
- Delineation of additional Measured and Indicated Resources within 100% held tenements will increase mine life.
- Additional drilling on 100% owned ground within the Eastern Belt will increase mine life

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