

## Yangibana Project – Begin the Future

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**All currency amounts are in A\$ unless stated otherwise.**

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## **Exploration Targets**

The terms “Target” or “Exploration Target” where used in this presentation should not be misunderstood or misconstrued as an estimate of a Mineral Resource as defined in this context. Exploration Targets are conceptual in nature, there has been insufficient exploration to define a Mineral Resource and it is uncertain further exploration will result in the determination of a Mineral Resource.

## **Competent Persons’ Statement**

The information in this announcement that relates to Mineral Resources is based on information compiled by David Princep and Lynn Widenbar. Both Mr Princep and Mr Widenbar are independent consultants to the Company and members of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Princep and Mr Widenbar have sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this announcement and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’ (“JORC Code”). Consent by Mr Widenbar to include statements in this announcement have been provided in previous announcements entitled “Increase in Measured and Indicated Resources at Yangibana Project” dated 28 November 2018. Consents to include statements in this announcement have been provided in previous announcements entitled “Final 2017 JORC Resource Update Including Auer and Auer North Results” dated 22nd November 2017; “Yangibana Project Resources Now Exceed 20.5 Million Tonnes” dated 12th October 2017; “Another Major Increase In JORC Resources From Current Yangibana Drilling” dated 24th July 2017 and “Increase in Measured and Indicated Resources at Yangibana Project” dated 22nd November 2018

The information in this presentation that relates to the Fraser’s and Bald Hill Ore Reserve is based on information reviewed or work undertaken by Mr Steve O’Grady, AusIMM, a Director of Intermin Engineering Consultants. Mr O’Grady 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 O’Grady consents to the inclusion in this announcement and of the matters based on his information in the form and context in which it appears.

The scientific and technical information in this presentation that relates to process metallurgy is based on information reviewed by Ms. Narelle Marriott (Principal Engineer – Beneficiation and Mr. Zhaobing (Robin) Zhang (Process Engineering Manager) of Hastings Technology Metals Limited. Both Ms. Marriott and Mr Zhang are members of the AusIMM. Each has sufficient experience 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. Ms. Marriott and Mr Zhang consent to the inclusion in this announcement of the matters based on their information and in the form and context in which it appears

## **US Disclosure**

This document does not constitute any part of any offer to sell, or the solicitation of an offer to buy, any securities in the United States or to, or for the account or benefit of any “US person” as defined in Regulation S under the US Securities Act of 1993 (“Securities Act”). The Company’s shares have not been, and will not be, registered under the Securities Act or the securities laws of any state or other jurisdiction of the United States, and may not be offered or sold in the United States or to any US person without being so registered or pursuant to an exemption from registration including an exemption for qualified institutional buyers.

# Australia's Next Rare Earth Producer



Up to 52% NdPr:TREO, highest amongst peers



World leading Beneficiation upgrading of up to 25x mine grade



Low Capex – A\$449M; Production 15,000tpa MREC; equivalent to 3,400tpa NdPr oxides after separation



Next RE producer (non-China) coming to production by 2023; construction targeted to start Q2 2021



13 years mine life (New resource estimation due in Q1 2021)



Perfectly timed to benefit from global NdPr demand growth: 6% CAGR 2020 - 2027

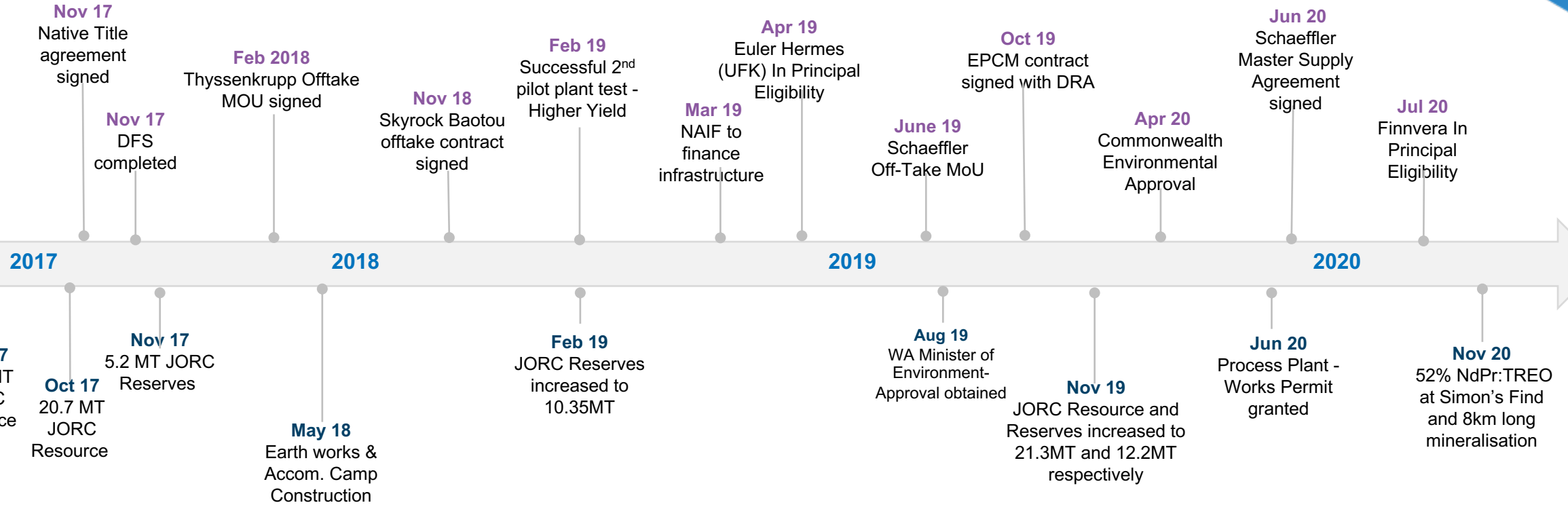


Strong Economics; NPV 2019: \$549M, IRR 21% ; Payback 3.4 yrs (revision due Q1 2021)

# Yangibana Project – Milestones Achieved

## PROJECT MILESTONES

## RESERVE & RESOURCE UPGRADES



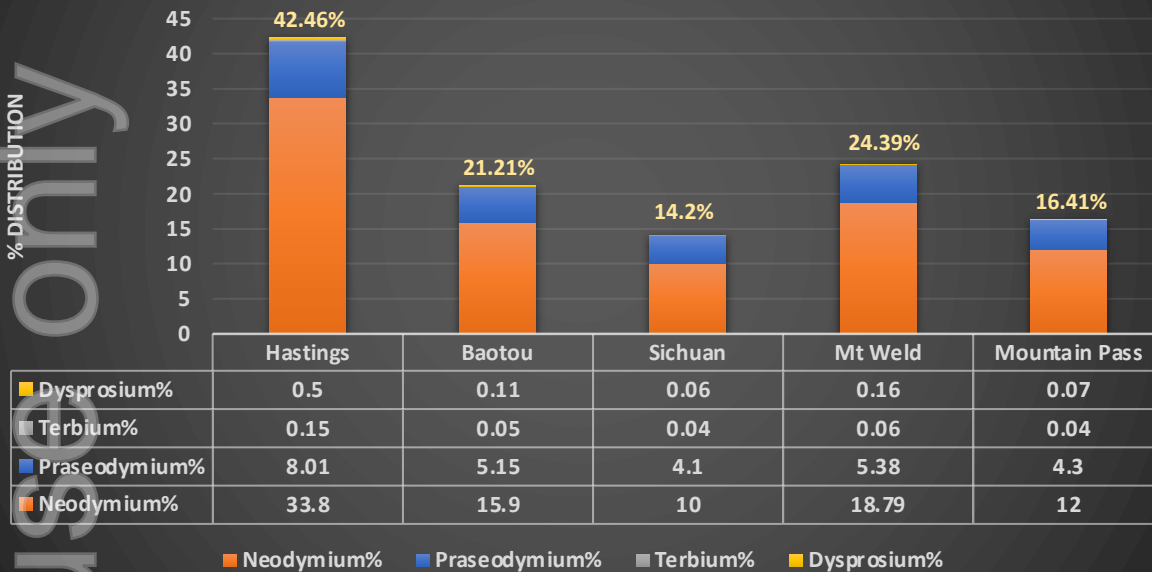
Yangibana Project Site





# Yangibana Advantage – Highest NdPr :TREO ratio

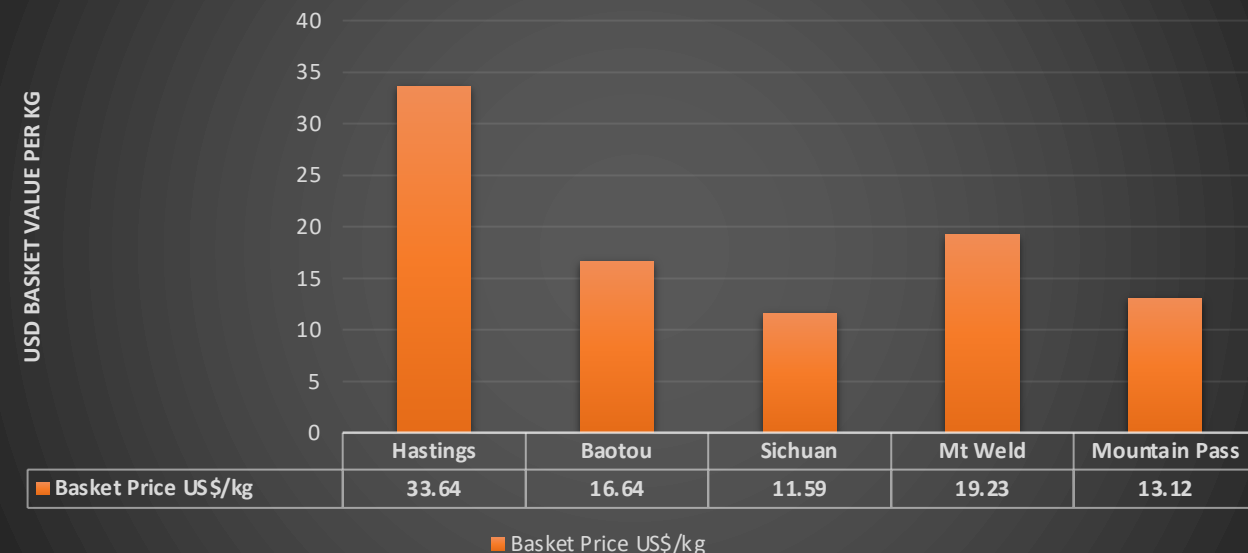
**REO Ore Distribution (Hastings vs Major Producers)**



- Highest value Rare Earths Project for Ore value per kg
- 75 – 175% higher value ore products than any current producing rare earth project

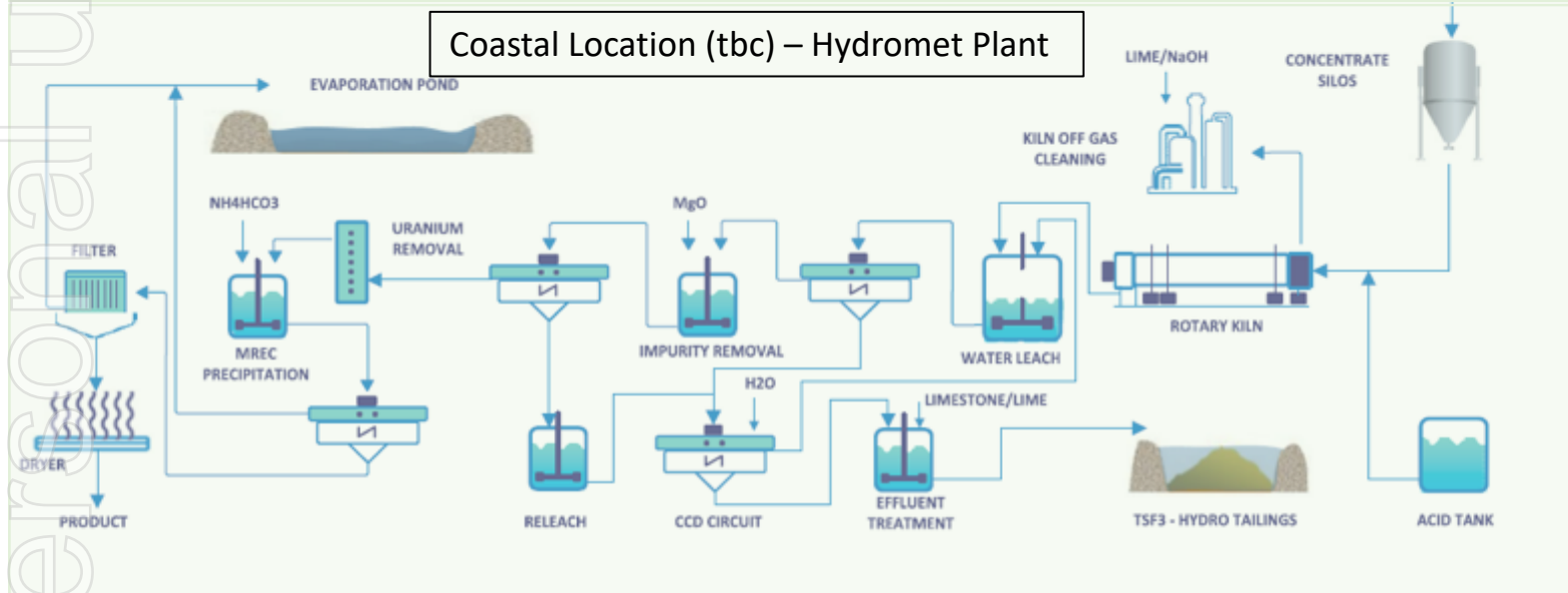
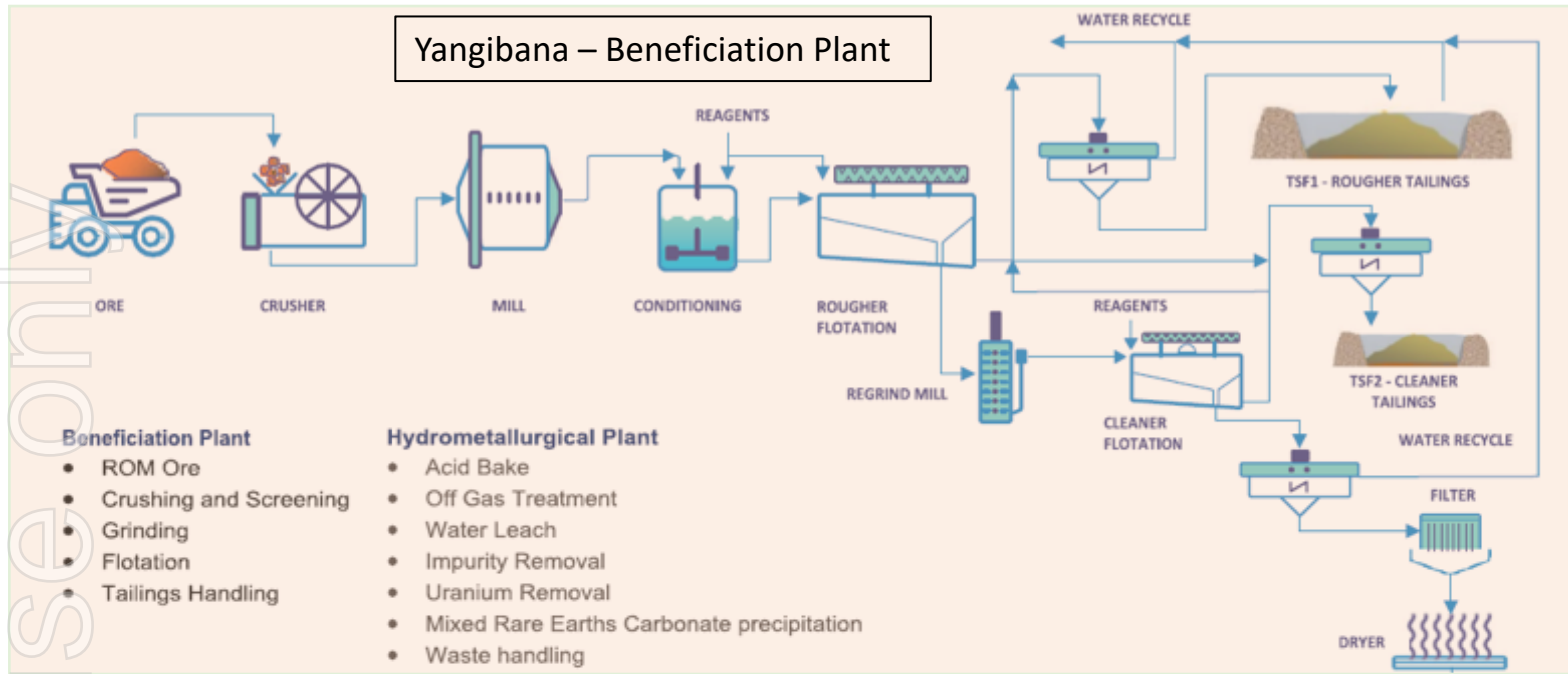
- Highest contents of key rare earth elements for any known rare earth project
- 92% of ore value contained in the 4 key elements required for electric vehicle market

**TREO Basket Value USD per KG**



Source: Computation based on Asian Metal market price of RE oxides as at 27 Nov 2020

# Economics – Its not about the TREO grade



## Grade from the Mine

| Company | TREO %<br>(Head Grade) | NdPr:<br>TREO | NdPr % |
|---------|------------------------|---------------|--------|
| 1       | 16%                    | 24%           | 3.84%  |
| HAS     | 1.2%                   | 41%           | 0.50%  |
| 3       | 2.77%                  | 26%           | 0.73%  |

## End of Flotation Stage

| Company | TREO %<br>(Head Grade) | TREO%<br>Con Grade | % of<br>NdPr<br>in Con | Con<br>Upgrade<br>Factor |
|---------|------------------------|--------------------|------------------------|--------------------------|
| 1       | 16%                    | 35%                | 8.4%                   | 2.2                      |
| HAS     | 1.2%                   | 27%                | 11.1%                  | 22                       |
| 3       | 2.77%                  | 7.0%               | 1.85%                  | 2.5                      |

## Final Product

| TREO Con<br>Grade in<br>MREC | % of<br>NdPr<br>in MREC | Process Plant<br>Upgrade factor |
|------------------------------|-------------------------|---------------------------------|
| 59%                          | 22%                     | 50                              |

# Separation cost advantage

## High NdPr content allows for lower separation cost vs China

|          | MREC (t) | TREO% | NdPr:TREO | % of NdPr per tonne | REO (t) | NdPr (t) | Separation Cost US\$M |
|----------|----------|-------|-----------|---------------------|---------|----------|-----------------------|
| China    | 27,750   | 59%   | 20%       | 12%                 | 16,373  | 3,275    | \$83                  |
| Hastings | 15,000   | 59%   | 37%       | 22%                 | 8,850   | 3,275    | \$45                  |

*Separation Cost assumes fixed at US\$3/kg separation charge*

### Hastings' MREC

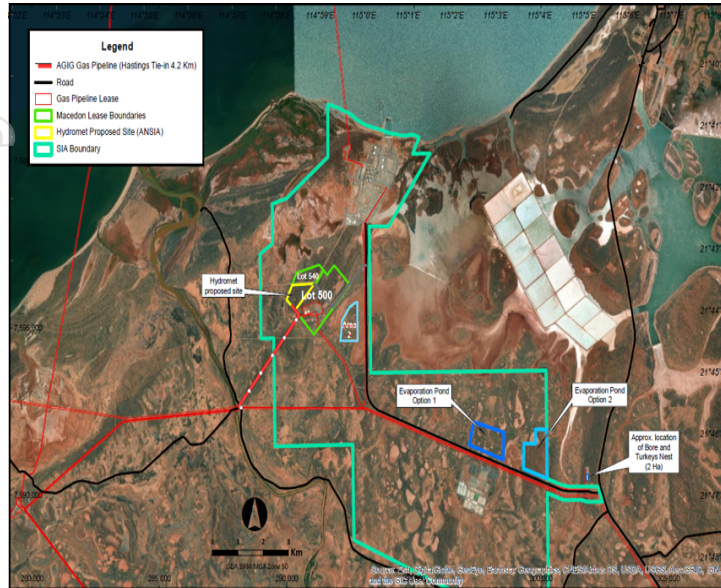
- almost 2x cheaper to separate than (20% NdPr:TREO) Chinese reference MREC; or
- almost 4x cheaper to separate than actual (10% NdPr:TREO) Chinese actual MREC
- Contains 59% TREO or 22% NdPr in every tonne of MREC
- > 40% NdPr:TREO first 8 years from Bald Hill and Frasers pits
- 37% NdPr:TREO average from 5 different open pits based on 13 years mine life.





# Hydromet Relocation Study – Onslow or Port Hedland

## Onslow Strategic Industrial Area

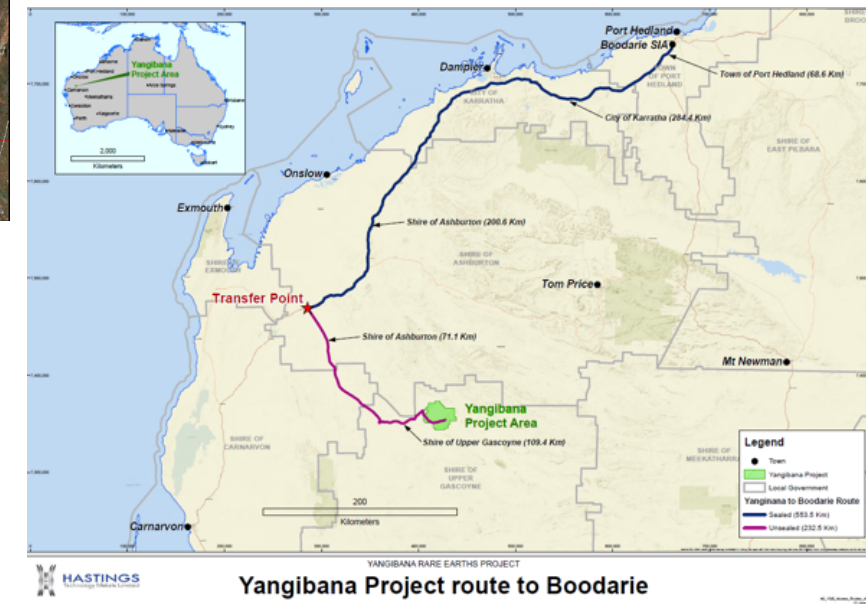
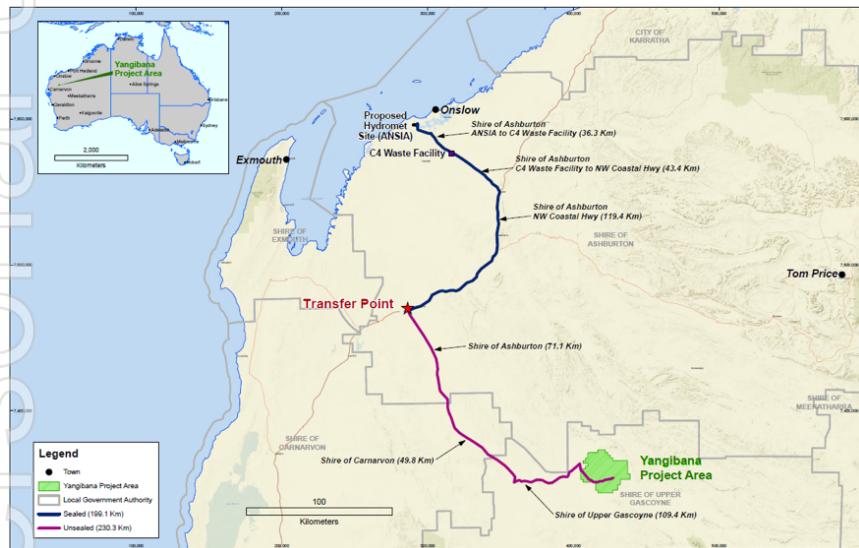


## Port Hedland Industrial Area



Services available at both sites

- Gas
- Mains Power
- Water
- Port Facilities
- Roads
- IT Comms





# Grade Control Drilling

## Grade Control 2020 Drilling Program

- 5,000m program on 7 x 5m pattern completed.
- Assays returned which confirm geological modelling of resource drilling intercepts and thicknesses of ore zones.



GC Drilling at Bald Hill

## RC Drilling at Bald Hill

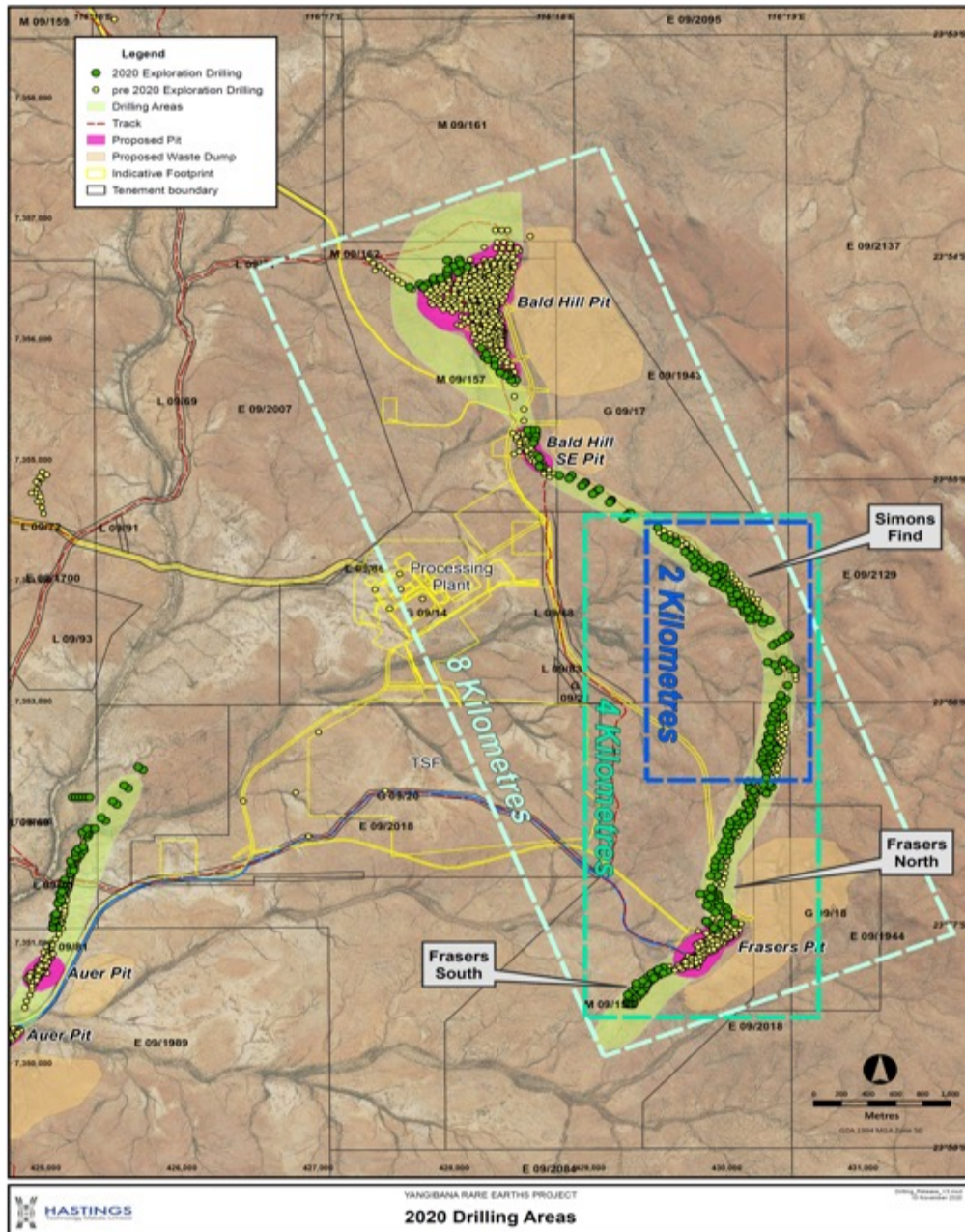


## Exploration - 2020 Drilling Program

- 23,000m of RC drilling now completed.



# Bald Hill - Simon's Find - Frasers (8kms long)

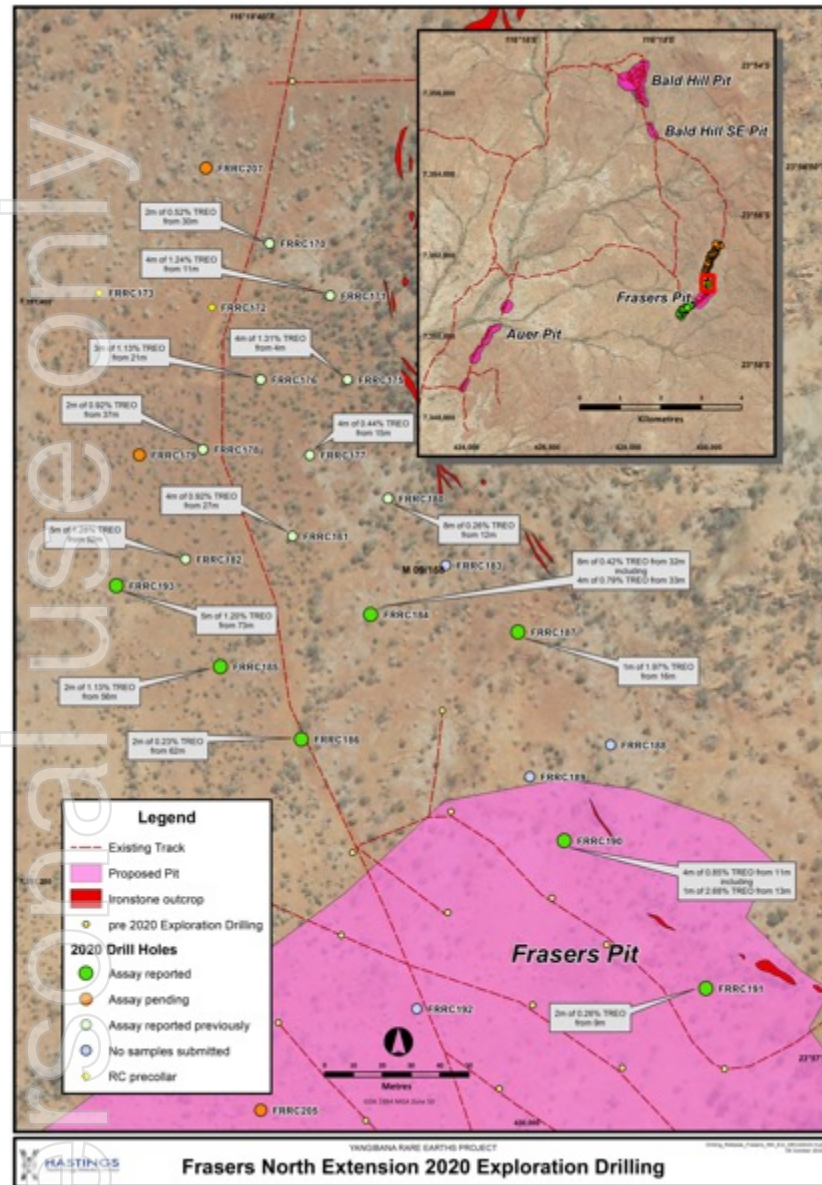


1. Drilling results confirm a major 2km long zone of economic mineralisation at Simon's Find
2. Simon's Find and the recently announced Fraser's North and South drill results form a continuous zone of economic mineralisation 4km long
3. The Fraser's - Simon's Find - Bald Hill trend now forms an 8km-long economic mineralised corridor

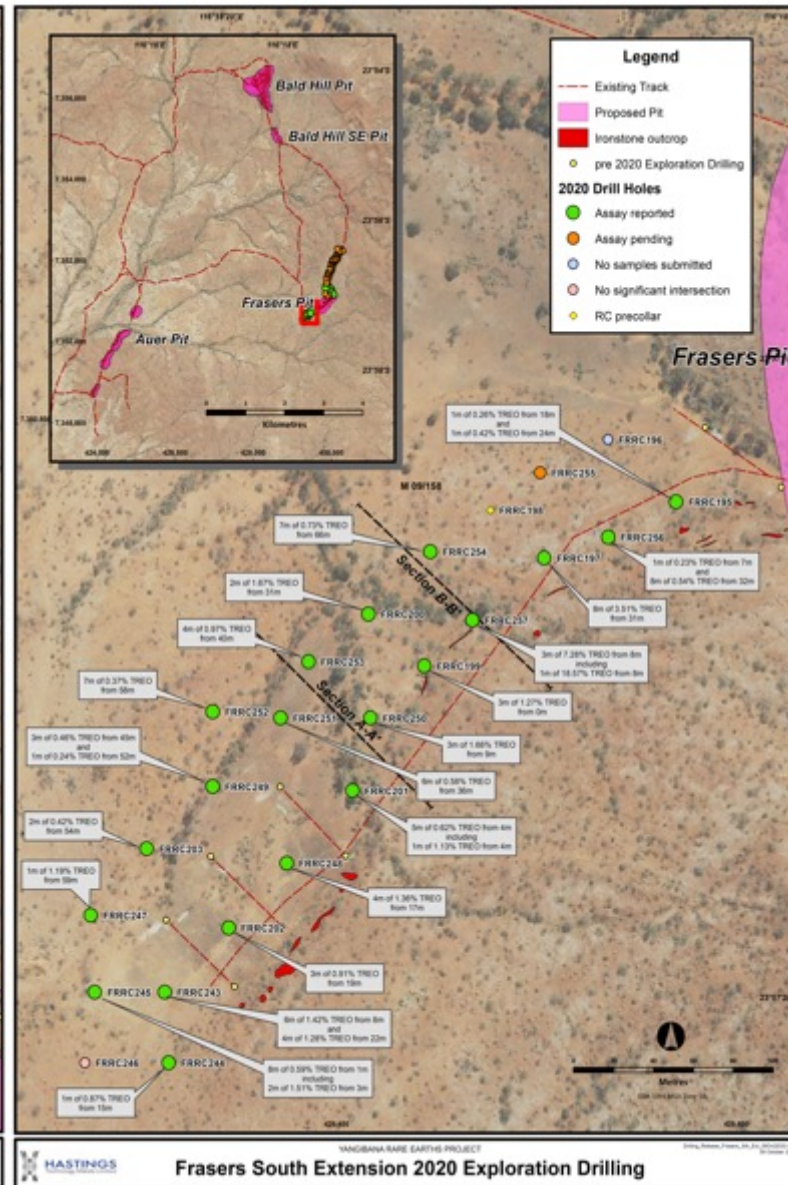


# Exploration – Drilling to date

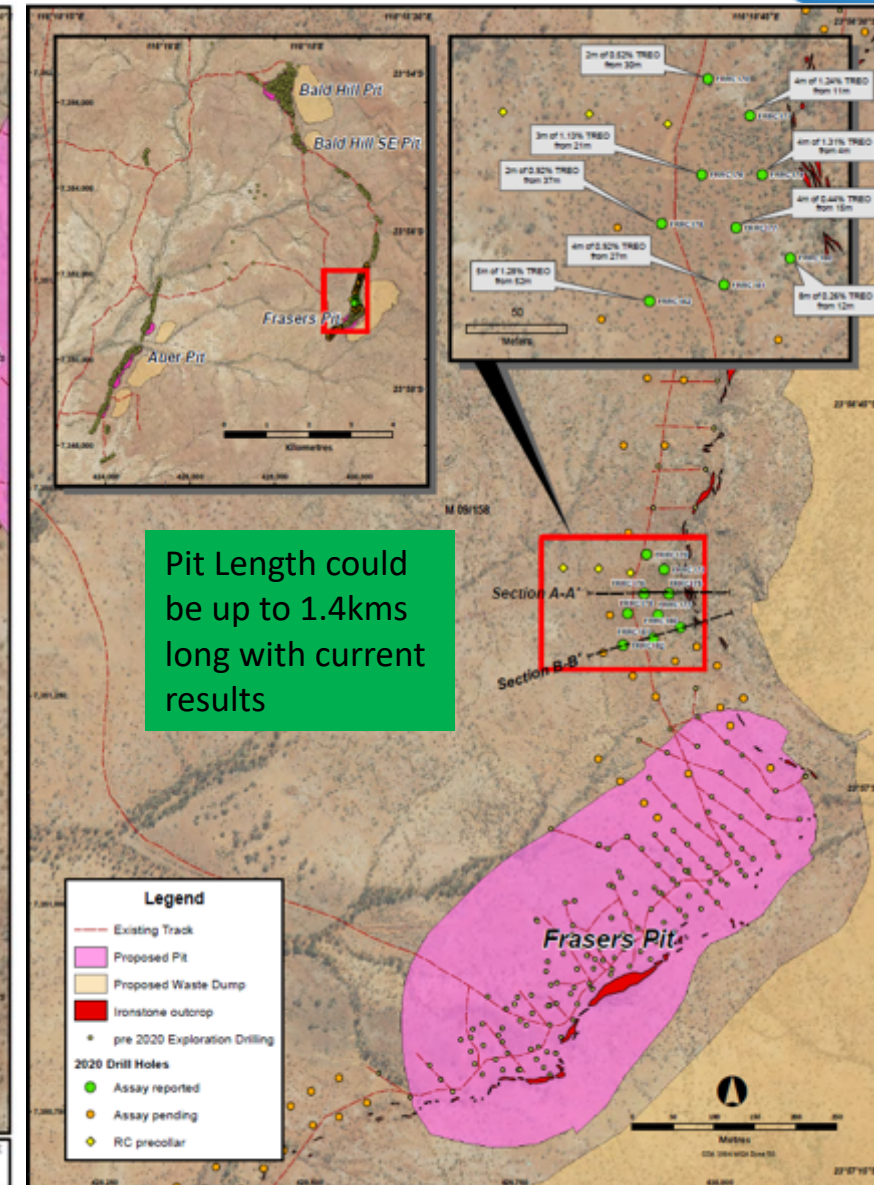
## Frasers North



## Frasers South



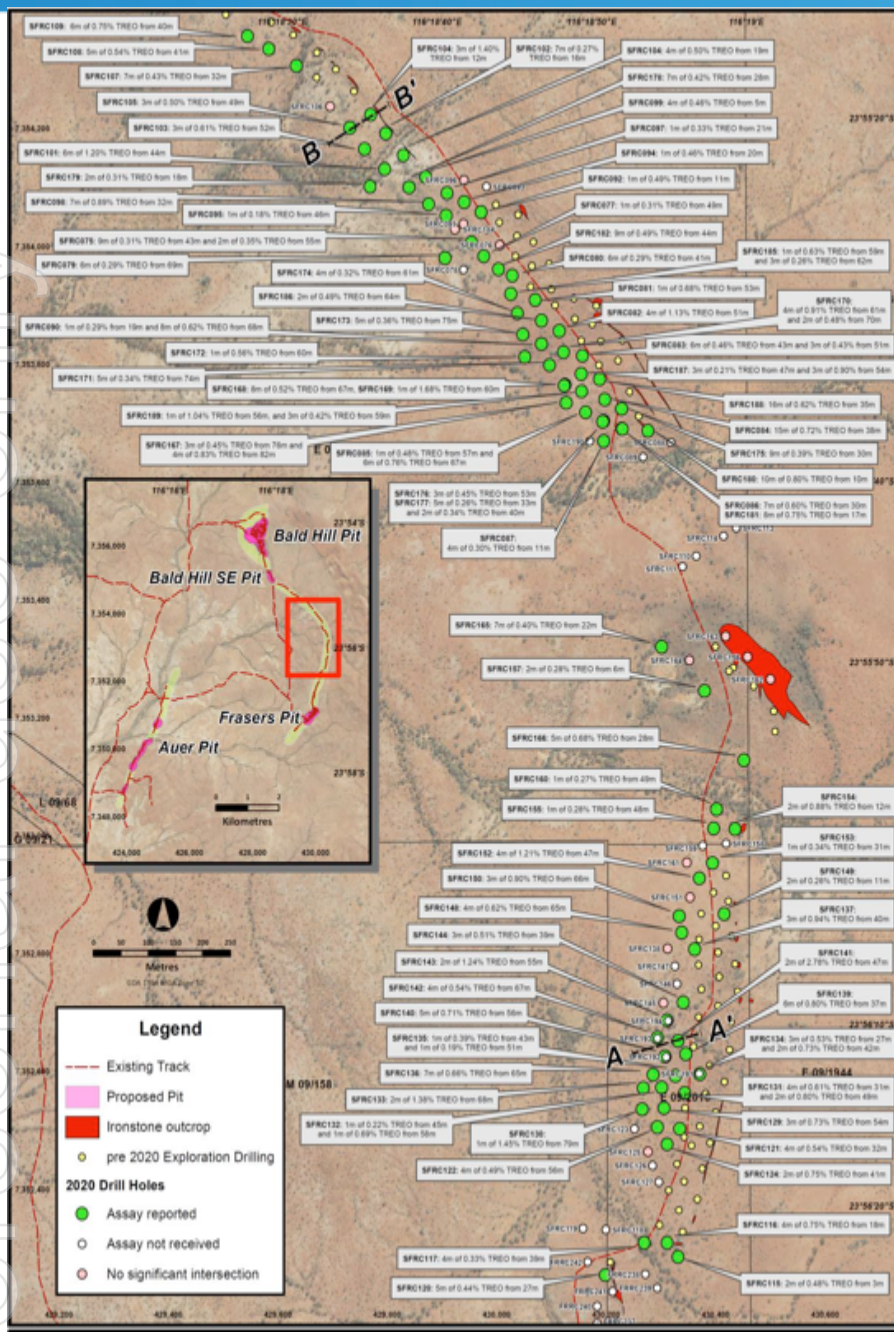
## Potential Pit Size



Pit Length could be up to 1.4kms long with current results



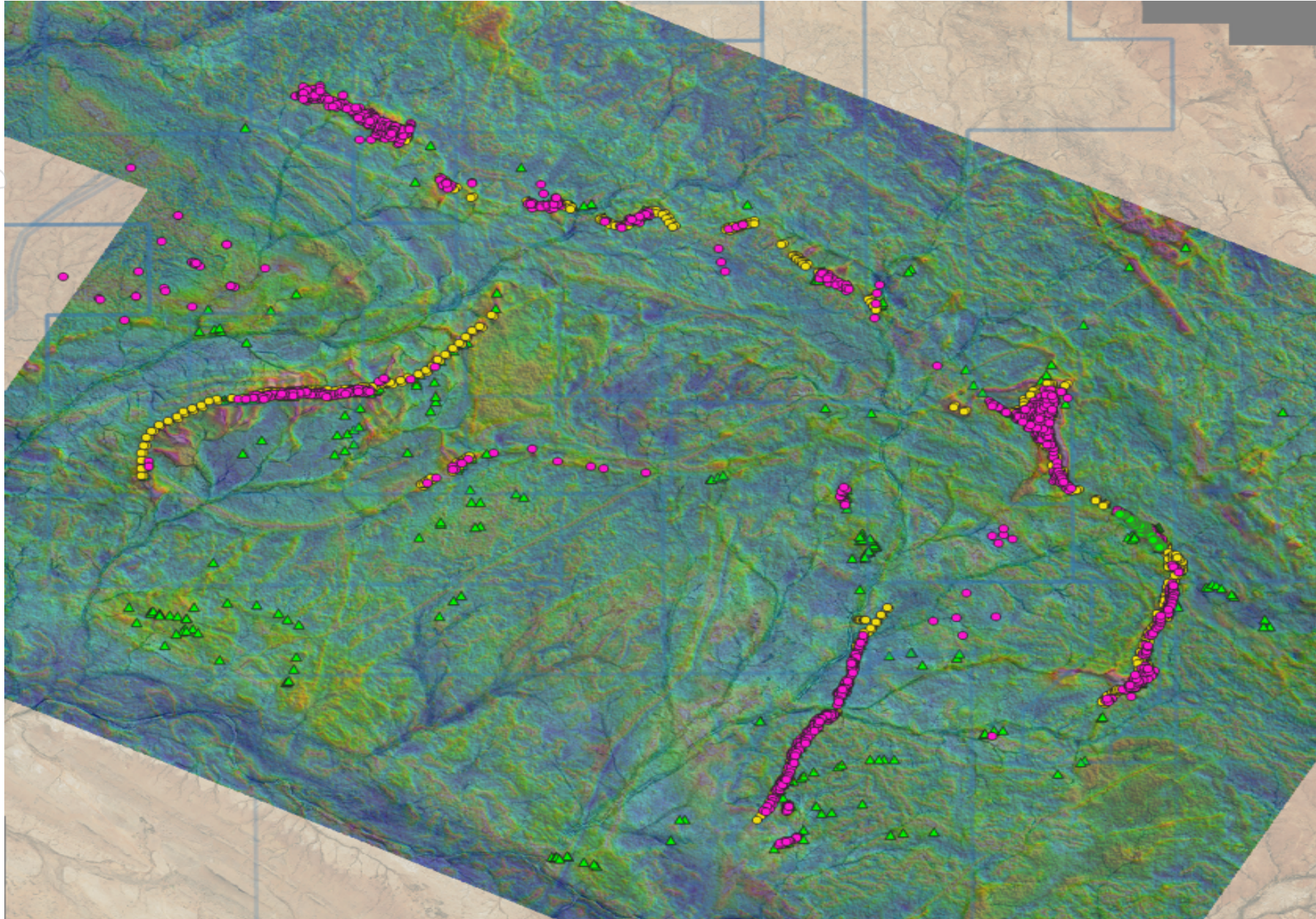
# Simon's Find Drilling Results



- **World leading grade of neodymium ( $\text{Nd}_2\text{O}_3$ ) + praseodymium ( $\text{Pr}_6\text{O}_{11}$ ) = 52% of the TREO (total rare earth oxides) values.**
- These results are **significantly higher** than the 40-41% values recorded from the nearby Bald Hill and Frasers deposits.
- High-grade and shallow intersections from Simon's Find include:
  - 2m @ 2.78% TREO from 46m
  - 6m @ 1.20% TREO from 43m
    - including 4m @ 1.61% TREO
  - 4m @ 1.21% TREO from 46m
  - 15m @ 0.72% TREO from 37m
    - including 6m @ 1.11% TREO
  - 2m @ 1.38% TREO from 67m
  - 7m @ 0.89% TREO from 31m
    - including 2m @ 1.76% TREO
  - 3m @ 1.40% TREO from 11m
  - 6m @ 0.75% TREO from 39m
    - including 2m @ 1.51% TREO



# Exploration Potential – The Future



## Drilling

- Historic
- Planned
- Assays Pending

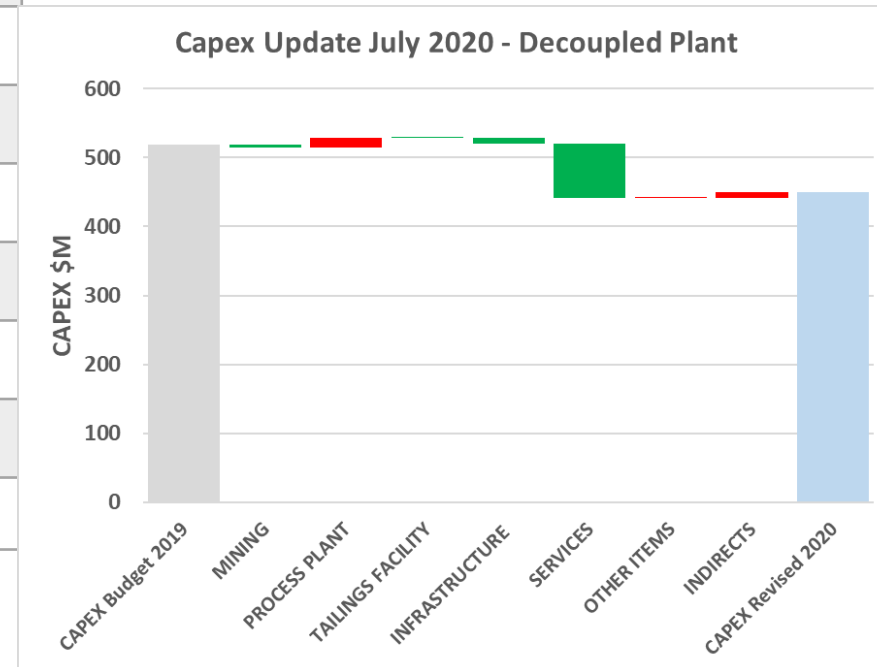
# Capex Scenario – excluding contingency

Decoupling of beneficiation and hydromet plant savings total \$68M

|                   | Capex<br>Budget<br>2019 (\$m) | Capex<br>Revised<br>2020 (\$m) | Variance<br>(\$m) |
|-------------------|-------------------------------|--------------------------------|-------------------|
| Mining            | 14                            | 10                             | -3                |
| Process Plant     | 167                           | 181                            | 14                |
| Tailings Facility | 19                            | 18                             | -1                |
| Infrastructure    | 77                            | 69                             | -8                |
| Services          | 130                           | 50                             | -79               |
| Other Items       | 9                             | 9                              | 0                 |
| Indirects         | 104                           | 112                            | 8                 |
| Totals            | 517                           | 449                            | -68               |

## CAPEX savings

- Reduced by \$68m
  - Hydromet to Onslow (tbc)
  - Eliminated Gas pipeline





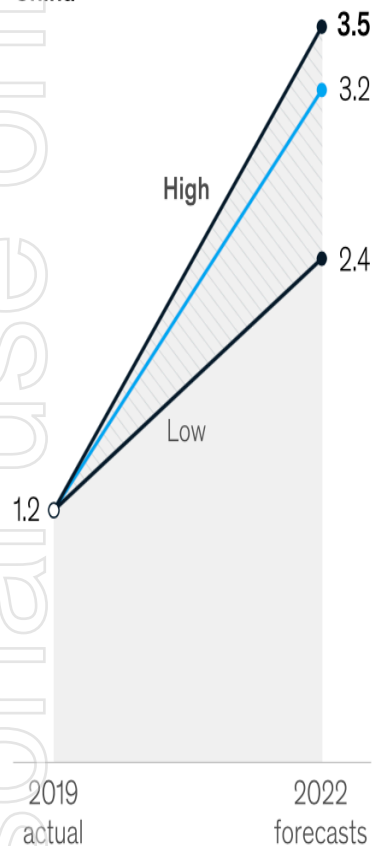
# EV: 2022 forecast market share – *McKinsey Report*

## China and Europe EV market forecasted to grow much faster than in US

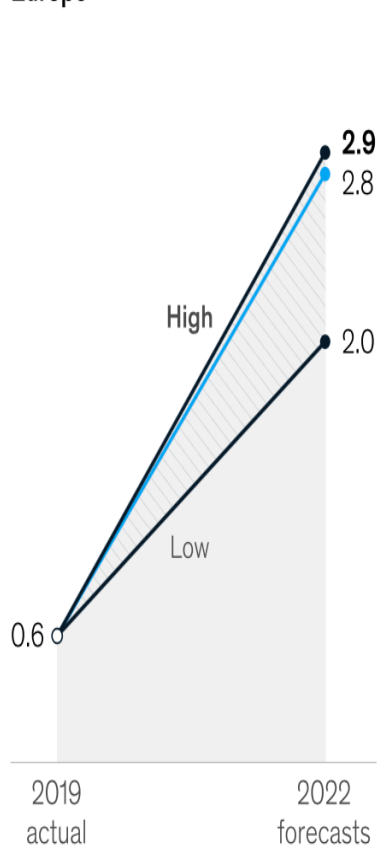
Electric-vehicle sales, millions of units

— Forecast before COVID-19 crisis<sup>1</sup> — Current forecast; most likely scenario in **bold**

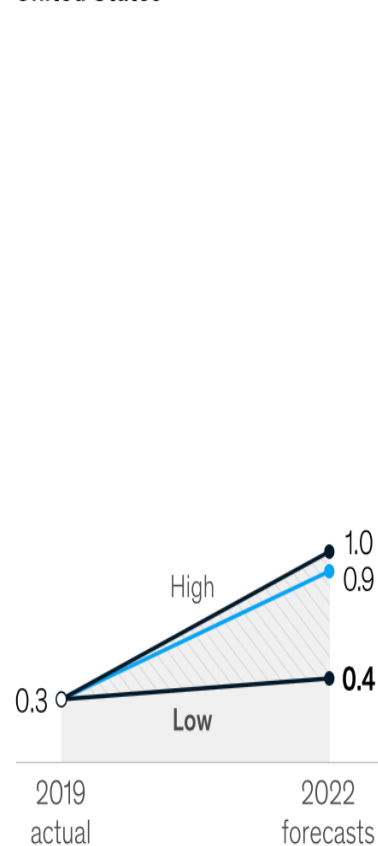
China



Europe



United States



- Government regulations and incentives will propel EV penetration. Forecast EV mkt share from 2019 to 2022 :
  - China: from 5% to 11-14% (~1.2m to 3.5m units)
  - Europe: from 3% to 14/15% by 2022 (~0.6m to 2.9m units)
  - US: from 2% to 3-6% by 2022 (~0.3 to 1.0m units)
- EU automakers are relying on EVs to achieve Europe's 2020/21 carbon-dioxide emissions limits of 95 gm of CO2 per km
- China government extended EV subsidies to end 2022 and spending RMB10bn (US\$1.4bn) in expanding the charging network.
- US – uncertain economics, regulatory outlook and low gasoline prices (due to low crude oil price) discourage purchase of EV. Biden victory may change pace of EV adoption
- Germany: October - BEV and PHEV > 48K units registered = 18% of total vehicle sales for Oct, record month \*
- UK to ban petrol and diesel cars by 2030
- By 2030 : Estimated EV sales in China - 35 – 50%  
Europe is 35 – 45% of total vehicle sales

Source: McKinsey Report September 2020

\* Cleantechnica - Nov 22nd 2020

- **Market for Magnet Rare Earth Oxides to Increase 5x by 2030 <sup>(1)</sup>**
  - Total NdFeB magnet demand forecasted to increase at 9.7% CAGR and prices projected to increase at CAGRs of 5.6% to 9.9% over same period
  - Global magnet rare earth oxides consumption will rise 5x by 2030, from US\$2.98B in 2020 to US\$15.65B by 2030
- **Annual NdFeB Shortages of 48KT Expected by 2030 <sup>(1)</sup>**
  - Constrained by an expected under-supply of NdPr and Dy oxide from 2022 onwards
  - Forecasts global shortages of NdFeB alloy and powder will amount to 48KT p.a. by 2030 equals to approx 25 to 30 million EV traction motors
- **Annual NdPr Oxide Shortages of 16KT Expected by 2030 <sup>(1)</sup>**
  - Constrained by lack of new primary and secondary supply sources from 2022 onwards
  - Global shortages of NdPr and Dy oxide will collectively rise to 16KT tonnes in 2030, an amount equal to approximately 3x Lynas annual output
- **Passenger EVs are forecast to grow at over 26%pa over the next decade <sup>(2)</sup>**
  - By 2022, EV demand for NdFeB magnets to be double wind turbines and dominate the industry towards the end of the decade, accounting for over 40% of demand
- **January to August 2020, China's rare earth exports fell 25.7% year over year to 24,377 tonnes due to <sup>(3)</sup>:**
  - Changes in international market demand and risks because of pandemic and trade tensions
  - Anticipation that Chinese government will launch a stockpiling program for light rare earth due to strong domestic demand

Source: (1) Adamas Intelligence Sept 2020  
(2) Roskill Aug 2020  
(3) S&P Global Market Intelligence Sept 2020



# Offtake Snapshot

~65% of production contracted for 10 yrs with strong offtake counterparties

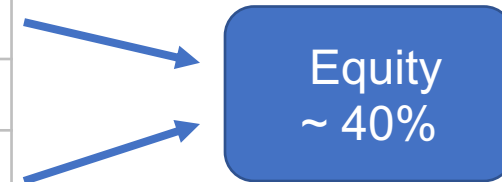
| Offtake Counterparty | <b>SCHAEFFLER</b>                          |  |  |
|----------------------|--|---|---|
| Contract Status      | Master Supply Agreement<br>Signed Jun-2019 | MOU signed 2018, advanced<br>contract drafting<br>Target signing Dec/Jan            | Offtake Agreement<br>Signed Nov-2018.   |
| Quantity             | 5,000t MREC p.a.                           | X,000t MREC p.a   | 2,500t MREC p.a.  |
| Tenor                | 10 years                                   | 10 years  | 5 Years Fixed Term with 2 year<br>flexible ramp-up of supply.                       |

| Offtake Counterparty | <i>Confidential</i>                                   | <i>Confidential</i>                       |
|----------------------|---|---|
| Contract Status      | MOU signed Apr 2020 - in contract<br>drafting for MSA | Advance negotiation and contract Drafting |
| Quantity             | Approx. X,000t MREC p.a                               | X,000t MREC p.a.                          |
| Tenor                | 5 + 5 years   | 10 years                                  |

# Project Funding - Overview

## Indicative Debt/Equity Structure

|  | A\$M | A\$M       | %           |
|--|------|------------|-------------|
| Project Capex – Mine & Process Plant                             | 449  |            |             |
| Contingency @ 15%  | 67   |            |             |
| <b>Total Project Capex*</b>                                      |      | <b>516</b> | <b>80%</b>  |
| Sunk cost up to DFS  |      | 33         | 5%          |
| Working capital  |      | 27         | 4%          |
| Financing costs/ interest capitalised during construction period |      | 66         | 11%         |
| <b>Total funding for the Project</b>                             |      | <b>642</b> | <b>100%</b> |
| Equity/cash raised since 2014 - capitalised                      |      | 133        | 21%         |
| Project Finance (NAIF, UFK, FV and Commercial Banks)**           |      | 385        | 60%         |
| Balance of equity to raise                                       |      | 124        | 19%         |
| <b>Total sources of fund</b>                                     |      | <b>642</b> | <b>100%</b> |



Equity  
~ 40%

*\*New capex updated - 29 July 2020*

*\*\*Multi-source package being arranged with a range of government lenders and commercial debt financiers*

# Capital Structure

| Capital Structure                   | \$/Shares |
|-------------------------------------|-----------|
| Cash Balance (at 30 Sept 2020)      | A\$20M    |
| Shares in Issue                     | 1,200M    |
| Share Price (27 Nov 2020)           | A\$0.155  |
| Market Capitalisation (28 Nov 2020) | A\$186M   |
| Performance Rights                  | 19.5M     |
| Options (April 2022 Expiry)         | 126.7M    |

| Major Shareholders       | %     |
|--------------------------|-------|
| Foon Keong (Charles) Lew | 9.70% |
| Mun Kee Chang            | 6.80% |

| Register Breakdown                       |        |
|--|--------|
| Shareholders                             | ~2,000 |
| % of Register Institutions/HNW Investors | ~80%   |

## Share Price Performance



| Board Of Directors    |                        |
|-----------------------|------------------------|
| Charles Lew           | Executive Chairman     |
| Jean Claude Steinmetz | Non Executive Director |
| Mal Randall           | Non Executive Director |
| Neil Hackett          | Non Executive Director |
| Guy Robertson         | Finance Director       |

# Board of Directors



**Mal Randall**

**Non Executive Director**

- Joined the Board in Feb 2019
- Bachelor of Applied Chemistry & Fellow AICD.
- 45+ years extensive experience in corporate, management and marketing in the resources sector including 25+ years with the Rio Tinto group of companies.
- Experience as Chairman or NED level in a diverse range of commodities including Lithium, Base Metals, Potash, Iron Ore, Uranium and Mineral Sands



**Jean Claude Steinmetz**

**Non Executive Director**

- Joined the Board of Hastings in July 2017
- Previously Chief Operating Officer for Lynas Corporation
- 25+ years Involved in the chemical industry with Rhodia and General Electric
- Chairman of the Auto Plastic and Innovative Materials Committee of Sino-EU Chemical Manufacturers Association



**Charles Lew**

**Executive Chairman**

- Appointed Chairman in Dec 2013
- Corporate Finance Director HG Asia Securities 1990 - 1997
- MD of ABN Amro Investment Bank Singapore 1997 - 2000
- Independent Director of RHB Banking Group 2004 - 2016
- 30+ years experience in investment banking in London (HSBC & Robert Fleming) and in Singapore
- Private investor and entrepreneur in F&B, real estate, financial services, etc.



**Neil Hackett**

**Non Executive Director**

- Joined the Board in Nov 2018
- Corporate Finance and Regulatory Experience ASIC 1990-1999
- 10 years investment and funds management experience
- 15+ years ASX Director, Company Secretary and Senior Executive mining and industrial experience
- Independent Corporate Governance Advisor and AICD Facilitator



**Guy Robertson**

**Finance Director**

- Been on the board of Hastings since 2011
- 30+ years CFO experience
- CFO for various ASX listed junior mining companies
- Senior finance executive in Jardine Matheson Group in Hong Kong and Australia including Jardine Lloyd Thompson, Colliers Jardine, and Franklins Limited



# Experienced Senior Management Team



**Nick Holthouse**

**General Manager –  
Engineering & Operation  
Readiness**

- Joined Hastings in 2019 with 30+ years experience in surface & underground mining operations, engineering & surveying in commodities – gold uranium, coal and base metals
- Managed, Commissioned / Operated mines & process plants in remote regions
- Merdeka Mining, Finders Resources, CSA Global



**Pit Wah Chung**

**Chief Financial Officer**

- Joined Hastings in 2017 with 20 years experience in financial reporting and tax planning
- Regional Financial Controller of Lifestyle Investment Group
- CFO of Muddy Murphy Holdings and Breadtalk Group Ltd
- Chartered Accountant of Singapore & fellow member of The Association of Chartered Certified Accountants (ACCA)



**Andrew Reid**

**Chief Operating Officer**

- Appointed COO in Nov 2018
- 25 years of expertise in mine management, geology and mining engineering concentrating on open pit and narrow vein mining
- Developed and managed mining projects in West Africa and Finland
- Previously COO of Finders Resources, GM of Kevitsa Mine, First Quantum Minerals, etc



**Valerie Quay**

**Legal Counsel**

- Joined Hastings in 2017
- Barrister at Law, Middle Temple UK and Herbert Smith LLP London
- Focused experience in corporate commercial law ; 3P sector partnership
- Management & Strategy consulting at McKinsey & Co, London
- Deputy Director – Strategy & Corporate Governance, National Philanthropic Centre, Singapore



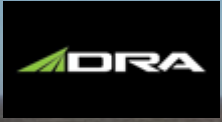
**Robin Zhang**

**Process Engineering Manager**

- Joined Hastings in 2016 with more than 20 years experience in R&D, project engineering, plant commissioning & operations
- 8 years Lynas - Senior Technical Services & Project Development Manager
- 11 years at Gansu Rare Earth Group China - Deputy Director Technical Centre



# Independent Consultants and Advisors



**Engineering, Procurement, Construction and Management (EPCM)**



**Commodity Market Analysis**



**Project Finance Legal Counsel to Borrower**



**Project Finance Debt Advisory**



**Independent Technical Experts to Lenders**



**Financial Adviser to Euler Hermes**



**Environmental and Social Gap Analysis Report**



**Cost Benefit Analysis Report**

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## **Competent Persons and Qualifying Persons Statement**

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



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