



# Central Eyre Iron Project Beyond the Definitive Feasibility Study

Larry Ingle, General Manager • 11<sup>th</sup> SA Exploration and Mining Conference • 5<sup>th</sup> December 2014

# Cautionary Statements



## Forward Looking Statements

This announcement contains certain statements with respect to future matters 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 Persons' Statements

The information in this report that relates to the Exploration Target within EL4849 is based on and fairly represents information and supporting documentation compiled by Mr Milo Res, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Res has sufficient experience that is relevant to the style of mineralisation and the type of deposits under consideration and 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, Mineral Resources and Ore Reserves". Mr Res at the release date of the Exploration Target was a full time employee of Iron Road Limited and consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to Mineral Resources estimated for the Boo-Loo prospect is based on and fairly represents information and supporting documentation compiled by Mr Ian MacFarlane, who is a Fellow of the Australasian Institute of Mining and Metallurgy and at the release date of the Mineral Resource statement was a full time employee of Coffey Mining. Mr MacFarlane has sufficient experience relevant to the style of mineralisation and the type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr MacFarlane consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources estimated for the Murphy South / Rob Roy (MSRR) prospect is based on and fairly represents information and supporting documentation compiled by Ms Heather Pearce, who is a member of the Australasian Institute of Mining and Metallurgy, and at the time of issue was a full time employee of Iron Road Limited. This estimation was peer reviewed by Dr Isobel Clark, who is a Fellow of the Australasian Institute of Mining and Metallurgy and at the release date of the Resource Statement was contracted by Xstract Mining Consultants. Dr Clark has sufficient experience relevant to the style of mineralisation and the type of deposits under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Dr Clark consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

The information in this report that relates to Mine Reserves estimated for Murphy South / Rob Roy (MSRR) is based on and fairly represents information and supporting documentation compiled by Mr Harry Warries, a Fellow of the Australasian Institute of Mining and Metallurgy, and at the release date of the Reserve Statement was a full time employee of Coffey Mining. Mr Warries has sufficient experience relevant to the style of mineralisation and the type of deposits under consideration and to the activity which he is 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". Mr Warries consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## Exploration Potential

It is common practice for a company to comment on and discuss its exploration in terms of target size and type. The information in this presentation relating to exploration targets should not be misunderstood or misconstrued as an estimate of Mineral Resources or Ore Reserves. Hence the terms Resource(s) or Reserve(s) have not been used in this context. Any potential quantity and grade is conceptual in nature, since there has been insufficient work completed to define them beyond exploration targets and that it is uncertain if further exploration will result in the determination of a Mineral Resource.



# Cautionary Statements



Modelling based upon 25 year mine life, consisting of:

- Initial 17 years using Proven and Probable Mining Reserve of 2,071Mt @ 15.5% iron (200x100m, 100x50m diamond drill spacing).
- Further eight years using 28% Measured, 24% Indicated and 48% Inferred Resources of 1,303Mt @ 15.0% iron (200x100m diamond drill spacing).
- Planning underway for a further drilling campaign to extend mine life beyond 30 years.

Base Case Development Model: Encompasses a 25 year mine life, based on existing Ore Reserves and Mineral Resources, producing 21.5Mt of concentrate per annum following a staged ramp up over 2½ years. Modelling does not include revenues from potential third party users of the infrastructure.

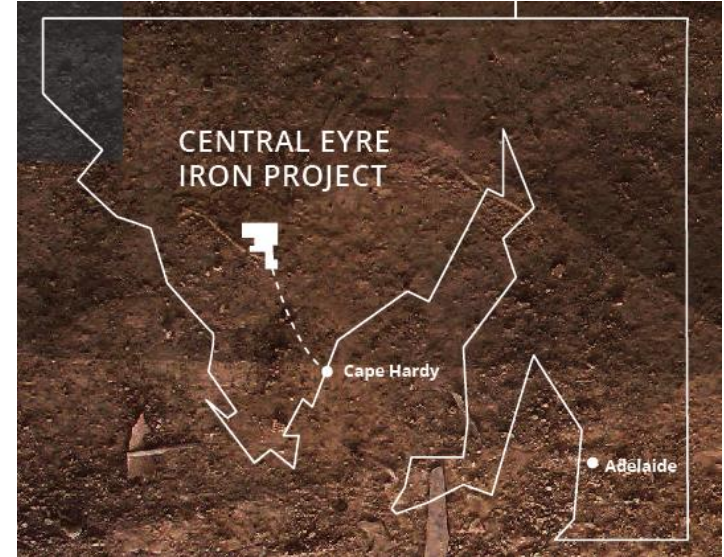
Location	Classification	Base Case Development Model
		Proportion (%)
MSRR	Proven Ore Reserves	62%
MSRR	Probable Ore Reserves	6%
MSRR	Measured Resources	9%
MSRR	Indicated Resources	8%
MSRR / BLD	Inferred Resources <sup>1</sup>	15%

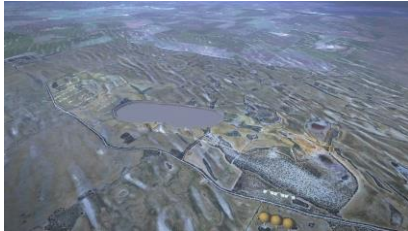
The Reserves, Resources and Exploration Target underpinning the production target have been prepared by a competent person in accordance with the JORC Codes 2012 and 2004 (there being no material changes since the Resources were last reported under the JORC Code 2004):

- <sup>1</sup> There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.
- On 26 February 2014, the company announced the results of its definitive feasibility study for the CEIP. All material assumptions underpinning the production target and forecast financial information referred to in the announcement continue to apply and have not materially changed. A copy of that announcement can be obtained from [www.ironroadlimited.com.au](http://www.ironroadlimited.com.au).

# CEIP Snapshot

- Magnetite project with three components – mine and integrated logistics chain comprising rail & port development.
- Production of 21.5Mtpa premium iron concentrate  
~67% Fe & ~ -125 $\mu$ m (p80).
- Coarse-grained iron concentrate to be marketed as high quality sinter blend stock.
- Mineral Resource Estimate 3.7Bt @ 16% Fe of which 2.1Bt @ 15.5% Mineral Reserve (magnetite gneiss).
- Major Development Status (State) & Major Project Facilitation Status (Federal).
- 100% owned Iron Road Limited.





## Mine

- Two pits, largest 6.5km long, 1.2km wide.
- Includes beneficiation plant, integrated waste landform & rail loadout.



## Infrastructure Corridor

- Single corridor- 148km heavy rail, service road, power line & water pipeline.
- Multi-user.



## Port

- Twin capesize berths, no dredging, 70Mtpa capacity at ship loader.
- Module Offloading Facility (MOF), multi-user.

# DFS Project Metrics



First port in S.A capable of berthing

**CAPESIZE VESSELS**

**\$100** Million investment on study including **\$68 million** already spent in South Australia

A graphic showing a red and white airplane flying across a blue sky, carrying a brown banner with the number "100". Below the sky is a teal sea with a white and brown Capesize vessel. To the right, text indicates a \$100 million investment, with \$68 million already spent in South Australia.

DFS forecast annual revenue

**US\$2.8B**

as much as all wheat, beer and wine exports from S.A combined

A graphic featuring a golden wheat stalk, a glass of beer with a white head, and a bunch of dark grapes on a red surface.

Mine Life

**25+**

**years**

A circular badge with a dark red background and white text.

Capital Cost

**US\$3.98B**

A circular badge with a dark red background and white text.

Capital Intensity  
(per Annual Tonne)

**US\$185**

A circular badge with a dark green background and white text.

Operating Cost  
(FOB) /t

**US\$44.33**

A circular badge with a dark orange background and white text.

Project IRR

**21%**

Ung geared,  
post-tax

A circular badge with a light orange background and white text.

\* see Appendix 3 for key financial assumptions





## In-Pit Crushing & Conveying (IPCC)

- Mine purpose designed for IPCC, semi-mobile crushers in pit.
- Trucks deliver both ore & waste to crushers, conveyed to surface.



## High Density Modularisation (Beneficiation Plant)

- Modules wet commissioned in construction yard.
- Delivered by RORO or LOLO heavy lift ships at port MOF.



## Integrated Waste Landform

- Co-disposal of waste rock & filtered fine/coarse tailings.
- Progressive deposition & rehabilitation.

## **Mining**

- IPCC with mobile crushers- shovel / loader direct tip into crusher- from diesel → surplus electrical energy, long term contract.
- Thiess-RWE JV pit re-optimisation → taking into account expanded Mineral Resource Estimate & Mineral Reserve.

## **Beneficiation**

- Inclusion of regrind circuit; from electrical pumps → gravity flow.

## **Expanded Mineral Resources & Reserves**

- Significant increase early 2015 following Stage IX drilling programme.

## **Revised Cost Estimates**

- Significant decrease of DFS costings of up to 30% for materials & 20% for labour.

## **Government Approvals/Financing/Partnering**

- Steady progress; several parties believe current market conditions present good opportunity.



# Transition to Optimised Mining Method



**Traditional load & haul**

93 x 350t trucks  
800kL diesel (pd)  
1150 employees  
**CAPEX US\$1350**  
**OPEX US\$37.30 /dmt**



**IPCC**  
**Semi-mobile crushers**

32 x 350t trucks  
150kL diesel (pd)  
350 employees  
**CAPEX US\$480**  
**OPEX US\$28.50 /dmt**




**IPCC**  
**Mobile crushers**

12 x 350t trucks (est.)  
50kL diesel (pd)  
250 employees (est.)  
**CAPEX TBD**  
**OPEX TBD**

# Beneficiation Comparison



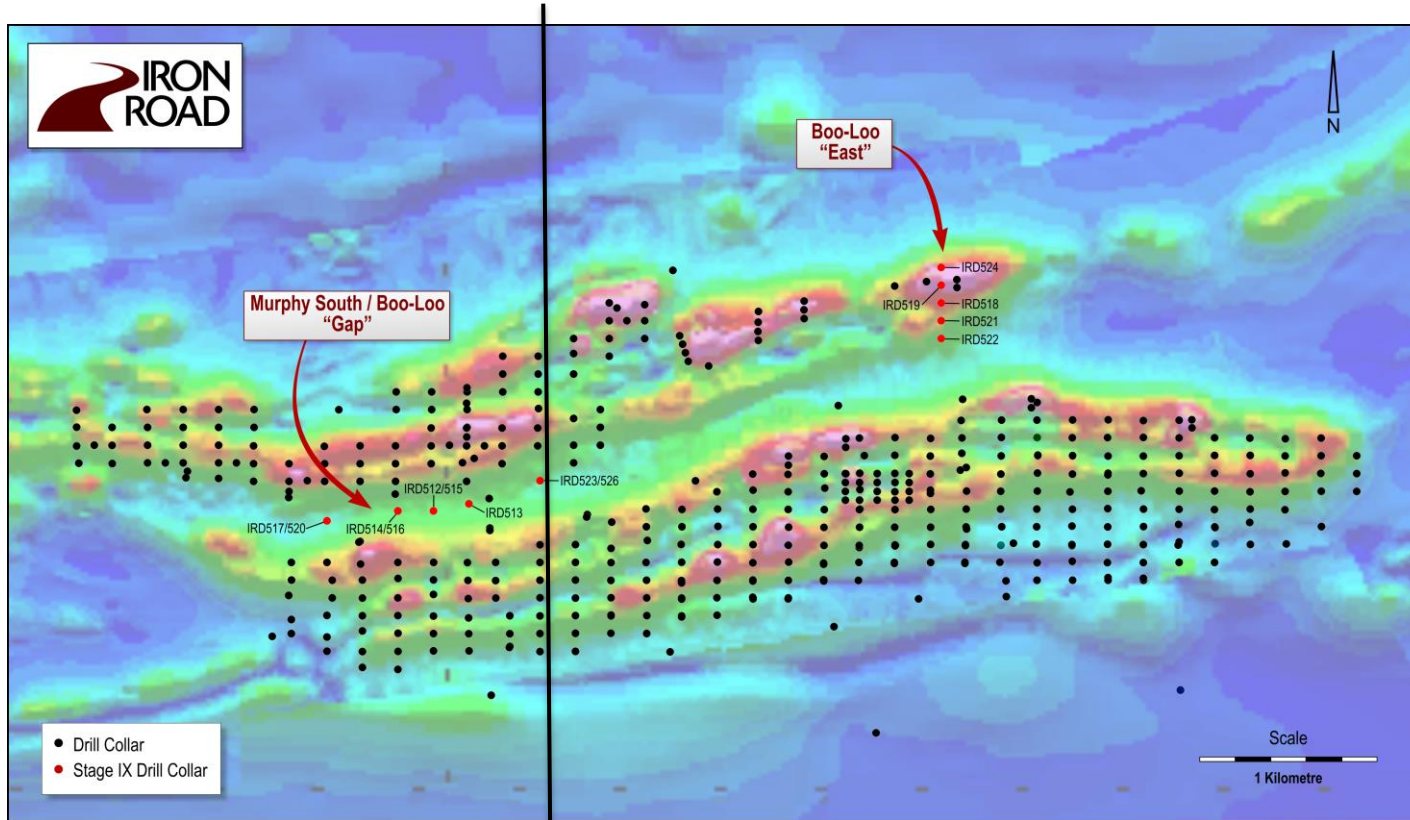
	Scenario 1 21.5Mtpa pellet feed Fine grind p80 < -40µm	Scenario 2 21.5Mtpa Pellet Feed Fine grind p80 < -40µm with gravity circuit	DFS 21.5Mtpa Sinter Feed Coarse grind p80 < -125µm with gravity circuit	Current Optimisation Study 24Mtpa Sinter Feed Coarse grind p80 < -120µm with gravity and regrind circuit
Power	302MW	261MW	120MW	Subject of current studies
<b>Operating Cost</b>	<b>US\$21.44 /dmt</b>	<b>US\$18.59 /dmt</b>	<b>US\$10.94 /dmt</b>	
Power	US\$11.32 /dmt	US\$9.05 /dmt	US\$4.18 /dmt	
Consumables	US\$6.62 /dmt	US\$5.61 /dmt	US\$5.33 /dmt	
Labour	US\$3.13 /dmt	US\$3.13 /dmt	US\$1.10 /dmt	
Other	US\$0.37 /dmt	US\$0.80 /dmt	US\$0.34 /dmt	
Pelletising (est.)	US\$9.60 /dmt	US\$9.60 /dmt	-	
<b>Total Cost</b>	<b>US\$31.04 /dmt</b>	<b>US\$28.19 /dmt</b>	<b>US\$10.94 /dmt</b>	

## Mineralogy is Key

Comparison with WA BIF magnetite operation with same iron concentrate output (~20Mtpa)

**2 x CEIP grade (~ ½ the plant throughput) → requires 2 x installed fixed plant = higher CAPEX & OPEX**

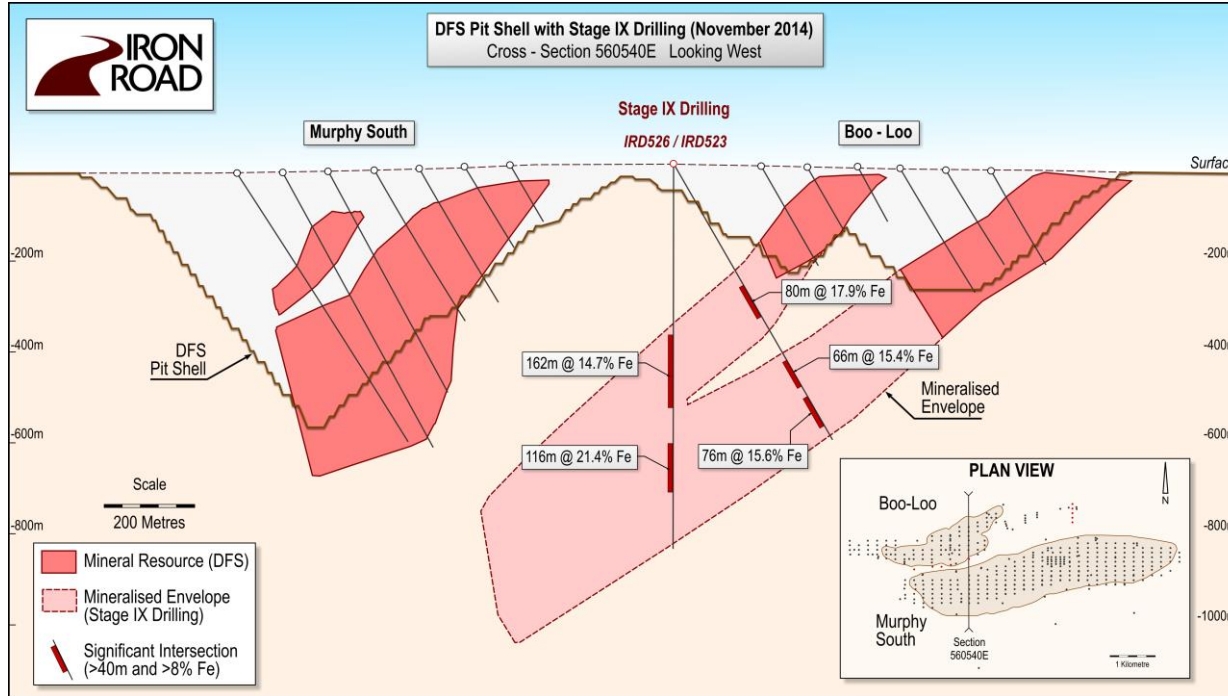
# Stage IX Drilling



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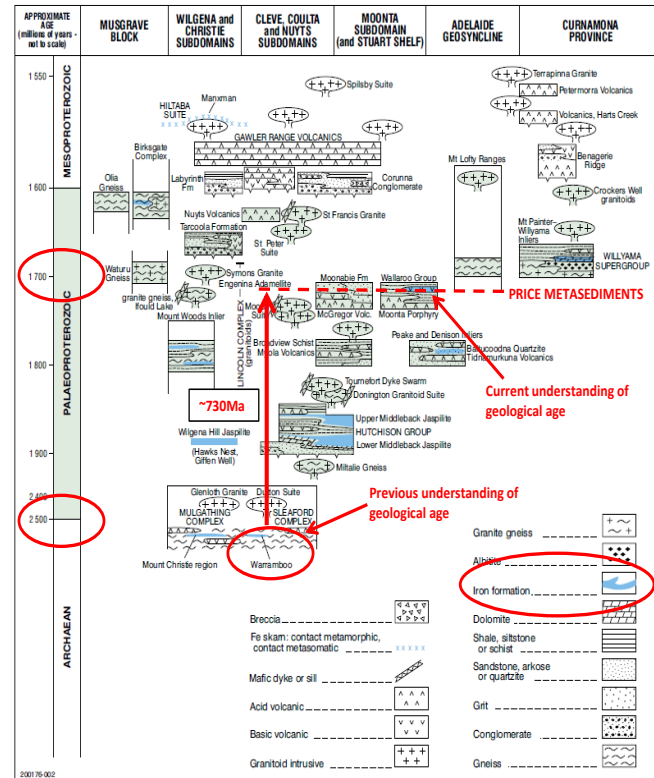
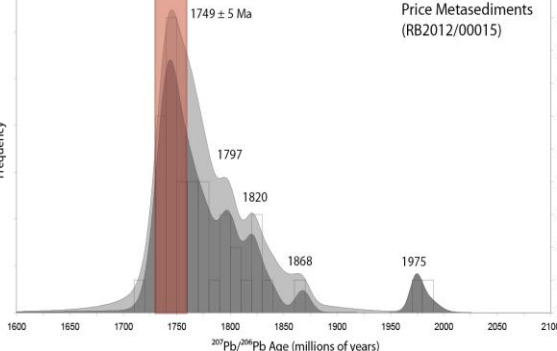
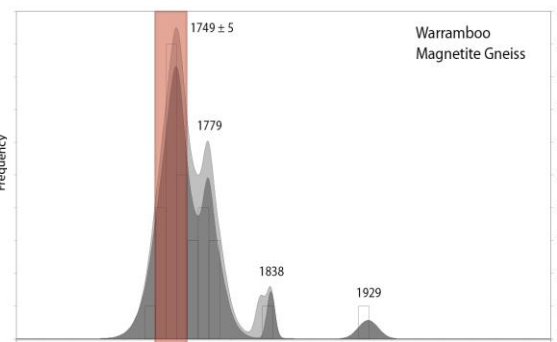
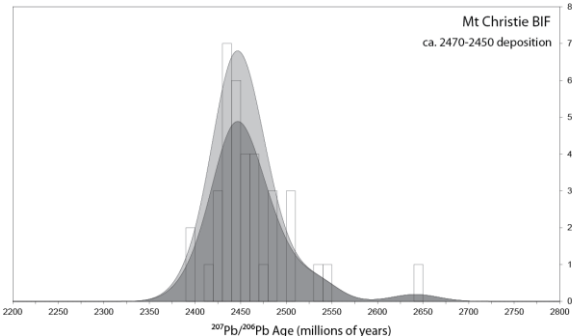
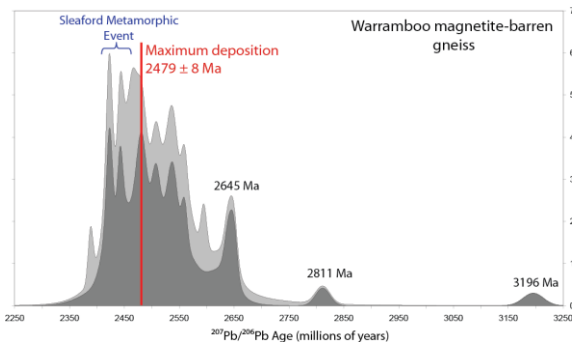
# Stage IX Drilling



# Collaborative Research – PhD Project

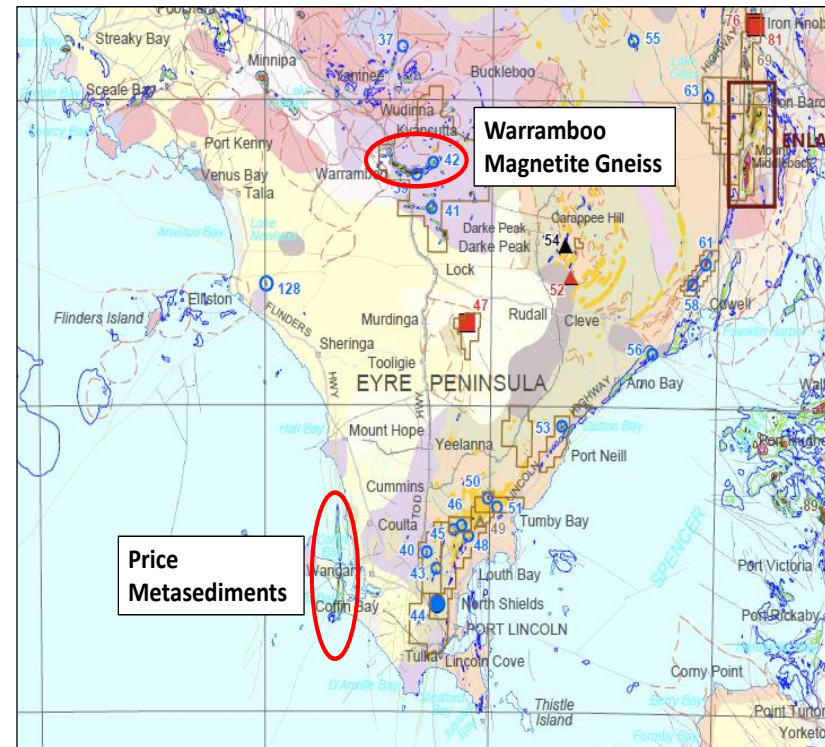
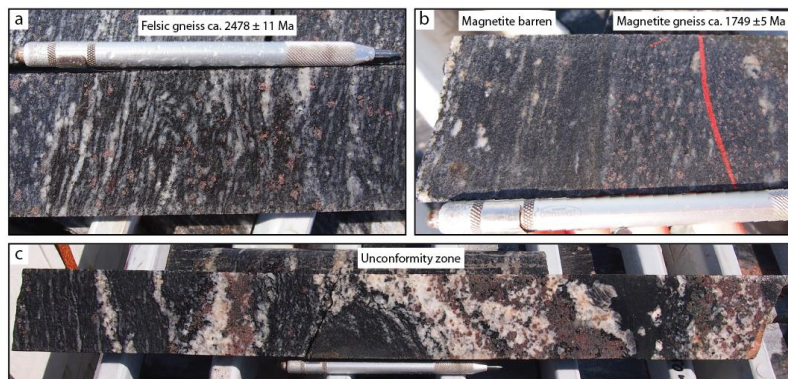


## Influence of crustal architecture and reworking on iron formations of the southern Gawler Craton - Kathleen Lane



## “Age constraints on the timing of iron ore mineralisation in the southeastern Gawler Craton”

K. Lane, L. Jagodzinski, R. Dutch, A. Reid, M. Hand.  
*Australian Journal of Earth Sciences* (in prep.)





# Visit us at Table 17 in the Expo Area

# Thank-you



- **Geology is driving the approach to mining**
- **Mineralogy is driving the approach to metallurgy**
- **Opportunity is driving the approach to engineering the project**

# Appendix 1 – CEIP Resource Statement & Indicative Concentrate Specifications



CEIP Global Mineral Resource						
Location	Classification	Tonnes (Mt)	Fe (%)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	P (%)
Murphy South/Rob Roy	Measured	2,222	15.69	53.70	12.84	0.08
	Indicated	474	15.6	53.7	12.8	0.08
	Inferred	667	16	53	12	0.08
Boo Loo	Inferred	328	17	52	12	0.09
<b>Total</b>		3,691	16	53	13	0.08

*The Murphy South/Rob Roy mineral resource estimate was carried out following the guidelines of the JORC Code (2004) by Iron Road Limited and peer reviewed by Xstract Mining Consultants (Rob Roy). The Boo Loo mineral resource estimate was carried out following the guidelines of the JORC Code (2004) by Coffey Mining Ltd. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.*

CEIP Indicative Concentrate Specification – 120 micron (p80)											
Iron (Fe)	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	MgO	TiO <sub>2</sub>	Mn	Na <sub>2</sub> O	K <sub>2</sub> O	S	P	LOI
>66.5%	<3.5%	<2.0%	0.10%	0.5%	0.3%	0.6%	0.085%	0.125%	<0.005%	<0.005%	-2.6

# Appendix 2 – CEIP Reserve Statement



CEIP Global Mineral Reserve			
Location	Classification	Tonnes (Mt)	Fe (%)
Murphy South/Rob Roy	Proved	1,871	15.6
	Probable	200	15.1
<b>Total</b>		2,071	15.5

The information in this report that relates to Reserves estimated for Murphy South / Rob Roy (MSRR) is based on and fairly represents information and supporting documentation compiled by Mr Harry Warries, a Fellow of the Australasian Institute of Mining and Metallurgy, and an employee of Coffey Mining. Mr Warries has sufficient experience relevant to the style of mineralisation and the type of deposits under consideration and to the activity which he is 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”. Mr Warries consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. See the Company’s announcement made 26 February 2014. The Company is not aware of any new information or data which materially affects the information, and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.



# Appendix 3 – Key DFS Financial Assumptions



Key Financial Assumptions (real 2013 terms)	
Capital cost estimate (incl. contingencies)	US\$3.98 billion
Pre-stripping and preparatory mining works	US\$0.48 billion
Capital intensity	US\$185 per annual tonne
FOB operating cost (ex state royalty)	US\$44.33/dmt (dry metric tonne)
62% Fe CFR China Index price	US\$112.00/dmt
+ standard grade differential / premium	US\$3.00/dmt per 1% Fe above 62%
+ additional CEIP high quality premium	US\$3.00/dmt
Received 67% CEIP CFR China price	US\$130.00/dmt
Capesize freight rate – Cape Hardy to North Asia	US\$17.73/dmt
Long term AUD/USD	0.85
Nominal discount rate	12.5%
CPI	2.5% p.a.
Corporate tax rate	30%