

# Barra Resources Limited

**Mt Thirsty Cobalt-Nickel moves to PFS**

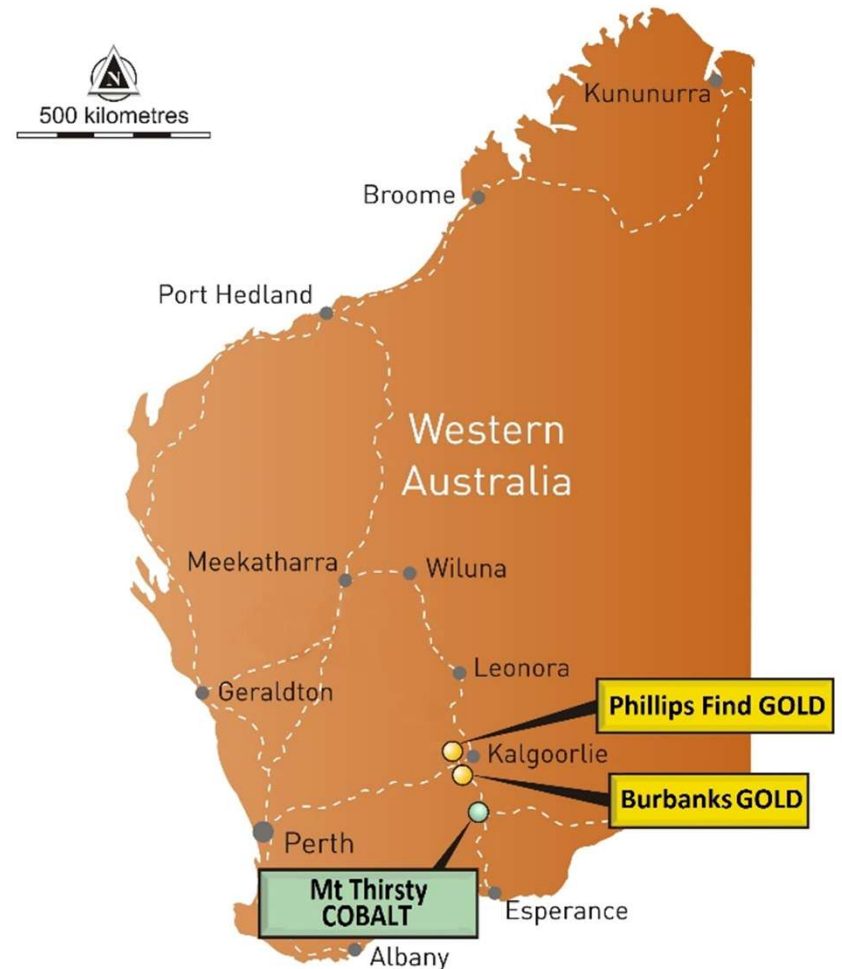
**RC Drilling to Commence at Burbanks Gold**



Sean Gregory  
Managing Director & CEO  
Paydirt Battery Minerals Conference  
15 March 2018

# Key Messages

- Barra's dual commodity strategy
  - Mt Thirsty Advanced Cobalt-Nickel Oxide Project
  - Coolgardie Gold Projects
- Best mining location in WA's Goldfields
  - Stable and ethical jurisdiction
  - Excellent access and infrastructure
  - Skilled local workforce
- Cobalt Market Dynamics
  - Inelastic demand
  - Scarce supply
  - Strategic partnering opportunities
- Active development program for 2018
  - Pre Feasibility Study for Mt Thirsty
  - Gold drilling at Main Lode committed for Q2



# Corporate Overview

ASX:BAR



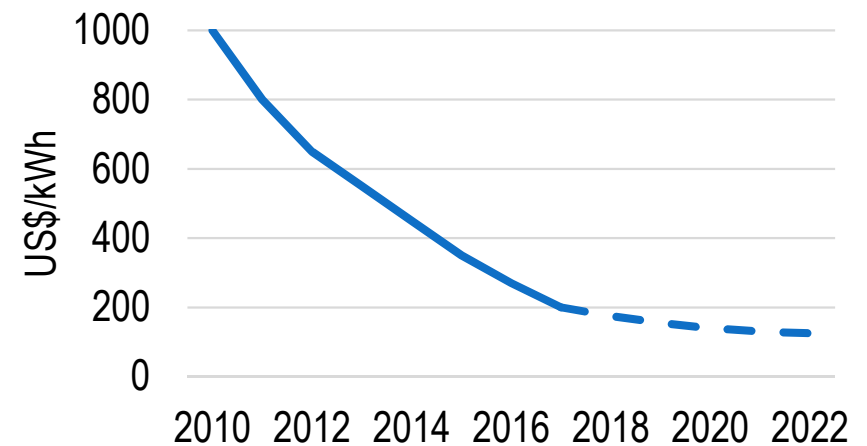
- 473M shares outstanding
- Market cap \$21.3m @ 4.5c
- Cash \$2.4M
- Shareholders
  - FMR Investments Pty Ltd 17.3%
  - >3000 Other shareholders
- Experienced board and management
  - Gary Berrell, Chairman
  - Sean Gregory, MD & CEO
  - Grant Mooney, NED & Co Sec
  - Jon Young, NED
  - Gary Harvey, Exploration Manager



# Electric Vehicles To Drive Demand

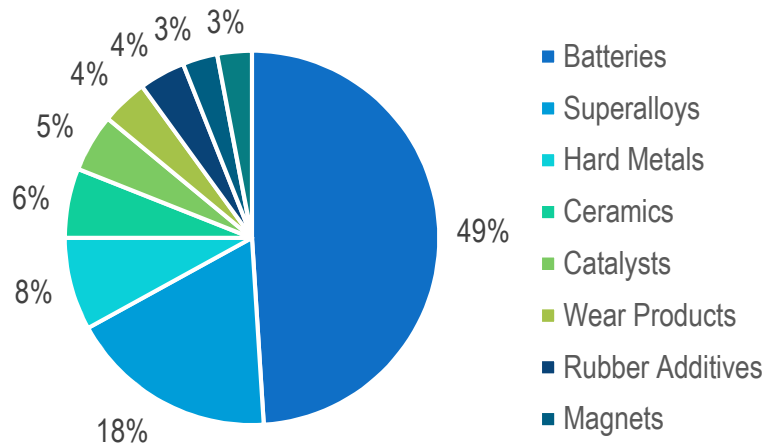
- Automakers committed to quantum shift <sup>1</sup>
  - China mandates 12% EVs by 2020
  - India mandates 100% EVs by 2030
  - Volvo – 100% EVs and Hybrids from next year
  - Volkswagen – 2-3 M EVs per annum by 2025
  - Ford – will invest US\$11 Bn by 2022
  - GM – 1,000,000 EVs by 2026
  - BMW – 100,000 EV sales achieved in 2017
  - Tesla – Innovation leader
- EV battery unit costs to reach parity with Internal Combustions Engines at US\$100/kwh
- Yet cobalt component currently comprises <2% of economy Tesla Model 3 price therefore cobalt demand inelastic

Battery Unit Costs <sup>2</sup>



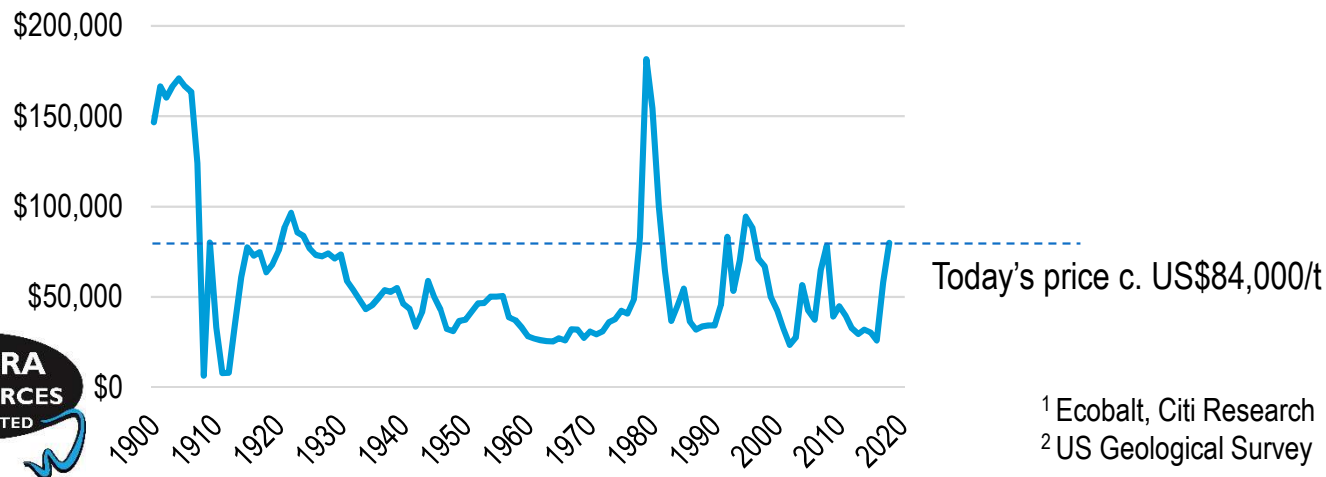
# Solid Base of Established Demand

2015 Cobalt Uses <sup>1</sup>



- Half of current cobalt consumption is batteries
- Many other established uses for Cobalt
- No substitutes for established uses
- The most recent increases in cobalt prices are **NOT** out of step with 100 year historical real prices.

Long Term Real US\$/t Cobalt Price <sup>2</sup>

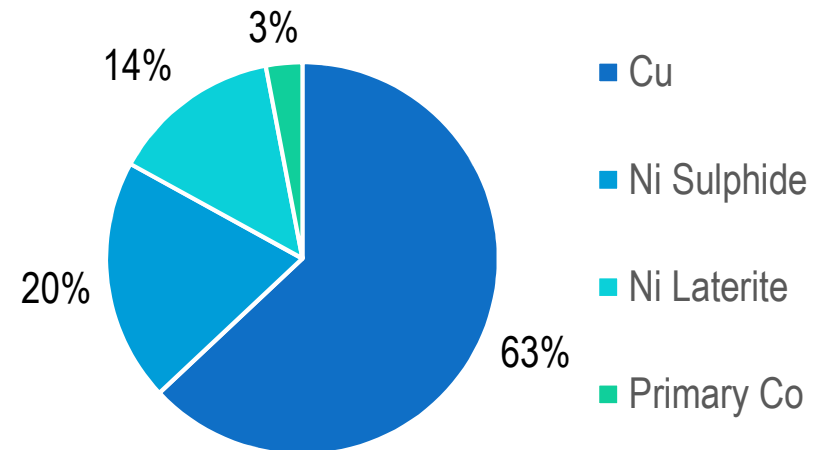


<sup>1</sup> Ecobalt, Citi Research  
<sup>2</sup> US Geological Survey

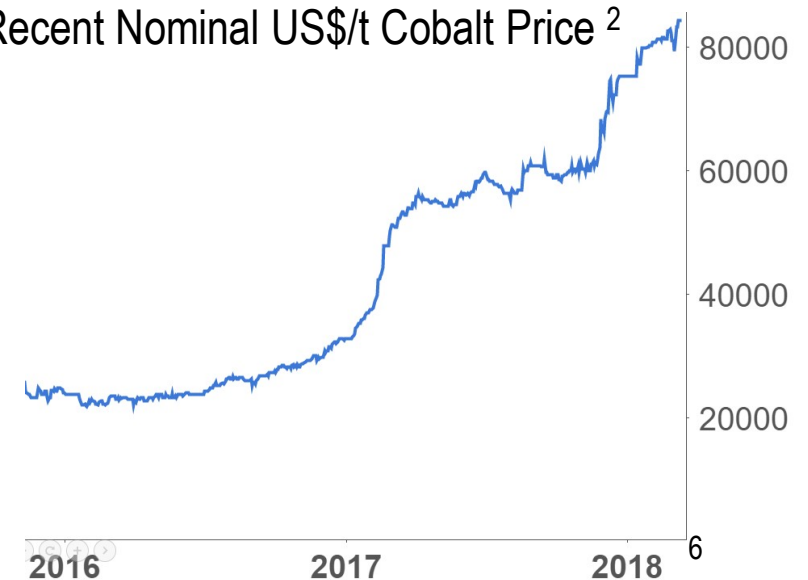
# Cobalt Supply is Scarce

- >97% of cobalt is mined as a by-product
- Most new supply requires increased copper and nickel prices to justify investment, therefore supply also inelastic
- HPAL capital cost is a barrier to entry for other Australian nickel laterite projects

2015 Global Mined Cobalt <sup>1</sup>



Recent Nominal US\$/t Cobalt Price <sup>2</sup>



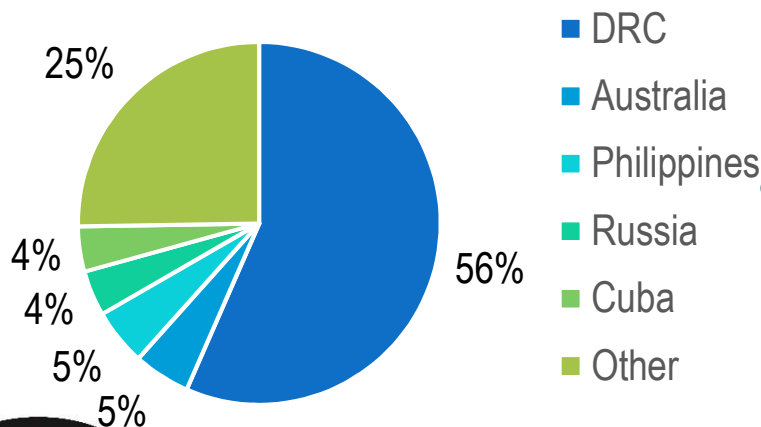
<sup>1</sup> Darton Consulting, Canaccord Genuity Research

<sup>2</sup> Trading Economics

# Sustainable Supply



2016 Global Cobalt Mine Production<sup>1</sup>



- 56% of cobalt mined from DRC <sup>1</sup>
- 20% of this is from 110,000 – 150,000 Artisanal Miners <sup>2</sup>
- 80 fatalities reported annually; many unreported <sup>2</sup>
- 40,000 children work in DRC mines for A\$1-3/day <sup>3</sup>
- Multinational companies will be increasingly seeking to trace their cobalt supply to sustainable sources
- Jan 2018 – DRC Parliament enacts super-profits tax
  - 50% tax on profits if price rises 25% above BFS assumption
  - Royalty to increase from 2% to 10% if a “strategic mineral”
- Cobalt likely to emerge as a strategic metal as battery and auto makers seek secure and ethical supply

<sup>1</sup> SNL Mine Economics cited by Canaccord Global Equity Research May 2017

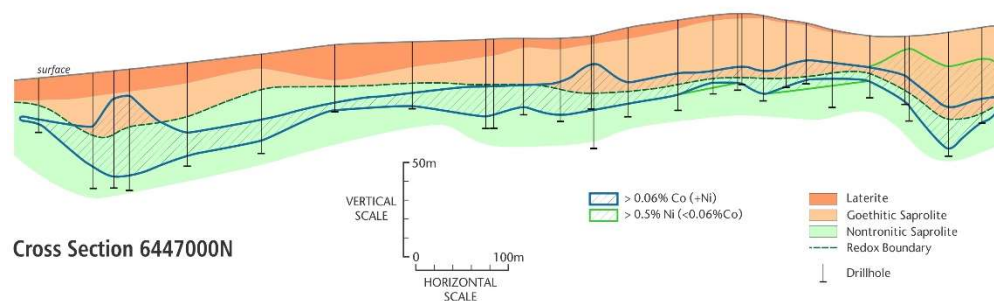
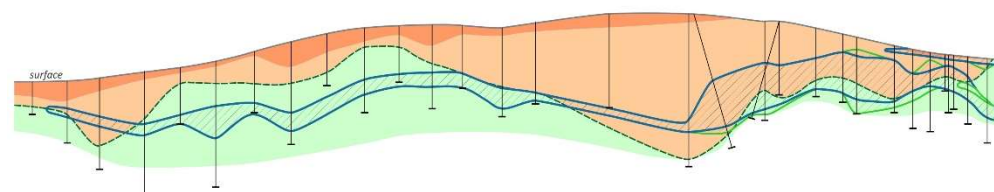
<sup>2</sup> Amnesty International Report “This Is What We Die For” January 2016

<sup>3</sup> 2014 UNICEF Factsheet “Enfants Dans Les Mines” December 2014

# Mt Thirsty Co-Ni Mineral Resource <sup>1</sup>

- 50/50 JV with Conico Limited
- Best location 14 km from established infrastructure at Norseman in Western Australia's Goldfields
- Low Strip Ratio (LOM 1.5:1)
- Deep weathering has cobalt in asbolane mineral easily liberated by agitated atmospheric leaching
- Soft and friable - minimal blasting and crushing
- Cobalt grade is double that of most nickel laterites
- Additional resource abutting the north of the tenement owned by Mark Creasy

| Category  | Tonnes  | Co % | Ni % | Mn % |
|-----------|---------|------|------|------|
| Indicated | 16.6 Mt | 0.14 | 0.60 | 0.98 |
| Inferred  | 15.3 Mt | 0.11 | 0.51 | 0.73 |
| Total     | 31.9 Mt | 0.13 | 0.55 | 0.86 |



<sup>1</sup> This Mineral Resource was first disclosed under the JORC code 2004. It has not been updated since to comply with JORC 2012 on the basis that the information has not materially changed since it was last reported. Refer to ASX announcement 8/3/2011



# Mt Thirsty Scoping Study <sup>1</sup>

| Parameter        | Value                                  |
|------------------|----------------------------------------|
| NPV <sub>8</sub> | A\$ 290 M                              |
| Co Price         | US\$ 72,000 /t                         |
| Ni Price         | US\$ 15,500 /t                         |
| USD:AUD FX       | 0.74                                   |
| Co Recovery      | 73 %                                   |
| Ni Recovery      | 21.5 %                                 |
| Capital Cost     | A\$ 212 M incl<br>A\$ 34 M contingency |
| Operating Cost   | A\$ 43 /t                              |
| Feed Rate        | 1.5 Mtpa                               |
| MSP Product      | 6,000 tpa                              |
| Life of Mine     | 21 Years                               |

- Many iterations of design over many years
- Appropriately conservative assumptions
  - Spot cobalt price now US\$84,250 = A\$106,600
  - 10% higher than the high case in the study
- The results are robust and provide a very solid base case to launch into the next stage
- Opportunities to significantly increase Co and Ni recoveries with alternative simple flowsheets

MTJV Sensitivity Analysis NPV A\$m



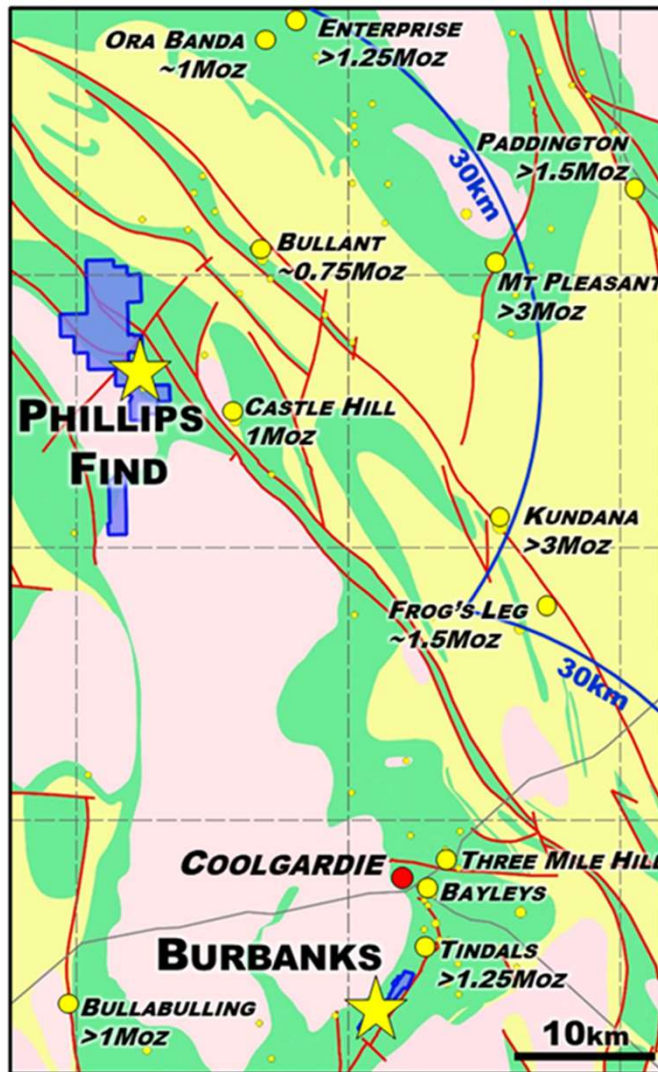
<sup>1</sup> Refer to ASX Announcement 6/10/17 for full details of the Scoping Study

# 2018 Pre Feasibility Study

- Tenders invited from top tier engineering houses
- Optimise flowsheet for maximum recovery
  - Scoping Study  $\text{SO}_2$  preferred reagent
  - Addition of  $\text{H}_2\text{SO}_4$  acid to be tested
  - Other flow sheet options
- Mine Plan optioneering
  - Maximise in-pit tailings
  - Optimise throughput rate
  - Value driven cut off strategy
- Future strategic partners can “choose their own adventure”



# Coolgardie Gold Projects



- Multi-million ounce gold camps within 30km radius
- Over 420,000 oz Au mined since 1885
- Strategic review identifies high priority targets:
  - Main Lode Extensions - **Brownfields** RC
  - Kangaroo Hills - RC to follow up AC results
  - Burbanks North - AC to extend oxide
  - Phillips Find Truth - **Greenfields** AC
- Drilling campaigns planned throughout 2018



AC = Air Core Drilling – economic first pass drilling, limited to softer near surface weathered rocks, targeting oxide mineralisation or to identify pathways to deeper mineralisation.

RC = Reverse Circulation Drilling – high quality samples, deeper capability

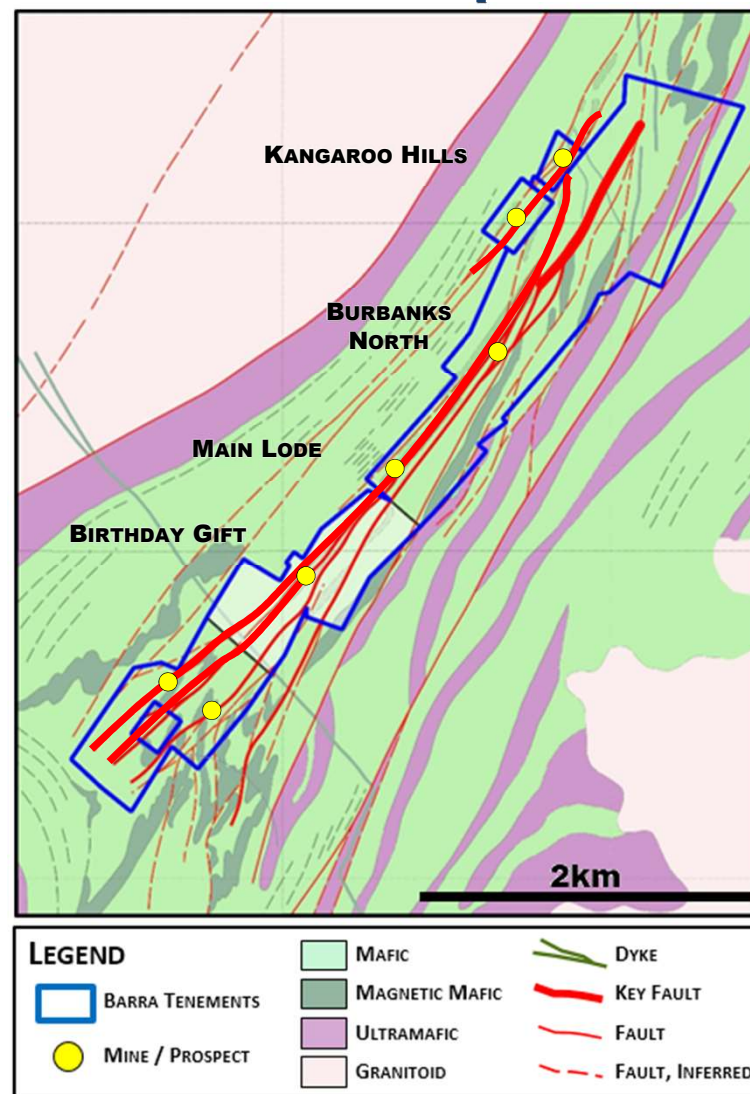
# Burbanks - Birthday Gift Reacquired

- Birthday Gift produced at 27.4g/t average, one of the richest goldmines in WA.
- Nov 2017 re-acquisition of Birthday Gift gives Barra 100% ownership of entire Burbanks Gold Project
- Birthday Gift comes with JORC 2012 Resources and established underground development

|                    | Category  | Tonnes  | Au g/t | Au Oz  |
|--------------------|-----------|---------|--------|--------|
| Christmas Open Pit | Indicated | 5,700   | 6.2    | 1,100  |
|                    | Inferred  | 4,000   | 7.8    | 1,050  |
| Birthday Gift U/G  | Indicated | 180,000 | 6.0    | 34,750 |
|                    | Inferred  | 325,000 | 5.6    | 58,500 |
|                    | Total     | 514,700 | 5.7    | 95,400 |



Source: ASX:KDR 2016 Annual Report



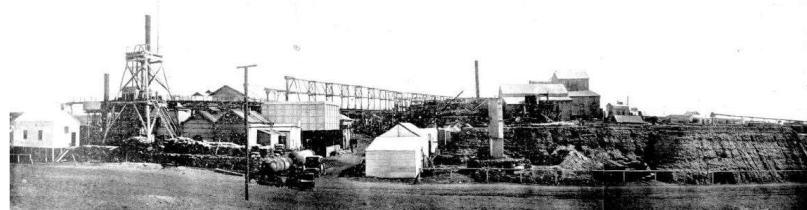
# Burbanks - Main Lode Interrupted

- 85,900 Oz Au mined 1885-1913
- Main Lode mining interrupted prematurely with outbreak of WW1
- 1940s WMC Level 7 back sampling
  - 160m @ 16.1g/t average width 0.4m
  - *Never mined*
- Mining at Birthday Gift and Phillips Find has since been for opportunistic cash flow (e.g. GFC)
- Barra is now well funded and strategically informed to systematically explore these projects



(F. R. Dawson, photo.)

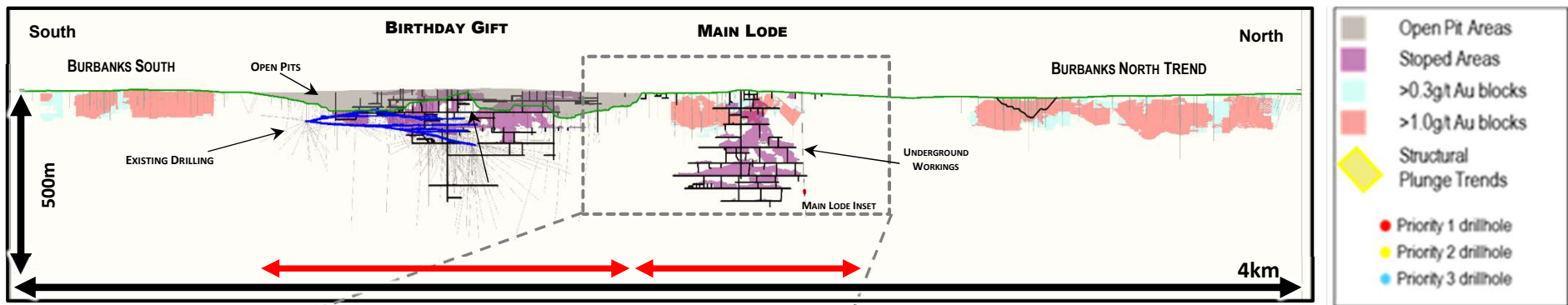
GROUP OF MINERS, BURBANKS MAIN LODE GOLD MINE.



(F. Morton, Photo.)

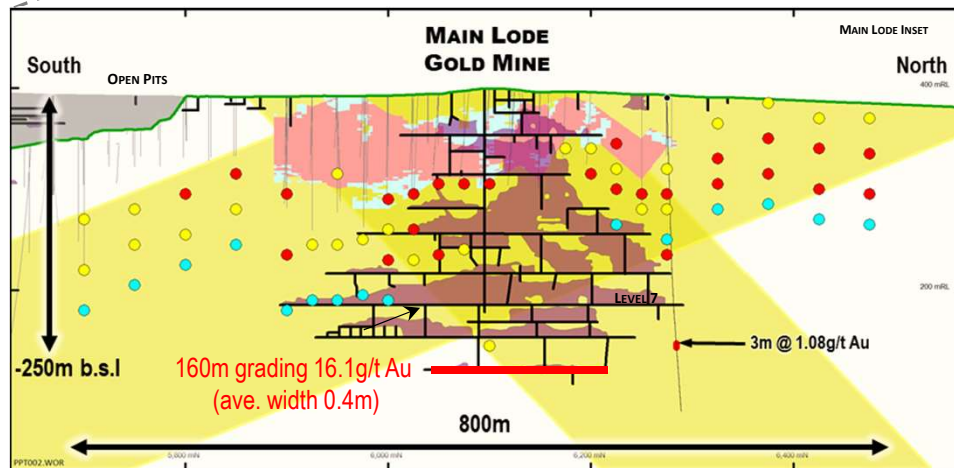
THE BURBANKS MAIN LODE GOLD MINE.

# Burbanks - Reawakening the Main Lode



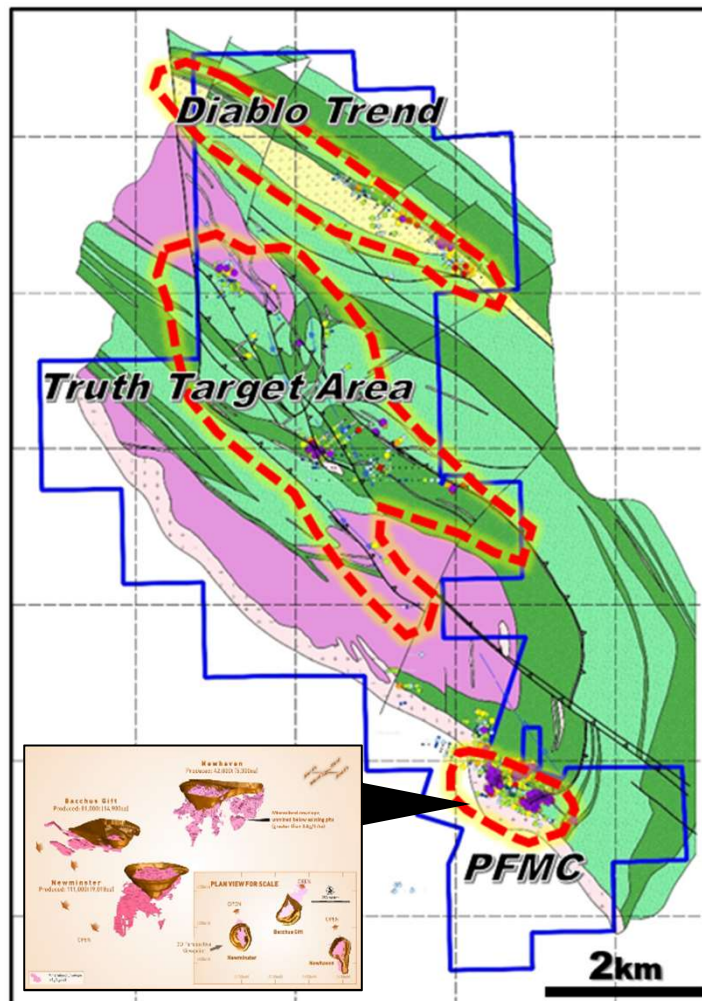
Historical Production 328,276 Oz  
Mineral Resource 95,400 Oz

Historical Production 85,900 Oz



- 2017 shallow RC results:
  - 11.0m @ 5.70g/t Au from 44m
  - 5.0m @ 9.62g/t Au from 33m
  - 5.0m @ 8.65g/t Au from 37m
  - 5.0m @ 3.70g/t Au from 44m
  - 5.0m @ 3.29g/t Au from 82m
  - 4.0m @ 4.26g/t Au from 27m
  - 3.0m @ 11.66g/t Au from 66m, and
  - 3.0m @ 6.48g/t Au from 47m
- 4000m deeper RC drilling to commence in Q2 2018

# Phillips Find – Greenfields Potential

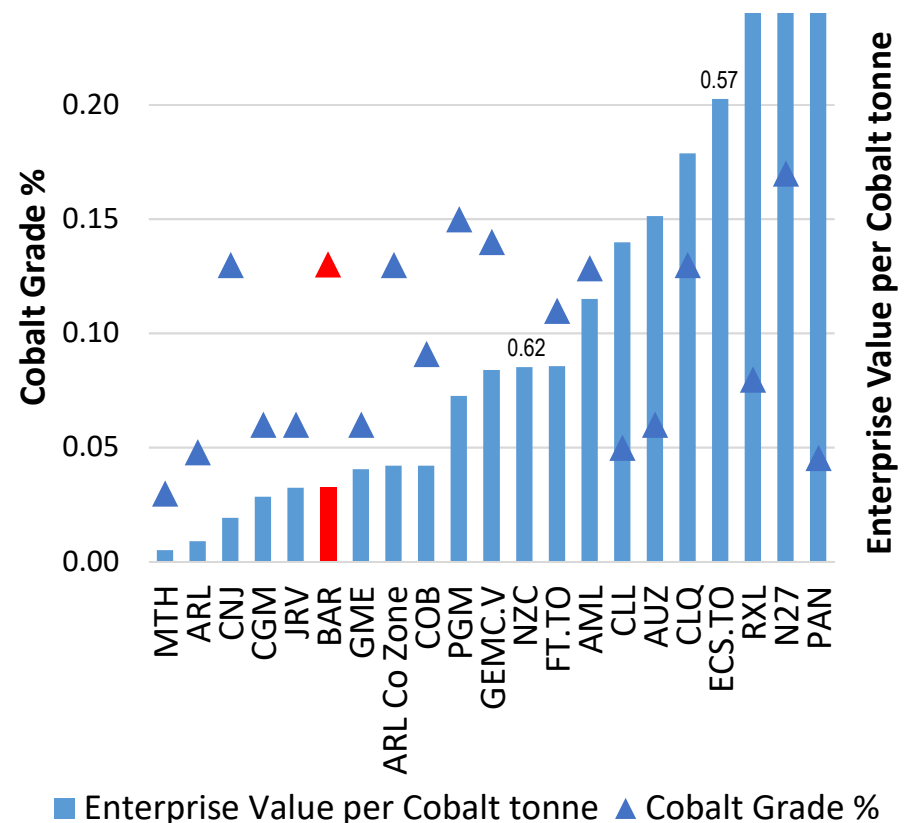


- Successful mining campaigns in 3 open pits from 1995-2015 extracted 33,000 oz Au from Phillips Find Mining Centre (PFMC)
- Tenement package largely at an early stage of exploration away from PFMC
- Structural mapping identifies 8 stacked thrusts over a 6km strike length at Truth
- New multi-element auger geochemical sampling identifies targets at Diabolo
- PFMC underground potential poorly tested

# Value Proposition

- Mt Thirsty is a real high grade project positioned at the steep part of the project development curve
- Scoping study capital estimate A\$212 M very affordable compared to HPAL alternative
- News flow planned throughout 2018
  - Regular exciting gold drilling results
  - Mt Thirsty PFS progression
  - Further EV and cobalt market development
  - Mt Thirsty strategic partnering opportunities
- Great value investing

Listed Cobalt Mine Developers<sup>1</sup>



<sup>1</sup> ASX, TSX Company Announcements, BAR Analysis

<sup>2</sup>  $Ev / Co t = (Share Price \times Shares - Cash + Debt) / Resource tonnes \times Cobalt Grade$



# Disclaimer and CP Statements

## **Competent Persons Statement**

*The information in this report which relates to Exploration Targets, Exploration Results and Mineral Resources for the Phillips Find and Burbanks Projects is based on and fairly represents information compiled by Mr Gary Harvey who is a Member of the Australian Institute of Geoscientists and a full-time employee of Barra Resources Ltd. Mr Harvey has sufficient experience which is relevant to the style of mineralisation and type of deposit 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” (the JORC Code). Mr Harvey 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 which relates to the Mt Thirsty Oxide Deposit Mineral Resource is based on information compiled by Mr Alan Miller, a Competent Person and former full time employee of Golder Associates Pty Ltd, who is a member of the Australasian Institute of Mining and Metallurgy. Mr Miller has sufficient experience which is relevant to the style of mineralisation and type of deposit 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” (the JORC Code). Mr Miller consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.*

## **Forward Looking Statements Disclaimer**

*This report contains forward-looking statements that involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this report. No obligation is assumed to update forward-looking statements if these beliefs, opinions and estimates should change or to reflect other future developments.*

