



**FAST TRACKING  
DEVELOPMENT  
EXPLORATION**

**GHANA – WEST AFRICA**

**ASX / TSX: CDV**

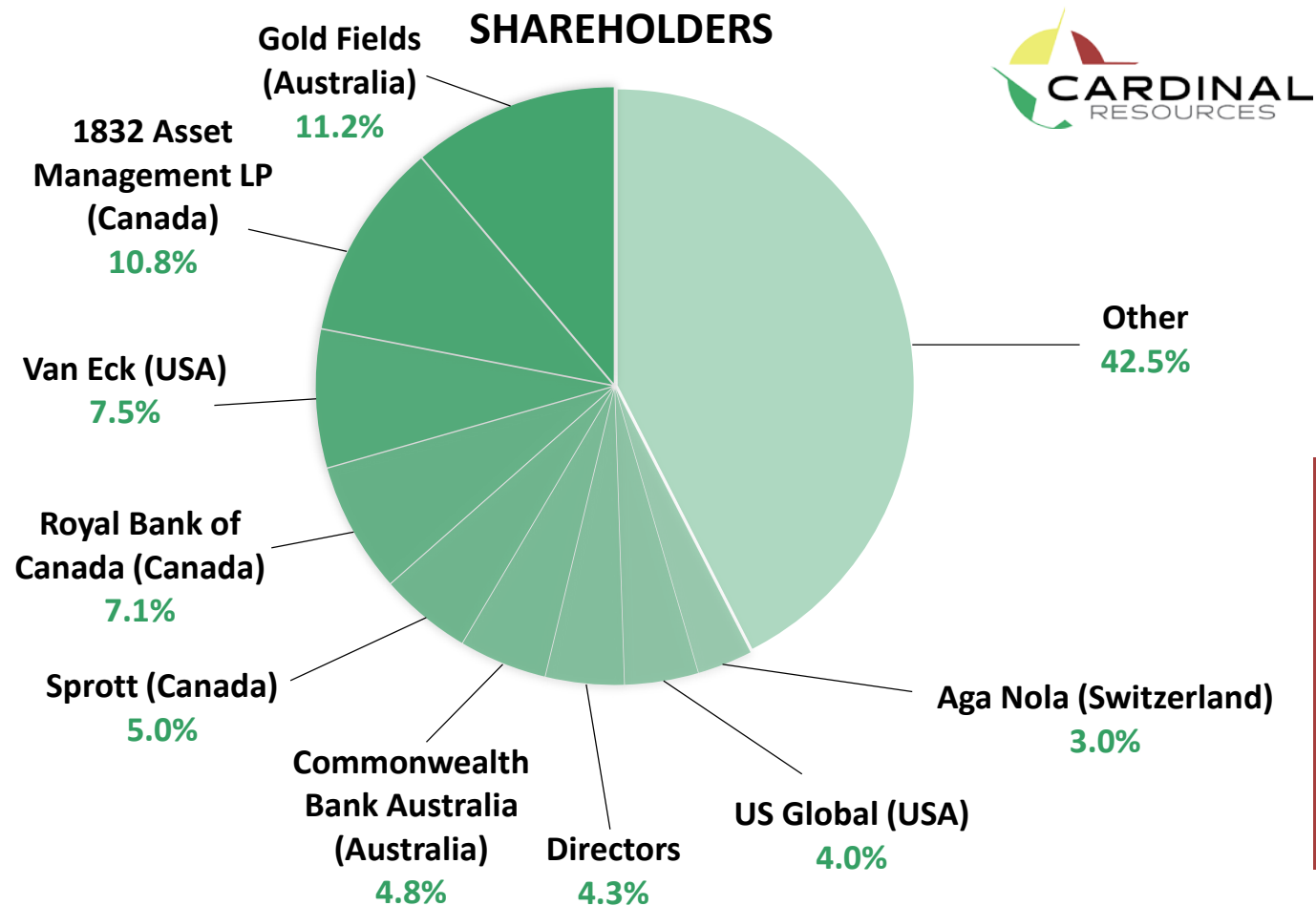
Investor Presentation | September 2018

Capital Structure	ASX TSX
Current Share Price <sup>1</sup>	\$0.43
Shares on Issue <sup>2</sup>	374 M
Listed Options on Issue <sup>3,4</sup>	114 M
Market Capitalisation	\$161 M
Enterprise Value	\$123 M
Cash <sup>5</sup>	\$38 M

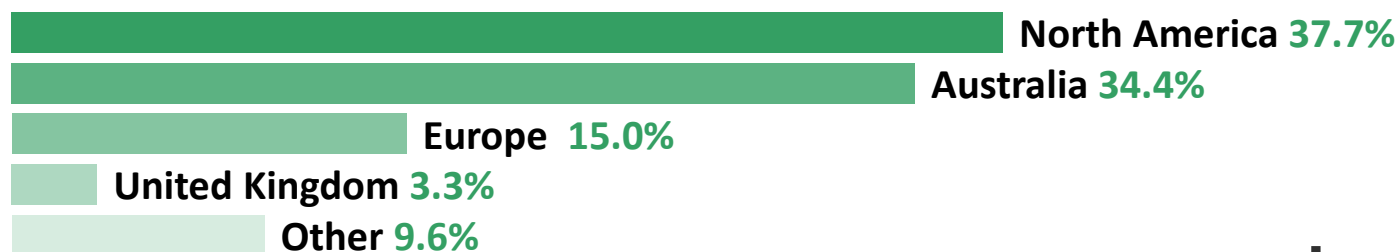
1. As at 27 August 2018
2. 60 Class C Performance shares on issue. If converted, will total 6 million ordinary shares if certain milestones are achieved. Details of conversion milestones are provided in Cardinal's Annual Report
3. Exercise price of \$0.15, Expiry date 30 Sept 2019
4. Additional 35,294,200 unlisted options on issue with various expiry dates and exercise prices
5. Cash at 27 August 2018

### Expert Coverage Average A\$1.17ps

Beacon Securities	(Canada)
BMO Capital Markets	(Canada)
Clarus Securities	(Canada)
Cormark Securities	(Canada)
Hartleys	(Australia)
RFC Ambrian	(United Kingdom)



### SHAREHOLDERS BY GEOGRAPHIC LOCATION





# BOARD & MANAGEMENT

## Non - Executive Chairman

**KEVIN TOMLINSON**

Investment Banker & Geologist

### Former

- Director Centamin plc
- Director Orbis Gold
- Chairman Medusa Mining

### Current

- Non - Exec Chair Xanadu Mines
- Non - Exec Director Samco Gold
- Non - Exec Chair Plymouth Minerals

## CEO - MD

**ARCHIE KOIMTSIDIS**

Project Developer

### Former

- Deputy Country Manager Ghana at PMI Gold (now Asanko Gold)
- Ghanaian resident

## Non - Executive Director

**JACQUES McMULLEN**

Professional Engineer

### Former

- Senior VP Special Projects and Technical Services for Barrick Gold
- Chairman Orvana Minerals

### Current

- Non - Exec Director NewCastle Gold and Excellon Resources

## Executive Director

**MALIK EASAH**

Alluvial Gold Miner

### Former

- Public Relations Officer Ghana at PMI Gold (now Asanko Gold)
- Ghanaian citizen

## Non - Executive Director

**MICHELE MUSCILLO**

Corporate Lawyer

### Former

- Non - Exec Director Orbis Gold (now SEMAFO)

### Current

- Non - Exec Director Aeris Resources
- Non - Exec Director Xanadu Mines

## Project Manager

**BRUCE LILFORD**

Metallurgist

### Former

- Senior Study Manager at Amec Foster Wheeler (now Wood Group)

## Non - Executive Director

**ROBERT SCHAFER**

Geologist / Mineral Economist

### Former

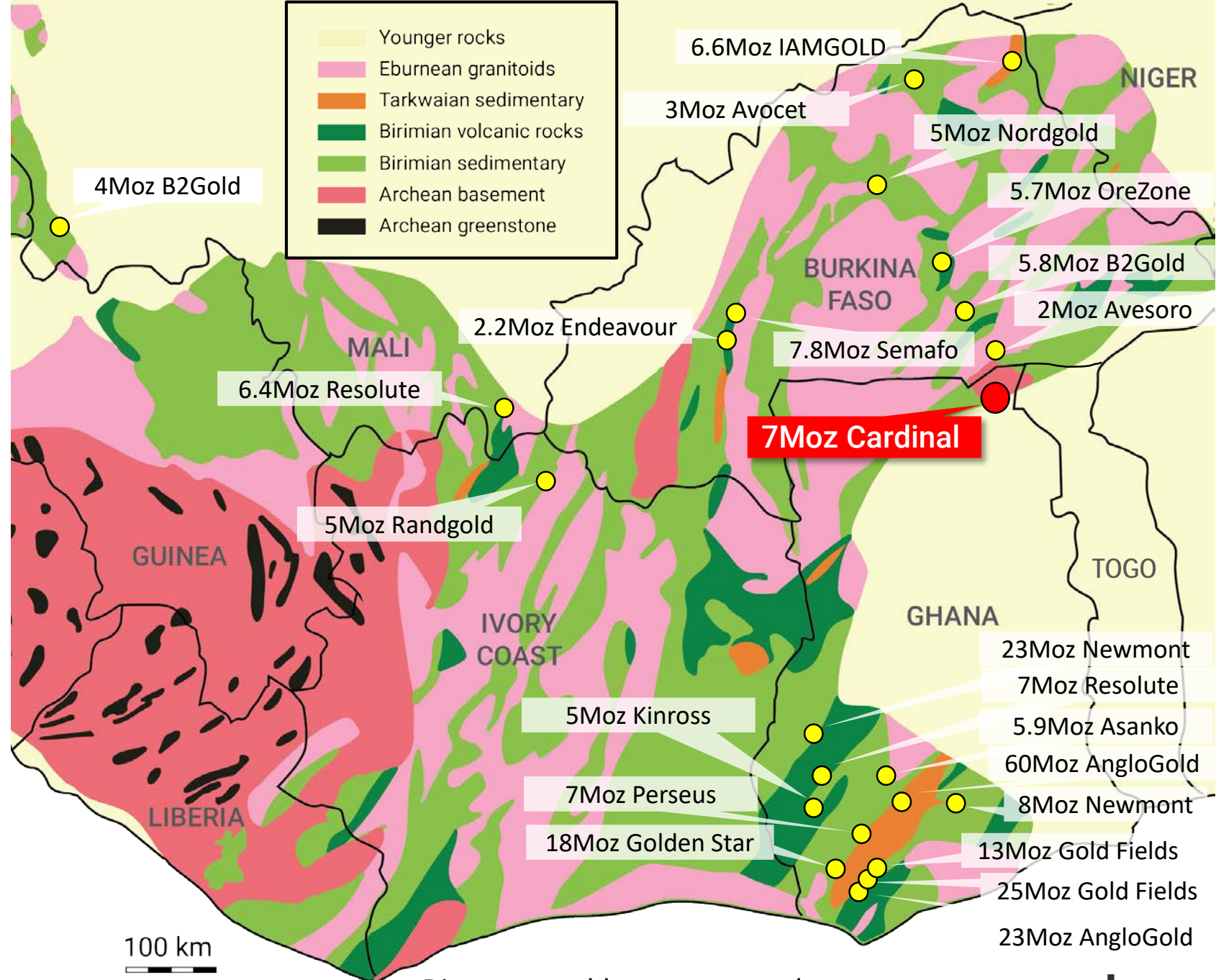
- Executive, manager and field geologist - Billiton, BHP, Kinross and Hunter Dickinson
- Director Int'l Royalty Corp

### Current

- Past President, PDAC & CIM
- Director Canadian Mining Hall of Fame, Director USA National Mining Hall of Fame

# MINE SCALE REGIONAL GREENSTONES:

- Namdini is located within the Birimian terrane of Northeastern Ghana which is 2.1-2.2 billion years old
- Unconformable Volta Basin sediments obscure the great majority of Birimian terrane in eastern and central Ghana



# NEW FRONTIER: NORTHERN GHANA

- **Paleoproterozoic Granite-Greenstone Belt**
  - Underexplored compared to Southern Ghana
- **Well-Established Local Infrastructure**
  - **30km** – National HV hydro grid power
  - **7km** – Continuous water supply – White Volta River
  - **25km** – Sealed national highway
- **Excellent Community Relationships**
  - Facilitates rapid development objective
- **Open Savannah Grassland**
  - Low population density
- **Mining License Granted for 15 years renewable**



## PEA FINANCIALS

- Study Consultants
  - Golder Associates
  - Lycopodium
  - Knight Piesold
  - SGS
  - Oreway Mineral Consultants
  - MPR Geological Consultants, Mintek and Suntech
  - 4.5, 7.0 and 9.5 Mtpa production scenarios evaluated

KEY ECONOMIC RESULTS	UNIT	4.5 Mtpa	7.0 Mtpa	9.5 Mtpa
Development Capital Cost (incl. owners cost)	US\$ M	275	349	426
All in Sustaining Costs (AISC) <sup>1</sup>	US\$ / oz	794	736	701
Total Project Payback	years	4.0	3.5	3.3
Post-Tax NPV (@ 5% discount) <sup>2</sup>	US\$ M	445	574	649
Post-Tax IRR	%	31%	39%	44%

### Table Notes:

<sup>1</sup> Cash Costs + Royalties + Levies + Life Of Mine Sustaining Capital Costs (World Gold Council Standard)

<sup>2</sup> Royalties calculated at a flat rate of 5% - subject to negotiation and corporate tax rate of 35% was used subject to negotiation

# PEA PRODUCTION SUMMARY

- Higher-grade stage 1 pit yielding ~1 Moz gold with 0.9 strip ratio
- Life of mine strip ratio of 1.2 : 1
- Mineralisation 1.1 km long and 350m wide
- >10,000 oz ounce per vertical metre at 0.5 g/t cut-off
- New conventional gold plant inclusive of conventional flotation and regrind to CIL

## PEA RESOURCE DATA – SEPTEMBER 2017

**Indicated Mineral Resource**

91 Mt @ 1.1 g/t for 3.3 Moz (81%) within Life of Mine Pit at 0.5 g/t cut off

**Inferred Mineral Resource**

22 Mt @ 1.1 g/t for 0.8 Moz (19%) within Life of Mine Pit at 0.5 g/t cut off

KEY ESTIMATED PRODUCTION RESULTS	UNIT	4.5 Mtpa	7.0 Mtpa	9.5 Mtpa
Gold Price	US\$ / oz		1,300	
Gold Milled (Average for full production years) <sup>1</sup>	(oz / yr)	159,000	211,000	333,000
Gold Produced (Life of Mine)	(oz)	3,524,000	3,506,000	3,521,000
Gold Head Grade (Life of Mine)	g/t Au		1.13	
Gold Recovery (Oxide / Fresh)	%		90 / 86	
Resource Mined (0.5 g/t cut-off grade)	Tonnes		113,000,000	
Strip Ratio (Life of Mine)	W:O		1.2 : 1	
Mine Life (Inc ramp-up and mine closure)	years	27	19	14
Development Capital Cost (Including owners cost and 15% contingencies)	US\$ M	275	349	426
Life of Mine Sustaining Capital Cost (Including reclamation)	US\$ M	172	160	154

### Table Notes:

<sup>1</sup> Excludes up to 3 years of ramp-up and mine closure (Years where full production is not realised)



# NAMDINI

## RESOURCE UPDATE

### MARCH 2018

- 6.5 Moz Au contained in 180 Mt at 1.13 g/t Au at a cut-off of 0.5 g/t Au Indicated Mineral Resource Category
- 0.5 Moz Au contained in 13 Mt at 1.2g/t Au at a cut-off of 0.5 g/t Au Inferred Mineral Resource Category
- Mineral Resource update March 2018 - Multiple Indicator Kriging methodology used
- Remains open along strike and down dip

#### INDICATED RESOURCE

Cut off (g/t Au)	Tonnes (Mt)	Grade (g/t Au)	Metal (Moz Au)
0.4	210	1.0	6.9
<b>0.5</b>	<b>180</b>	<b>1.1</b>	<b>6.5</b>
0.6	152	1.2	6.0

#### INFERRED RESOURCE

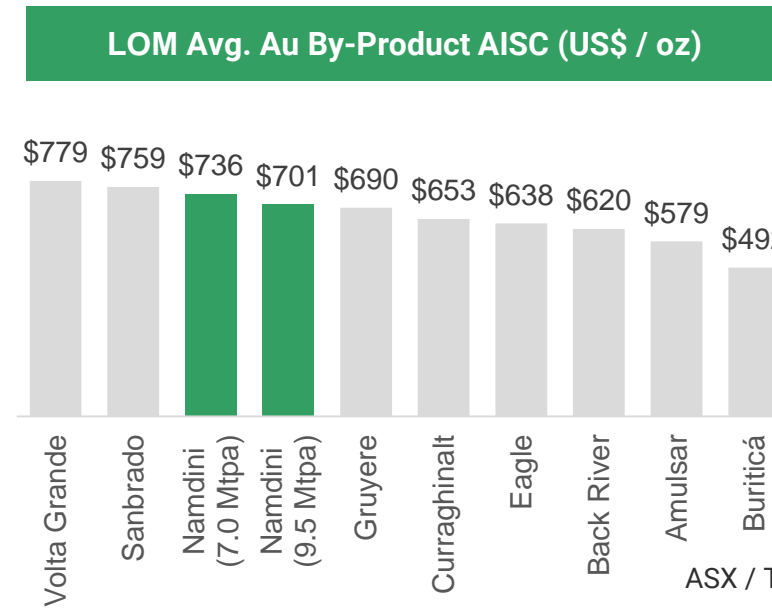
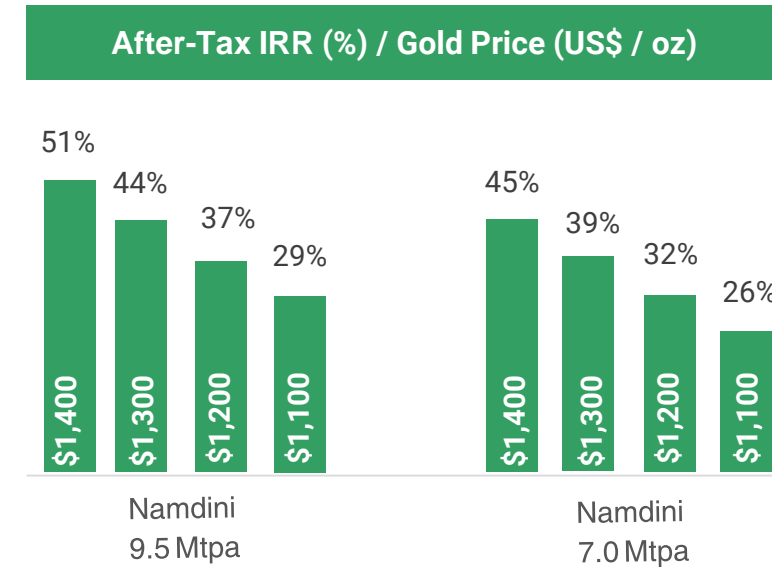
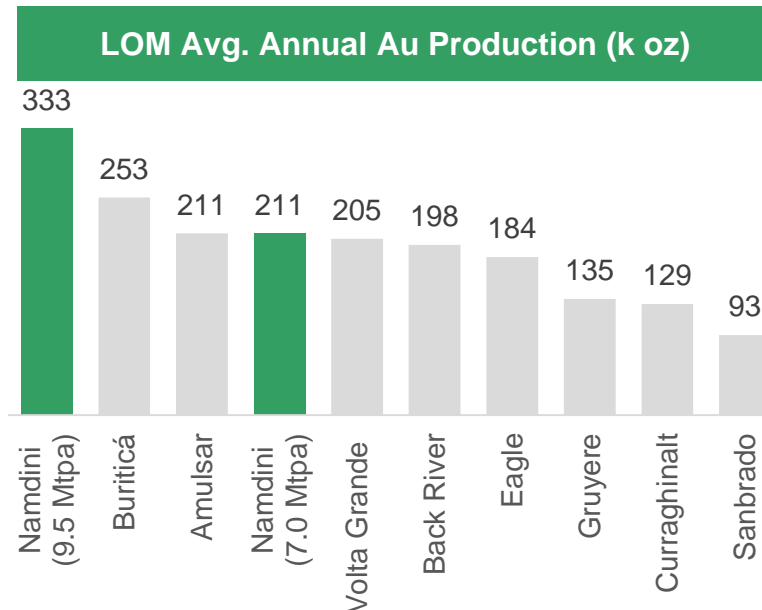
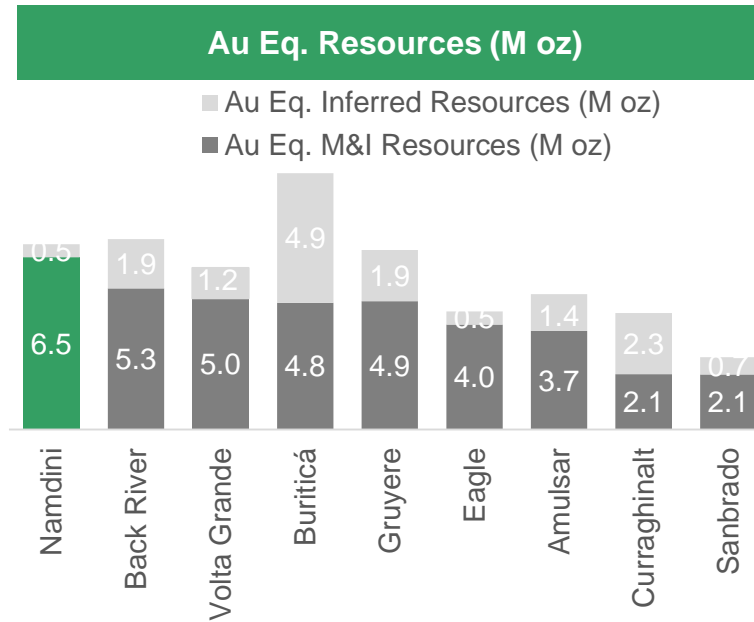
Cut off (g/t Au)	Tonnes (Mt)	Grade (g/t Au)	Metal (Moz Au)
0.4	15	1.1	0.6
<b>0.5</b>	<b>13</b>	<b>1.2</b>	<b>0.5</b>
0.6	11	1.4	0.5

This is in accordance with the guidelines of Reasonable Prospects for Eventual Economic Extraction ("RPEEE") per the Canadian Institute of Mining, Metallurgy and Petroleum "CIM Definition Standards for Mineral Resources and Mineral Reserves" (CIM, 2014) and the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code 2012).



# PEER COMPARISON OPERATING

- Large resource
- High post tax IRR
- High oz per annum



**Source:** FactSet and company disclosure.  
**Notes:** Operating figures based on latest published technical reports. Resources are inclusive of reserves.



## FLAGSHIP NAMDINI PROJECT

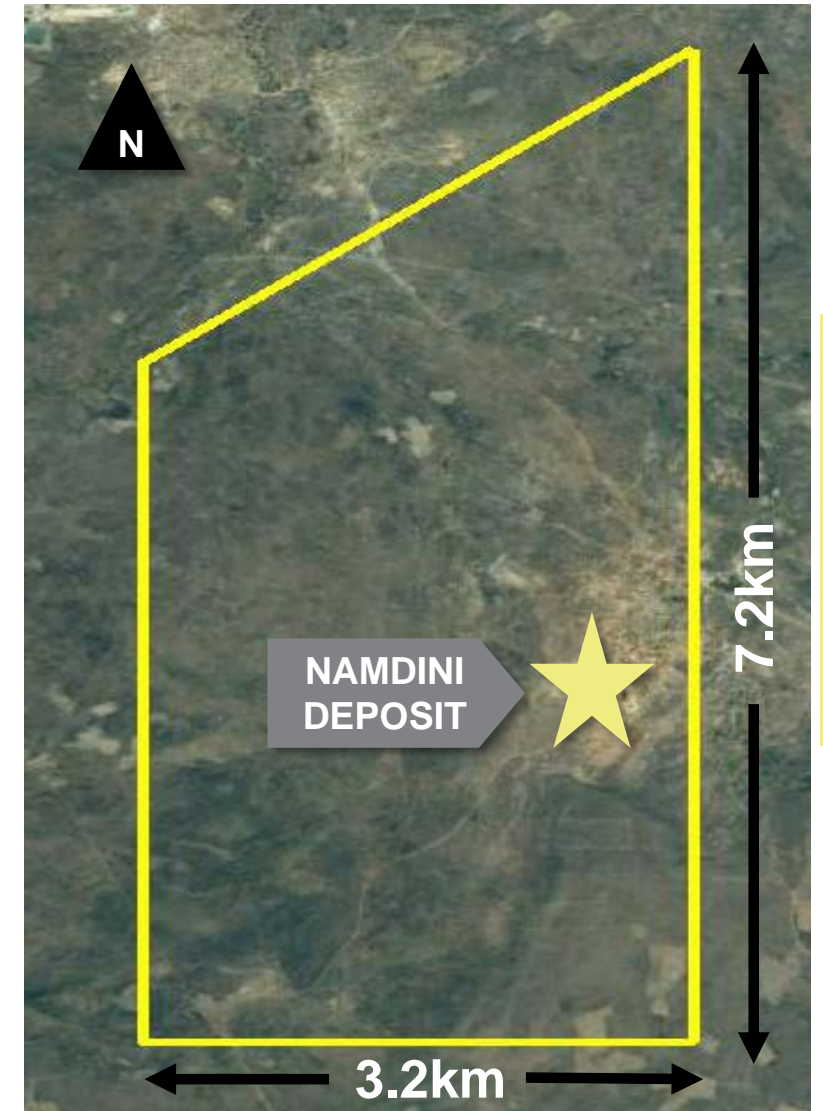
### GROWING TIER-ONE ASSET

6.5 Moz Au Indicated at 1.1 g/t

0.5 Moz Au Inferred at 1.2 g/t

Cut off grade – 0.5 g/t Au

- **Large scale single open pit**
  - Low strip ratio (Life of Mine 1.2 : 1)
  - 300m – 400m anticipated pit depth
- **Resource**
  - Open at depth and along strike
  - Extension and infill drilling ongoing
- **Metallurgy**
  - Currently 86% overall recovery with optimisation ongoing
  - Conventional crush-grind-float-regrind-CIL
- **Mining License granted**
  - 15 years renewable
- **Environmental permitting in progress**
  - EIA Scoping Report submitted to EPA



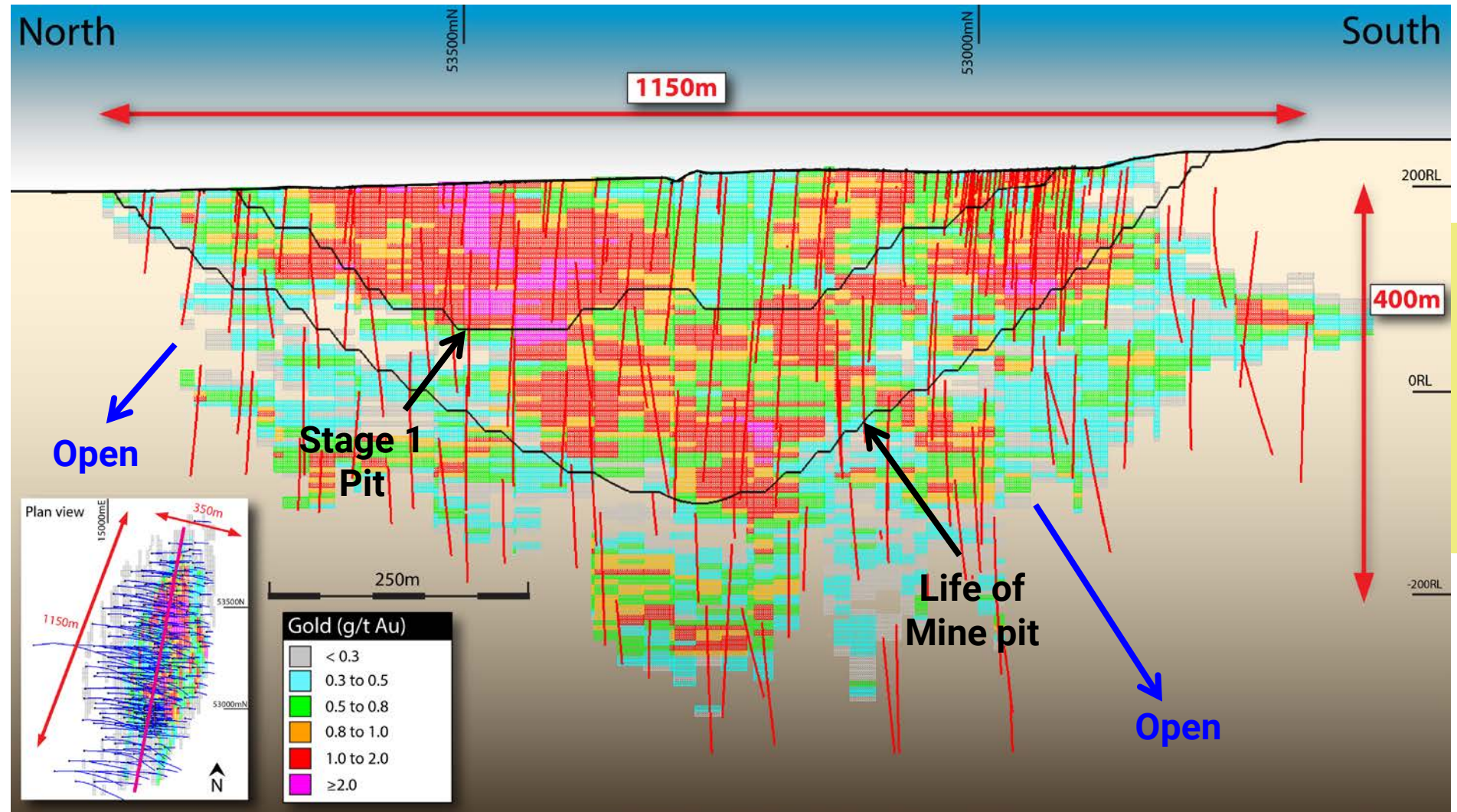
Namdini Mining Licence Boundary (yellow)



## Long Section – Grade Distribution

# POTENTIAL PIT DESIGNS

- Mineralisation 1,150m long
- Proposed stage 1 pit
  - Low strip ratio (0.9 : 1)
  - Contains ~1 Moz
  - Concentration of higher grade gold from surface
  - Potential to accelerate capex payback
- Proposed Life of Mine Pit
  - Low strip ratio (1.2 : 1)

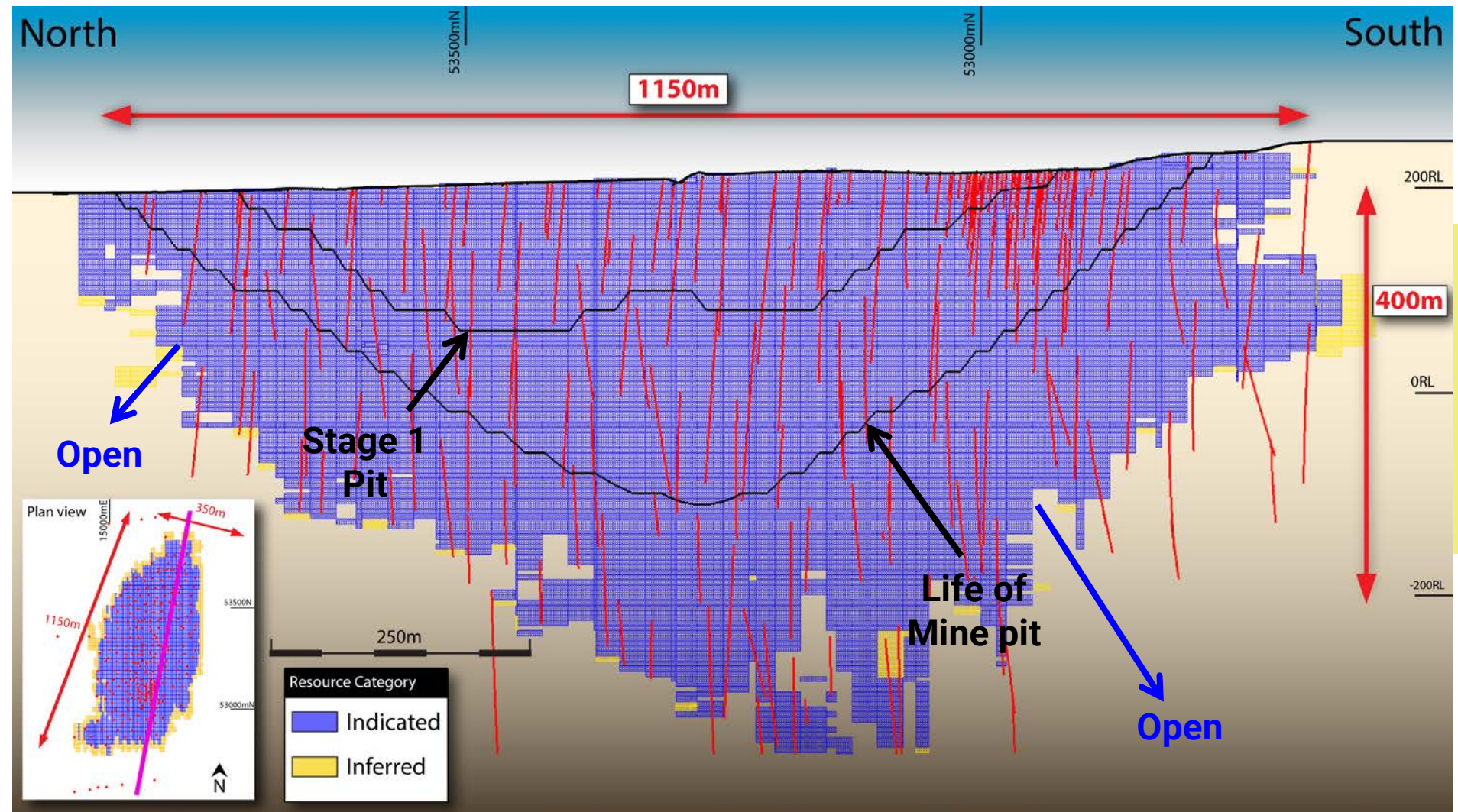




## Long Section – Indicated & Inferred

# RESOURCE UPGRADE

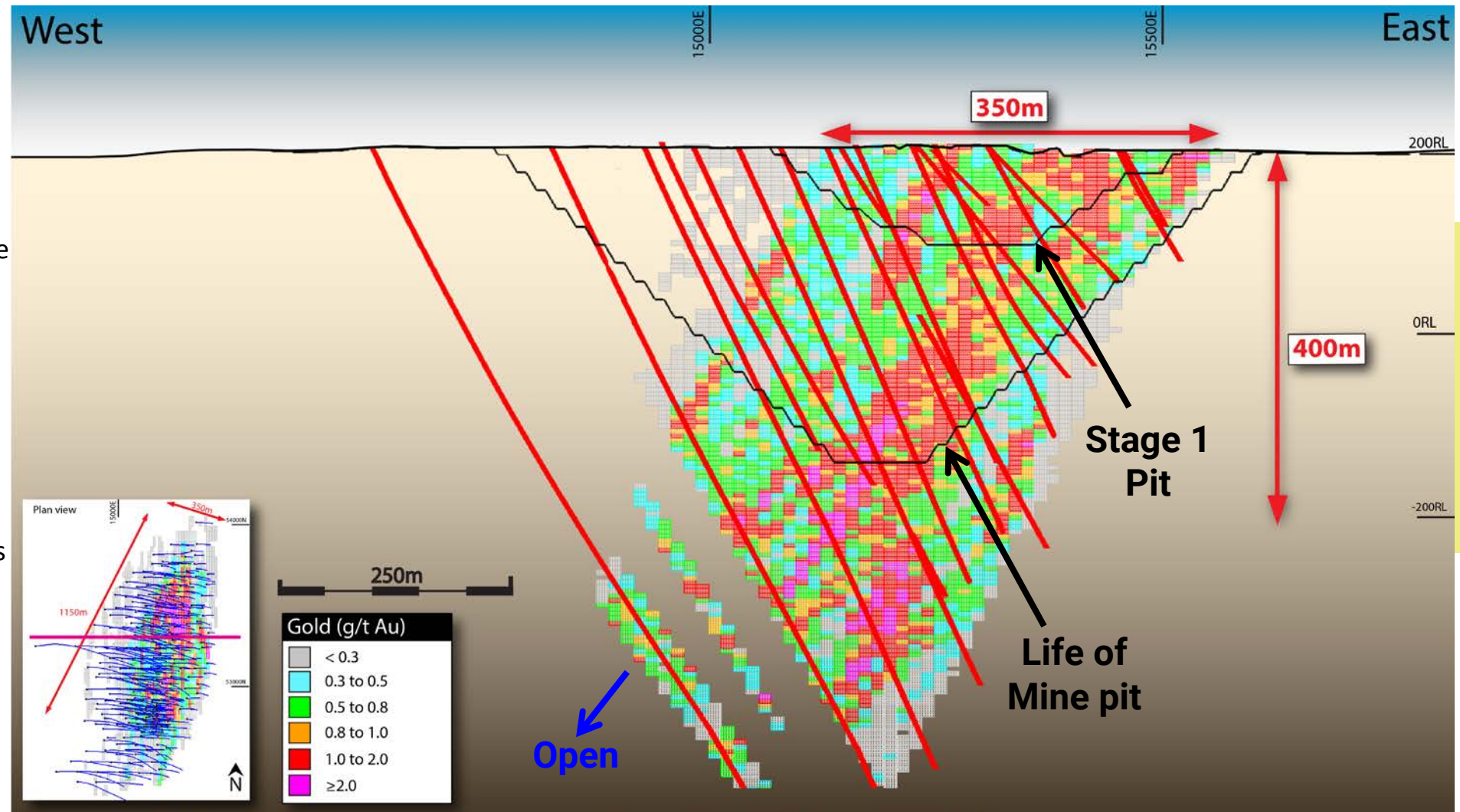
- Resource
  - 6.5 Moz Indicated Resource
  - 0.5 Moz Inferred Resource
- Q1 2018 - Updated Mineral Resource Estimate increased by 50% in Indicated category
- Well defined down to 400m vertical depth
- Drilled to 650m vertical depth and remains open



## Cross Section – Grade Distribution

# RESOURCE DRILLING

- 118,864 metres drilled since first discovery hole
- 64,423m DD HQ diameter
- 41,170m RC 5.5 inch bit
- 13,271m RC Grade Control
- Mineralisation 350 metres wide
- Deposit open and continues at depth

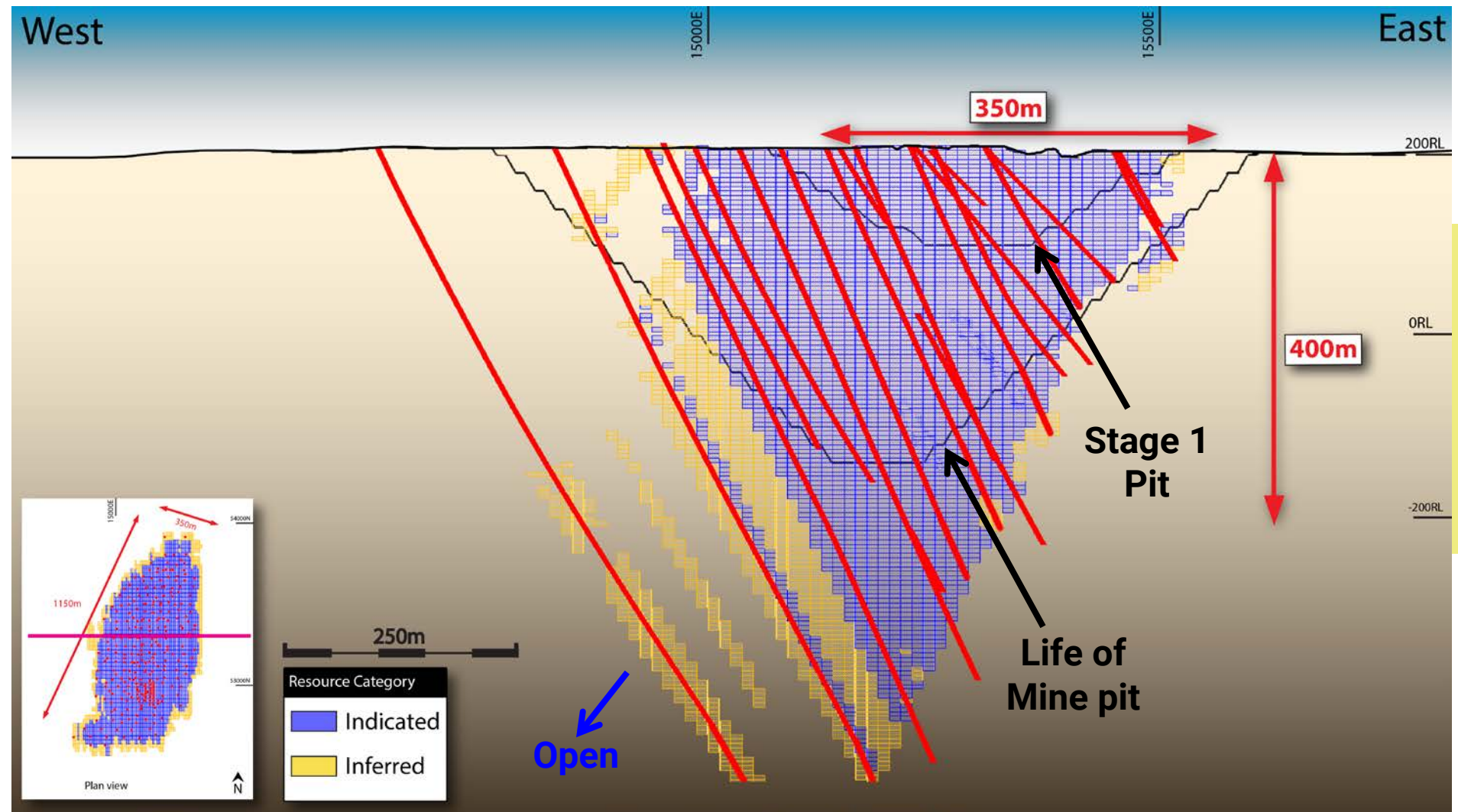




## Cross Section – Indicated & Inferred

# RESOURCE DRILLING

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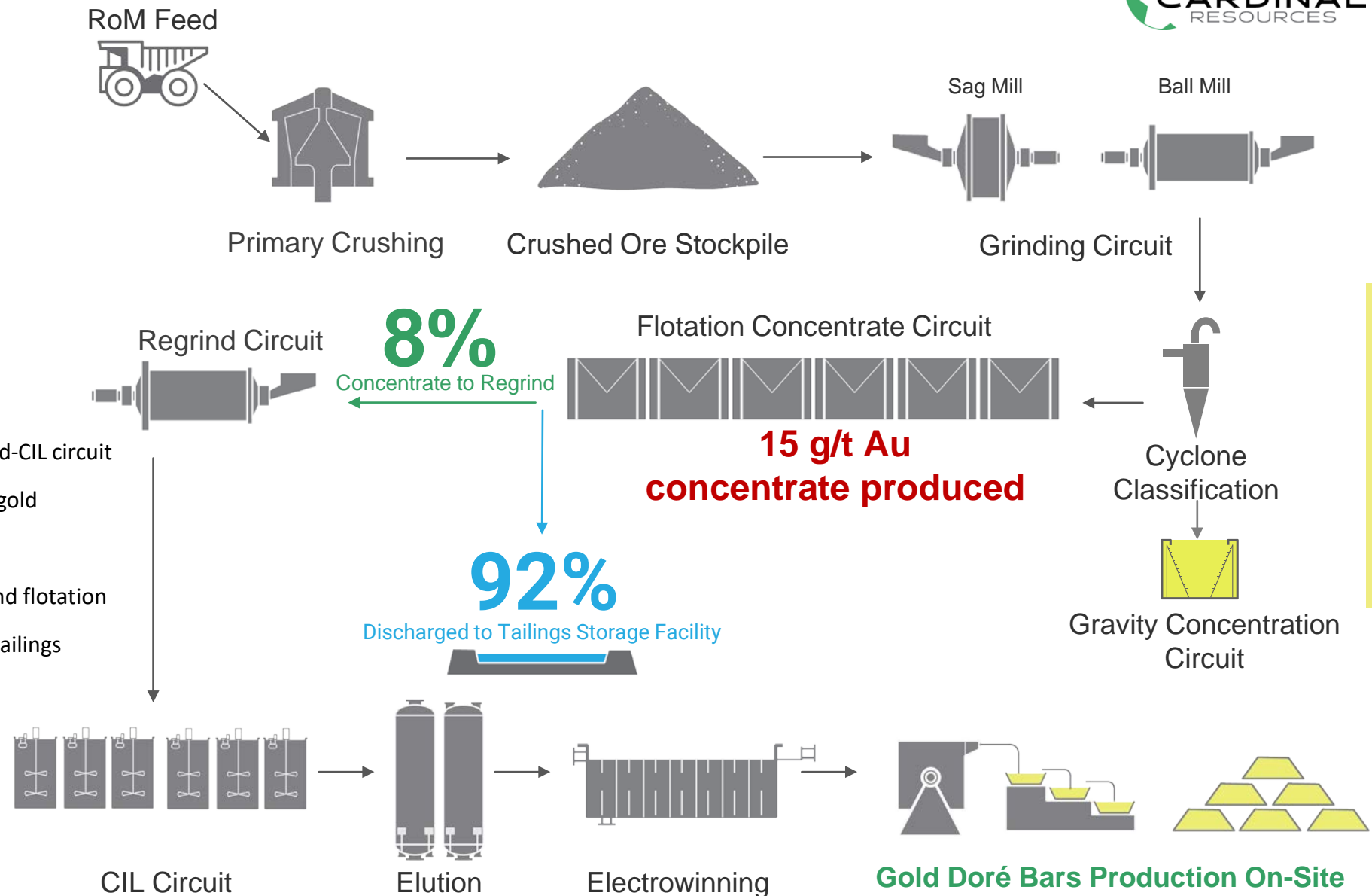




# CONCEPTUAL PROCESS FLOWSHEET

## Lower processing costs:

- Conventional crush-grind-float-regrind-CIL circuit
- Gravity gold circuit designed for free gold
- 15 g/t Au concentrate produced
- Processing 8% of the RoM feed beyond flotation
- Discharging 92% of the RoM feed to tailings
- Gold doré bars produced on-site



Highly prospective land  
package totals ~900km<sup>2</sup>  
and provides significant  
exploration upside

## DISTRICT EXPLORATION





# DISTRICT INITIATIVES

## ▪ Bongo

- Auger soil drilling planned and geophysics targets being evaluated

## ▪ Kungongo

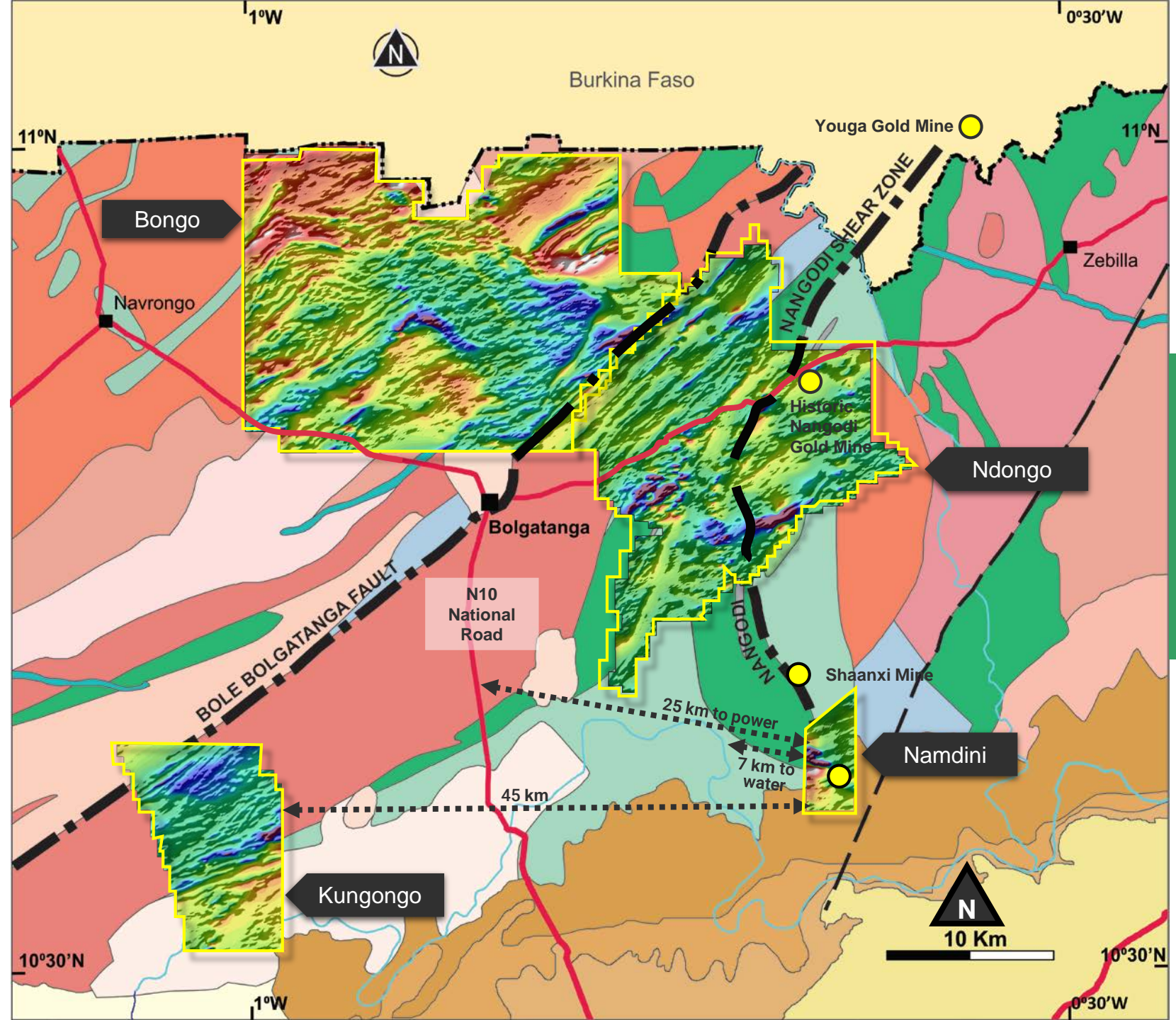
- 4.5 km strike length of being evaluated
- Positive assay results returned from first pass drilling
- 3,000 metre drill plan to commence Q4 2018

## ▪ Ndongo

- 6 large scale targets identified with initial focus near major regional shear
- Recent exploration identified a discovery at Ndongo East

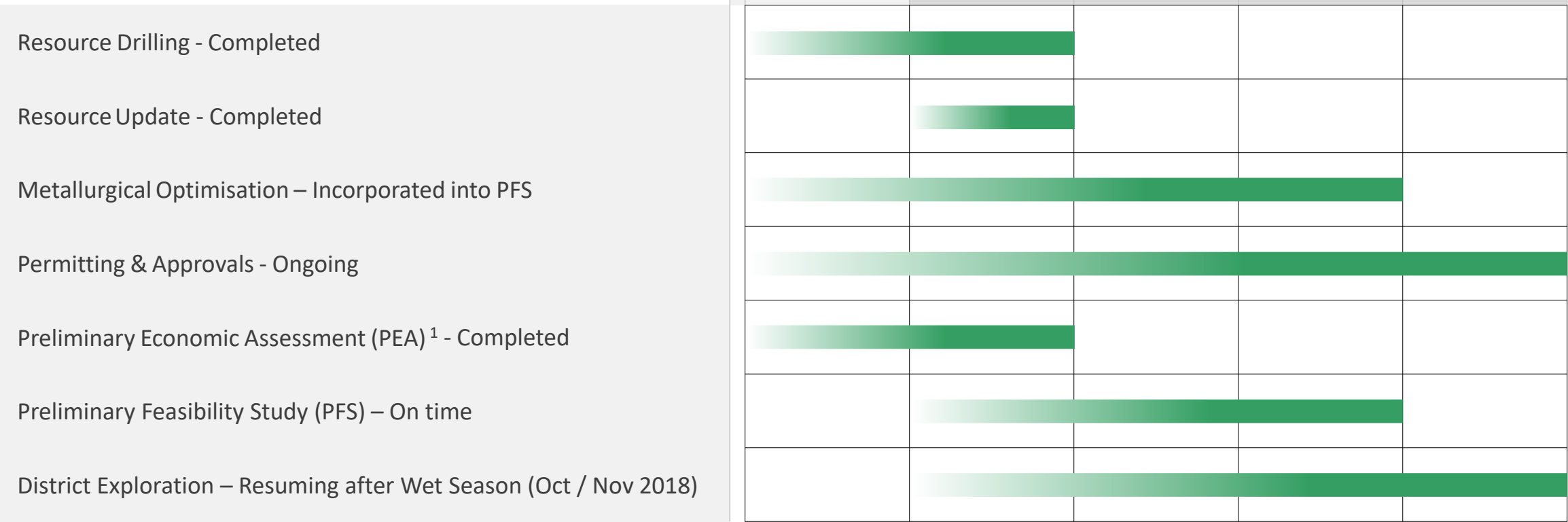
## ▪ Drill targets being generated

- Gravity, magnetics and IP being used to identify and refine targets





# TIMELINE



DISTRICT EXPLORATION

1. The Q1 2018 PEA evaluated 3 throughput options of 4.5, 7.0 and 9.5Mtpa.

# THANK YOU

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# APPENDIX: Competent Person's Statement & Disclaimer

## QUALIFIED PERSON - COMPETENT PERSON'S STATEMENT

**Mr. Marc LeVier** of K. Marc LeVier & Associates, Inc., is a 'qualified person' as defined by National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI43-101"). Mr. LeVier holds a Qualified Professional status from the Mining and Metallurgical Society of America.

**Mr Nicolas Johnson**, MAIG, who is an employee of MPR Geological Consultants Pty Ltd, has compiled the information relating to the Mineral Resource in Resource Summary Table (Table 1) and the attachment in Appendix 1, Section 3 of JORC Code 2012 Edition Table 1 which relate to Mineral Resources of the Namdini Project for the press release dated 2 February 2018. Mr Johnson has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person, as defined in the JORC Code and Qualified Person as defined by the NI43-101 instrument. Mr Johnson has no economic, financial or pecuniary interest in the company.

**Mr. Richard Bray** is a Registered Professional Geologist with the Australian Institute of Geoscientists. Mr Bray has compiled the information in this presentation that relates to the Exploration Results and Mineral Resources. Mr. Bray has more than 5 years' experience relevant to the styles of mineralisation and type of deposit under consideration and to the activity which is 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" and as a Qualified Person as defined by the NI43-101 instrument. Mr. Bray is a fulltime employee of Cardinal Resources Limited and holds equity securities in the Company.

**Mr. Ekow Taylor** is a Chartered Professional Geologist with the Australasian Institute of Mining and Metallurgy. Mr Taylor has compiled the information in this presentation that relates to the Exploration Results and Mineral Resources. Mr. Taylor has more than 5 years' experience relevant to the styles of mineralisation and type of deposit under consideration and to the activity which is 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" and as a Qualified Person as defined by the NI43-101 instrument. Mr. Taylor is a fulltime employee of Cardinal Resources Limited and holds equity securities in the Company.

**Mr Glenn Turnbull**, a Competent Person who is a Chartered Professional Member of the Australasian Institute of Mining and Metallurgy and a full-time employee of Golder and Associates. Mr Turnbull has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the JORC Code 2012 and is a qualified person for the purposes of NI43-101. Mr Turnbull has no economic, financial or pecuniary interest in the company

## NO NEW INFORMATION

This Presentation contains information extracted from ASX and TSX market announcements reported in accordance with the JORC Code (2012) and NI 43-101 and available for viewing at [www.cardinalresources.com.au](http://www.cardinalresources.com.au)

Cardinal Resources Limited ("Cardinal" or the "Company") confirms that it is not aware of any new information or data that materially affects the information included in any original ASX market announcements carried out at the Company's projects and that all material assumptions and technical parameters underpinning the exploration activities and estimates of Mineral Resources in the relevant market announcements continue to apply and have not been materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

Please also refer to the Company's Annual and Quarterly Reports for further background information which are available on the Company's website.



# APPENDIX DISCLAIMER

This presentation contains “forward-looking statements”, within the meaning of Section 27A of the United States Securities Act of 1933, as amended and Section 21E of the United States Exchange Act of 1934, as amended and forward-looking information as defined under applicable Canadian securities legislation (collectively, “forward-looking statements”). These forward-looking statements relate to, among other things, the objectives, goals, strategies, beliefs, intentions, plans, estimates and outlook of Cardinal Resources. Ltd (“Cardinal Resources” or the “Company”). Forward-looking statements can generally be identified by the use of words such as “believe,” “anticipate,” “expect,” “intend,” “plan,” “goal,” “will,” “may,” “target,” “potential” and other similar expressions. In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances are forward-looking statements. Forward-looking statements are based on estimates and assumptions made by Cardinal Resources in light of its experience and perception of historical trends, current conditions and expected future developments, as well as other factors Cardinal Resources believes are appropriate in the circumstances. These estimates and assumptions are inherently subject to significant business, economic, competitive and other uncertainties and contingencies, many of which, with respect to future events, are subject to change. Although Cardinal Resources believes that the expectations reflected in such forward-looking statements are reasonable, undue reliance should not be placed on such statements.

In making the forward-looking statements in this presentation, Cardinal Resources has made several assumptions, including, but not limited to assumptions concerning: production costs; statements with respect to the future price of gold, the estimation of mineral reserves and resources, the realization of mineral reserve estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs and timing of the development of new deposits, success of exploration activities, permitting time lines, currency exchange rate fluctuations, requirements of additional capital, government regulation of mining operations, environmental risks, costs of closure of various operations and changes to the political stability or government regulation in the country in which Cardinal Resources operates.

Actual results may differ materially from those expressed or implied in the forward-looking statements contained in this presentation. Important factors that could cause actual results to differ materially from these expectations are discussed in greater detail under the heading “Risk Factors” in Cardinal Resource’s annual information form for the current year available on [www.sedar.com](http://www.sedar.com). When relying on forward-looking statements to make decisions with respect to Cardinal Resources, carefully consider these risk factors and other uncertainties and potential events. Cardinal Resources undertakes no obligation to update or revise any forward-looking statement, except as required by law.

Although Cardinal Resources has carefully prepared and verified the Mineral Resource figures presented herein, such figures are estimates, which are, in part, based on forward-looking information and no assurance can be given that the indicated level of gold will be produced. Estimated Mineral Resources may have to be recalculated based on actual production experience. Market price fluctuations of gold as well as increased production costs or reduced recovery rates and other factors may render the present Proven and Probable Mineral Reserves unprofitable to develop at a particular site or sites for periods of time.

This presentation includes information extracted from Cardinal Resources Limited (Cardinal) ASX announcement dated 5 February 2018 entitled “Namdini Gold Project Preliminary Economic Assessment”. The Preliminary Economic Assessment referred to in this presentation is based on low-level technical and economic assessment, and is insufficient to support the estimate of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Preliminary Economic Assessment will be realised.

The Preliminary Economic Assessment includes existing Indicated Mineral Resources (81%) and Inferred Mineral Resources (19%) defined within the project. There is a lower level of geological confidence in Inferred Mineral Resources and there is no certainty that further exploration work will result in the upgrade to Indicated Mineral Resources, or that the Production Target will be realised.