

## Australia's newest 100,000ozpa gold producer

- ▶ Rising grades, rising production
- ▶ +100,000ozpa run-rate achieved
- ▶ New discoveries driving growth

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**Peter Cash, CEO**

September 2018 Corporate Presentation

# Disclaimer & Competent Person's Statement



## Disclaimer

This presentation contains only a brief overview of Millennium Minerals Limited ("Millennium"). The contents of this presentation, including matters relating to the geology of Millennium's projects, may rely on various assumptions and subjective interpretations which it is not possible to detail in this presentation and which have not been subject to any independent verification.

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Financial values in this presentation have been converted from Australian dollars to US dollars at an exchange rate of 71c

## Competent Person's Statement

The information in this presentation relating to exploration results from the Nullagine Project has been extracted from various Company announcements and are available to view at [www.millenniumminerals.com.au](http://www.millenniumminerals.com.au).

The information in this presentation relating to Mineral Resources or Ore Reserves is extracted from the announcements titled:

1. Mineral Resources and Ore Reserve Statement dated 31 July 2018;
2. Growth strategy gains momentum with maiden underground Resource dated 7 August 2017;
3. Outstanding high-grade intercepts strengthen prospectivity of Bartons open pit and underground dated 2 November 2017;
4. New high-grade oxide discovery at Yates as Bartons underground delivers more exceptional intercepts dated 21 November 2017;
5. Further high-grade results highlight outstanding growth potential at Nullagine dated 23 November 2017;
6. New high-grade intercepts from emerging Redbeard discovery at Nullagine dated 12 December 2017;
7. Bartons underground resource upgrade and maiden reserve paves way for development of first underground mine at Nullagine dated 8 January 2018;
8. Millennium continues outstanding run of exploration success with impressive drilling results dated 22 January 2018;
9. Millennium poised to significantly extend mine life at Nullagine as newly-identified processing option cuts costs dated 5 February 2018;
10. Twenty Mile Sandy Exploration update 11 May 2018;
11. Golden Gate Exploration Update 29 May 2018;
12. Redbeard Reserve announced and Golden Gate high grade drill results 3 July 2018; and
13. Millennium delivers 38% interim increase in Ore Reserves to 304,700oz dated 31 July 2018, and are available to view at [www.millenniumminerals.com.au](http://www.millenniumminerals.com.au)

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the results and estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings as presented have not been materially modified from the original market announcement.

# Investment Overview



**Operating the Nullagine Gold Project in the world-class Pilbara region of Western Australia**

**On track to meet production guidance for CY18 of 75-80koz at AISC US\$908-958/oz**

**Recently achieved long-held target of ~100,000ozpa annualized production run-rate**

**Growing Reserve inventory – current mine life of 3 years; aim to increase to +5 years**

**Outstanding run of recent exploration success delivering breakthrough discoveries**

# Australia's New 100,000ozpa Gold Producer



## ✓ New mining strategy delivering +100kozpa run-rate

- ▶ Larger scale, longer life deposits
- ▶ Increased head grade, mining rate, mill throughput
- ▶ Production now at +100kozpa, up from historical rate of 75-80kozpa

## ✓ Processing plant – fully-funded expansion pathway

- ▶ Low CAPEX/OPEX addition to current CIL plant to process significant sulphide Resources
- ▶ Key plant and equipment ordered – commissioning Q1 2019

## ✓ Moving underground

- ▶ First UG mine at Bartons delivering high-grade ore
- ▶ UG assessment of Golden Gate now; multiple other targets to follow

## ✓ Exploration delivering new breakthrough discoveries

- ▶ New geological approach unlocking significant new high-grade discoveries at Golden Eagle and beyond
- ▶ Major ongoing exploration commitment – initial target +5-year mine life



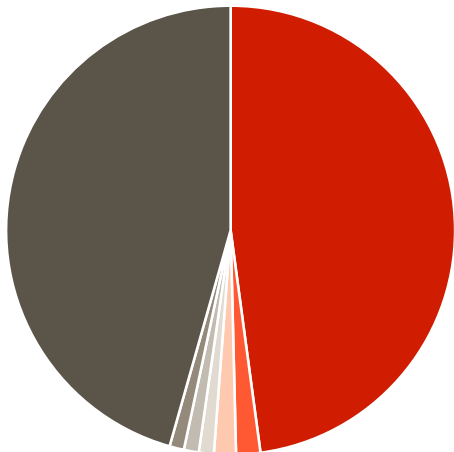
# Corporate Overview



Shares on Issue	Market Cap (A\$0.23/share)
<b>792.0M</b>	<b>~US\$130M</b>
Cash & Bullion (30 Jun 18)	Debt
<b>US\$9.7M</b>	<b>US\$7.1M</b>
ASX Index	ASX Code
<b>All Ords</b>	<b>MOY</b>



## Key Shareholders



- IMC Group – **47.9%**
- Old Mutual – **1.7%**
- Mr David Teoh – **1.6%**
- Mr Andrew L Rouse – **1.1%**
- DWP Bank – **1.1%**
- Directors & Employees – **1.5%**
- Other – **45.6%**

## Board and Management

<b>Greg Bittar</b>	Non-Executive Chairman
<b>Peter Lester</b>	Non-Executive Director
<b>Tim Kennedy</b>	Non-Executive Director
<b>Bruno Lorenzon</b>	Non-Executive Director
<b>Peter Cash</b>	Chief Executive Officer
<b>Dean Will</b>	Chief Operating Officer
<b>Ray Parry</b>	Chief Financial Officer
<b>Michael Poepjes</b>	BD and Technical Services
<b>Jason Robertson</b>	General Manager Operations

## Key Consultants and Contractors

- Ausenco**
- Western Plant Hire**
- GBF Underground**
- Redline Drill & Blast**
- Rivet Mining Services**
- KPS Power Generation**
- Strike Drilling**
- Castle Drilling**



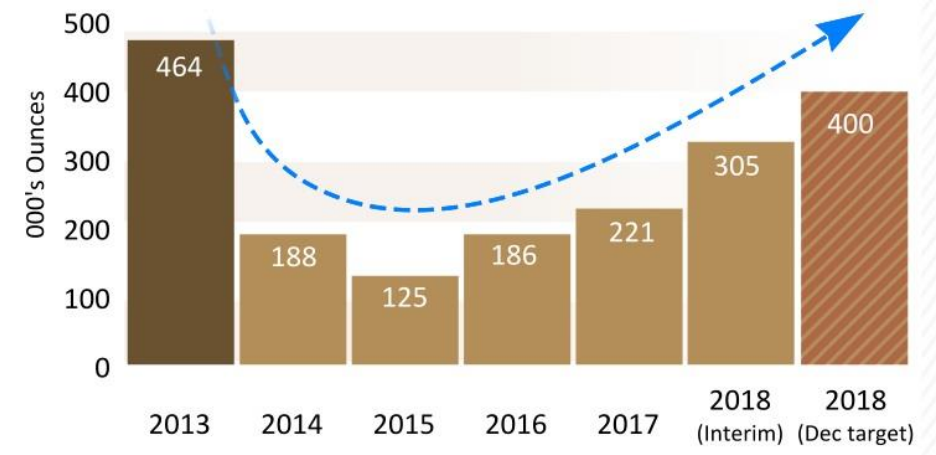
**NULLAGINE  
OPERATIONS**

# Nullagine Operations – Strong Production and Cash-flows

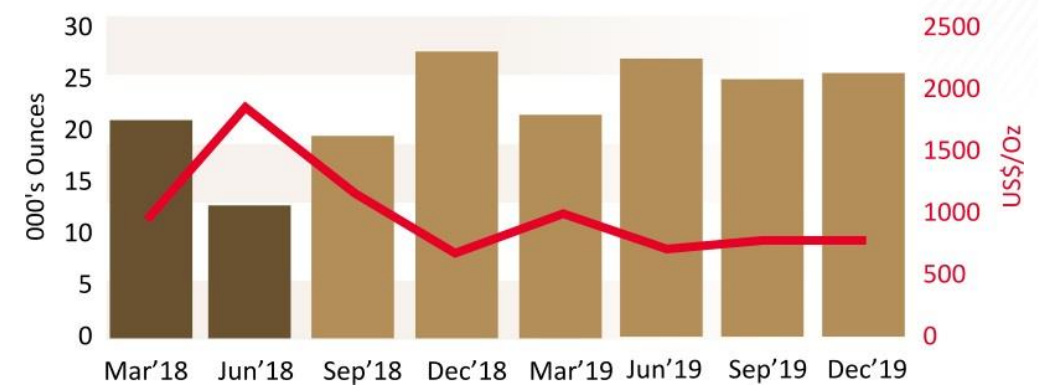


- ▶ Significant operational improvements and upgrades completed:
  - Move to more sustainable, lower cost ore sources
  - Mill refurbishment and upgrades completed
  - Improved mine scheduling and stockpile protection
- ▶ 100kozpa run-rate achieved September 2018
- ▶ 2018 production guidance of 75-80koz at AISC US\$908-958/oz
- ▶ Major increase in production in second half underpinned by new high-grade ore sources:
  - ▶ September Quarter guidance: 20-22koz
  - ▶ December Quarter guidance: 25koz
- ▶ July 2018 Interim Ore Reserve update (305koz) delivers mine life visibility of three years; targeting 400koz by December

## Reserve History



## Production and AISC





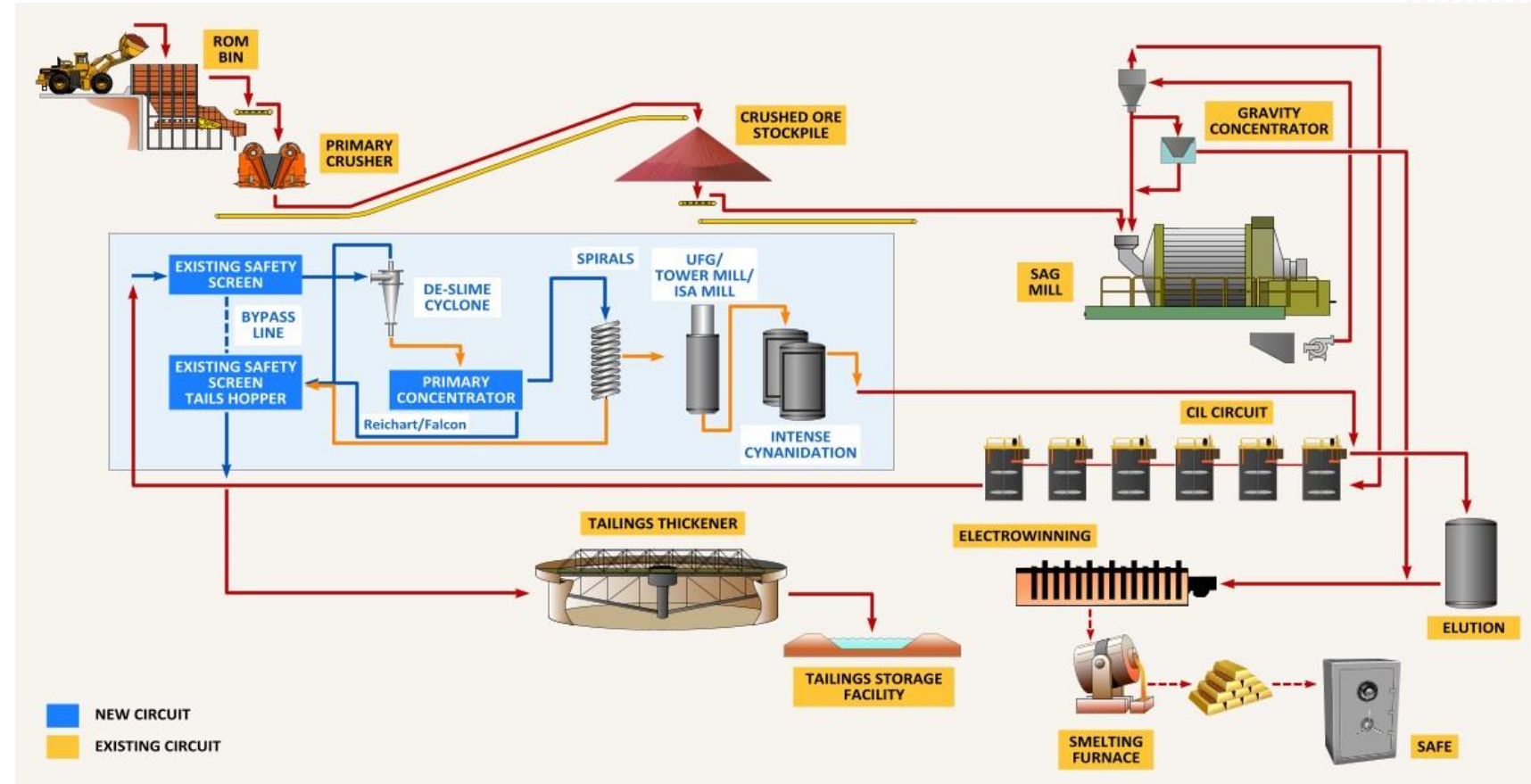
**POSITIVE  
EXPANSION  
STUDY**



# Sulphide Resources – New Processing Breakthrough



- ▶ Large Sulphide Resource inventory
- ▶ Processing requires addition of a small modular concentrating circuit to the tail-end of the existing CIL plant
- ▶ Well-understood process
- ▶ Targeting commissioning of plant expansion during Q1 2019
- ▶ Re-optimisation of entire Mineral Resource inventory underway

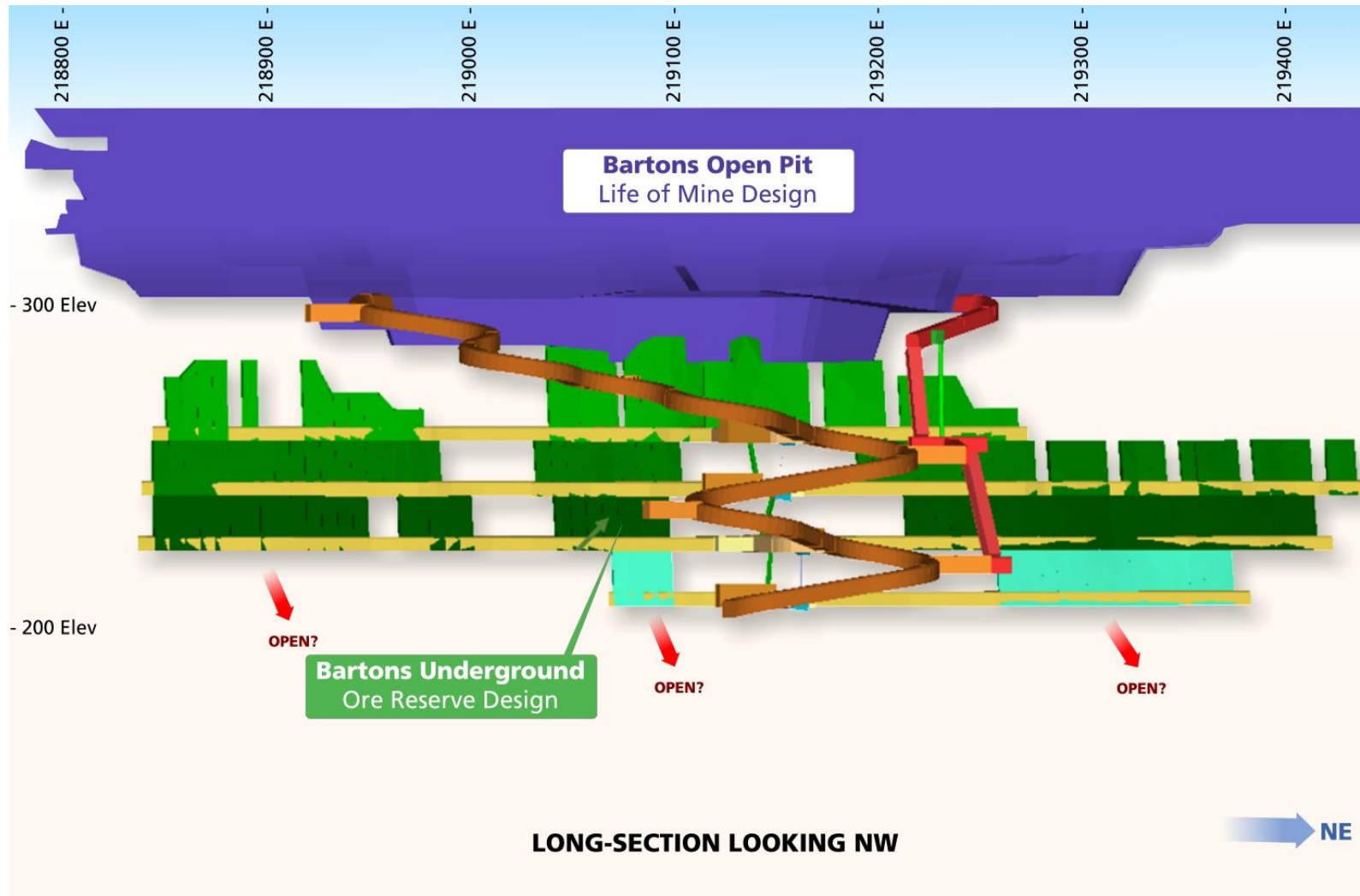


**Sulphide Expansion paves the way for Millennium to maintain +100kozpa production rate for at least five years with lower AISC**



**MOVING  
UNDERGROUND**

# Bartons – The First Underground Mine at Nullagine

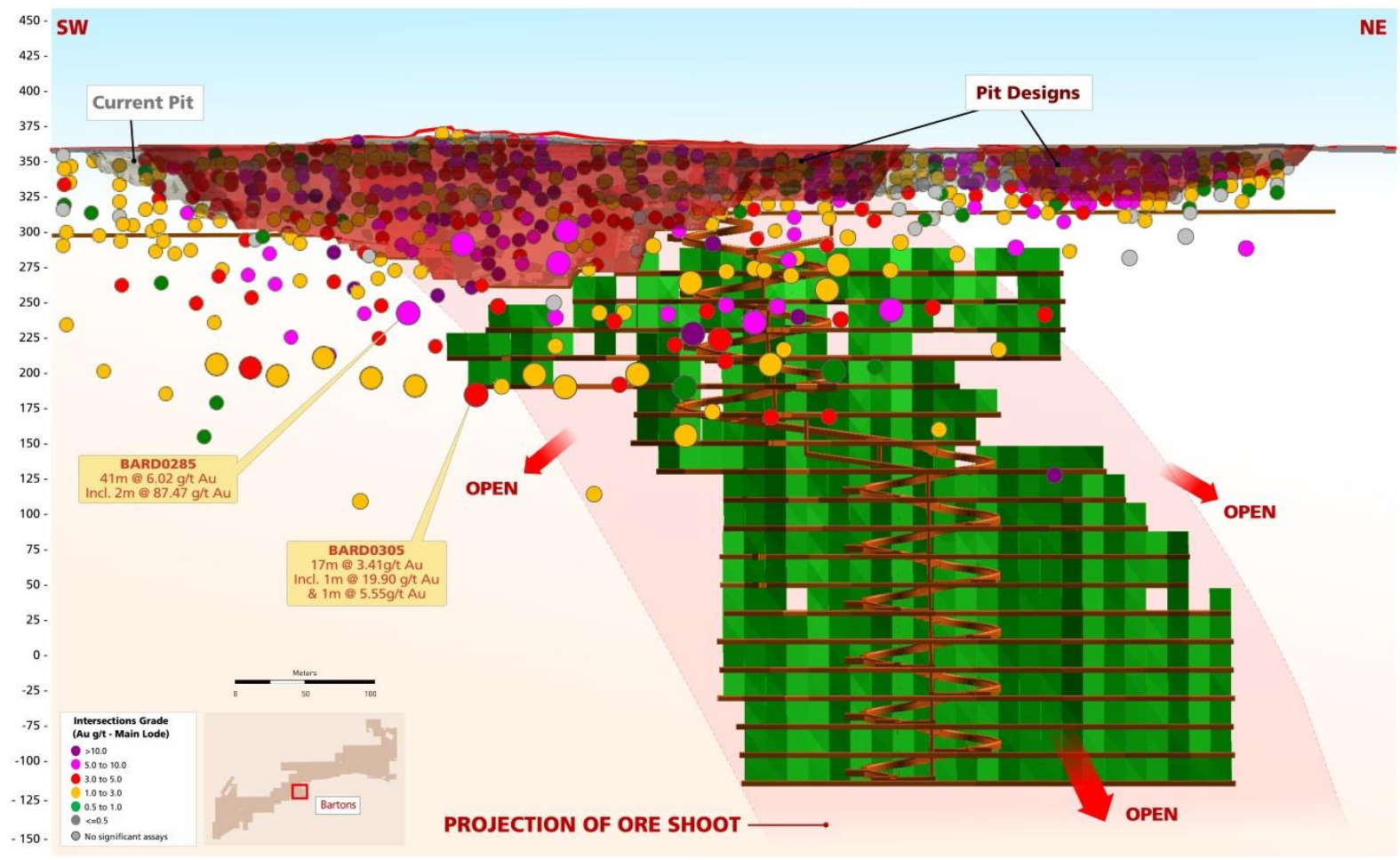


- ▶ 1,250m of UG development completed to date
- ▶ Outstanding ground conditions – bodes well for future UG developments
- ▶ High-grade development ore now being processed
- ▶ High-grade stoping ore to commence Q1 2019



Millennium's first underground mine at Nullagine, with high-grade development ore now being processed

# Bartons – The First Underground Mine at Nullagine



- ▶ Resource of 630,000t @ 4.9g/t Au for 97,900oz
- ▶ Reserve of 270,000t @ 4.5g/t Au for 39,000oz
- ▶ Mineralisation open at depth and along strike
- ▶ All deeper holes have successfully intersected the main ore zone and continue to define extensions
- ▶ Deep intercepts below current Resource area include:
  - ▶ 41m @ 6.02g/t Au from 129m, incl. 2m @ 87.47g/t Au (BARD0285)
- ▶ Drilling Q4 targeting depth extensions from UG drill platforms – drilling contract awarded
- ▶ Updated Resource / Reserve estimate for Bartons UG to be included in December 2018 update

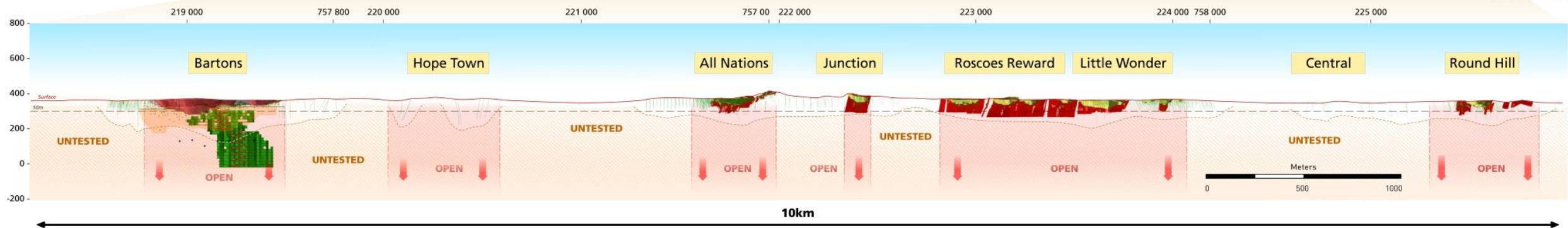
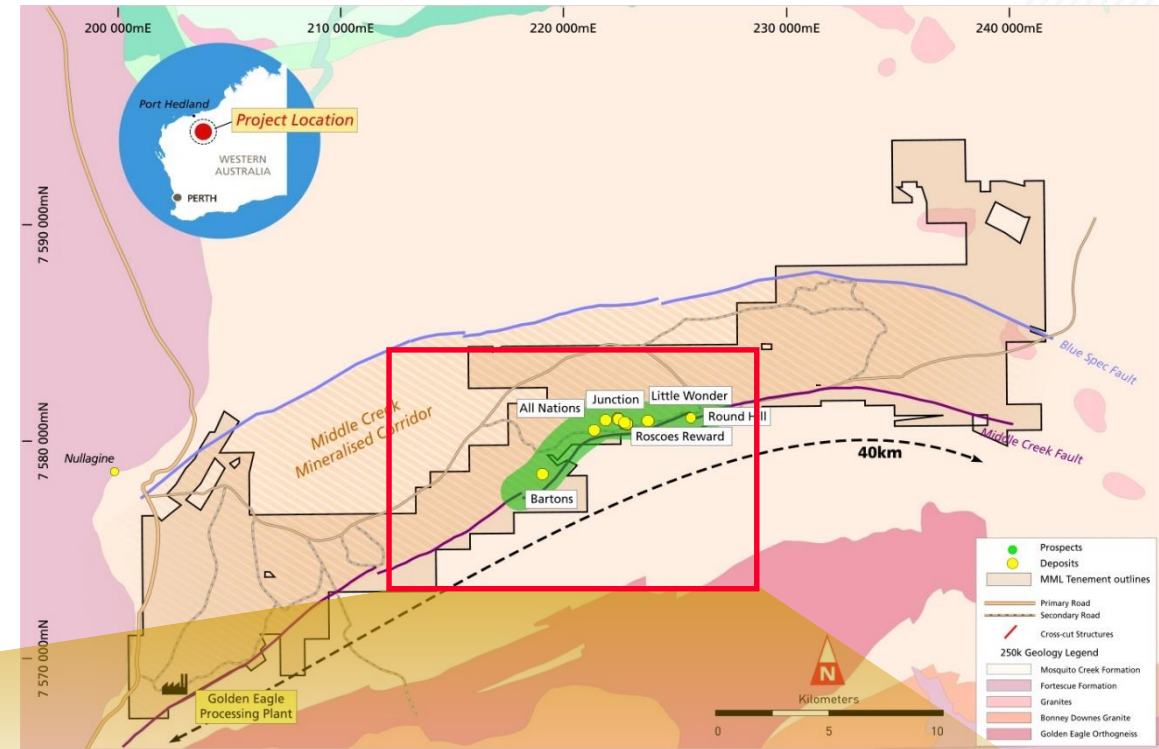
**Deeper mineralisation at Bartons is free-milling and can be treated through the existing CIL plant with recoveries of up to 90%**

# Underground Potential at Nullagine – Multiple Targets Identified

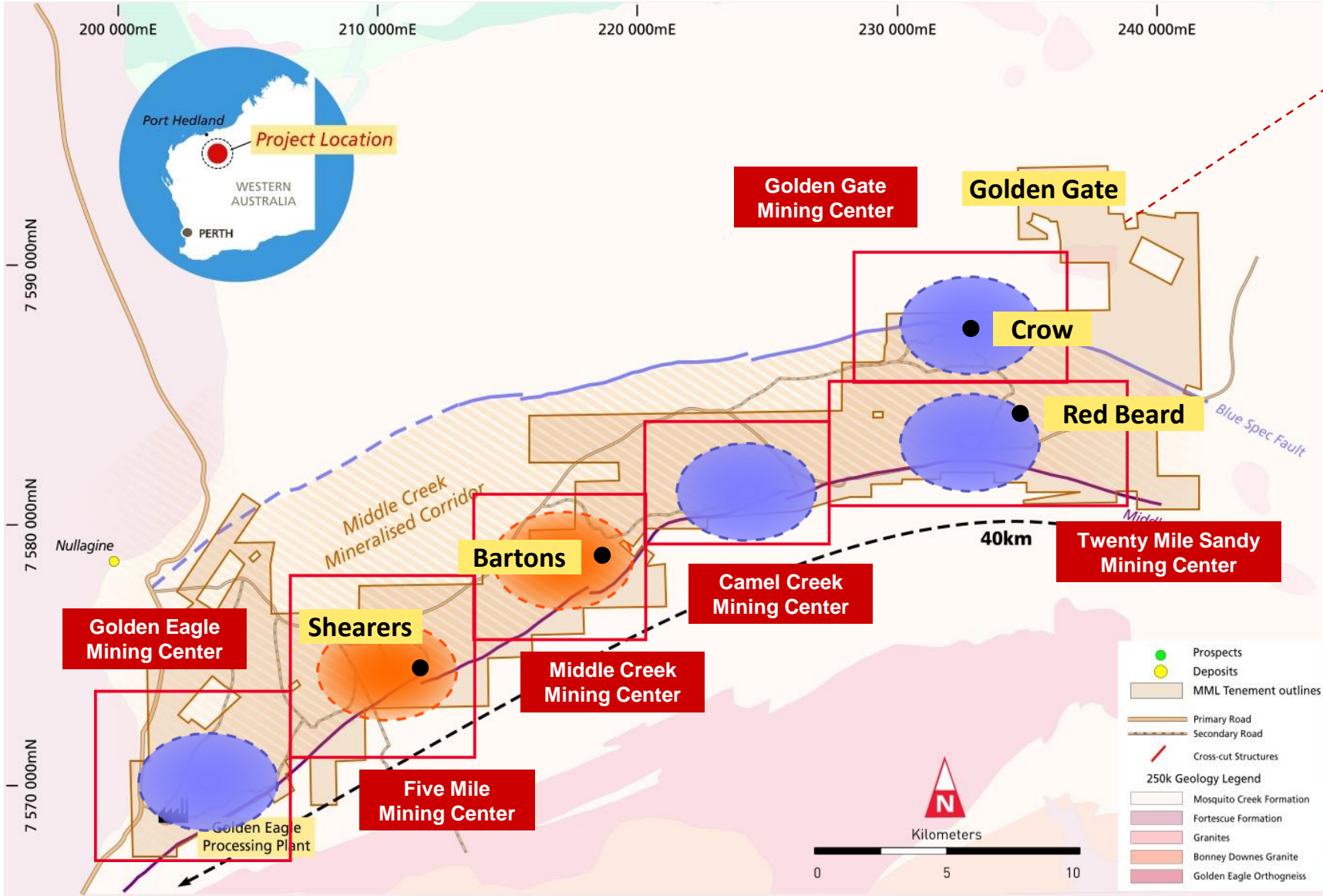


## Potential for substantial increases in Mineral Resources beneath all known deposits:

- ▶ Minimal deeper drilling – only 4 out of 30 deposits tested at depth
- ▶ Extensive drilling program to test UG potential
- ▶ Work underway on UG Ore Reserve for Golden Gate Mining Centre to underpin second proposed UG mine at Nullagine
- ▶ Studies commenced on several additional deposits



# Additional Underground Targets – Pipeline of Organic Growth



**Golden Gate Mining Centre**  
 Work underway on UG Ore Reserve for Golden Gate Mining Centre to underpin second proposed UG mine at Nullagine

**Of the 30 deep targets identified at Nullagine, only four have been tested to date – all delivering highly encouraging results**

- Free milling mineralisation at depth
- Sulphide mineralisation at depth

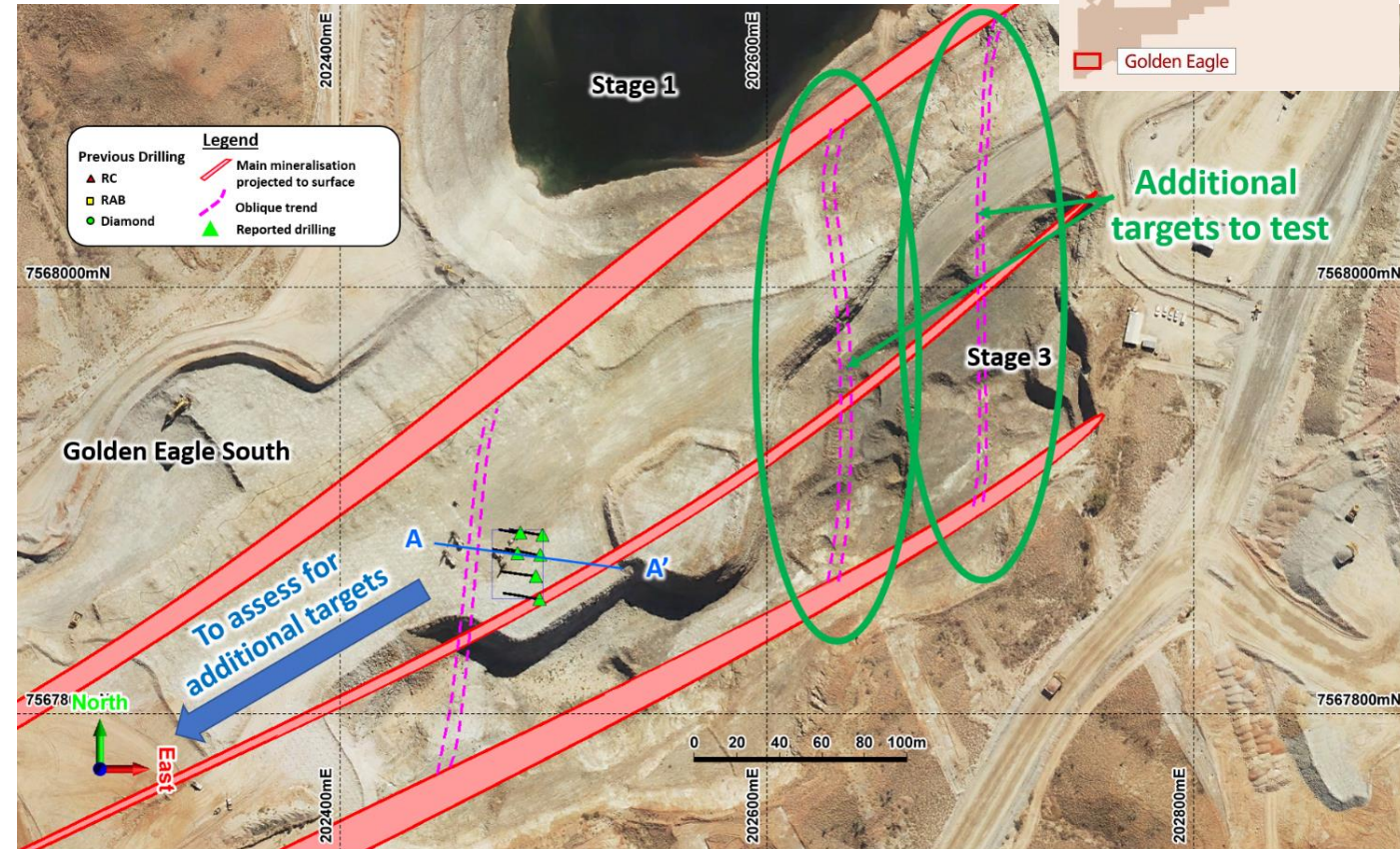


EXPLORATION

# Exploration – Golden Eagle... set to soar?



- ▶ Largest gold deposit defined at Nullagine to date – 334koz Resource
- ▶ New north-trending mineralised structure identified within existing pit design. Assays include:
  - ▶ 4m @ 15.34g/t from 23m, incl. 1m @ 54.90g/t
  - ▶ 8m @ 18.91g/t from 20m, incl. 7m @ 21.45g/t
  - ▶ 3m @ 18.18g/t from 12m, incl. 2m @ 26.60g/t
- ▶ Revolutionises geological interpretation - multiple high-grade cross-cutting structures may be present
- ▶ Potential to significantly expand near-term mining inventory



**Intensive drilling to continue at Golden Eagle and Golden Eagle South West over remainder of 2018**

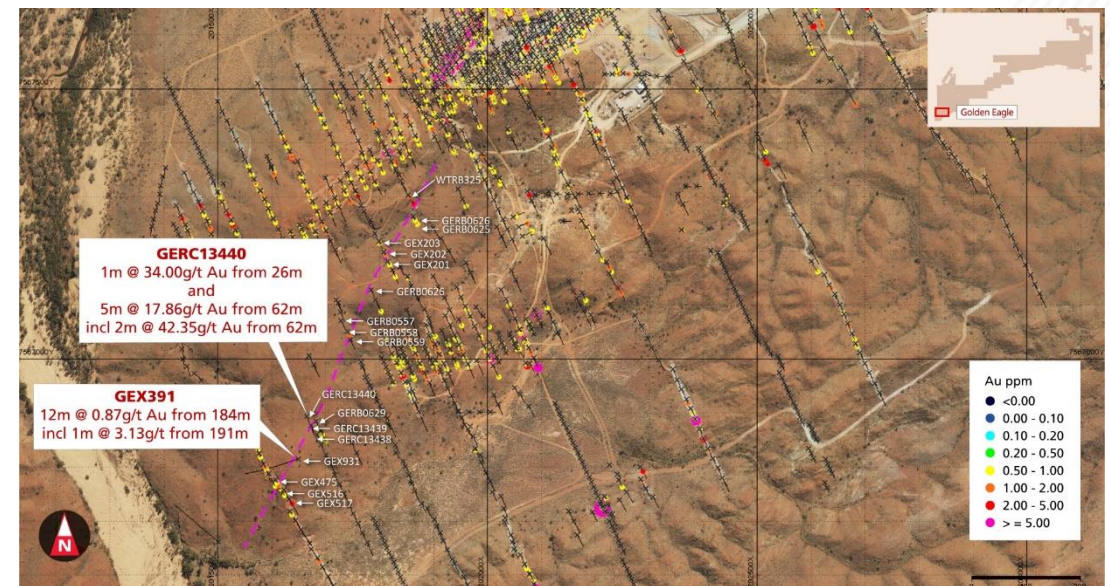
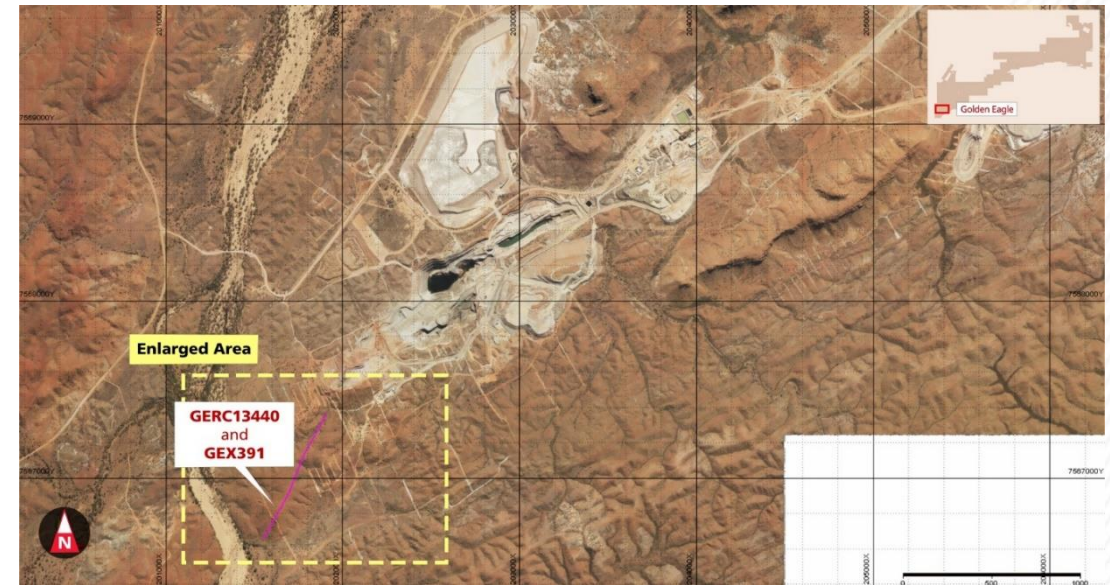


# New Discovery in the Making – Golden Eagle SW



- ▶ Significant new target 1.8km SW of Golden Eagle with similar style of alteration
- ▶ Highly prospective shear zone extending over a potential strike extent of 800m:
  - ▶ *1m @ 34.00g/t Au from 26m*
  - ▶ *5m @ 17.86g/t Au from 62m, incl. 2m @ 42.35g/t Au*
- ▶ NNE orientation supports theory of high-grade cross-cutting mineralised structures at Golden Eagle that run oblique to the main NE trending lodes
- ▶ Gravity survey and follow-up drilling underway

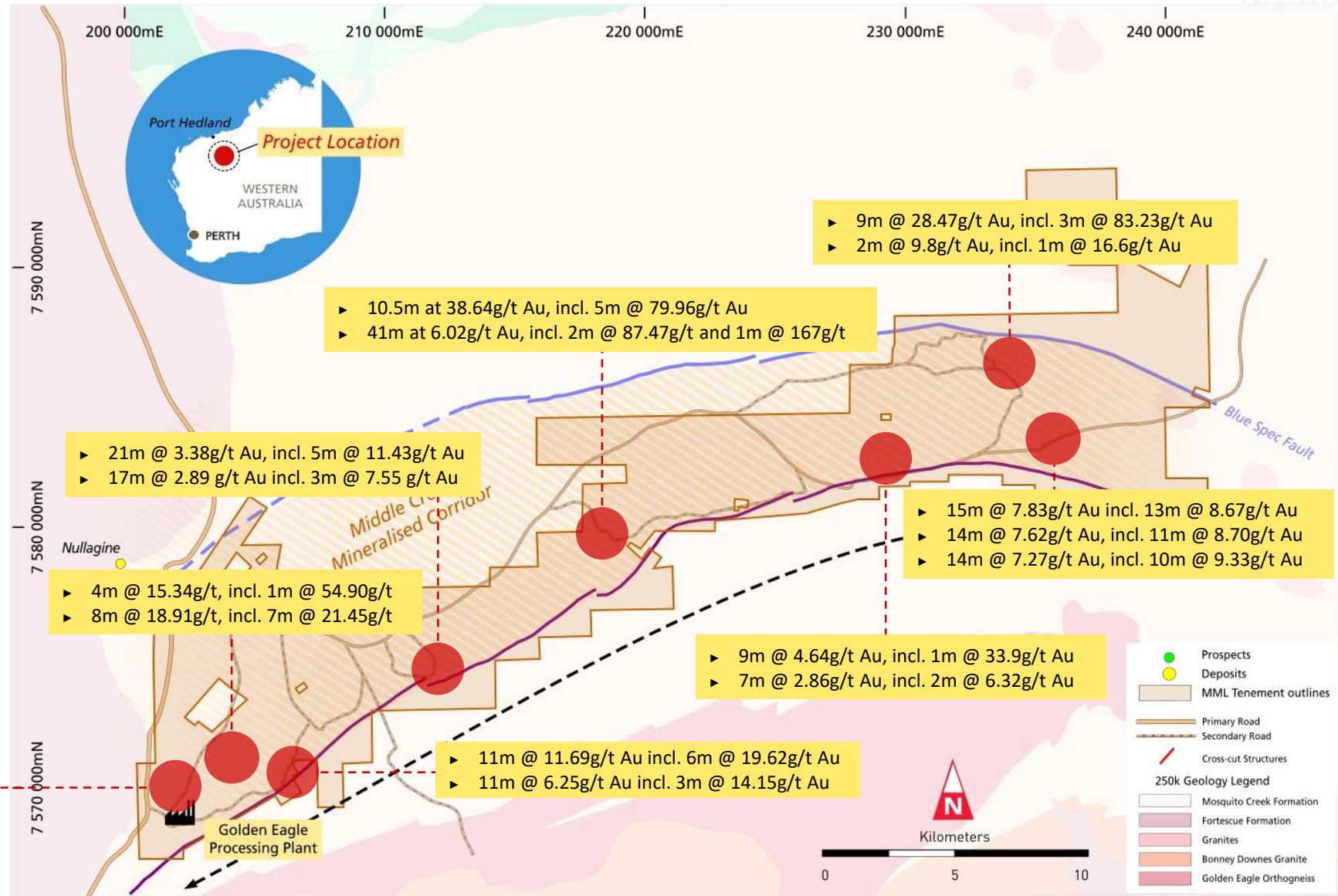
**Significant new greenfields discovery 1.8km south-west of the 334,000oz Golden Eagle deposit...**



# Exploration – A Key Priority



- ▶ Substantial ongoing commitment to exploration
- ▶ 40km (25Mi) mineralised corridor – high-grade results spanning entire length
- ▶ Reinterpretation of existing exploration datasets delivering new targets



# Key Investment Takeaways



- ▶ Nullagine Gold Project – generating consistent production and strong cash-flows
- ▶ Quality-driven mining strategy – focusing on larger, more sustainable ore sources
- ▶ Increasing production and mine life – 100kozpa run rate; 3-yr mine life growing to +5 yrs
- ▶ Sulphide Plant Expansion – Commissioning Q1 2019 to unlock large Sulphide Resource
- ▶ Expanding Underground – Bartons UG delivering high-grade ore, more UG deposits to follow
- ▶ Ongoing exploration program continues to deliver – high-grade intersections across the entire project
- ▶ Nullagine now moving rapidly to the next level – unlocking the significant value of all ore types



# Resources & Reserves



Nullagine Gold Project - Mineral Resource Statement									
Deposit	Measured		Indicated		Inferred		Total Remaining		
	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Au Ounces
Agate <sup>3</sup>			0.23	1.2	0.11	1.1	0.34	1.2	12,600
All Nations <sup>3</sup>	0.11	1.4	0.30	1.4	0.24	1.2	0.65	1.3	27,200
Anne de Vidia <sup>3</sup>			0.06	1.5	0.07	1.2	0.13	1.3	5,400
Angela <sup>3</sup>					0.29	1.3	1.10	1.3	45,400
Au81 <sup>2</sup>			0.01	1.4	0.17	1.8	0.17	1.8	9,700
Au81 West <sup>3</sup>	0.06	1.3	0.66	1.2	0.49	1.4	1.21	1.3	51,400
Bartons Open Pit <sup>3</sup>	0.07	2.8	0.17	1.5	0.11	1.2	0.34	1.7	18,400
Bartons UG <sup>5</sup>			0.41	3.5	0.22	3.5	0.63	4.9	97,900
Billjim South <sup>3</sup>					0.05	3.2	0.05	3.2	5,500
Buzzard <sup>3</sup>					0.11	1.8	0.11	1.8	6,100
Condor (including NW) <sup>5</sup>			0.11	4.9	0.02	3.5	0.13	4.7	20,300
Crossing <sup>3</sup>			0.30	1.2	0.06	1.3	0.36	1.3	14,600
Crow <sup>5</sup>			0.04	5.0	0.02	5.3	0.06	5.1	10,000
Falcon <sup>4</sup>	0.06	3.0	0.02	2.4			0.08	2.9	7,300
Gambols Hill <sup>3</sup>			0.13	1.6	0.17	1.6	0.30	1.6	15,700
Golden Gate G Reef <sup>5</sup> UG			0.01	3.6	0.00	2.4	0.01	3.3	700
Golden Eagle <sup>3</sup>	2.87	1.3	2.25	1.3	2.57	1.4	7.69	1.4	334,400
Golden Gate ABC Reef + Harrier <sup>5</sup> UG			0.08	6.4	0.11	4.6	0.19	5.4	32,100
Golden Gate D Reef <sup>5</sup> UG			0.04	5.3	0.02	5.8	0.06	5.4	11,100
Hopetoun-Endeavour <sup>3</sup>			0.17	1.4	0.50	1.4	0.67	1.4	30,100
Hut <sup>3</sup>			0.29	1.2	0.09	1.0	0.38	1.1	13,800
Junction <sup>4</sup>	0.05	1.9	0.06	1.5	0.04	1.5	0.15	1.7	7,800
Little Annie <sup>3</sup>					0.12	1.4	0.12	1.4	5,200
Little Wonder <sup>4</sup>	0.06	1.5	0.29	1.5	0.81	1.7	1.16	1.6	60,400
Majuba <sup>3</sup>			0.31	1.4	0.05	1.5	0.35	1.4	16,100
Mundalla <sup>3</sup>			0.13	1.4	0.18	1.3	0.30	1.3	13,100
Mustang <sup>3</sup>			0.16	1.8	0.10	1.4	0.25	1.6	13,000
Otways <sup>3</sup>	0.48	1.1	0.76	1.1	0.54	1.0	1.78	1.1	60,700
Redbeard	0.17	3.6	0.05	1.8	0.06	1.4	0.28	2.8	25,200
Roscoes Reward <sup>3 4</sup>			0.58	1.4	0.32	1.3	0.90	1.4	40,400
Round Hill/Bow Bells <sup>3</sup>			0.51	1.8	0.10	2.1	0.61	1.9	36,400
Shearers <sup>3</sup>			0.62	1.5	0.31	1.3	0.93	1.4	42,400
Shearers North <sup>3</sup>	0.13	1.4	0.11	1.3	0.18	1.1	0.43	1.2	16,500
<b>Total</b>	<b>4.04</b>	<b>1.3</b>	<b>8.84</b>	<b>1.6</b>	<b>8.22</b>	<b>1.5</b>	<b>21.92</b>	<b>1.6</b>	<b>1,107,100</b>

1. Figures in Table may not sum due to rounding.

2. The Au81 deposit was estimated using ordinary kriging methodology for grade estimation by CSA Global.

3. Agate, All Nations, Angela, Anne de Vidia, Au81 West Bartons Open Pit, Bow Bells, Crossing, Condor North-West, Gambols Hill, Golden Eagle, Hopetoun-Endeavour, Hut, Junction, Little Annie, Little Wonder, Majuba, Mustang, Otways, Roscoes Reward, Round Hill, Shearers and Shearers North were estimated by ordinary kriging by Millennium Minerals Ltd.

4. Golden Gate satellite deposit, Falcon, was estimated using ordinary kriging by Dampier Consulting.

5. Barton Underground and Golden Gate open pit and underground deposits reported by Entech Pty Ltd.

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