

# MACQUARIE WA FORUM PRESENTATION

1 December 2021

**WESTERN AREAS LTD**





# AGENDA

## CORPORATE



## NICKEL MARKET



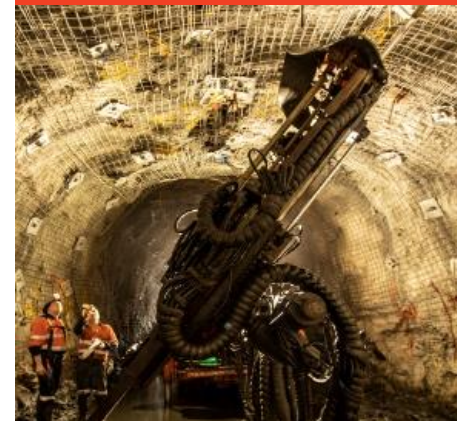
## GROWTH



## EXPLORATION



## OPERATIONS





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The information within this PowerPoint presentation was compiled by Western Areas management, but the information as it relates to exploration results, mineral resources or ore reserves was prepared by Mr Graeme Gribbin, Mr Andre Wulfse or Mr Marco Orunesu-Preiata respectively. Mr Gribbin, Mr Wulfse and Mr Orunesu-Preiata are full time employees of Western Areas Ltd. Mr Gribbin is a member of Australian Institute of Geoscientists (AIG). Mr Wulfse is a Fellow of Australian Institute of Mining and Metallurgy (AusIMM) and Mr Orunesu-Preiata is a member of Australian Institute of Mining and Metallurgy (AusIMM) and have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’(2012 JORC Code). Mr Gribbin, Mr Wulfse and Mr Orunesu-Preiata consent to the inclusion in this presentation of the matters based on the information in the form and context in which it appears.

This announcement is authorised for market release by Western Areas Limited Managing Director and CEO, Daniel Lougher.

Western Areas Registered Office: L2, 2 Kings Park Road, West Perth, 6005, Australia





# CORPORATE

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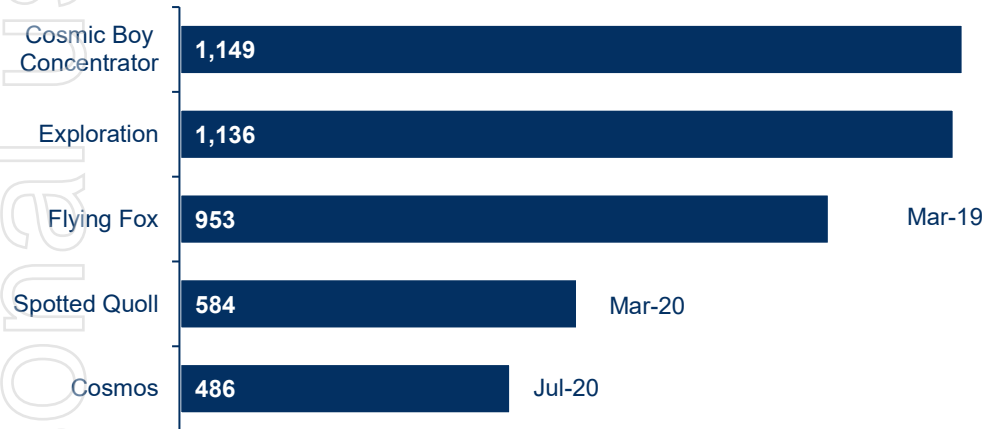




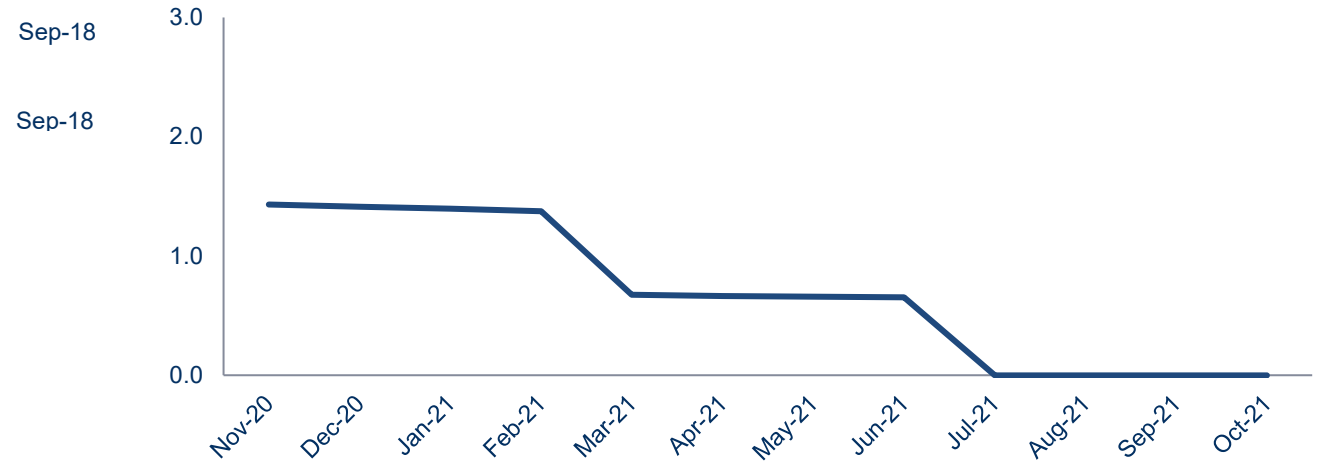
# Western Areas, are safe areas



Days LTI free



12 month LTIFR moving average





# Corporate overview

**“The Company aims to be a sustainable and profitable, nickel focused, base metal miner, building value and scale while maintaining financial strength”**

## High Quality

- Low Cash Cost
- High Grade Nickel Sulphide

## No Debt

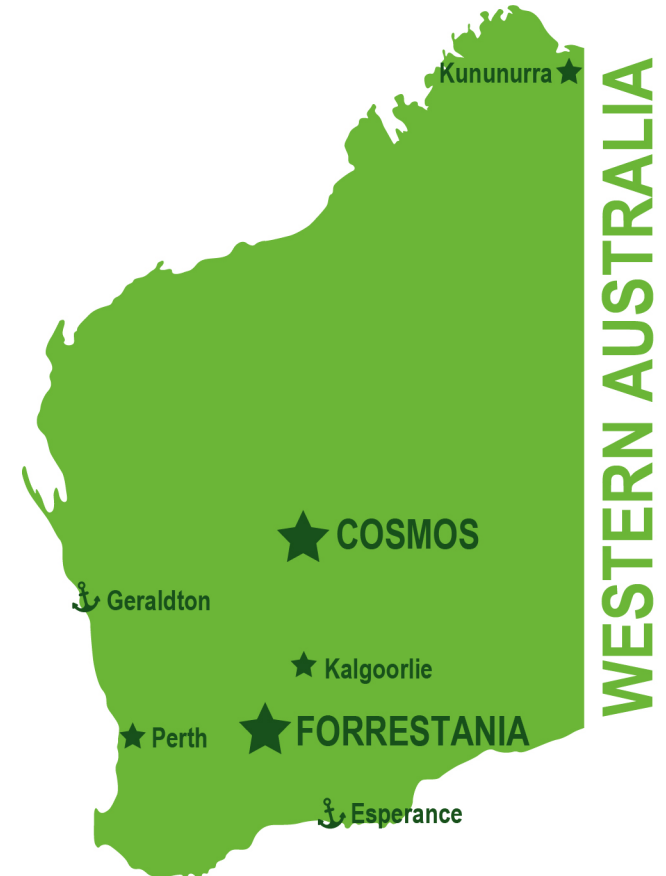
- \$147.7m at bank<sup>1</sup>

## Strong Growth

- Odysseus Mine & AM6
- New Morning
- Diggers South
- Mt Goode

## Nickel Leverage

- Panoramic Resources (WSA 19.9%)





# Environment Social Governance



## Environment

- Zero Major environmental incidents
- Transparency & Disclosure (ESG report, CDP, transition to TCFD and SASB)
- Published Climate Change Statement
- Third party verification of Scope 1 & 2 emissions
- Climate change integration of risks and opportunities into strategy
- Renewable power project for Cosmos
- Sustainable Nickel story – low carbon NSP



## Social

- LTIFR now at zero
- Cultural Awareness Training
- Maintain relationship with Tjiwarl Aboriginal Corporation and commenced Mining Agreement negotiations
- Engagement with numerous other traditional owner groups
- Teamed up with Performex WA to provide employee Wellness Program



## Governance

- Inaugural Modern Slavery Statement published in March-2021
- Increased diversity of the Board of Directors to 40% NED
- Reviewed and updated key policies such as Code of Conduct & Whistleblower Policy
- Comprehensive Risk Management Program





# NICKEL MARKET

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# Offtake contracts best in class

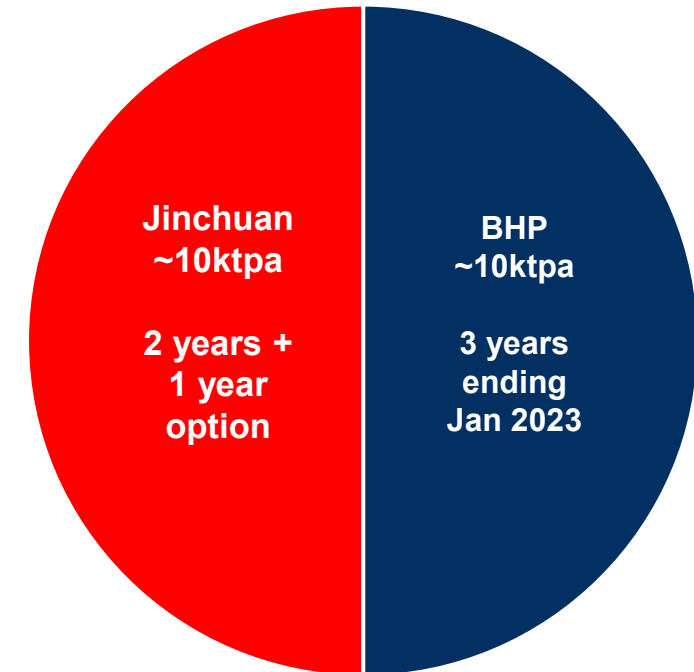
*Current contracts executed with strategic partners “Best in Class”*

*Full benefit of improved commercial terms (compared to previous agreements) in FY21 onwards*

*Premium blending concentrate - superior commercial terms*

## Our Partners:

- **BHP: 50%**
  - Australia's largest nickel producer
  - Building a nickel sulphate plant in Kwinana Western Australia
- **Jinchuan: 50%**
  - China's largest nickel cathode producer
  - Direct feeder of the Chinese nickel sulphate market



*Discussion ongoing with offtake parties that are linked to the Electric Vehicle, battery pre-cursor sector for future MREP production of high grade, premium nickel sulphide and potential for Odysseus concentrate to feed this market.*



# New Odysseus concentrate offtake – timing is good!

- Tender process commenced for the initial (2yr), uncontracted Odysseus concentrate
- Strong market environment for sustainable, nickel sulphide concentrates, with OEM concerns on emerging nickel deficits (ie BHP and Tesla Inc deal)
- South Korea and Japan moving “faster” to consolidate future offtake contracts. Potential to build new smelter and hydrometallurgical plants
- We may see changes in traditional “smelter short term” to LOM contracts, with improved commercial terms and potential downstream benefits
- Majors active in Ni assets M & A

Estimated electrification impact per vehicle (avg NMC battery)

40-50kg <b>Ni</b>	50-75kg <b>Cu</b>
5-15kg <b>Co</b>	+ Cu for charging point + Cu for grid access

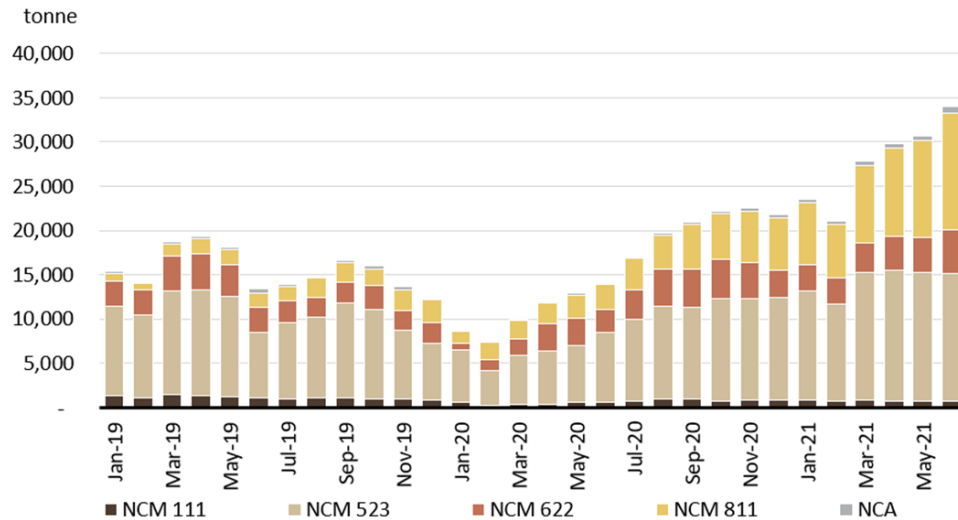




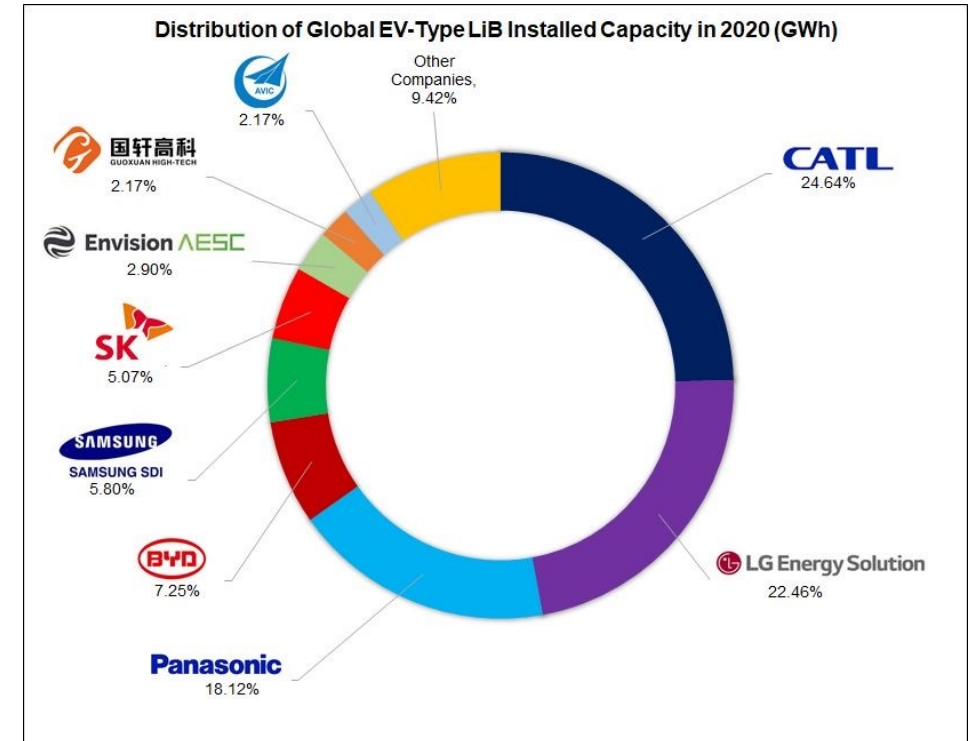
# Battery market

- Battery producers currently dominated by China, South Korea and Japan
- USA / Europe starting to positioning for supply – Looking abroad to find critical battery metals
- **Technology change to NCM 811** which requires higher quantity of nickel, gaining market momentum

Ternary cathode materials production breakdown (ton)



Source: ICCSINO



Source: Golden Dragon Capital Ltd



# GROWTH





# Key resources

Area	Resource (All JORC 2012)	Measured		Indicated		Inferred		Total		
		Tonnes	Grade Ni %	Tonnes	Grade Ni %	Tonnes	Grade Ni %	Tonnes	Grade Ni %	Ni Tonnes
Forrestania										
Forrestania Area	Spotted Quoll <sup>1</sup>			638,298	6.3	146,678	4.9	784,976	6.1	47,620
	Flying Fox High Grade <sup>1</sup>			827,020	4.4	259,568	1.5	1,086,588	3.7	40,261
	New Morning Massive Zone <sup>1</sup>			340,126	3.3	78,067	3.9	418,193	3.4	14,249
Total Key Forrestania Mineral Resource				1,805,444	4.9	484,313	2.9	2,289,757	4.5	102,130
Cosmos										
Cosmos Area	Odysseus South <sup>1</sup>			4,016,949	2.1	219,641	2.0	4,236,590	2.1	89,069
	Odysseus North incl. Massive <sup>1</sup>			3,199,049	2.8	350,148	5.7	3,549,197	3.1	110,083
	AM6 <sup>1</sup>			2,889,733	2.1	118,518	1.4	3,008,251	2.0	61,115
	AM5 <sup>1</sup>			1,449,751	2.0	1,832,451	2.2	3,282,202	2.1	68,795
	Cosmos Area Sub Total			11,555,482	2.3	2,520,758	2.6	14,076,240	2.3	329,062
Mt Goode Area <sup>1</sup>		13,563,000	0.8	27,363,000	0.6	12,009,000	0.5	52,935,000	0.6	326,943
Total Key Cosmos Mineral Resource		13,563,000	0.8	38,918,482	1.1	14,529,758	0.9	67,011,240	1.0	656,005
Total Key WSA Mineral Resource		13,563,000	0.8	40,723,926	1.3	15,014,071	1.0	69,300,997	1.1	758,135

Note: Mineral Resources are reported inclusive of Ore Reserves. Figures have been rounded and may not add up to totals.

Note: Key Resources table excludes Flying Fox and Lounge Lizard Disseminated Zones, New Morning Daybreak Disseminated Zones, Beautiful Sunday, Cosmic Boy Area and Diggers Area.

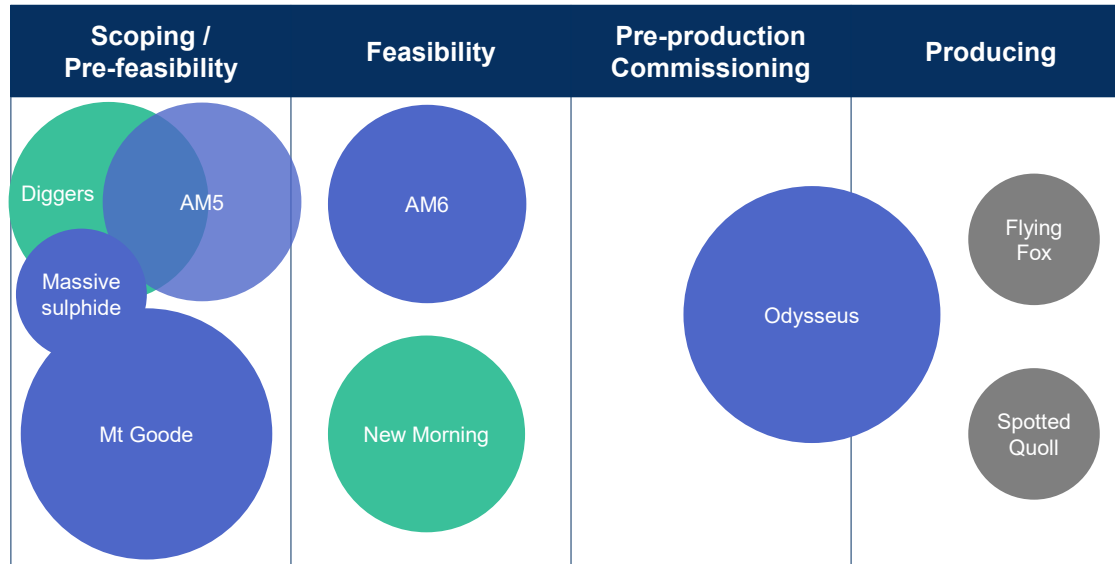
<sup>1</sup> Please refer to Western Areas' September 2021 Quarterly Activities Report released on 28 October 2021 at [www.asx.com.au](http://www.asx.com.au) for detailed figures on Western Areas current Ore Reserve and Mineral Resource Statement. For further details on JORC (2012) Table 1 details please refer to Western Areas' September 2021 Quarterly Activities Report released on 28 October 2021 at [www.asx.com.au](http://www.asx.com.au).

\* Western Areas confirms that it is not aware of any new information or data that materially affects the information included in these announcements and that all material assumptions and technical parameters underpinning the estimates in the announcements continue to apply and have not materially changed. Western Areas confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original announcements.

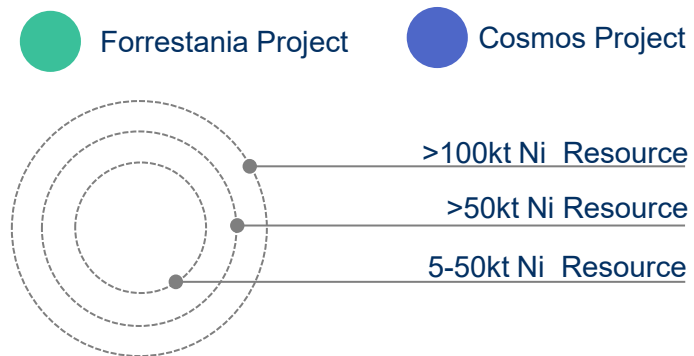




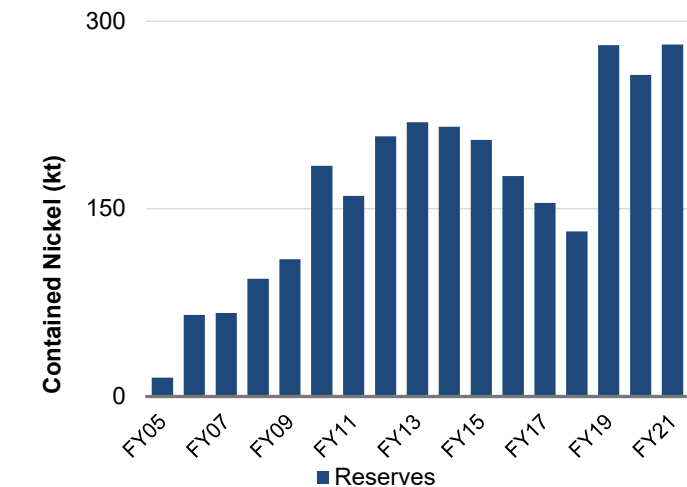
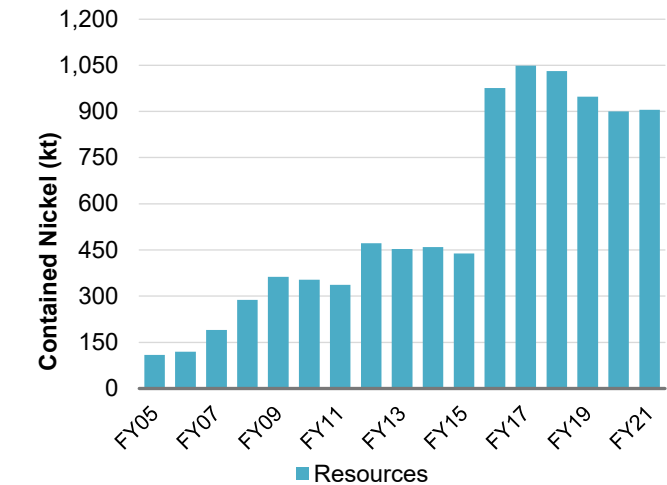
# Nickel growth pipeline



- Many projects in the pipeline to drive nickel production well into the future
- Ore Reserves have substantially increased in FY19 with Odyssey and in FY21 with the addition of AM6

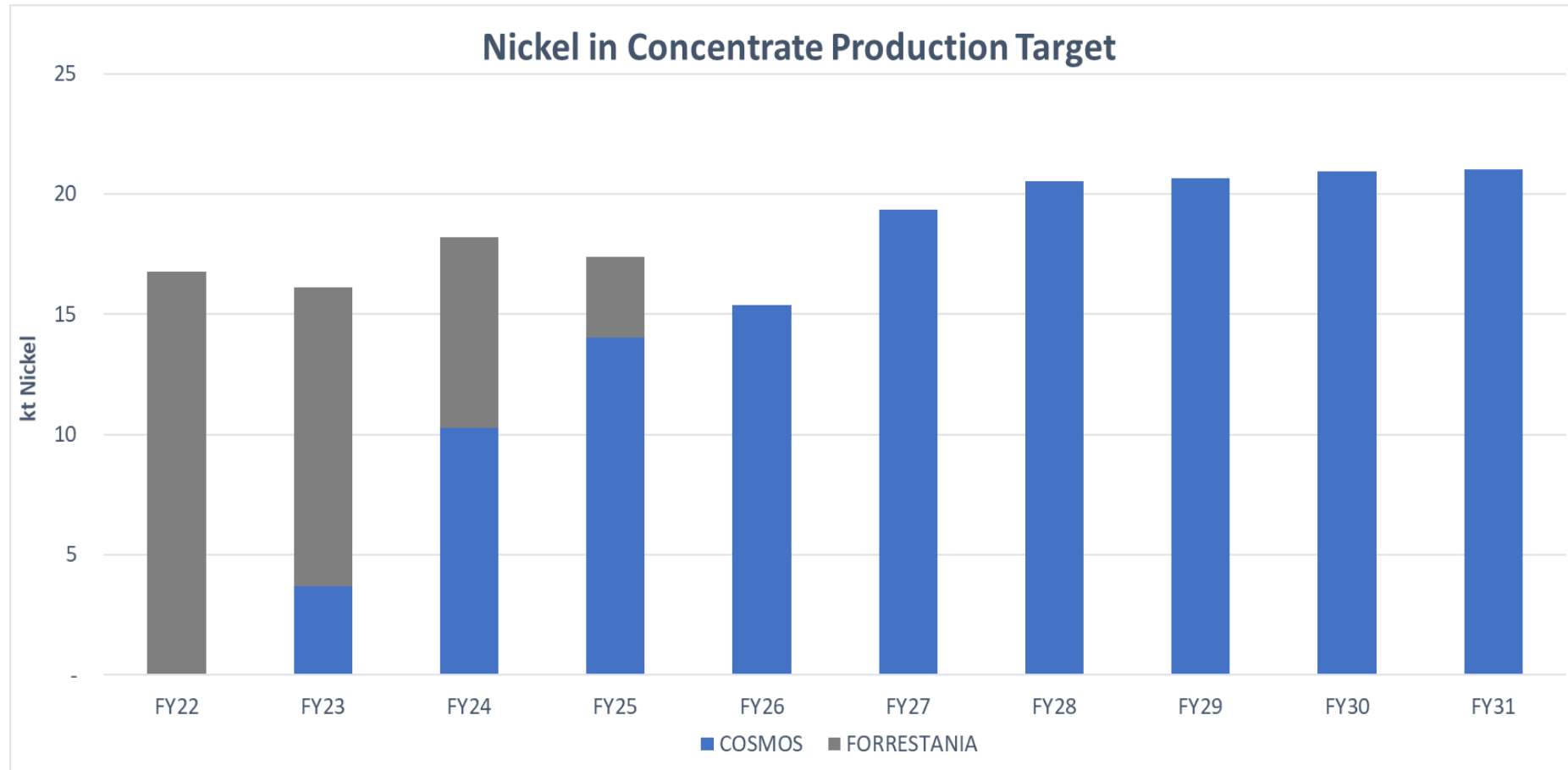


## Nickel Resources / Reserves





# 10yr production profile



Graph data source:

Forrestania production targets based on Spotted Quoll and Flying Fox ore reserves. Refer to "June 2021 Quarterly Report" announcement

Cosmos production targets based on Odysseus and AM6 ore reserves. Refer to "Strong Odysseus DFS results in Decision to Mine," dated 22 October 2018 and "Maiden Ore Reserve at AM6 Boosts Odysseus Base Case," dated 2 September 2020 announcements

Cosmos Mill upgraded to 1.1Mtpa from FY27 onwards





# COSMOS NICKEL OPERATIONS

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# Cosmos nickel operation

## WESTERN AREAS' SECOND OPERATIONAL HUB:

- Outstanding nickel address
- **Total Mineral Resource of 64.4Mt @ 1% nickel for 619k tonnes of nickel (Inc. Mt Goode)**
- **Total Ore Reserves of 211k tonnes of nickel**
- Strategically located between Nickel West's Leinster and Mt Keith mines
- Established infrastructure





# Odysseus mine – a long life, low cost project, 10yrs +

## ■ Odysseus - Long life, low cost project:

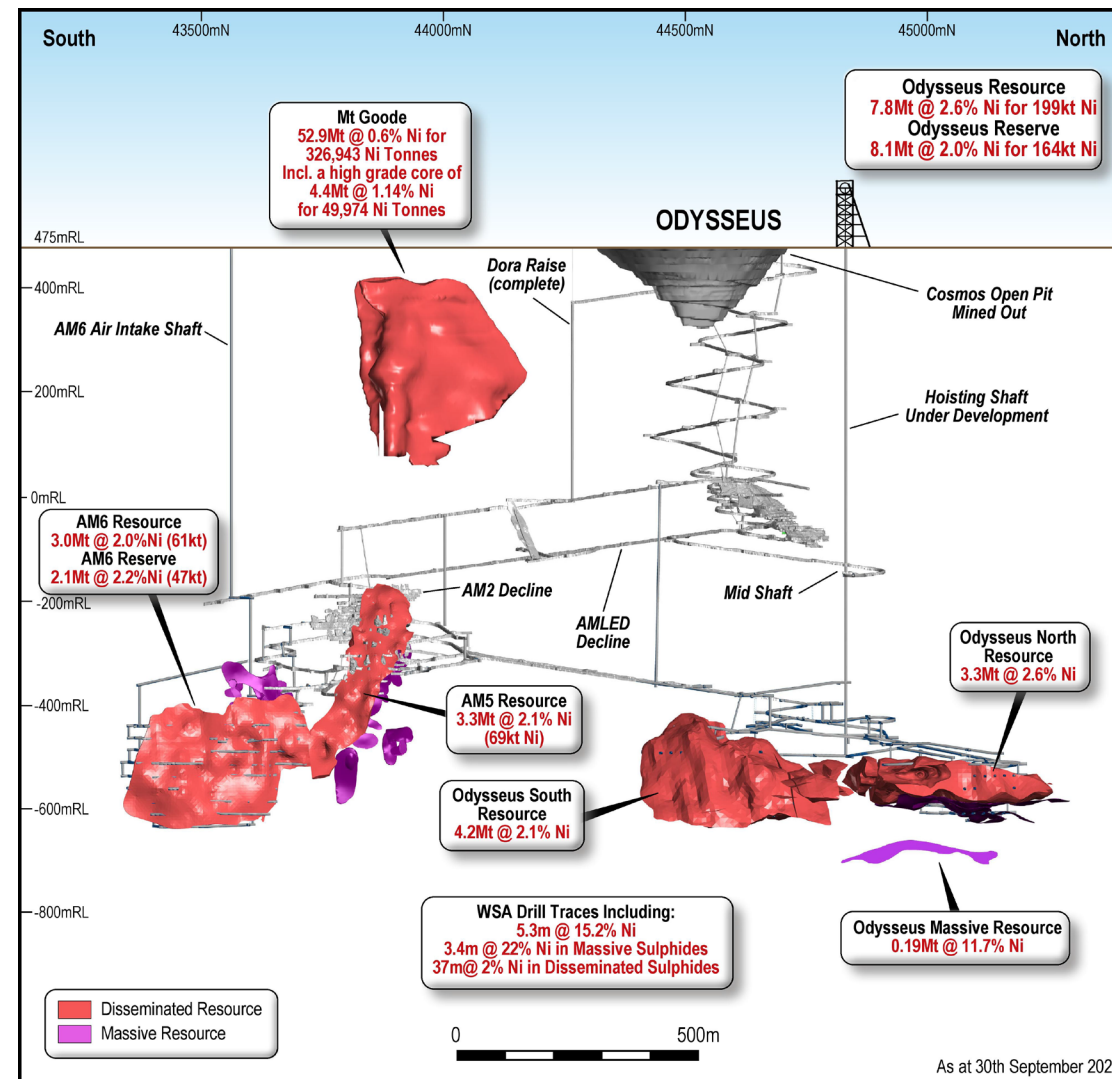
- ✓ Ore Reserve 8.1mt @ 2.0% for 164kt nickel
- ✓ Mine life > 10 years
- ✓ Attractive AISC
- ✓ Average nickel in concentrate production 14.5ktpa from FY24

## ■ AM6 now a value add:

- ✓ Ore Reserve 2.1mt @ 2.2% for 47kt nickel
- ✓ Additional 5ktpa nickel in concentrate from FY27
- ✓ 211kt of nickel in combined Ore Reserves, increasing mine life and capital efficiency

## ■ Significant upside:

- ✓ Follow up drilling commenced on the 22% Ni massive sulphide lenses below Odysseus
- ✓ Open mineralisation south of AM6

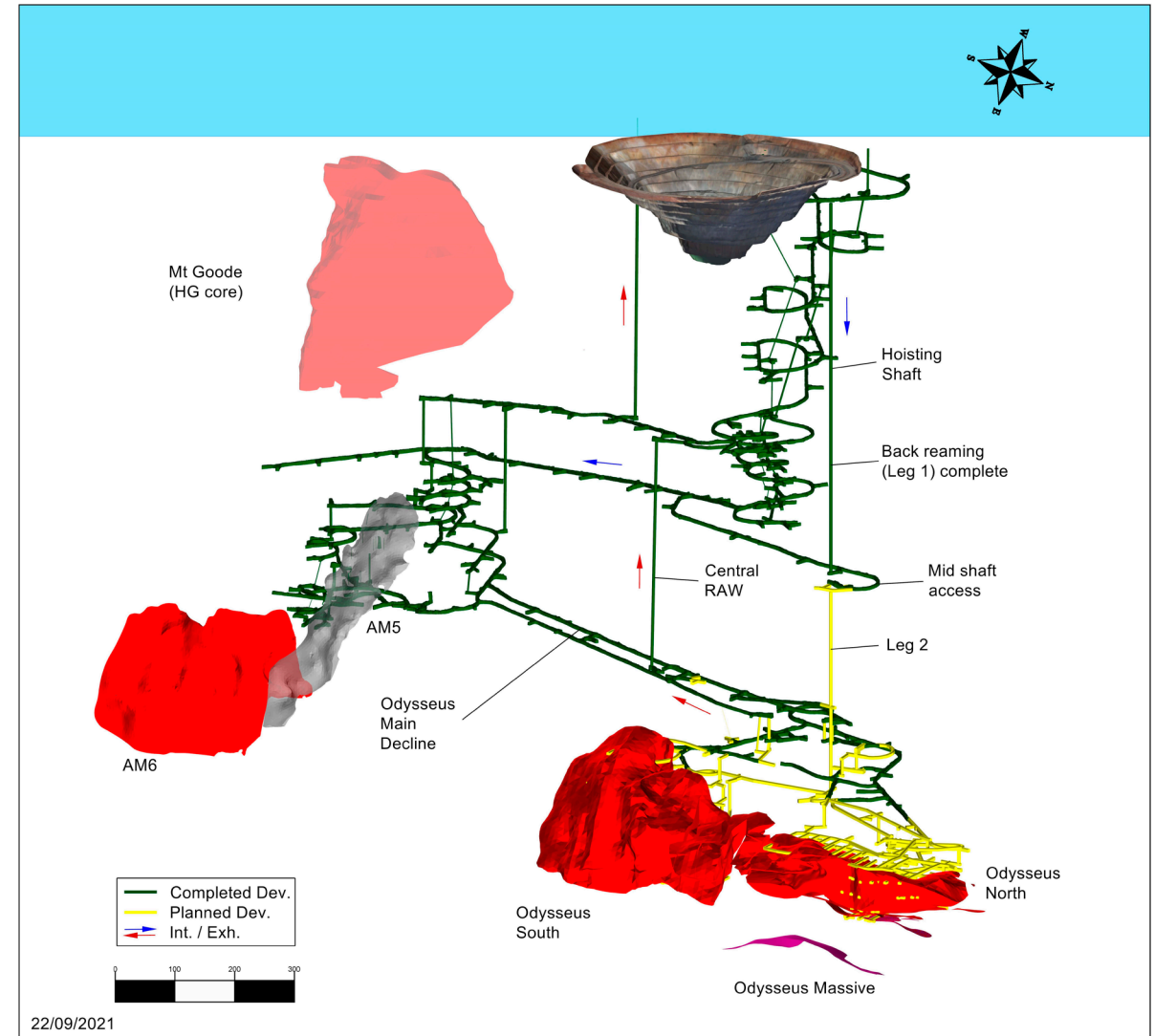




# Odysseus mine – underground development progress

## ■ Pre-production Activities:

- ✓ Winder house construction completed, electrical fit out commenced
- ✓ Odysseus decline development advanced 3km, now on Odysseus South ore
- ✓ Back reaming (5.7m D) complete, Leg 2 pilot hole commenced
- ✓ Pre-production mine development capex expenditure profile:  
FY22 – A\$160m; FY23 – A\$55m
- ✓ WSA is fully funded with cash and agreed debt facilities





# Odysseus first development ore and raise bore breakthrough

- First development ore on L15 in Odysseus south orebody
- Potential for toll treatment
- Leg 1 hoisting shaft back-reaming completed. Length 630m, 5.7m diam – no issues
- Laser survey completed indicating that shaft verticality is within the 200mm tolerance
- Leg 2 pilot drilling commenced, progressing well
- Shaft commissioning 2<sup>nd</sup> Q CY23





# Infrastructure works gaining momentum



Headframe assets  
at Cosmos ready  
for installation





# Infrastructure works gaining momentum





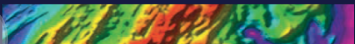
# Infrastructure works gaining momentum





# Infrastructure works gaining momentum

- First of two primary vent fan installations completed
- Commissioning imminent
- Fan capacity selected to include AM6 production





# Why a hoisting shaft?

- Significant economical and environmental benefits versus trucking
- Combined with renewable power = energy efficient site, 85% reduction in CO<sub>2</sub>
- Low, consistent opex and proven technology
- Cycle time: ~3 mins
- Save 1.5 ML diesel burnt pa (DPM)
- Remove 5 MW of heat generated from diesel engines
- Remove minimum 200m<sup>3</sup>/s of additional ventilation requirement

## Key Metrics:

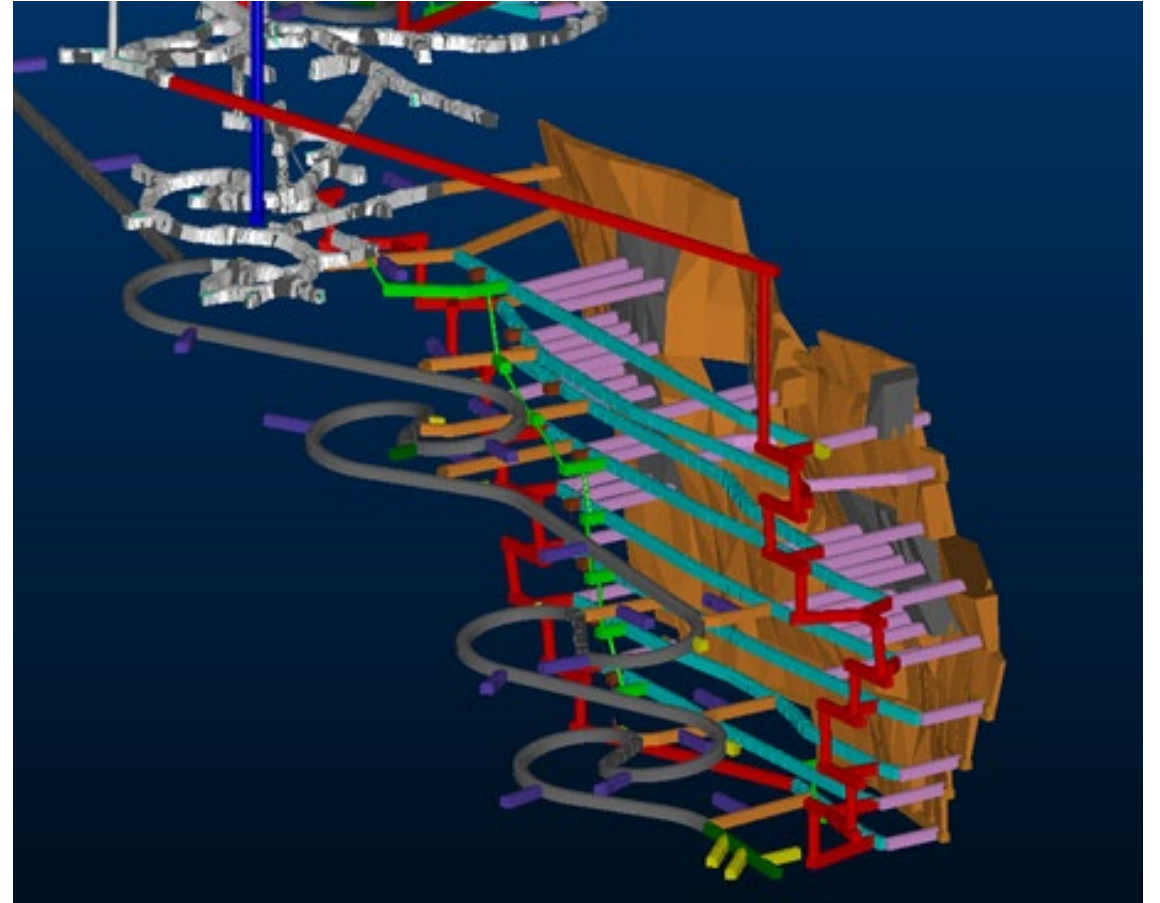
- 5.7m diam. raise bore
- 4 guide ropes per conveyance
- 1.27Mtpa (ore and waste)
- 12 t skips
- 1 truck required to feed shaft
- 4.5 MW peak power





# AM6 Feasibility

- **Feasibility study**
  - Very advanced – remaining ventilation and hydrology work
  - Improved mill recoveries from recent metallurgical work
  - Ore reserve 2.1mt @ 2.2% for 47kt nickel
  - Integration into the Odysseus production schedule
  - Increase mill capacity to 1.1Mtpa
- **Planned mining**
  - Accessed from existing decline
  - Utilises Odysseus shaft for ore haulage
  - Utilises Odysseus return ventilation circuit and dedicated fresh air intake
  - LHOS and paste fill
  - Top down-centre out mining sequence



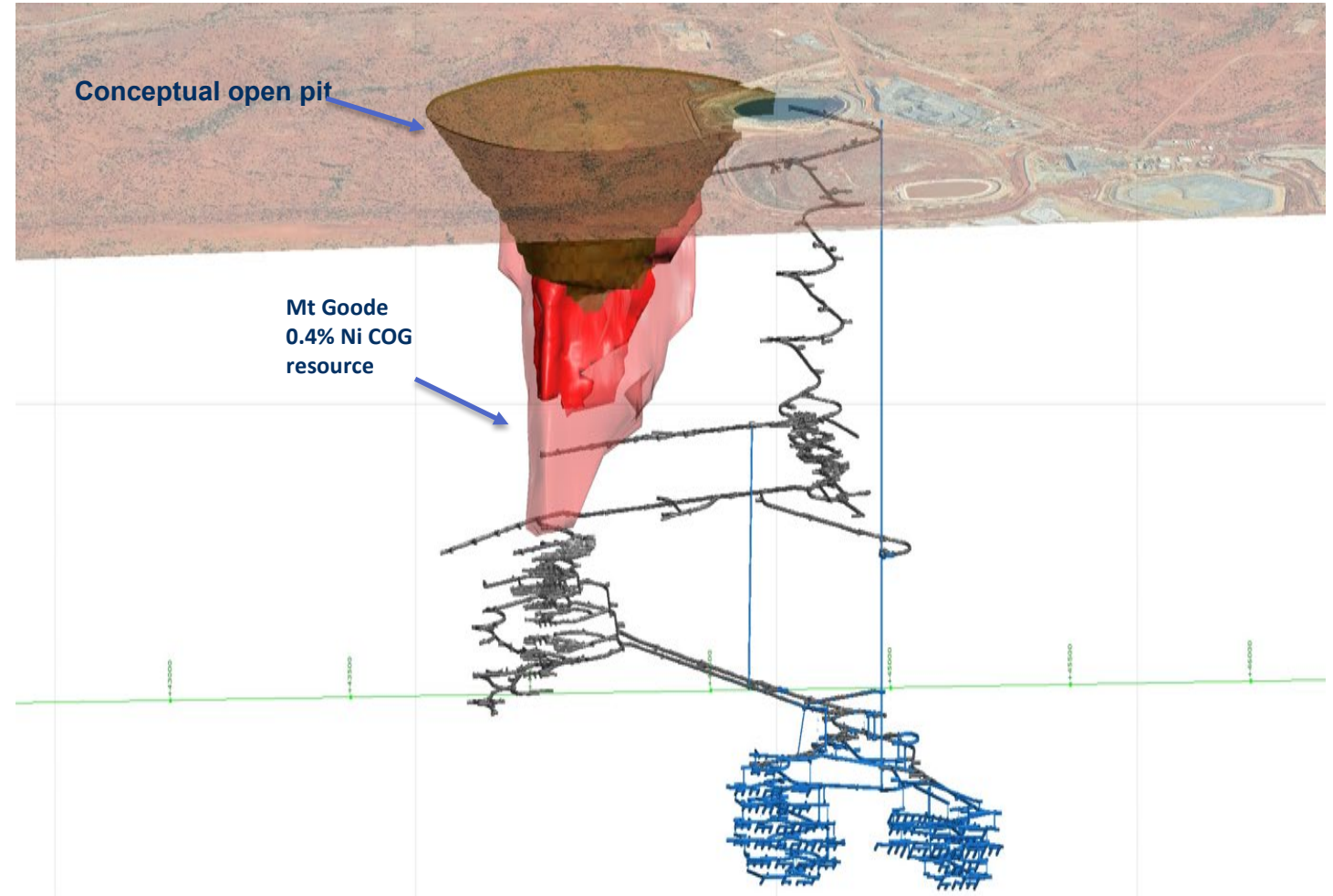


# Mt Goode scoping study underway

Resources	Tonnes (Mt)	Grade (Ni %)	Ni Tonnes (kt)
Measured	13.6	0.8	105.8
Indicated	27.4	0.6	158.7
<b>Measured + Indicated</b>	<b>40.9</b>	<b>0.7</b>	<b>264.5</b>
Inferred	12.0	0.5	62.4
<b>TOTAL</b>	<b>52.9</b>	<b>0.6</b>	<b>326.9</b>

## Scoping Study:

- Mining Scoping Study - UG & OP
- Conventional truck and shovel open pit preferred mining option
- ~ 4Mtpa of ore
- Geometallurgical surface drilling commenced





# FORRESTANIA NICKEL OPERATIONS



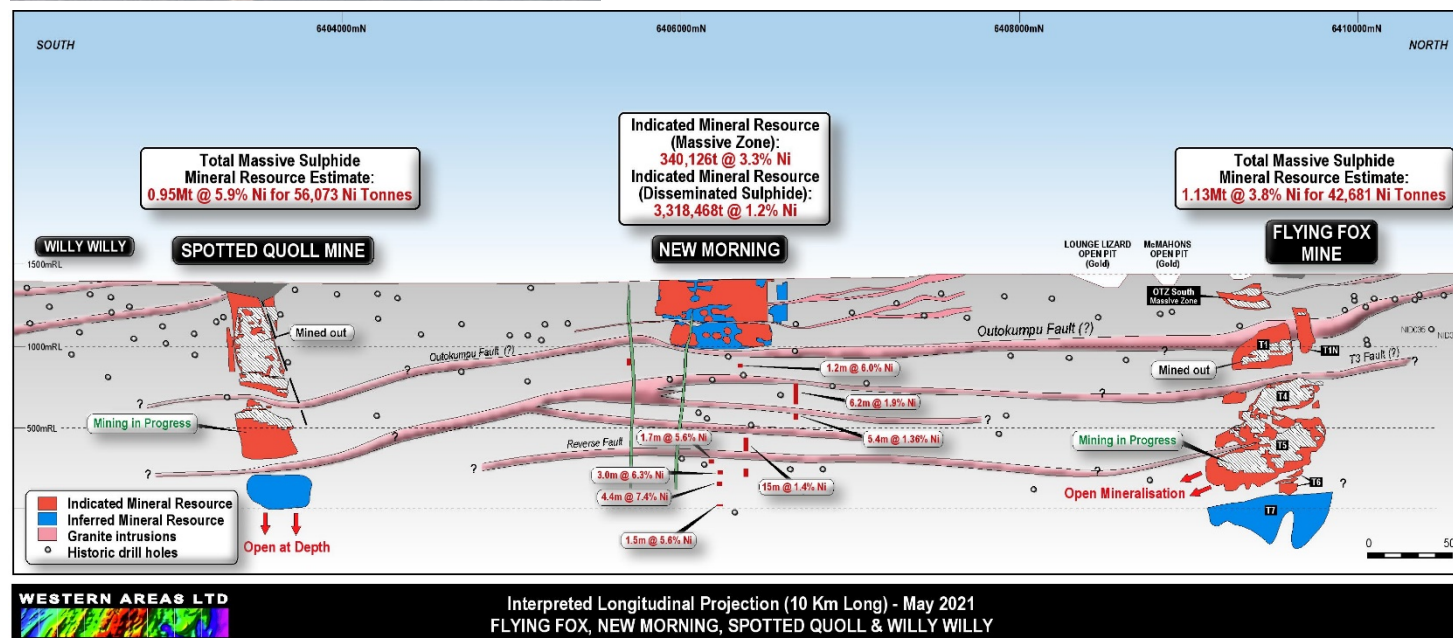
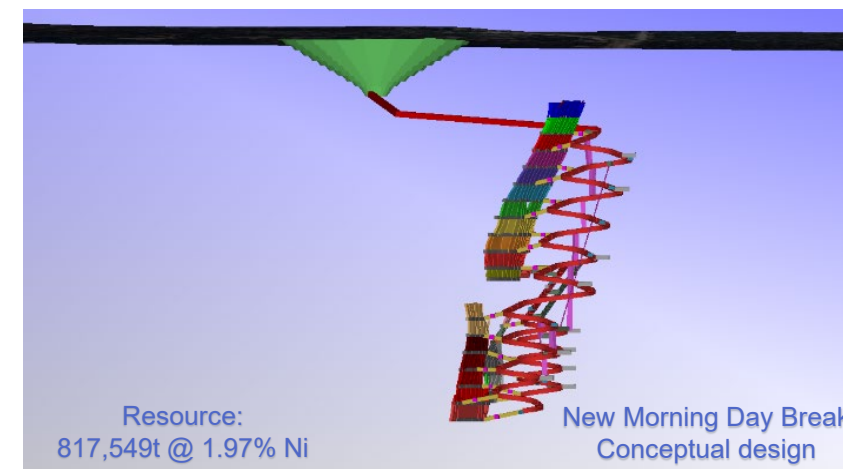
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# FNO growth opportunities

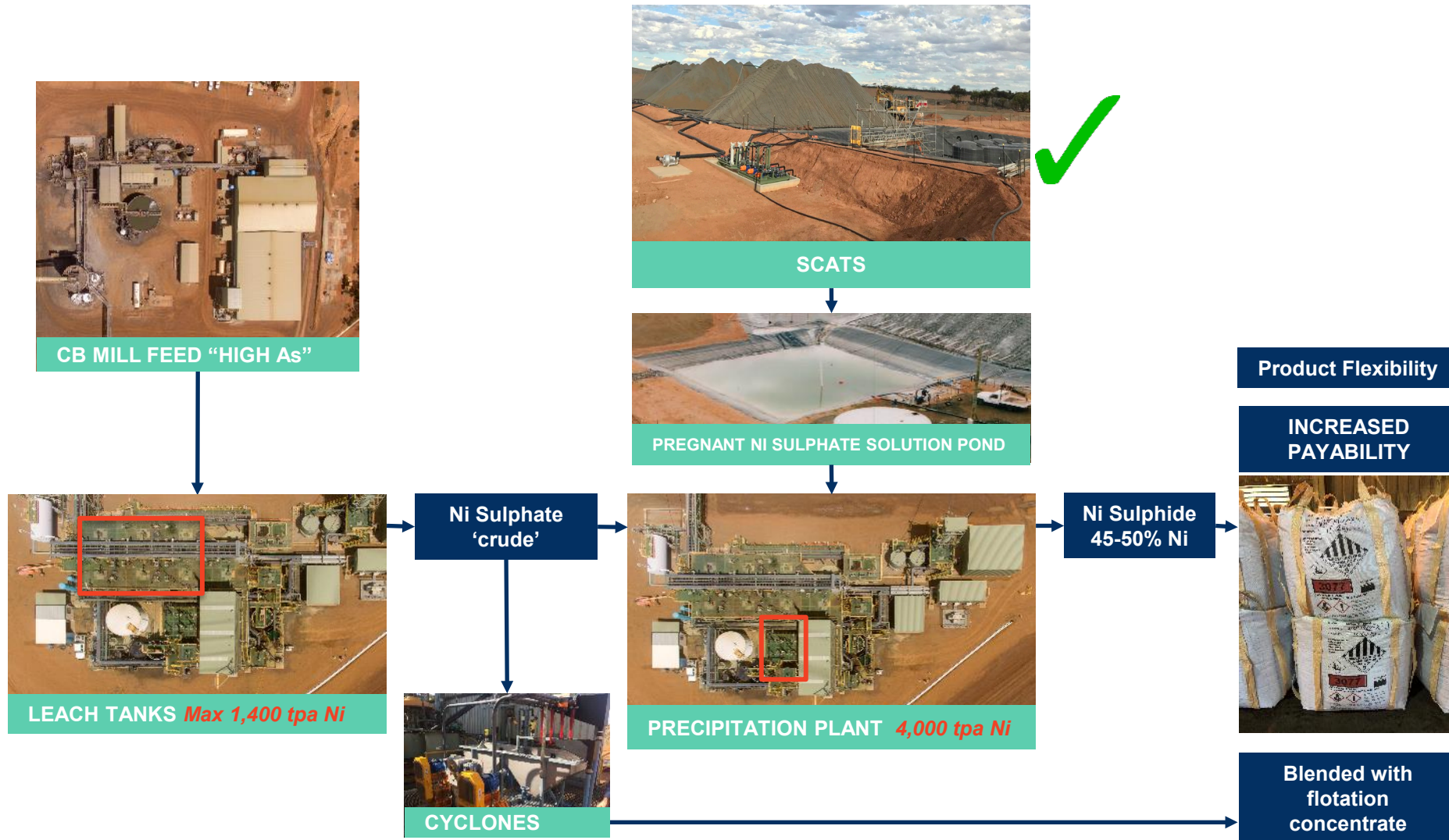
## WESTERN AREAS' CURRENT OPERATIONAL HUB:

- Outstanding nickel address
- Total Resources of 307k tonnes of nickel**
- Mining since 2005
- Established infrastructure
- Two operating mines Flying Fox and Spotted Quoll
- New projects commissioning:**
  - Scats Heap Leach
- Strong upside potential:**
  - New Morning Daybreak
  - Diggers South





# MREP unlocks value – mill scats heap leach project





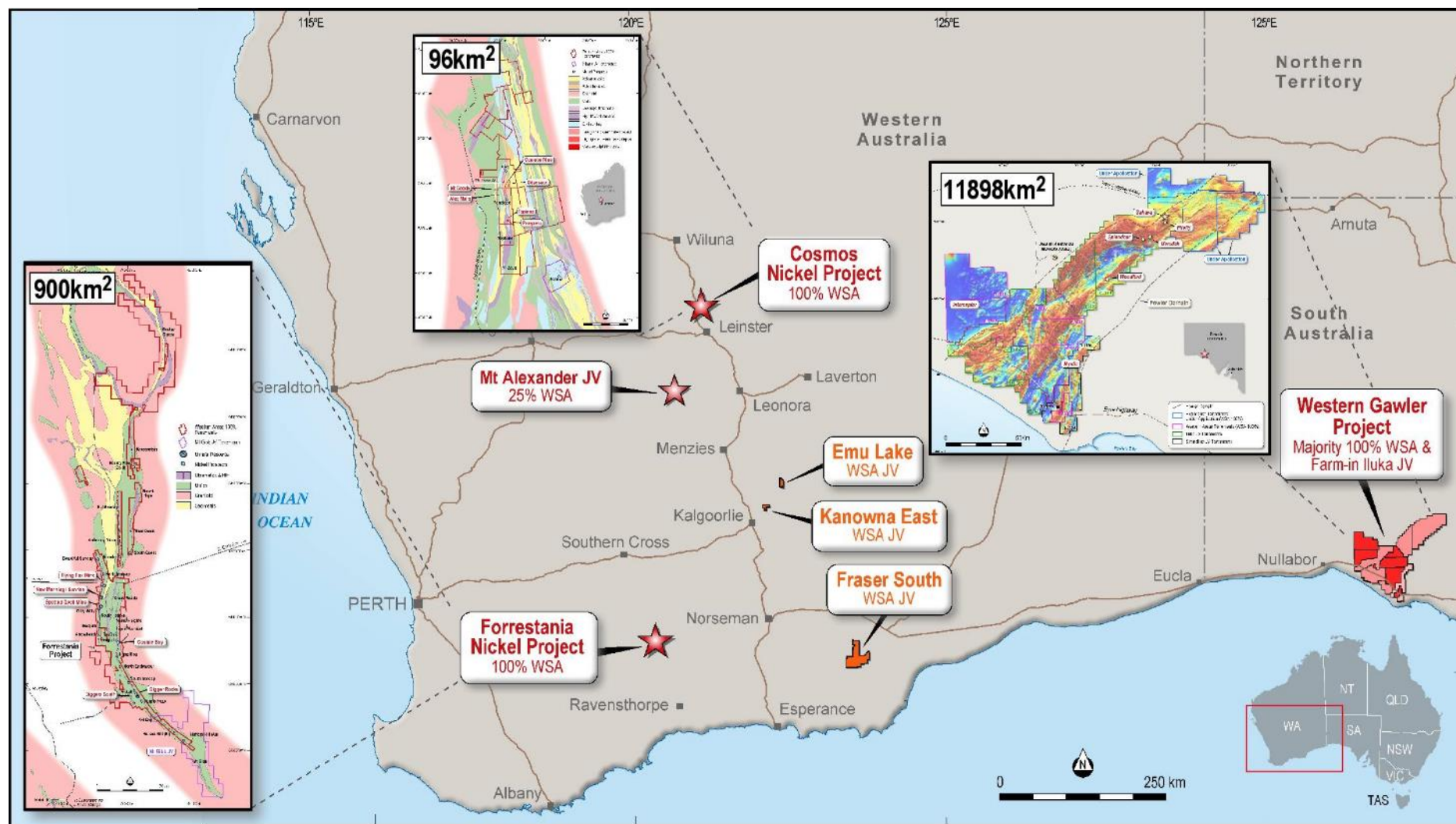
# EXPLORATION

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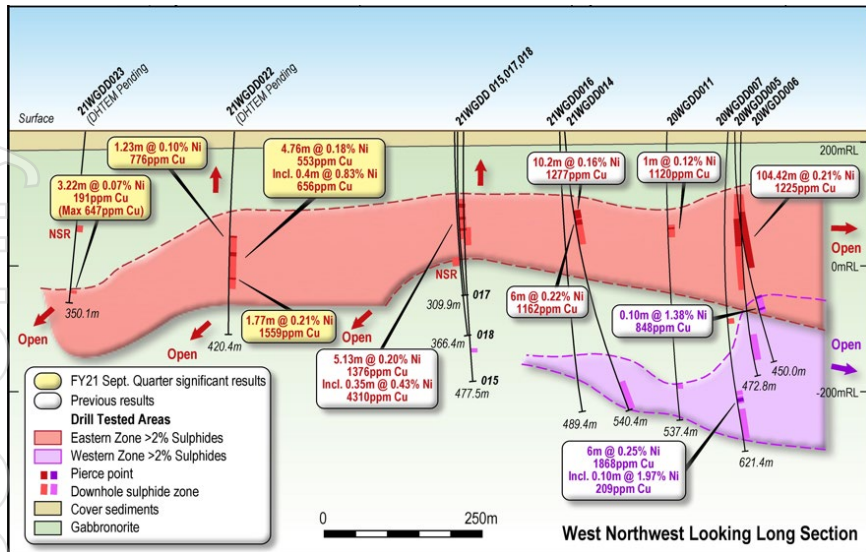


# Exploration - key tenement holdings





# Diverse Exploration Portfolio

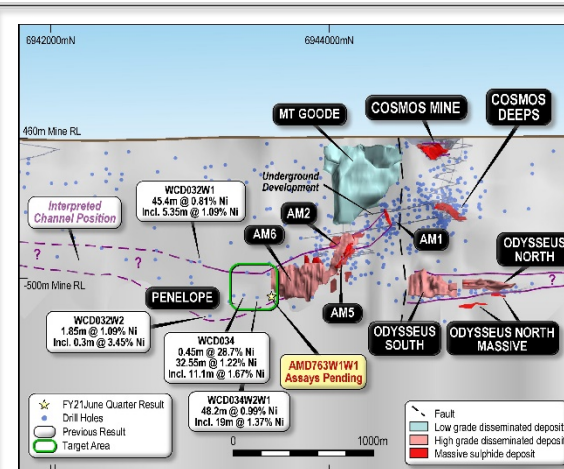
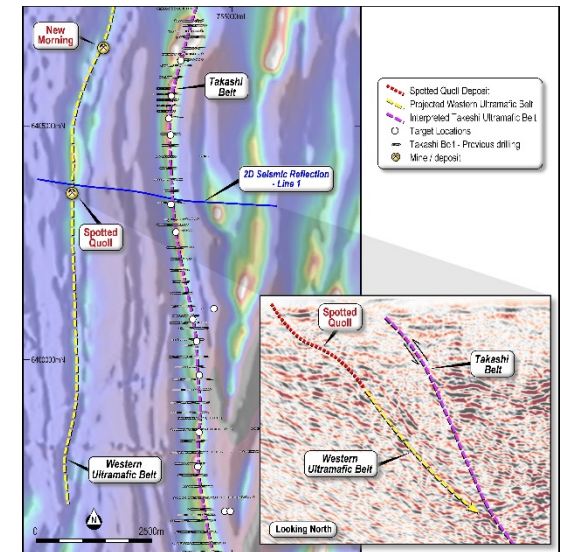


## WESTERN GAWLER (ILUKA JV) - SAHARA

- Broad intervals of elevated nickel sulphides returned from maiden diamond hole (20WGD0005)
- 104.42m @ 0.21% Ni, 0.12% Cu**
- Twelve holes completed in 2021
- Elevated accumulations of disseminated (>2%) sulphide now intersected in excess 750m along strike
- More sulphides confirmed at regional targets (Firefly, F1-7 South and F1-7 North) with follow-up drilling planned**

## FORRESTANIA – NEW Target Space

- Series of 2D Seismic survey lines completed in September 2020 west and north of Spotted Quoll Mine
- New structural interpretation suggests the Takashi Belt represents a thrust repeat of the fertile Western Ultramafic Belt
- RC drilling completed in early FY22 testing this underexplored new target area, with numerous high MgO ultramafic intervals encountered.



## COSMOS

- Centred within the prolific Leinster – Wiluna Nickel corridor
- Significant exploration upside identified along 9km of prospective ultramafic host sequence
- Recent underground exploration drilling completed with mineralisation identified south of the Alec Mairs (AM6) resource confirmed
- Future underground drilling will aim to unlock the full potential south of AM6



# OPERATIONS

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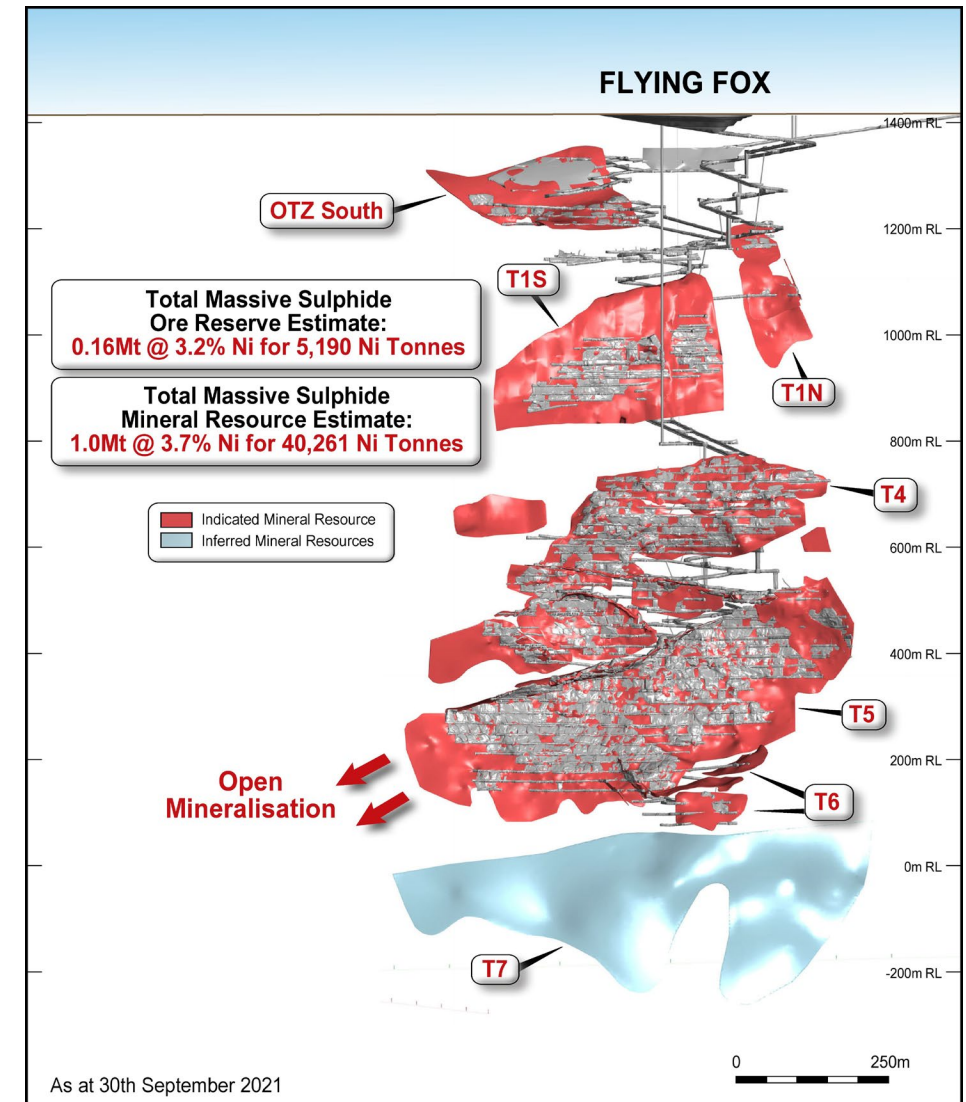


# Flying Fox mine

Reserve Contained nickel	0.16Mt @ 3.2% 5,190 Ni tonnes
Resource Contained nickel	1.0Mt @ 3.7% 40,261 Ni tonnes
Mine life (on reserves)	~1 year

## Key points:

- FY21 production – 5.7k Ni tonnes
- Has been operating for over 15 years
- Significant low grade disseminated resource



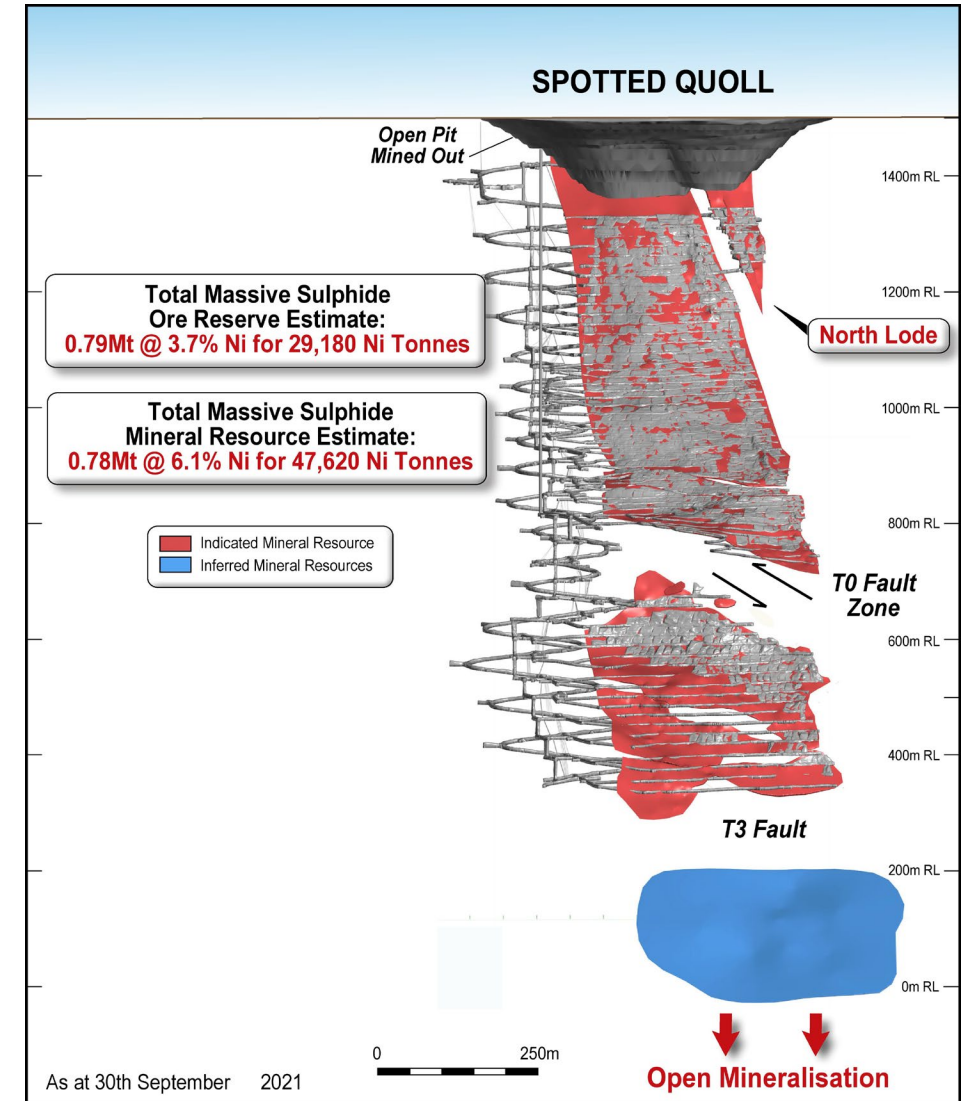


# Spotted Quoll mine

Reserve Contained nickel	0.79Mt @ 3.7% 29,180 Ni tonnes
Resource Contained nickel	0.78Mt @ 6.1% 47,620 Ni tonnes
Mine life (on reserves)	4 years

## Key points:

- FY21 production – 11.1k Ni tonnes
- Top down mining with paste fill
- Resource extension potential
- 2021 marks the 10<sup>th</sup> anniversary of Spotted Quoll Underground operations





# Cosmic Boy nickel plant

## Concentrator Summary

- Name plate capacity of 550,000 tpa
- Concentrate grades of between 15.0% to 16.0% Ni
  - ✓ Premium blending product (Fe/Mg ratio >15:1)
  - ✓ Desirable to smelters

## MREP Summary

- Enhances average concentrator nickel recovery and generates value from waste tailings streams
- Produces additional higher-grade product (45%-50% Ni), being sold to new, EV battery linked customers – mainly refineries
- Current contract with Sumitomo Metals & Mining. Combined with several spot sales to other refineries





# WESTERN AREAS LTD



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