

5<sup>th</sup> April 2016

# ASX ANNOUNCEMENT



## AVALON MINERALS – INVESTOR UPDATE

### Highlights

- Updated work on the Viscaria Copper Project Scoping Study delivers greater confidence in the 2.0 Mtpa Target Case;
- Mining Inventory increased with expanded pit design, and incorporation of Exploration Potential from D Zone;
- ESIA and permitting progressing;

Avalon Minerals Ltd (**ASX: AVI**) ('Avalon' or 'Company') has progressed work on a 2.0Mtpa Target Case for the contemplated development of the Viscaria Copper Project in Sweden (see ASX announcement 18/12/2015).

This is presented in the attached updated Corporate Presentation. The results of this work demonstrate that a 2.0Mtpa project delivering greater than 20,000t copper in concentrate per annum is a viable development scenario.

Increased mining inventory has come from an expanded open pit and an increased degree of confidence in exploration potential from holes drilled at the end of 2015, but not included in the 2015 mineral resource estimate.

Detailed reappraisal of all drilling data has also identified significant opportunities for improved project metrics, such as additional copper mineralised zones in the footwall and hangingwall of A and B zone orebodies, and improved understanding of the structural model and geometry for the A, B and D Zone orebodies.

Operating and Capital costs have been carefully benchmarked providing a high level of confidence in input parameters.

The Environment and Social Impact Assessment (ESIA) activities are continuing and provide critical input into the environmental permitting required to allow for development.

**For further information please visit [www.avalonminerals.com.au](http://www.avalonminerals.com.au) or contact:**

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**ASX: AVI**

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**AVALON**

MINERALS LTD

COPPER IN SWEDEN  
BUILDING A EUROPEAN COPPER PRODUCER



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Investors are cautioned that any such statements are not guarantees of future performance and that actual results or developments may differ materially from those projected in forward-looking statements.

# AVALON MINERALS – SIMPLE STORY

1. Copper development company
2. Updates to Viscaria Scoping Study deliver robust 21,000tpa producer for minimum 9 years
3. Single high quality asset focus - Viscaria
4. Supported by outstanding infrastructure - Kiruna
5. Low sovereign risk - Sweden
6. Highly competent team in place to deliver project

***If you believe in copper then Avalon represents a compelling investment opportunity***

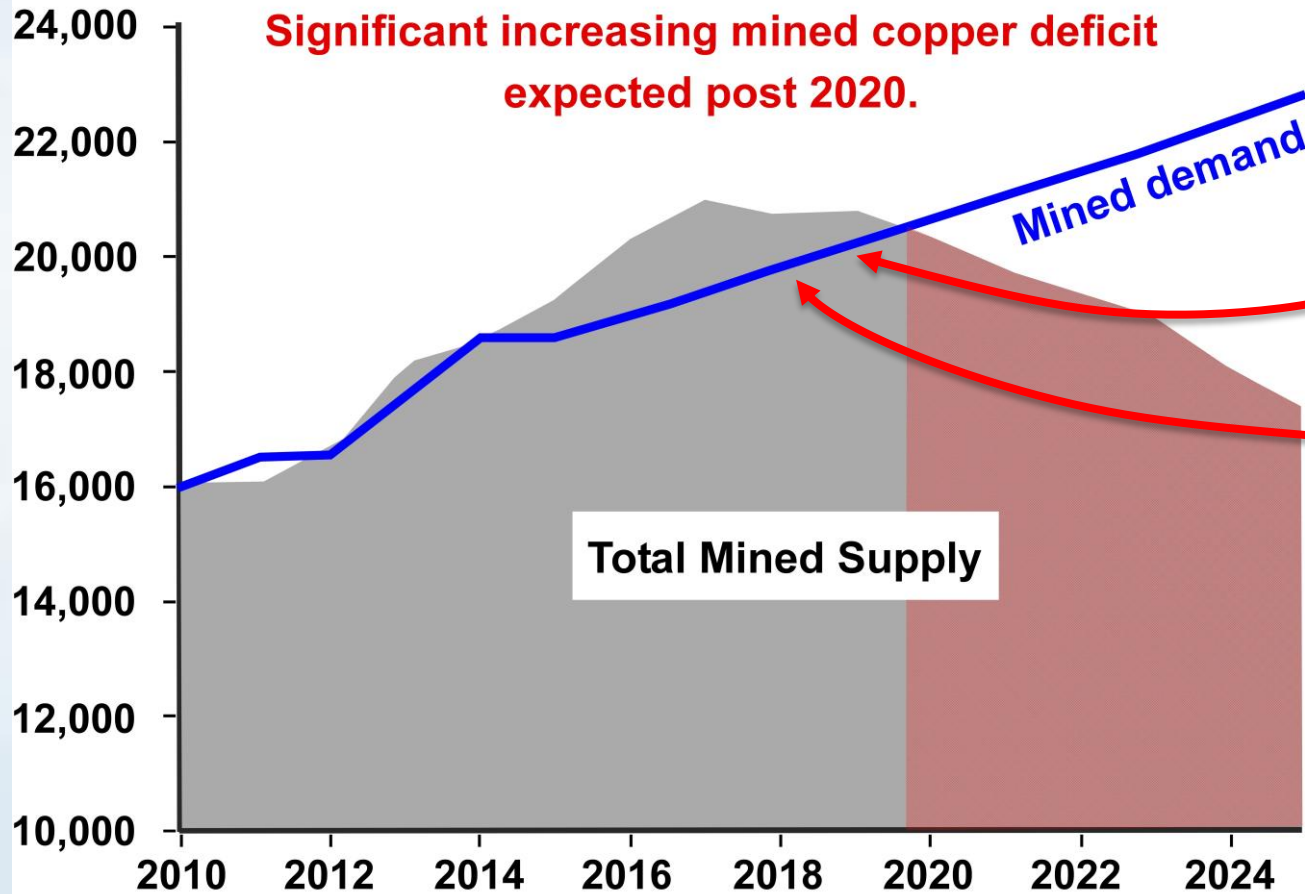
*As energy becomes greener approx. 3 - 5 times more copper per megawatt will be required (source - Atalaya Mining Nov 2015)*

*While a conventional car contains 15kg of copper on average, hybrid cars contain 30-40kg, and a full electric vehicle, 60kg (source - m2m.riotinto.com)*



# COPPER – SUPPLY, DEMAND, FORECASTS

Copper demand and projected supply from existing and committed projects ('000t)



**Significant increasing mined copper deficit expected post 2020.**

**Mined demand**

**Total Mined Supply**

**Viscaria production forecast to come on line at tightening of supply-demand, and consensus forecast price increase**

**Develop in the lead-up to a supply shortfall**

**Copper price up 5% YTD**

# CORPORATE

<b>TICKER</b>	<b>ASX:AVI Frankfurt:AL9</b>
<b>SHARE PRICE*</b>	<b>A\$0.015</b>
<b>SHARES ON ISSUE</b>	<b>378,353,560</b>
<b>MARKET CAP</b>	<b>A\$5.3M</b>
<b>CASH#</b>	<b>A\$1.2M</b>
<b>52 WEEK TRADING</b>	<b>A\$0.014 - \$0.035</b>

As at 29.03.16 - 30 day VWAP \*

As at 29.03.16 - unaudited #

Top 10 shareholders hold 70% of shares on issue

Board and management hold 3.5% and have participated in recent placements

European and UK shareholders total 50%

## SUBSTANTIAL SHAREHOLDERS

<b>NAME</b>	<b>%</b>
Valbonne II	17.1%
Marilei International	9.9%
Tan Sri Abu Sahid Bin Mohamed	8.9%
Potezna Gromadka	8.5%
Wyntorc SA	5.5%

# VISCARIA COPPER PROJECT



PROJECT SITE



KIRUNA TOWN



PUBLIC ACCESS ELECTRIC RAIL

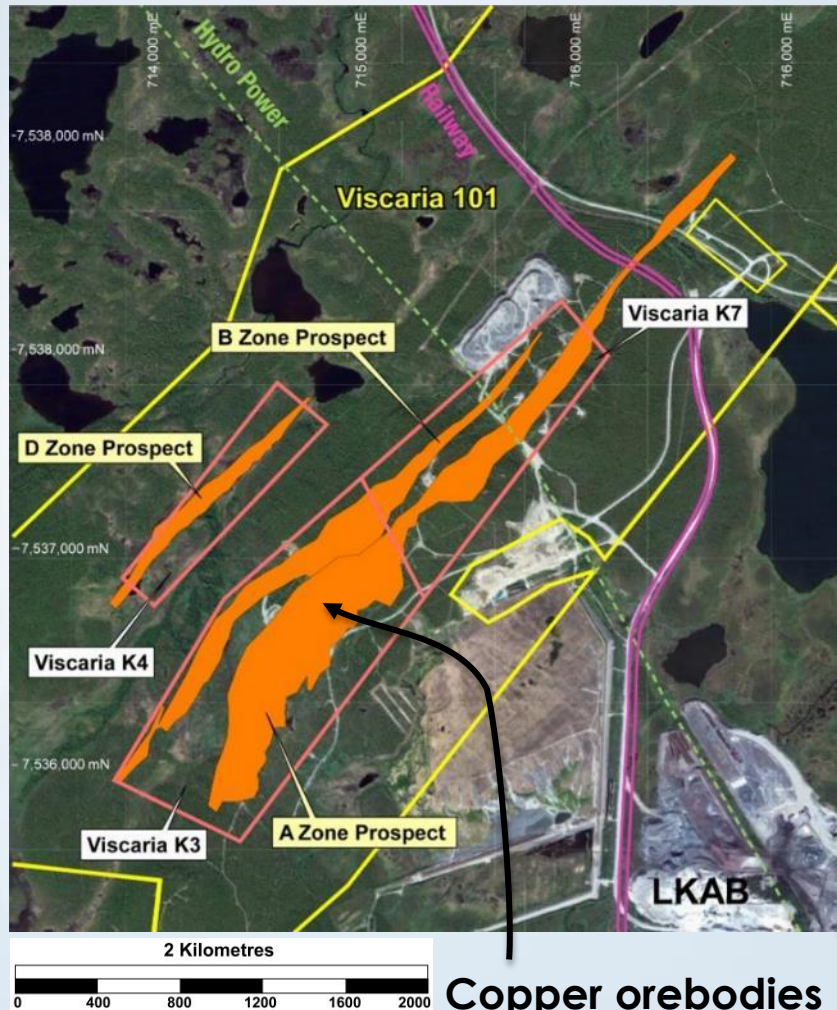


LOW COST HYDRO POWER

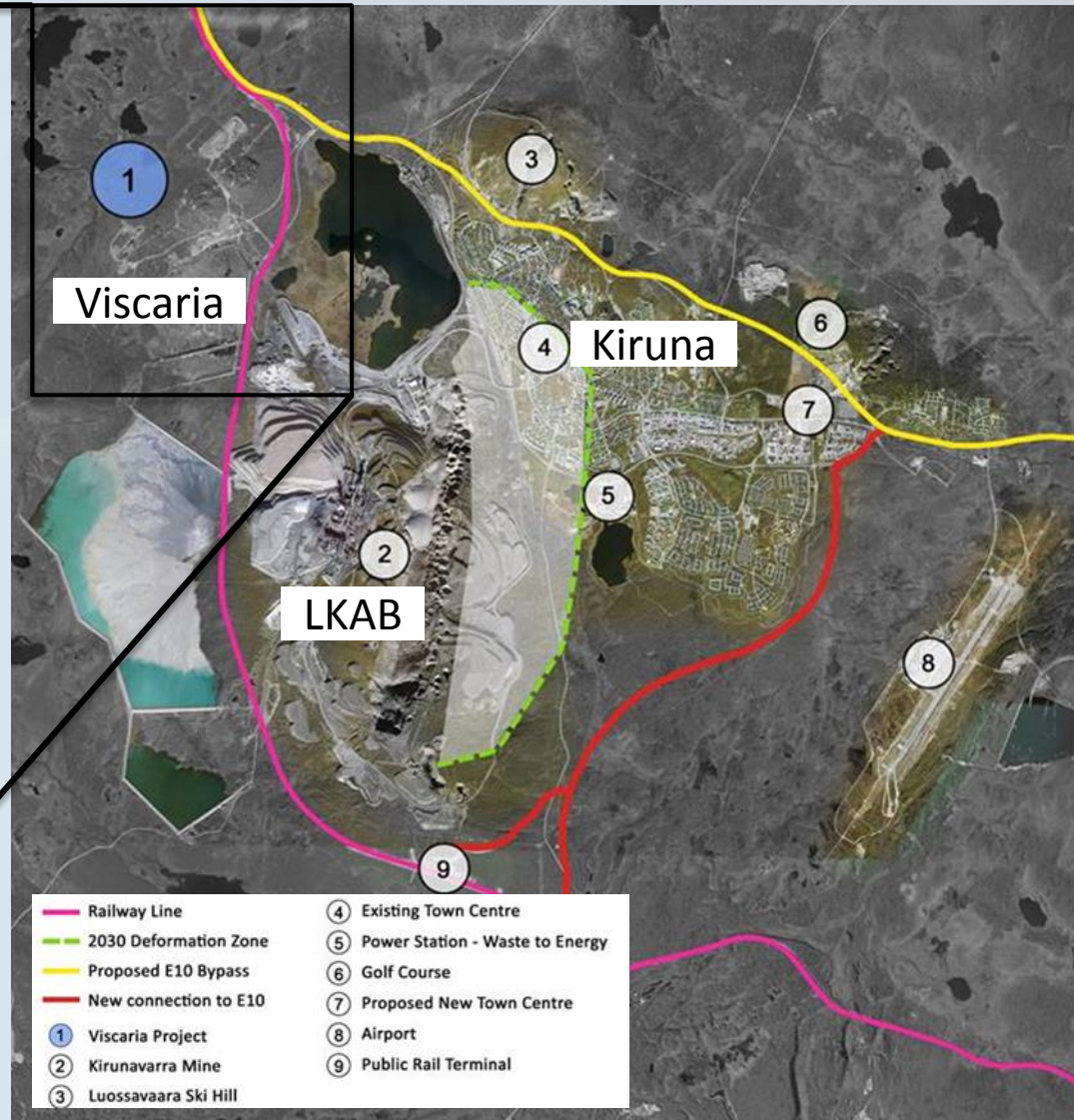




# KIRUNA AND VISCARIA LOCATION MAP



Copper orebodies shown in orange





# VISCARIA COPPER: EXPANDED SCALE

- **Delivering increased project scale to an average annual production rate of between 20,000 – 30,000 tonnes copper in concentrate**
- Increased mining inventory through low technical risk drilling of an exploration target (see slide 11) will be undertaken on **D Zone orebody extensions**
- Extending the currently defined shoots at D Zone has already delivered success in drill holes VDD 195 and 196 (slide 11, and refer ASX Announcements dated 8 and 18 December 2015).
- Drill holes VDD 195 and 196 have delivered in the range 0.5 – 1 million tonnes at 1.3 – 1.8% Cu. Drilling of approximately 6,600m is expected to deliver in the range of 2.5-3 million tonnes at similar grades. This drilling is planned for H2, 2016.
- Expansion and combination of the A and B Zone open pits based on pit optimisation modelling has added to the mining inventory (see slides 10, 14 & 15).
- Approximately 4% of the total production target mining inventory is categorized as Inferred Mineral Resource (D Zone Underground – see slides 10 and 24). 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.
- The potential quantity and grade of an exploration target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised.

# VISCARIA COPPER: UPDATES TO 2015 SCOPING STUDY

- At the expanded scale of 2.0Mtpa the project is less sensitive to copper price and **at \$2.75/lb Cu delivers a robust return of 20% IRR**
- **At Target Case 2.0Mtpa the project delivers average annual net operating profit of US\$66 million.** For comparison, the base case delivered US\$33 million.
- Viscaria is a tangible asset that **will deliver Cu at an all in sustaining cost of <US\$2.00/lb (current Cu price US\$2.25/lb)**
- Capital costs have been benchmarked, and are low because existing infrastructure is already in place (see slide 23)
- High grade A Zone underground represents significant further upside beyond the targets stated above
- The Viscaria orebodies are open to the north, south and at depth, and there are strong indications of additional ore horizons

# VISCARIA COPPER: UPDATES TO 2015 SCOPING STUDY

The 2015 Scoping Study confirmed the project description to begin ESIA process (Refer ASX Announcement 14 December 2015)

	2015 Scoping Study	Target Case A and Expanded Case	
Process plant size	1.2Mtpa scenario	2.0Mtpa scenario	3.0Mtpa scenario
Strip ratio (LOM)	5.8	6.0	8.4
Process	Crush, grind and copper flotation plant		
Recovery rates	90.2%	90.2%	90.2%
Copper Production			
LOM	107kt	200kt	260kt
Average per annum	12kt	21kt	30kt
Mine life	Minimum eight years, open	Minimum nine years, open	Minimum nine years
Development capital			
Site Infrastructure	US\$87m (A\$119m)	US\$115m	US\$145m
Underground	US\$15m (A\$20m)	US\$15m	US\$15m
Sustaining capital (LOM)			
Site Infrastructure	US\$10.6m (A\$14m)	US\$14m	US\$18m
Underground	US\$20.0m (A\$27m)	US\$35m	US\$35m
Cash operating cost		Targeting <US\$2.00/lb	
LOM C1	US\$1.86/lb (A\$2.54/lb)		
LOM AISC	US\$2.10/lb (A\$2.87/lb)		
Copper price	US\$3.25/lb (A\$4.45/lb)	US\$3.00	US\$3.00
Exchange rate			
AUD : USD	0.73	0.73	0.73
NPV pre-tax (7%)	US\$74m (A\$102m)	Targeting >US\$150 mill	
IRR pre-tax (%)	22%	Targeting >28%	
Payback period	3.7 years	<4 years	<4 years
Capital intensity	US\$7,335/t cu p.a.	~US\$5,750	~US\$5,100



# VISCARIA COPPER: MINERAL RESOURCE ESTIMATES AND MINING INVENTORY

Mineral Resource	Tonnes (Mt)		Grade (% Cu)	
A Zone <sup>#</sup>	21.6		1.5	
B Zone <sup>#</sup>	19.7		0.8	
D Zone Open Pit*	3.1		0.8	
D Zone Underground*	8.0		1.4	
<b>Total (93% Measured and Indicated)</b>	<b>52.4</b>		<b>1.2</b>	
Mining Inventory	Tonnes (Mt) 2015	Tonnes (Mt) 2016	Grade (% Cu) 2015	Grade (% Cu) 2016
A Zone Open Pit <sup>@</sup>	2.6		1.3	
B Zone Open Pit <sup>@</sup>	2.0		0.7	
Combined A & B Zone Open Pit <sup>^</sup>		8.0		0.9
D Zone Open Pit <sup>@</sup>	1.6	1.6	0.9	0.9
D Zone Underground <sup>@^</sup>	3.8	5.0	1.5	1.5
Exploration target <sup>^</sup>		3.0-4.0		1.3-1.8
<b>Total</b>	<b>10.0</b>	<b>18.0</b>	<b>1.2</b>	<b>1.2</b>

\* 2015 JORC Mineral Resource estimate

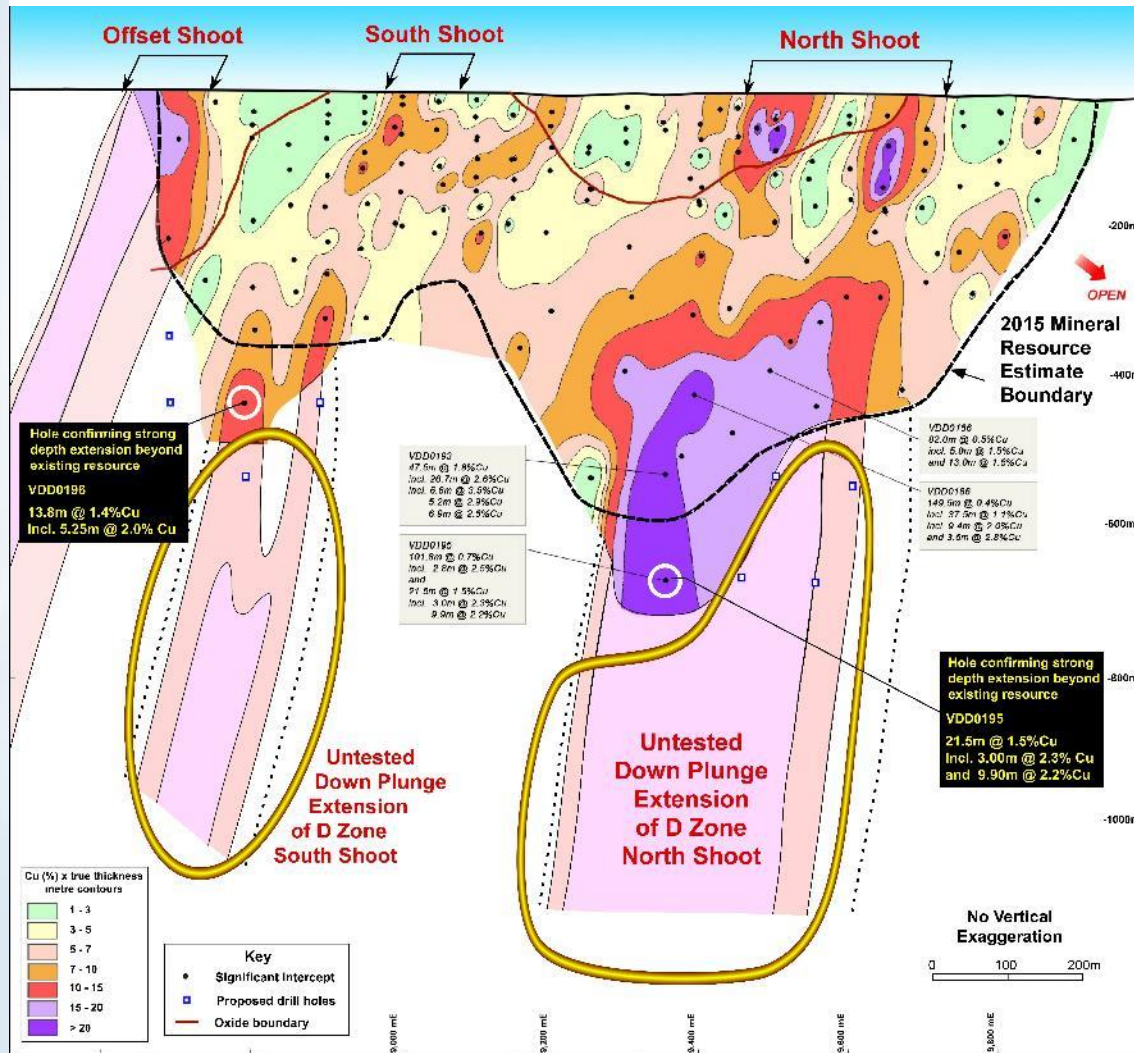
# 2014 JORC Mineral Resource estimate, based on initial work completed in Nov 2011; 0.4% COG all considered to be open-pittable

@ 2015 Scoping Study Mining Inventory

^ 2016 updated target Mining Inventory

# D ZONE: EXTREMELY CONFIDENT IT WILL BE LARGER

Clear message from 2015 – orebody is getting better as we go deeper

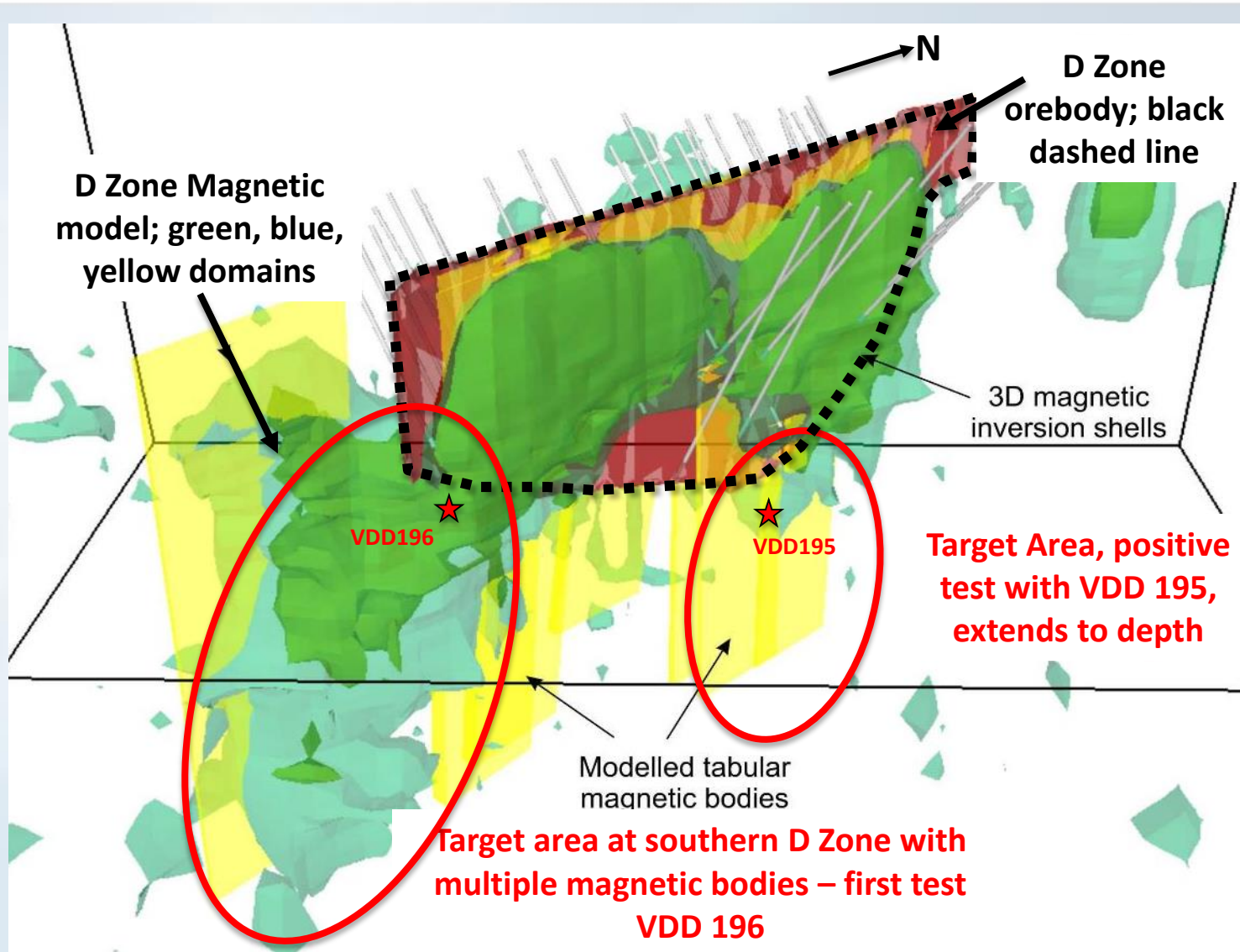


The northern target zone has the potential to deliver 3-5Mt of mineralised rock, at grades comparable to those seen in VDD 195 (21.5m @ 1.5% Cu)

Similarly the southern target zone has the potential to deliver 1-3Mt of mineralised rock, at grades comparable to VDD 196 (13.8m @ 1.4% Cu)

... and geophysical modelling of the host magnetite indicates that even more extensive target zones exist .....

# D ZONE: EXTREMELY CONFIDENT IT WILL BE LARGER



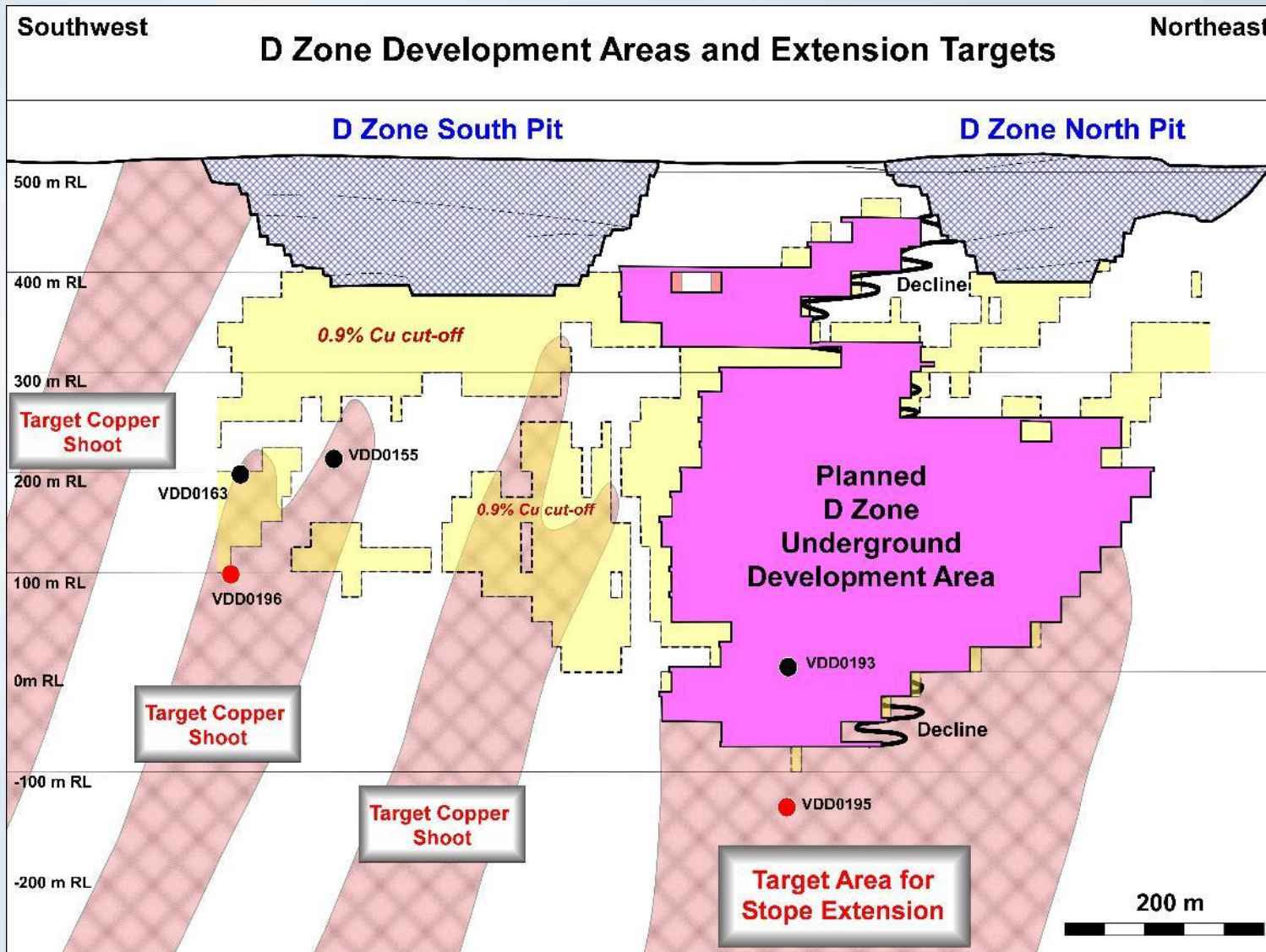
D Zone copper host is 50-70% magnetite – simple process to model host to deliver orebody geometry

3-D and plate modelling of magnetic data demonstrates very clearly that the orebody is larger than currently drilled

And we have demonstrated in our 2015 results that we know where to drill



# D ZONE: 2015 MINE PLANNING

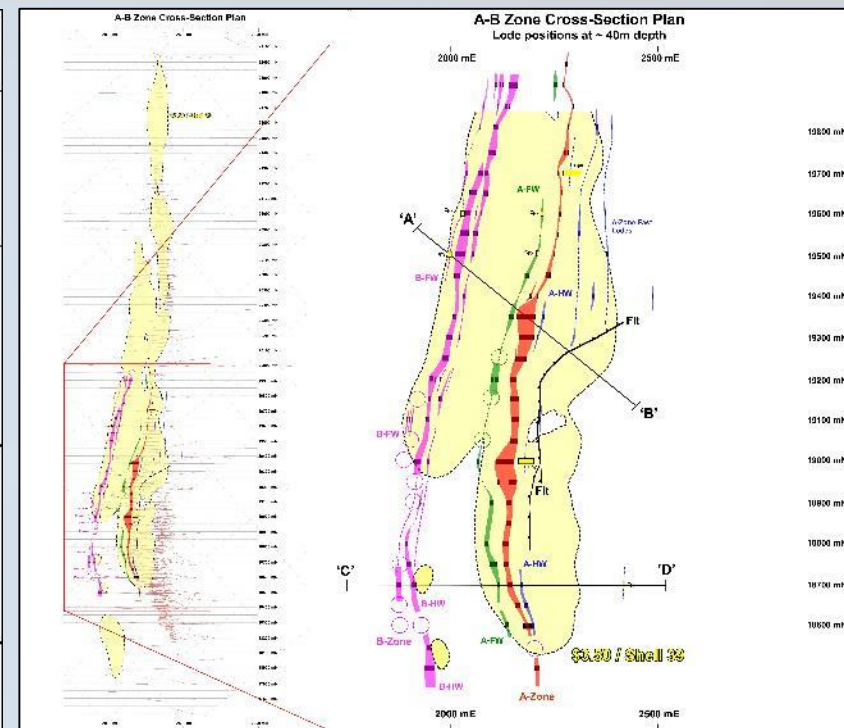
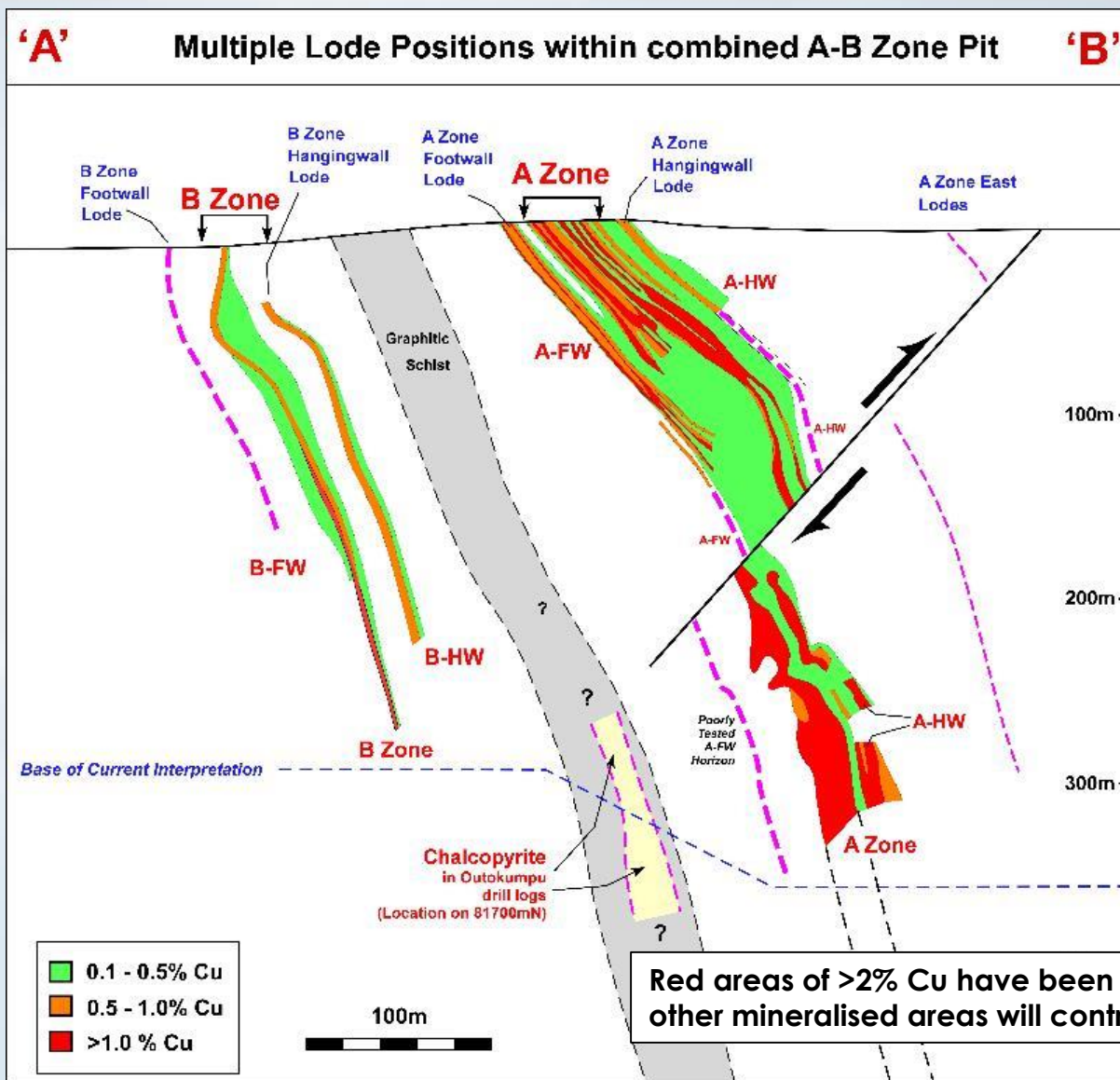


Mine planning will be modified to capture deeper and new shoots, for example those expected in the vicinity of VDD 196

And that will deliver >0.9% Cu cut-off material shown in yellow

This will contribute to increased mining inventory

# A & B ZONE COMBINED OPEN PIT: MORE TONNES AND IMPROVED STRIP RATIO

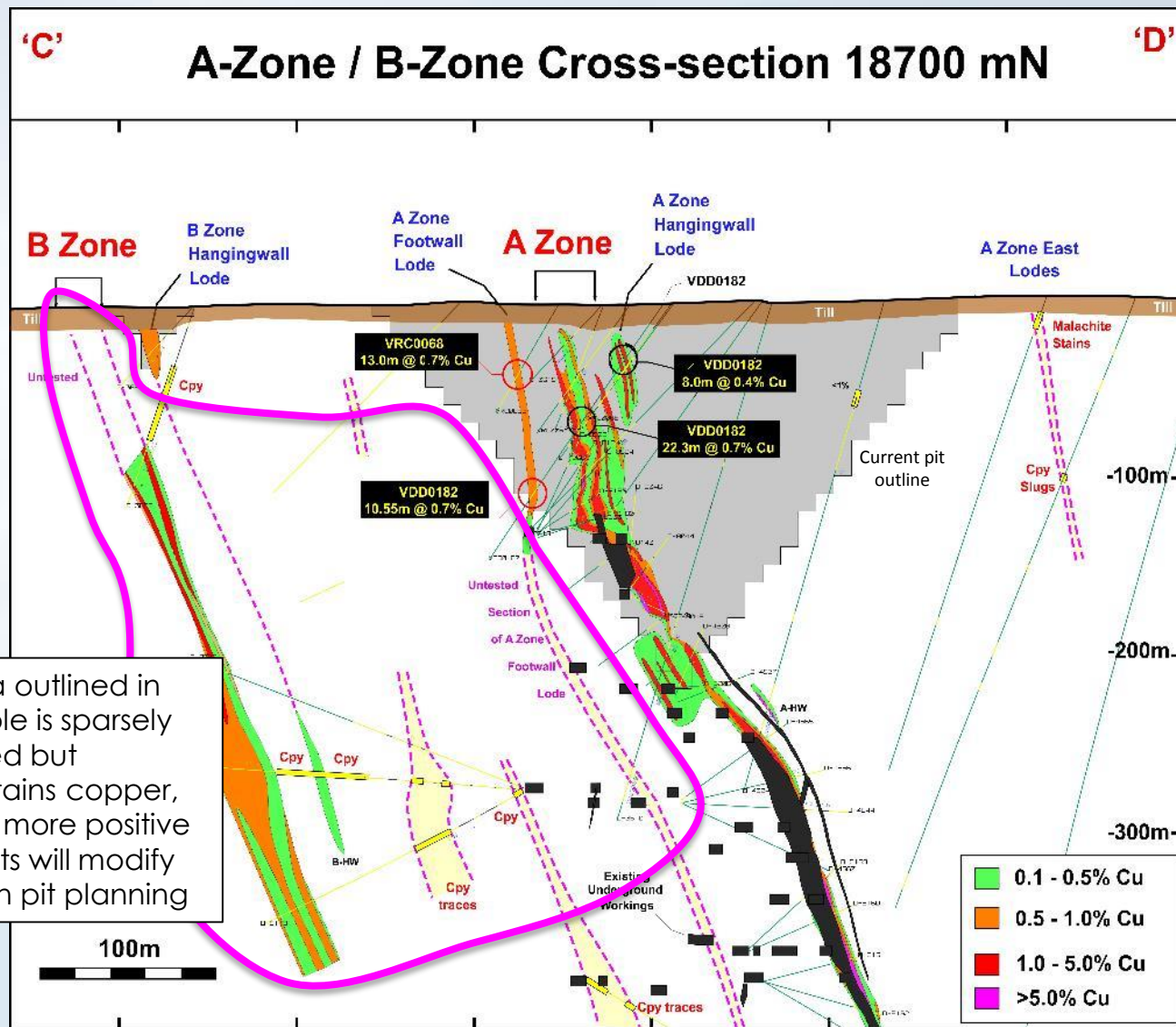


**Historical mining targeted >2% Cu only**  
**Very significant open pit opportunities**

Red areas of >2% Cu have been partly mined, but all other mineralised areas will contribute to resource growth



# A & B ZONE: SIGNIFICANT UPSIDE IN EXPANDED OPEN PITS



Area outlined in purple is sparsely drilled but contains copper, and more positive results will modify open pit planning

There is more copper within the expanded open pit than the historical resource estimate suggests

This is confirmed by Avalon drilling from 2014 (VDD 182) and detailed reviews of historical drill holes

Exploration Target for A&B Zone open pit is 10 -15 million tonnes at 0.7 – 1.3% Cu.

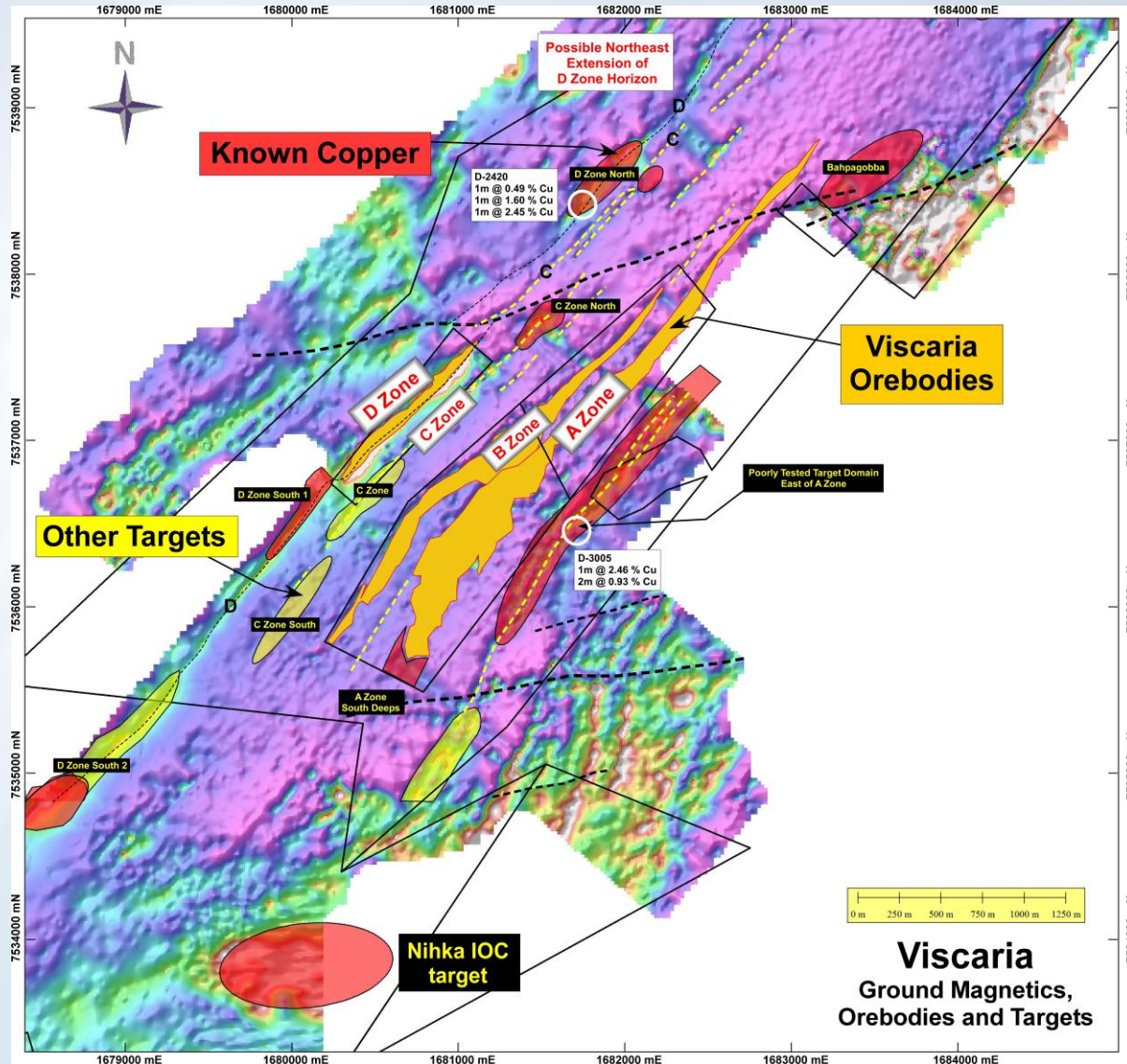
Multiple mineralised horizons defined

Potentially significant upside between A and B Zones





# MUCH MORE COPPER IN THE DISTRICT



Mine scale orebody extensions, low technical risk

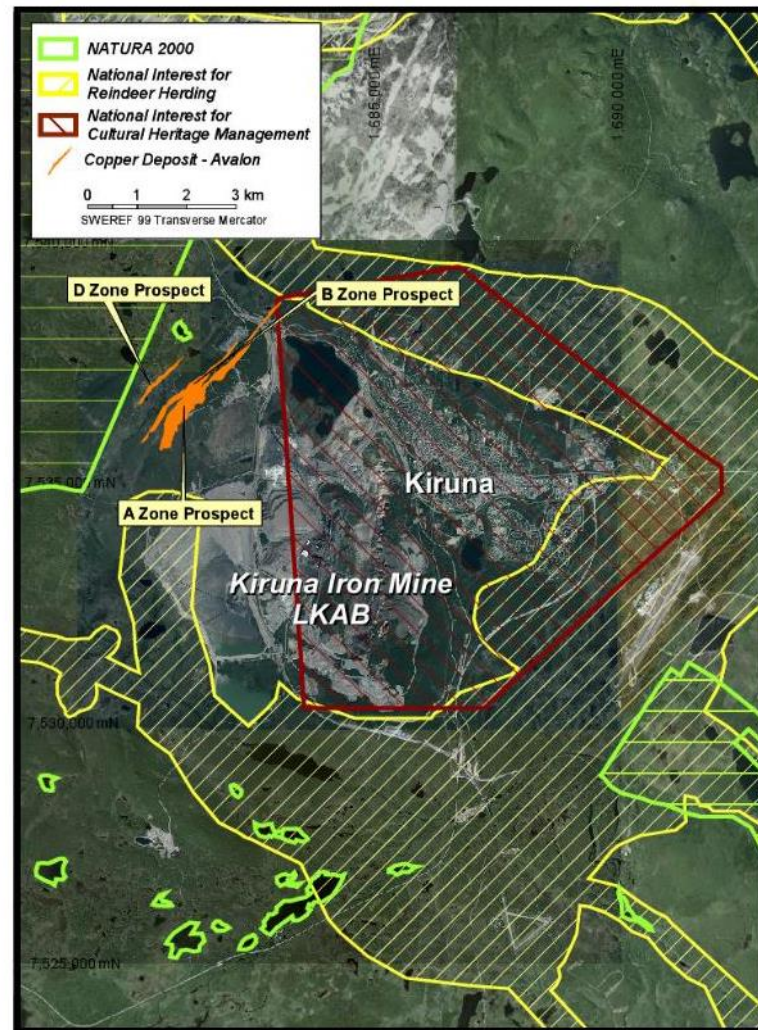
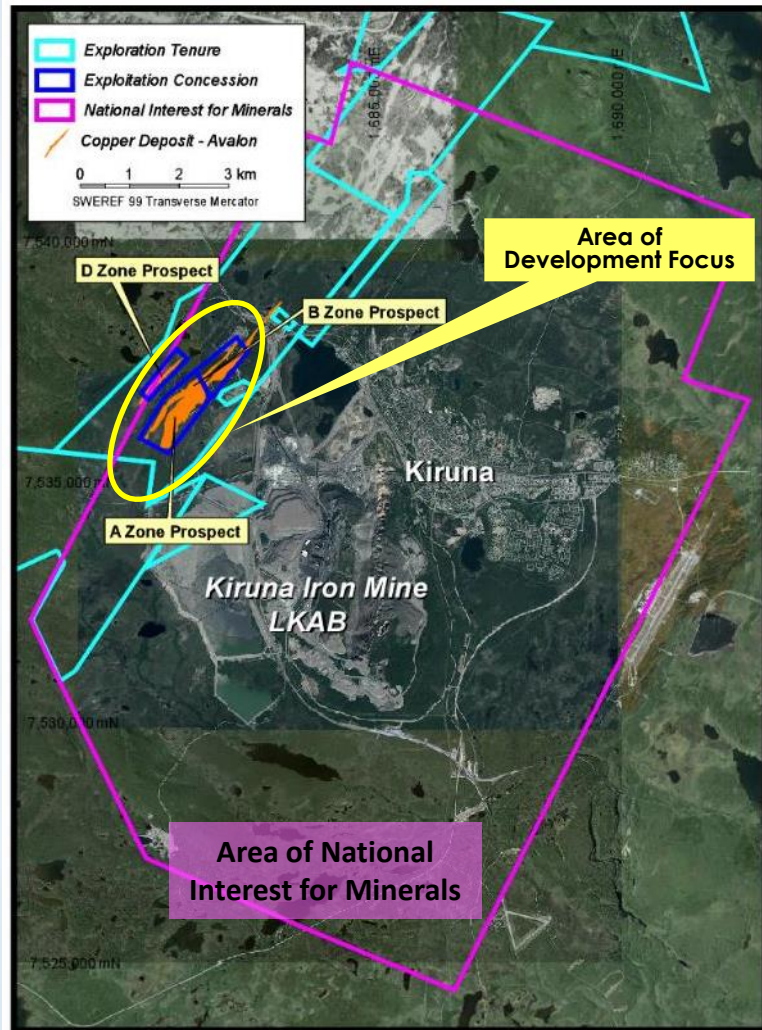
Exploration success within 5km

A rich portfolio of near mine targets to add to the scale of the project



# STAKEHOLDER ENGAGEMENT AND PERMITTING

AVALON IS COMMITTED TO STRONG COMMUNITY ENGAGEMENT AS THE VISCARIA DEVELOPMENT PROGRESSES



The proposed development area is in a window surrounded by multiple land use areas

- The key issues are
- a strong mining heritage
  - water management
  - reindeer herding
  - Natura 2000
  - recreation

The ESIA process has commenced

# A HIGH QUALITY LEADERSHIP TEAM



Chairman  
**Graham Ascough**

Resources executive. Broad global experience with large companies and building juniors

CEO and Managing Director  
**Malcolm Norris**

Geologist and Business Development. Track record of discovery and growth

General Manager  
Studies and Technical Services  
**Ray Robinson**

Mining Engineer.  
Has delivered many feasibility studies

CFO & Company Secretary  
**Gavin Leicht**

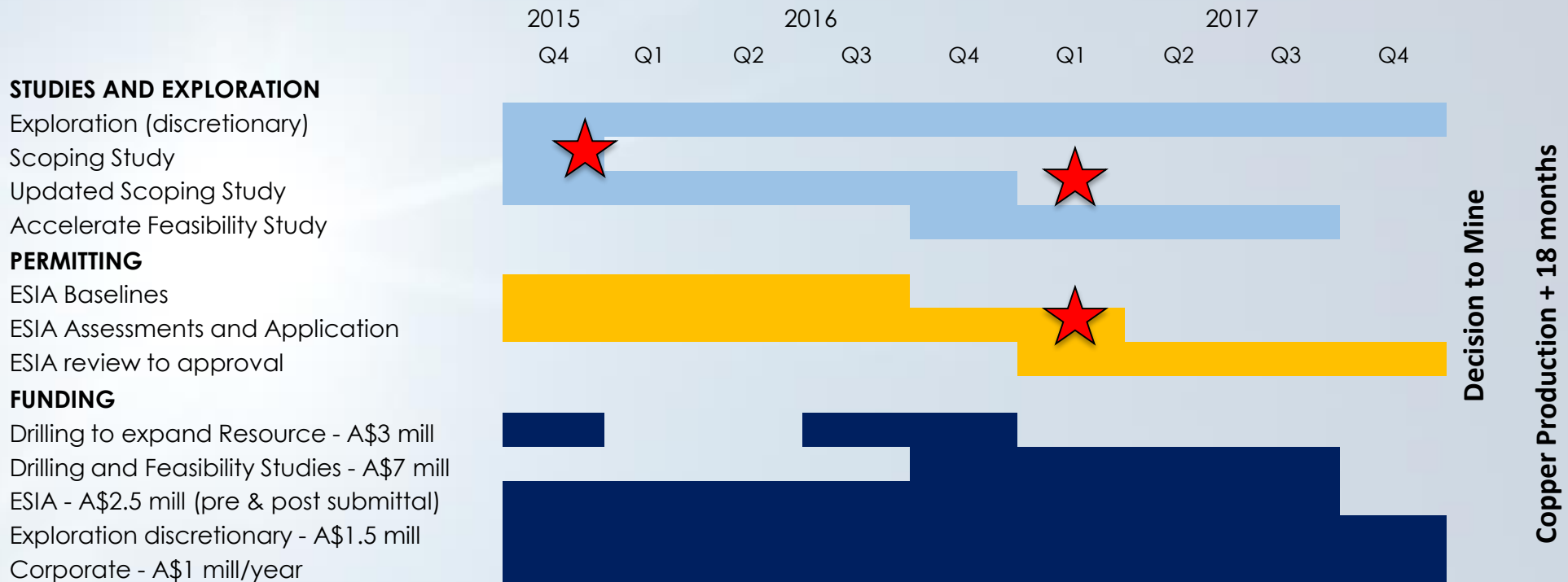
Finance professional with significant experience in copper

General Manager - Geology  
**Dr. Bruce Rohrlach**

Geologist who has played a key role in several significant discoveries and feasibility studies



# PLANNING TO DELIVER



## TARGET TIME FRAMES

- ✓ Scoping Study Copper Project - December 2015
- Updated Scoping Study - Q4, 2016
- Decision to Build and construction start in late 2017
- Copper production 2019 – correspond with increase in copper price

# AVALON MINERALS – CONSIDER AN INVESTMENT DECISION BASED ON RISK AND A 3-5 YEAR TIME FRAME

## General Risk – Low

- Sweden, low sovereign risk
- Kiruna, a mining district
- Viscaria Project
  - 3 approved exploitation (mining) concessions
  - ESIA in progress leading to environmental permitting
- High quality team
- Supportive major shareholders limiting investment risk

## Technical Risk – Low

- 2015 drilling program very successful
- Strong upside case for delivery of additional resources and mining inventory
  - D Zone growth potential very obvious
  - A & B Zone combined open pit
  - A Zone underground not yet pursued but known resources
  - Development area exploration success
- 64% of current resources in M&I category

## Development Risk – Low

- 2015 Scoping Study (SS) demonstrated viable project
- 2015 SS clearly shows that a 2Mtpa operation is required and that the Mining Inventory must be increased
- Road, Rail, Town, Airport, Sea Ports - all existing

## Production Risk – Low

- Forecast higher copper prices at expected time of production
- Best infrastructure support of any copper development opportunity globally
- Low cost hydro power
- High quality concentrate
- Local equipment manufacturers and contractor/consultant groups

# APPENDICES



# VISCARIA COPPER – 2015, DELIVERED TO GOALS

## **Ownership**

- 100% ownership retained

## **Drilling**

- Completed 8,000m of diamond drilling at D Zone in 2015
- Strongly outperformed historical results and delivered confidence
- Outstanding results such as VDD 193, 26.7m at 2.6% Cu including 6.6m at 3.5% Cu
- Recent drilling results 'as good as A Zone' – the former mine

## **Scoping Study and ESIA**

- Copper only Scoping Study completed in December 2015
- Underpinned by new D Zone Mineral Resource Estimate delivered in November
- Small open pits on A, B and D Zones + Underground at D Zone
- Outstanding infrastructure
- Low technical risk geology and mineralogy
- Upside and scale increase needs to be delivered in 2016 Updated Scoping Study
- ESIA underway – critical path to permitting

# VISCARIA – DON'T UNDERESTIMATE THE VALUE OF LOCATION AND EXISTING INFRASTRUCTURE

Mining infrastructure is in place adjacent to the world's largest underground magnetite mine and iron pellet manufacturing facility

- ✓ Airport
- ✓ Mining town with mining contractors
- ✓ Low cost hydro power
- ✓ Highway access
- ✓ Electric rail access
- ✓ Multiple port options

All of these facilities deliver

- ✓ Lower Capital Costs
- ✓ Lower Operating Costs
- ✓ Reduced implementation risk

# VISCARIA COPPER – MINERAL RESOURCES

## Viscaria Copper Project Mineral Resource Estimates Summary – Nov 2015

Resource Area	Location	Classification	Tonnes (Mt)	Cu Grade (%)	Contained Cu (kt)
A Zone	Open Pit	Measured	14.44	1.7	240.0
		Indicated	4.69	1.2	57.2
		Inferred	2.48	1.0	25.5
		Subtotal	21.61	1.5	322.7
B Zone	Open Pit	Measured	0.12	1.3	1.6
		Indicated	4.12	0.7	29.7
		Inferred	15.41	0.8	118.7
		Subtotal	19.65	0.8	149.0
D Zone	Open Pit	Indicated	3.11	0.81	25.2
		Inferred	0.01	0.32	0.02
		Subtotal	3.11	0.81	25.2
	Underground	Indicated	7.26	1.37	99.8
		Inferred	0.78	1.57	12.2
		Subtotal	8.03	1.39	111.9
Overall Cu		Total	52.4	1.2	608.9



# COMPETENT PERSONS STATEMENT

## Competent Persons Statement

The information in this report that relates to exploration targets and results is based upon information reviewed by Mr Malcolm Norris who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Norris is a full-time employee of Avalon Minerals Ltd and 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”. Mr Norris 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 the A Zone and B Zone Mineral Resources are based on the information compiled by Dr Bielin Shi who is a Member of the Institute of Mining and Metallurgy and is a full time employee of CSA Global Pty Ltd (CSA). CSA are an independent mining consultancy who have been engaged by Avalon Minerals Limited to perform geological consulting on a fee for service basis. Dr Bielin Shi has sufficient experience that is relevant to the style of mineralisation being considered 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. Dr Shi consents to the inclusion in this 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 the D Zone Mineral Resource estimate is based on the information compiled by Chris Grove who is a Member of the Australasian Institute of Mining and Metallurgy and is a full time employee of Measured Group Pty Ltd. Measured Group is an independent mining consultancy who have been engaged by Avalon Minerals Limited to perform geological consulting on a fee for service basis. Mr Grove has sufficient experience that is relevant to the style of mineralisation being considered 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 Grove consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.