



# Knocking on the Door to Discovery in Western Victoria

Sydney Mining Club September 2018

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# STAVELY MINERALS



ASX Code – SVY

Share Price - \$0.21

Cash (30/06/18) - \$6.6M\*

*\*Excludes Titeline Drilling agreement and Victorian Gov't co-funding*

Shares on Issue – 148.7M

Market Cap - \$31M

Management ~34% equity

## Directors

Bill Plyley

*Non-executive Chairman*

Chris Cairns

*Managing Director*

Jennifer Murphy

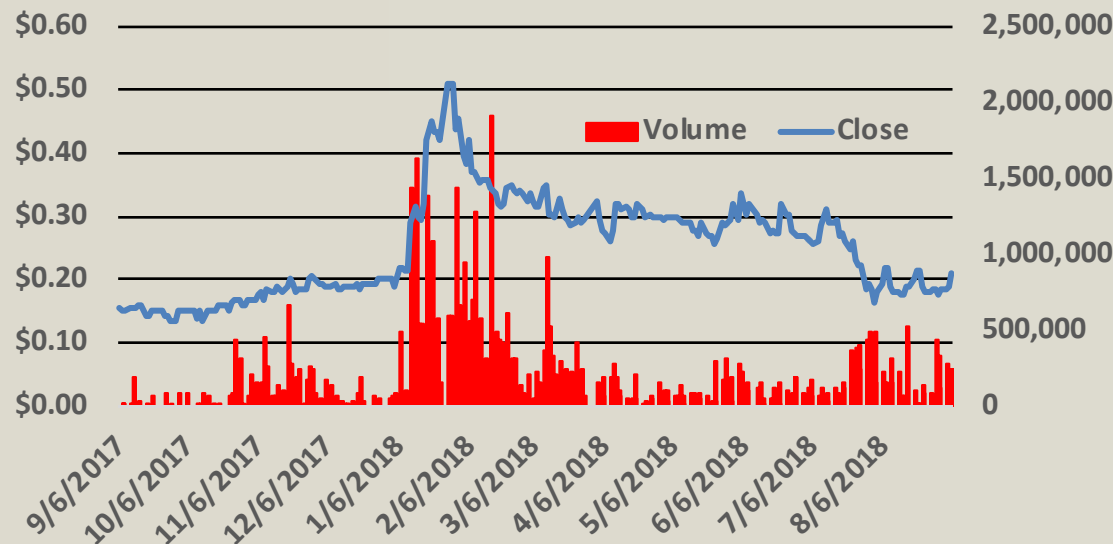
*Technical Director*

Peter Ironside

*Non-executive Director*

Amanda Sparks

*Company Secretary*



*\*\$2m share subscription agreement with Titeline Drilling Pty Ltd announced to the ASX on 7 October 2014*

# TAKE AWAY MESSAGES

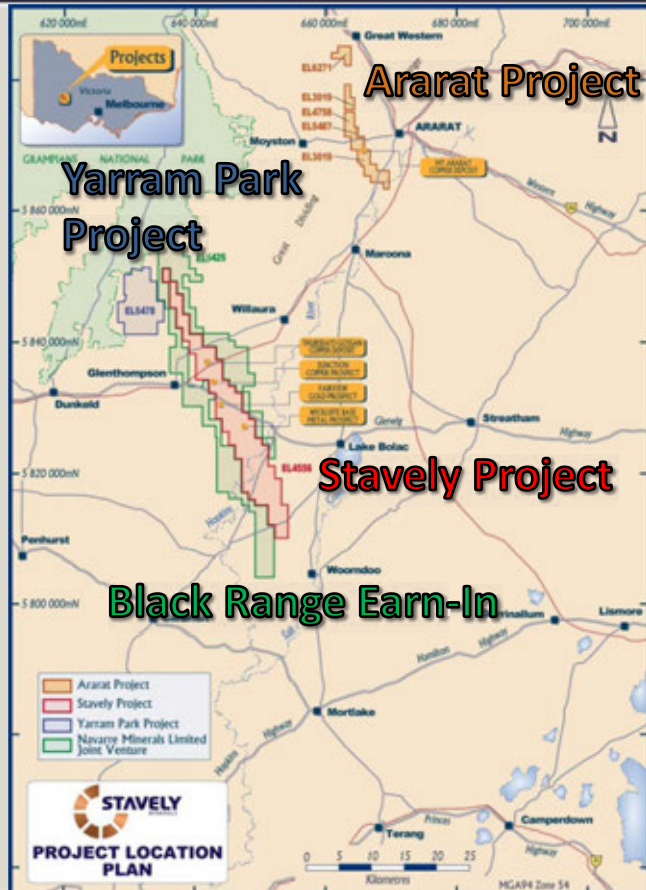


1. Stavely provides good value for investors – currently ~80% of expenditure ‘in the ground’
2. Stavely has conclusively demonstrated that a copper **plus** gold porphyry is present at Thursday’s Gossan
3. Alkalic porphyries are amongst the largest gold deposits
4. Recent drill results demonstrate that we are very close to the high-grade copper-gold zone – just a little complex structurally, but we firmly believe it is still there to be found
5. Given the Stavely Volcanic Belt hosts one copper-gold porphyry, other porphyry targets in the belt with very little prior exploration are also significant discovery opportunities eg. Toora West, Mount Stavely (not a single drill hole), Drysdale and Junction



# PROJECTS

# VICTORIAN PROJECT LOCATIONS

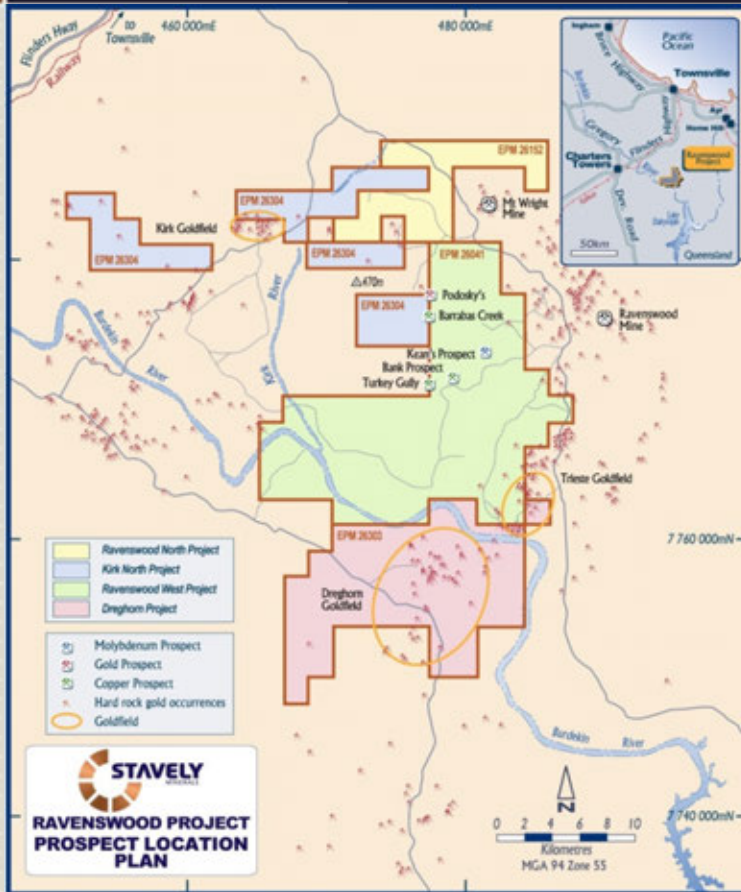


## Victorian Projects

The **Ararat Project** is prospective for VMS base metals-gold and 'Stawell-style' gold mineralisation.

The **Stavely, Yarram Park and Black Range Projects** are prospective for ancient porphyry copper-gold and VMS base metals-gold mineralisation.

# QUEENSLAND PROJECT LOCATION



## Queensland Project

The Ravenswood Project is prospective for:

- porphyry copper-moly-gold,
- quartz-sulphide vein-hosted gold
- breccia-hosted gold mineralisation
- epithermal gold
- VMS copper-gold

Active exploration with 2 x IP programmes just completed – drilling being planned

# MINERAL RESOURCES<sup>1</sup>



At the **Ararat Project**, hosted in a Besshi-style VMS:

- Inferred Mineral Resources of **1.3Mt at 2.0% copper, 0.5 g/t gold, 0.4% zinc and 6 g/t silver** for 30kt of contained copper

At the **Stavely Project** hosted in a secondary chalcocite-enriched blanket:

- Inferred Mineral Resources of **28Mt at 0.4% copper** for 110kt of contained copper (gold and silver not estimated)

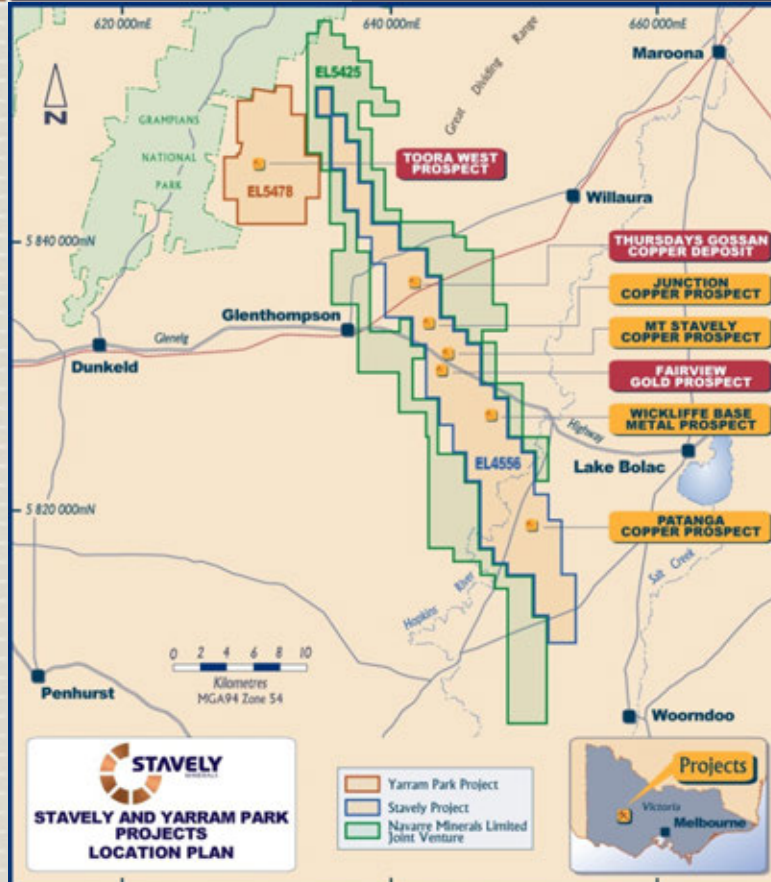
<sup>1</sup> reported in compliance with JORC 2012, see ASX announcement 8 September 2015, subsequent Annual Reports and available from [www.stavely.com.au](http://www.stavely.com.au)



# **PORPHYRY DISCOVERY OPPORTUNITIES:**

## **THURSDAY'S GOSSAN, MOUNT STAVELY AND OTHERS**

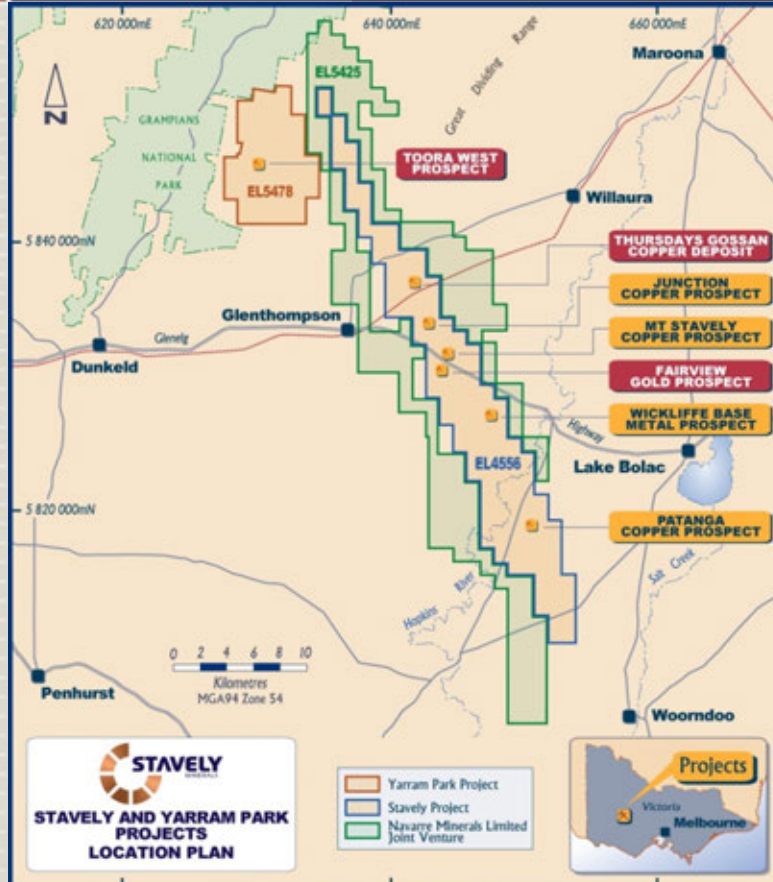
# STAVELY VOLCANIC BELT



**Stavely has the largest and most strategic tenement holding in the belt**

- Thursday's Gossan porphyry
- Toora West porphyry prospect
- Junction porphyry
- Mount Stavely porphyry
- Fairview Gold prospect
- Wickliffe VMS prospect
- Patanga copper prospect

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- **Mount Stavely porphyry**
- Fairview Gold prospect
- Wickliffe VMS prospect
- Patanga copper prospect



**We see something different to those who were there before us...**

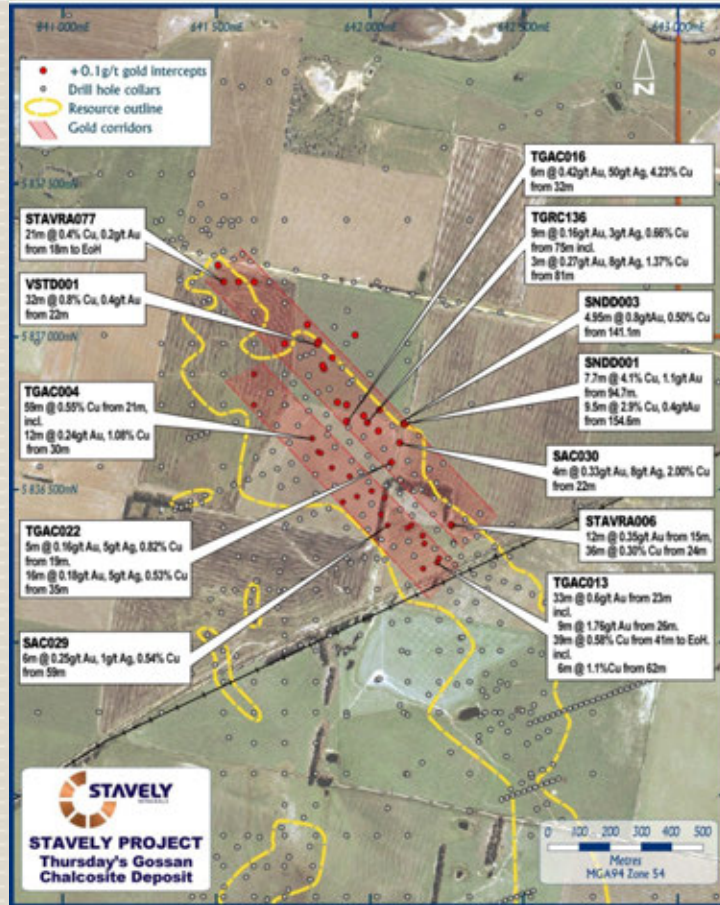
# THURSDAY'S GOSSAN PORPHYRY



## Thursday's Gossan Chalcocite Blanket

Inferred Mineral Resources  
of **28Mt at 0.4% copper** for  
110kt of contained copper

# THURSDAY'S GOSSAN PORPHYRY



Two parallel zones of near-surface high-grade copper mineralisation with associated silver and gold....

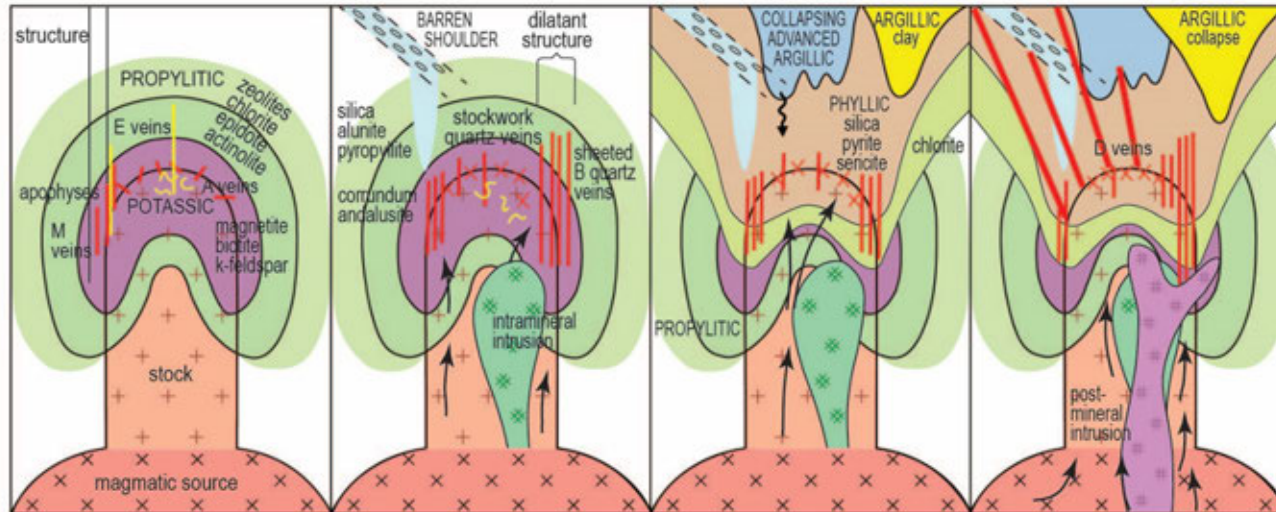
These zones correspond to the near-surface expression of sulphide-rich porphyry 'D' veins

# WHAT ARE 'D' VEINS?

## STAGED PORPHYRY Cu-Au EVOLUTION

EARLY

LATE



Intrusion emplacement and heat transfer with prograde alteration. E veins.

Initiation of A & M quartz vein formation and early mineralization.

B quartz vein formation.

Exsolution of magmatic volatiles and formation of barren shoulder.

Cooling and collapsing of retrograde phyllic and argillic alteration and overprinting collapsing advanced argillic alteration..  
Local retrograde alteration selvages to B grades.

Continued retrograde collapse. D vein mineralization, & post-mineral features.

'D' veins are late-stage sulphide-rich veins with characteristic sericite alteration selvages.

They should be a 'yellow brick road' down to the source porphyry.

*After Corbett, 2012*



**STAVELY**  
MINERALS



see ASX announcements on 03/07/2017, 23/08/2017 and 05/09/2017 and available from [www.stavelly.com.au](http://www.stavelly.com.au)

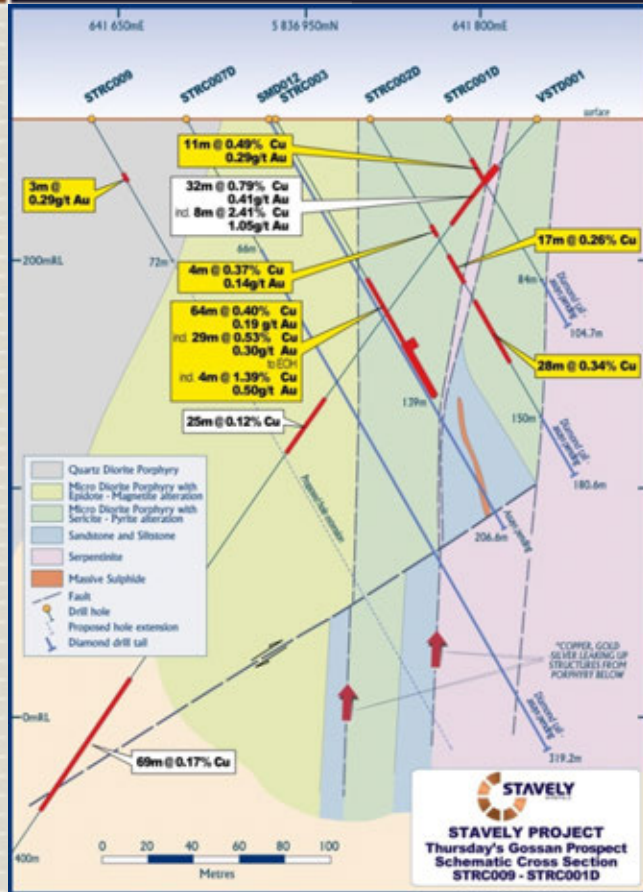
# THURSDAY'S GOSSAN PORPHYRY



## Thursday's Gossan RC drilling

- 24 metres at 0.64% copper and 1.2 g/t gold including:
  - 14 metres at 0.82% copper and 1.99 g/t gold including
  - 1 metre at 0.84% copper and 22.2 g/t gold
- 29 metres at 0.53% copper and 0.30 g/t gold to end of hole (EoH), including
  - 4 metres at 1.39% copper, 0.5 g/t gold and 55 g/t silver
- 25 metres at 0.52% copper and 0.37 g/t gold to EoH
- 3 metres at 4.14% copper, 0.36 g/t gold and 59 g/t silver
- 43 metres at 0.55% copper and 0.11 g/t gold
- 28 metres at 0.59% copper and 0.19 g/t gold
- 8 metres at 0.74% copper and 0.17 g/t gold
- 25 metres at 0.30% copper and 0.29 g/t gold to EoH including
  - 3 metres at 1.24% copper and 1.31 g/t gold

# THURSDAY'S GOSSAN PORPHYRY



## Thursday's Gossan RC Drilling (north section)

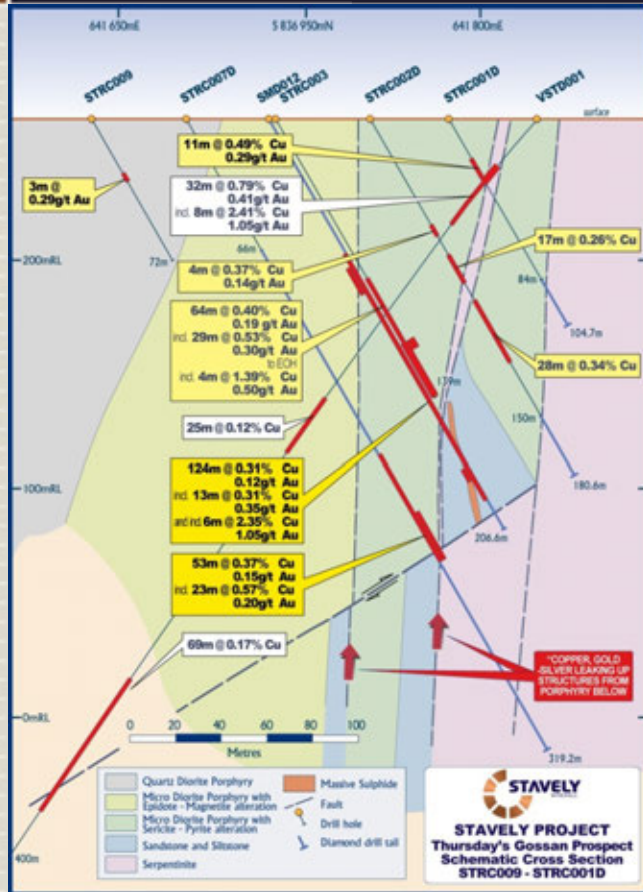
Shallow RC drill results:

- **64m at 0.40% copper and 0.19g/t gold, including**
  - **29m at 0.53% copper and 0.3g/t gold to end of hole**
- **11m at 0.49% copper and 0.29g/t gold, and**

A number of RC drill holes stopped in grade.

see ASX announcements on 03/07/2017, 23/08/2017 and 05/09/2017 and available from [www.stavely.com.au](http://www.stavely.com.au)

# THURSDAY'S GOSSAN PORPHYRY



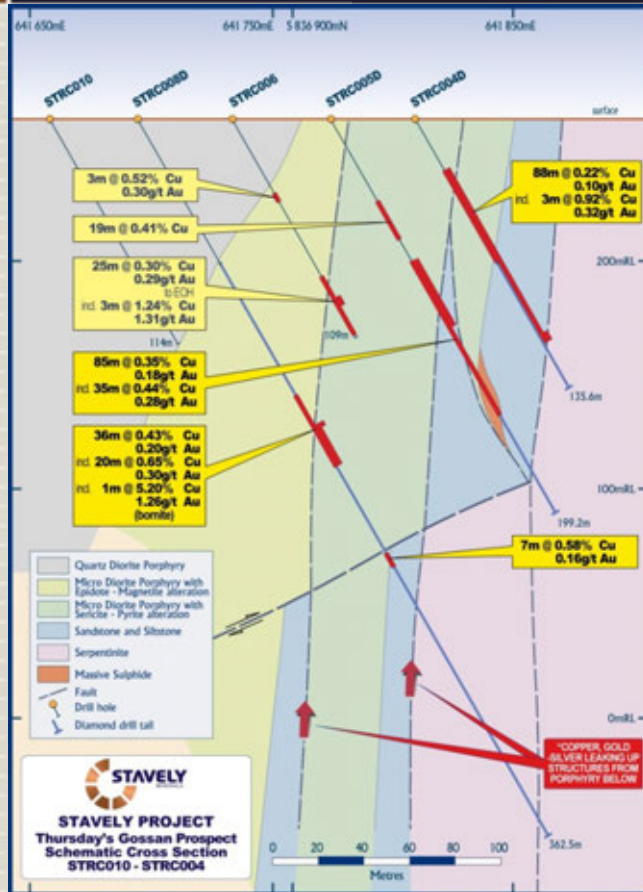
## Thursday's Gossan Diamond Tails (north section)

RC drill holes continued / twinned with diamond drill 'tails'. Diamond drill results:

- 124m at 0.31% copper and 0.12g/t gold, and
- 53m at 0.37% copper and 0.15g/t gold, including
  - 23m at 0.57% copper and 0.20g/t gold

see ASX announcement 23/08/2017 and available from [www.stavely.com.au](http://www.stavely.com.au)

# THURSDAY'S GOSSAN PORPHYRY



## Thursday's Gossan Diamond Tails (second north section)

RC drill holes continued / twinned with diamond drill 'tails'. Diamond drill results:

- 36m at 0.43% copper and 0.20g/t gold, including
  - 20m at 0.65% copper and 0.30g/t gold
- 85m at 0.35% copper and 0.18g/t gold, including
  - 35m at 0.44% copper and 0.28g/t gold

see ASX announcement 05/09/2017 and available from [www.stavely.com.au](http://www.stavely.com.au)

# THURSDAY'S GOSSAN PORPHYRY



Diamond drill results:

- 283m at 0.16% copper
- 194m at 0.16% copper
- 85m at 0.35% copper and 0.18g/t gold
- 124m at 0.31% copper and 0.12g/t gold
- 92m at 0.34% copper and 0.12g/t gold, incl
  - 30m at 0.50% copper and 0.22g/t gold

These broad intercepts are NOT from the potassic core of this porphyry – we have yet to drill into that zone.

**When we do, we expect better copper grades and MUCH better gold grades.**

## **CADIA RIDGEWAY ANALOGY:**

**7-PHASES OF DRILLING BEFORE  
DISCOVERY, HIGH-GRADE GOLD-  
COPPER MINERALISATION  
ASSOCIATED WITH 'M' VEINS**

# THE PRIZE



The Cadia Ridgeway gold-copper deposit had total production to March 2012 of 76.7Mt at 1.83g/t gold and 0.63% copper for a contained **4.5 million ounces** of gold and **483,000 tonnes of copper**.

Source: Porter GeoConsultancy Pty Ltd.

The Cadia Ridgeway gold-copper deposit has horizontal dimensions of 250m x 150m.

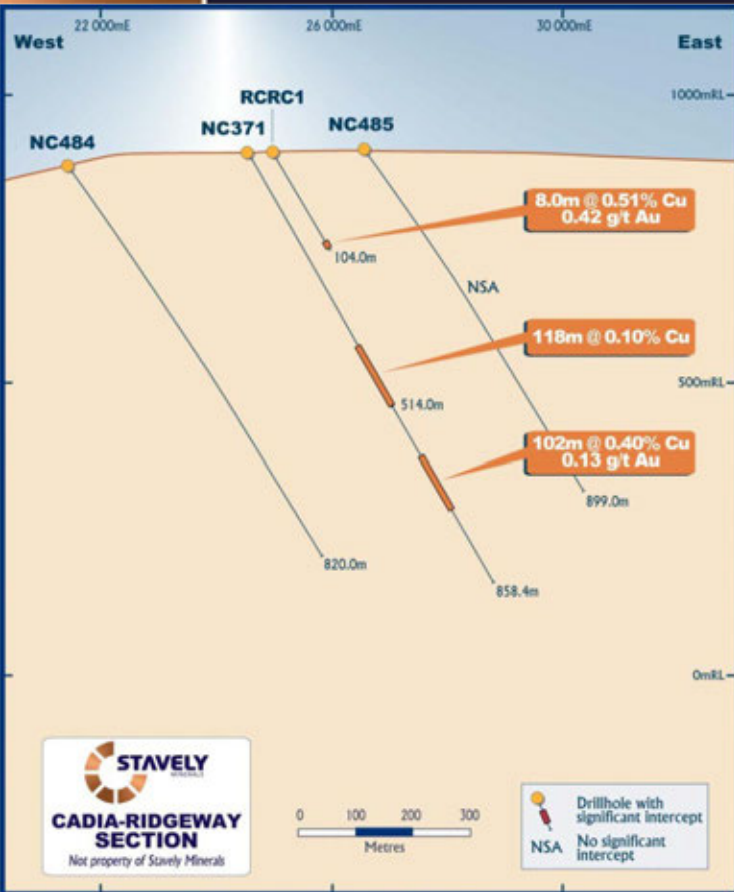
Source: Wilson (2003) PhD Thesis

It is 600m tall.

Newcrest is a \$15.7 billion company.

Cadia is not their only asset.

# CADIA RIDGEWAY EXPLORATION



## Cadia Ridgeway (pre-discovery)

Diamond drill results:

- 118m at 0.10% copper and spotty gold
- 102m at 0.40% copper and 0.13g/t gold

## Thursday's Gossan Porphyry (so far)

Diamond drill results:

- 283m at 0.16% copper
- 194m at 0.16% copper
- 85m at 0.35% copper and 0.18g/t gold
- 124m at 0.31% copper and 0.12g/t gold
- 92m at 0.34% copper and 0.12g/t gold, incl
  - 30m at 0.50% copper and 0.22g/t gold

see ASX announcement 05/09/2017 & 29/05/2018 and available from [www.stavely.com.au](http://www.stavely.com.au)

# CADIA RIDGEWAY EXPLORATION



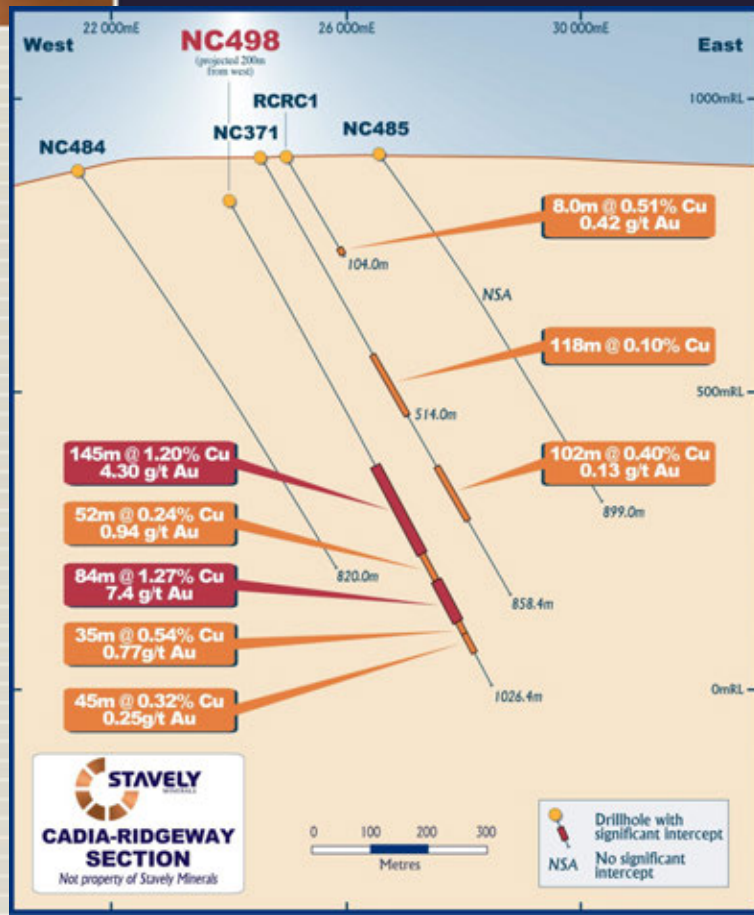
## Cadia Ridgeway (discovery)

Diamond drill results:

- 145m at 1.2% copper and 4.30g/t gold,
- 84m at 1.27% copper and 7.40g/t gold

## Thursday's Gossan Porphyry

Drilling in-progress



see ASX announcement 05/09/2017 and available from [www.stavely.com.au](http://www.stavely.com.au)

# CADIA RIDGEWAY EXPLORATION



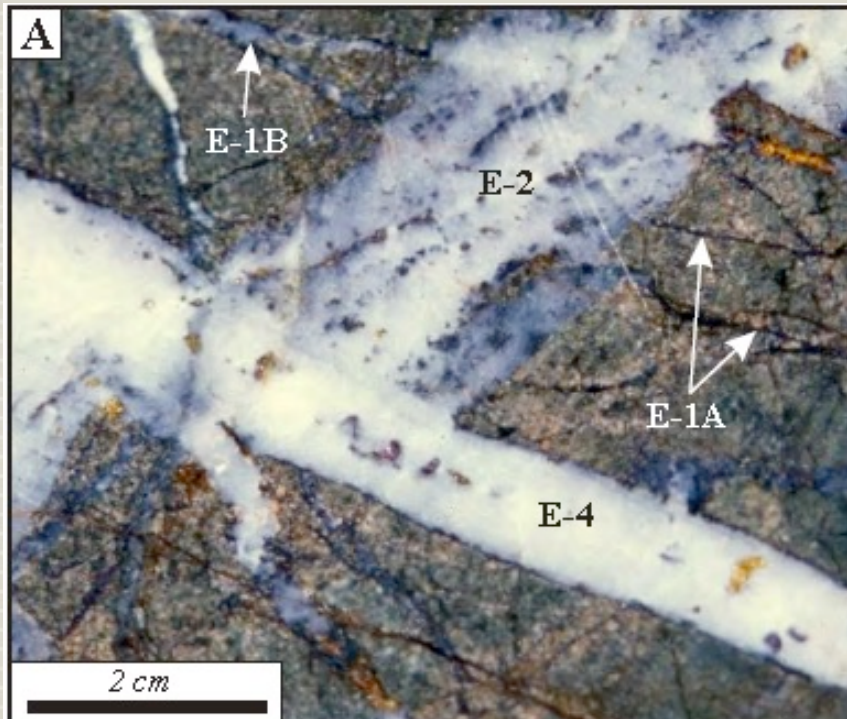
## Cadia Ridgeway (discovery)

Diamond drill results:

- 145m at 1.2% copper and 4.30g/t gold,
- 84m at 1.27% copper and 7.40g/t gold

The distribution of high-grade gold is closely related to the distribution of E-2 'M' veins.

'E' is used to indicate that they are 'early' in the mineralising sequence.

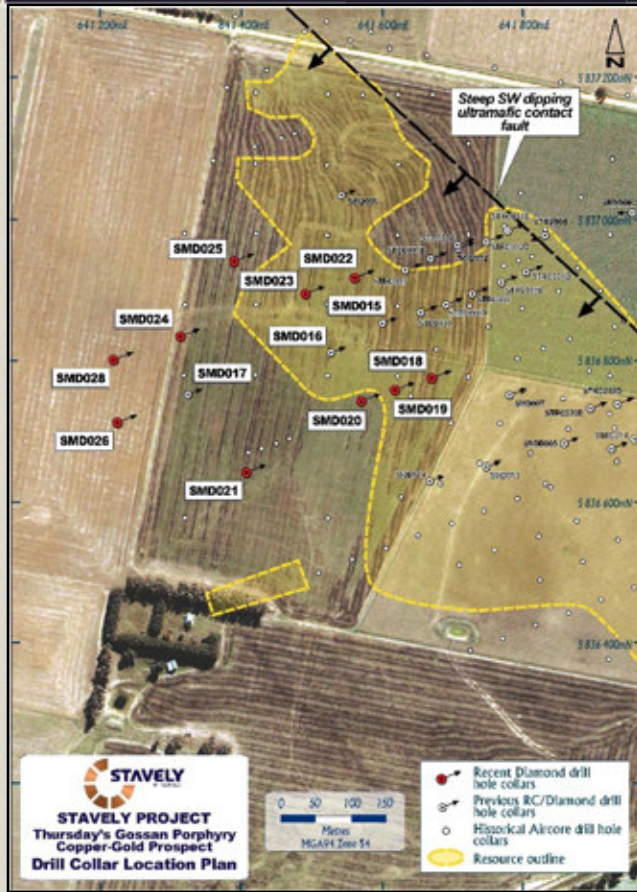


**DRILL HOLES**

**SMD015 to SMD026**

**(now we are close, very close)**

# THURSDAY'S GOSSAN PORPHYRY



## Recent results from late 'D' veins in SMD015:

- 9m of 2.62% copper and 0.28g/t gold, including
  - 4m of 5.41% copper and 0.35g/t gold, including
    - 1m at 14.75% copper and 0.33g/t gold
- 4m at 5.85% copper and 0.27g/t gold, including
  - 1m at 10.75% copper and 0.60g/t gold

see ASX announcement 19/01/2018 and available from [www.stavely.com.au](http://www.stavely.com.au)

# THURSDAY'S GOSSAN PORPHYRY



**Magnetite veins intercepted in SMD015 could be far more important as a proximal indicator to mineralisation**



- +100m intercept of classic porphyry 'M' veins:
- Typical of **gold-rich porphyries**
- Veins in this photo are similar to the E-1A 'M' veins at Cadia Ridgeway

# THURSDAY'S GOSSAN PORPHYRY



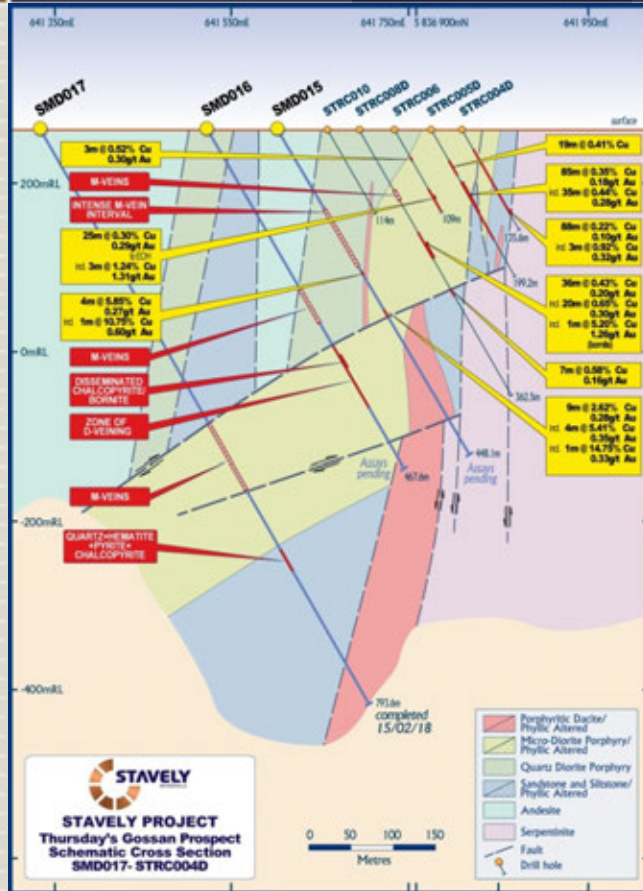
**Magnetite veins intercepted in SMD015 are important as a proximal indicator to mineralisation**

The veins in this photo are similar to the Cadia Ridgeway E-1B 'M' veins



see ASX announcement 12/01/2018 and available from [www.stavely.com.au](http://www.stavely.com.au)

# THURSDAY'S GOSSAN PORPHYRY

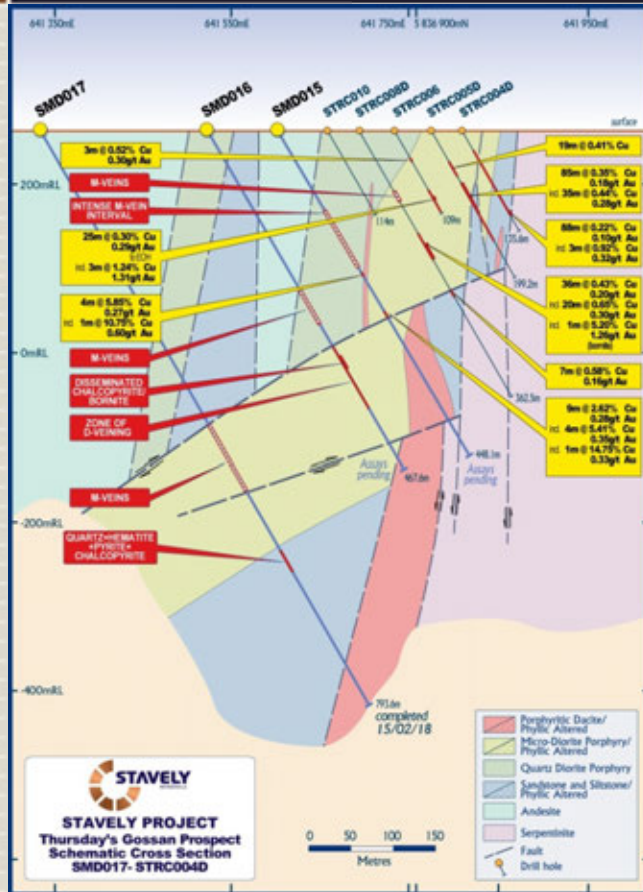


## SMD016

- 45m interval of porphyry 'M' veins from 220m to 265m
  - also with early porphyry 'A' veins
- Moderate to strong hematite-magnetite+-actinolite alteration from 307m to 325m with very fine **disseminated bornite and chalcopitrite**
- Low-angle structure at 325m
- Pyrite ± chalcopitrite ± bornite ± hematite 'D' veins from 325m to ~ 400m – **first occurrence of 'D' veins below the LAS**

see ASX announcement 24/01/2018 and available from [www.stavelly.com.au](http://www.stavelly.com.au)

# THURSDAY'S GOSSAN PORPHYRY



## SMD017

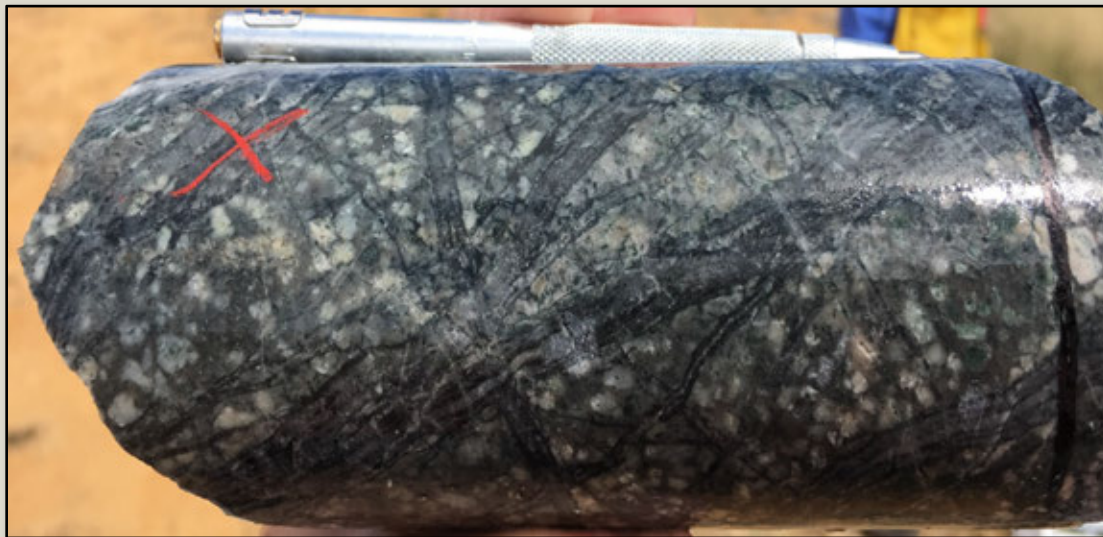
- 80m interval of porphyry 'M' veins from 408m to 488m
  - also with early porphyry 'A' veins
- The 'M' veins in SMD017 display similarities to the Cadia Ridgeway barren E-1A and E-1B veins but – importantly also the E-2 laminated 'M' veins that are associated with the main copper-gold mineralised event
- Now we have 2 targets, the porphyry above the structure and the porphyry below

# THURSDAY'S GOSSAN PORPHYRY



## SMD017 468m

The veins in this photo are similar to Cadia Ridgeway E-1A and E-1B veins and are likely barren but proximal to copper-gold mineralisation

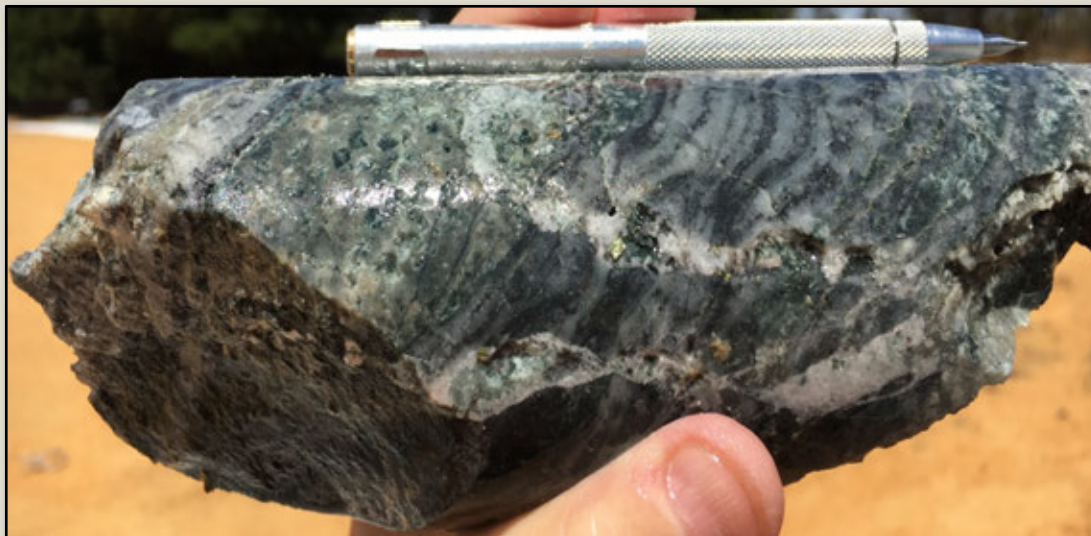


# THURSDAY'S GOSSAN PORPHYRY



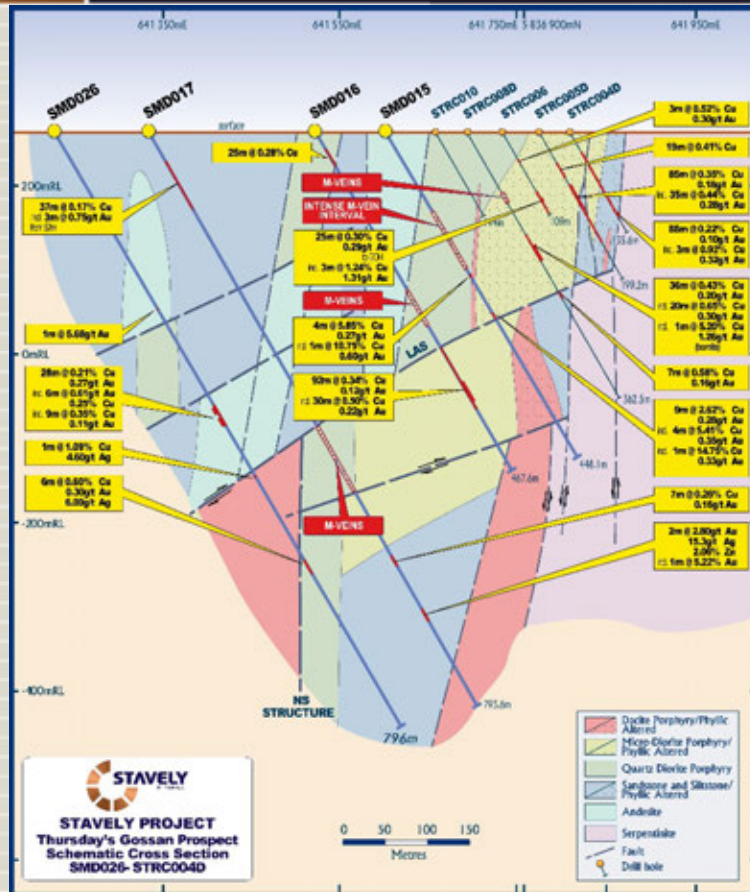
## SMD017 470m

The laminated 'M' vein in this photo has inter-grown chalcopyrite with the magnetite and is similar to Cadia Ridgeway E-2 veins associated with the early copper-gold mineralisation event



see ASX announcement 18/02/2018 and available from [www.stavely.com.au](http://www.stavely.com.au)

# THURSDAY'S GOSSAN PORPHYRY



## SMD026

- Intercepted another major structure below the LAS
- The north-south (NS) structure potentially has a component of strike-slip
- Higher grades of gold encountered:
  - 1m at 5.68g/t gold
  - 28m at 0.21% copper and 0.27g/t gold, including
    - 6m at 0.61g/t gold and 0.25% copper
  - 6m at 0.60% copper and 0.30g/t gold

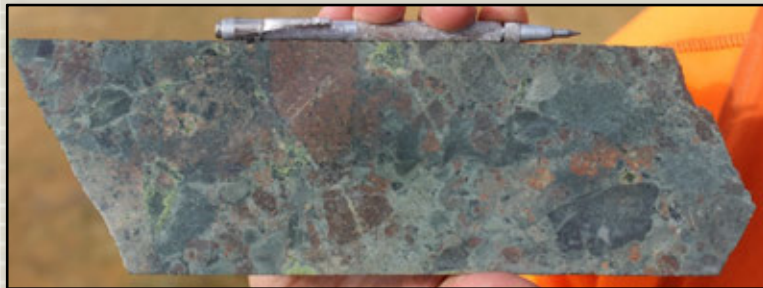
see ASX announcement 5/09/2018 and available from [www.stavelly.com.au](http://www.stavelly.com.au)

# THURSDAY'S GOSSAN PORPHYRY

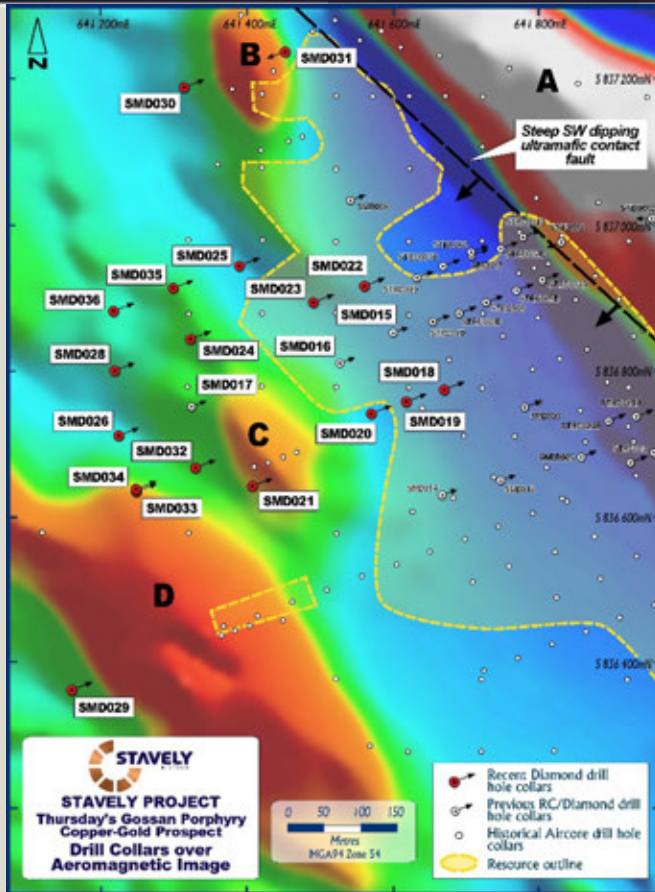


## SMD031

- Drill testing aeromagnetic features on the premise they may be reflecting hydrothermal magnetite as M veins
- Intercepted a hydrothermal breccia above the LAS
- Hematite altered porphyry fragments with bornite mineralisation in the fragments and as disseminations in the breccia and surrounding sandstone
- Assays pending
- Highlights the potential to the N-NW where there is no previous drilling



# THURSDAY'S GOSSAN PORPHYRY

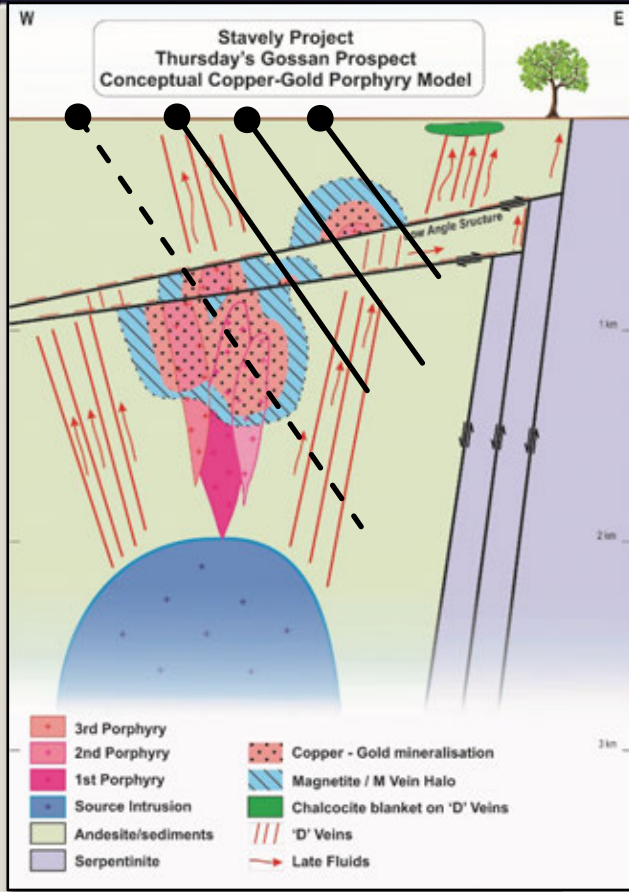


## SMD035

- SMD035 (in-progress) collared 80m to the north of SMD027 has intercepted M veins on the western side of the NS structure
- The pursuit continues across two major structures

see ASX announcement 5/09/2018 and available from [www.stavely.com.au](http://www.stavely.com.au)

# THURSDAY'S GOSSAN PORPHYRY



## Conceptual Model

The Thursday's Gossan porphyry has been dismembered by low-angle structures (LAS). Drill Holes SMD015, 016, 022, 023, 025 have all hit porphyry M veins above the LAS.

Drill holes SMD017, 024 and 026 have hit porphyry M veins below the LAS.

SMD035 (in-progress) has hit porphyry M veins west of the NS structure

All indications are that the mineralised porphyry is preserved below the LAS.

# KEY OBSERVATIONS AND IMPLICATIONS



- The early 'wormy' A and M veins are demonstrating that we are at the top of the porphyry system
- The mineralised porphyry is preserved and could be expected to be in the order of several hundred metres to a kilometre or more in vertical extent
- That the fluids responsible for the early M veins were strongly oxidised and had enhanced copper and gold mineralisation potential
- That there were multiple overprinting phases of alteration, veining and copper-gold mineralisation, also a key element for enhanced copper and gold grades
- That the very attractive copper and gold grades demonstrated by the late porphyry D veins auger well for the strong copper-gold mineralisation potential in the main phases of mineralisation within the potassic core
- That the abundant and intense A and M veining observed in recent drilling, along with observed potassium feldspar (K-spar) / biotite / actinolite alteration, aplite veins all indicate that our recent drilling is very proximal to what is expected to be a well mineralised copper-gold potassic core to the porphyry system at Thursday's Gossan

The risks to discovery are:

- × significant structural dislocation of the mineralisation, and
- × the potential for late-stage barren intrusions to obliterate earlier mineralisation.

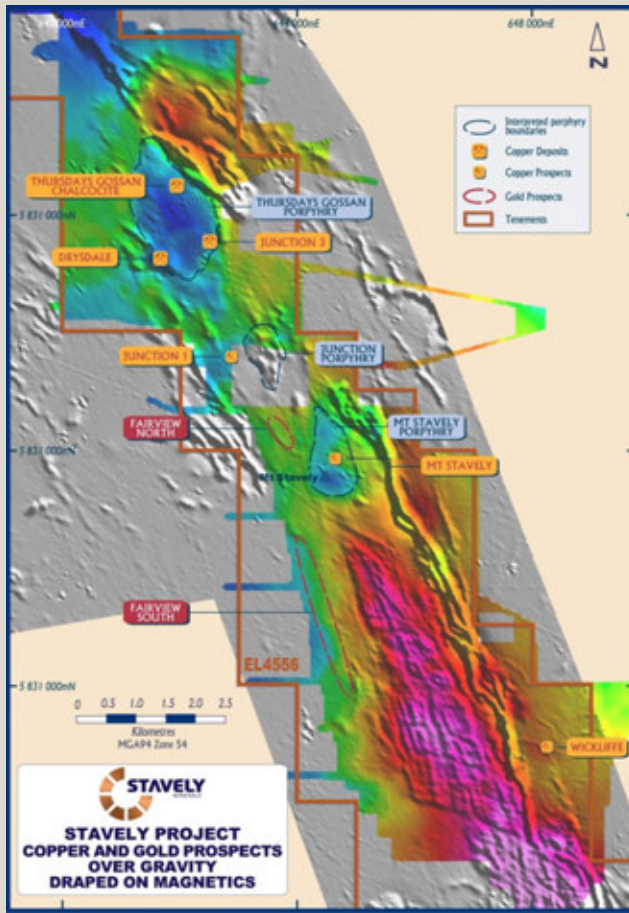
## TAKEAWAY MESSAGES



1. An undiscovered copper-gold porphyry exists at Thursday's Gossan
2. They are amongst the largest gold deposits in the world
3. At 500Ma, it's structurally complicated
4. **We are confident we will find it**
5. We can't tell you what the size and grade will be until we get some holes into it



# MOUNT STAVELY PORPHYRY AND FAIRVIEW GOLD

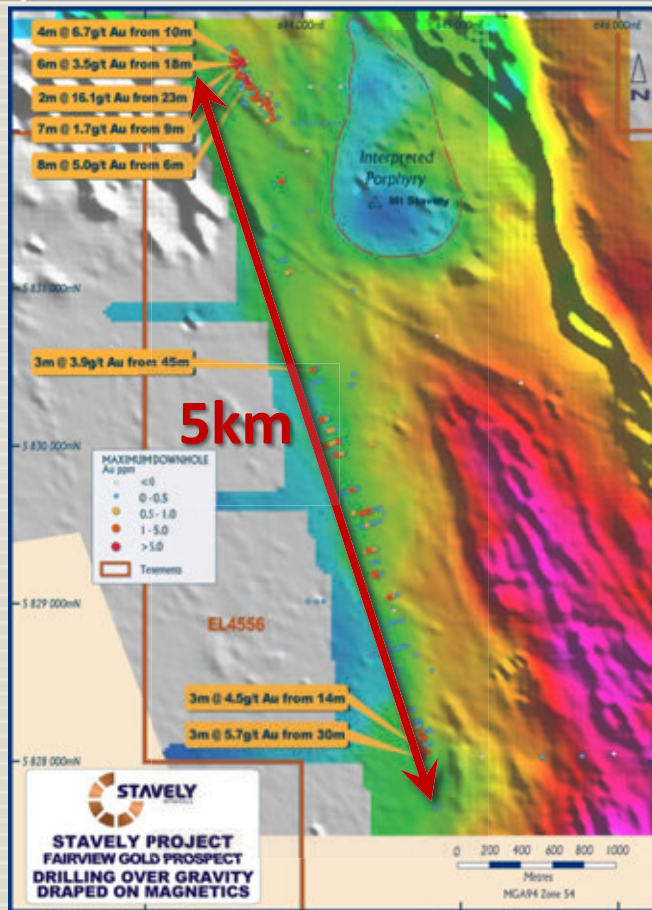


## Mount Stavelly Porphyry and Fairview Gold

- ✓ Interpreted buried porphyry reflected in pronounced gravity low
- ✓ 5km of peripheral mesothermal to epithermal gold associated with quartz-sulphide veins (adularia noted)

see ASX announcements on 18/04/2017 and 21/07/2017 and available from [www.stavelly.com.au](http://www.stavelly.com.au)

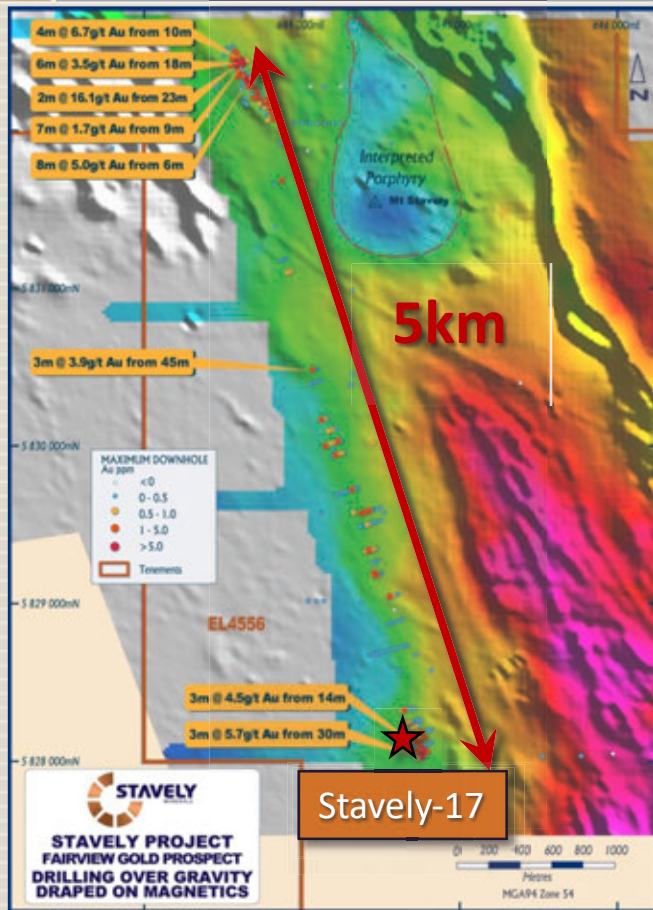
# FAIRVIEW GOLD PROSPECT



## Fairview Gold Prospect

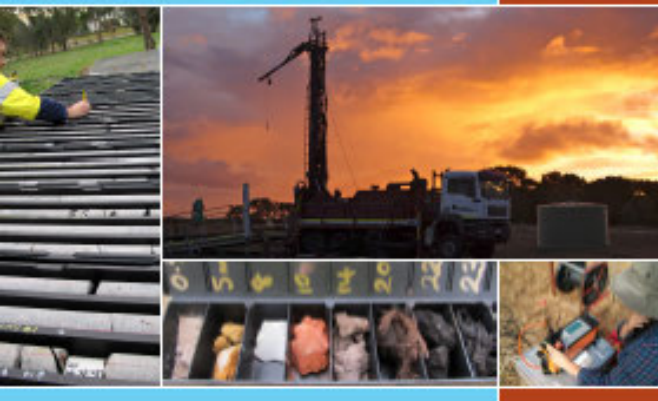
- ✓ 5km strike of quartz-sulphide vein related gold mineralisation
- ✓ Previous drilling intercepts including:
  - **2.5m at 17.4 g/t gold** from 28m drill depth
  - **2m at 16.1 g/t gold** from 23m drill depth
  - **4m at 6.7 g/t gold** from 10m drill depth
  - **8m at 5.0 g/t gold** from 6m drill depth

# FAIRVIEW GOLD PROSPECT



Recent drilling by Stavely Minerals intercepted wide intervals of shallow gold mineralisation including:

- **30m at 1.4 g/t gold** from 47 metres drill depth, including
  - 11 metres at 2.4 g/t gold
- **17m at 1.23g/t gold** from 23m drill depth within a larger low-grade interval of
  - 57m at 0.57g/t gold from surface
- **16m at 1.04g/t gold** from 6m drill depth within a larger low-grade interval of
  - 68m at 0.42g/t gold from surface



Record 2017/02 | 404 2017

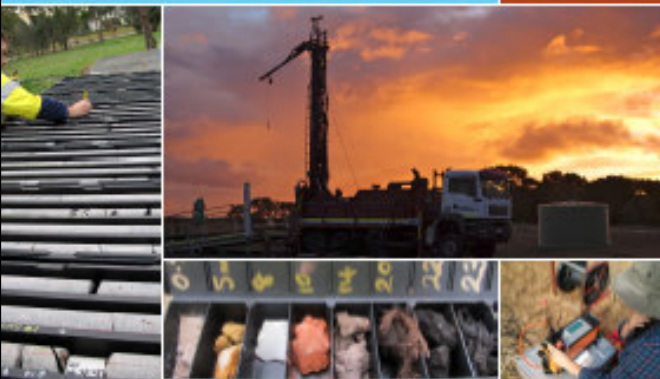
Regional geology and mineral systems  
of the Stavely region, western Victoria  
Data release 5 - Geochemistry data

A. R. E. Molyneux, D. L. Molyneux, E. M. Seaton, J. A. Seaton, J. H. Seaton, D. Topley, D. Chappell, J. A. Seaton,  
R. R. Lyle, and R. Dunlop

## Stavely-17 interpretation

- Two-stage pyrite growth in most samples
  - High T first stage (oscillatory Co-Ni zonation; high Se)
  - Lower T second stage; Cu-As-Ag-Sb-Au-Pb±Mo±Ti±Bi
- The high-T stage likely relates to porphyry-style mineralization at depth
- The low-T stage is likely an epithermal overprint
- Similar to Wafi-Golpu, Lihir, etc. (next slide)
- Based on py chemistry, estimated distance to target is 0.5-1 km

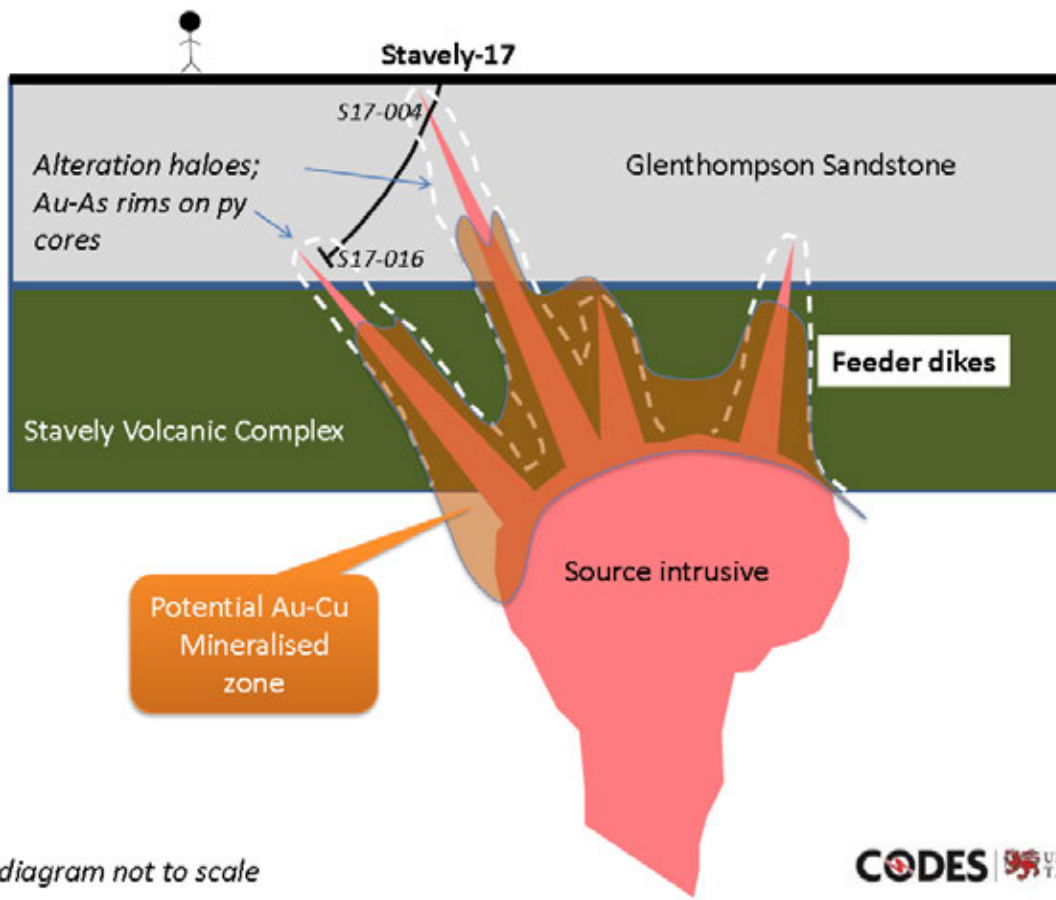
# FAIRVIEW GOLD PROSPECT



Record 2077/02 | v04 20052

Regional geology and mineral systems  
of the Stavely region, western Victoria  
Data release 5 - Geochemistry data

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Note: diagram not to scale



# TAKE AWAY MESSAGES

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- ✓ Stavely Minerals has conclusively demonstrated that a copper-gold porphyry is present at Thursday's Gossan
- ✓ Results to date are great **but** we are not yet in the sweet spot and grades should be very attractive when we do get there
- ✓ 'M' veins indicate we are very close – see recent Corbett report June 2018 ([www.stavely.com.au/technical-data](http://www.stavely.com.au/technical-data))
- ✓ **We are confident we will find it**
- ✓ Plenty of cash
- ✓ 2 rigs drilling 24/7
- ✓ Other significant discovery opportunities eg. Toora West, Mount Stavely (not a single drill hole), Drysdale and Junction

## Thank You

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