NORTHERN STAR
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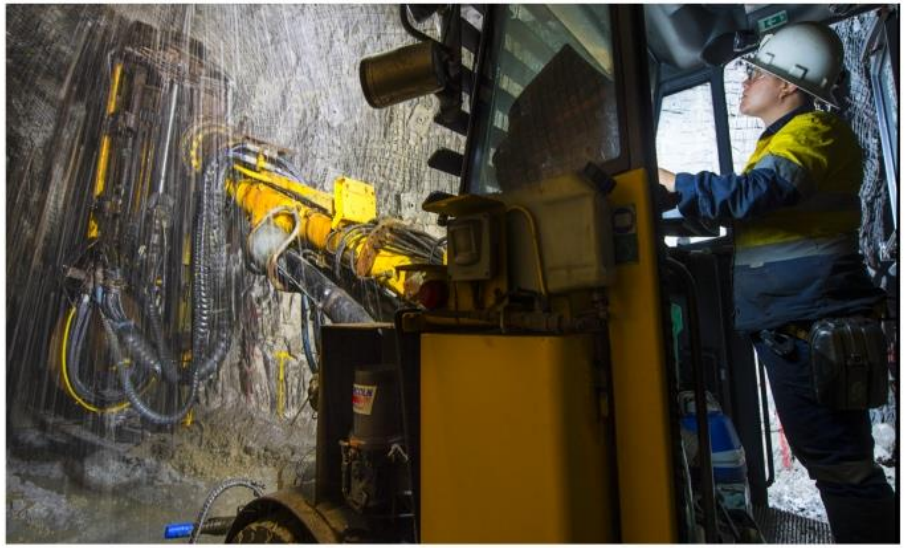

Kalgoorlie Operations Site Visit Presentation

February 2019

Competent person statements and forward looking statements

Competent Persons Statements

The information in this announcement that relates to exploration results, data quality and geological interpretations for the Company's Australian Project areas is based on information compiled by Michael Mulroney, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and a full-time employee of Northern Star Resources Limited. Mr Mulroney has sufficient experience that is relevant to the styles of mineralisation and type of deposits under consideration 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" for the Company's Project areas. Mr Mulroney consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

Listing Rule 5.23 disclosures

 # Listing Rule 5.23 Disclosure: the information is extracted from the report entitled "Australian Operations - Exploration Update" dated 20 December 2018 available at www.nsrltd.com and www.asx.com. Northern Star confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Northern Star confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

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Forward Looking Statements

Northern Star Resources Limited has prepared this announcement based on information available to it. No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this announcement. To the maximum extent permitted by law, none of Northern Star Resources Limited, its directors, employees or agents, advisers, nor any other person accepts any liability, including, without limitation, any liability arising from fault or negligence on the part of any of them or any other person, for any loss arising from the use of this announcement or its contents or otherwise arising regarding it. This announcement is not an offer, invitation, solicitation or other recommendation with respect to the subscription for, purchase or sale of any security, and neither this announcement nor anything in it shall form the basis of any contract or commitment whatsoever. This announcement may contain forward looking statements that are subject to risk factors associated with gold exploration, mining and production businesses. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a variety of variables and changes in underlying assumptions which could cause actual results or trends to differ materially, including but not limited to price fluctuations, actual demand, currency fluctuations, drilling and production results, Reserve estimations, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory changes, economic and financial market conditions in various countries and regions, political risks, project delay or advancement, approvals and cost estimates.

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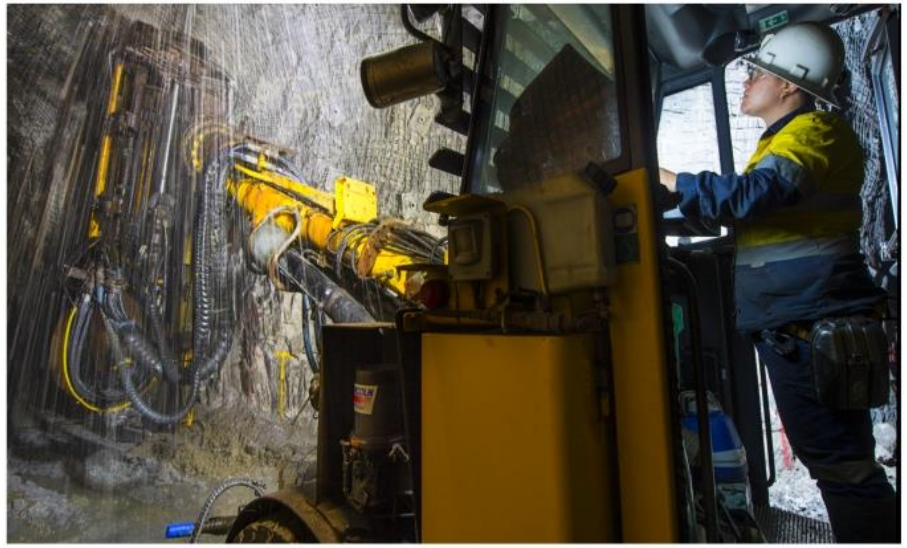
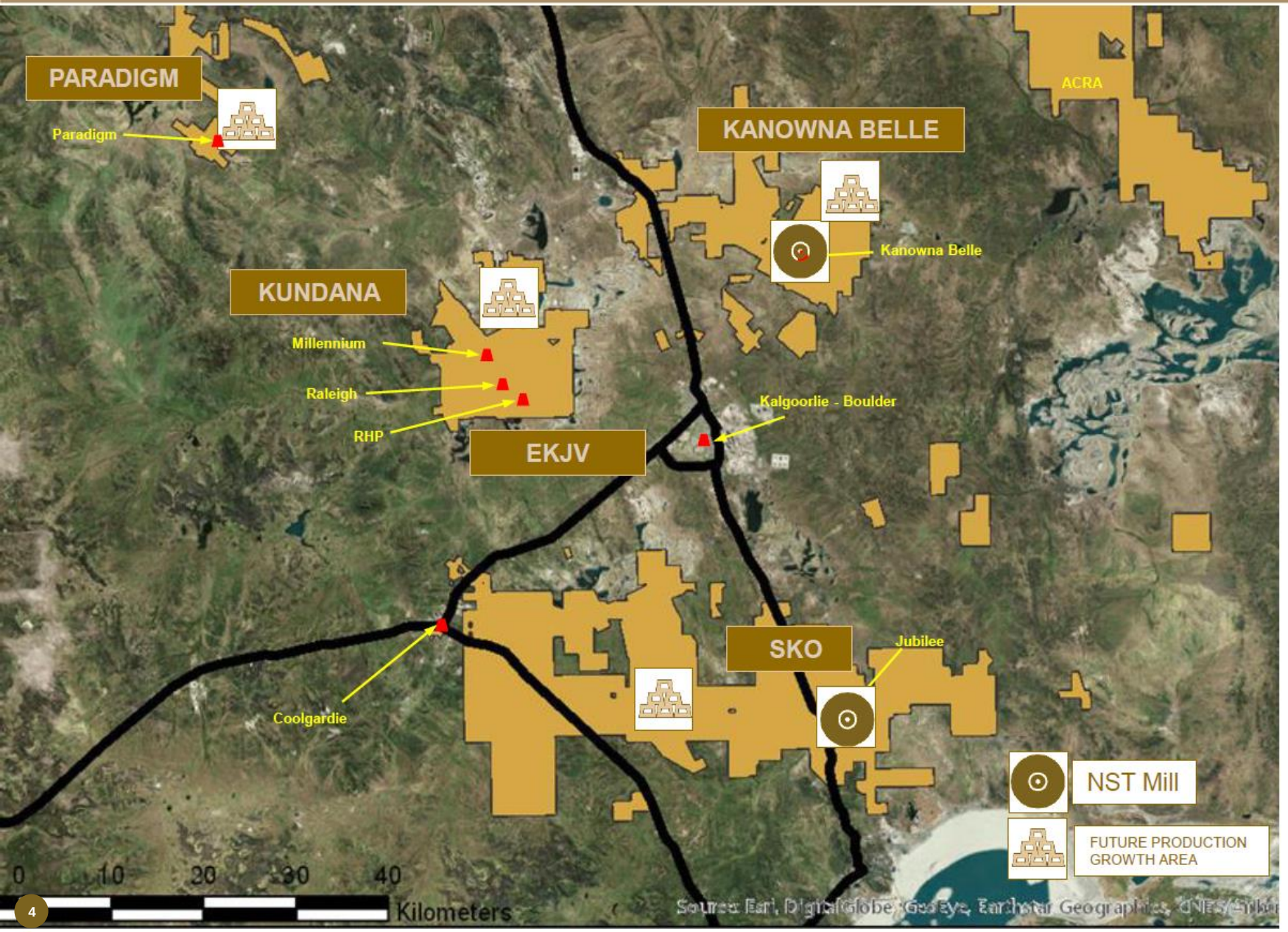


KALGOORLIE OPERATIONS
MINING OVERVIEW

Northern Star Kalgoorlie Operations



Operational Profile

- 5 Operating UG Mines
  - *Kanowna Belle*
  - *Millennium*
  - *HBJ*
  - *Raleigh (51% NST)*
  - *Rubicon-Hornet-Pegasus (51% NST)*
- 2 Processing Facilities
  - *Kanowna Belle – 2Mtpa*
  - *Jubilee – 1.2Mtpa*

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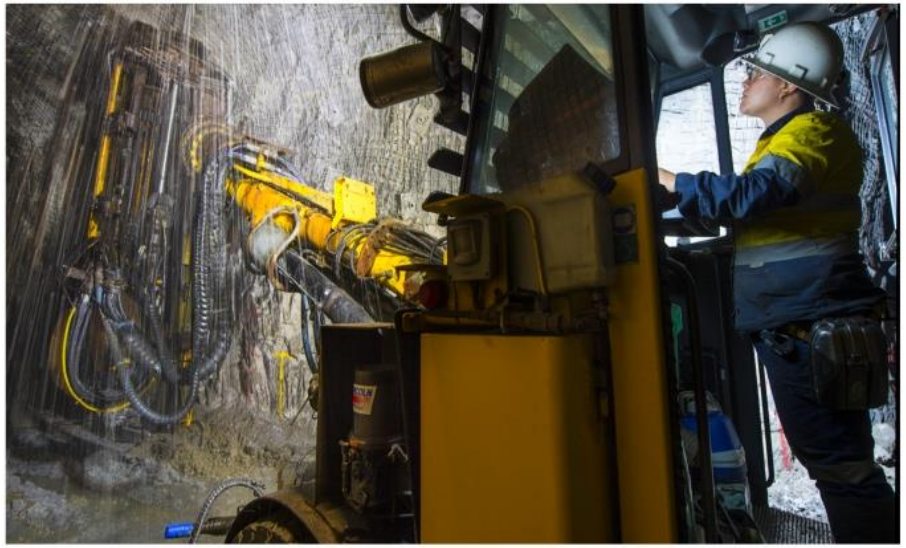


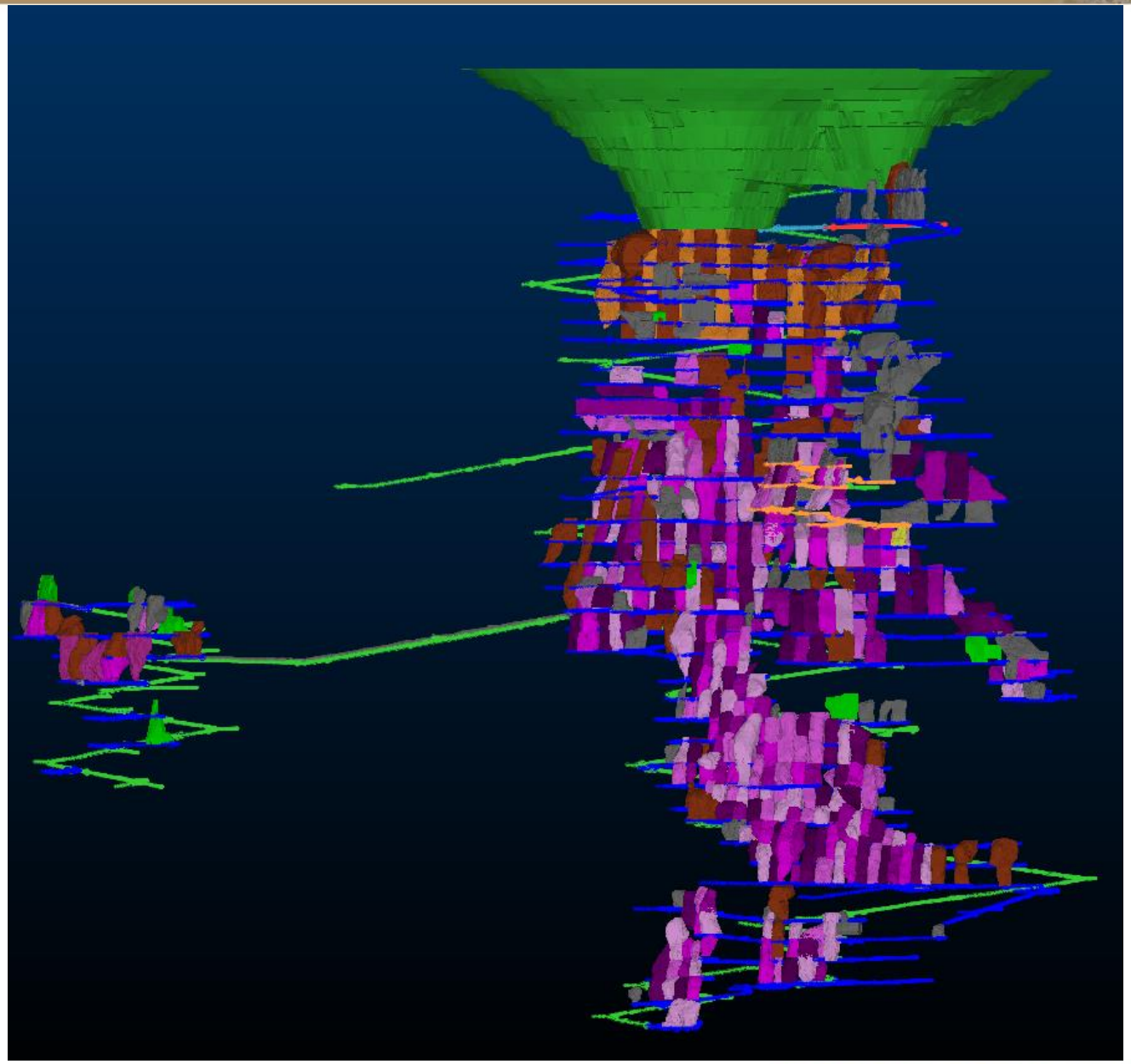
Kanowna Belle Underground

Kanowna Belle – Pit & Portal

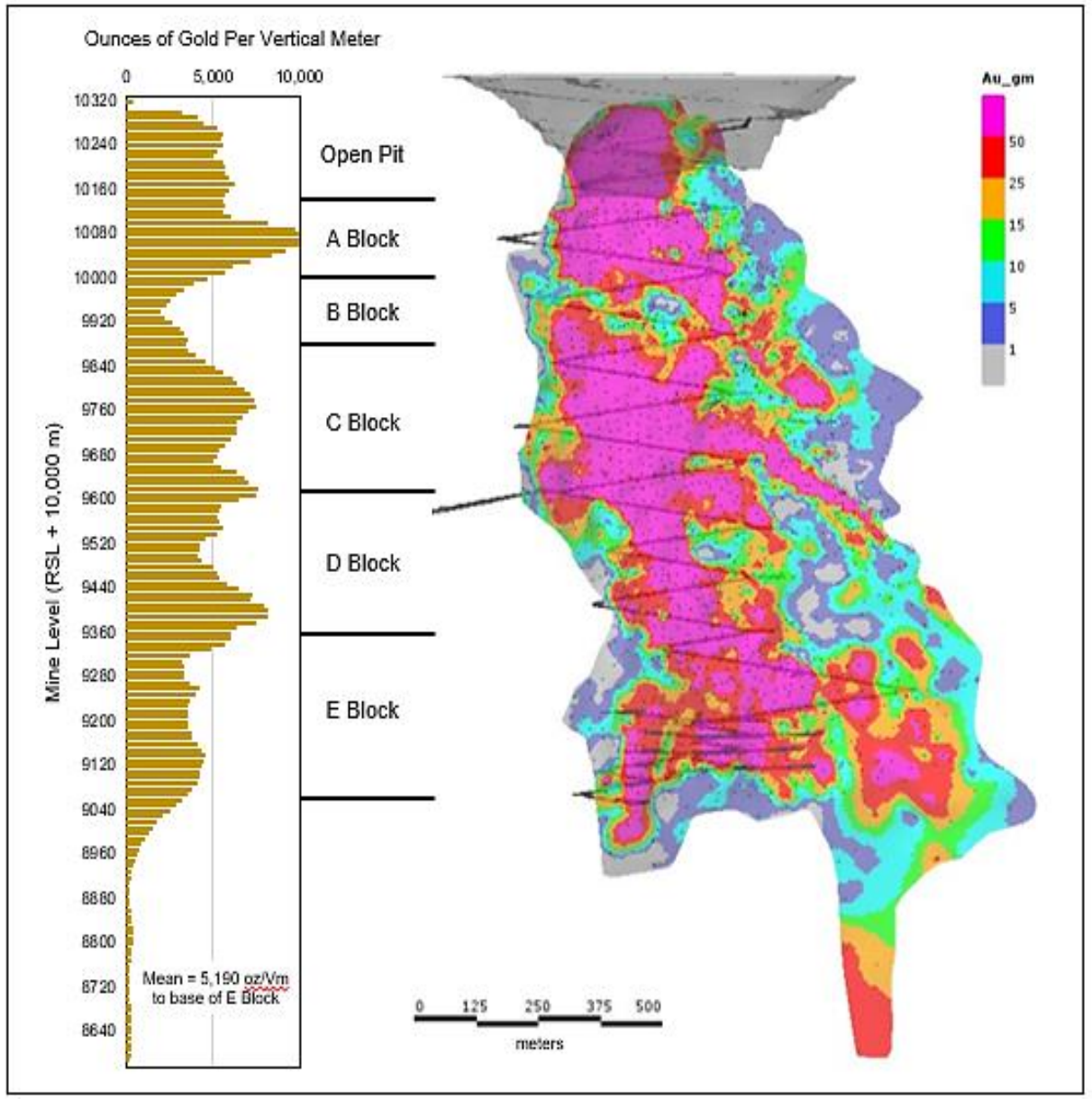
Kanowna Belle – Overview

- Underground development began in 1995, production in 1998
- Lowest level in the mine is 1.3km below surface
- Kanowna Belle (KB) has been a +100kozpa for the past 25 years

- Decline dimensions
  - 6.0m x 6.5m
  - Decline grade 1:8 to 10 010mL, 1:7 remainder
- Level Development dimension
  - 5.4mW x 5.4mH (Level accesses)
  - 5.2mW x 5.2mH (Ore drives)
- 6 Mining Blocks
  - A, B, C, D, E & Velvet

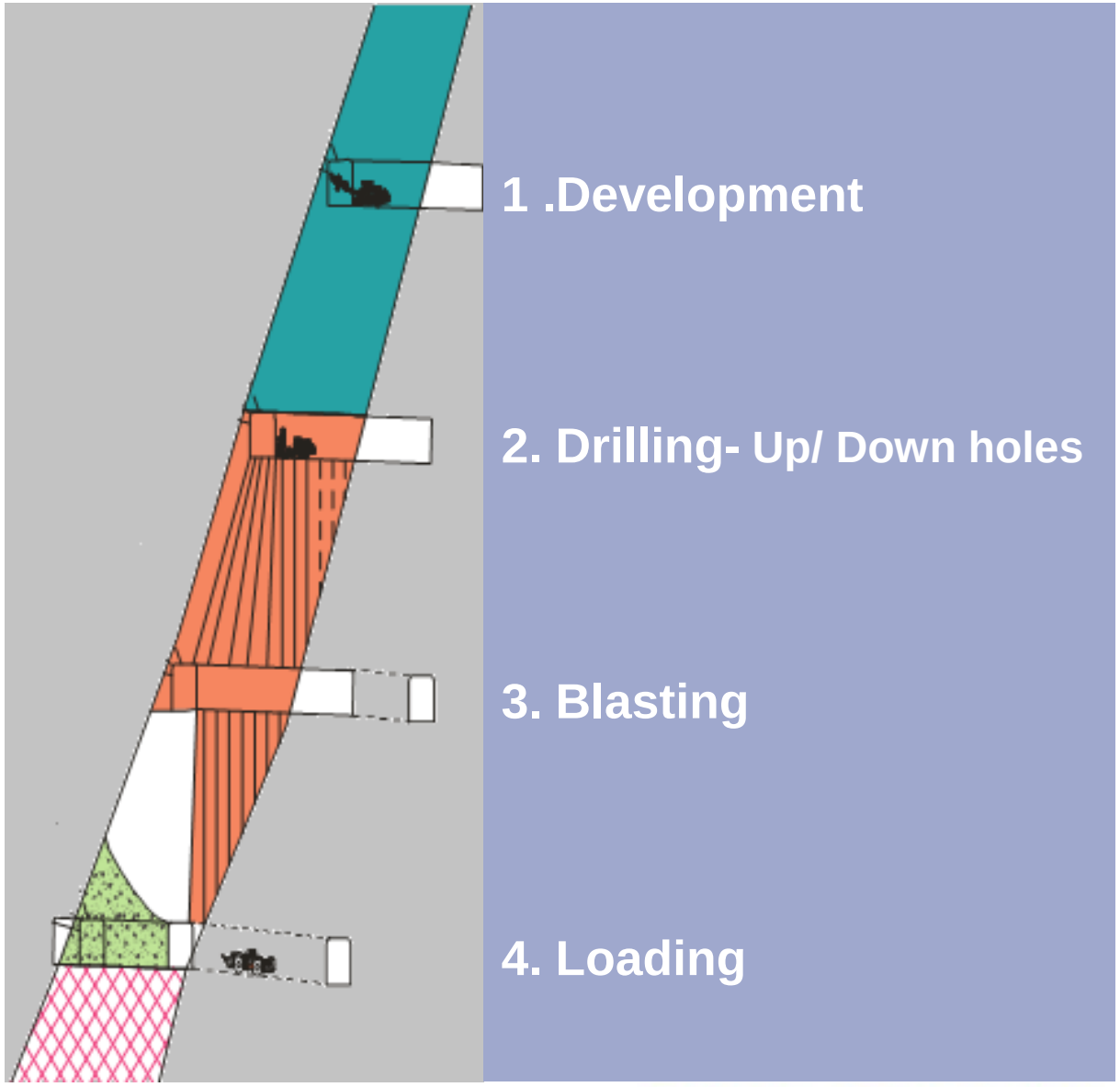


KB Reserve Long Section



KB Mining Method

- Longhole Open Stoping
  - Stope: Large hole between drives for production
  - 30m sub-levels
  - 15-20m strike
  - 5-20m wide
  - 102mm holes
  - Multi-lift stopes in upper mine
  - Single lift stopes in lower mine
    - 10 000t - 15 000t

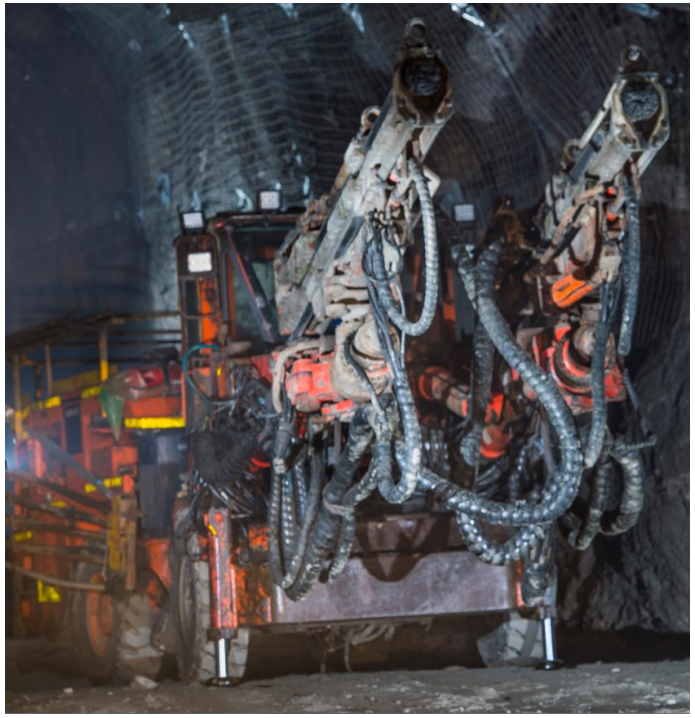


KB Mining Equipment

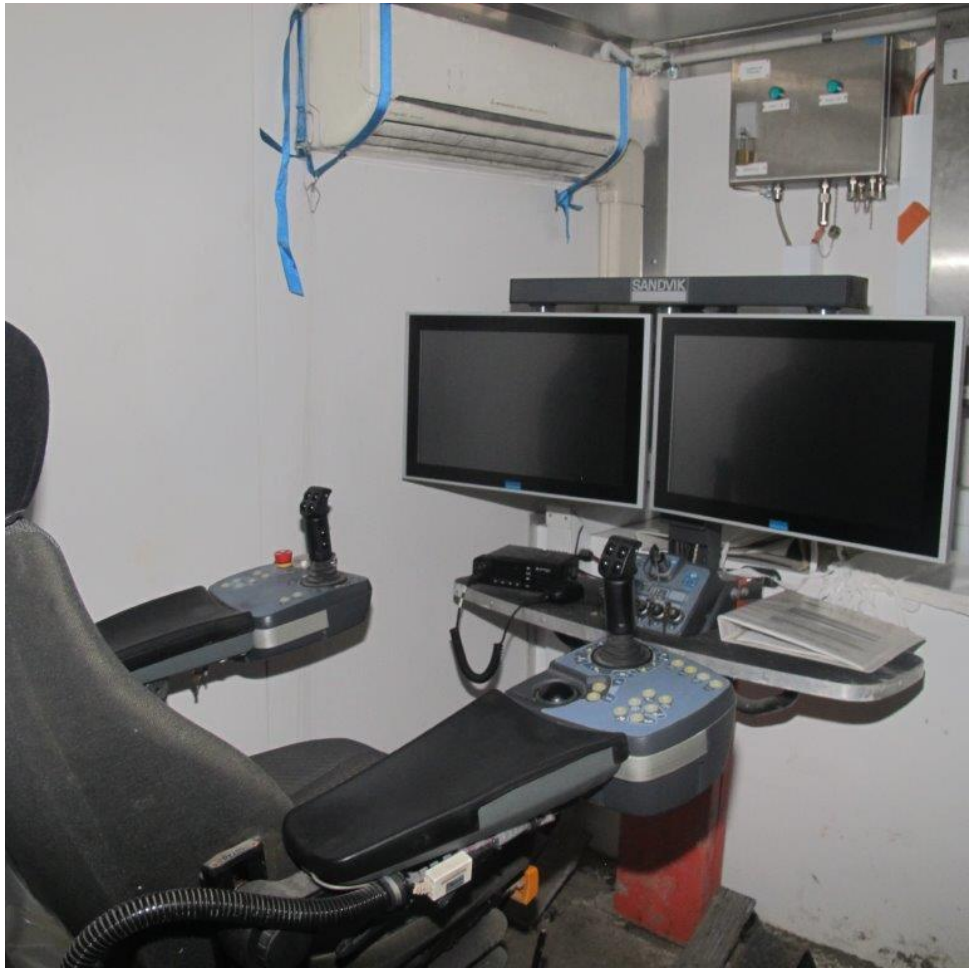
- Rigid Frame Trucks
  - 3x new units arriving over coming months
  - Komatsu HD605 being modified for UG now
  - Loaded with a Plate Feeder at 9620 level
- Articulated Trucks
  - 7x units, dropping to 3 when rigids are commissioned
  - Pay load of 65t
  - Sandvik TH663

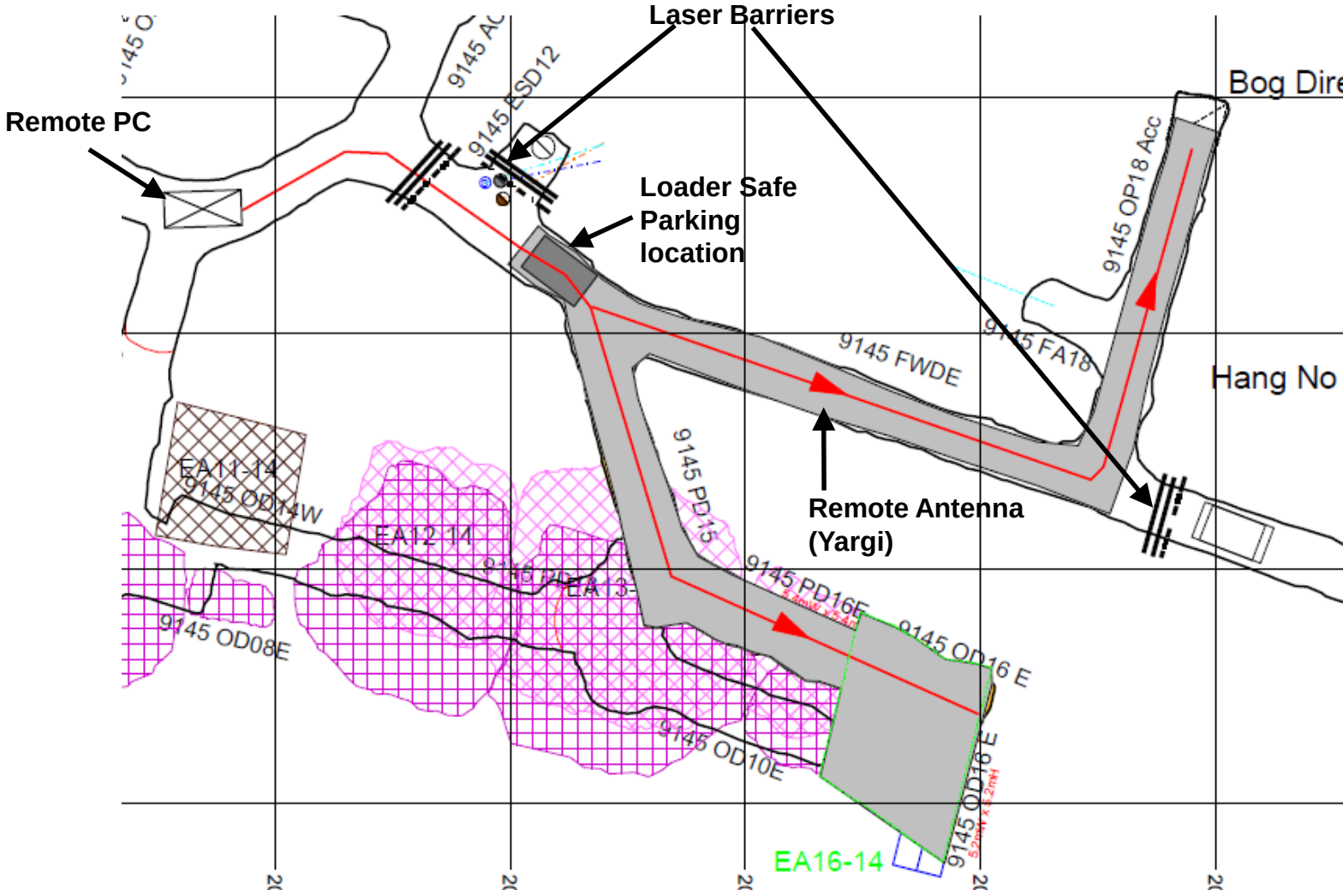
KB Mining Equipment

- Loaders
  - 1x Sandvik 621
    - 20t bucket
  - 3x Sandvik 517
    - Bucket load of 14 t
    - 2x remote capable
  - Long hole Production Drill
  - Simba E7
    - 102 mm
- Development Jumbos
  - 2 x Sandvik HD421 (Twin booms)

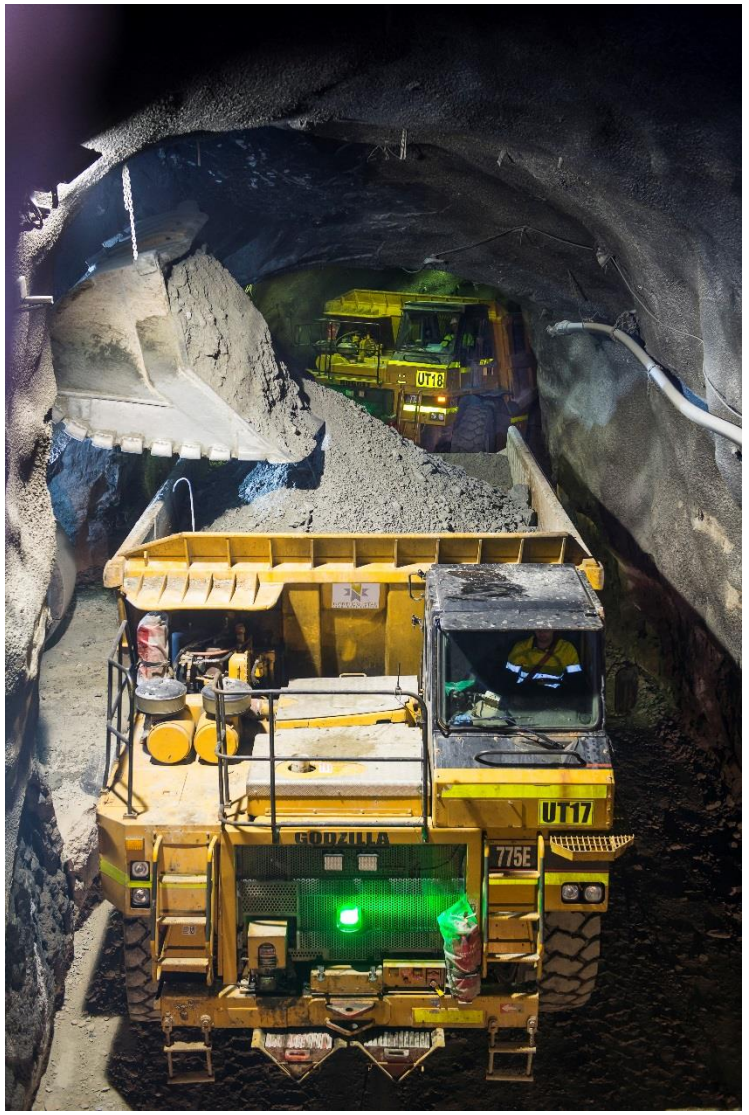


KB Stope Remote Bogging





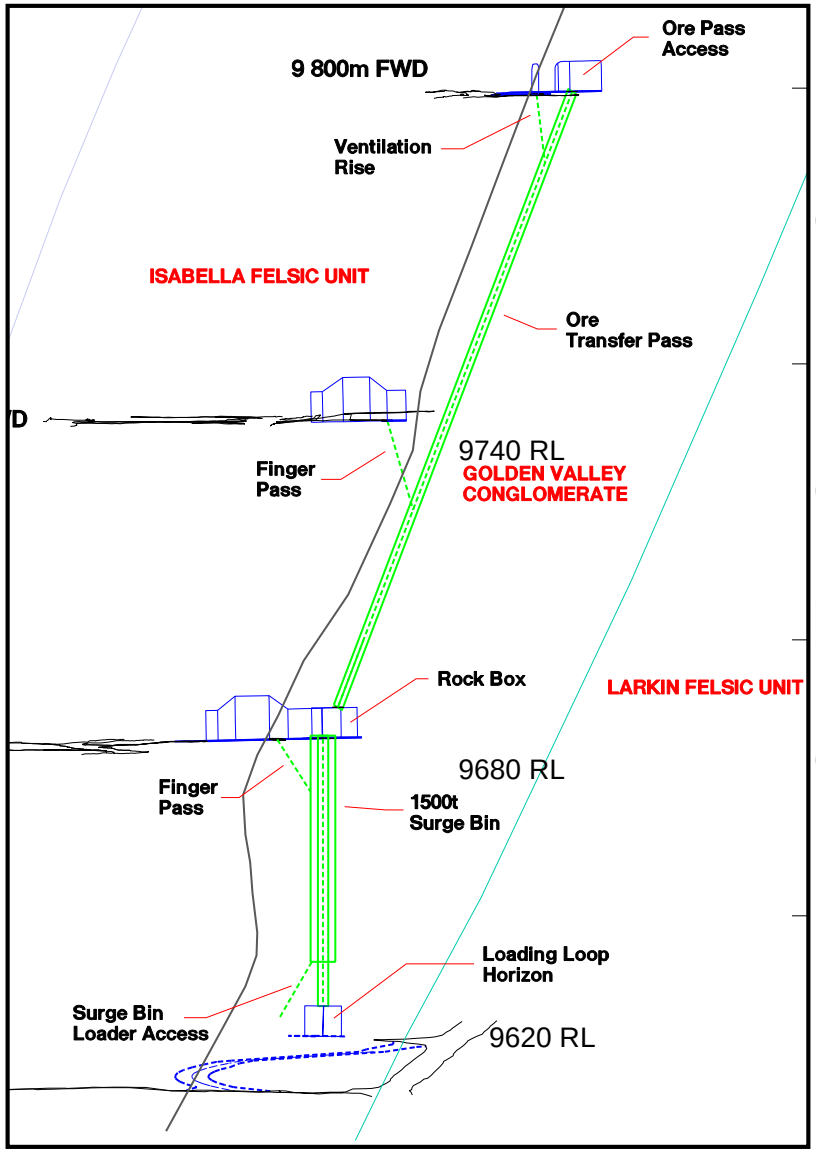
KB Ore Haulage System

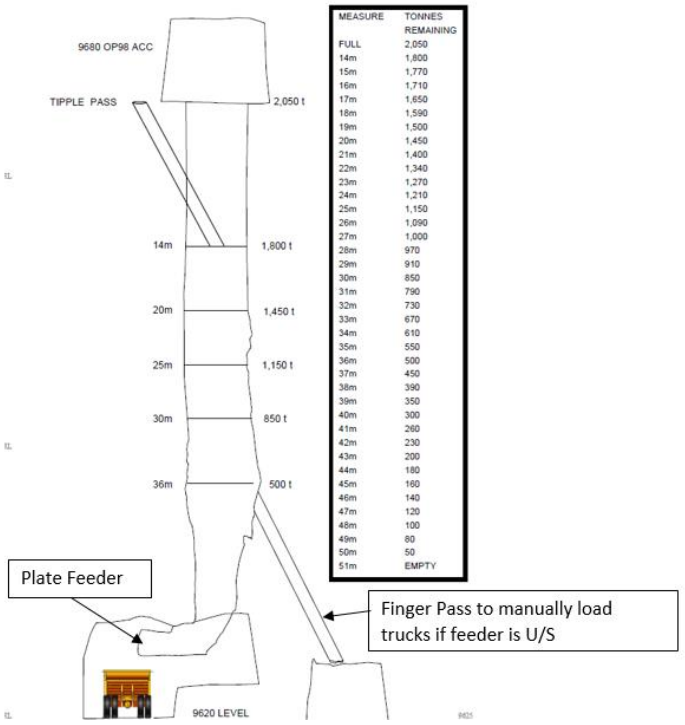


Main Haulage System:

Primary location ➡ Articulated ➡ Ore pass ➡ Rigid ➡ ROM

KB Ore Haulage System





- 9620 Plate Feeder
  - Mid way down the mine
  - Remote operated
  - Feeds by strokes into Rigid haul trucks
  - Articulated trucks or boggers feed the passes

Kanowna Belle – Paste Fill

- Wet Paste Fill
  - *Uses dewatered tailings as a high density fill*
  - *Allows for delivery to stopes by pipe*
- Advantages of Wet Paste Fill
  - *Trucks not required*
    - *Safer*
    - *Easier*
    - *Cheaper*
  - *Tighter filling of stopes*
  - *No segregation problems*
  - *Improved cement control*
    - *mixed on surface*
  - *Less tails to tailings dam*
  - *Fill stopes quicker*
  - *Reduced fill dilution*

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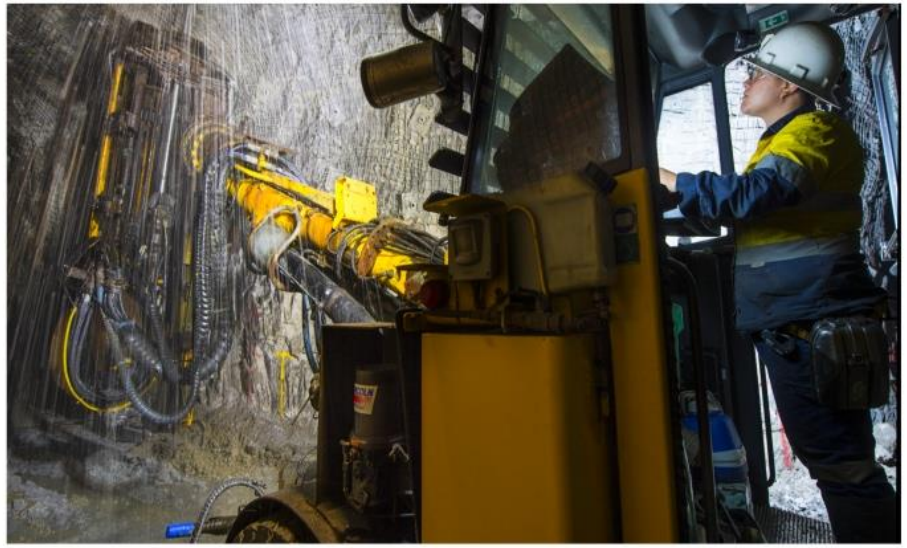
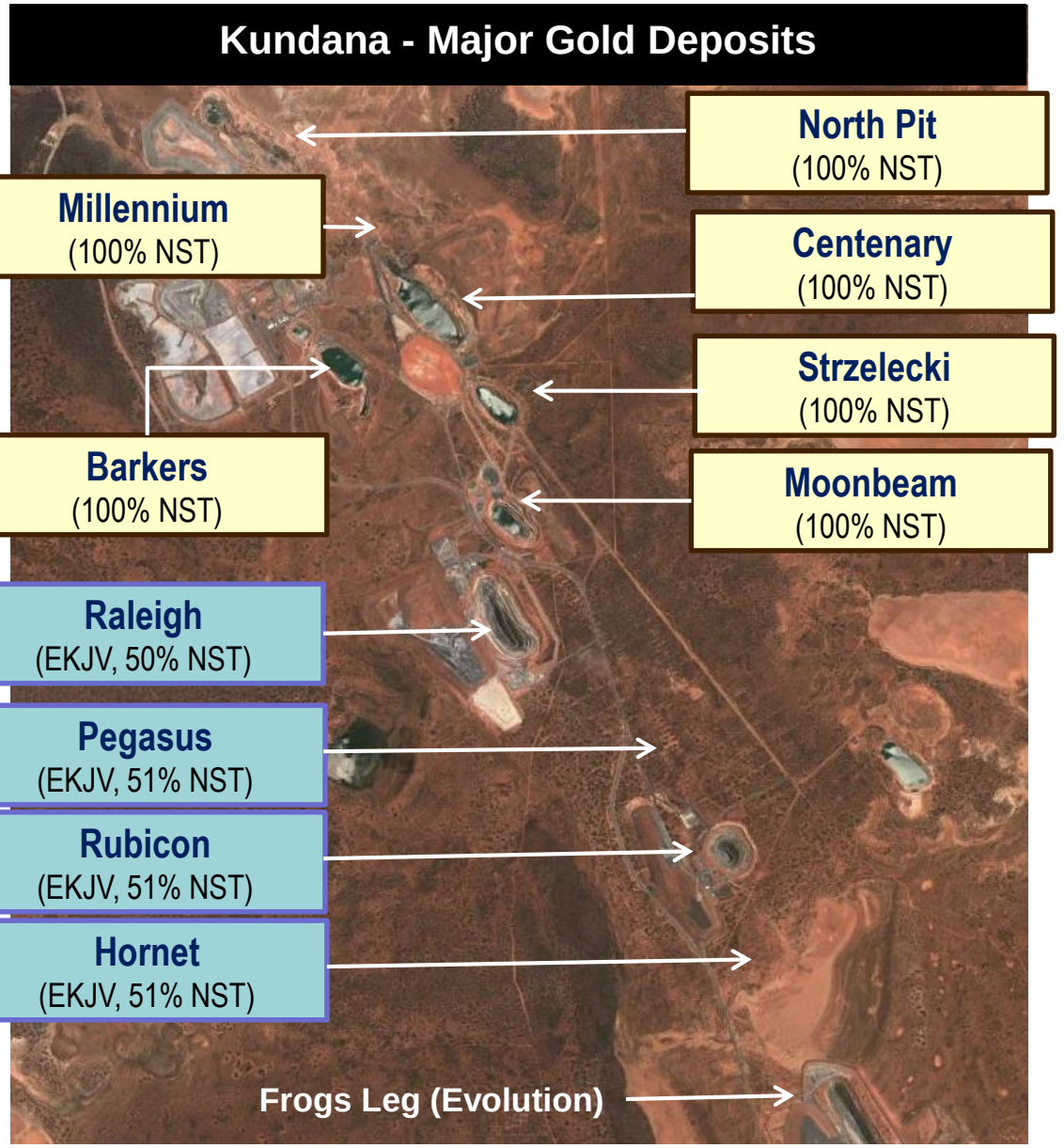


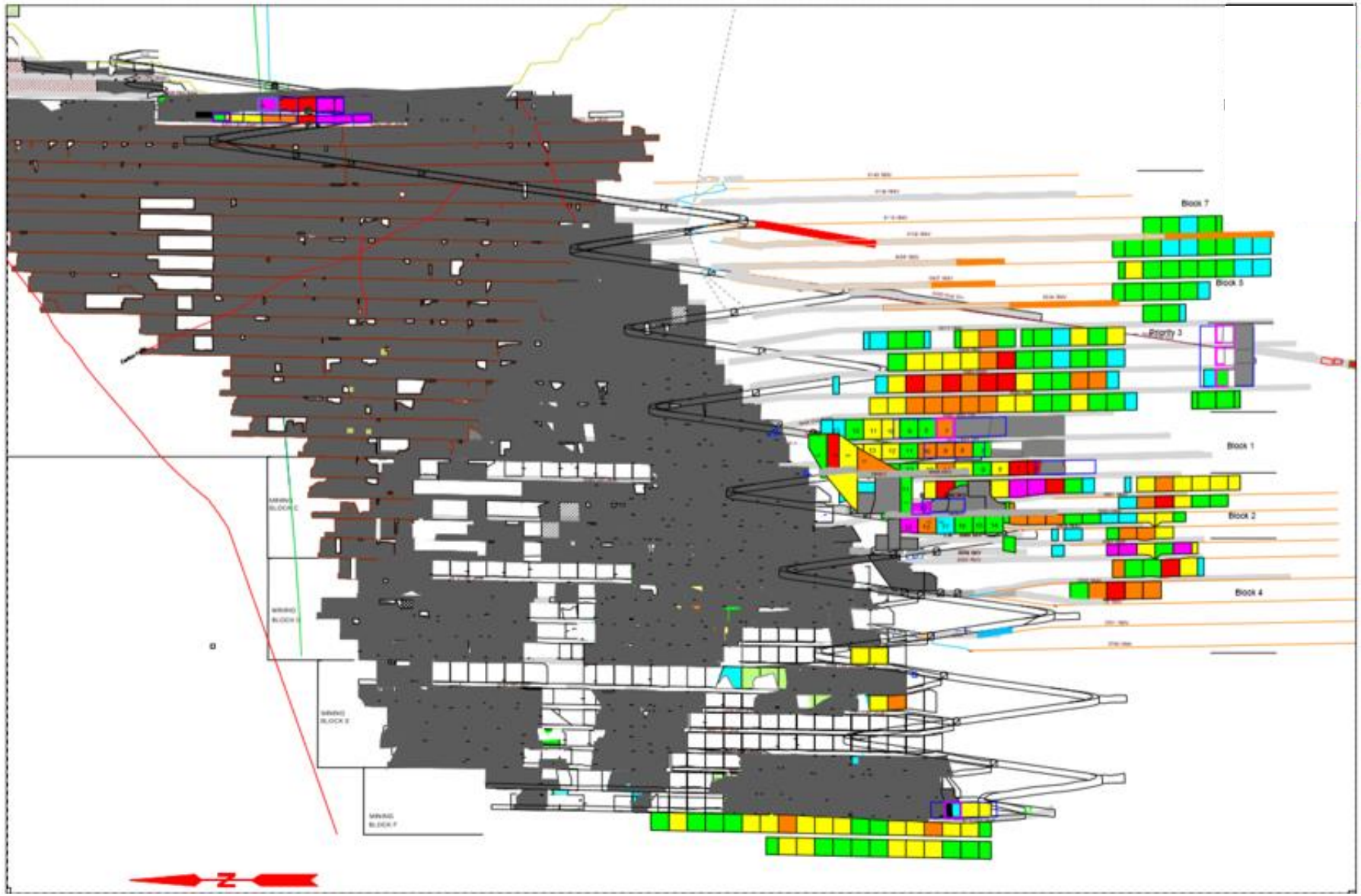
Kundana – Millennium (100% NST) and EKJV (51% NST)

Kundana Mines (Millennium, Raleigh, Rubicon, Hornet & Pegasus)

- The Kundana mining area has been in operation for over 30 years
- The current operational mines are Millennium (100% NST), Raleigh, Rubicon, Hornet and Pegasus (EKJV)
- An emerging goldfield which has produced over 5Moz of gold over this time located on the Zuleika Shear Zone
- Ore bodies are typically narrow vein style mineralisation (1m to 3m in width)

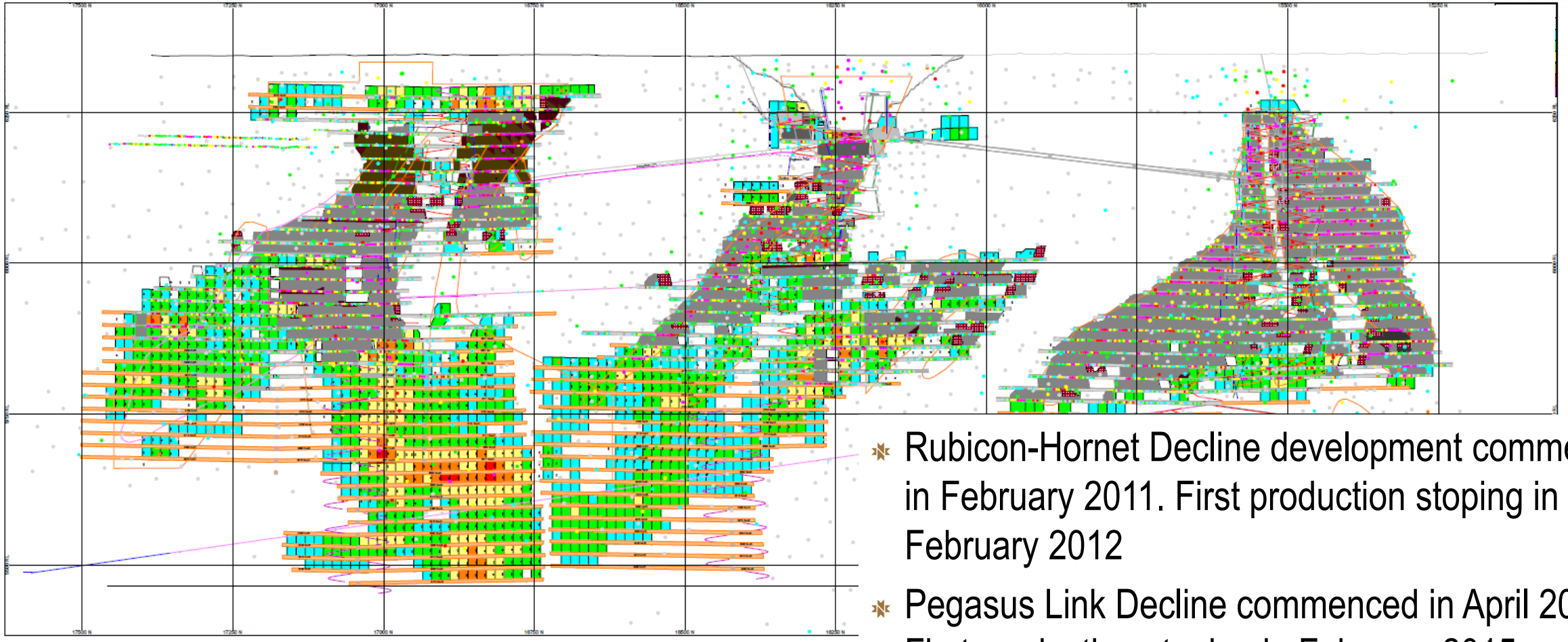


Raleigh (EKJV 51% NST)



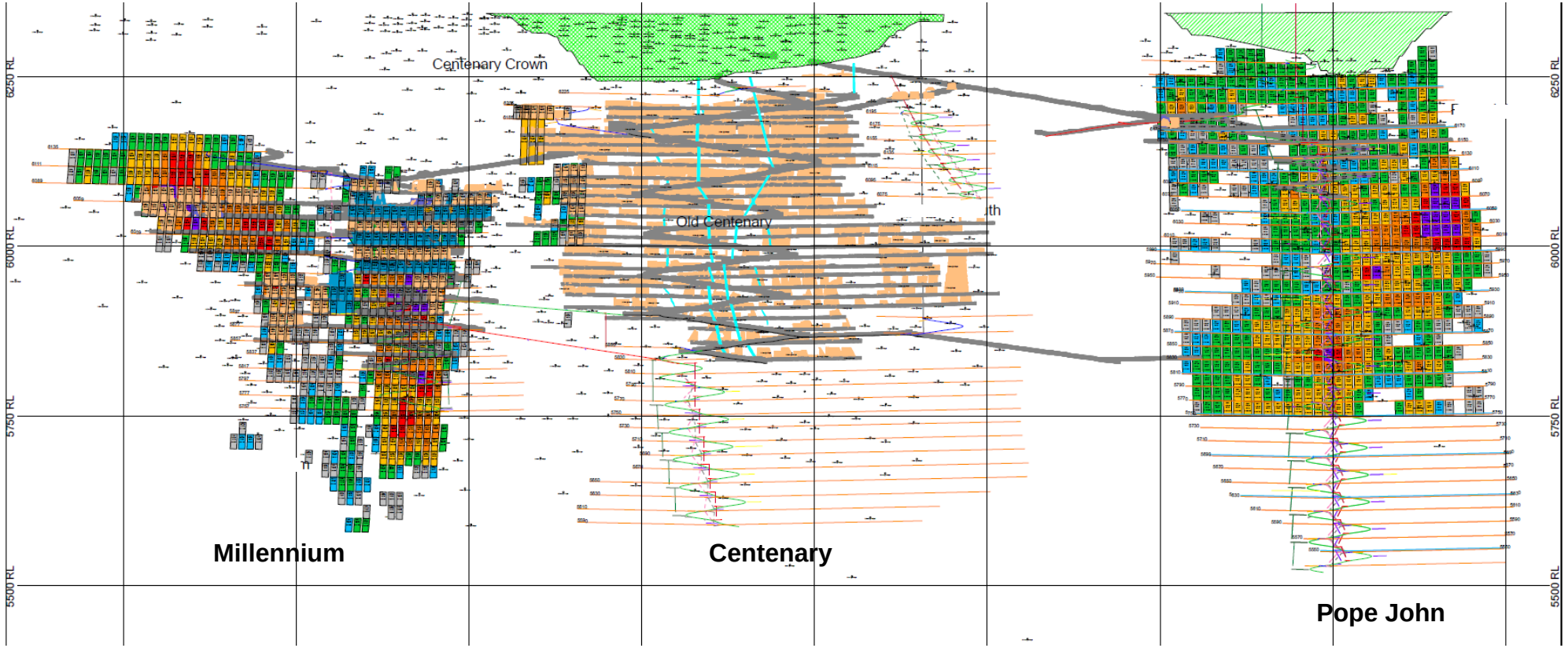
- Raleigh Decline development commenced in December 2004
- Raleigh first production in February 2006
- Over 1M ounces mined from underground
- Lowest level in the mine is 730m below surface

Rubicon – Hornet – Pegasus (EKJV 51% NST)



- Rubicon-Hornet Decline development commenced in February 2011. First production stoping in February 2012
- Pegasus Link Decline commenced in April 2014. First production stoping in February 2015
- Lowest level in the mine is 690m below surface

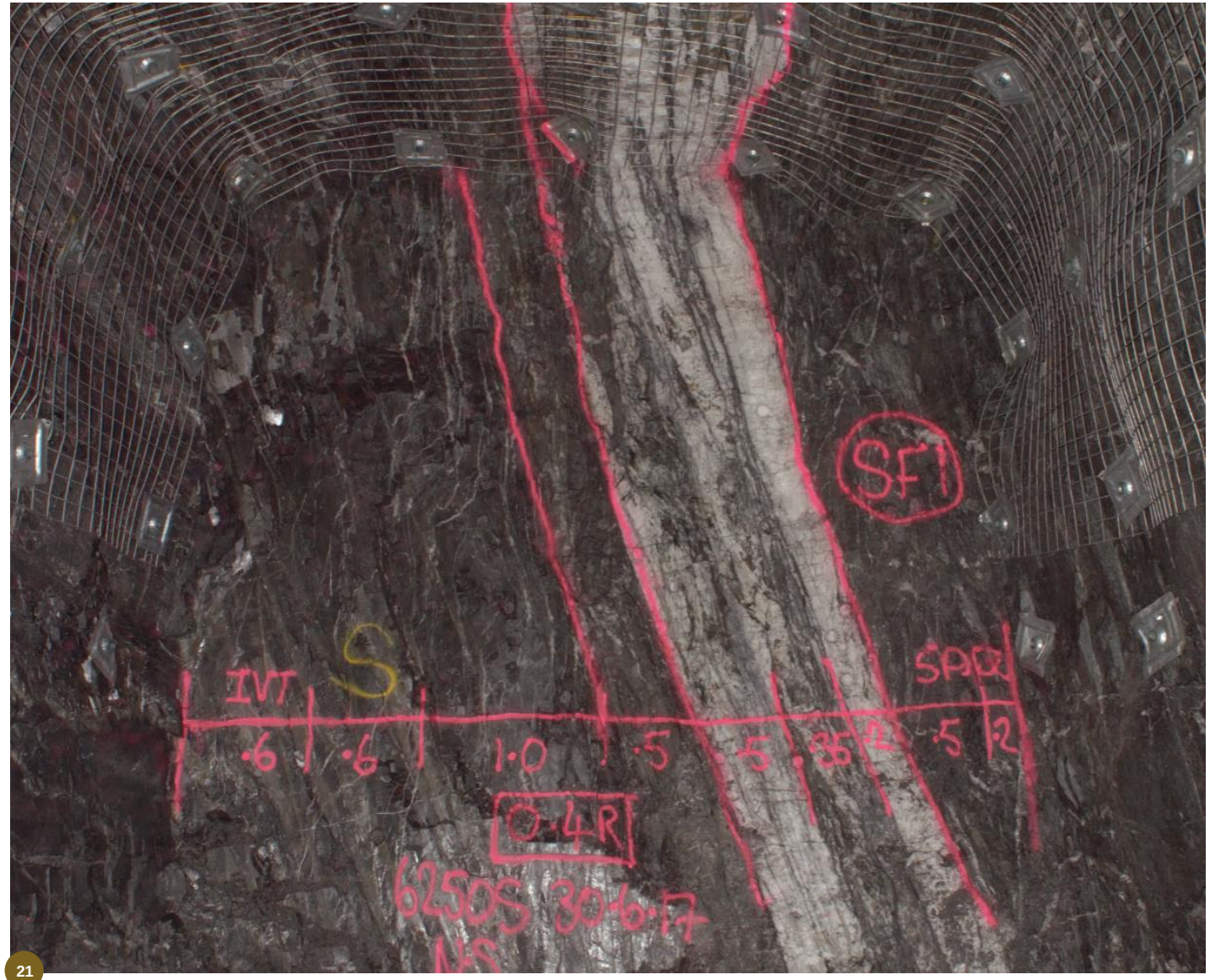
Millennium/Centenary/Pope John



- Millennium Decline development commenced in August 2016, first production stoping in September 2017
- Lowest level in the mine is 540m below surface

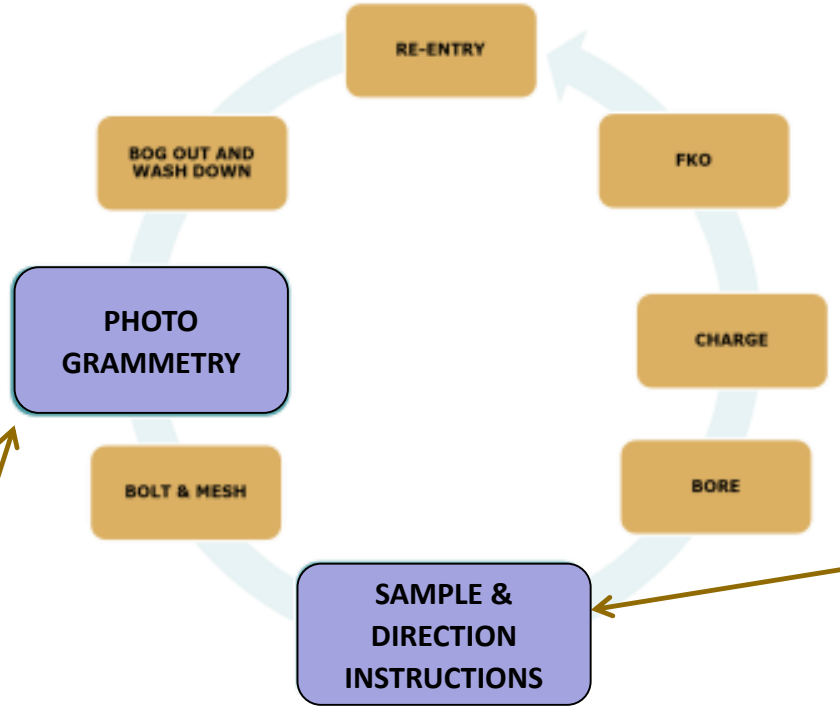
Narrow Vein Orebodies

K2 Lode – Millennium, Rubicon – Hornet – Pegasus



Strzelecki Lode - Raleigh

Development Cycle



Completed for all ore headings, or where potential mineralisation is identified

Samples are broken up into several 'domains' which are used to make a 3D grade model to predict future development and stope grades

Requires:
- *Full ground support to standard*
- *Clean up after BM to avoid trip hazards*
- *Face washed after BM to avoid contamination*

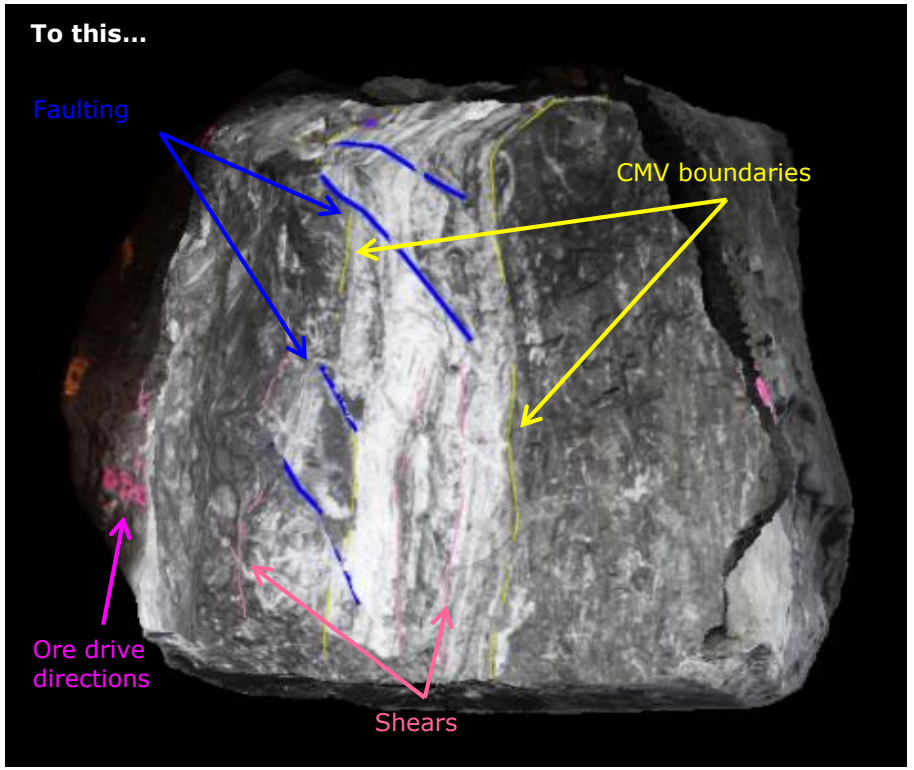
Completed for all ore and critical waste headings

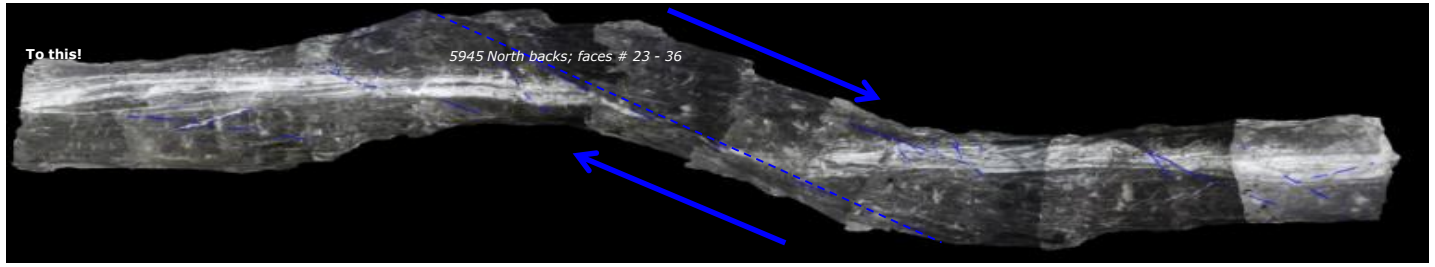
Gives a 3D image that the geologists use to map structures, rock types, veining etc.

Requires:
- *Full face bogged out*
- *Cuts washed down completely*
- *Surveyors pick up the pink control points so the 3D image can be interpreted in 'real space'*

Photogrammetry

4 photos are required to create a 3D image of a face. As well as the pink control points, ore drive bore directions are sprayed up on the drive wall





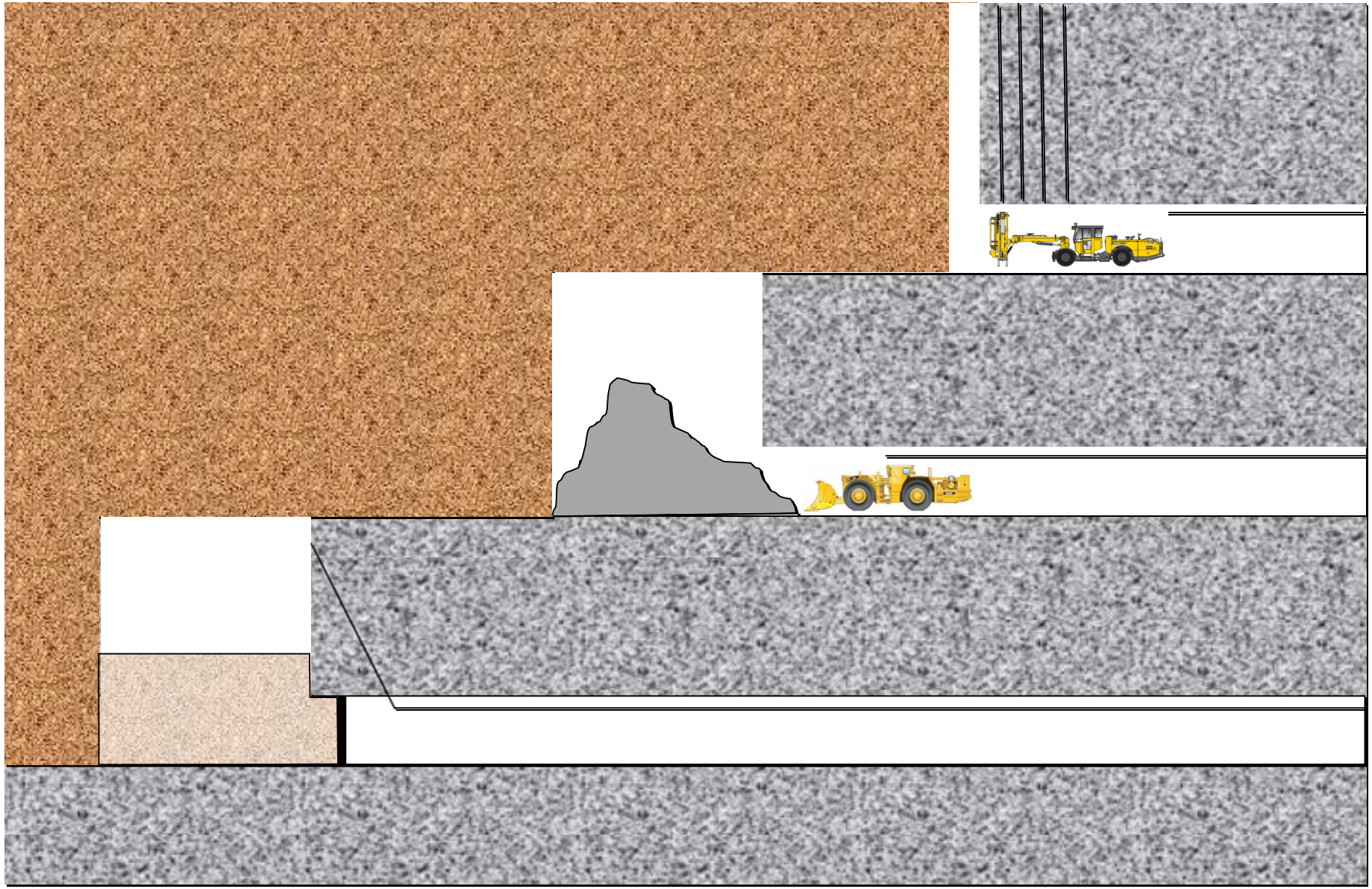
Faulting interpretation in the 5945N. Note the predominant dextral faulting orientation.

Once the control points have been picked up we can georegister and 'digitise', effectively analysing every face. Ultimately, we are able to geologically interpret the whole drive

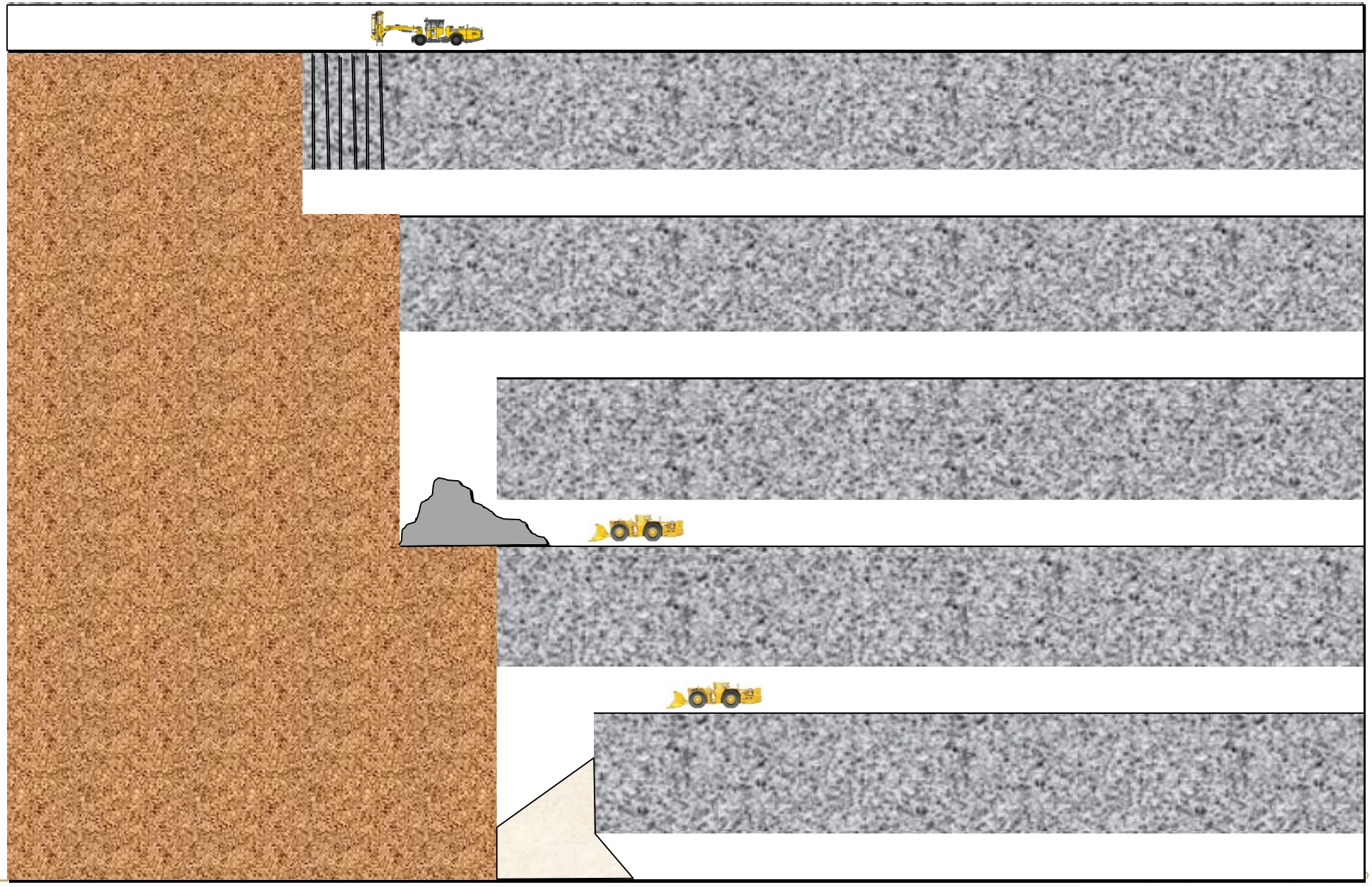
Other uses:

- *Dilution monitoring (e.g. digitizing of half-barrels)*
- *Geotechnical mapping and structural modelling*
- *Geological modelling*
- *Ore domaining prior to resource estimation*
- *Identify and extrapolate structures known to be responsible for high grade zones, and target areas for further drill testing*

Production Cycle – Top-down with Paste Fill

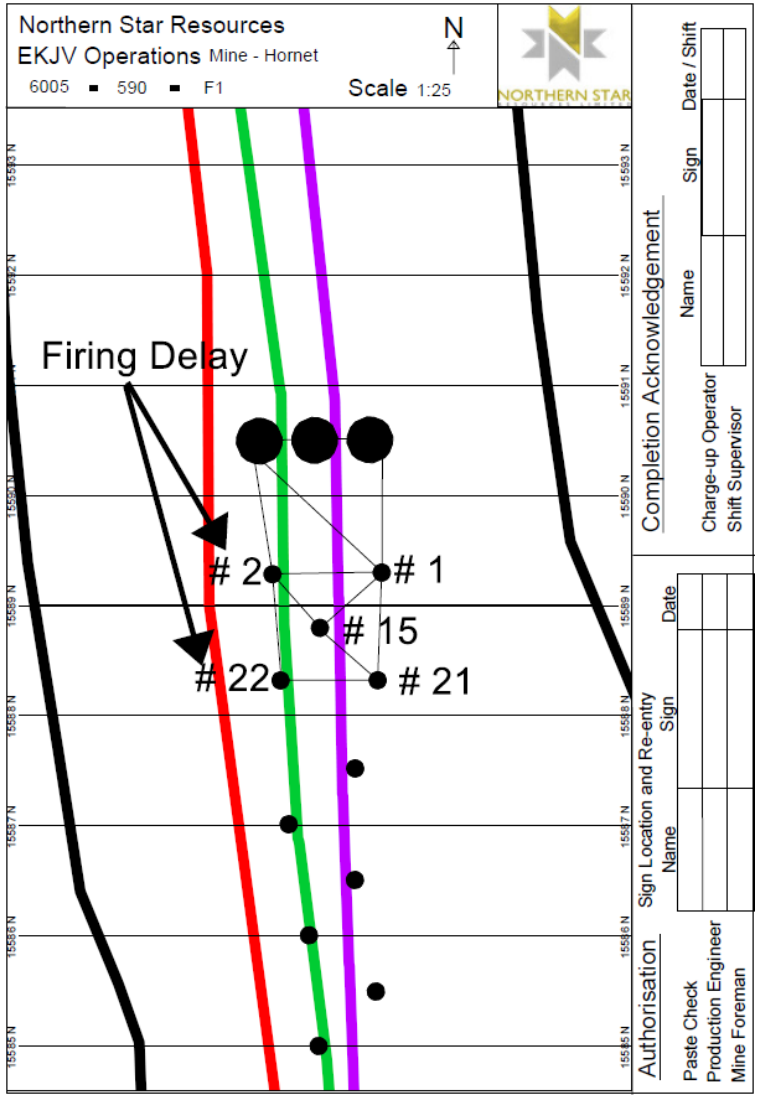


Production Cycle – Bottom-up with Rock Fill

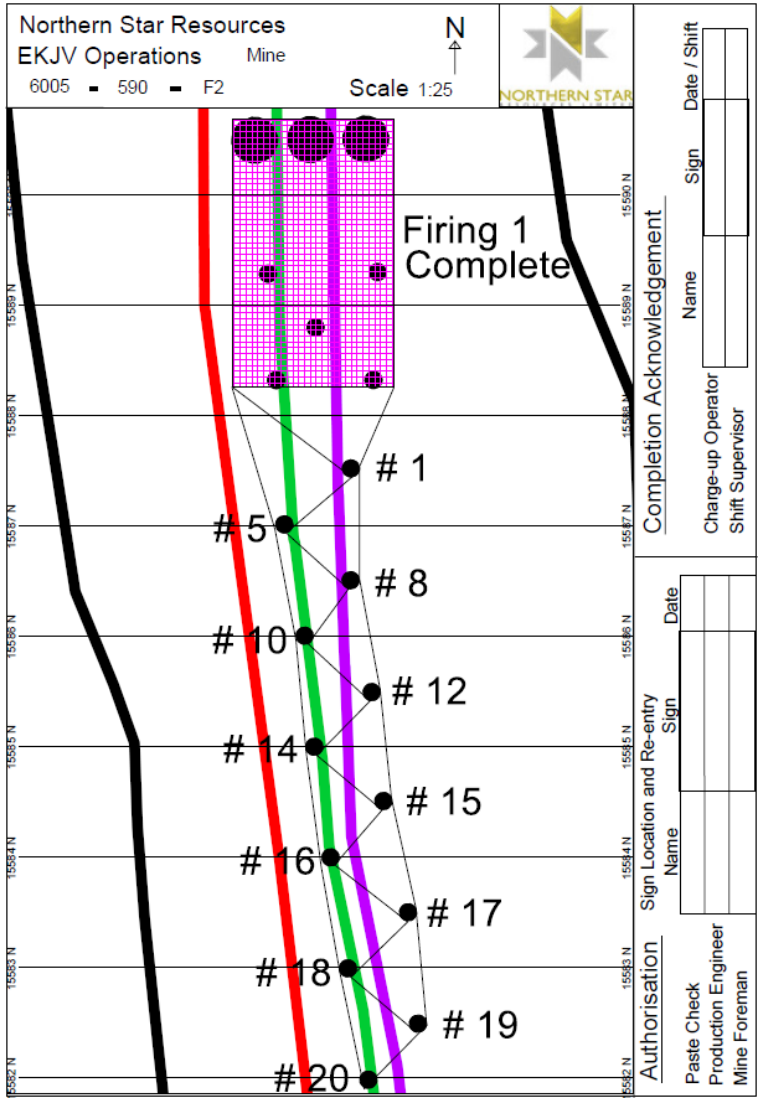


Drill & Blast Design

Firing 1



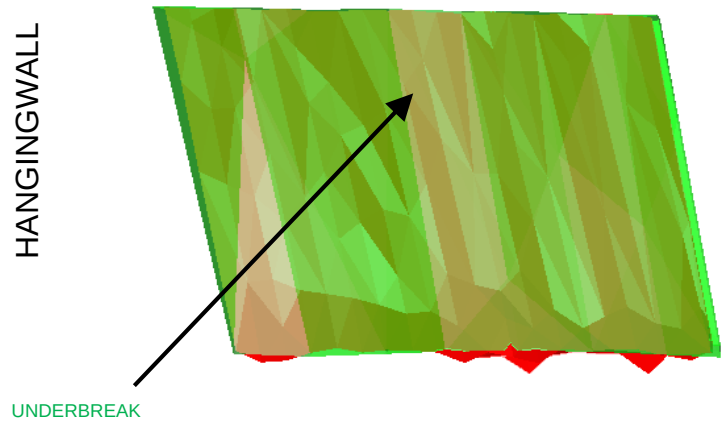
Firing 2

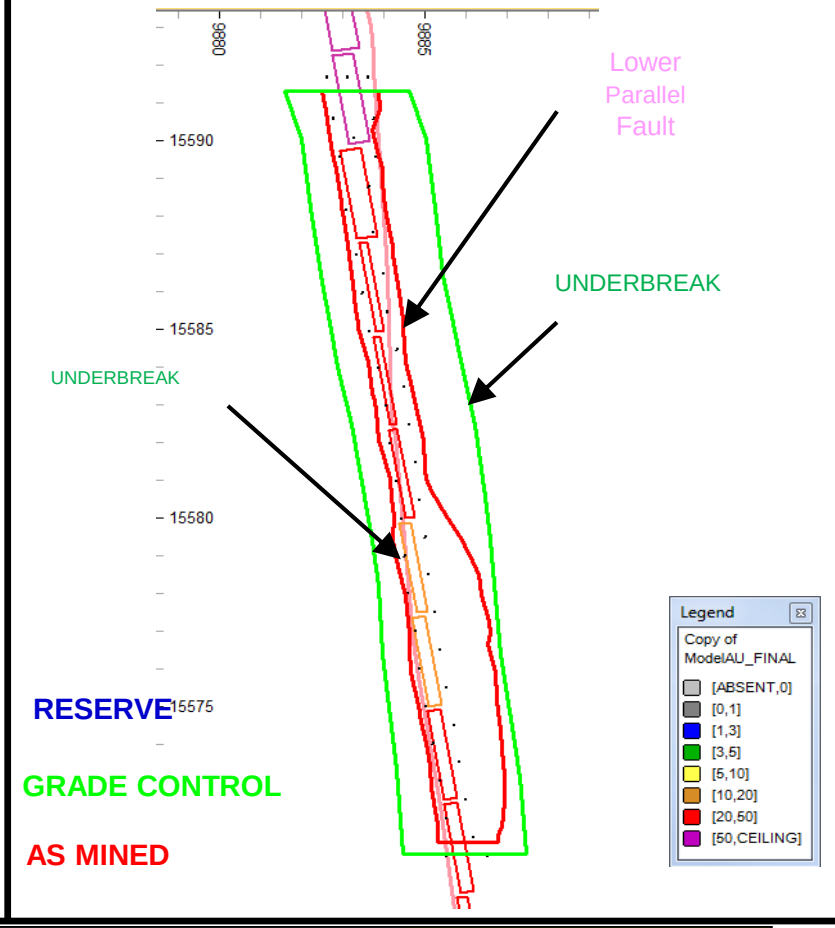


Result

Production Cycle – Stope Reconciliation

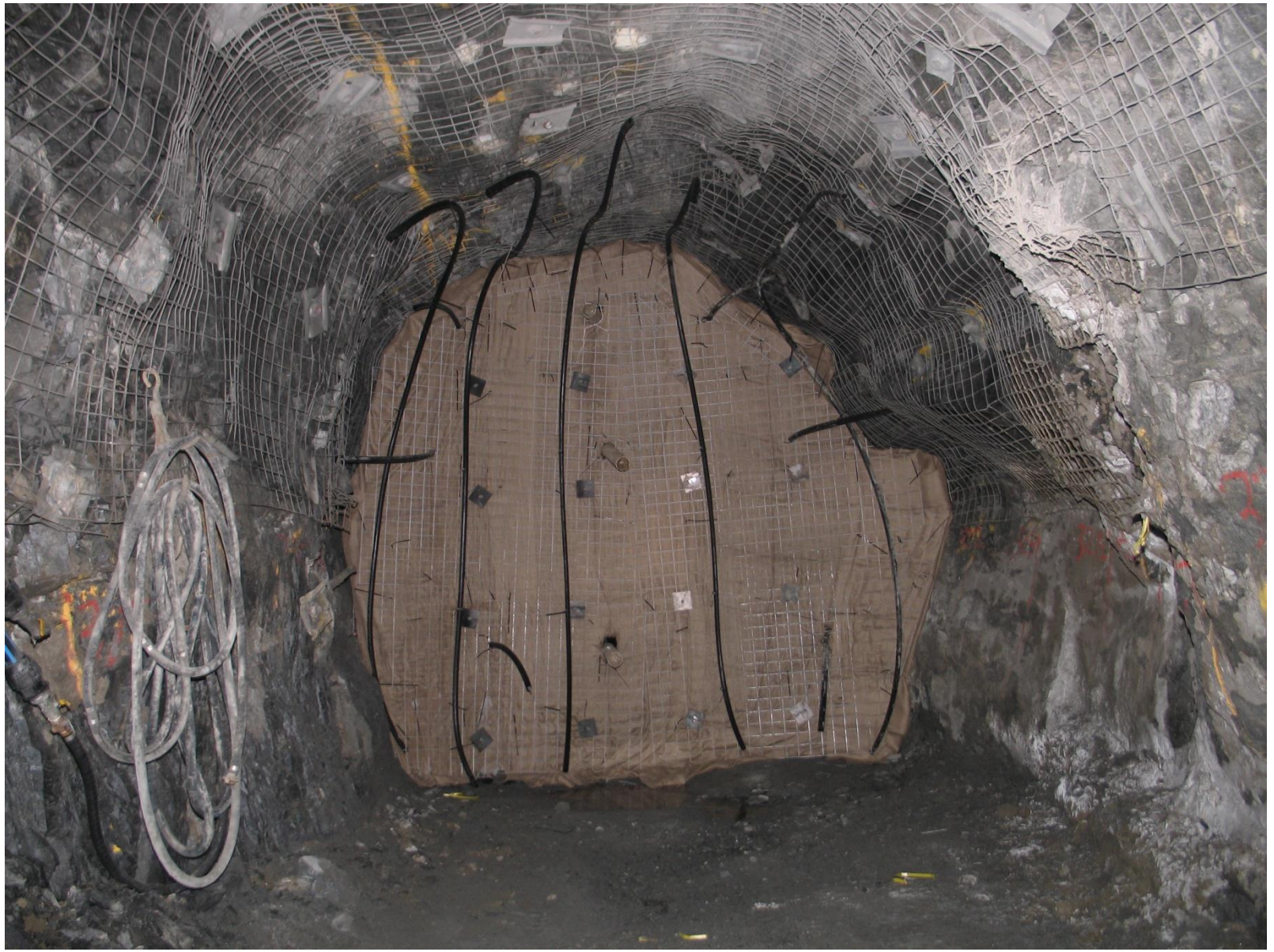
LONG SECTION	6005-590	PLAN SECTION





STOPE	Reserve			Grade Control			Mine Estimate			t Recon.	Grade	Ounce
	t	g/t	oz	t	g/t	oz	t	g/t	oz	%	%	Recovery
6005N-590	2,590	6.25	520	2,614	6.92	582	1,813	10.02	584	69%	145%	100%

Production Cycle – Paste Fill, Paste Barricade



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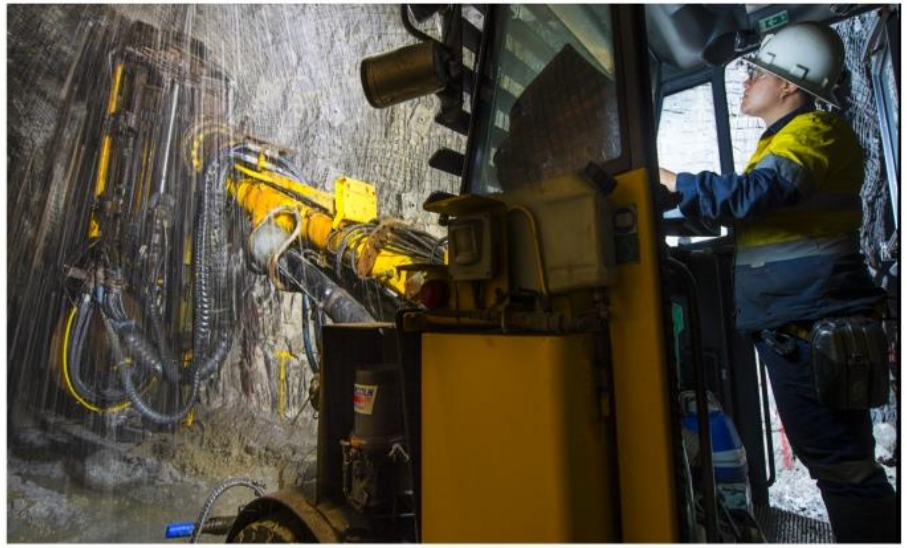
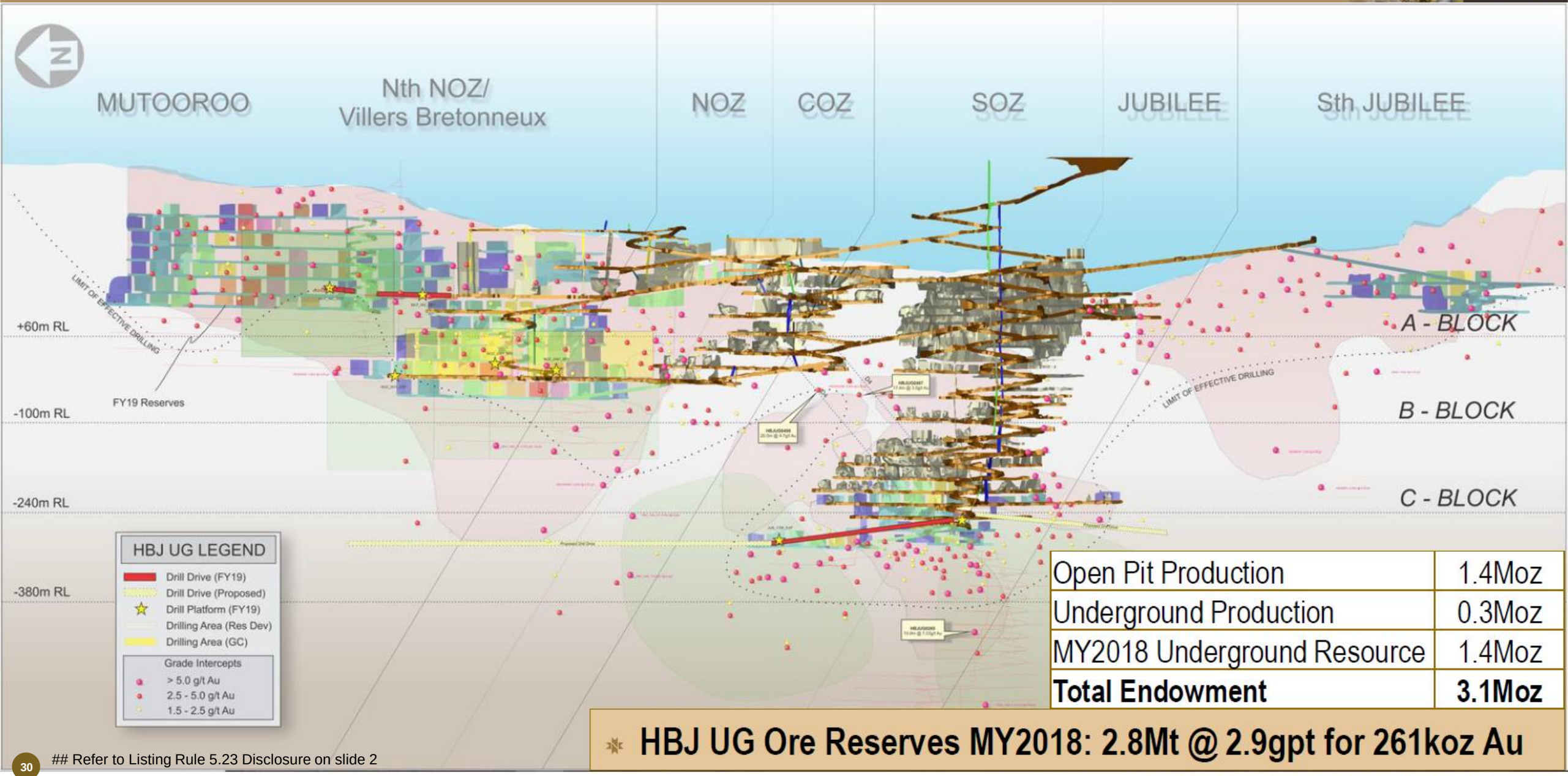


South Kalgoorlie – HBJ Underground

HBJ Underground



Open Pit Production	1.4Moz
Underground Production	0.3Moz
MY2018 Underground Resource	1.4Moz
Total Endowment	**3.1Moz**

HBJ UG Ore Reserves MY2018: 2.8Mt @ 2.9gpt for 261koz Au

Refer to Listing Rule 5.23 Disclosure on slide 2

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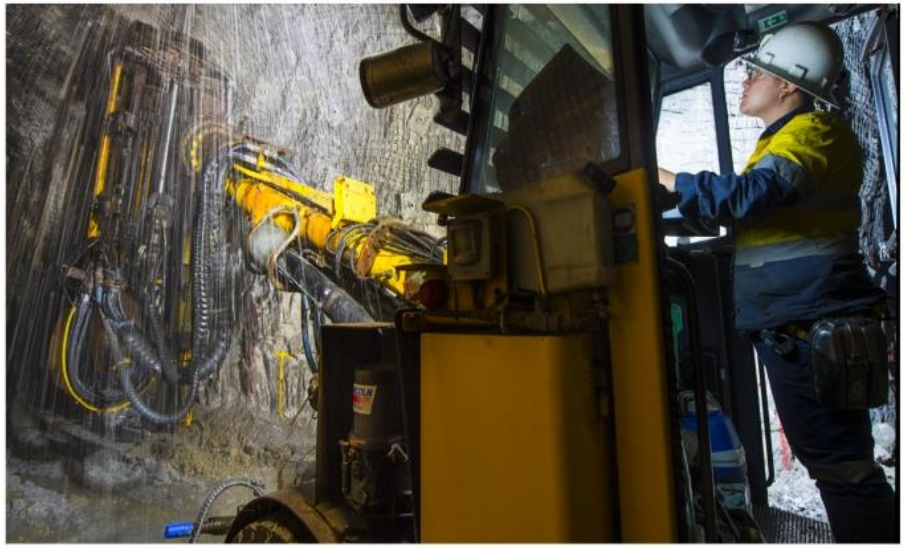


Northern Star Mining Services

NSMS Division, an integral piece of premium underground capability

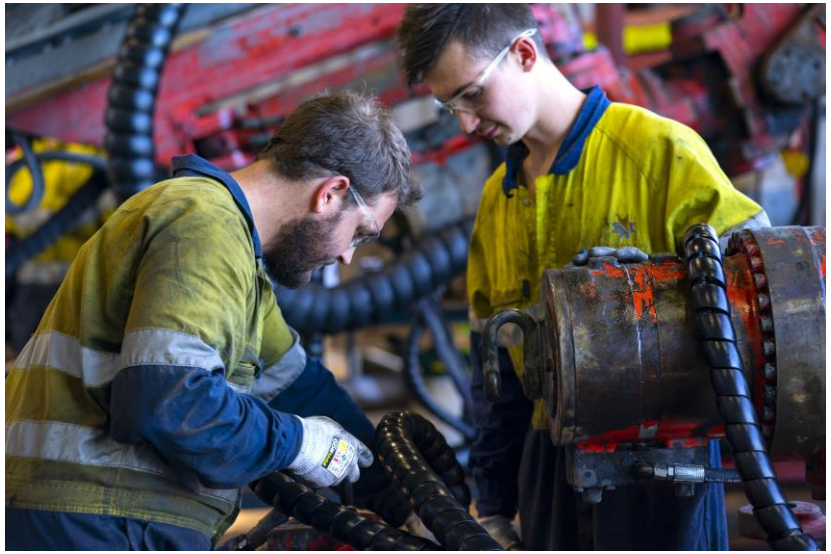
- Underground Mining Services Division is effectively an "**In-house" mining contractor**, we do not follow a traditional owner-miner model
- This division helps to **insulate Northern Star from industry wide cost inflation**
- Created in 2011 to cater for Northern Star's internal and external growth ambitions with fully aligned goals; **utilised in transition of 5 acquisitions** since commencement
- **NSMS has evolved and improved** over the past 7 years, **now represents a sophisticated underground mining solution** to support NST's current operations with growth capability
- Systems and organisational structure set up for **high productivities, responsive decision making & scalability**
- Rigorous equipment replacement and maintenance strategy in place to **ensure delivery times**, **fit for purpose** equipment selection, exposure to **latest technology**
- **Best of both worlds** to leverage technical and operational expertise with input into mine design and scheduling to **achieve best results**

Value of NSMS to NST

- **Simplifies running the overall business**:
  - *Allows technical teams to focus on mine life, mine design & scheduling*
  - *NSMS focuses on operational execution; optimising people and equipment*
- **Reduced cost, equal or better productivities** compared to an underground contractor
- **Flexibility** to transfer resources between sites or redeploy as required
- **Commitment to development & training of people** to future-proof business for innovation & technology changes, and **support succession & growth**
- Provides Northern Star with **a genuine option** from traditional contractors - where we utilise contractors, gives us greater understanding of margin and productivities to ensure we drive value
- **Rapid mine development** reduces the project time line and hence greatly improves the NPV - **NST can leverage more value from projects**

NSMS Moving forward, our preparedness

- NSMS is a premium service provider paralleled to best underground pure play contracting businesses that delivers key benefits of **Safety, Quality, Productivity, Cost**
- **Lean and efficient** at capital employed, fleet utilisation, inventory management
- Currently 520 employees; **training and upskilling** a key component to attract, support, develop and retain personnel
- **Planning for the future**, increasing diversity
  - *Employed 14 Apprentices (3 female)*
  - *Increased female participation from 8% to 12% in last 12 months*
  - *Promoted Kalgoorlie TAFE through open days*
- Committed to leveraging our people's capability through **embracing emerging technologies to drive continuous improvement**
- **This division is scalable and prepared for growth**



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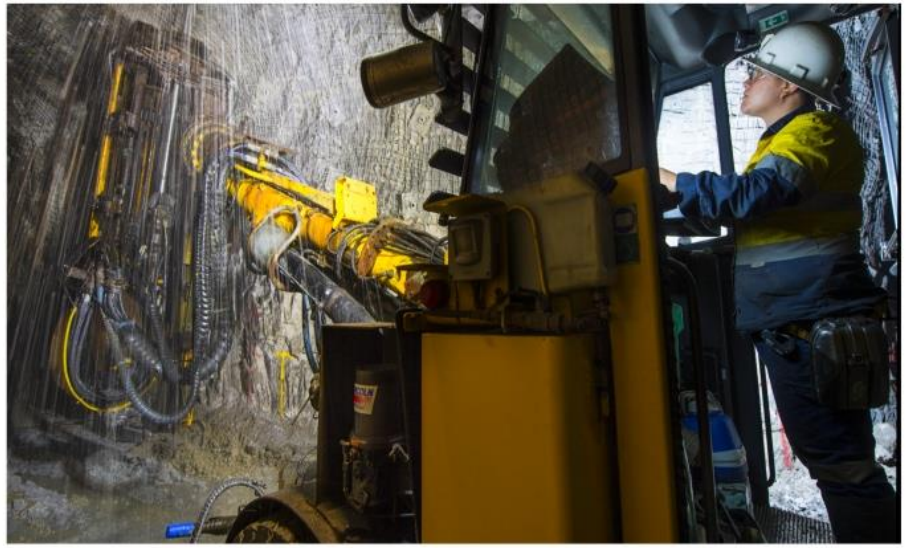
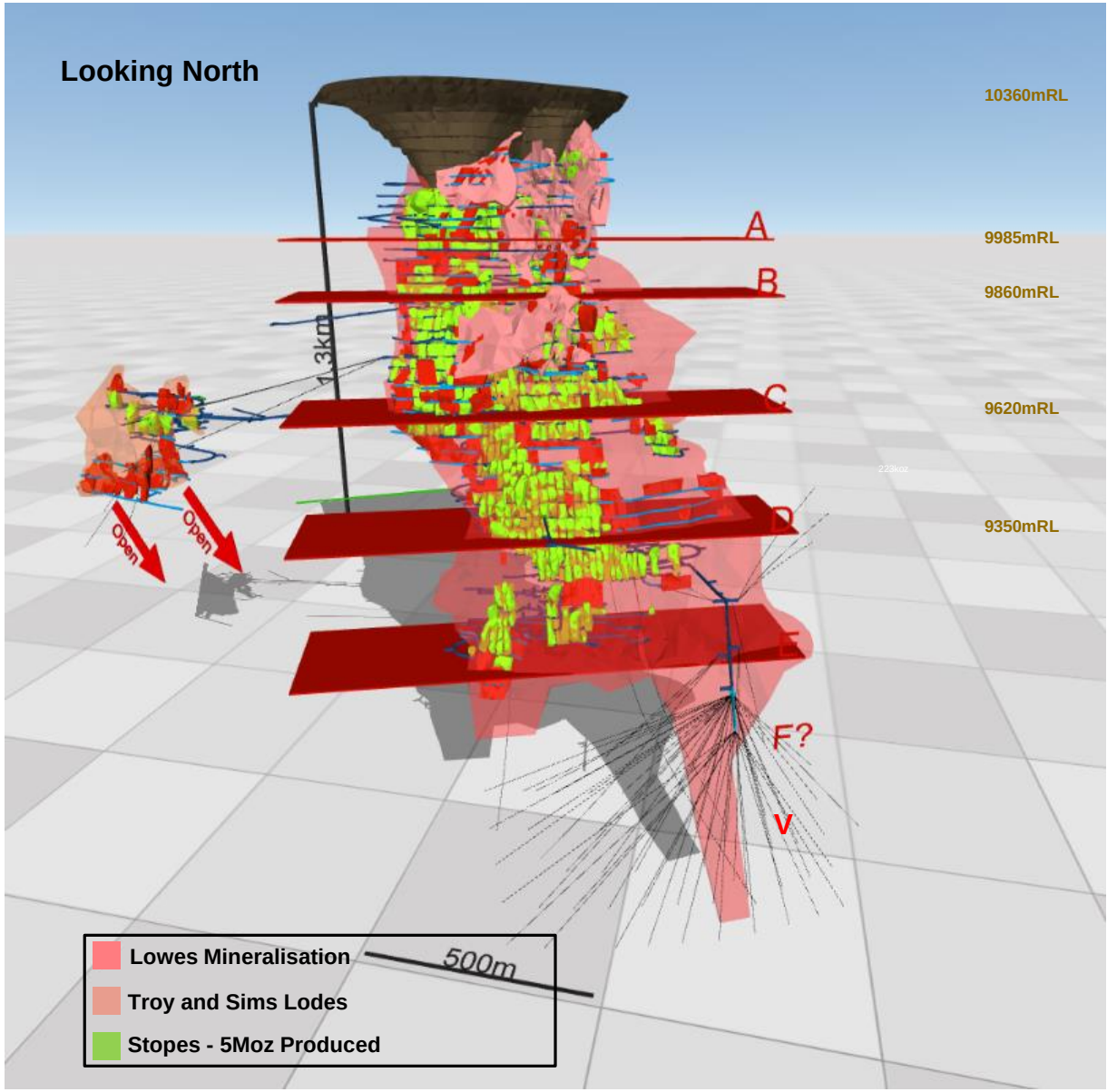


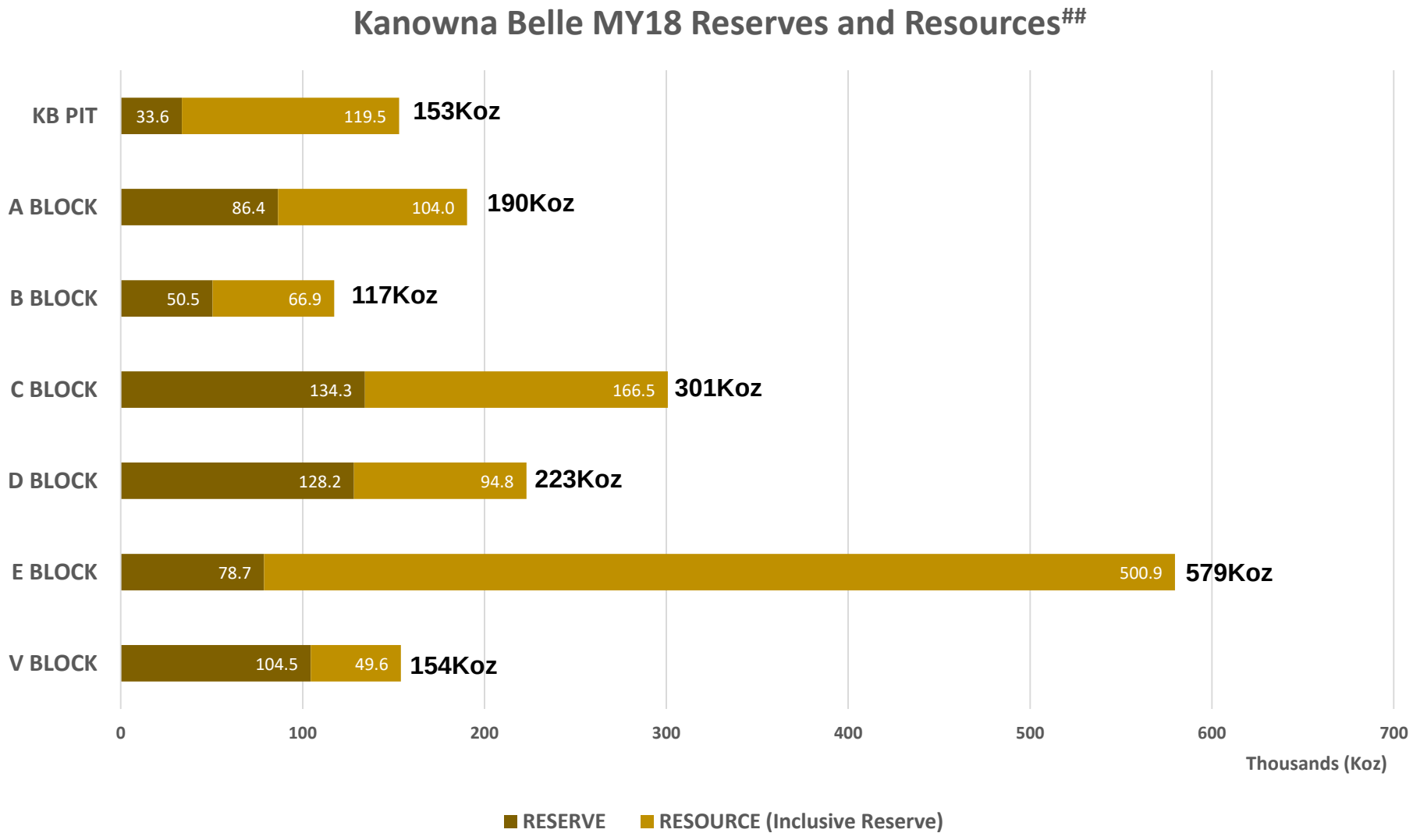
GEOLOGY OVERVIEW
KANOWNA BELLE

Kanowna Belle

- Kanowna Belle is a +5Moz orebody
- Average 4koz per vertical metre with ongoing exploration from A to E block
- Mining fronts distributed across KB orebody's in a mix of in-situ Lowes style mineralisation and virgin lodes
- KB in a strong position to grow Reserve and Resource base over next 12-18 months
- New orebody defined in East of Lowes – Porphyry Xenoliths (Xena)
- Indications of potentially significant discovery between Velvet and KB
- Opportunities to challenge the orebody and capture value in the hanging wall and parallel lodes
- Significant bulk mining potential starting to emerge throughout the mine
- Lowes ore body remains open

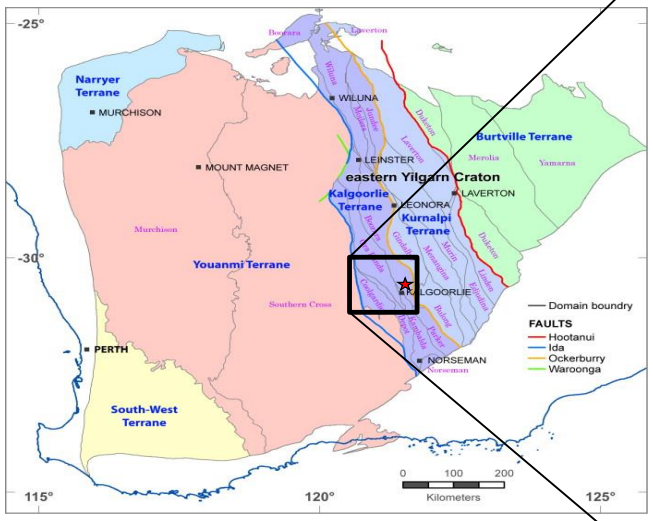


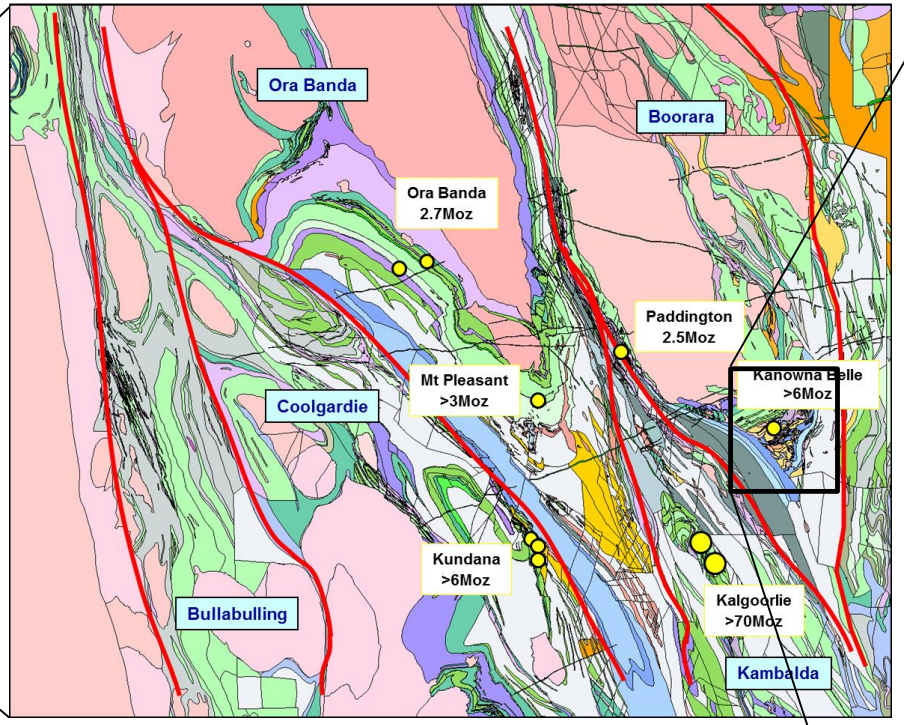
Kanowna Belle Current Resource & Reserve statement

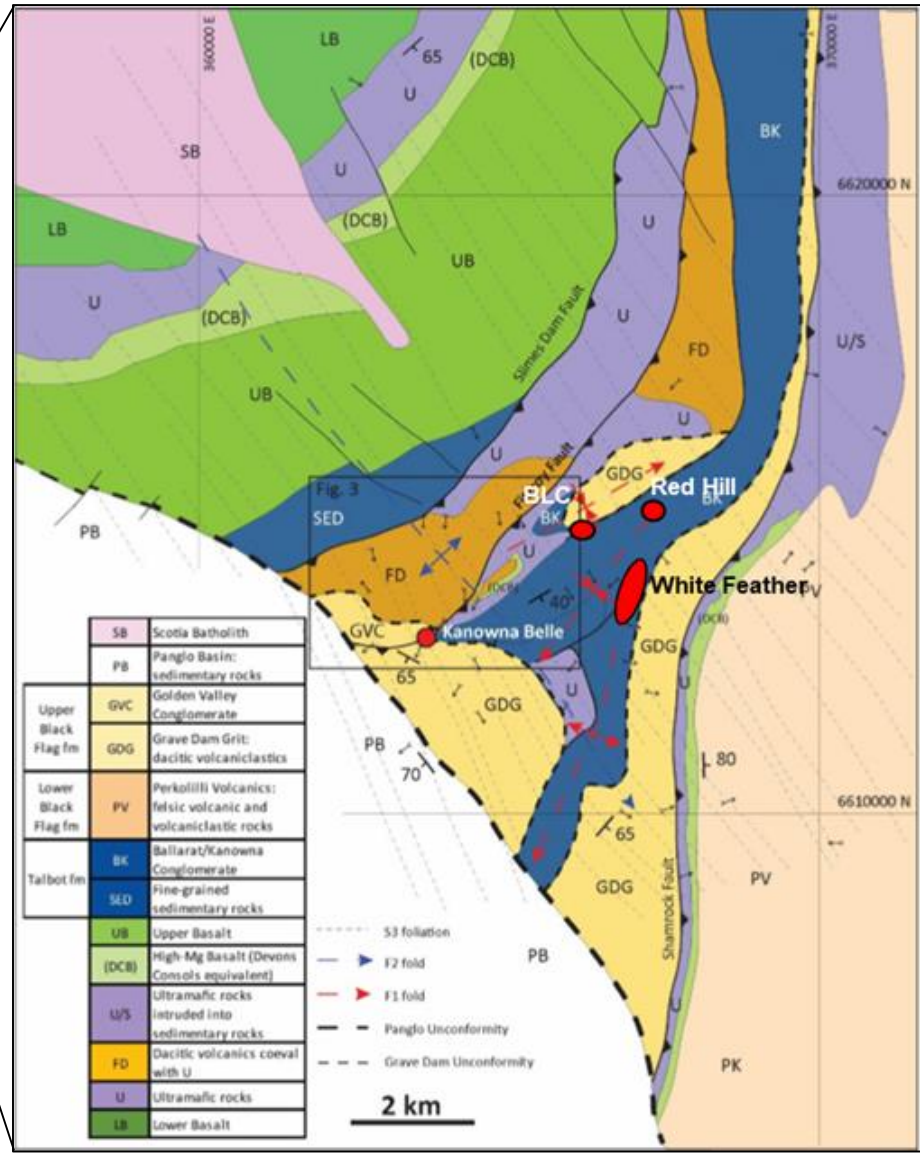


Refer to Listing Rule 5.23 Disclosure on slide 2

KB – Regional Geological setting



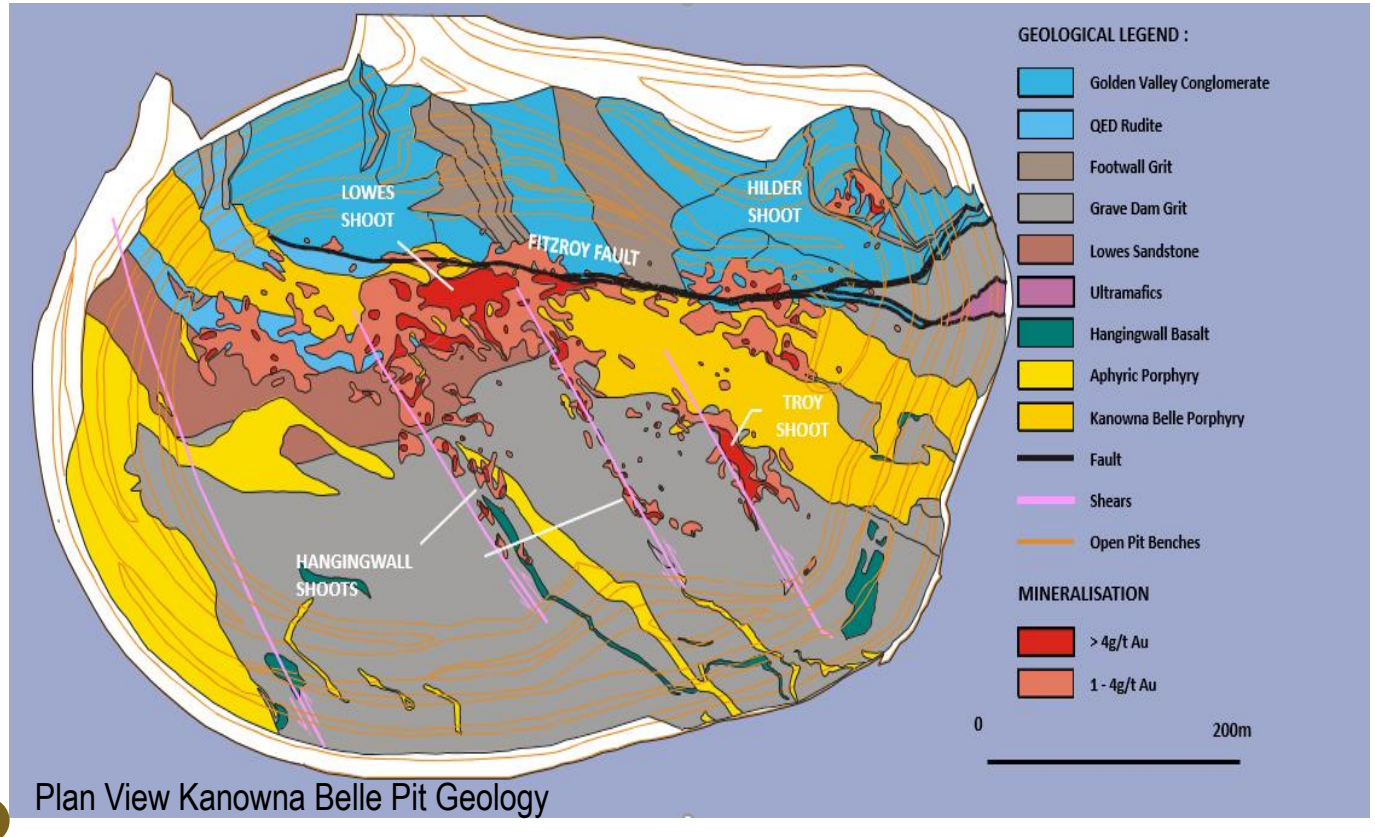




- Archean Yilgarn craton
- Eastern Goldfields
- Kalgoorlie Terrane - Norseman-Wiluna Greenstone Belt
- Boorara Domain

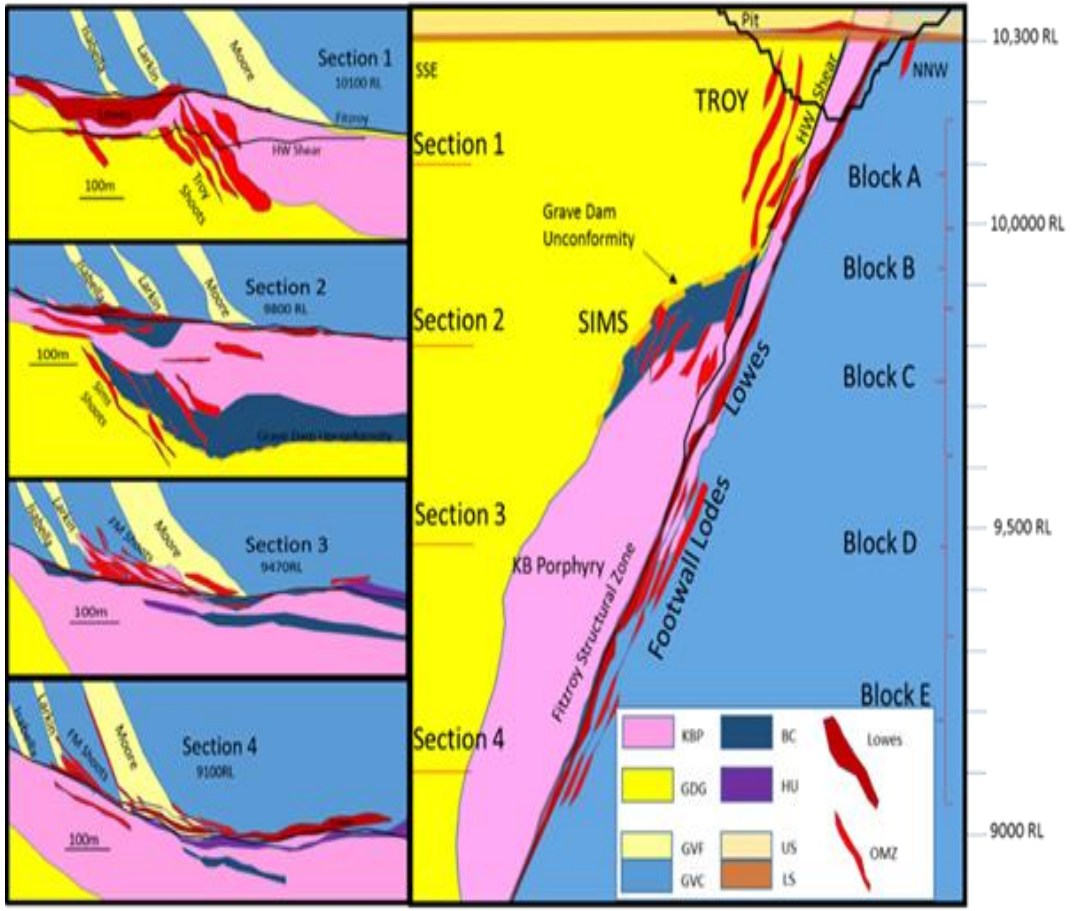
Kanowna Belle – Deposit Geology

- Mineralisation on two main lode orientations; Fitzroy Parallel (Lowes) and crosscutting high grade lodes (Sims, Troy etc.)
- Intersection between Lowes and crosscutting systems typically result in high grade shoots
- Hanging wall structures exist throughout the system, and are currently being defined through systematic drill targeting.



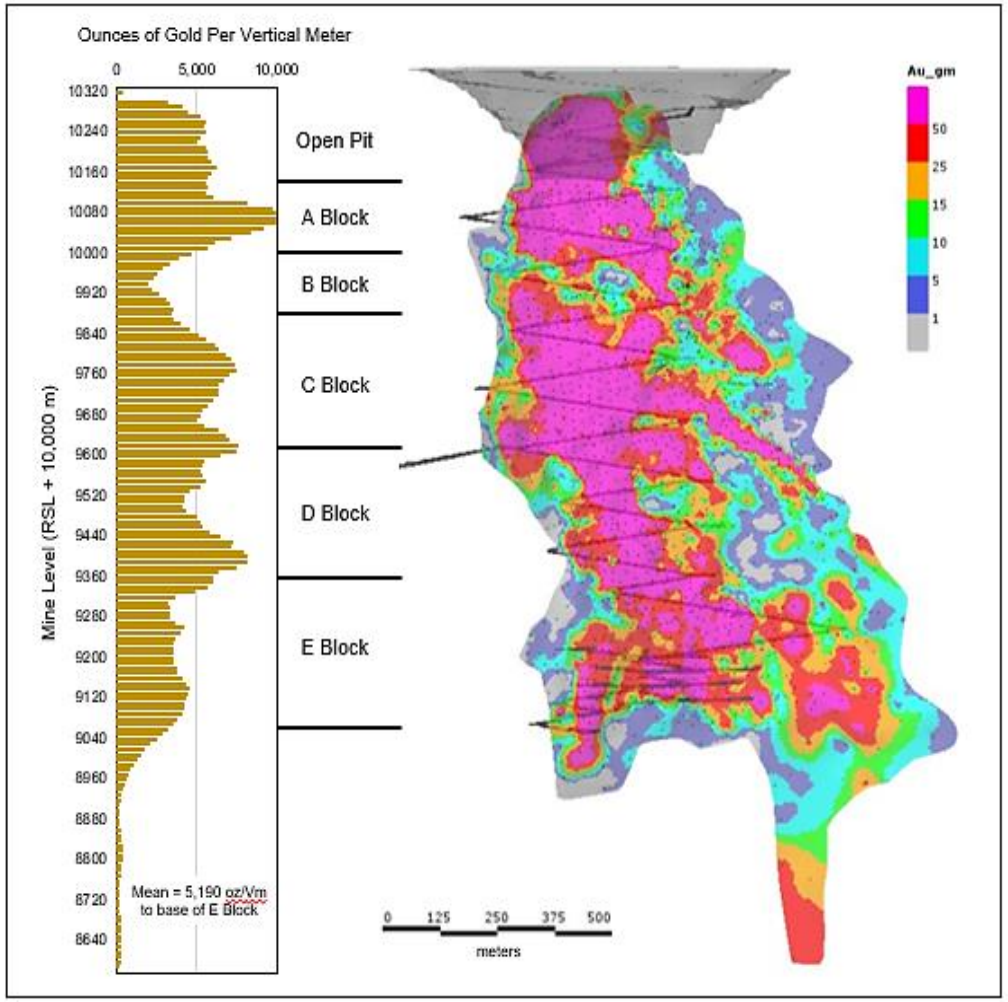
Plan View Kanowna Belle Pit Geology

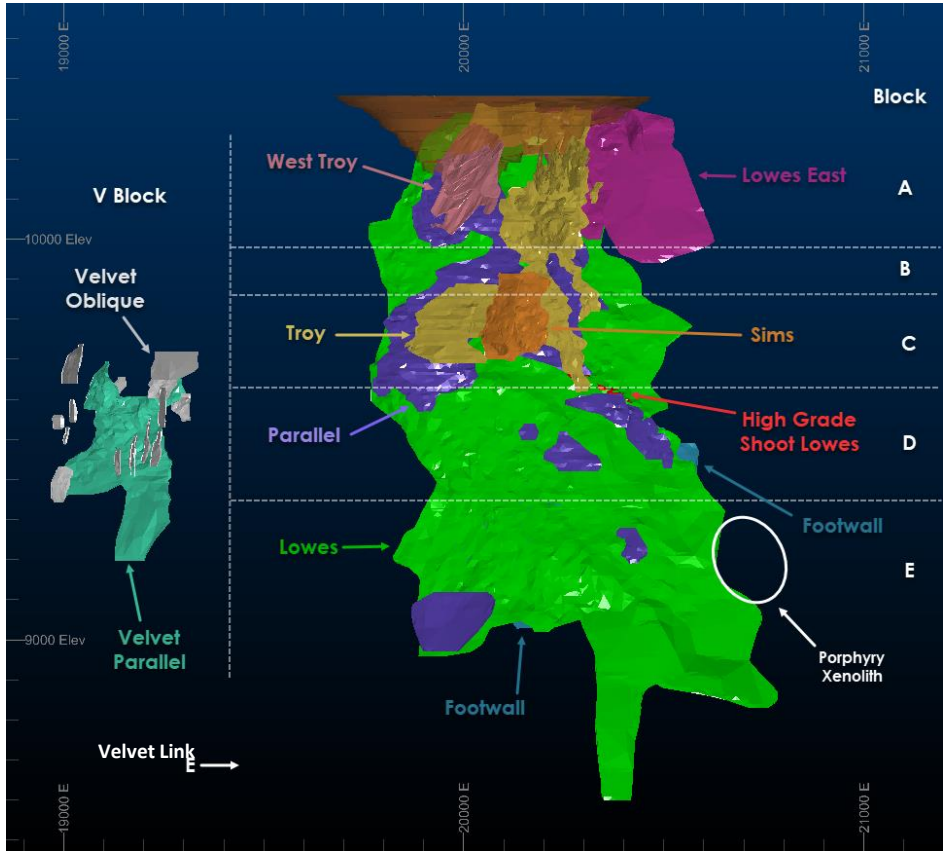
- Kanowna Belle simplified cross-section shows location of the Kanowna Belle porphyry on the hanging wall of the Fitzroy Structure above approximately 960mRL and then within the footwall below this depth



Cross section through KB looking West and level slices

Kanowna Belle – Deposit Geology

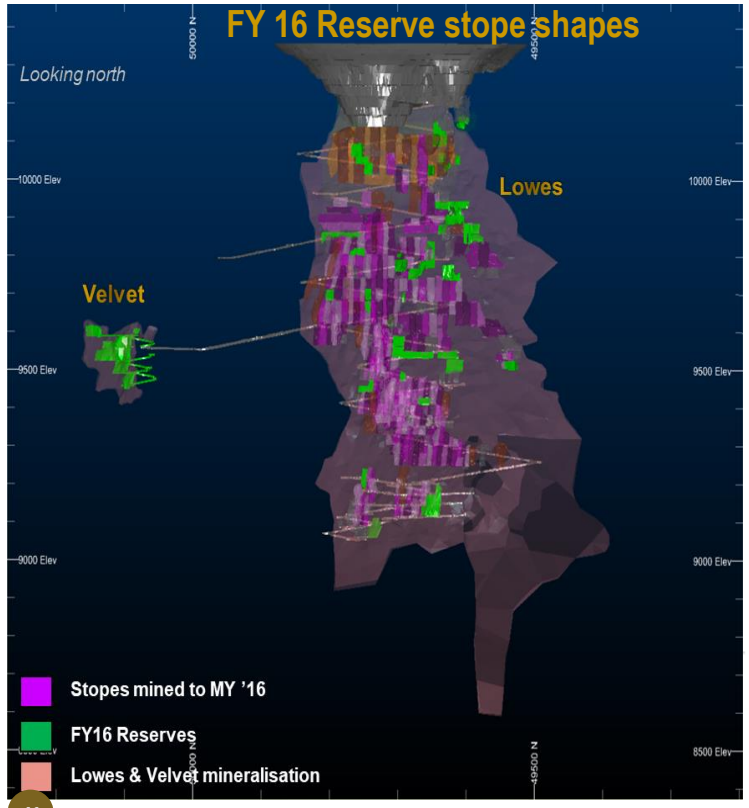


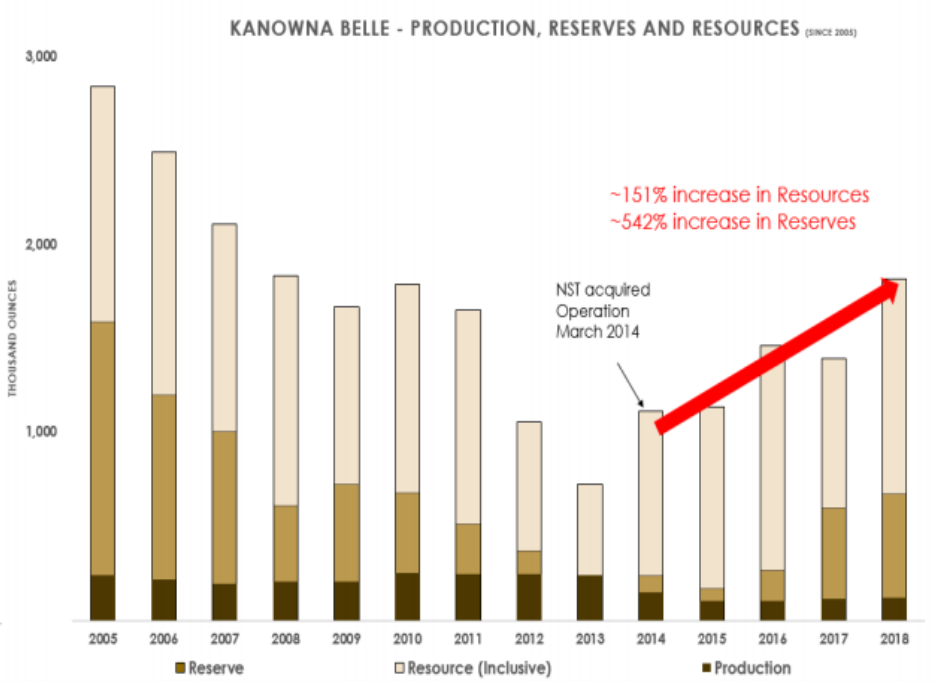


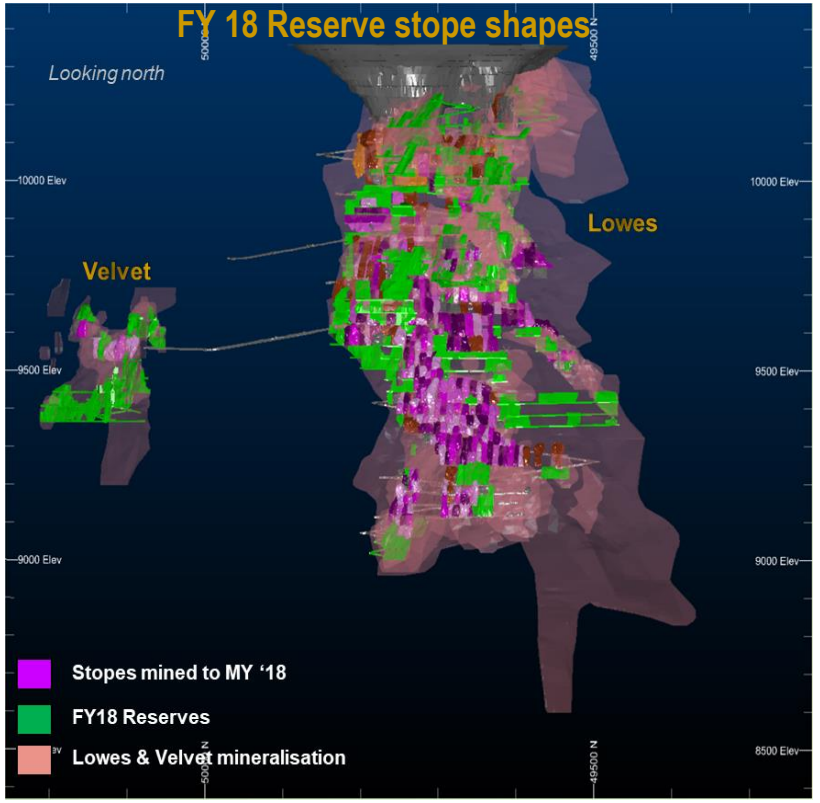
- 6 blocks (including Velvet)
- 1.3km from surface and open
- Mineralisation drilled and open 400m below current infrastructure
- Velvet sits 600m to the West and 700m below surface
- Bulk of mineralisation within porphyry and grit along the Fitzroy Fault (E-W, dipping South)
- FW and HW also mineralised along NW-SE striking structures

Kanowna Belle – where has the growth come from?

- When NST took ownership in 2014 KB was due to close due to a declining reserve life due to a lack of investment into exploration
- Since 2014 under NST ownership KB has experienced year on year growth in Reserve and Resources driven by lowering costs and backing the drill bit; to date Reserves have increased 542% and the Resource base has increased by 151% as at July 2018##
- Backing the geology with exploration drilling and development discovered Velvet
- Discovery of Velvet provided the opportunity to unlock the value across all the orebodies

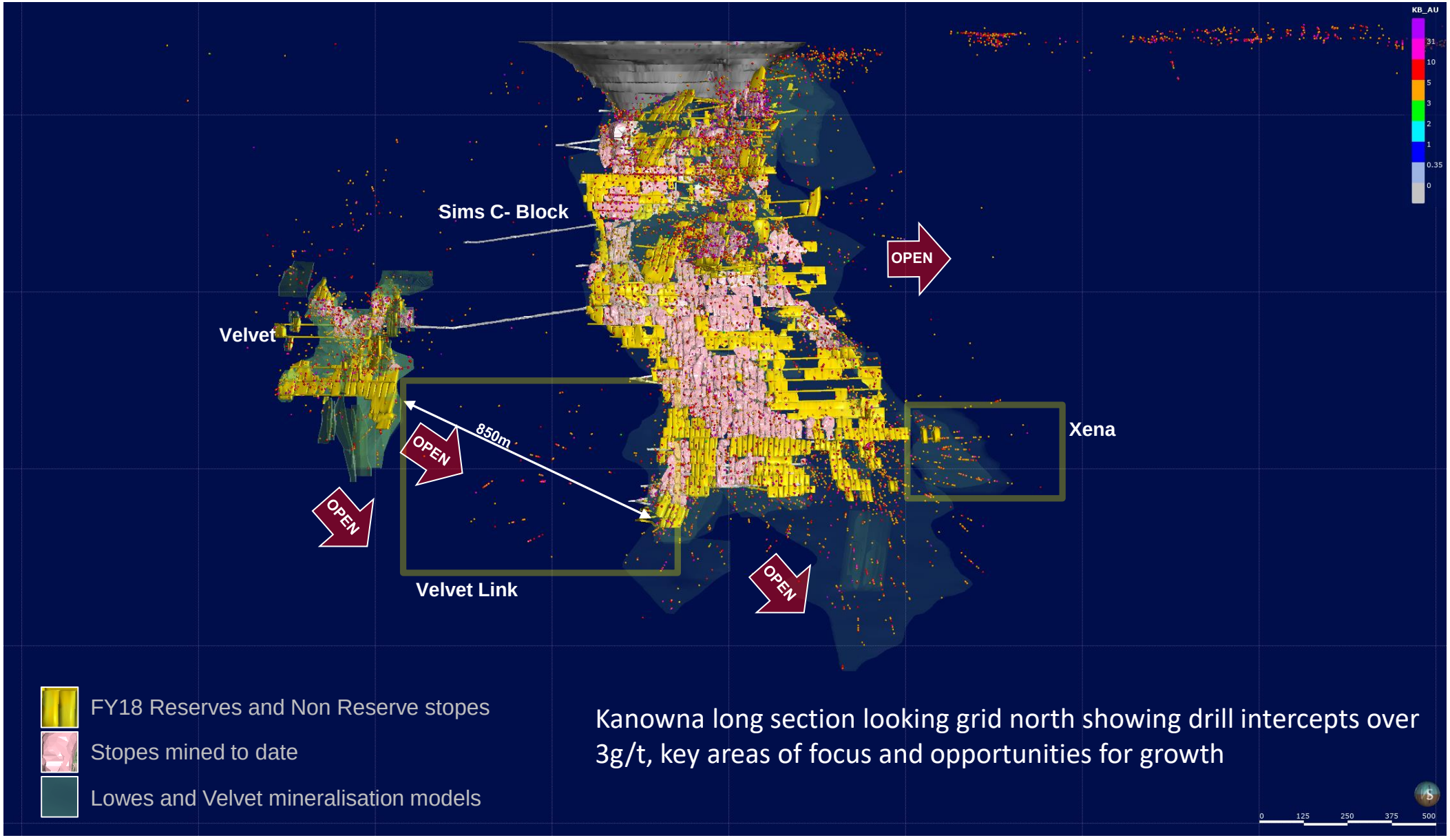






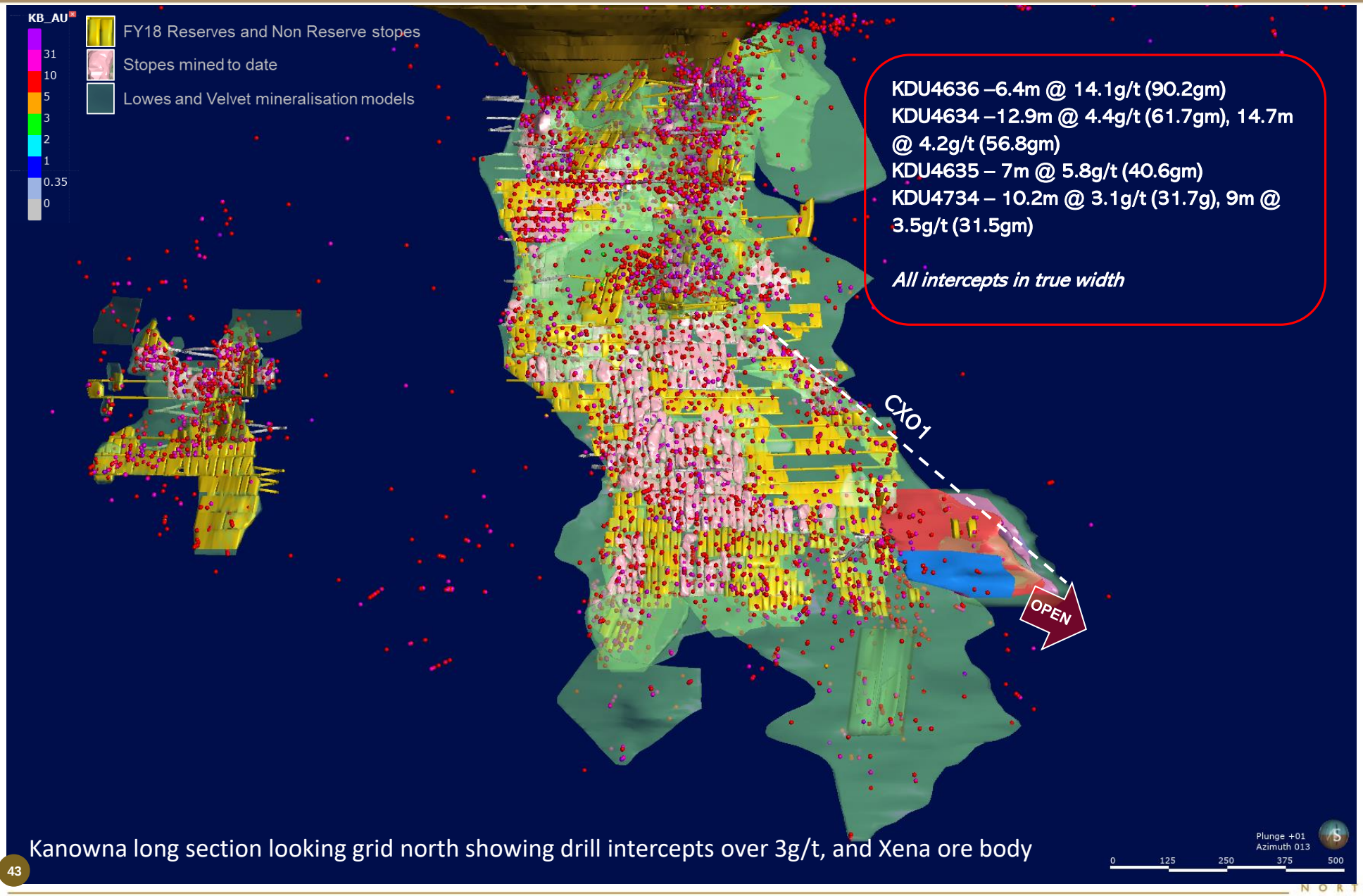
Refer to Listing Rule 5.23 Disclosure on slide 2

Kanowna Belle – The Opportunity



Kanowna long section looking grid north showing drill intercepts over 3g/t, key areas of focus and opportunities for growth

Kanowna Belle – D/E Block Porphyry Xenoliths

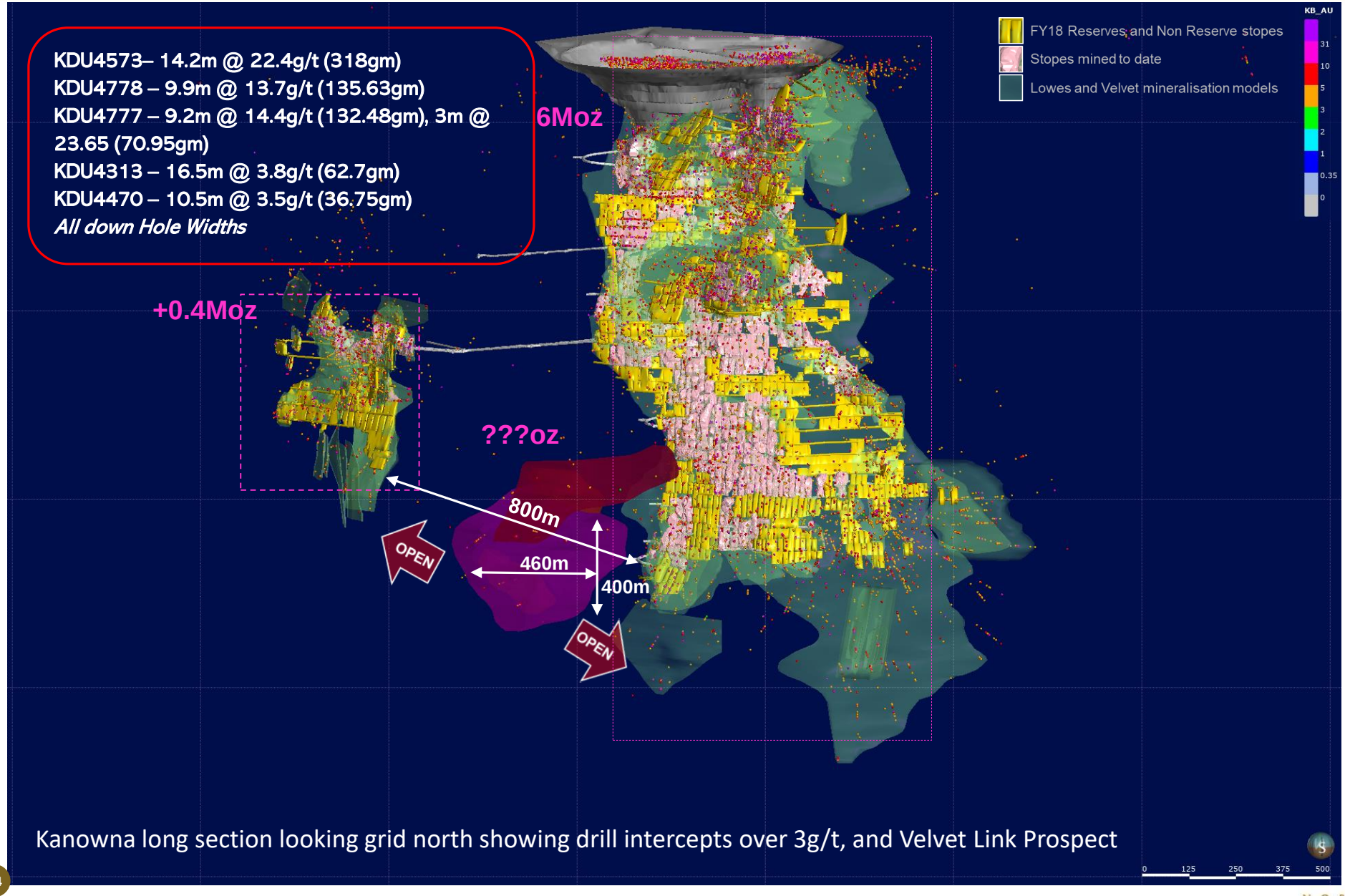


Kanowna long section looking grid north showing drill intercepts over 3g/t, and Xena ore body

- Current Modelled 4 parallel lodes in Hanging wall to Lowes
- Orientation is oblique to and moving away from Fitzroy fault
- ~260m strike x ~200m Vertical up to 16m width on main lode
- Intersection with Lowes prospective
- Up plunge complex interplay with Lowes CX01 High grade shoot
- Sparse drilling on Lowes in F/W to Xena but remains mineralised and open

Refer to Listing Rule 5.23 Disclosure on slide 2

Kanowna Belle – Velvet Link

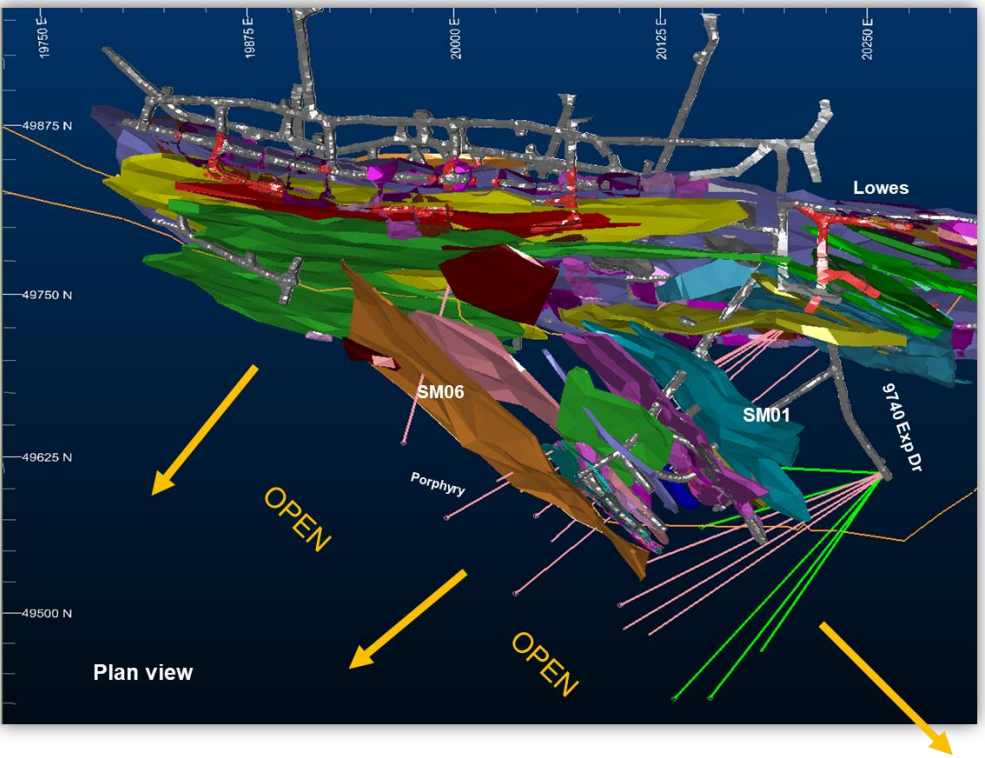


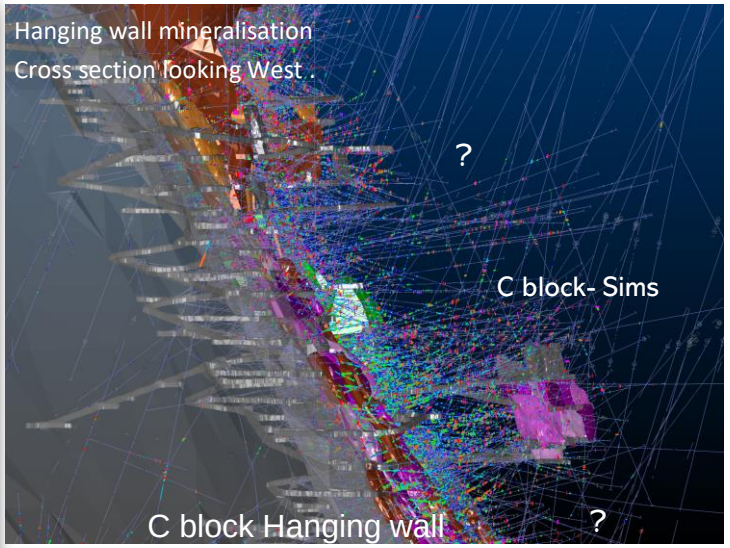
Kanowna long section looking grid north showing drill intercepts over 3g/t, and Velvet Link Prospect

- Ore grade drill intercepts in the +800m window between 6Moz Kanowna Belle system and the 0.4Moz Velvet deposit
- Drilling to date indicates four lodes over 480m strike on trend of Fitzroy Fault
- Average widths of 4 - 12m (Inferred from early and evolving interp)
- Twice the strike potential of current Velvet footprint
- Modelled lodes only constrained by lack of drilling up plunge towards Velvet
- Western most drill hole intercepted Lowes style lode on Fitzroy then secondary Velvet style lamprophyre hosted mineralisation in HW

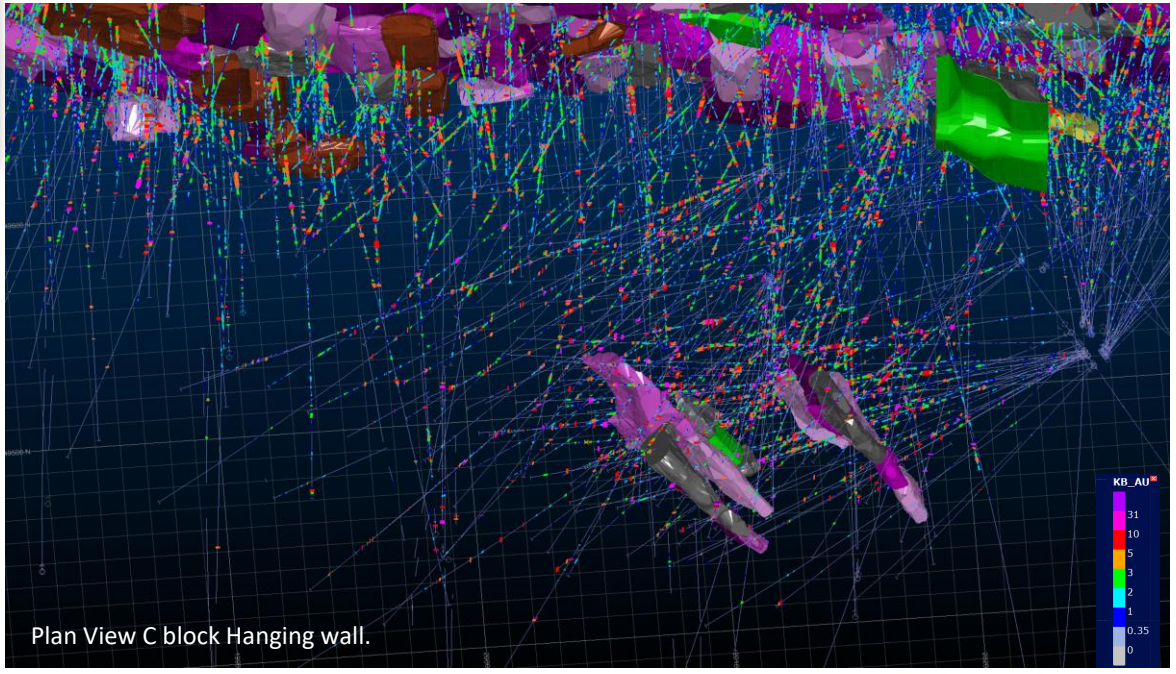
Refer to Listing Rule 5.23 Disclosure on slide 2

Kanowna Belle – Hanging Wall Parallel and Oblique lodes

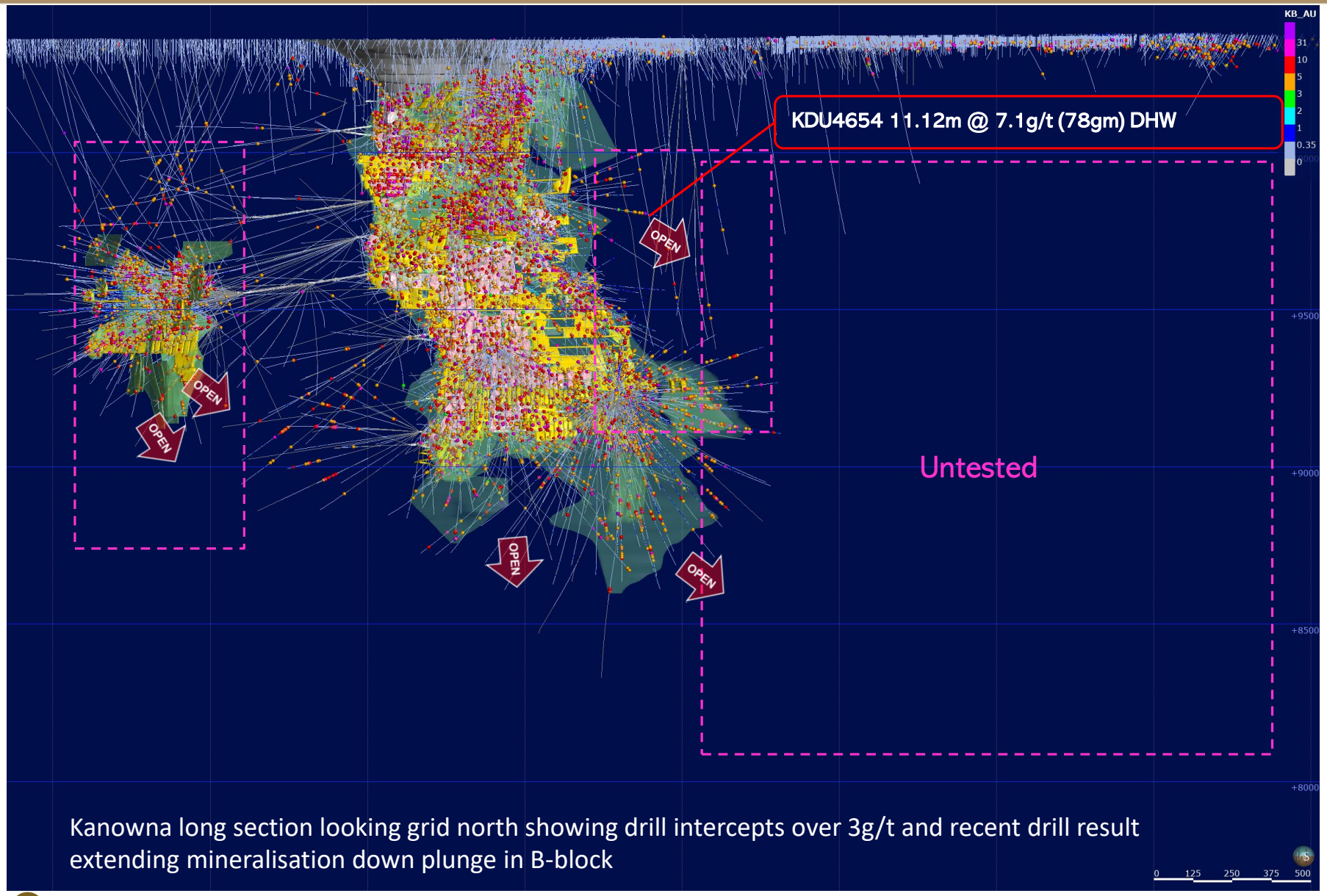




- Continue to return strong results in Lowes parallel lodes and the oblique systems (Troy, Sims etc) stepping out into the hanging wall
- Hanging wall offers high grade 'narrow lode' and/or bulk opportunities that could be potential game changer
- Work progressing to capitalise on the significant unclassified material in halo outside main lodes



Kanowna Belle – Room for more



Kanowna long section looking grid north showing drill intercepts over 3g/t and recent drill result extending mineralisation down plunge in B-block

- Recent drilling confirms historical mineralisation on Lowes/Fitzroy to the east
- Establish drill position to test for SE plunging shoots from edge of Known ore body
- East of KB on Fitzroy Fault remains untested at depth
- Only four holes test Fitzroy Corridor beyond 350m depth
- Velvet is a blind ore ~650 below surface
- Multiple open pits located on Fitzroy Fault (or Splays) within 4km of KB

Refer to Listing Rule 5.23 Disclosure on slide 2

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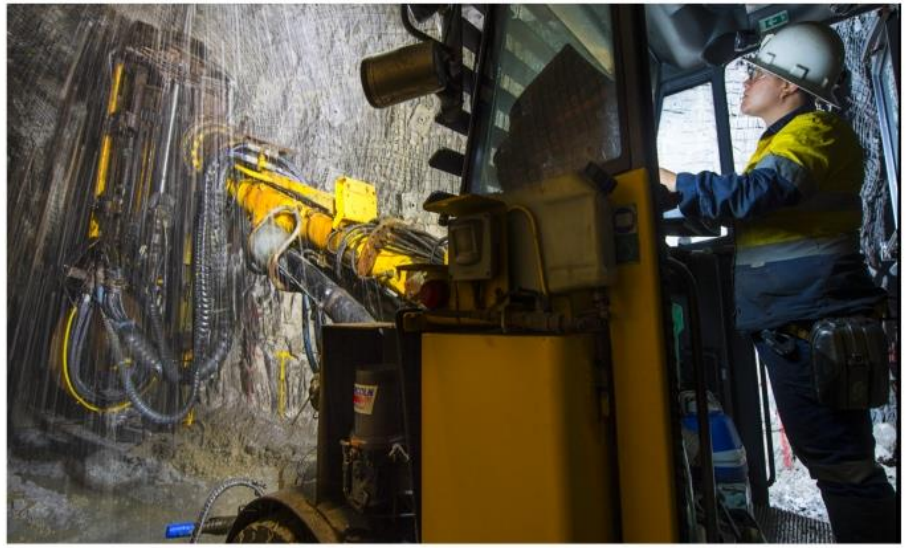
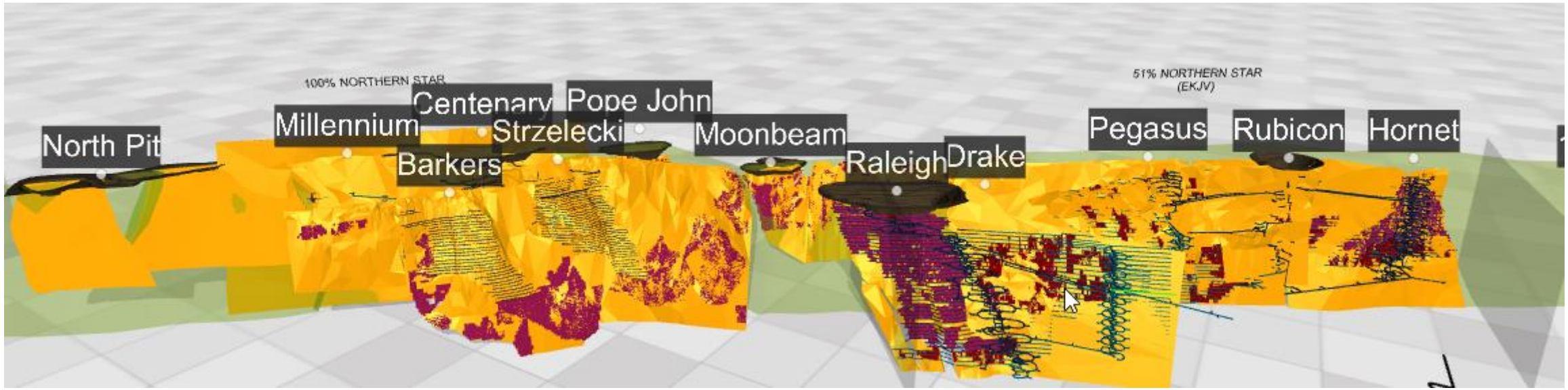


REGIONAL EXPLORATION UPDATE

Kundana Region Overview



- The Kundana mining complex was officially opened 10 December 1988
- Northern Star has drilled over 60,000m (underground and surface) YTD across Kundana and EKJV
- Focus areas are the K2, PODE, RMV and all HW lodes associated with gold mineralisation
- FY2019 mining fronts have been the K2 Main Vein, Pode and Hera (HW lodes) and Raleigh (Strzelecki) on EKJV and K2 Main Vein at Kundana
- Exploration has Kundana well positioned to increase the Reserve and Resource base this year
- Recent underground exploration drilling has highlighted potential for significant hanging wall mineralisation across the Kundana region laying the platform for further drilling next financial year

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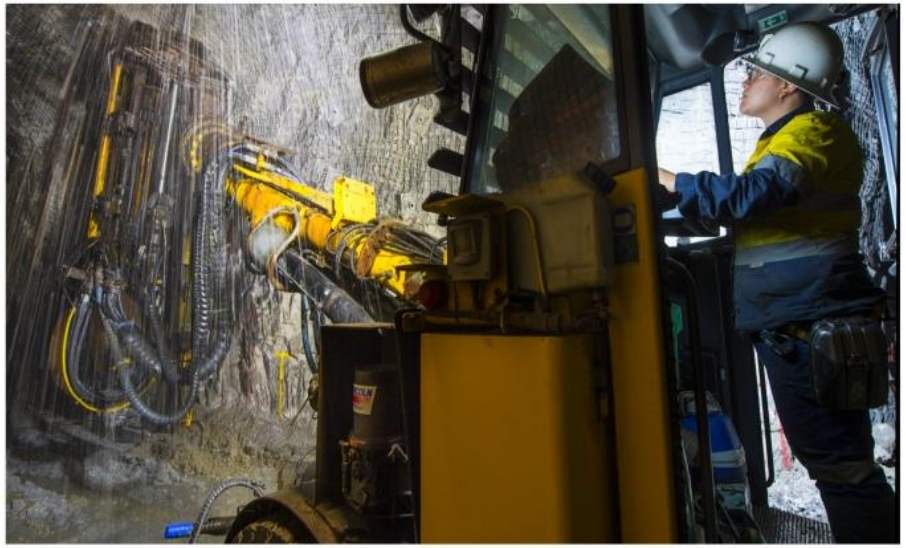
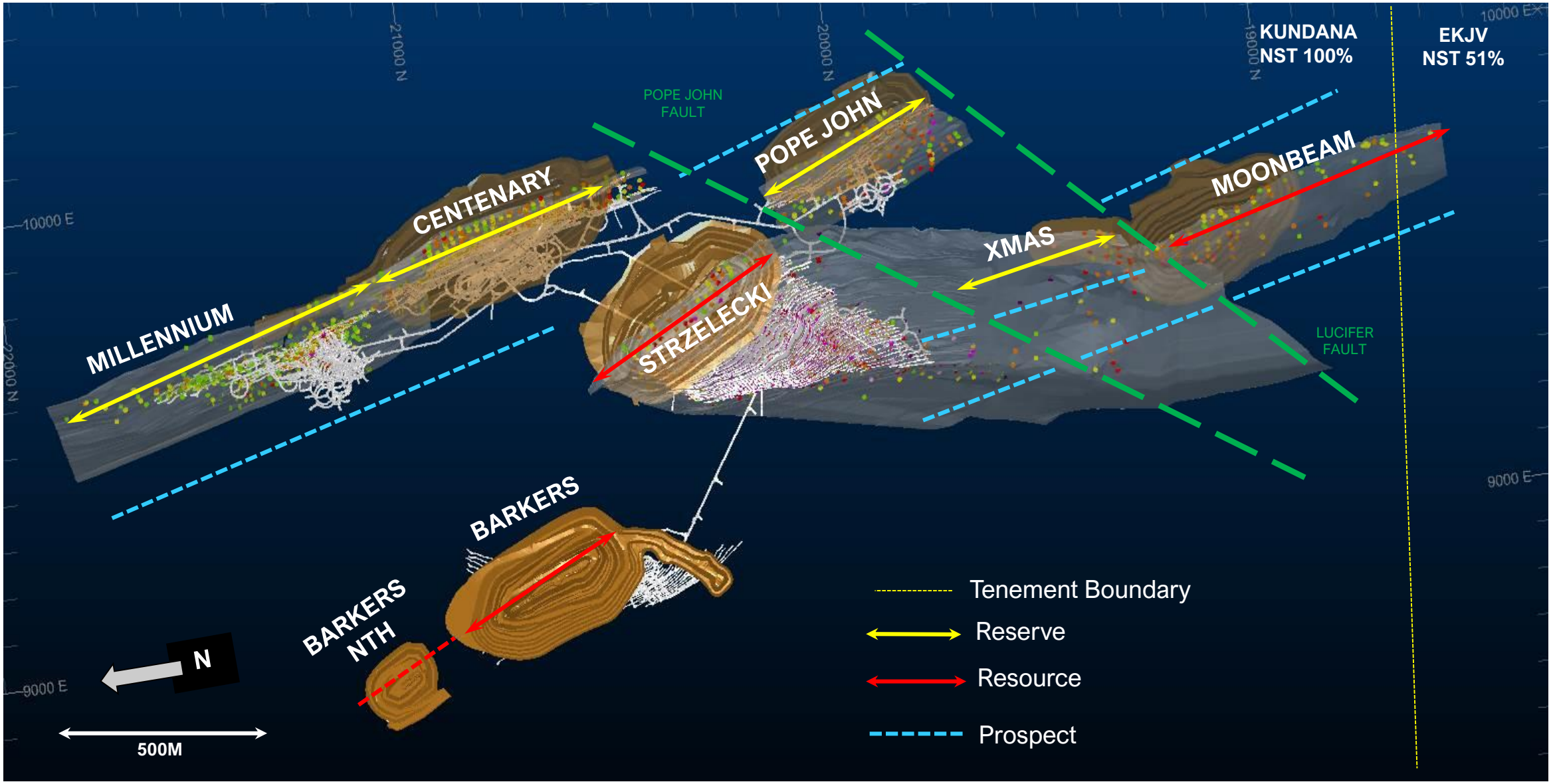
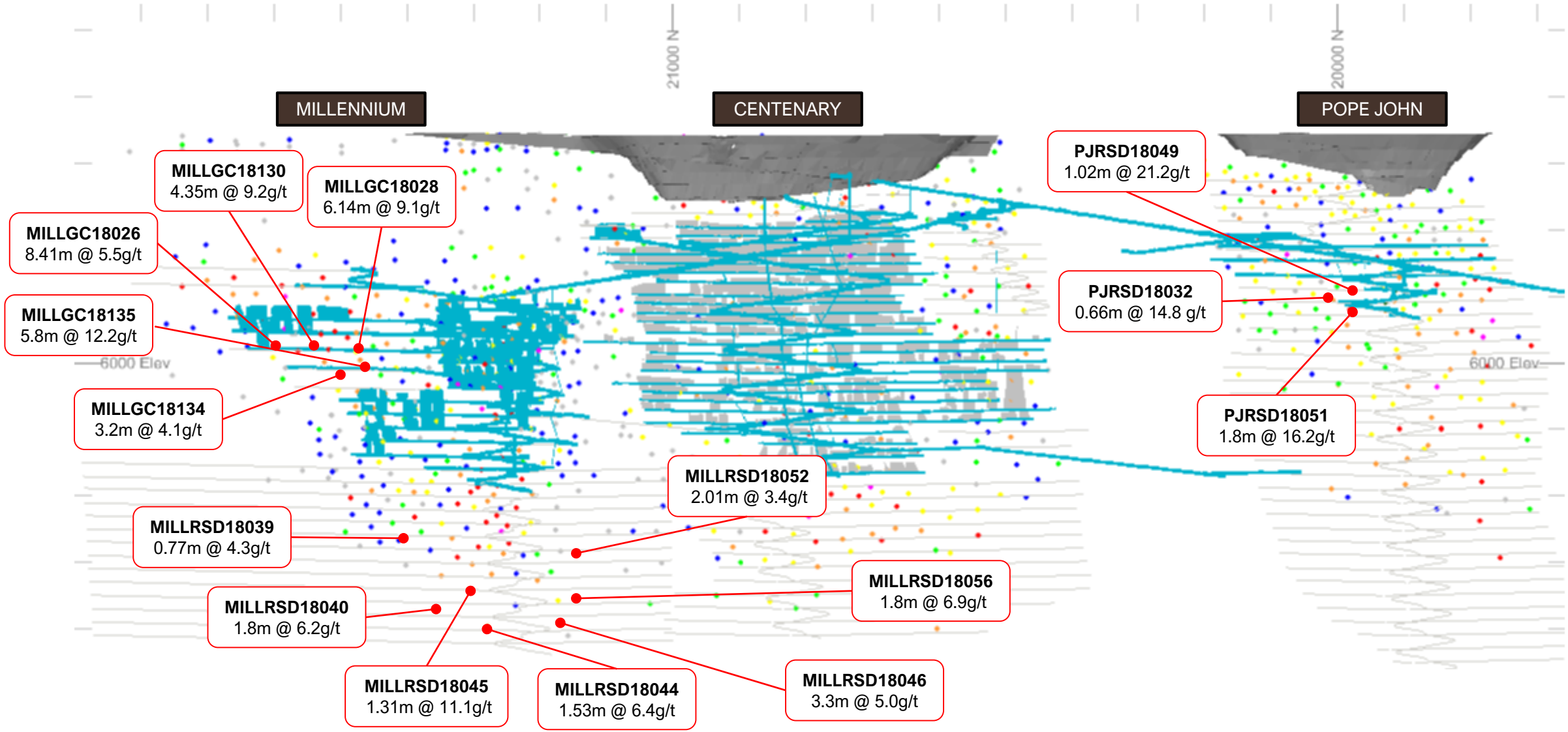


Kundana

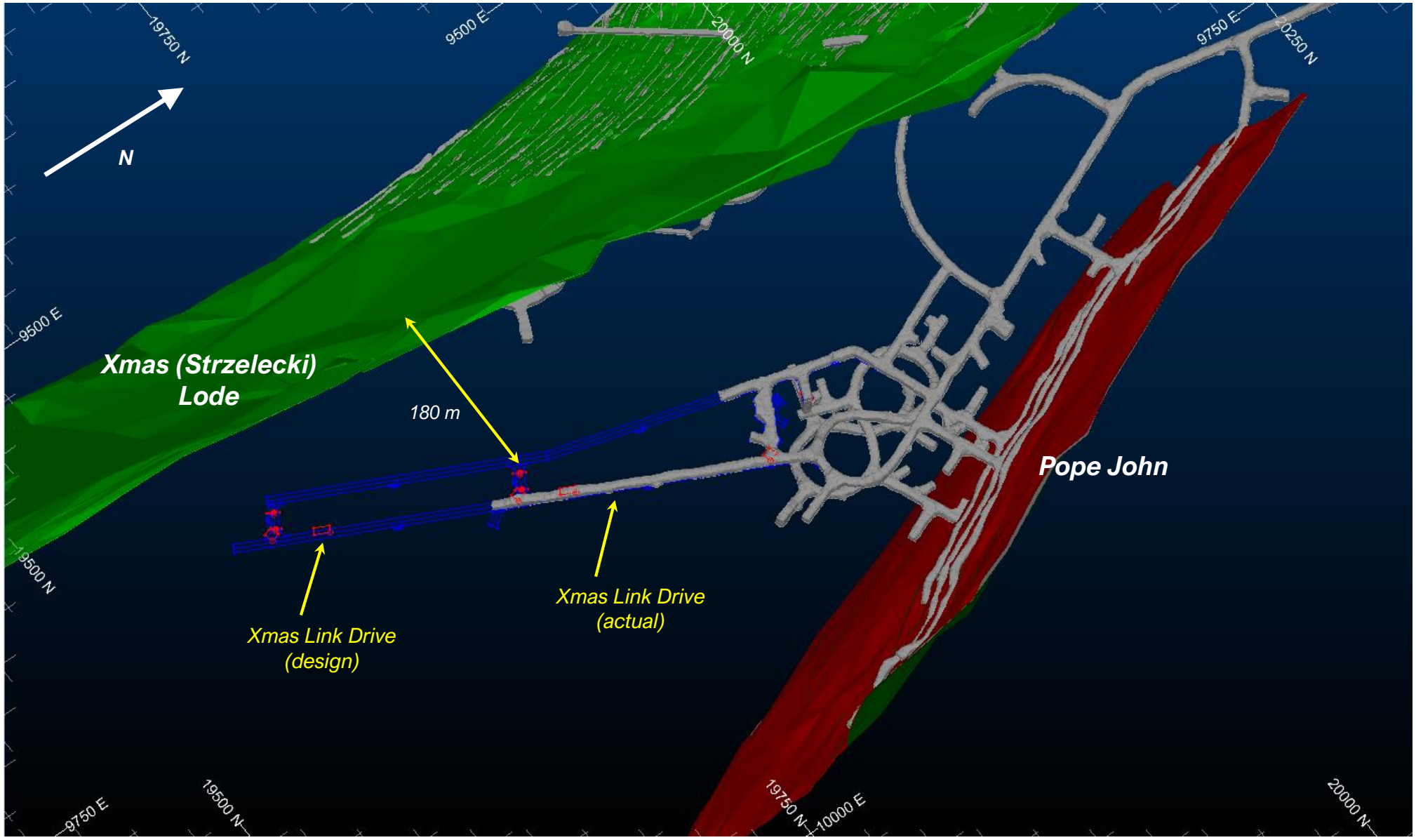
Kundana – NST 100% Overview



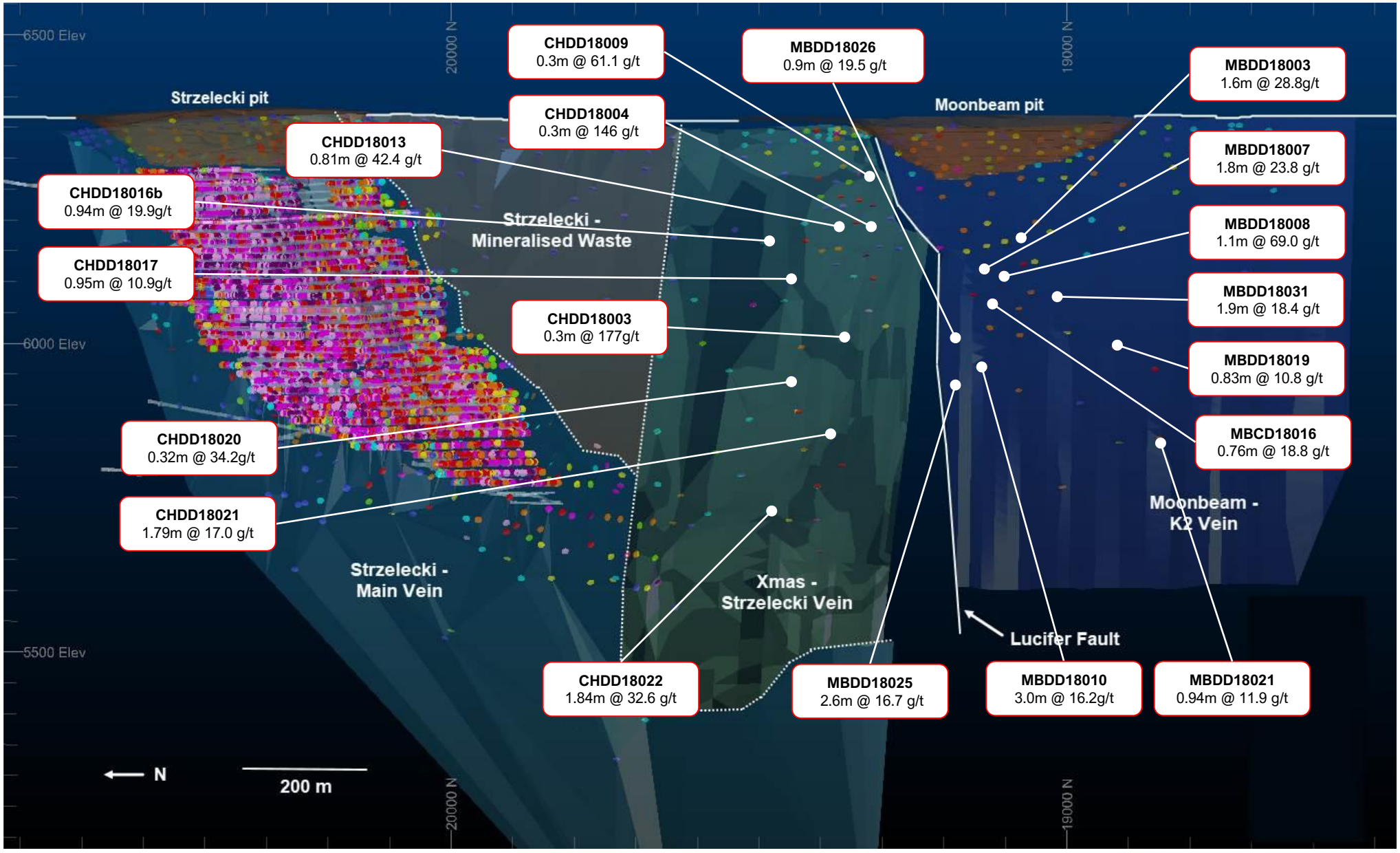
Millennium and Pope John



Xmas Link Drive – Next Production Centre



Strzelecki and Moonbeam



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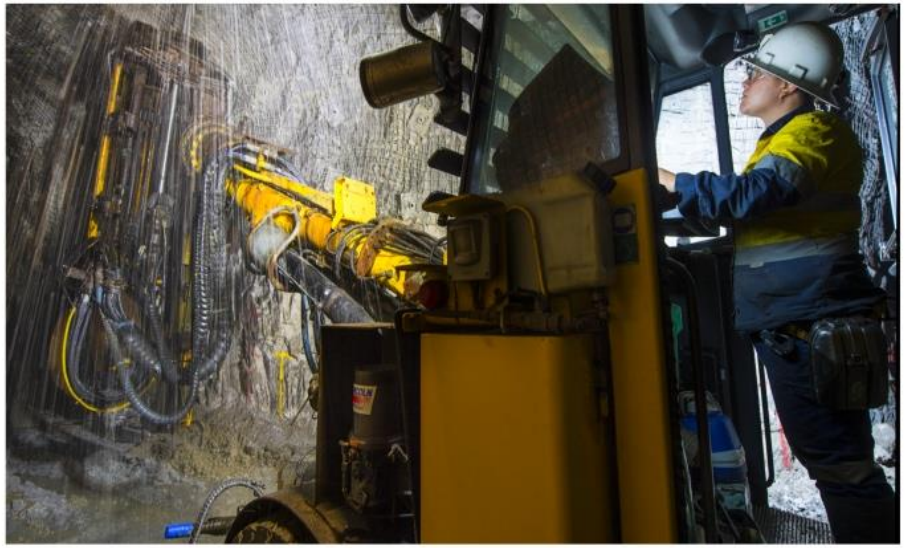
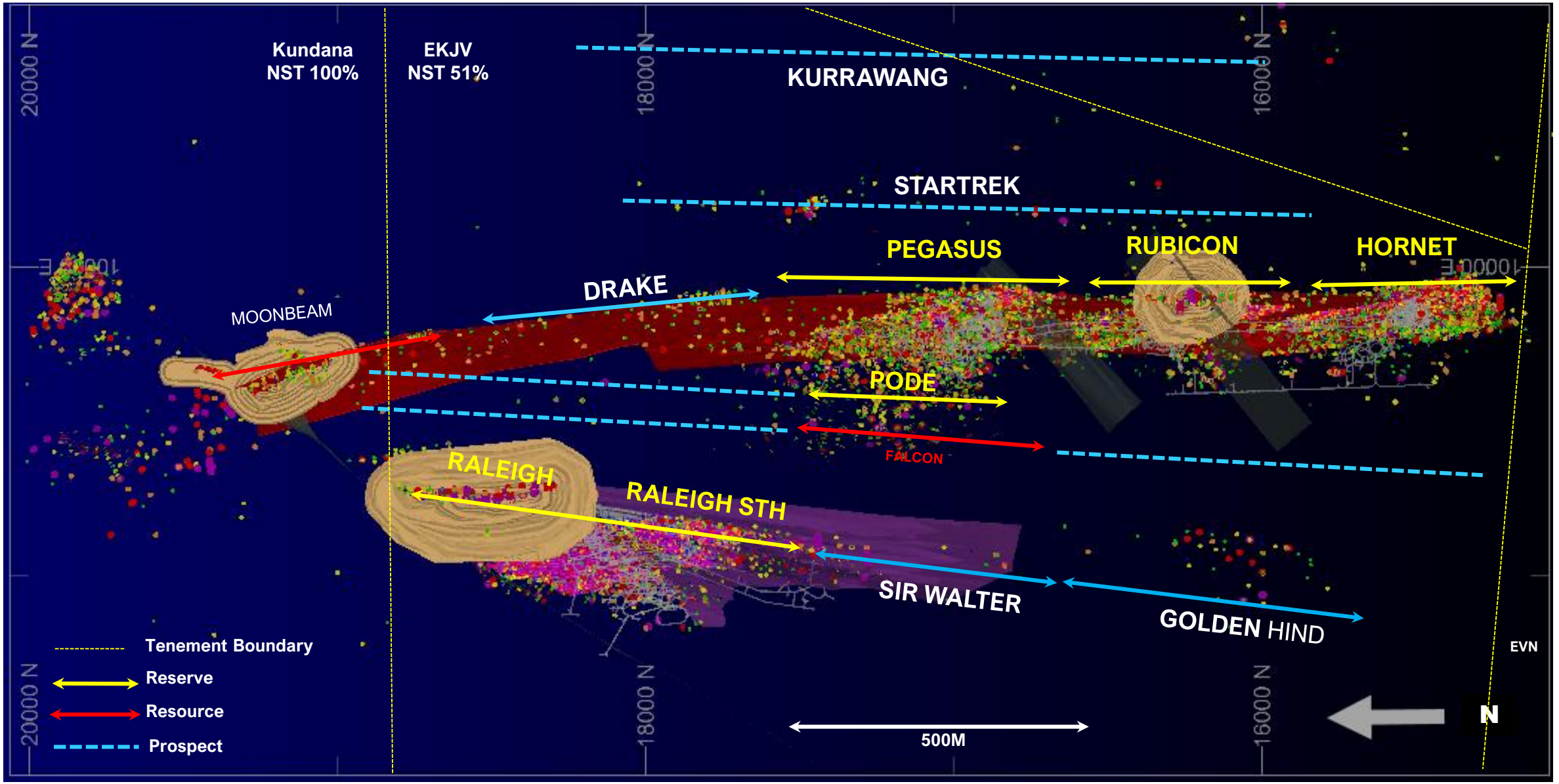
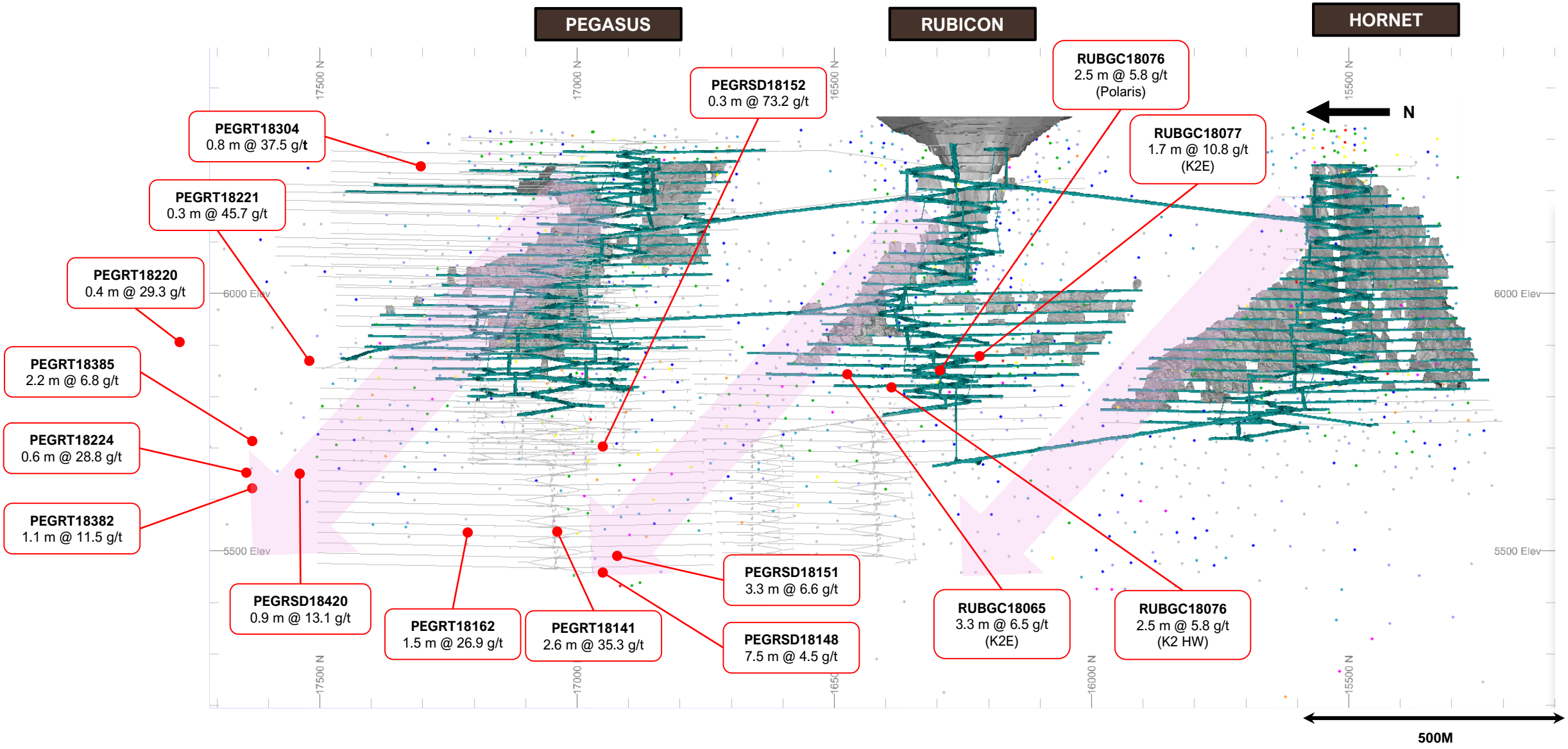


EKJV (51% NST)

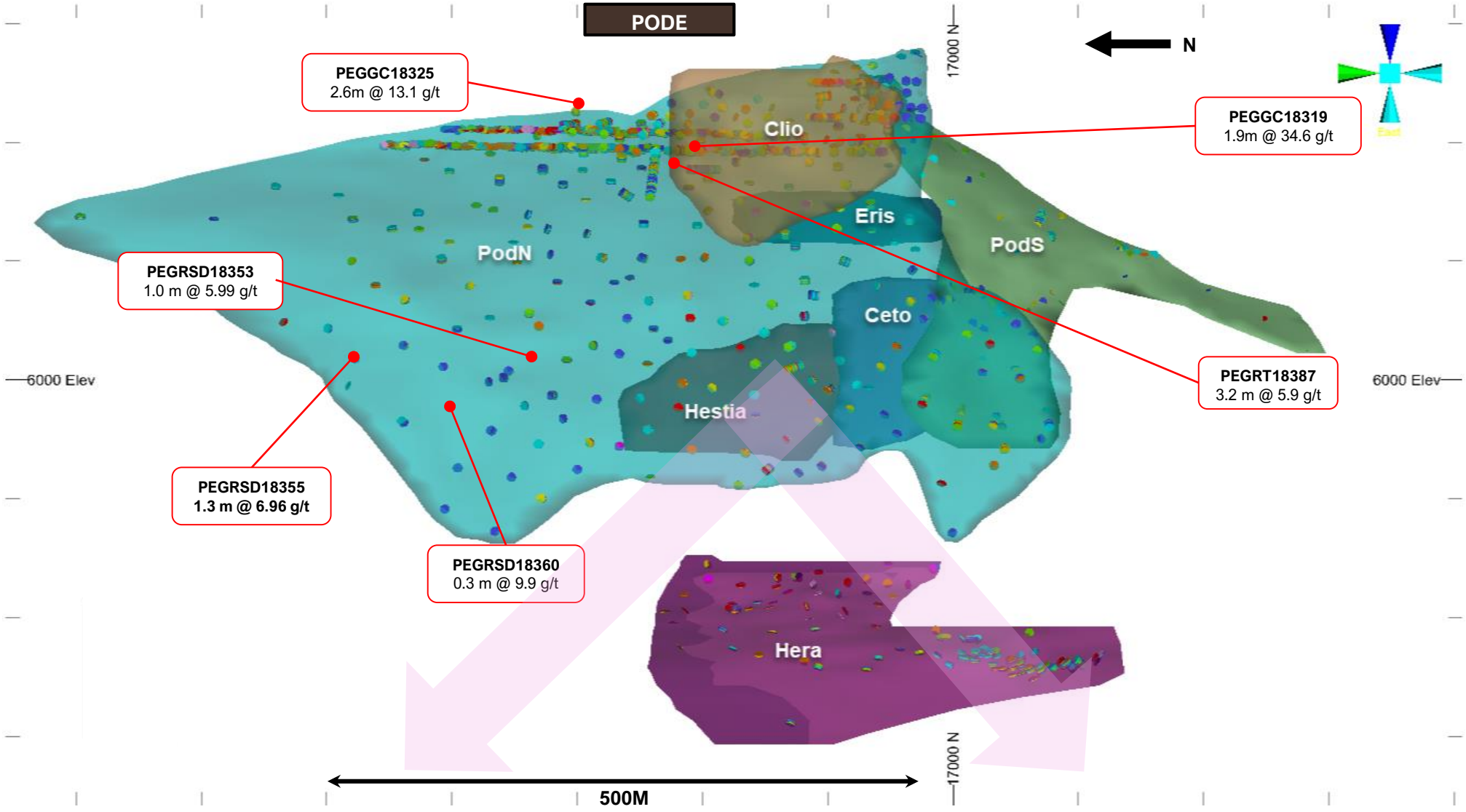
Kundana – EKJV Overview



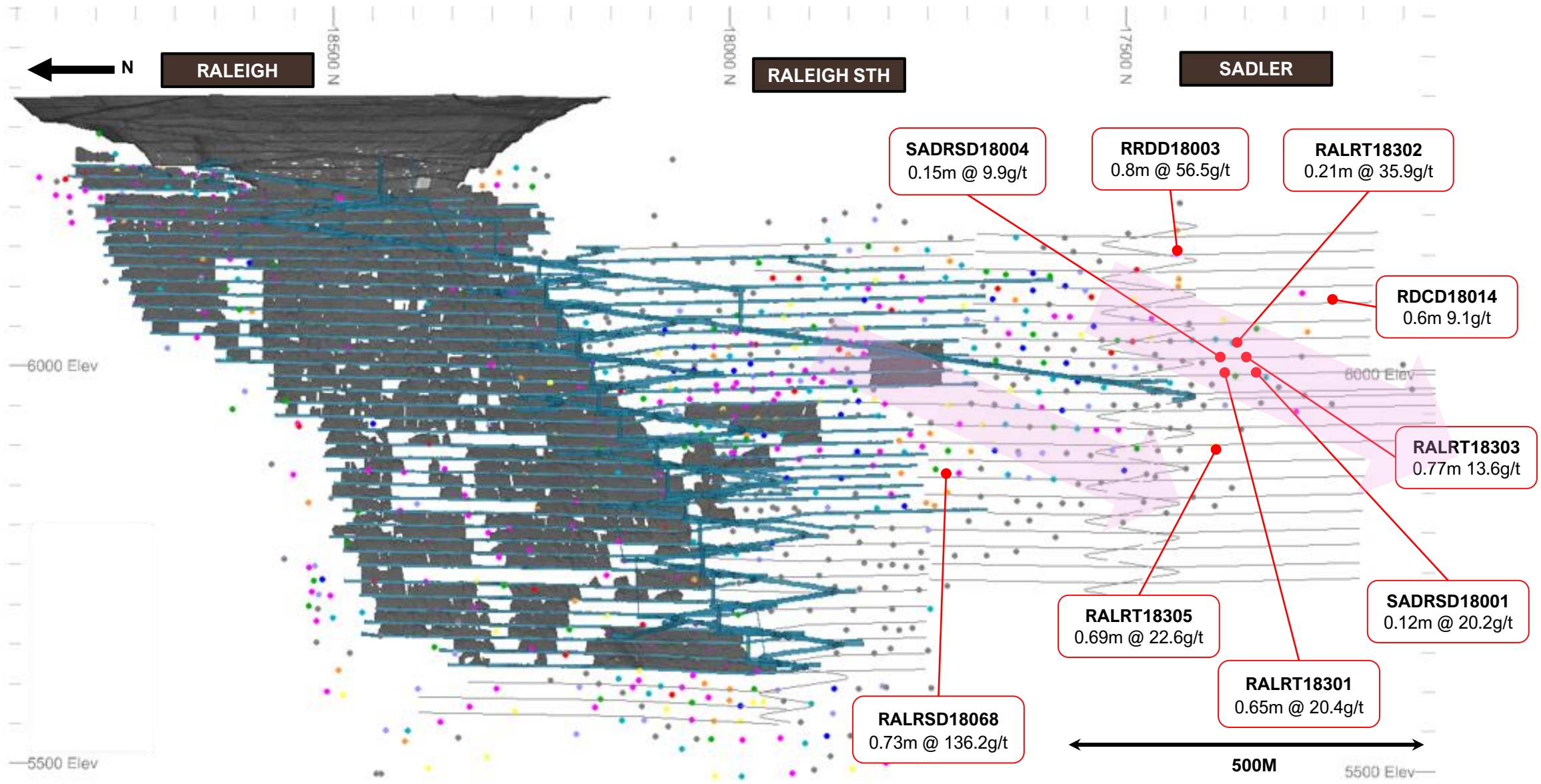
EKJV – RHP Drilling Snapshot



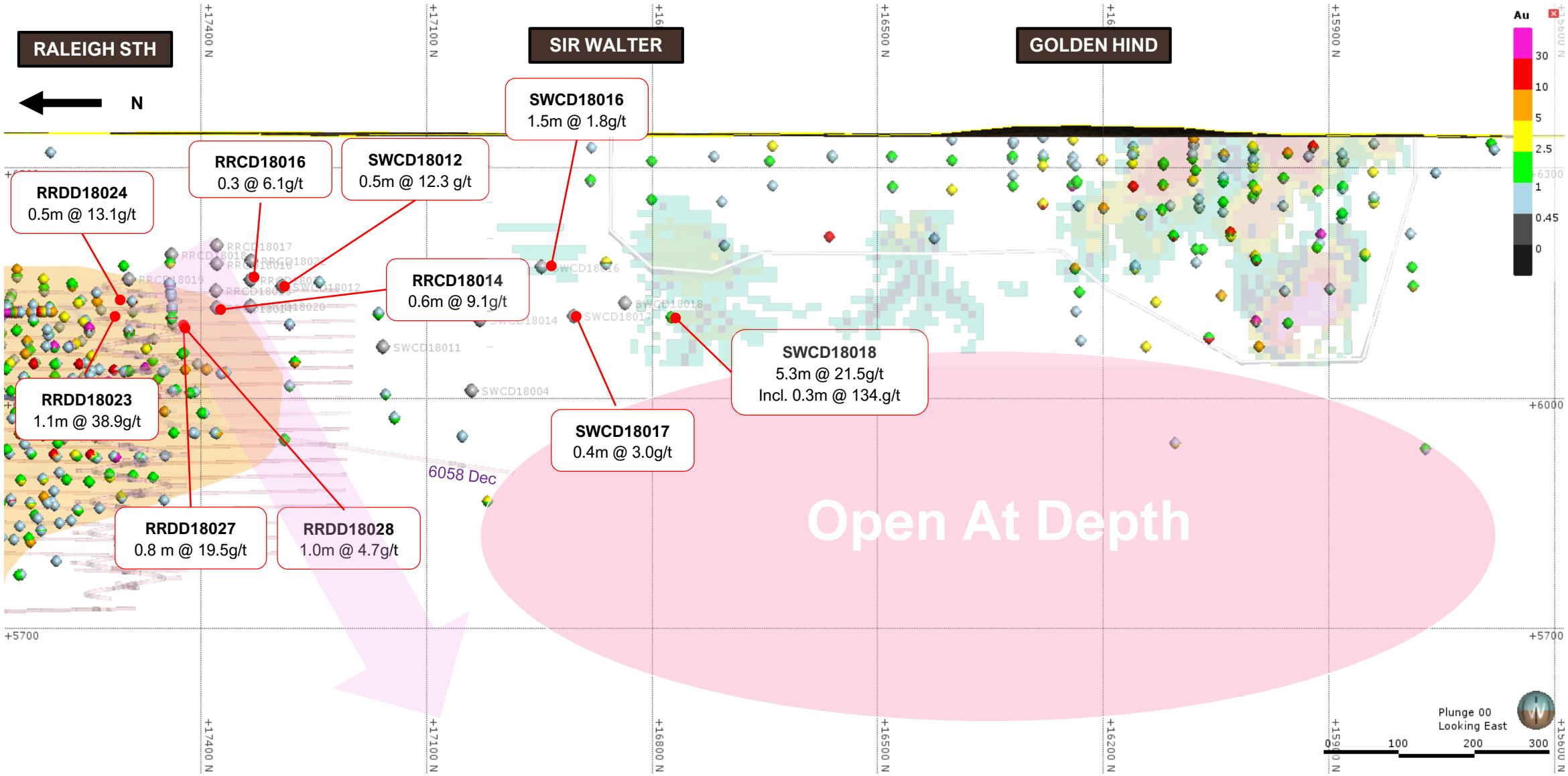
PODE – A Growing Success Story



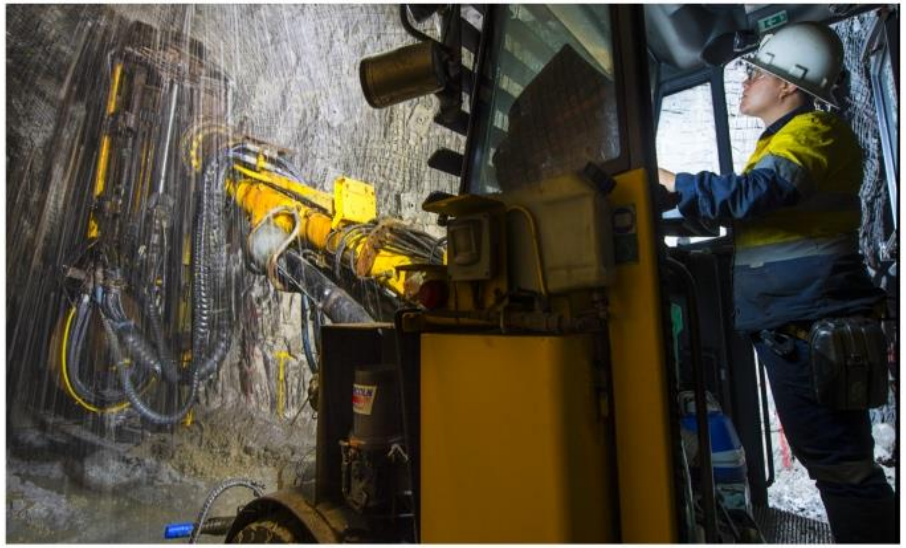
Raleigh South – Developing South to Sadler



Raleigh South to Golden Hind Exploration

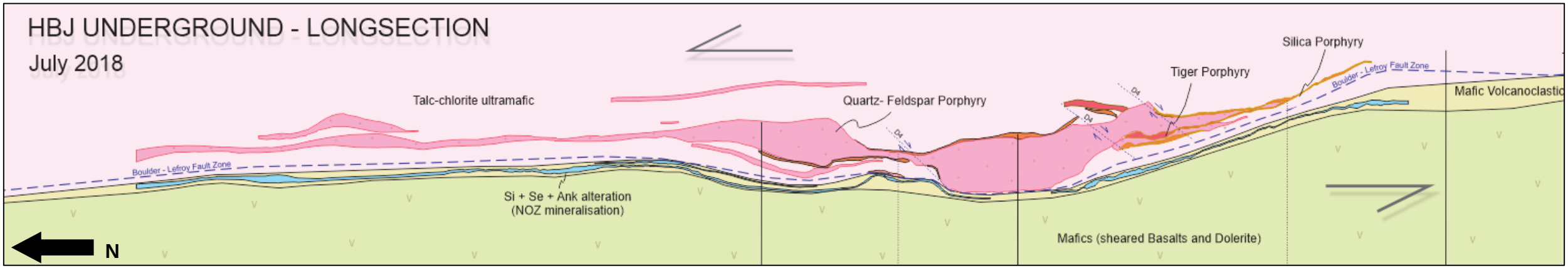


NORTHERN STAR
RESOURCES LIMITED
ASX Code: NST



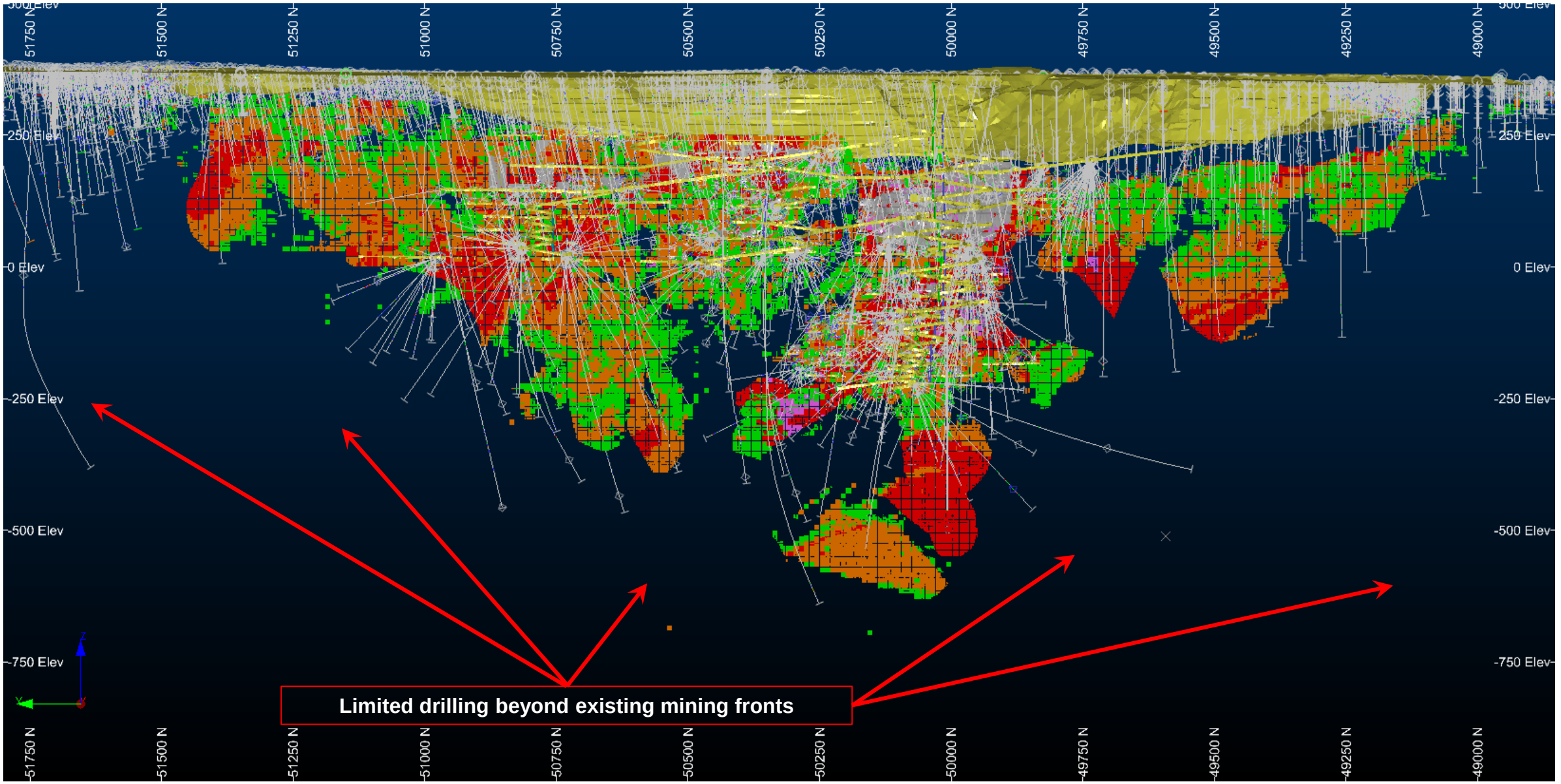
South Kalgoorlie

SKO – HBJ Geology Background

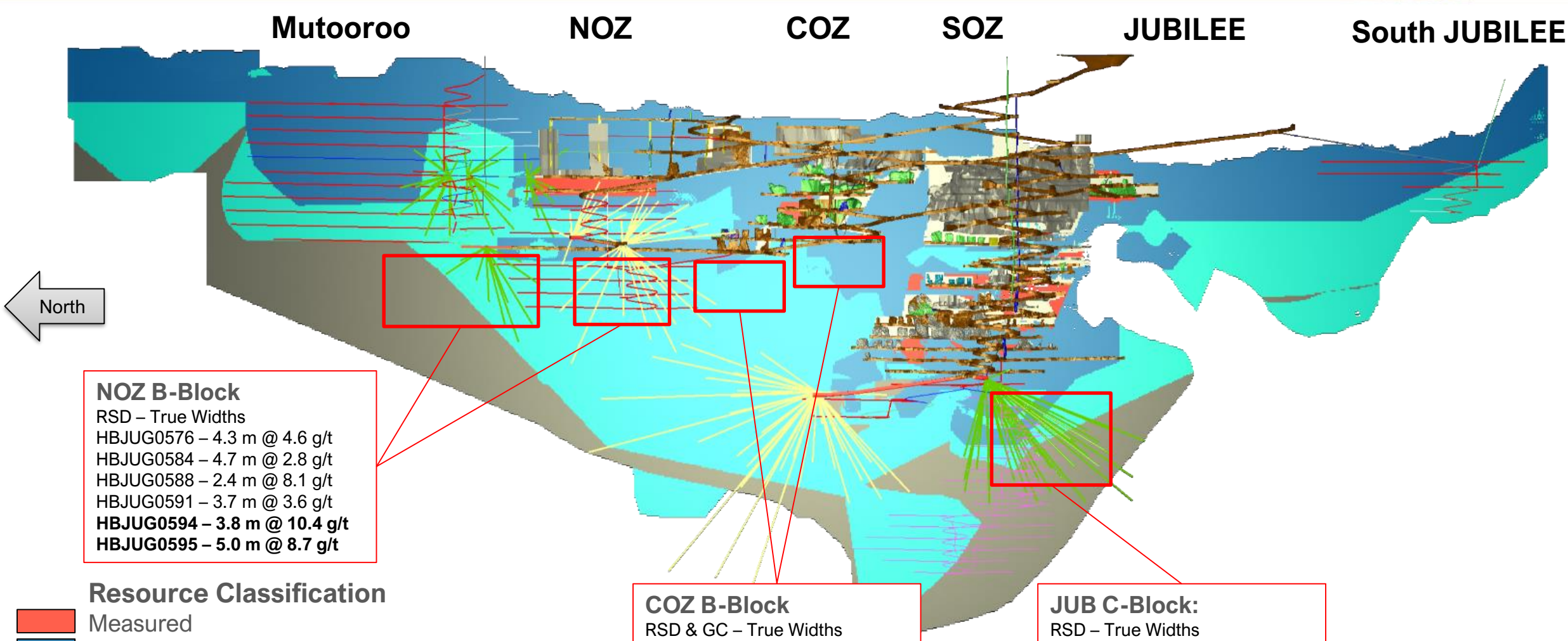


- Shear hosted (Boulder Lefroy) mineralisation associated with porphyry Intrusive and low strain regions along the shear
- Mineralised zones are separated specially into 5 areas
- Multiple parallel lodes associated with low strain zones on the central porphyry and mafic-ultramafic contacts

HBJ UG - Limited Drill Density



HBJ UG - Drilling Results



NOZ B-Block
RSD – True Widths
HBJUG0576 – 4.3 m @ 4.6 g/t
HBJUG0584 – 4.7 m @ 2.8 g/t
HBJUG0588 – 2.4 m @ 8.1 g/t
HBJUG0591 – 3.7 m @ 3.6 g/t
HBJUG0594 – 3.8 m @ 10.4 g/t
HBJUG0595 – 5.0 m @ 8.7 g/t

Resource Classification
Measured
Indicated
Inferred
Unclassified

Proposed FY19 drilling

COZ B-Block
RSD & GC – True Widths
HBJUG0486 – 3.7 m @ 7.1 g/t
HBJUG0486 – 5.2 m @ 3.1 g/t
HBJUG0582 – 4.5 m @ 4.0 g/t
HBJUG0597 – 1.2 m @ 9.9 g/t
HBJUG0600 – 11.3 m @ 1.9 g/t
HBJUG0606 – 12.2 m @ 7.5 g/t
HBJUG0606 – 6.0 m @ 5.2 g/t

JUB C-Block:
RSD – True Widths
HBJUG0565B – 6.1 m @ 5.2 g/t
HBJUG0566A – 4.2 m @ 4.6 g/t
HBJUG0567 – 2.8 m @ 7.2 g/t
HBJUG0569 – 3.6 m @ 3.8 g/t

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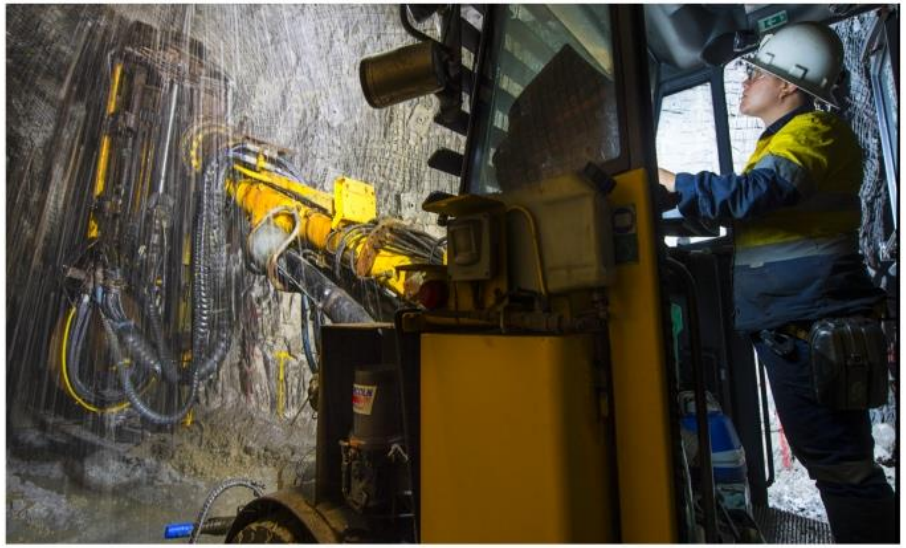
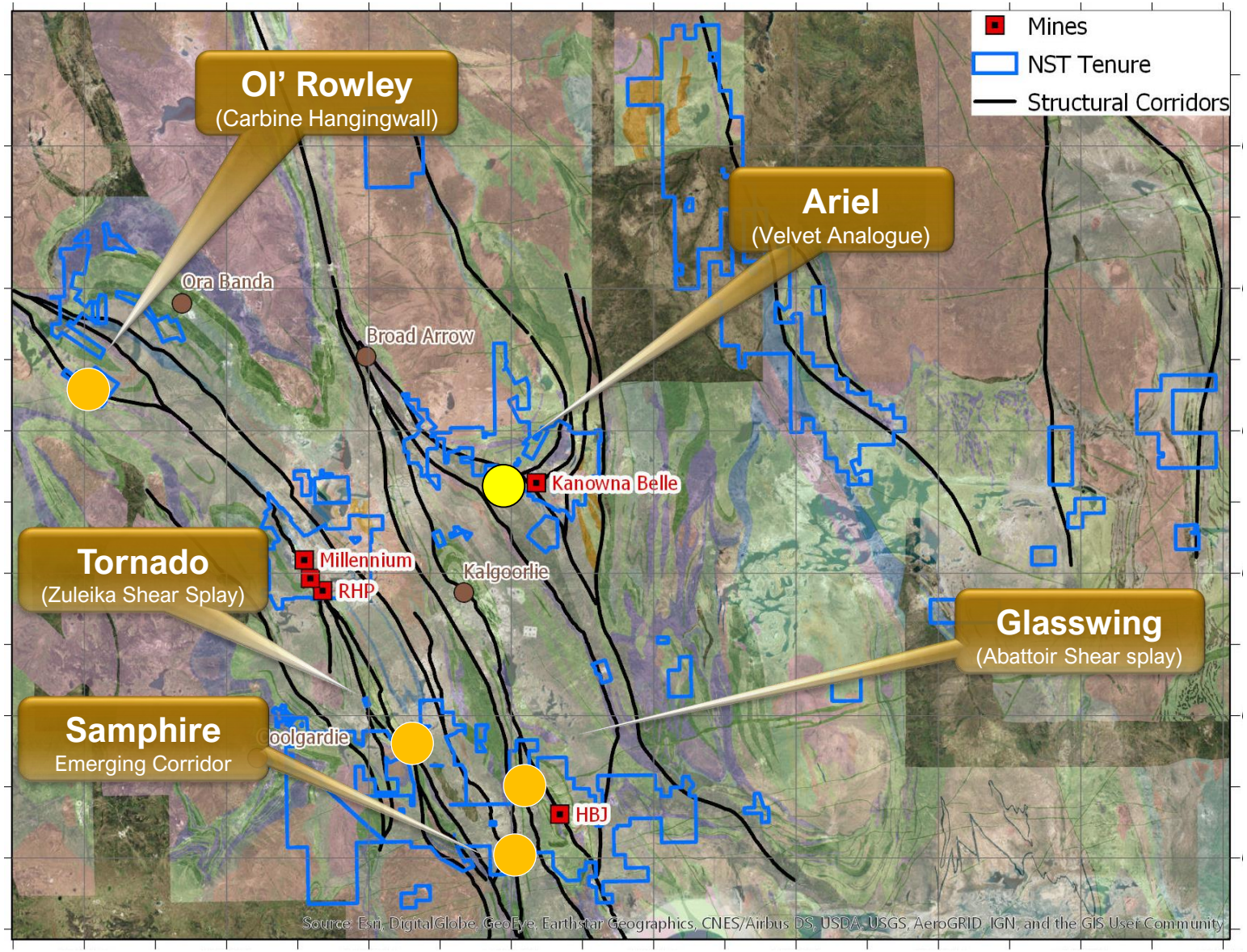


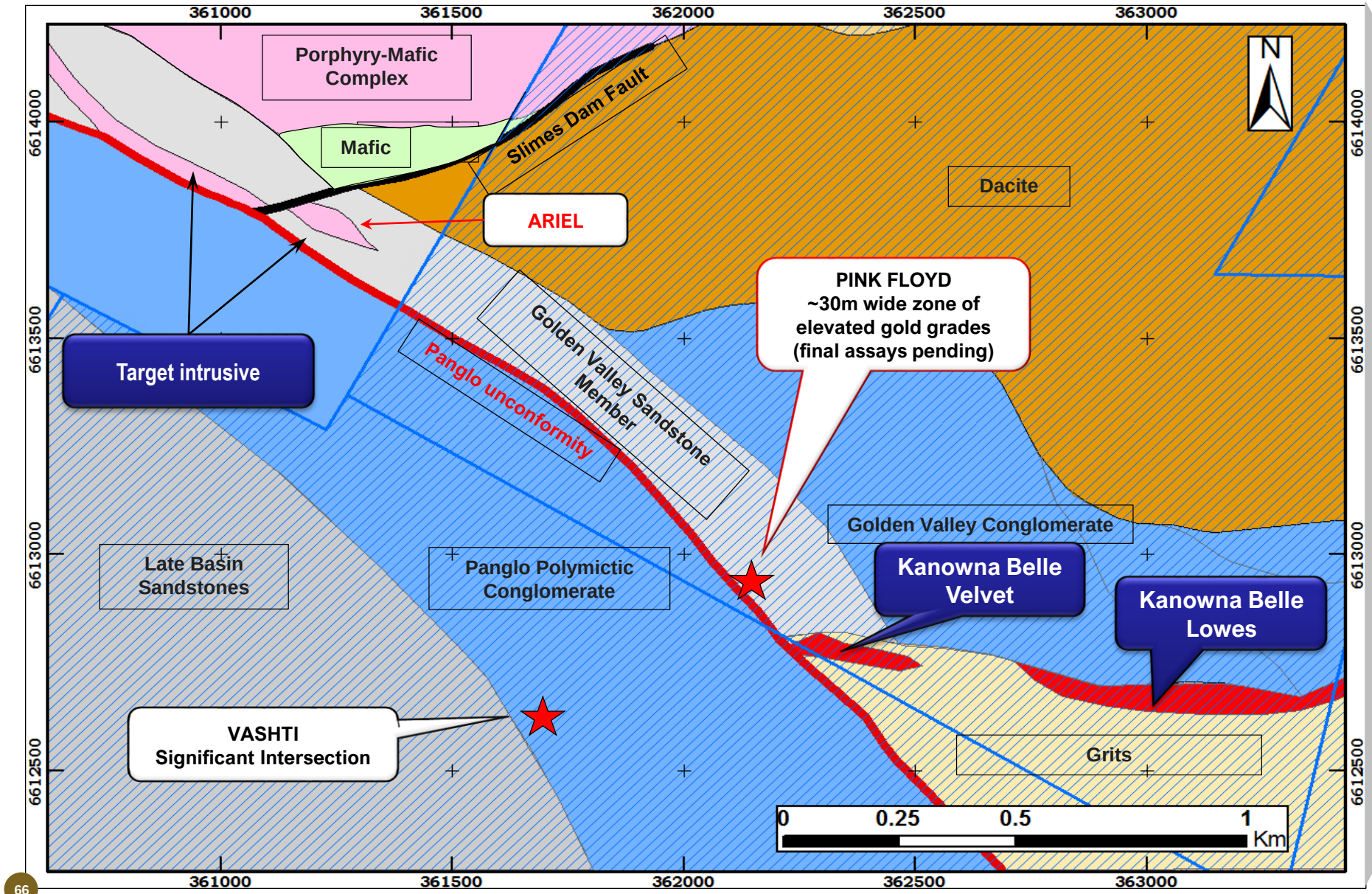
Kalgoorlie Regional

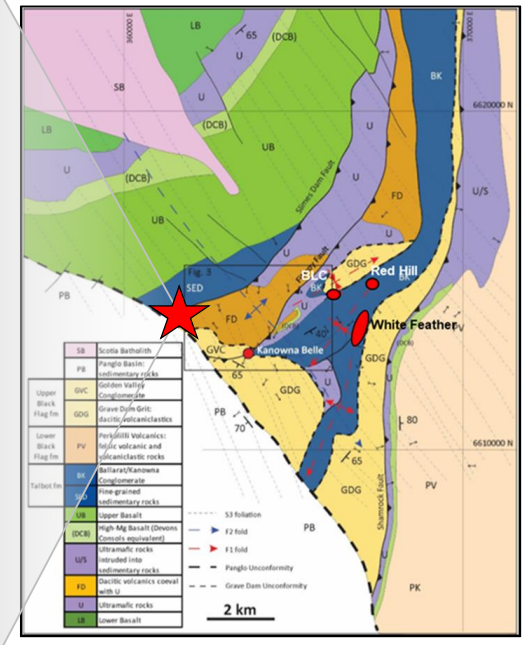
Kalgoorlie Regional



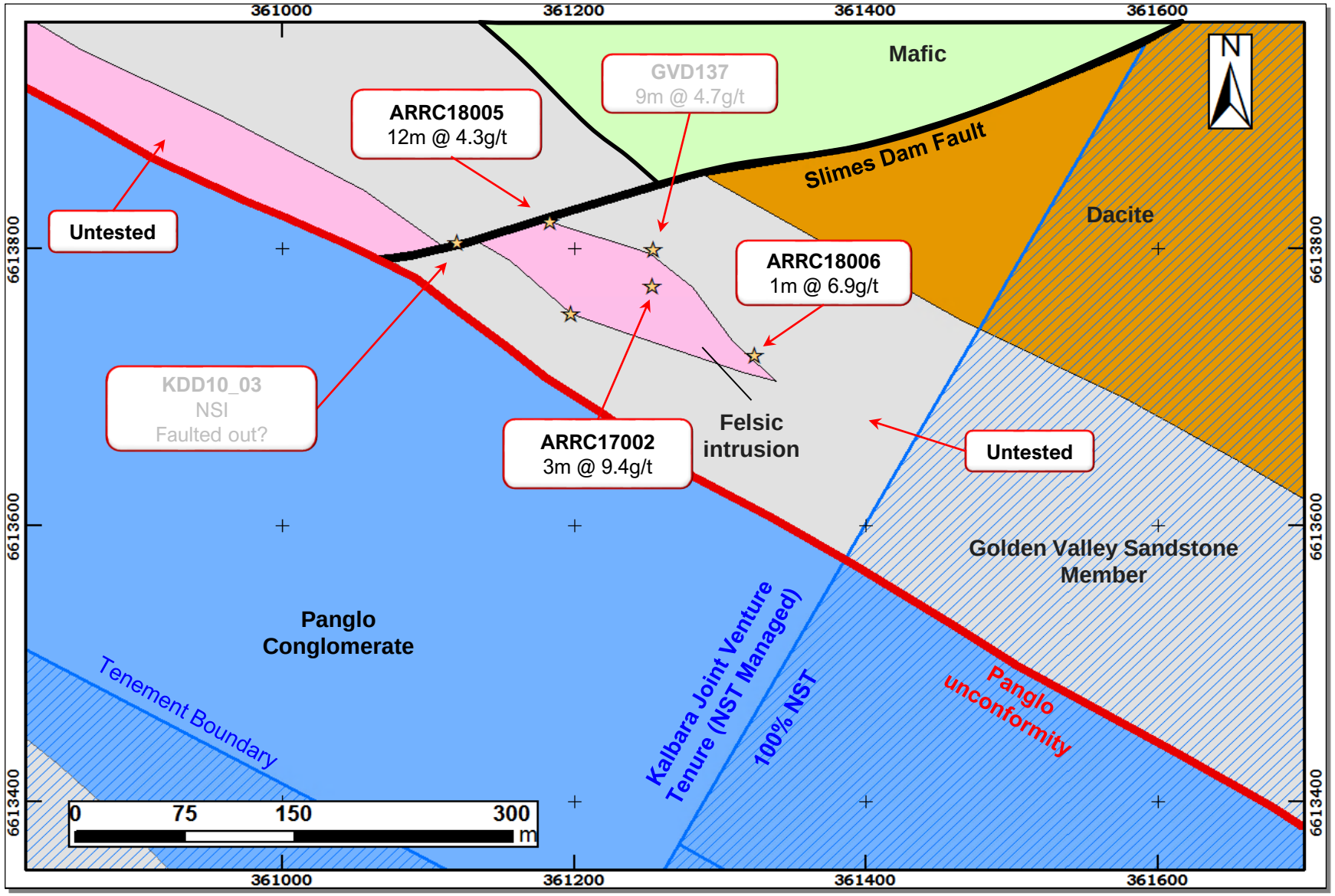
- Over 2,000km^2 of exploration and *freehold* tenure
- Largest landholder in the Kalgoorlie region
- Based around large historic and current production centres
- Covers all the major structural corridors of the Coolgardie-Kalgoorlie terrane - host to ~120Mozs
- Numerous opportunities – well drilled is not necessarily well explored

Kanowna Belle - Ariel



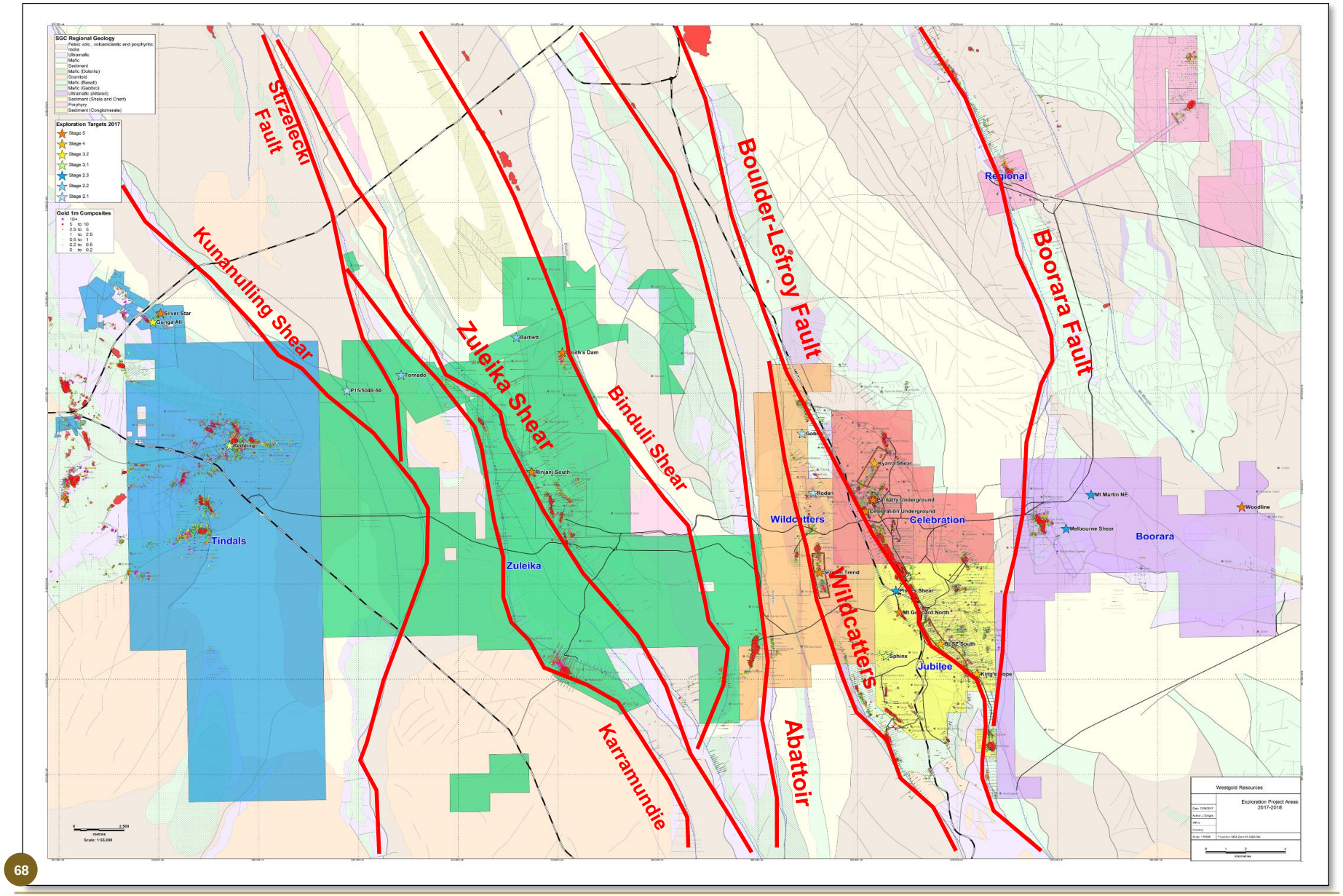


Kanowna Belle - Ariel Drilling



- Recent drilling of historic anomaly
- Significant intersections within, and on contacts, of felsic intrusive(s)
- Mineralisation is open in all directions
- Adjacent to major structures and regional Panglo unconformity
- Extensive anomalous corridor now recognised from evaluation of historic data
- Further drilling planned

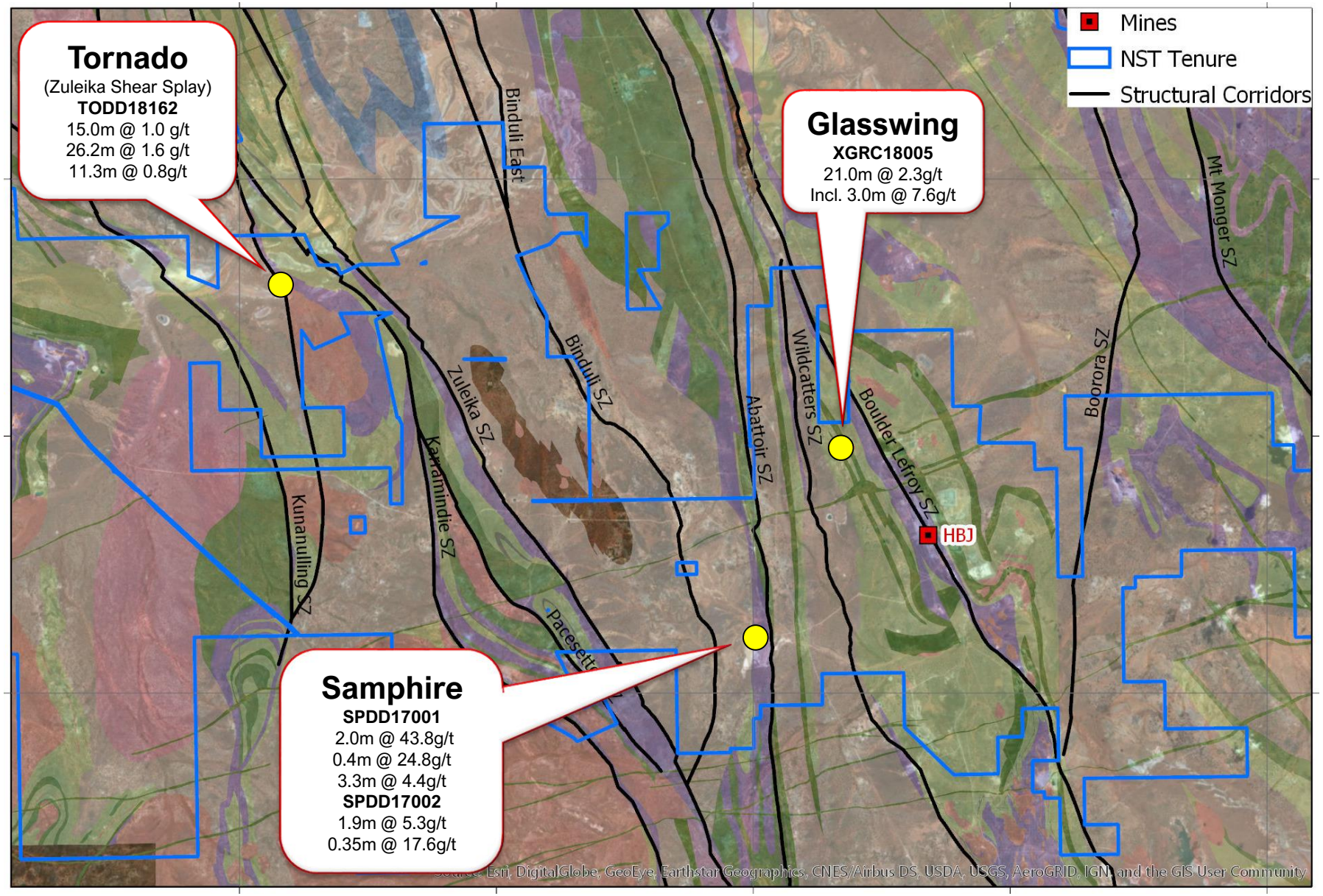
SKO – Exploring in the heart of the Goldfields



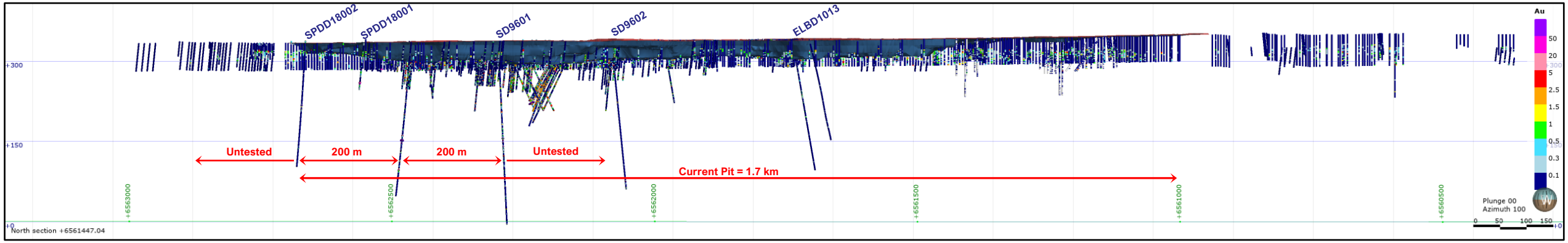
- Over 1,000km^2 of exploration and *freehold* tenure
- Extensive production history
- Fragmented ownership dating back to 1980's
- Contains strike continuation of Boulder-Lefroy fault system – key to the Golden Mile
- Plus all the major structural corridors of the Coolgardie-Kalgoorlie terrane - host to ~120Mozs

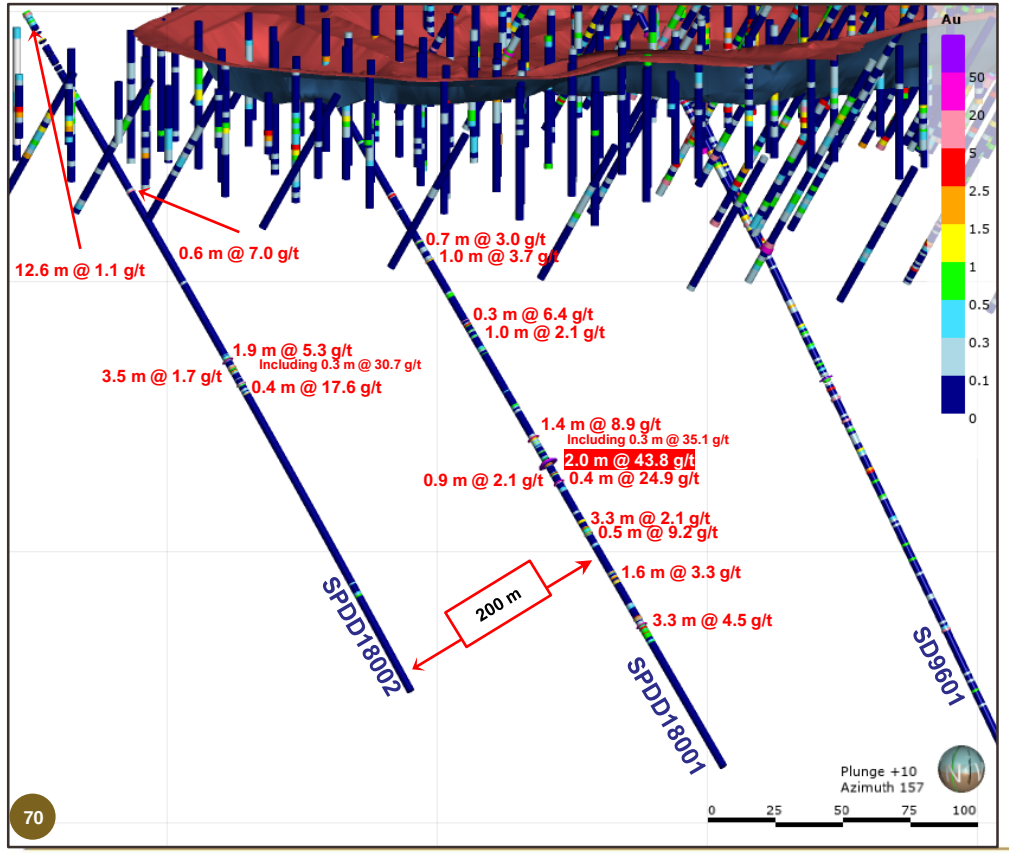
Structural Corridors

SKO Regional – Just the Beginning



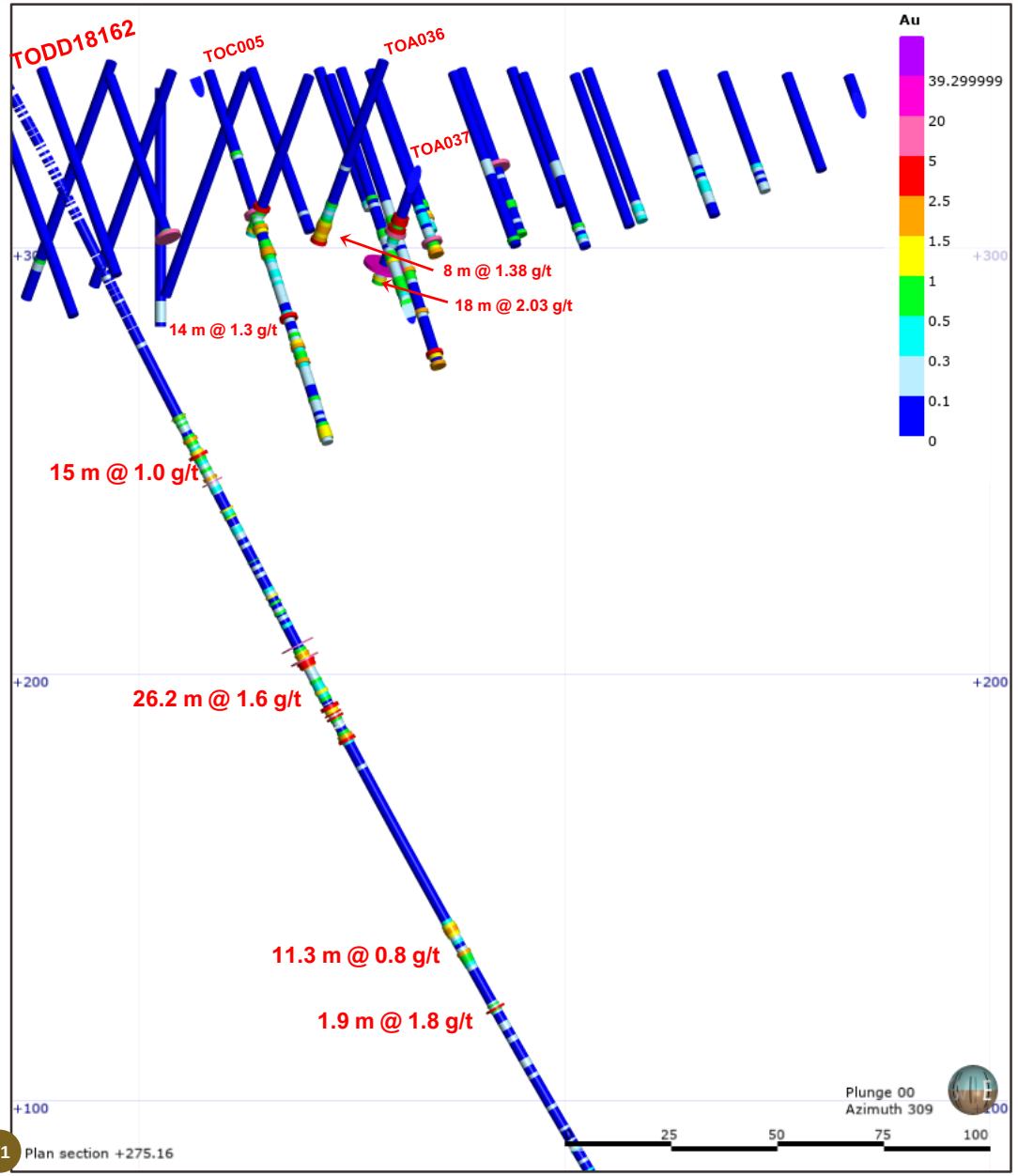
Samphire

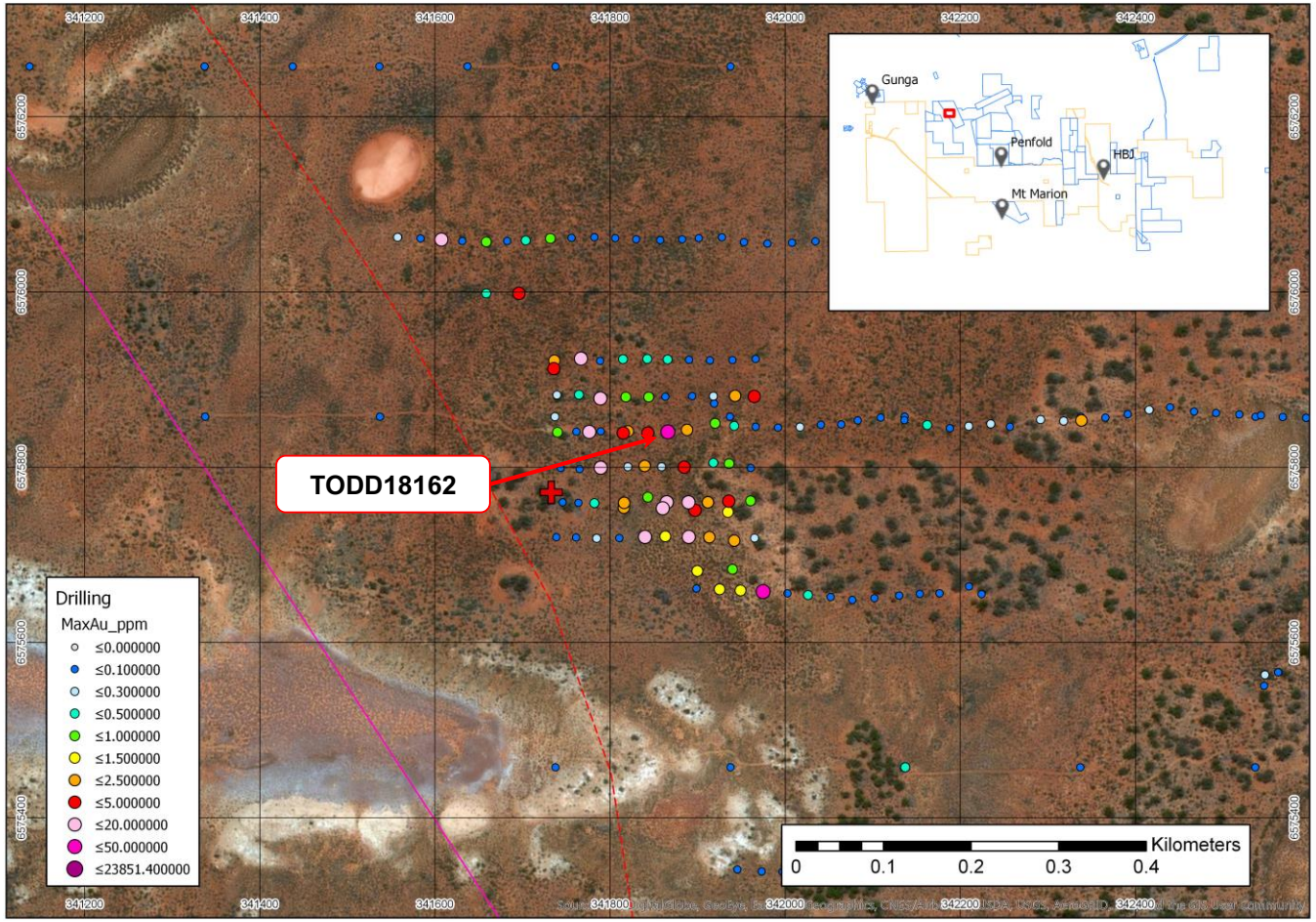




- Samphire pit, 8km west of HBJ Mill
  - *Mined 124,000 ozs at 2.33 g/t in oxide ore only, mining concluded in 1996*
- Gold is hosted in sub-vertical quartz veins within the Samphire dolerite
- Two diamond holes were completed in 1996
  - *SPDD9601 returned significant results*
  - *SPDD9602 collared too far east to intersect the Samphire dolerite host*
- No further drilling was completed until NSR review in 2018
- Two deep diamond holes drilled beneath the Samphire pit late 2018
  - *Multiple mineralised structures with visible gold intersected in both drill holes*
- Further drilling planned to test entire +2kms of potential strike

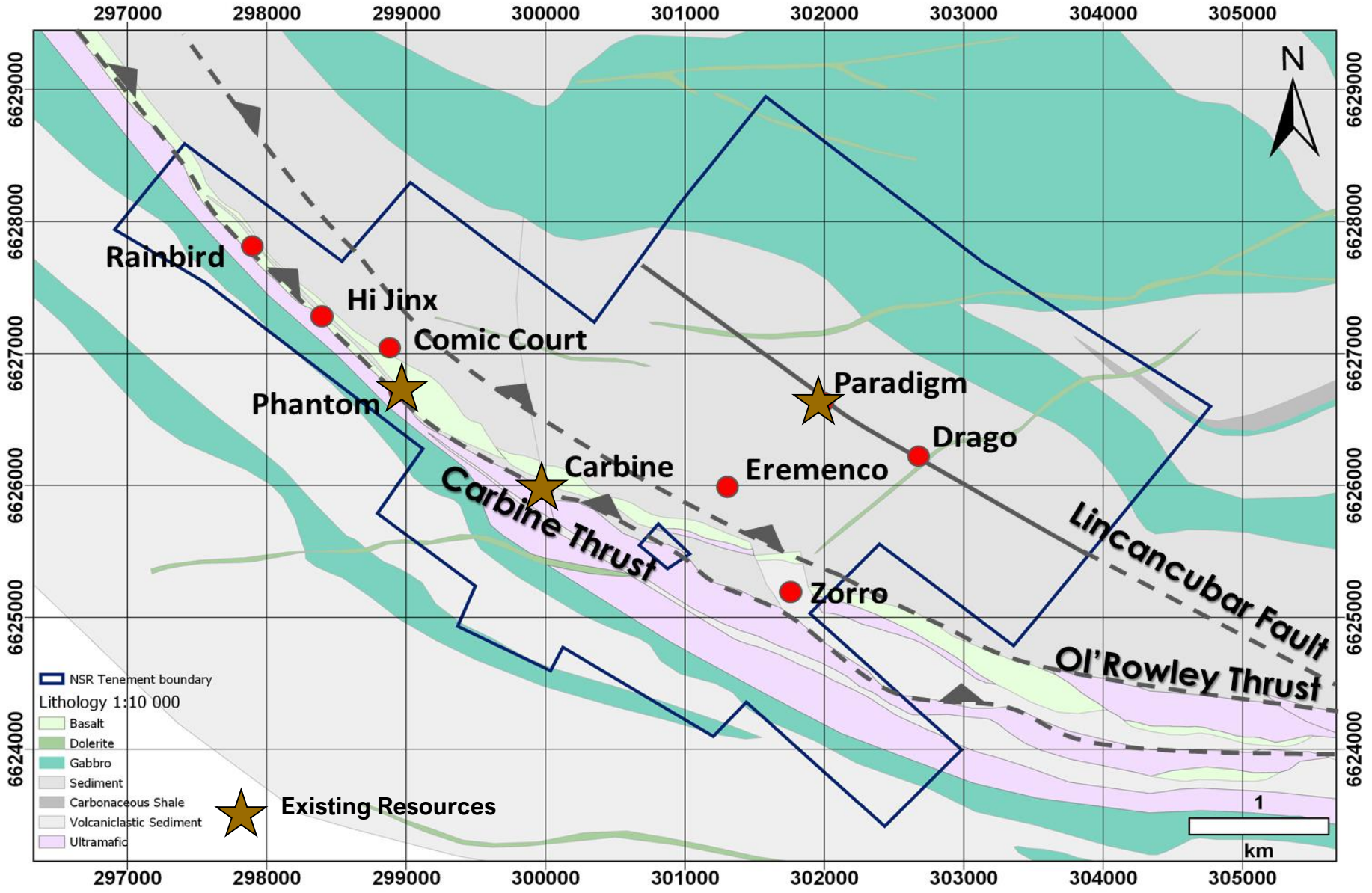
Tornado



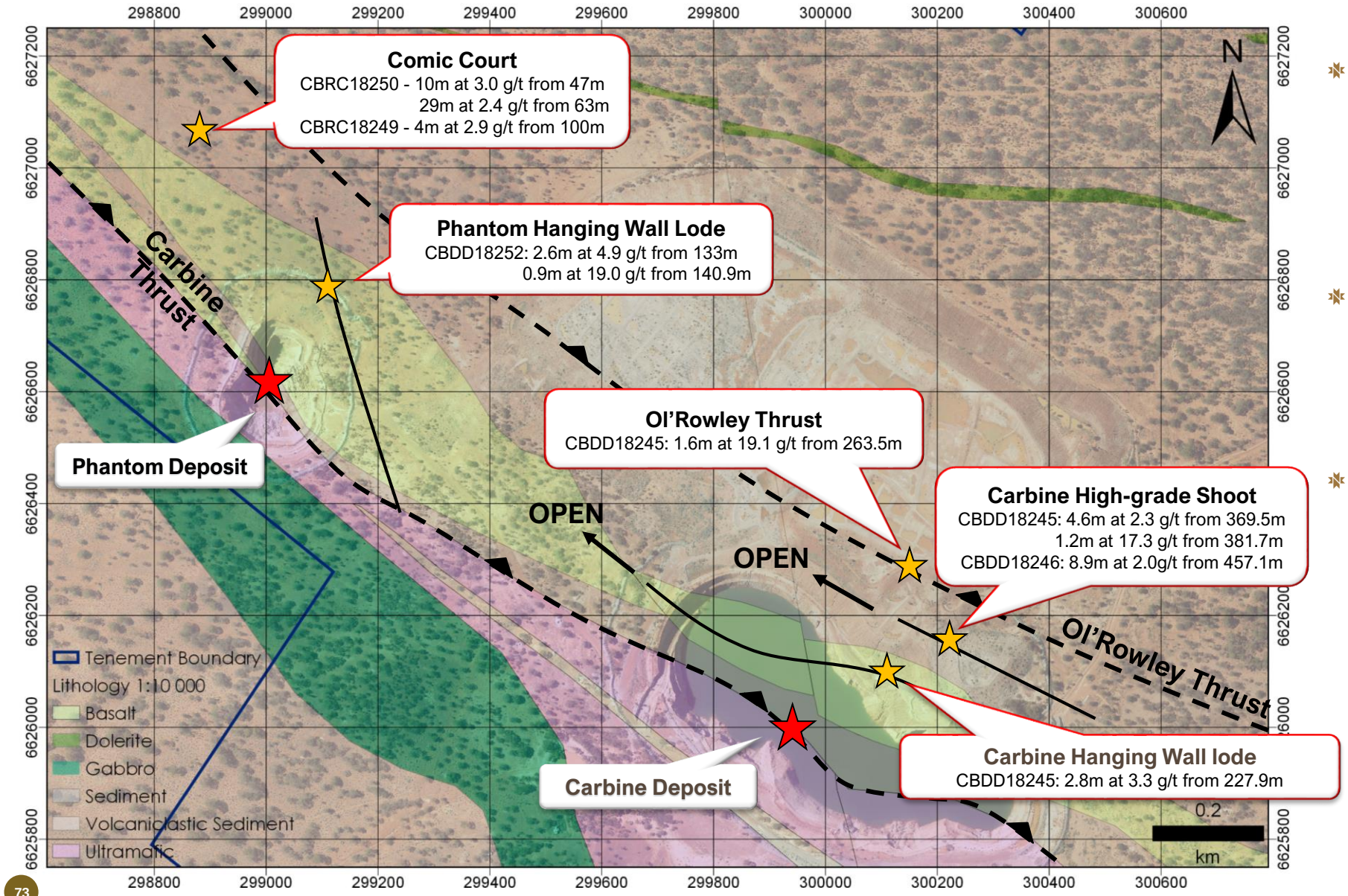


- First follow up of RAB historic anomaly
- TODD18162 drilled beneath known surface mineralisation
- Two broad mineralised zones intersected
- Follow up drilling completed January 2019, results pending

Carbine Regional Exploration



Carbine Trend



- Recent drilling at Carbine has significantly improved our understanding of the geology and structural controls on mineralisation across the Carbine area
- The discovery of new hanging wall lodes and mineralised structures has significantly increased the exploration potential along the Carbine corridor
- Drilling will test for extensions to mineralisation at:
  - *Comic Court*
  - *Phantom hanging wall lode*
  - *2kms of recently discovered Ol'Rowley Thrust*

NORTHERN STAR
RESOURCES LIMITED
ASX Code: NST

Northern Star Resources

An Australian Mid Cap Global gold miner – Growing Against the Tide

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APPENDIX A – DRILL RESULTS

Table 1 - Ariel Significant Intersections

ARIEL SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (degrees)	Azimuth (degrees, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
ARRC18005	**361130**	**6613793**	**357**	**-59**	**57**	**228.0**	**108.0**	**120.0**	**12.0**	**4.3**	**9.0**
ARRC18006	361227	6613668	358	-60	54	264.0	202.0	205.0	1.0	6.9	0.8
ARRC17002	361180	6613730	369	-60	50	234.0	176.0	180.0	3.0	9.4	2.2
ARRC17001	361240	6613780	361	60	50	168.0	0.0			NSI	
ARDD18003	361079	6613686	358	-58	58	369.1	237.0	241.00	1.70	10.9	1.3
GVD137	361216	6613740	357	-58	29	504.0	123.0	130.00	7.00	4.7	6.2
KDD10_03	361087	6613736	357	-57	26	369.0	168.7	170.00	1.30	0.2	1.2

Table 2 – Millennium and Pope John Significant Intersections

MILLENNIUM AND POPE JOHN SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (Mine Grid)	Northing (Mine Grid)	Drill hole collar RL (MGA)	Dip (degrees)	Azimuth (degrees, Mine Grid)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
MILLGC18026	9564	21325	5903	7	32	110.0	95.80	97.90	2.1	2.4	1.2
MILLGC18028	9609	21451	5931	-12	21	148.0	133.02	133.48	5.5	6.2	2.1
MILLGC18039	9585	21441	5850	23	13	158.7	127.50	129.70	2.2	7.4	0.8
MILLGC18040	9606	21394	5864	24	32	107.7	87.40	90.10	2.7	4.6	2.0
MILLGC18044	9587	21505	5898	-1	10	215.0	182.00	182.70	0.7	2.4	
MILLGC18045	9587	21463	5876	9	11	174.4	140.00	143.00	3.0	3.9	1.3
MILLGC18046	9577	21506	5888	4	7	218.5	181.72	182.43	0.7	4.6	0.2
MILLGC18052	9561	21512	5836	20	3	249.0	197.47	198.28	0.8	3.9	0.2
MILLGC18056	9566	21546	5909	-4	3	276.2	219.50	220.50	1.0	5.7	0.2
MILLGC18130	9627	21477	6017	-23	262	12.4	0.00	5.48	5.5	9.2	4.4
MILLGC18134	9614	21502	5990	-25	270	15.2	3.14	7.66	4.5	4.1	3.2
MILLGC18135	9615	21501	5993	35	270	12.0	0.00	5.95	6.0	12.2	5.8
MILLRSD18040	9549	21315	5860	-62	338	209.8	187.20	189.00	1.8	6.2	0.7
MILLRSD18044	9549	21315	5859	-76	40	204.0	183.75	187.25	3.5	6.4	1.5
MILLRSD18045	9521	21241	5827	-55	47	175.0	158.56	160.39	1.8	11.1	1.3
MILLRSD18046	9521	21241	5827	-63	63	182.9	159.45	164.40	5.0	5.0	3.3
MILLRSD18052	9524	21240	5827	-42	99	143.6	124.70	127.10	2.4	3.4	2.0
MILLRSD18056	9523	21239	5827	-61	112	194.5	175.61	178.64	3.0	6.9	1.8
MILLRT18002	9587	21668	6066	-15	287	450.2	217.30	218.00	0.7	20.1	0.5
MILLRT18004	9359	21249	5863	-38	253	450.4	194.00	195.00	0.4	10.2	0.3
MILLRT18010	9401	21110	5831	0	222	483.0	162.30	168.00	5.7	5.0	3.7
PJRSD18032	9731	20077	6187	-22	61	131.8	114.64	115.30	0.7	14.8	0.7
PJRSD18049	9806	19985	6122	-39	93	86.8	66.85	68.00	1.2	21.2	1.0
PJRSD18051	9805	19984	6122	-73	90	116.7	102.60	104.40	1.8	16.2	1.0

Table 3 – Strzelecki and Moonbeam Significant Intersections

STRZELECKI AND MOONBEAM SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (degrees)	Azimuth (degrees, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
CHDD18009	**331666**	**6600160**	**344**	**-62**	**135**	**111.7**	**95.1**	**95.4**	**0.3**	**61.1**	**0.2**
CHDD18004	**331610**	**6600069**	**345**	**-63**	**90**	**219.7**	**193.5**	**193.8**	**0.3**	**146.0**	**0.2**
CHDD18013	331629	6600154	344	-66	105	165.7	132.1	132.9	0.8	42.0	
CHDD18016b	**331556**	**6600156**	**345**	**-58**	**88**	**240.7**	**186.7**	**187.6**	**0.9**	**19.9**	**0.8**
CHDD18017	331555	6600155	345	-69	106	252.7	221.9	222.9	1.0	10.9	0.8
CHDD18003	331733	6599861	344	-64	60	321.8	312.8	314.1	0.3	117.0	0.2
CHDD18020	331327	6599971	343	-58	48	578.8	541.7	542.3	0.3	34.2	0.2
CHDD18021	331327	6599971	343	-67	64	621.7	578.1	579.9	1.8	17.0	1.4
CHDD18022	331234	660074	345	-73	62	739.0	642.9	644.7	1.8	32.6	1.5
MBDD18026	**332041**	**6598189**	**343**	**-67**	**79**	**321.2**	**308.2**	**309.3**	**1.1**	**19.5**	**0.9**
MBDD18003	**331727**	**6599860**	**344**	**-64**	**88**	**267.8**	**254.1**	**256.1**	**2.0**	**28.8**	**1.6**
MBDD18007	331656	6599901	345	-63	94	348.5	265.0	267.2	2.2	23.8	1.8
MBDD18008	**331656**	**6599901**	**345**	**-67**	**104**	**344.8**	**310.8**	**311.7**	**1.0**	**69.0**	**0.8**
MBDD18031	331769	6599816	344	-68	51	300.5	279.2	281.6	2.4	18.4	1.9
MBDD18019	331828	6599729	345	-77	51	395.0	372.3	373.2	0.8	10.8	0.7
MBCD18016	331640	6599795	344	-64	60	404.0	389.9	390.7	0.8	18.8	0.6
MBDD18021	331898	6599498	345	-63	15	599.3	564.4	565.3	0.9	11.9	0.8
MBDD18010	**331578**	**6599858**	**345**	**-66**	**93**	**437.4**	**428.9**	**432.8**	**3.8**	**16.2**	**3.0**
MBDD18025	**331512**	**6599945**	**344**	**-65**	**83**	**483.3**	**455.4**	**458.7**	**3.3**	**16.7**	**2.7**

Table 4 - EKJV Significant Intersections

EKJV SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (Mine Grid)	Northing (Mine Grid)	Drill hole collar RL (MGA)	Dip (degrees)	Azimuth (degrees, Mine Grid)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
PEGRT18141	**9639**	**16979**	**5818**	**-65**	**53**	**332.6**	**282.8**	288.2	5.3	35.3	2.6
PEGRSD18148	9631	16969	5818	-70	112	393.0	359.0	373.9	14.9	4.5	7.5

EKJV SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (Mine Grid)	Northing (Mine Grid)	Drill hole collar RL (MGA)	Dip (degrees)	Azimuth (degrees, Mine Grid)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
PEGRSD18151	9631	16969	5818	-74	99	425.9	387.7	394.9	7.1	6.6	3.3
PEGRSD18152	9631	16969	5818	-56	135	356.8	159.2	159.6	0.3	73.2	0.3
PEGRSD18420	9591	17445	5871	-56	69	286.6	271.8	273.0	1.2	14.5	0.9
PEGRSD18353	9802	17338	5940	41	285	245.4	216.0	217.0	1.0	6.0	1.0
PEGRSD18355	9797	17363	5940	44	305	378.5	252.0	253.4	1.4	7.0	1.3
PEGRSD18360	9797	17395	5939	16	301	293.8	18.6	19.0	0.4	9.9	0.3
PEGRSD18145	**9631**	**16969**	**5818**	**-60**	**146**	**456.1**	**79.6**	81.0	1.5	98.0	1.2
PEGRSD18144	9631	16969	5818	-58	138	281.2	73.8	76.0	2.2	9.1	1.9
PEGRSD18146	**9631**	**16969**	**5818**	**-63**	**137**	**415.6**	**72.0**	73.1	1.1	97.9	1.0
PEGGC18319	**9771**	**17212**	**6192**	**3**	**286**	**21.2**	**2.6**	**5.3**	**2.7**	**34.6**	**1.9**
PEGRT18162	**9579**	**17427**	**5872**	**-49.0**	**141.00**	**423.0**	**392.8**	**395.5**	**2.7**	**26.9**	**1.5**
PEGRT18220	9597	17461	5873	6.0	32.00	355.6	336.2	337.0	0.8	29.3	0.4
PEGRT18221	9592	17459	5872	-7.0	34.00	336.4	94.9	95.5	0.6	45.7	0.3
PEGRT18224	9580	17429	5872	-46.0	24.00	439.4	294.2	295.5	1.3	28.8	0.6
PEGRT18382	9586	17441	5871	-60.0	33.00	434.9	247.2	249.4	2.2	11.5	1.1
PEGRT18385	9585	17438	5871	-43.0	19.00	497.7	231.0	234.5	3.5	6.8	2.2
PEGRT18387	9771	17239	6192	-7.0	276.00	327.5	4.5	9.5	5.1	5.9	3.2
RUBGC18076	9842	16318	5839	-46.2	245.71	21.0	0.0	2.5	2.5	5.8	2.5
RUBGC18077	9842	16293	5842	31.0	248.00	17.4	3.1	5.0	1.9	10.8	1.7
RUBGC18065	**9822**	**16460**	**5839**	**-46.0**	**277.00**	**15.1**	**5.0**	**9.8**	**4.8**	**6.5**	**3.3**
RUBRSD18047	9591	16237	5673	-78.0	95.00	168.1	134.6	134.9	0.3	13.4	0.3
SADRSD18004	8891	17450	5982	-4.0	147.00	236.9	204.2	205.2	1.0	9.9	0.2
SADRSD18001	8892	17450	5981	2.0	133.00	192.1	177.4	177.7	0.3	20.2	0.1
RALRSD18068	**8984**	**17701**	**6005**	**-68.0**	**74.00**	**167.5**	**146.1**	147.3	1.2	136.2	0.7
RRDD18003	**9051**	**17461**	**6344**	**-71**	**78**	**233.0**	**208.0**	**208.9**	**0.9**	**56.5**	**0.8**
RALRT18302	8979	17534	5987	18.0	158.00	263.8	222.8	223.4	0.6	35.9	0.2
RALRT18303	8978	17534	5986	2.0	163.00	228.1	174.0	176.0	2.0	13.6	0.8
RALRT18301	8979	17534	5988	24.0	151.00	235.0	189.4	190.9	1.6	20.4	0.7
RALRT18305	8979	17534	5984	-29.0	172.00	194.5	165.9	166.8	0.9	22.6	0.7

Table 5 – Raleigh South Significant Intersections

RALEIGH SOUTH SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (degrees)	Azimuth (degrees, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
RRDD18024	332044	6598219	344	-63	58	291.2	280.4	281.0	0.6	13.1	0.5
RRDD18023	**332043**	**6598222**	**344**	**-66**	**54**	**309.2**	**299.1**	**300.5**	**1.4**	**38.8**	**1.1**
RRDD18027	**332041**	**6598189**	**343**	**-67**	**79**	**321.2**	**308.2**	**309.3**	**1.1**	**19.5**	**0.9**
RRDD18028	332097	6598173	344	-71	76	285.2	264.7	265.7	0.9	4.7	0.8
RRCD18016	332172	6598145	345	-66	72	204.0	171.9	172.2	0.3	6.1	0.2
RRCD18014	332150	6598116	344	-70	61	240.0	223.5	224.1	0.6	9.1	0.5
SWCD18016	332344	6597742	344	-66	69	207.3	186.1	187.6	1.5	1.8	1.2
SWCD18017	332272	6597662	344	-60	69	291.1	276.5	277.0	0.5	3.0	0.4
SWCD18018	332316	6597608	345	-60	69	276.1	248.0	253.3	5.3	21.5	4.2
SWCD18012	332189	6598032	343	-68	60	234.3	217.8	218.3	0.5	12.3	0.4

Table 6 – South Kalgoorlie Significant Intersections

SOUTH KALGOORLIE SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (degrees)	Azimuth (degrees, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
TODD18162	**341738**	**6575807**	**342**	**-60**	**40**	**383.84**	**91.75**	**95.17**	**3.42**	**0.69**	**3.42**
TODD18162	**341738**	**6575807**	**342**	**-60**	**40**	**383.84**	**97.00**	**112.00**	**15.00**	**1.01**	**15.00**
TODD18162	**341738**	**6575807**	**342**	**-60**	**40**	**383.84**	**152.50**	**178.73**	**26.23**	**1.64**	**26.23**
XGRC18005	363545	6569420	377	-61	270	84.00	58.0	79.0	21.0	2.3	21.0
SPDD18001	360070	6562019	336	-55	280	369.1	233.6	235.7	2.0	43.8	2.0
SPDD18001	360070	6562019	336	-55	280	369.1	302.6	304.1	1.6	3.3	1.6
SPDD18001	360070	6562019	336	-55	280	369.1	305.3	308.7	3.3	4.5	3.3
SPDD18002	360075	6562218	336	-52	283	296.66	151.3	153.2	1.9	5.3	1.9
SPDD18002	360075	6562218	336	-52	283	296.66	163.2	163.6	0.4	17.6	0.4

Table 7 – Carbine Significant Intersections

CARBINE SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (degrees)	Azimuth (degrees, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
CBRC18250	**298897**	**6626908**	**420**	**-61**	**50**	**112**	**50.0**	**92.0**	**42.0**	**2.3**	**29.4**
CBRC18249	298969	6626973	420	-60	230	114	100.0	104.0	4.0	2.9	3.2
CBDD18252	299233	6626543	428	-50	280	155.0	140.85	141.75	0.90	19.0	0.7
CBDD18252	299233	6626543	428	-50	280	155.0	133.00	135.60	2.60	4.8	2.1
CBDD18245	**300473**	**6626133**	**430**	**-55**	**230**	**567**	**263.5**	**265.1**	**1.6**	**19.1**	**1.3**
CBDD18245	**300473**	**6626133**	**430**	**-55**	**230**	**568**	**381.7**	**382.2**	**1.2**	**17.3**	**0.9**
CBDD18245	**300473**	**6626133**	**430**	**-55**	**230**	**568**	**369.5**	**374.1**	**4.6**	**2.3**	**3.7**
CBDD18246	**300644**	**6626079**	**430**	**-56**	**230**	**564**	**457.1**	**458.0**	**0.9**	**6.0**	**0.7**

APPENDIX B – JORC CODE 2012 – TABLE 1 REPORTS

Kanowna Belle (including Velvet) - Exploration Drill Results – February 2019
JORC Code, 2012 Edition – Table 1
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	The sampling database for the Kanowna Belle and Velvet area has been compiled from information collected by several different companies since initial discovery in 1989. All information collected prior to involvement by Northern Star Resources in 2014 is hereafter referred to as historical data. Only historical data that is deemed as having acceptable and traceable location and assay information has been included in the Mineral Resource estimation datasets for both Kanowna Belle and Velvet.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For DD samples metre delineation is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist during core mark-up prior to logging to prevent incorrect logging and sampling errors. Sample intervals are then marked on the core by a geologist, to honour geological boundaries. Sample interval lengths vary from 0.3m and 1.3m (NQ). DD core was orientated, measured and then sampled by cutting the core in half longitudinally using an "Almonte" diamond saw. Cutting was along orientation lines. The same half of the core is always selected for each sample interval, placed in numbered calico bags and submitted to the laboratory for analysis. The other half of the core is left in the core tray which was stamped for identification, stored and catalogued. Routine 'field duplicates' to assess sample representivity are not performed on diamond core as these are not considered to be true field duplicates.
	Aspects of the determination of mineralization that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralization types (e.g. submarine nodules) may warrant disclosure of detailed information.	Current sample preparation and assay procedures employed by Northern Star Resources are considered as following industry standard practice. All assay determinations are conducted by internationally recognised laboratories. The primary laboratory, Bureau Veritas, meets ISO 9001:2000. For preparation samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300g of the pulp is retained and a 40g catch weight for fire assay is extracted from the pulp packet. Samples are tested for sulphides and flux adjusted, flux is added at a ratio of 1:4. Samples are fired, hammered and cupelled. Prills placed in tubes, dissolved on hotplates and analysed using AA finish with over range dilutions. Sample preparation for Sulphur determination follows the same process as for Gold, with assaying taking place using the LECO method.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	DD core is mostly NQ diameter diameter core. Where possible diamond core was orientated using a spear, Ballmark™, Ezimark™, or ACE multi electronic tool.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For DD, all recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist. Any issues are communicated back to the drilling contractor. Recovery is generally very high, in excess of 95%, and there have been no significant sample recovery problems. Historic DD core stored on site shows excellent recovery.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For DD, drilling contractors adjust the rate of drilling and method if recovery issues arise. Minor loss occurs when drilling through fault zones such as the Fitzroy Fault. Areas of potential lower recovery are generally known before hand and controlled drilling techniques employed to maximise recovery.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No specific study has been carried out on recovery and grade. As recoveries are generally very high (95%+) it is assumed that the potential for bias due to variable sample recovery is low.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All DD core was logged by geologists with lithology, mineralisation, structure, alteration, veining and specific gravity were recorded. Quantitative measures such as structural measurements, intensity of alteration, percentage of mineralisation, thickness of veins and veins per metre were also recorded. Geotechnical measurements on DD core include RQD, Recovery, and Fracture Frequency. For selected holes joint sets, infill, infill thickness and roughness were also geotechnically measured. All mineralised intersections are logged and sampled.

Criteria	JORC Code explanation	Commentary
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Geology logging is qualitative in nature with visual estimates made of mineralization percentages for core. Structural and geotechnical logging is quantitative in nature. All core is photographed wet as standard practice. Historically some core may have also been photographed dry.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is sampled by sawn half-core on intervals controlled by geological domaining represented by mineralisation, alteration and lithology. A selected number of grade control holes were full cored. Mineralised intersections are sampled with a maximum and minimum length of 1.3m and 0.3m, respecting lithological or alteration contacts. The down hole depth of all sample interval extents are recorded.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	No non-core results reported.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation follows industry standard practice. Samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300 g of the pulp is retained and a 40g charge prepared.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Coarse grind checks at the crushing stage (3mm) are carried out at a ratio of 1:25 samples with 90% passing required. Pulp grind checks at the pulverising stage (75 µm) are carried out at a ratio of 1:25 samples with 90% passing required. Laboratory duplicate samples are taken for coarse crush (3mm) and pulverising (75 µm) stages at a ratio of 1:25 samples. Repeat assays are carried out at a ratio of 1:10 on prepared pulp samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Quarter core sampling of diamond core is occasionally undertaken for check assays, however routine field duplicates are not performed on diamond core as these are not considered to be true field duplicates.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage (3mm) and pulverising stage (75µm) requiring 90% of material to pass through the relevant size. No specific study has been carried out to determine optimum sub-sample size fractions. These material sizes are assumed to be acceptable for the mineralization style and material grain size present.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	Fire assay analysis is undertaken and this is considered to be a total assay method. Monthly QAQC reports are prepared to check for any bias or trends with conclusions discussed with the laboratory management. Holes that do not pass QAQC are not used for Mineral Resource estimation.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Sampling and assaying QAQC procedures include: - Periodical resubmission of samples to primary and secondary laboratories - Submittal of independent certified reference material - Sieve testing to check grind size - Sample recovery checks. - Unannounced laboratory inspections Standard control samples and blanks purchased from certified commercial suppliers are inserted at a ratio of 1:20. The standard control samples are changed on a 3-month rotation. The results are reviewed on a per batch basis and batches of samples are re-analysed if the result is greater than three standard deviations from the expected result. Any result outside of two standard deviations is flagged for investigation by a geologist and may also be re-assayed.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant and anomalous intersections are verified by a Senior Geologist during the drill hole validation process.
	The use of twinned holes.	No twinned holes were drilled for this data set.

Criteria	JORC Code explanation	Commentary
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data are stored and validated within the site Acquire database. Data import into the database is controlled by documented standard operating procedures, and by a set of validation tools included in Acquire import routines. Hard copies and electronic copies of all primary location, logging and sample results data are filed for each hole.
	Discuss any adjustment to assay data.	Assay results are received in csv format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Holes that cannot be accurately validated or do not meet the requirements of Kanowna QAQC are excluded prior to Mineral Resource estimation.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	All drill hole collar positions were surveyed. All recent DD holes were surveyed down hole by various methods including single shot down hole camera, EMS (Electronic Multi Shot) method or in-rod gyroscopic survey tools. Holes are typically surveyed at 15m and 30m intervals down hole thereafter. Since the 1st of June 2015, a true north seeking gyroscopic tool has been used to line up the rig and record a zero-meter survey. Any poor surveys are re-surveyed, and, in some cases, holes have been gyroscope surveyed by ABIMS for non-magnetic affected survey. If survey data was missing or quality was suspect and not replaced by more recent drilling, affected data was not used in estimation.
	Specification of the grid system used.	A local grid system (KBMINE grid) is used. It is rotated anticlockwise 28.43 degrees to the MGA94 grid.
	Quality and adequacy of topographic control.	Drill hole collars are located by the underground mine surveyors using a Laser system respective to the local mine grid and to the overall property in UTM or Australian grid coordinates. Topographic control is not relevant to the underground mine.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing is nominally 60m x 60m down to 20m x 20m in the main zones of mineralization at the Kanowna Belle and Velvet deposits. Secondary mineralised structures in the hanging wall and footwall of Kanowna Belle are typically narrower and less consistent so have a nominal drill spacing of 15m x 15m.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacings in the Mineralised domains at Kanowna Belle and Velvet are considered sufficient to support the definition of Mineral Resources and Reserves.
	Whether sample compositing has been applied.	The datasets were composited to 1 m intervals prior to grade estimation. This aligns with the most common sample length taken.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Most data is drilled perpendicular to the interpreted strike of the Kanowna Belle and Velvet Mineralised zones. Due to the complex overlapping nature of the mineralised zones actual intersections may be slightly oblique to the intended right-angle intersections intended.
	If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Holes with orientations that are considered likely to introduce sampling bias are flagged during drill hole validation and are excluded from the Mineral Resource estimation datasets.
Sample security	The measures taken to ensure sample security.	All core is kept within the site perimeter fence on the Mining Lease M27/103. Samples are dispatched and/or collected by an offsite delivery service on a regular basis. Each sample batch is accompanied with a: ▪ Job number ▪ Number of Samples ▪ Sample Numbers (including standards and duplicates) ▪ Required analytical methods ▪ A job priority rating A Chain of Custody is demonstrated by both Company and Bureau Veritas in the delivery and receipt of sample materials. Any damage to or loss of samples within each batch (e.g. total loss, spillage or obvious contamination), is reported to the Company in the form of a list of samples affected and detailing the nature of the problem(s).
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The last external audit was conducted in 2009 with the conclusion that industry best practice was being followed. Standards and procedures have remained largely unchanged since this time.

Criteria	JORC Code explanation	Commentary
		A review of sampling techniques, assay results and data usage was conducted internally by the Companies' Principal Resource Geologist during 2015 with no material issues found.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Kanowna Belle mine and associated infrastructure is located on Mining Leases M27/92 and M27/103. Mining lease M27/92 (972.65 ha) was granted on March 14, 1988 and M27/103 (944.25 ha) was granted on January 12, 1989. Both leases were granted for periods of 21 years after which they can be renewed for a further 21 years. The Mining Leases and most of the surrounding tenement holdings are 100% owned by Northern Star (Kanowna) Pty Limited, a wholly owned subsidiary of Northern Star Resources Limited. The mining tenements are either located on vacant crown land or on pastoral leases. The leases containing the deposit are pre-1994 leases so are not subject to Native Title claims.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Kanowna was discovered in 1989 by Delta Gold, open pit mining commenced between 1993 and 1998 resulting in a 220m deep pit. Underground operation began in 1998. In 2002, Delta Gold Limited and Goldfields Limited merged to form Aurion Gold Limited. Placer Dome Inc. (Placer Dome) subsequently acquired Aurion Gold Limited. In 2006 Barrick Gold Corporation acquired Placer Dome and in 2014 Northern Star acquired the operation from Barrick. Exploration drilling is ongoing from underground to extend the known mineral resources.
Geology	Deposit type, geological setting and style of mineralisation.	Kanowna Belle is located within the Kalgoorlie Terrane, one of several elongate, broadly NNW-SSE striking structural-stratigraphic late Archaean greenstone terranes of the Eastern Goldfields of Western Australia. The Kanowna Belle gold mine is located close to the centre of the NNW-SSE trending, greenstone-dominated Boorara Domain, the eastern most subdivision of the Kalgoorlie Terrane. The Kanowna Belle deposit can be categorised as a refractory, Archean lode-gold type deposit. The orebody is comprised of several ore shoots, including the large Lowes Shoot, and several smaller lodes including Troy, Hilder, Hangingwall and Footwall shoots controlled by sets of structures of various orientations oblique to Lowes. Lowes contains some 80% of known gold mineralization and strikes ENE, dips steeply SSW and plunges steeply SW. Lowes shoot has a strike length of 500m, width of 5m to 50m and down-plunge extent greater than 1,250m. The overall steep SE plunge is interpreted to reflect the intersection of D1 (ENE) and D2 (NW) structures. Kanowna Belle is one of the only known refractory pyritic orebodies in the Yilgarn Craton. Gold in the Kanowna Belle deposit occurs mostly as fine-grained (<10 µm) inclusions in pyrite or as very fine-grained gold located in arsenic-rich growth zones in pyrite. Typical ore assemblages contain 0.5% S to 1.5% S and 40 ppm As. The Kanowna Belle deposit is hosted by sedimentary volcanoclastic and conglomeratic rocks which are separated into hangingwall and footwall sequences by a major, steeply SSE dipping zone of structural disruption. This structure represents the product of at least three distinct stages of deformation, comprising the Fitzroy Mylonite, the Fitzroy Shear Zone and the Fitzroy Fault, which have produced clear structural overprinting relations. Importantly, this structure has localised emplacement of the Kanowna Belle porphyry which hosts at least 70% of known mineralisation. Localisation of high grade mineralization and most intense alteration around the composite structure emphasises its importance for acting as the major plumbing system for fluids. Formation of the Fitzroy Mylonite and Fitzroy Shear Zone are interpreted to have occurred during regional south-to-north D1 thrusting. A switch in far-field stress axes to the approximately ENE-WSW D2 orientation caused reactivation of the Fitzroy Shear Zone, resulting in sigmoidal folding of pre-existing structures and formation of a shallow lineation associated with sinistral transcurrent shearing. The Kanowna Belle porphyry cross-cuts fabrics associated with the D1 Fitzroy Mylonite and Fitzroy Shear Zone and is in turn overprinted by S2.

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: ▪ easting and northing of the drill hole collar ▪ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ▪ dip and azimuth of the hole ▪ down hole length and interception depth ▪ hole length.	Summary information is presented in the accompanying table.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Selected holes are reported
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	All reported assay results have been length weighted to provide an intersection width. A maximum of 2m of barren material between mineralised samples has been permitted in the calculation of these widths.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No assay results have been top-cut for the purpose of this report. A lower cut-off of 1gpt has been used to identify significant results, although lower results are included where a known ore zone has been intercepted and the entire intercept is low grade.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used for the reporting of these exploration results.
Relationship between mineralization widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	True widths have been calculated for intersections of the known ore zones, based on existing knowledge of the nature of these structures.
	If the geometry of the mineralization with respect to the drill hole angle is known, its nature should be reported.	Both the downhole width and true width have been clearly specified when used.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Where mineralization orientations are unknown, downhole lengths are reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Selected high grade holes have been reported to show potential. Full datasets have been previously released
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Nil.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	The down dip and hanging wall extensions of the Kanowna Belle and Velvet will be drill tested from various underground drilling platforms.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Included in the release.

Ariel – February 2019
JORC Code, 2012 Edition – Table 1 Report
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using a Reverse Circulation (RC) and HQ Diamond Drilling (DD).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. These 1m samples were immediately submitted for assay.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverized to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond core was transferred to core trays for logging and sampling. HQ Diamond core samples were nominated by the geologist from the HQ diamond core, generally being around one metre in length, but with a sample width ranging between approximately 30cm and 120cm as dictated by the geology. Sample lengths varied because drill core samples were allocated so as not to cross significant geological boundaries. Samples were taken to Kalgoorlie laboratories for preparation by drying, crushing to <3mm, and pulverizing the entire sample to <75µm. 300g Pulps splits were then dispatched to Perth laboratories for 50g Fire assay charge and AAS analysis.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Diamond core was orientated using the Reflex ACT Core orientation system. RC Drilling was completed using a 5.75" drill bit, downsized to 5.25" at depth.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Moisture content and sample recovery are recorded for each RC sample.
	Measures were taken to maximize sample recovery and ensure representative nature of the samples.	For diamond drilling, the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor. RC drilling contractors adjust their drilling approach to specific conditions to maximize sample recovery. Moisture content and sample recovery are recorded for each RC sample. No recovery issues were identified during the 2018 RC drilling. Recovery was poor at the very beginning of each hole, as is normal for this type of drilling in overburden.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No relationship has been observed between recovery and grade.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All diamond core is logged for regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are also taken through oriented zones. RC sample chips are logged in 1m intervals. For the entire length of each hole. Regolith, Primary lithology, alteration, veining and mineralisation are all recorded.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. Diamond core are photographed prior to cutting/sampling. RC chip trays are photographed at the end of the drilling program.
	The total length and percentage of the relevant intersections logged.	In all instances, the entire drill hole is logged.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All regolith diamond core is fully sampled down to a depth where the core has been deemed competent enough to be sawn. All fresh Diamond core is cut and half the core is taken for sampling. The remaining half is stored for later use.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are split using a rig-mounted cone splitter to collect a 1m sample 3-4kg in size. Moisture content of the sample is recorded and noted if wet samples are obtained.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples are submitted to laboratories for sample preparation in Kalgoorlie and analysis in Perth. Sample preparation commences with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal 6 to15mm particle size or smaller. If the sample is greater than 3kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverized to 85% to 90% passing 75µm, using a bowl pulveriser. 300g Pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets.
	Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.	Grind checks are performed at both the crushing stage (3mm) and pulverising stage (75µm), requiring 85% to 90% of material to pass through the relevant size.
	Measures were taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.	Field duplicates were taken for RC samples at a rate of 1 in 50 for 50% of the holes. For the other 50%, a 30m section was field duplicated for one RC hole. No field duplicates were sample for Diamond core.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50g Fire assay charge is used with a lead flux, dissolved in the furnace. The pill is totally digested by HCl and HNO_3 acids before Atomic absorption spectroscopy (AAS) determination for gold analysis.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples, this is random, except where high-grade mineralisation is expected. Here, a blank is inserted after the high-grade sample to test for contamination. Failures above 0.2g/t are followed up, and re-assayed. New pulps are prepared if failures remain. Field duplicates are taken for some RC samples. No Field duplicates are submitted for diamond core.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent person to be signed off.
	The use of twinned holes.	No twinned holes were drilled for this dataset.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging is directly entered into an Acquire database. Assay files are received in CSV format and loaded directly into the database by the project's responsible geologist with an Acquire importer object.
	Discuss any adjustment to assay data.	No adjustments are made to this assay data.

Criteria	JORC Code explanation	Commentary
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	A planned hole is pegged using a hand-held GPS by the geologist. The final collar is picked up after hole completion by Differential GPS in the MGA 94 Zone 51 grid. During drilling single-shot surveys are taken every 30m to ensure the hole remains close to design. This is performed using the Reflex Ez-Trac system which measures the gravitational dip and magnetic azimuth results are uploaded directly from the Reflex software export into the Acquire database. Once drilling is completed, a gyroscopic survey is taken every 5m to ensure the exact emplacement of the hole. This is performed using the Reflex Sprint-IQ tool.
	Specification of the grid system used.	Collar coordinates are recorded in MGA94 Zone 51.
	Quality and adequacy of topographic control.	The Differential GPS returns reliable elevation data with an appropriate level of precision for resource drilling.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drillhole spacing across the area is variable and dependent on the interpreted geometries of geology and mineralisation at individual prospects.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Only exploration results are being reported.
	Whether sample compositing has been applied.	No compositing has been applied to these exploration results, although composite intersections are reported.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	All drilling was oriented as close to perpendicular as practicable to the interpretation of mineralisation orientation.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound and tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No such exercise has been undertaken for the drilling at this stage.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	All drill holes mentioned in this report are located within tenement M27/181. This tenement is part of the Kalbara Joint Venture between Perilya Ltd (~23%), Cove Mining Pty Ltd (~7%) and Northern Star Resources ASX: NST (~70%). The Kalbara Joint Venture was formed on the 24th August 2012, after Barrick Australia earned a 60% interest pursuant to a Farm In Agreement. The sole JV tenement was originally held by Perilya Ltd, Cove Mining Pty Ltd and Dioro Exploration Pty Ltd. Northern Star (Kanowna) Pty Limited acquired a 60% interest from Barrick Australia with effect on 18 December 2013. Note: Dioro Exploration Pty Ltd was acquired by Northern Star Resources Limited (NST) on 1st April 2018. Northern Star (Kanowna) Pty Limited is the manager of the JV. Other JV participants are diluting. The tenement is located approximately 18km NE of Kalgoorlie WA.

Criteria	JORC Code explanation	Commentary
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.	No known impediments exist, and the tenement is in good standing
Exploration done by other parties	Acknowledgement and appraisal of exploration by other parties.	The prospect referred to in this report is target generated by NSR based on work previously undertaken by several different companies, which includes RAB/AC/RC/DD programs.
Geology	Deposit type, geological setting and style of mineralisation.	Mineralisation at Ariel is associated with an aphyric felsic body that intruded the Golden Valley Sandstone Member in proximity to the regional Panglo unconformity. The bulk of gold mineralisation present at Ariel typically occurs at or close to the footwall contact between the intrusion and the underlying bedded sandstone. Gold sits as inclusions within sulphides either disseminated within brecciated/laminated quartz-carbonate veins and within narrower quartz-sulphides veinlets, or within sulphides disseminated within the underlying bedded sandstone. Sulphides consist of very fine-grained arsenopyrite and later euhedral pyrite.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole downhole length and interception depth hole length.	All holes in this programme are tabulated in the main body of the report.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	All drill holes are reported in the body of this reported regardless of the results returned. Exclusion of the drill information will not detract from the understanding of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	All reported assay results have been length weighted to provide an intersection width. Barren material between mineralised samples has been permitted in the calculation of these widths where the resultant average composite grade of samples beyond (and not including) the core mineralised zone exceeds the cut-off grade used for intercept calculation.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No assay results have been top-cut for the purpose of this report. A lower cut-off of 1g/t has been used to identify significant results. Where the target zone does not exceed the 1g/t cut-off the intercept has been calculated across the target structure with no cut-off grade applied
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used for the reporting of these exploration results
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Downhole lengths have been reported and are not an indication of true width.
	If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g. 'downhole length, true width not known').	Downhole widths have been clearly specified when used. True widths have not been used.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in the body of this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practised to avoid misleading reporting of Exploration Results.	Both high and low grades have been reported accurately, clearly identified with the drill hole attributes and 'From' and 'To' depths.

Criteria	JORC Code explanation	Commentary
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	All material exploration data has been reported within the report body, including gold assays performed on unsampled sections of core from historical Diamond holes and core/chips samples analysed geochemical purposes.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further RC drilling has been planned to test the North and South extensions of the known mineralised structure.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Appropriate diagrams are included in the body of this report.

Xmas – Moonbeam Deposit – February 2019
JORC Code, 2012 Edition – Table 1 Report
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using Diamond Drilling (DD). RC drilling was used to drill pre-collars for many of the holes with diamond tails.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond core was transferred to core trays for logging and sampling. Half core samples were nominated by the geologist from both NQ2 and HQ diamond core with a minimum sample width of either 20cm (HQ) or 30cm (NQ2).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Samples were taken to Genalysis Kalgoorlie for preparation by drying, crushing to <3mm, and pulverising the entire sample to <75µm. 300g Pulps splits were then dispatched to Genalysis Perth for 50g fire assay charge and AAS analysis.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Diamond Drilling techniques were used at the K2 deposits. DD holes completed pre-2011 were predominantly NQ2 (50.5mm). All Resource definition holes completed post-2011 were drilled using HQ (63.5mm) diameter core. Core was orientated using the Reflex ACT Core orientation system.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Core recovery is recorded but is generally very good.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For diamond drilling, the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recovery is excellent for diamond core and no relationship between grade and recovery was observed.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All diamond core is logged to industry best standards for regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are also taken through oriented zones.

Criteria	JORC Code explanation	Commentary
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	100% of the core is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Drill core is cut, and half the core is taken for sampling. The remaining half is stored for later use.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	No non-core results reported
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation is considered appropriate.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Field duplicates were taken to industry standards at time of drilling.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Exploration sample preparation is conducted at Genalysis Kalgoorlie. This facility processed the samples which included sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples were jaw crushed to a nominal -6mm particle size. If the sample is greater than 3kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300g pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50g fire assay charge is used with a lead flux in the furnace. The prill is totally digested by HCl and HNO_3 acids before Atomic Absorption Spectroscopy (AAS) determination for gold analysis.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	CRMs are inserted into the sample sequence randomly at a rate of 1 per 20 samples to test the analysis process. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples. This is random, except where high grade mineralisation is expected. Here, a Blank is inserted after the high-grade sample to test for contamination. Failures above 0.2gpt are followed up, and re-assayed. New pulps are prepared if failures remain. No field duplicates are submitted for diamond core. Regular audits of laboratory facilities are undertaken by Northern Star personnel.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent Person to be signed off.
	The use of twinned holes.	No twinned holes were drilled for this data set.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging was captured using excel templates. Both a hardcopy and electronic copy of these are stored, as well as being loaded in to the database using automatic acquire loaders. Assay files are received in csv format and loaded directly into the database by the Database administrator (DBA). A geologist then checks that the results have inserted correctly. Hardcopy and electronic copies of these are stored.
	Discuss any adjustment to assay data.	No adjustments are made to this assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Holes were pegged using a differential GPS system. During drilling, single-shot surveys are every 30m to ensure the hole remains close to design (using different downhole surveying techniques).

Criteria	JORC Code explanation	Commentary
		Upon hole completion, all Northern Star commissioned holes were Gyroscopic surveyed, taking survey readings every 5m for improved spatial accuracy in a true north grid. Before this, final downhole surveys were conducted to industry standards.
	Specification of the grid system used.	The final collar position for surface holes is measured after hole completion by Differential GPS in the MGA 94_51 grid.
	Quality and adequacy of topographic control.	Quality topographic control has been achieved through Avista data and survey pickups of holes over the last 15 years.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing across the area varies and ranges from 40m x 40m in the upper zones to +100m x 100m.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing is considered appropriate to establish a degree of geological and/or statistical confidences for the application of Resource and Reserve classification.
	Whether sample compositing has been applied.	No compositing has been applied to these exploration results, although composite intersections are reported.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Most of the structures in the Kundana camp (including K2 and K2E) dip steeply (80°) to WSW. To target these orientations, the drill hole dips of 60-70° towards ~060° achieve high angle intersections on all structures.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound, and tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews have recently been conducted on sampling techniques.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Moonbeam Project is located on tenement M16/157 which is owned 100% by Northern Star Resources.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The first reference to the mineralisation encountered at the Kundana project was a Mines Department report produced by Dr. I. Martin (1987). He reviewed work completed in 1983 – 1984 by a company called Southern Resources who identified two geochemical anomalies, creatively named Kundana #1 and Kundana #2. The Kundana #2 prospect was subdivided into a further two prospects, dubbed K2 and K2A. Between 1987 and 1997, limited work was completed. Between 1997 and 2006 Tern Resources (subsequently Rand Mining and Tribune Resources) and Gilt-Edged mining focused on shallow open pit potential which was not considered viable.
Geology	Deposit type, geological setting and style of mineralisation.	The Kundana camp is situated within the Norseman-Wiluna Greenstone Belt in an area dominated by the Zuleika Shear Zone, which separates the Coolgardie Domain from the Ora Banda Domain. K2-style mineralisation consists of narrow vein deposits hosted by shear zones located along steeply-dipping overturned lithological contacts. The K2 structure is present along the contact between a black shale unit

Criteria	JORC Code explanation	Commentary
		(Centenary shale) and intermediate volcanoclastics (Spargoville Formation). The K2E structure is present along the contact between the Victorious Basalt and Centenary shale.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: ▪ easting and northing of the drill hole collar ▪ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ▪ dip and azimuth of the hole ▪ down hole length and interception depth ▪ hole length.	All summary data is presented in the accompanying table.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	All results for the recent Moonbeam drilling is presented. The results are not high graded.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration results are length weighted and uncut.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Exploration results are length weighted and uncut, nominally above 1g/t but practically the whole structure is reported which may include low grade.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Estimated true thickness is reported in the accompanying table
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	The Xmas and Moonbeam structure are fairly well known, and an estimated true thickness is reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Part of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Selected holes are reported to highlight potential.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other exploration results reported.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Infill definition and extensional depth drilling is planned.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Representative plans and sections accompany this report.

EKJV, Raleigh South, Pegasus Pode, Sir Walter – February 2019
JORC Code, 2012 Edition – Table 1 Report
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using underground diamond drilling. Diamond core was transferred to core trays for logging and sampling. Whole core samples were nominated by the geologist and based upon geological and ore-zone boundaries, with the remaining sampled on metre intervals.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond core was transferred to core trays for logging and sampling. Half core samples were nominated by the geologist from NQ2 diamond core with a minimum sample width of 30cm. Occasionally whole core sampling is employed where core recovered is overly fractured or for grade control purposes.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	DD drill core was cut in half using an automated core saw the mass of material collected will depend on the hole size and sampling interval. Core samples were nominated by the geologist from the diamond core, generally being around one metre in length, but with sample widths ranging between approximately 20cm and 100cm as dictated by the geology. Sample lengths varied because drill core samples were allocated so as not to cross significant geological boundaries.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Underground drilling utilised NQ2 (50.5mm) diameter core.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For diamond drilling the contractors adjust their rate of drilling and method if recovery issues arise.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recovery was excellent for diamond core and no relationship between grade and recovery was observed.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All diamond core is logged for regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are also taken through oriented zones.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Diamond core is cut using an automated core saw. In most cases, half the core is taken for sampling with the remaining half being stored for later reference. Whole core sampling was only utilised in areas where the Geology is well understood and there is less requirement to retain core for future reference.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Not relevant, drill core results only being released
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling types used are considered appropriate for the deposits.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size. Duplicates, pulp duplicates and crush duplicates are also performed.

Criteria	JORC Code explanation	Commentary
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Sample preparation was conducted at Bureau Veritas Kalgoorlie. The sample preparation process commencing with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal -6mm particle size. If the sample is greater than 3kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300g pulp subsamples are then taken with an aluminium or plastic scoop and stored in labelled pulp packets.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 40g Fire assay charge is used with a lead flux, dissolved in the furnace. The prill is totally digested by HCl and HNO3 acids before Atomic absorption spectroscopy (AAS) determination for gold analysis.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. blanks are inserted into the sample sequence at a rate of 1 per 20 samples. The insertion points are selected at random, except where high grade mineralisation is expected. In these cases, a blank is inserted after the high-grade sample to test for contamination. Results greater than 0.2gpt is received are investigated, and re-assayed if appropriate. New pulps are prepared if anomalous results cannot be resolved. Field Duplicates are taken for all RC samples (1 in 20 sample). No Field duplicates are submitted for diamond core. Umpire sampling programs are undertaken on an ad-hoc basis.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent person to be signed off.
	The use of twinned holes.	No Twinned holes were drilled for this data set.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging is directly entered into an Acquire database. Assay files are received in csv format and loaded directly into the database by the project's responsible geologist with an Acquire importer object. Hardcopy and electronic copies of these are stored.
	Discuss any adjustment to assay data.	No adjustments are made to this assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Underground diamond hole positions are marked before drilling by mine survey staff and the actual hole collar position located by mine survey staff once drilling is completed. During drilling, single-shot surveys are every 30m to ensure the hole remains close to design. This is performed using the Reflex Ez-Trac system. Upon hole completion, a Gyroscopic survey is conducted by a third-party surveying contractor, taking readings every 5m for improved accuracy. Direction measurements are collected relative to true north. For UG holes multi-shot surveys are taken every 9m when retreating out of the hole.
	Specification of the grid system used.	Data is collected using both local mine grid (Kundana 10) and MGA 94 Zone 51 as appropriate.
	Quality and adequacy of topographic control.	Quality topographic control has been achieved through Lidar data and survey pickups of holes over the last 15 years.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing varies. Grade control drilling spacing is typically 20m x 20m to provide definition of economic ore shoots. Resource definition drilling spacing is typically 40m x 40m. This allows the Resource to be upgraded to indicated. Inferred Resources typically have a spacing of 80m x 80m. Some exploration holes are spaced up to 200m apart.

Criteria	JORC Code explanation	Commentary
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing and distribution is considered sufficient to support the Resource and Reserve estimates.
	Whether sample compositing has been applied.	Sample data is composited before grade estimation is undertaken. Average intersection grades are reported in ASX and corporate announcements.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Most of the structures in the Kundana camp dip steeply (80°) to WSW. The Pode structure has a much shallower dip in a similar direction, approximately 60°. To target these orientations the drill hole dips of 60-70° towards ~060° achieve high angle intersections on all structures. Drill holes with low intersection angles will be excluded from Resource estimation where more suitable data is available.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound and tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews have recently been conducted on sampling techniques.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	All holes mentioned in this report are located within the M16/309 and M16/326 Mining leases and are held by The East Kundana Joint Venture (EKJV). The EKJV is majority owned and managed by Northern Star Resources Limited (51%). The minority holding in the EKJV is held by Tribune Resources Ltd (36.75%) and Rand Mining Ltd (12.25%). The tenement on which the Rubicon, Hornet and Pegasus deposits are hosted (M16/309) is subject to three royalty agreements. The agreements that are on M16/309 are the Kundana- Hornet Central Royalty, the Lake Grace Royalty and the Kundana Pope John Agreement No. 2602-13. The southern portion of Raleigh is located on M15/993, which is held by the East Kundana joint venture entities. The northern extent of Raleigh is located on M16/157 which is 100% owned by Northern Star Resources.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist, and the tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The first reference to the mineralisation style encountered at the Kundana project was the mines department report on the area produced by Dr. I. Martin (1987). He reviewed work completed in 1983 – 1984 by a company called Southern Resources, who identified two geochemical anomalies, creatively named Kundana #1 and Kundana #2. The Kundana #2 prospect was subdivided into a further two prospects, dubbed K2 and K2A. Between 1987 and 1997, limited work was completed. Between 1997 and 2006 Tern Resources (subsequently Rand Mining and Tribune Resources), and Gilt-edged mining focused on shallow open pit potential which was not considered viable for Pegasus, however the Rubicon open Pit was considered economic and production commenced in 2002. In 2011, Pegasus was highlighted by an operational review team and follow-up drilling was planned through 2012. This report is concerned solely with 2014 drilling that led on from this period.
Geology	Deposit type, geological setting and style of mineralisation.	The Kundana camp is situated within the Norseman-Wiluna Greenstone Belt, in an area dominated by the Zuleika shear zone, which separates the Coolgardie domain from the Ora Banda domain.

Criteria	JORC Code explanation	Commentary
		K2-style mineralisation (Pegasus, Rubicon, Hornet) consists of narrow vein deposits hosted by shear zones located along steeply-dipping overturned lithological contacts. The K2 structure is present along the contact between a black shale unit (Centenary shale) and intermediate volcaniclastics (Spargoville formation). Minor mineralisation, termed K2B, also occurs further west, on the contact between the Victorious basalt and Bent Tree Basalt (both part of the regional upper Basalt Sequence). As well as additional mineralisation including the K2E and K2A veins, Polaris/Rubicon Breccia (Silicified and mineralised Shale) and several other HW lodes adjacent to the main K2 structure. A 60° W dipping fault, offsets this contact and exists as a zone of vein-filled brecciated material hosting the Pode-style mineralisation at Pegasus and the Nugget lode at Rubicon. Ambition is interpreted similar in style to the north of Pegasus
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Selected drill holes are listed in the appendix
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	All reported assay results have been length weighted to provide an intersection width. A maximum of 2m of barren material between mineralised samples has been permitted in the calculation of these widths. Typically grades over 1.0gpt are considered significant, however, where low grades are intersected in areas of known mineralisation these will be reported. No top-cutting is applied when reporting intersection results.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Where an intersection incorporates short lengths of high grade results these intersections will be reported in addition to the aggregate value. These will typically take the form of ##.#m @ ##.##gpt including ##.#m @ ##.##gpt.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used for the reporting of these exploration results.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	True widths have been estimated for intersections of the known ore zones, based on existing knowledge of the nature of these structures.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The target structure is very planar and its orientation well constrained, allowing very reliable calculations of true widths. True widths have been calculated for all reported intersections.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Both the downhole width and true width have been clearly specified when used.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in the body of this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Both high and low grades have been reported accurately, clearly identified with the drill hole attributes and 'From' and 'To' depths.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk	No other recent material data has been collected.

Criteria	JORC Code explanation	Commentary
	density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Additional drilling is planned with the intention of extending known mineralisation laterally and at depth. Drilling will also be undertaken to improve confidence in previously identified mineralisation and to assist in the location of high grade shoots.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Appropriate diagrams accompany this release.

South Kalgoorlie Operations: February 2019
JORC Code, 2012 Edition – Table 1 Report
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Samples have been collected from RC drilling face-sampling hammer, and surface/underground diamond drilling.
	Include reference to measures taken to ensure sample retrospectivity and the appropriate calibration of any measurement tools or systems used.	Diamond drill-core is geologically logged and then sampled according to geology (minimum sample length of 0.4 m to maximum sample length of 1.5 m) – where consistent geology is sampled, a 1m length is used for sampling the core. The core is sawn half-core with one half sent off for analysis.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	RC Drilling: Sampling from a standard 5½" RC, three tier riffle splitter (approximately 5kg sample), split to a 12.5% fraction (approximately 3kg) or to a 12% fraction via a rig-mounted cone splitter. All residual material is retained on the ground in rows of 10 or 20 samples. Four-meter composites are obtained via representative scoop / spear sampling of the one-meter residual piles, until required for re-split analysis (samples returning Au >0.2ppm) or eventual disposal. Historical RC drilling is assumed to employ similar practices. An assumed 90% chip recovery (losses to fines) from RC drilling.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Diamond drilling is used for either testing / targeting deeper mineralised systems or to define the orientation of the host geology. Most of these holes have been drilled at NQ2 size with minor HQ sized core. All diamond holes were surveyed during drilling with downhole cameras, and then at end of hole using a Gyro Inclinometer at 5 or 10 m intervals. Drill hole collars were surveyed by onsite mine surveyors. RC drilling is used predominantly for defining and testing for near-surface mineralisation and utilises a face sampling hammer with the sample being collected on the inside of the drill-tube. RC drill holes utilise downhole single or multi shot cameras. Drill hole collars were surveyed by onsite mine surveyors.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC drilling contractors adjust their drilling approach to specific conditions to maximize sample recovery. Moisture content and sample recovery is recorded for each RC sample. No recovery issues were identified during RC drilling programs. Recovery was poor at the very beginning of each hole, as is normal for this type of drilling in overburden.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Representation is assured through qualified geologists identifying intervals for sampling which are related directly to observed geology.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No defined relationship exists between sample recovery and grade. Nor has sample bias due to preferential loss or gain of fine or coarse material been noted.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Northern Star surface diamond drill-holes are all orientated and have been logged in detail for geology, veining, alteration, mineralisation and orientated structure. Northern Star underground drill-holes are logged in detail for

Criteria	JORC Code explanation	Commentary
		geology, veining, alteration, mineralisation and structure. Core has been logged in enough detail to allow for the relevant mineral resource estimation techniques to be employed. Surface core is photographed both wet and dry and underground core is photographed wet. All photos are stored on the companies' servers, with the photographs from each hole contained within separate folders. RC chips are geologically logged. All holes are logged completely.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	Chip samples have been logged by qualified geologists to a level of detail to support a Mineral Resource estimate.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	NQ2 and HQ diameter core is sawn half core using a diamond-blade saw, with one half of the core consistently taken for analysis. Smaller sized core (LTK48 and BQ) are whole core sampled. The un-sampled half of diamond core is retained for check sampling if required. SKO staff collect the sample in pre-numbered calico sample bags which are then submitted to the laboratory for analysis. Delivery of the sample is by a SKO staff member.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC samples are collected at 1m intervals with the samples being riffle split through a three-tier splitter. The samples are collected by the RC drill crews in pre-numbered calico sample bags which are then collected by SKO staff for submission. Delivery of the sample to the laboratory is by a SKO staff member.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Upon delivery to the laboratory, the sample numbers are checked against the sample submission sheet. Sample numbers are recorded and tracked by the laboratory using electronic coding. Sample preparation techniques are considered appropriate for the style of mineralisation being tested for – this technique is industry standard across the Eastern Goldfields.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Procedures are available to guide the selection of sample material in the field. Standard procedures are used for all process within the laboratory.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates are taken for diamond drill core samples at a rate of 1 in 30.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the material being sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	Only nationally accredited laboratories are used for the analysis of the samples collected at SKO. The laboratory oven dries, and if necessary (if the sample is >3kg) riffle split the sample, which is then jaw crushed and pulverised (the entire 3kg sample) in a ring mill to a nominal 90% passing 75 microns. All recent RC and Diamond core samples are analysed via Fire Assay, which involves a 30g charge (sub-sampled after the pulverisation) of the analytical pulp being fused at 1050°C for 45 minutes with litharge. The resultant metal prill is digested in Aqua regia and the gold content determined by atomic adsorption spectrometry – detection limit is 0.01 ppm Au.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Quality Assurance and Quality Control (QA/QC) samples are routinely submitted by SKO staff and comprise standards, blanks, assay pills, field duplicates, lab duplicates and repeat analyses. The results for these QA/QC samples are routinely analysed by Senior Geologists with any discrepancies dealt with in conjunction with the laboratory prior to the analytical data being imported into the database. There is limited information available on historic QA/QC procedures. SKO has generally accepted the available data at face value and carry out data validation procedures as each deposit is re-evaluated. The analytical techniques used are considered appropriate for the style of mineralisation being tested for – this technique is industry standard across the Eastern Goldfields.

Criteria	JORC Code explanation	Commentary
		Ongoing production data generally confirms the validity of prior sampling and assaying of the mined deposits to within acceptable limits of accuracy.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are validated by senior geologists.
	The use of twinned holes.	Virtual twinned holes have been drilled in several instances across all sites with no significant issues highlighted. Drill hole data is also routinely confirmed by development assay data in the operating environment.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collected utilising LogChief. The information is imported into a SQL database server and verified.
	Discuss any adjustment to assay data.	All data is compiled in databases (underground and open pit) which are overseen and validated by senior geologists. No adjustments have been made to any assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Collar coordinates for surface RC and diamond drill-holes were generally determined by either RTK-GPS or a total station survey instrument. Underground drill-hole locations (Mount Marion and HBJ) were all surveyed using a Leica reflectorless total station. Recent surface diamond holes were surveyed during drilling with down-hole single shot cameras and then at the end of the hole by Gyro-Inclinometer at 5 or 10mm intervals. Holes not gyro-surveyed were surveyed using Eastman single shot cameras at 20m intervals. RC drill-holes utilised down-hole single shot camera surveys spaced every 15 to 30m down- hole. Down-hole surveys for underground diamond drill-holes were taken at 15 – 30m intervals by Reflex single-shot cameras.
	Specification of the grid system used.	MGA grid is used for HBJ and the regional exploration results.
	Quality and adequacy of topographic control.	Topographic control is generated from RTK GPS.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill spacing ranges from 10m x 5m grade control drilling to 100m x 100m at deeper levels of the resource.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	No resources or reserves are reported in the release.
	Whether sample compositing has been applied.	Composting is not applied to these results.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Drilling intersections are nominally designed to be as perpendicular to the orebody as far as underground infrastructure constraints / topography allows.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	It is not considered that drilling orientation has introduced an appreciable sampling bias.
Sample security	The measures taken to ensure sample security.	For samples assayed at the on-site laboratory facilities, samples are delivered to the facility by Company staff. Upon delivery the responsibility for sample security and storage falls to the independent third-party operators of these facilities. For samples assayed off-site, samples are delivered to a third-party transport service, who in turn relay them to the independent laboratory contractor. Samples are stored securely until they leave site.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Site generated exploration results are routinely reviewed by the Northern Star Corporate technical team.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	State Royalty of 2.5% of revenue applies to all tenements, although does not apply to the 16 freehold titles (which host the majority of SKO's Resource inventory). There are several minor agreements attached to a select number of tenements and locations with many of these royalty agreements associated with tenements with no current Resources and/or Reserves. Private royalty agreements are in place that relate to production from HBJ open-pit at $10/ oz. In addition, a royalty is payable in the form of 1.75% of the total gold ounces produced from the following resources: Shirl Underground, Golden Hope, Bellevue, HBJ Open-pit, Mount Martin open-pit, Mount Martin Stockpiles and any reclaimed tailings. The South Kalgoorlie Operations consists of 35 Mining Leases and 19 Exploration and Prospecting Licences. The Project also includes 9 Miscellaneous Licences, 2 groundwater Licences and 16 Freehold Lots known as the Hampton "Exempted East Locations". The Area of the leases covers approximately 35,638 Hectares with a further 71,861 Hectares of Freehold Land.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	All leases and licences to operate are granted and in the order of 2 and 21 years. There are no known impediments to continued operation.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The HBJ 'line of lode' is a 6 km zone of mineralisation that extends from Golden Hope in the south to Celebration in the north. The existing HBJ pit was mined for over 25 years producing approximately 1.6 Moz Au and was owned by separate companies across the Location 48 and Location 50 tenement boundary. Gold was first discovered in the New Celebration area in 1919 and a short-lived gold rush ensued. Intermittent exploration for gold and nickel was undertaken by a variety of companies in the 1960s and 1970s. The rising gold price further rekindled interest in the area in the 1980s, and open-pit mining at New Celebration started in 1986 by a joint venture comprising Newmont Holdings Limited (subsequently Newcrest; 60%), Hampton Areas Australia Ltd., (25%) and Mt Martin Gold Mines (15%), which merged with Titan Resources in 1993. The New Celebration project includes the Hampton Boulder deposit. In June 2001 Hill 50 Gold agreed to purchase the New Celebration project from Newcrest Mining. In December 2001 Harmony Gold Mining acquired Hill 50 Gold, the transaction giving Harmony Gold Mining a 100% interest in the New Celebration project. The Jubilee deposit located south of the Hampton Boulder deposit was evaluated and mined by Hampton Areas Australia Ltd from 1984 to 1996 with open pit mining starting in 1987. New Hampton Goldfields (New Hampton) acquired the Jubilee deposit in 1996. In May 2001, Harmony Gold Mining acquired New Hampton, and combined the operations of New Hampton's Jubilee operations and associated small open pits with the New Celebration project into the South Kalgoorlie Operations (SKO). In 2007, Dioro Exploration NL (Dioro) acquired the SKO from Harmony Gold (Australia) Pty Ltd (Harmony) via its wholly-owned subsidiaries, South Kal Mines Pty Ltd, New Hampton Goldfields Ltd and Aurora Gold (WA) Pty Ltd. The tenement package at SKO was then purchased by Avoca Resources in April 2010, which was subsequently acquired by Alacer Gold Corp. Pty Ltd in early 2011. Westgold Resources Limited acquired the SKO tenement holdings in October 2013 via the acquisition of Alacer Gold's Australian assets. In April 2018 Northern Star Resources acquired the SKO tenement holdings with the purchase of HBJ Minerals Pty Ltd from Westgold.
Geology	Deposit type, geological setting and style of mineralisation.	Stratigraphy for the Ora Banda and Kalgoorlie Domains is relatively well-known and comprise (from stratigraphically lowest) a lower basalt unit, komatiitic to high-magnesian basaltic rocks, an upper basalt unit and overlying felsic volcanic-sedimentary units. Conglomeratic and sandstone units unconformably overlie the upper felsic units adjacent to major shear zones. Layered mafic sills occur within various stratigraphic units and cross-cutting Proterozoic dykes also occur throughout the region. Metamorphic grade ranges from upper greenschist to upper amphibolite facies. The deformation history of the area is generally divided into four main phases, comprising north-directed thrusting with recumbent folding and stratigraphic repetition in D1. The second deformation (D2) resulted in north-northwest trending folds which are reflected in the dominant north-northwest trending fabric of the greenstone belts. Shortening continued during D3 with strike slip movement along northwest to north northwest trending shear zones and D4 brittle faulting.

Criteria	JORC Code explanation	Commentary
		The HBJ orebodies form part of a gold mineralised system along the Boulder-Lefroy shear zone that is over 4 km long and includes the Celebration, Mutooroo, HBJ and Golden Hope open pit and underground mines. The HBJ orebodies are hosted within a steeply-dipping, north-northwest-striking package of mafic, ultramafic and sedimentary rocks and schists that have been intruded by felsic to intermediate porphyries. The area is extensively deformed with numerous north-striking shear zones and dilation of the porphyry intrusions. The main host rock for the Jubilee deposit is the Jubilee Dolerite.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Selected data is presented in the accompanying tables.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	The SKO exploration holes are reconnaissance in nature, only selected high grades are reported to show potential
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Reported exploration results are uncut.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Short intervals are length weighted to create the final intersections.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Due to complex mineralisation geometry and varying intercept angles the true thickness is manually estimated on a hole by hole basis.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Downhole length in addition to estimated true width is shown in the report tables if intersection structure is known. The drill hole intercept true thickness is notes as "Unknown" otherwise.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Selected diagrams form part of this release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All holes for selected periods or areas are presented, including NSI (no significant intersection) Results are not high graded.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	There is no other substantive exploration data associated with this release.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Ongoing surface and underground exploration activities will be undertaken to support continuing mining activities at Northern Star Gold Operations.

Criteria	JORC Code explanation	Commentary
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Diagrams in the release.

Carbine – February 2019
JORC Code, 2012 Edition – Table 1 Report
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Sampling was completed using Diamond (DD)core and reverse circulation (RC). Diamond core was transferred to core trays for logging and sampling. Half core or full core samples were nominated by the geologist from HQ or NQ diamond core, with a minimum sample width of 30 cm and a maximum width of 100 cm. RC samples were split using a rig-mounted cone splitter on one metre intervals to obtain a sample for assay. These one metre samples were immediately submitted for assay. Samples were transported to various laboratories for analysis in Kalgoorlie for preparation by drying, crushing to <3 mm, and pulverizing the entire sample to <75 µm. 300 g Pulp splits were analysed in laboratories in both Kalgoorlie and Perth for 40 – 50 g Fire assay charge and AAS analysis for gold. Multi-element samples were selected throughout every drill-hole to cover lithological contacts and areas of gold anomalism.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Diamond drilling was used from surface. HQ (63.5 mm) diameter core was used where practical for surface diamond holes. Core was orientated using an electronic 'back-end tool' core orientation system. RC Drilling was completed using a 5.25" drill bit.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	For diamond drilling the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor. Recovery was excellent for diamond core and no relationship between grade and recovery was observed. RC drilling contractors adjust their drilling approach to specific conditions to maximize sample recovery. Moisture content and sample recovery is recorded for each sample. Recovery was often poor for the first four metres of each hole, as is normal for this type of drilling in overburden. For RC drilling no relationship has been observed between recovery and grade.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. The total length and percentage of the relevant intersections logged.	All diamond core is logged for regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are taken through oriented zones. All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray. All RC sample chips are logged in one metre intervals for regolith and veining, and for lithology, mineralisation, and alteration where visible. A photograph is taken of the collected chip trays of each hole. All data for diamond and RC was recorded digitally. Magnetic susceptibility measurements were taken on diamond core on the metre through fresh rock.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All diamond core that was half-core sampled was cut longitudinally with an automated core saw.

Criteria	JORC Code explanation	Commentary
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. Measures taken to ensure that the sampling is representative of the in- situ material collected, including for instance results for field duplicate/second-half sampling. Whether sample sizes are appropriate to the grain size of the material being sampled.	All RC samples are split using a rig-mounted cone splitter to collect a one metre sample 3-4 kg in size. Moisture content of the sample is recorded and noted if wet samples are obtained. Sample sizes for RC are considered appropriate for the mineralisation style targeted. Field duplicates were taken for RC samples at a rate of 1 in 50. RC duplicates are taken as a second one metre direct from the cyclone splitter mounted on the rig. Sample preparation was conducted at various laboratories in Kalgoorlie, commencing with sorting, checking and drying at less than 110°C. Samples are jaw crushed to a nominal -6 mm particle size. The entire crushed sample is then pulverized to 90% passing 75 µm, using a bowl pulveriser. 300 g pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets. Grind checks are performed at both the crushing stage (3 mm) and pulverising stage (75 µm), requiring 85-90% or more of material to pass through the relevant size to ensure consistent sample preparation. Screen Fire Assay (SFA) analysis was completed on selected samples where coarse visible gold was observed in the core.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	A 40-50 g fire assay charge is used with a lead flux, dissolved in the furnace. The prill is totally digested in HCl and HNO_3 acids before Atomic Absorption Spectroscopy (AAS) determination for gold analysis. This method ensures total gold is reported appropriately. Screen Fire Assay (SFA) analysis using a 75-micron screen separates a sample into oversize and undersize which are then both fire assayed, with a total gold content calculated from these results. This method is equivalent to assaying an entire sample to extinction and ensures total gold is reported appropriately. No geophysical tools were used to determine any element concentrations Certified Reference Materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 composite samples to ensure correct calibration. Any values outside of 3 standard deviations are scrutinised and re-assayed with a new CRM if the failure is deemed genuine. Blanks are inserted into the sample sequence at a rate of 1 per 20 composite samples. Failures above 0.2 g/t are scrutinised, and re-assayed if required. New pulps are prepared if failures remain. All sample QAQC results are assessed by geologists to ensure the appropriate level of accuracy and precision when the results have been returned from the laboratory. Elements other than gold are assayed with a four acid digest (near total digest for most elements) and assayed by inductively coupled plasma mass spectrometry (ICP-MS).
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data.	All significant intersections are verified by the project geologist and senior geologist during the drill hole validation process. No holes were twinned as part of the programmes in this report. Geological logging was captured using Acquire database software. An electronic copy is stored. Assay files are received in csv format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Hardcopy and electronic copies of these are also kept. No adjustments are made to this assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control.	A planned hole is pegged using a GPS by the field assistants, RC holes and a differential GPS (surface) or theodolite (UG) for diamond holes. RC and diamond drill-holes are surveyed at regular drilling intervals and in entirety at end-of-hole using a gyroscopic survey tool supplied by one of two downhole survey service providers. The surveys are undertaken by the drill crew with the service provider providing technical advice and data management. The final hole collar for each diamond hole is picked up after drill-hole completion by DGPS in the MGA 94_51 grid. Good quality topographic control has been achieved through regional topographic maps (±2.5 m) based on photogrammetry data.
Data spacing and distribution	Data spacing for reporting of Exploration Results. Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied.	Early stage diamond and RC drilling is variably spaced to effectively test the desired target. Spacings of the regional drilling programmes range from 80 m apart through to several hundred metres apart through to isolated single drillholes in some cases. These variable spacings are considered appropriate for early-stage testing of exploration targets. No compositing has been applied to these exploration results, although composite intersections are reported.

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	All drilling is oriented as close as practical to perpendicular to the target structures. No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound and tracked through their chain of custody via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews have recently been conducted on sampling techniques, however lab audits are conducted on a regular basis.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	All diamond and RC holes mentioned in this report are located within the M16/548 Mining leases held by Northern Star Resources Ltd. An area north and east area of Carbine hosts the 'Gentsch Royalty Area' which is subject to the Gentsch royalty agreement; which includes 25% of any profits made on this area up to $80,000.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Carbine area contains many historic shafts and open pits dating back to 1897. Exploration work by BHP, Freeport, Newcrest, Centaur Mining, Goldfields Limited and Barrick defined the Carbine prospects through RAB, AC, RC and diamond drill-holes. Targets at Comic Court, Hi-Jinx, and Rainbird were generated by historic RAB and sporadic RC drilling by BHP and Centaur Mining along and adjacent to the Carbine Thrust. BHP commenced open pit mining at Phantom after successful results from costeaning between 1986-1988. Follow up RAB drilling was completed by Newcrest between 1988-1996 but not further mining at Phantom was completed. The Carbine deposit was first mined for gold in 1899 by Prospectors sinking shafts down to 150 m. The first modern exploration was completed by BHP, with first pass RAB drilling completed in 1982. The Carbine open pit commenced in 1984 through to 1988. Since then several operators (Centaur Mining, Newcrest, and Barrick) have explored and expanded the resource at Carbine. The exploration at Carbine has primarily focused on mineralisation along the Carbine Thrust with little exploration completed in the hanging wall stratigraphy.
Geology	Deposit type, geological setting and style of mineralisation.	The Carbine area is situated within the Norseman-Wiluna Greenstone Belt, in an area dominated by the Zuleika Shear Zone, which separates the Coolgardie domain from the Ora Banda domain. The mineralisation in the Carbine area is controlled by the Carbine thrust, a mineralised structure that splays off the Zuleika Shear Zone. Recent exploration has identified a second mineralised thrust (Ol'Rowley) parallel to the Carbine Thrust. The Carbine Thrust is a sheared unconformity between the Hampton Ultramafic and the Black Flag Group Sediments. Mineralisation is hosted within quartz-carbonate-arsenopyrite veins that occur along the Carbine Thrust and in the hanging wall.

Criteria	JORC Code Explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Refer to the various tables in the body of this report. Exploration results that are not material to this report are excluded for some drill programmes, however the drill physicals are all detailed for all drilling regardless of the outcome.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated.	Diamond drill and RC results are reported as aggregates across the target zone.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Both the down hole width and true width have been clearly specified when used. Results for regional drilling are reported as down hole width. Location and orientation of structures/mineralisation is not known; therefore the true width of intercepts is not known.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Refer to the figures the body of this report for the spatial context of all holes planned and drilled to date.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Exploration results that are not material to this report are excluded for some drill programmes, however the drill physicals are all detailed for all drilling regardless of the outcome.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other material exploration data has been collected for this drill program.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Further planned work is outlined in the body of this report.