



**GALENA**  
MINING LIMITED

2019  
DIGGERS & DEALERS  
MINING FORUM  
5 - 7 AUGUST 2019



**PRESENTER**

**INVESTOR PRESENTATION**

August 2019

## Cautionary statement – Reference to FS

This report refers to the Abra Base Metals Project (“Abra” or the “Project”) Feasibility Study (“FS”). A summary of the FS and material assumptions was published by Galena Mining Ltd (“Galena”) on 22 July 2019 (see ASX announcements platform).

Environmental approvals, mining tenements and approvals, other governmental factors and infrastructure requirements for selected mining methods and for transportation to market were not included as modifying factors for the Ore Reserve estimate contained in this report as they were all analysed in detail and determined not to pose any practical or economic restriction to the selected mining and processing model. Furthermore, all other material assumptions (eg, with respect to financial assumptions, metallurgy, mineralogy and geotechnical etc.) that were made in the previously announced FS have not materially changed, continue to apply and continue to underpin the December 2018 Reserve. For further information, please see Galena’s ASX announcement of 18 December 2018 (revised mine model, December 2018 Resource and December 2018 Reserve).

Process and engineering designs for Abra’s FS were developed to support capital and operating estimates to an accuracy of  $\pm 10\%$ . Key assumptions that the FS was based on (including those defined as Material Assumptions under ASX Listing Rule 5.9.1) are outlined in the ASX announcement of 22 July 2019 and its Appendix 1. Galena believes the production target, forecast financial information derived from that target and other forward-looking statements included in that announcement and this presentation are based on reasonable grounds.

A number of key steps need to be completed in order to bring Abra into production. Many of these steps are referred to in this announcement. Investors should note that if there are delays associated with completion of those steps, outcomes may not yield the expected results (including the timing and quantum of estimated revenues and cash flows).

The economic outcomes associated with the FS are based on certain assumptions made for commodity prices, concentrate treatment and recovery charges, exchange rates and other economic variables, which are not within the Company’s control and subject to change from time to time. Changes in such assumptions may have a material impact on the economic outcomes (including the timing and quantum of estimated revenues and cash flows).

To develop the Project as per the assumptions set out in the FS will require additional capital. Investors should note that any failure to procure the required additional capital may result in a delay, change in nature and scale, or even suspension of the Project.

## Cautionary statement – FS Mine Model

The mineralised material scheduled to be mined and processed in the FS (“FS Mine Model”) includes a mix of material taken from Probable Ore Reserves (67%) and Inferred Mineral Resources (33%), with no reduction factor applied to the tonnes and grades of the Inferred Mineral Resources. Inferred Mineral Resources have a lower level of geological confidence and can’t be included in the calculation of Ore Reserves, and there can be no guarantee that a Mineral Resource estimate update will convert Inferred Mineral Resources to Indicated Mineral Resources or return the same grade and tonnage distribution. This may affect mining studies and outcomes (including economic) from the FS. The Abra Ore Reserve will be reviewed in conjunction with an upcoming update of the Mineral Resource estimate following completion of the ongoing 2019 project development drilling program.

At the time of publication of the FS, Galena had completed approximately 80% and received assays for approximately 40% of the ongoing 2019 project development drilling program. A key objective of the program is specifically targeting the material that is expected to be mined in the first 3-years of production. The results to date provide confidence and validation to the Company in regard to the assumptions and geological models which underpin Mineral Resource estimates as well as the target for conversion of certain mineralised material currently in the Inferred Mineral Resource category to the Indicated or better category (see Galena ASX releases of 5 June 2019 and 19 July 2019). Based on the status of geological information, Galena believes it has a strong basis for inclusion of certain Inferred Mineral Resource material in the FS Mine Model (defined below) at this time and whilst remaining within feasibility study level tolerances. To further test its basis, Galena ran the FS financial model on a check scenario assuming a zero grade for any Inferred Mineral Resource material in the FS Mine Model and that produced a substantial positive NPV outcome.



# DISCLAIMER

## Competent Person's statement

The information in this report related to the Abra Ore Reserve estimate is based on work completed by Mr Roger Bryant, BEng (Mining, Member AUSIMM). Mr Bryant is an employee of Galena Mining Ltd. Mr Bryant has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Exploration Targets, Mineral Resources and Ore Reserves. Mr Bryant consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report related to the December 2018 Resource estimate is based on work completed by Mr Don Maclean MSc (Geol), MAIG and RP Geo (Exploration and Mining), MSEG, a consultant to Galena Mining and Mr Mark Drabble B.App.Sci. (Geology), MAIG, MAusIMM, Principal Consultant at Optiro Pty Ltd. Mr Maclean was responsible for data review, QAQC, and development of the geological model. Mr Drabble was responsible for resource estimation, classification and reporting. Mr Maclean and Mr Drabble have sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Exploration Targets, Mineral Resources and Ore Reserves. Mr Maclean and Mr Drabble consent to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report to which this statement is attached that relates to exploration results and drilling data is based upon information compiled by Mr Don Maclean MSc (Geol), MAIG and RP Geo (Exploration and Mining), MSEG, a consultant to Galena Mining. Mr Maclean has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Exploration Targets, Mineral Resources and Ore Reserves. Mr Maclean consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.



# DISCLAIMER

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Some statements in this presentation regarding estimates or future events are forward-looking statements. They include indications of, and guidance on, future earnings, cash flow, costs and financial performance. Forward-looking statements include, but are not limited to, statements preceded by words such as “planned”, “expected”, “projected”, “estimated”, “may”, “Scheduled”, “intends”, “anticipates”, “believes”, “potential”, “predict”, “foresee”, “proposed”, “aim”, “target”, “opportunity”, “could”, “nominal”, “conceptual” and similar expressions.

Forward-looking statements, opinions and estimates included in this presentation are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward-looking statements are provided as a general guide only and should not be relied on as guarantee of future performance. Forward-looking statement may be affected by a range of variables that could cause actual results to differ from estimated results and may cause the Company's actual performance and financial results in future periods to materially differ from any projections of future performance or results expressed or implied by such forward-looking statements. So there can be no assurance that actual outcomes will not materially differ from these forward-looking statements.

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# INVESTMENT PROPOSITION

<p><b>High-grade Abra Base Metals Project in tier one jurisdiction</b></p> <p><b>37.4Mt Resource<sup>1</sup></b> 7.5% lead and 18g/t silver</p>	<p><b>“In demand” product</b></p> <p><b>Highest grade lead concentrate available globally</b></p>	<p><b>Outstanding feasibility study outcomes<sup>2</sup></b></p> <p><b>16-year mine life</b> 1.2mtpa throughput for total of 16.3Mt</p>	<p><b>On-track for formal construction commencement in 2019</b></p> <p><b>All major permits received</b></p>
<p><b>10.3Mt Reserve<sup>1</sup></b> 8.8% lead and 24g/t silver</p> <p><b>Granted Mining Lease</b> Gascoyne region, Western Australia</p>	<p><b>9 indications of interest for offtake</b></p> <p><b>Potential for premium pricing</b></p>	<p><b>A\$553M NPV</b> Pre-tax at 8%</p> <p><b>Average annual EBITDA A\$114M during steady-state production</b> Years 3-15</p>	<p><b>A\$90M project equity injection via Toho JV investment</b></p> <p><b>Lead market in deficit with inventory close to record lows</b></p>
<p><b>Port / infrastructure capacity confirmed</b></p>	<p><b>Lead market in deficit with inventory close to record lows</b></p>	<p><b>39% IRR</b> Pre-tax</p>	<p><b>Initial development activities underway</b></p>

Notes: 1. See Galena ASX announcement of 18 December 2018. 2. Based on the July 2019 FS (see Galena ASX announcement of 22 July 2019).



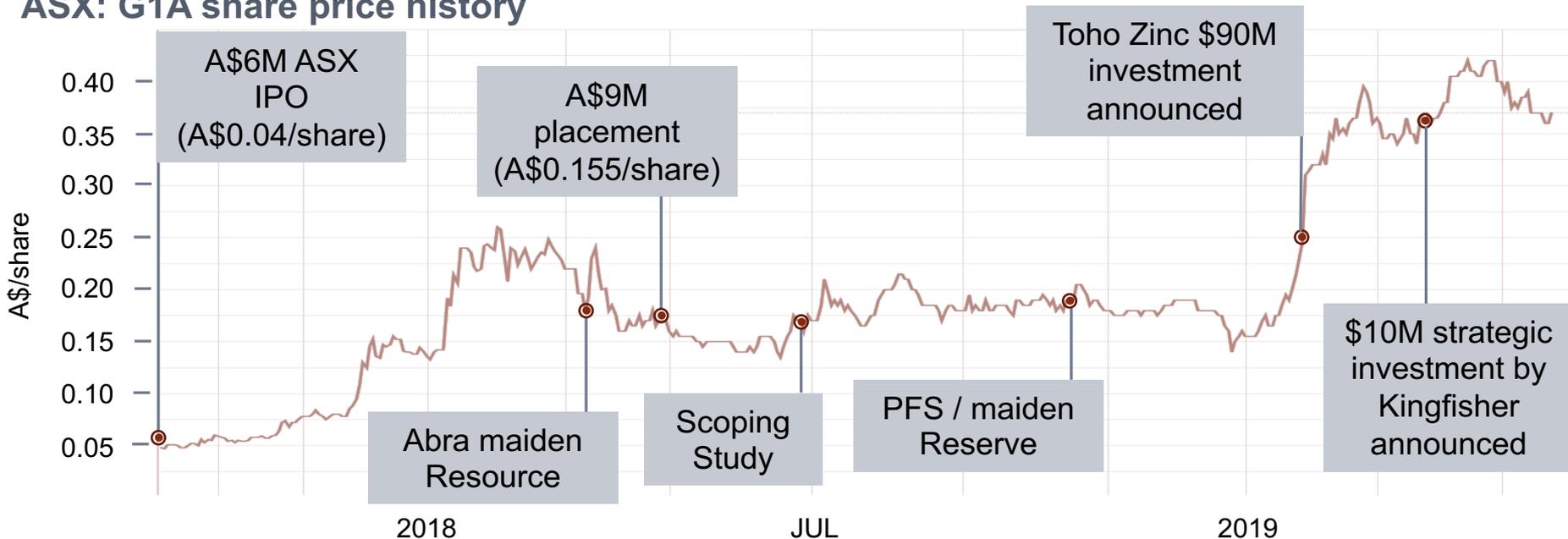
# CAPITALISATION AND HISTORY

## Capitalisation summary

Shares on issue (ASX: G1A)	364.5M
Options on issue <sup>1,2</sup>	32.3M
Share price (19 July 2019)	A\$0.395/share
Market Capitalisation	~A\$144.0M
Cash balance (30 June 2019) <sup>3</sup>	~A\$28.0M
Debt	Nil

Notes: 1. Options issued to employees and management with 11.75m having an exercise price of \$0.06 and expiry date of 30 June 2020, and 18m having an exercise price of \$0.08 and expiry date of 30 June 2021, and 5m having exercise price of \$0.30 and expiry date of 6 February 2021. 2. In addition, 14.0m contingent performance rights for CEO/MD.

## ASX: G1A share price history



Source: www.tradingview.com



# BOARD AND MANAGEMENT



**Adrian Byass**  
Non-Executive Chairman  
Geologist and Economist  
Mine development and board experience



**Tony James**  
Non-Executive Director  
Senior Mining Engineer  
Midcap ASX mining company CEO and underground mine development experience



**Jonathan Downes**  
Non-Executive Director  
Geologist  
Geology, mine development, capital markets and board experience



**Tim Morrison**  
Non-Executive Director  
Finance  
Extensive ASX capital raising and corporate finance experience



**Alexander Molyneux**  
Managing Director / CEO  
Mining Executive and Financer  
Midcap ASX mining CEO, mine development and corporate finance experience



**Troy Flannery**  
CEO, Abra Mining JV  
Mining Engineer  
Extensive underground mining and underground mine development experience



**Craig Barnes**  
CFO  
Chartered Accountant  
Public company CFO, project financing, with joint-venture and treasury experience



**Edward Turner**  
GM Geol. and Exploration  
Senior Geologist  
Base metals exploration experience and former Geology Manager Abra Mining



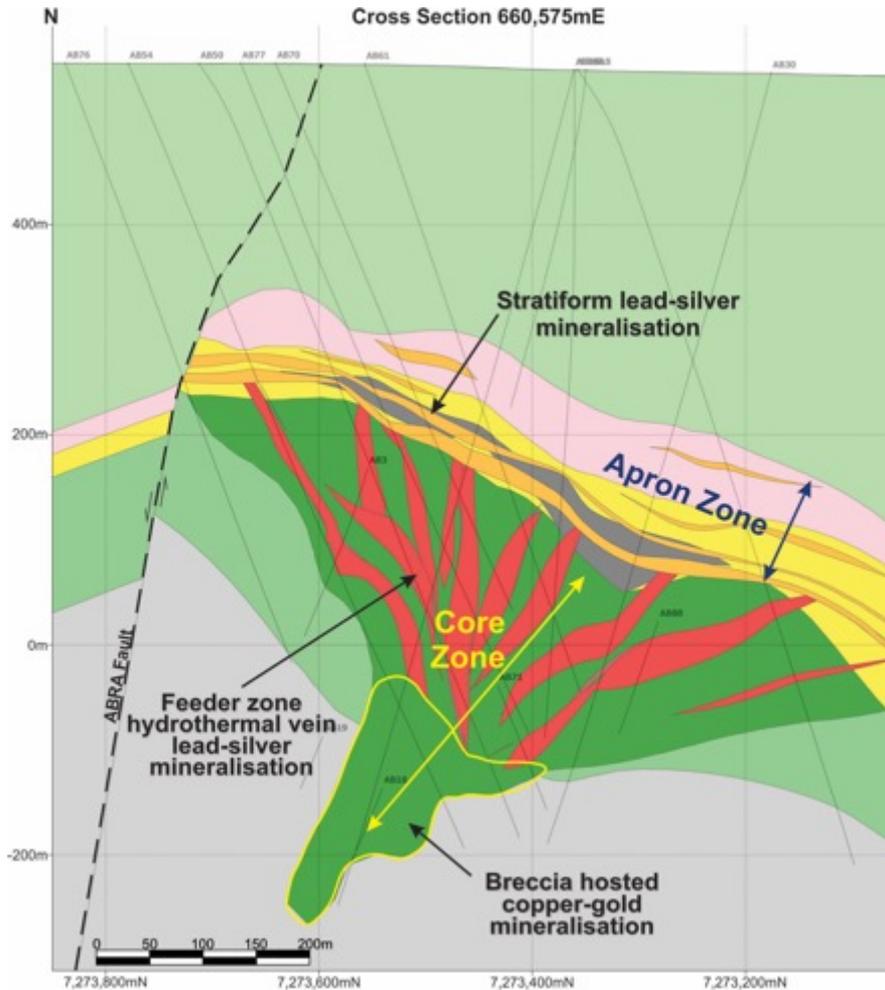
# ABRA LOCATION AND INFRASTRUCTURE



- Located in the Gascoyne region of Western Australia – Approximately 110km from Sandfire Resources' DeGrussa Copper Mine
  - On a granted mining lease with all major permits and native title arrangements concluded
  - Well serviced by existing Shire maintained roads
  - Lead concentrate product to be trucked via public roads to the Port of Geraldton
  - Port of Geraldton has all permits and infrastructure required to handle lead sulphide concentrates and is a current handler of third-party (Golden Grove) similar product
  - Ample storage / ship loading capacity available
-  Port of Geraldton – Primary export port for Abra



# ABRA MINERALISATION MODEL



- Sediments hosting Abra were deposited in a basin setting and have been deformed with large scale folding and faulting in and around the deposit
- Hydrothermal fluids carrying lead, silver, zinc, copper and gold have risen through breccia and fault zones
- Mineralised fluids have risen to a sedimentary boundary and have 'mushroomed' sideways settling in preferential (dolomitic) units
- The Overlying, stratiform hosted mineralisation is called the "Apron Zone" and is largely galena-rich (ie, lead and silver). This is fed by mineralised breccia and vein zones which are called the "Core Zone". Core Zone grades from lead-silver dominant in the upper levels to increasingly copper-gold at depth
- The Abra deposit remains open at depth



# MASSIVE GALENA MINERALISATION

**Massive mineralisation in Core Zone**



**Strata from Apron Zone**





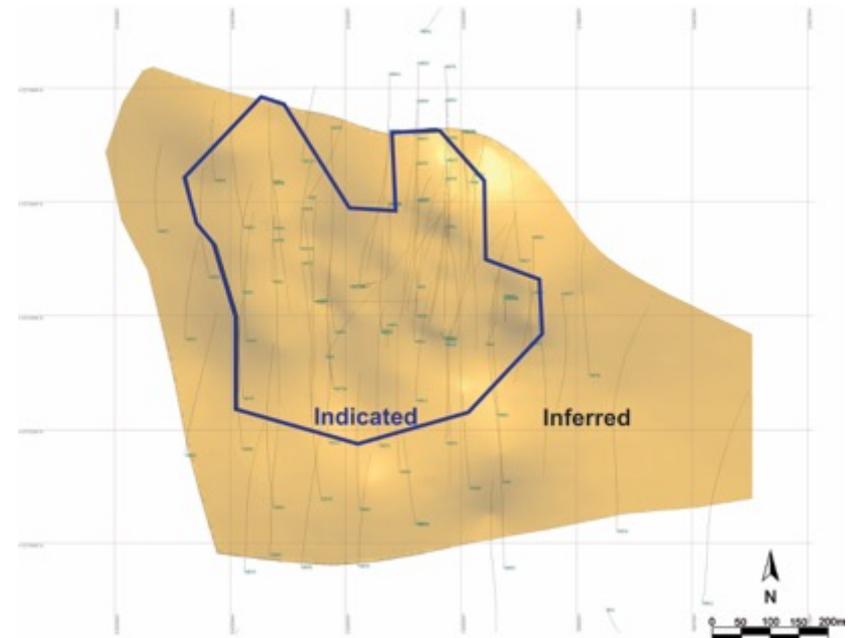
## JORC Mineral Resource estimate (December 2018 Resource) at a 5% lead cut-off grade<sup>1</sup>

<u>Resource classification</u>	<u>Tonnes (Mt)</u>	<u>Lead grade (%)</u>	<u>Silver grade (g/t)</u>
Measured	-	-	-
Indicated	15.0	8.7	22
Inferred	22.4	6.7	15
<b>Total</b>	<b>37.4</b>	<b>7.5</b>	<b>18</b>

Notes: 1. For more detail please see Galena ASX announcement of 18 December 2018.

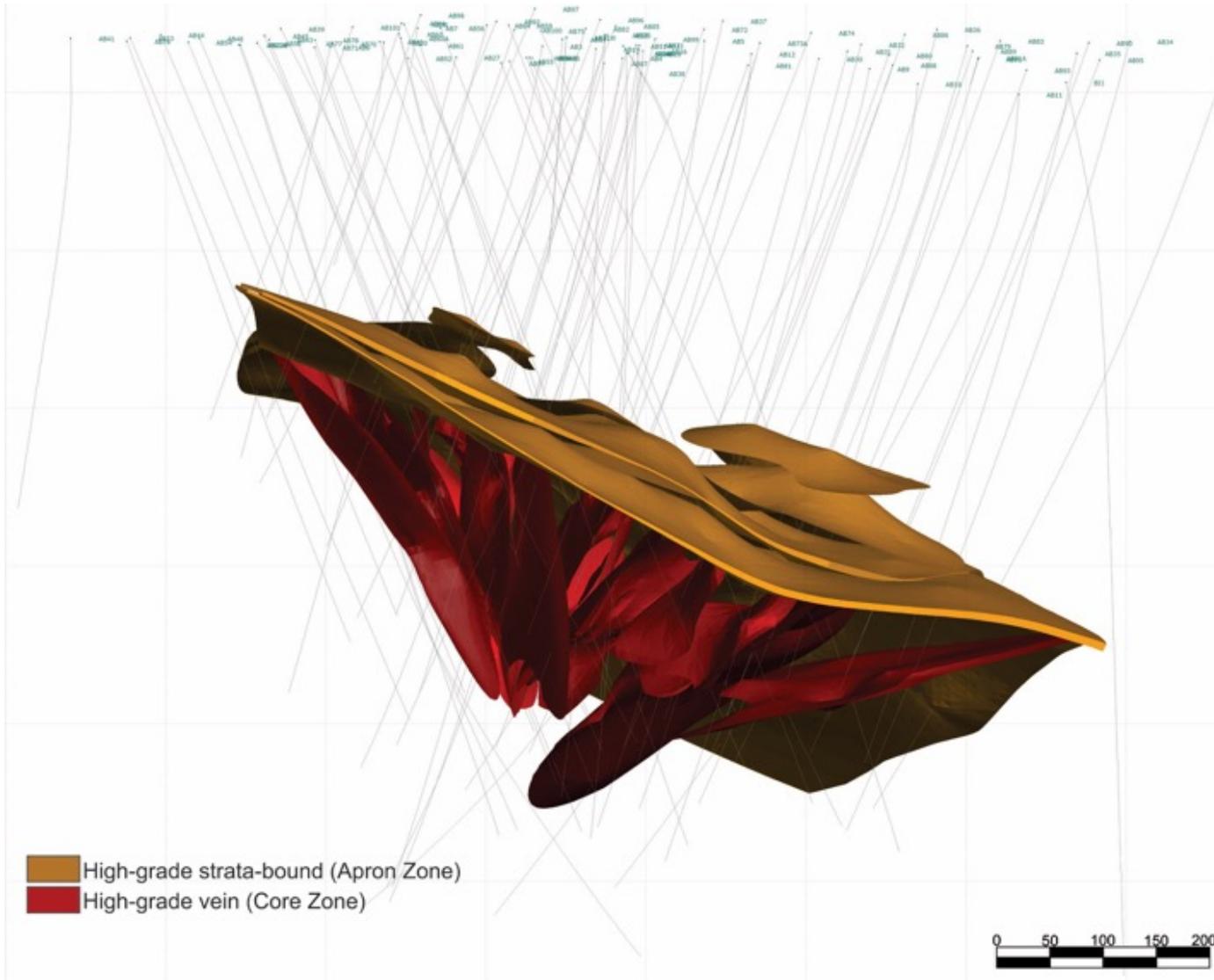
- Resource based on 102 drill-holes (incl. 83 diamond-core)
- ~60km of cumulative linear drilling (incl. 54.9km of diamond-core)
- >1/3 of the database made of of new drill-holes from 2017-2018 (35 new diamond-core holes drilled for 20.7km)

## Plan view of Abra December 2018 Resource





# ABRA MINERAL RESOURCE 3D IMAGE



Resource at 5% lead cut-off – Apron Zone and Core Zone shapes



# ABRA ORE RESERVE AND FS MINE MODEL

- Reserve prepared in December 2018 on the December 2018 Resource

## JORC Ore Reserve statement<sup>1</sup>

<u>Reserve classification</u>	<u>Tonnes (Mt)</u>	<u>Lead grade (%)</u>	<u>Silver grade (g/t)</u>
Proved	-	-	-
Probable	10.3	8.8	24
<b>Total</b>	<b>10.3</b>	<b>8.8</b>	<b>24</b>

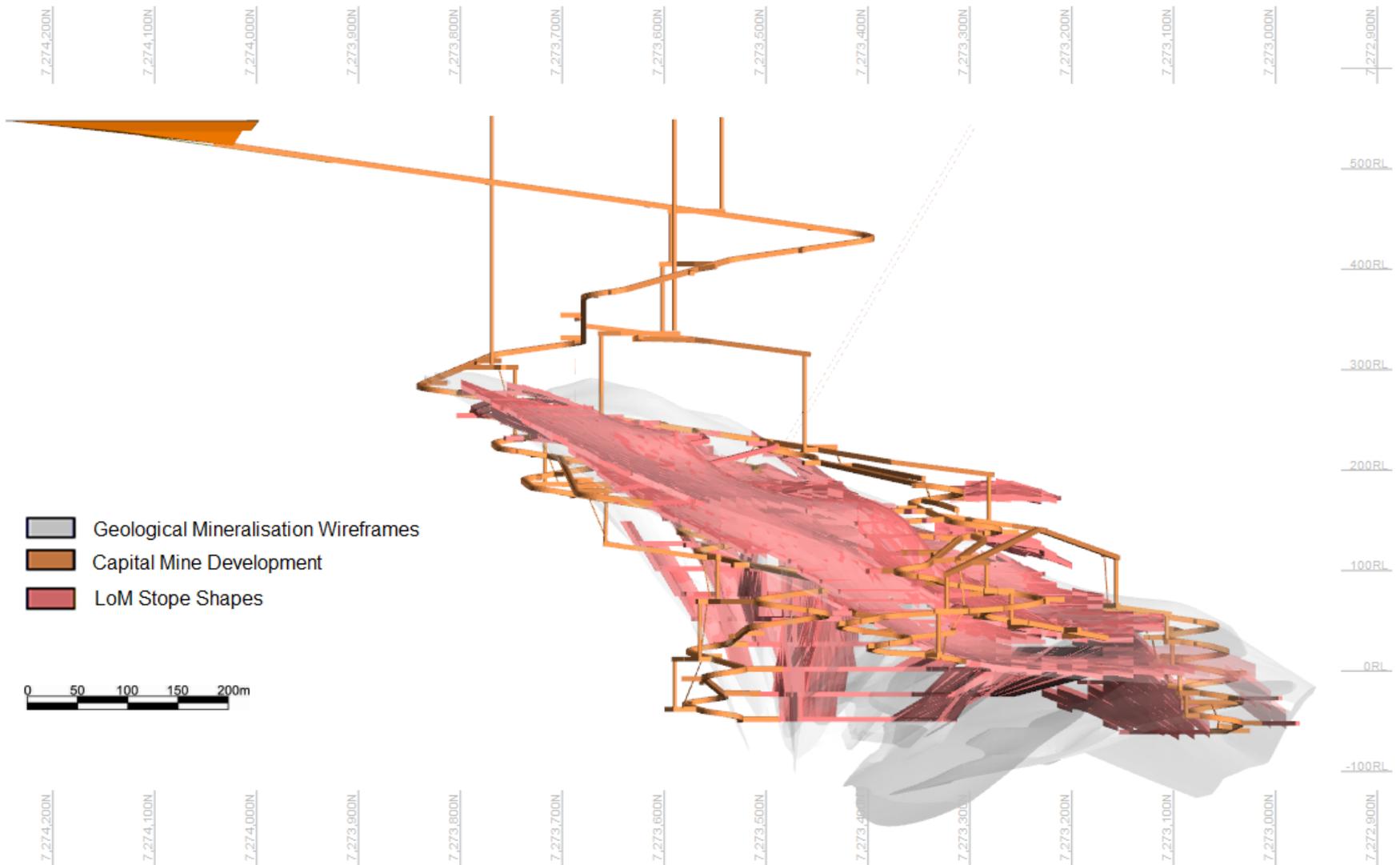
Notes: 1. For more detail please see Galena ASX announcement of 18 December 2018.

- New proposed mining model and schedule prepared for the FS (FS Mine Model)
  - Total of 16.3Mt contained supporting a 1.2Mtpa production rate and 16-year mine life
  - 8.1% lead and 20.2g/t silver
  - 67% contained within Probable Ore Reserve and remainder in Inferred Mineral Resource<sup>1</sup>
  - Modelled using overbreak of 0.3m for Apron Zone hangingwall and 0.2m for Apron Zone footwall and for both hangingwall and footwall for Core Zone
  - Stope recoveries ranging from 92% in some room and pillar areas, up to 98% in some long-hole open stoping areas

Notes: 1. No reduction factor has been applied to the tonnes and grades of the Inferred Mineral Resources. Inferred Mineral Resources have a lower level of geological confidence and can't be included in the calculation of Ore Reserves, and there can be no guarantee that a Mineral Resource estimate update will convert Inferred Mineral Resources to Indicated Mineral Resources or return the same grade and tonnage distribution. This may affect mining studies and outcomes (including economic) from the FS. The Abra Ore Reserve will be reviewed in conjunction with an upcoming update of the Mineral Resource estimate following completion of the ongoing 2019 project development drilling program.



# ABRA FS MINE MODEL 3D IMAGE

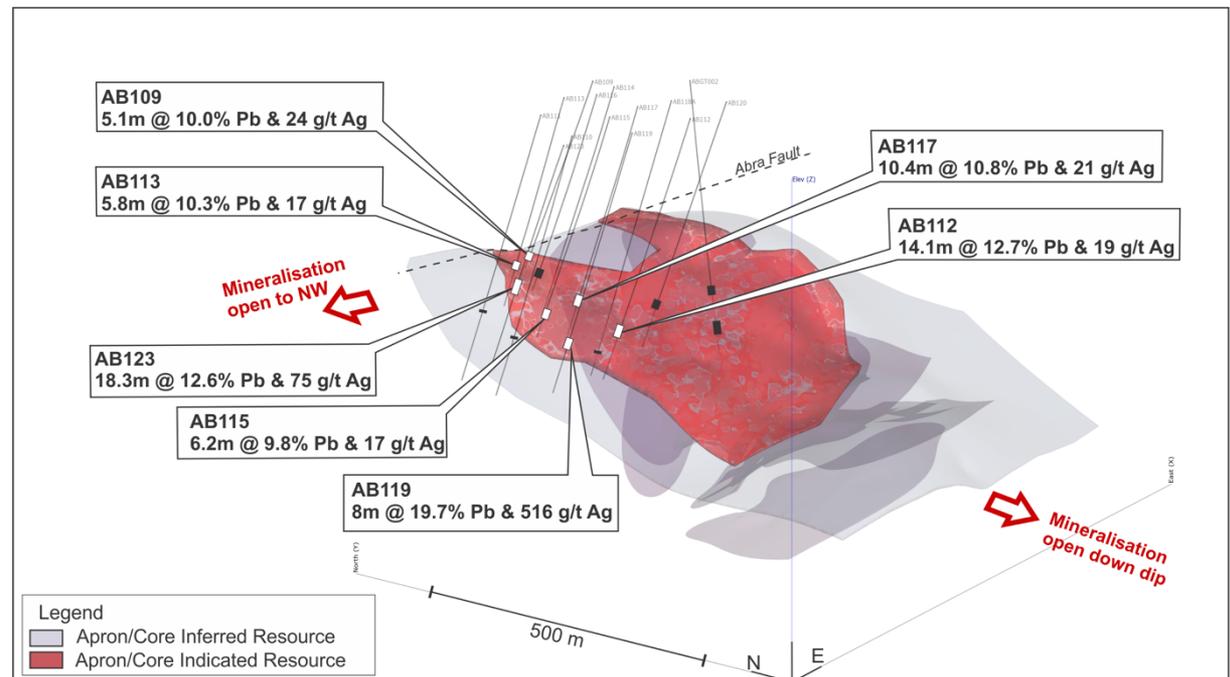




# PROJECT DEVELOPMENT DRILLING

- Substantial program – ~18,000 cumulative linear metres in progress, ie, an increase of 30% over the existing ~60km database
- Focus primarily on shallower north western area of the deposit where early mining activities will take place – De-risking and conversion of resources to high geological confidence categories
- Assays for 40% of the program released so far with strong results<sup>1</sup>

3D model of December 2018 Resource (5% lead cut-off wireframes) looking obliquely east, with most recently reported drill-holes (AB103 – AB120, AB123 and ABGT002 overlain)

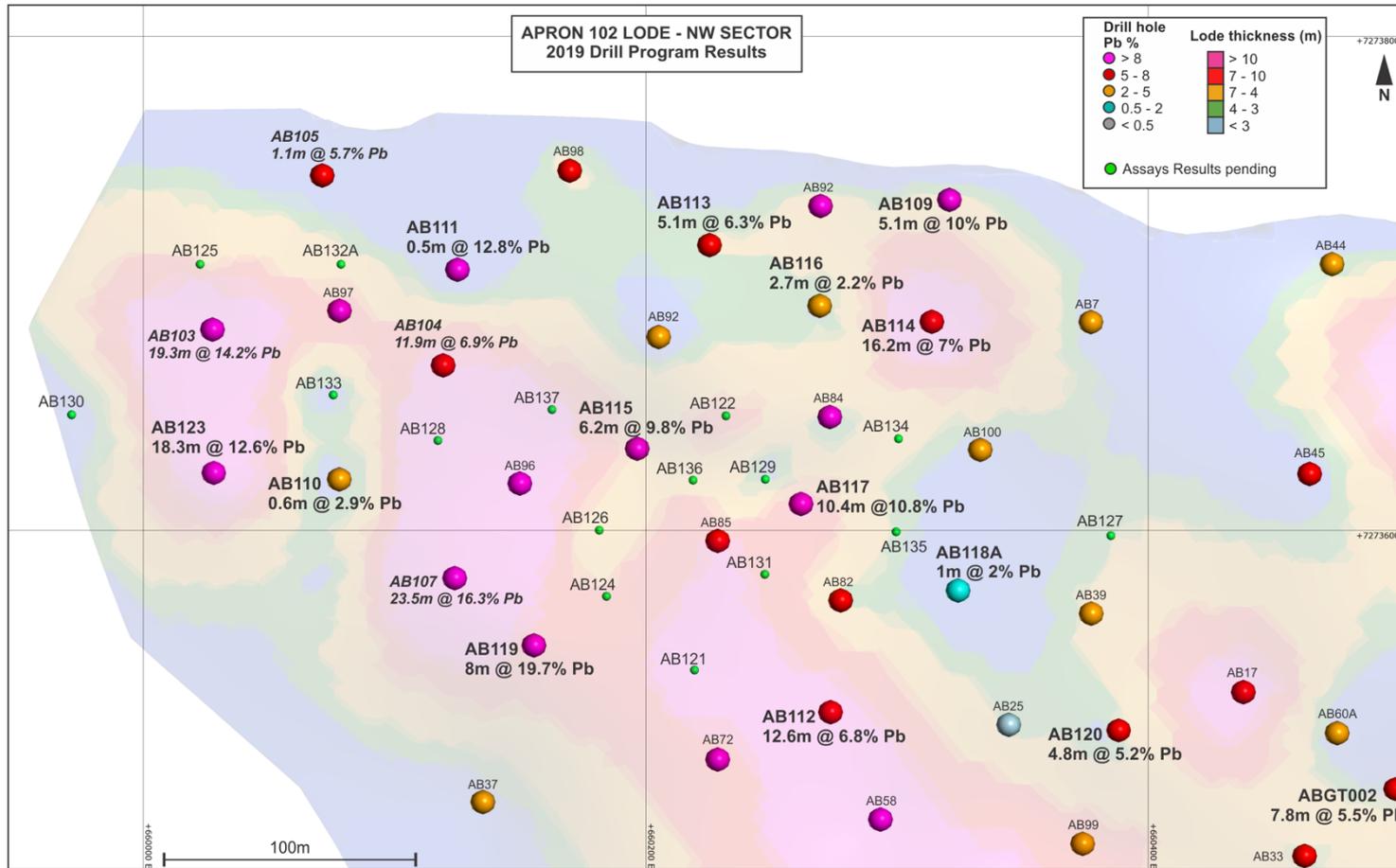


Notes: 1. See Galena ASX announcements of 5 June 2019 and 19 July 2019.



# DRILLING INCREASING CONFIDENCE

Plan view of the Apron Zone 102 Lode showing drill-hole pierce points (coloured by lead grade) and lode thickness contours<sup>1</sup>

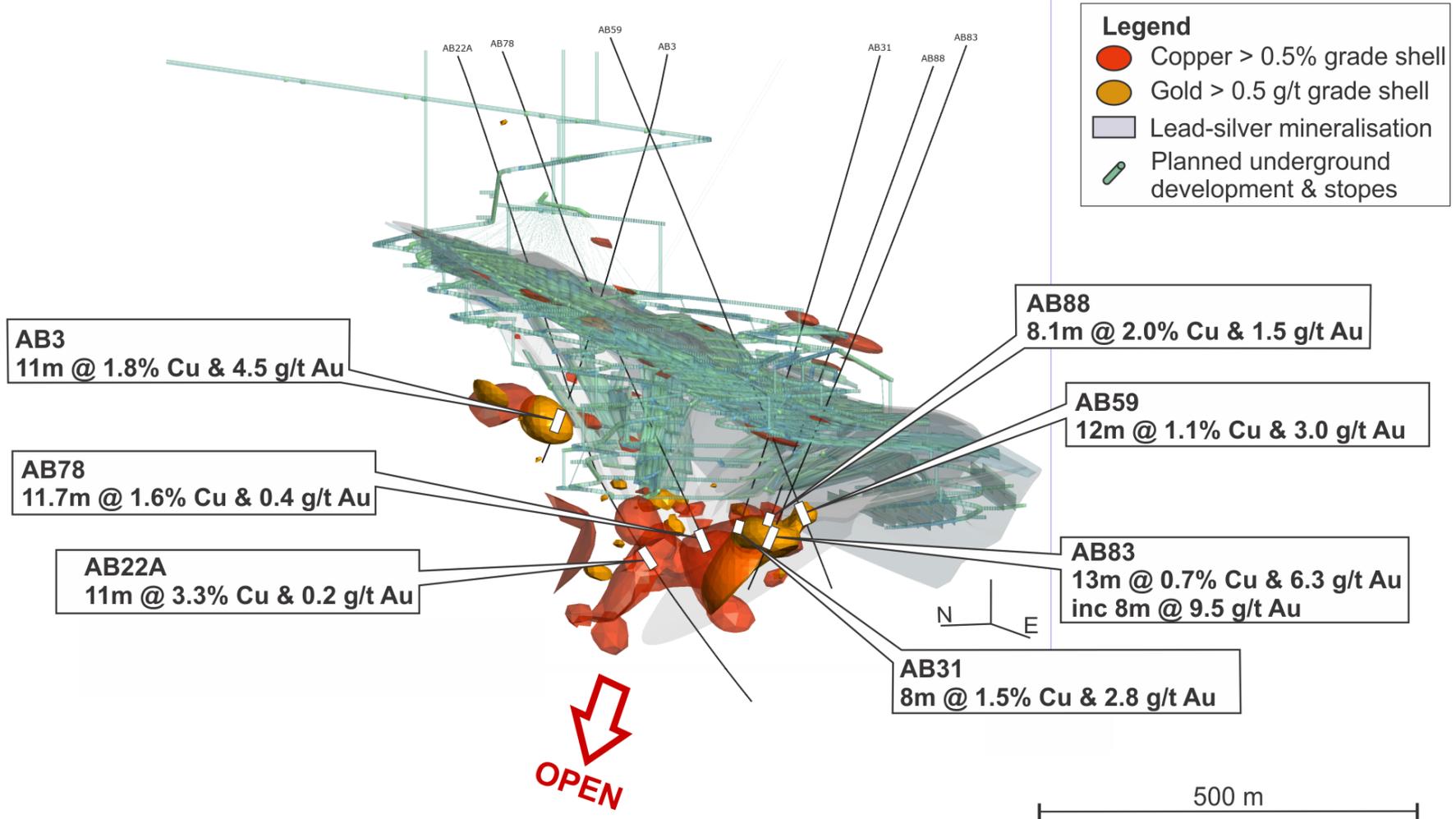


Notes: 1. Thickness contours include visual thickness estimates from logged mineralisation for holes with pending assays.



# POTENTIAL FOR COPPER-GOLD AT DEPTH

Emerging copper-gold zone (wireframes of copper (>0.5%) and gold (>0.5g/t) mineralisation not included in any resource calculations or mine plans)





# METALLURGY & "IN DEMAND" PRODUCT

- 1.2mtpa plant throughput
- Conventional crushing, grinding, flotation and filtration
- Metallurgical testing confirms high (93-95%) recoveries into high-value, high-grade concentrate (94% used as FS recovery assumption)
- Concentrate product expected to be the highest grade primary lead concentrate available globally – 75% lead and ~200g/t silver
- Abra's product is in high demand, particularly in the context of the global lead market in current deficit and limited new supply growth
- 40% of offtake committed to Toho under Abra joint-venture investment Agreement
- Nine indications of interest for remaining offtake received from potential customers in Europe, East Asia and China

## Rendering of proposed plant



Source: GRES.

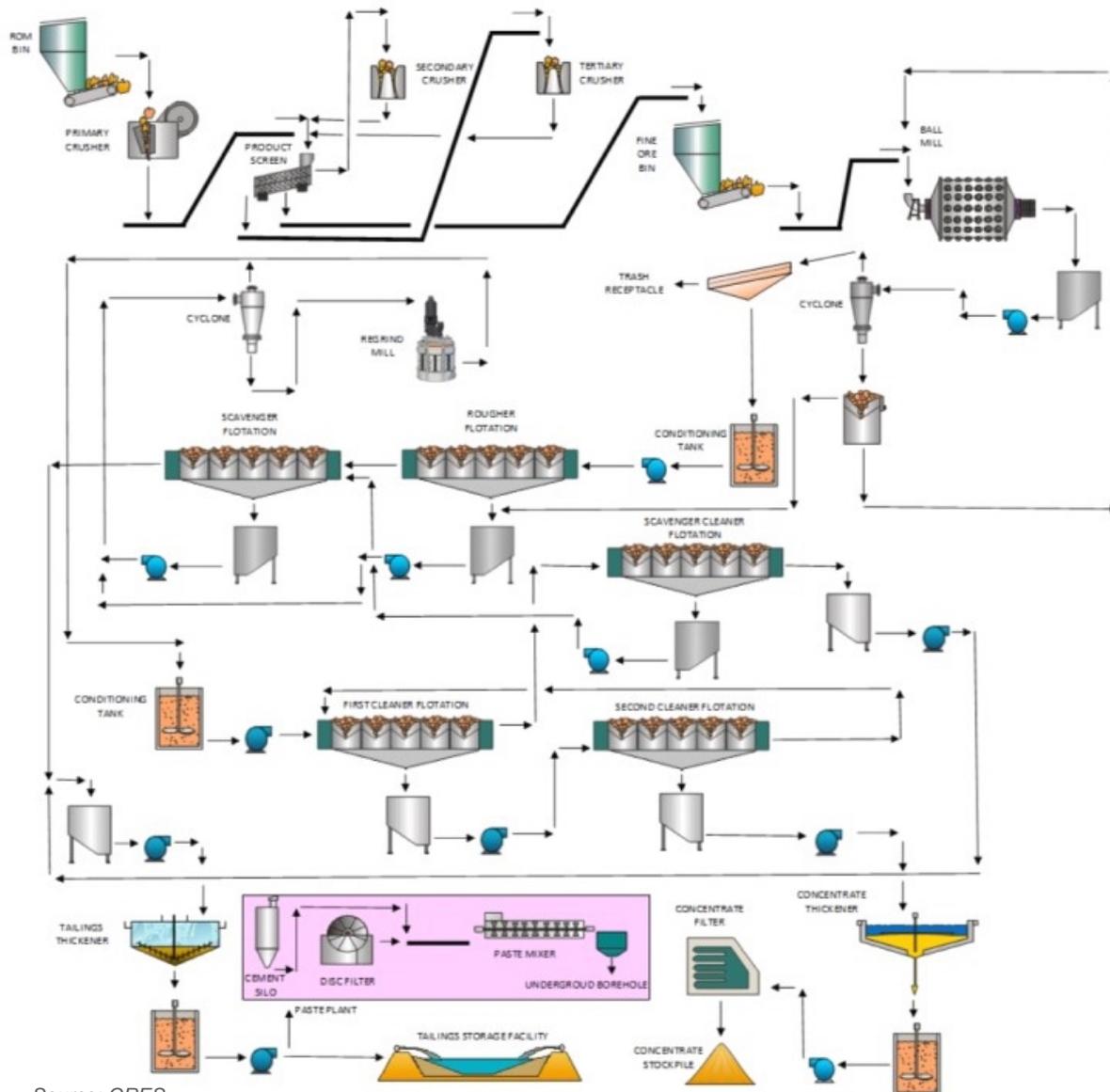
## Rendering of proposed flotation circuit



Source: GRES.



# ABRA FS PROPOSED PLANT FLOWSHEET



- Simple conventional sulphide base metals processing flowsheet
- Designed by GRES
- Potential for future expansion and / or use for copper or zinc bearing primary sulphide minerals

Source: GRES.



FS outcomes – Production metrics		FS outcomes – Capital investment and project economics	
Mill throughput	1.2Mtpa	Pre-production capital	A\$170m
Initial mine life	16-years	Steady-state average EBITDA (yrs 3-15)	A\$114m
Average LOM lead metal production	95ktpa	Project payback from commercial production	2-years
Average LOM silver metal production	805kozpa	Pre-tax NPV (8% discount rate)	A\$553M
Lead C1 direct cash cost	A\$0.63/lb / US\$0.44/lb	Pre-tax IRR	39%

- FS assumptions are ‘spot’ as at 18 July 2019 and include: lead price US\$0.92/lb; silver price US\$16.00/oz, exchange rate of A\$1=US\$0.70 and lead treatment charge of US\$96/t of concentrate
- Post-tax NPV (8% discount rate) of A\$381M and post-tax IRR of 32%



# FS CAPITAL EXPENDITURE & COSTS

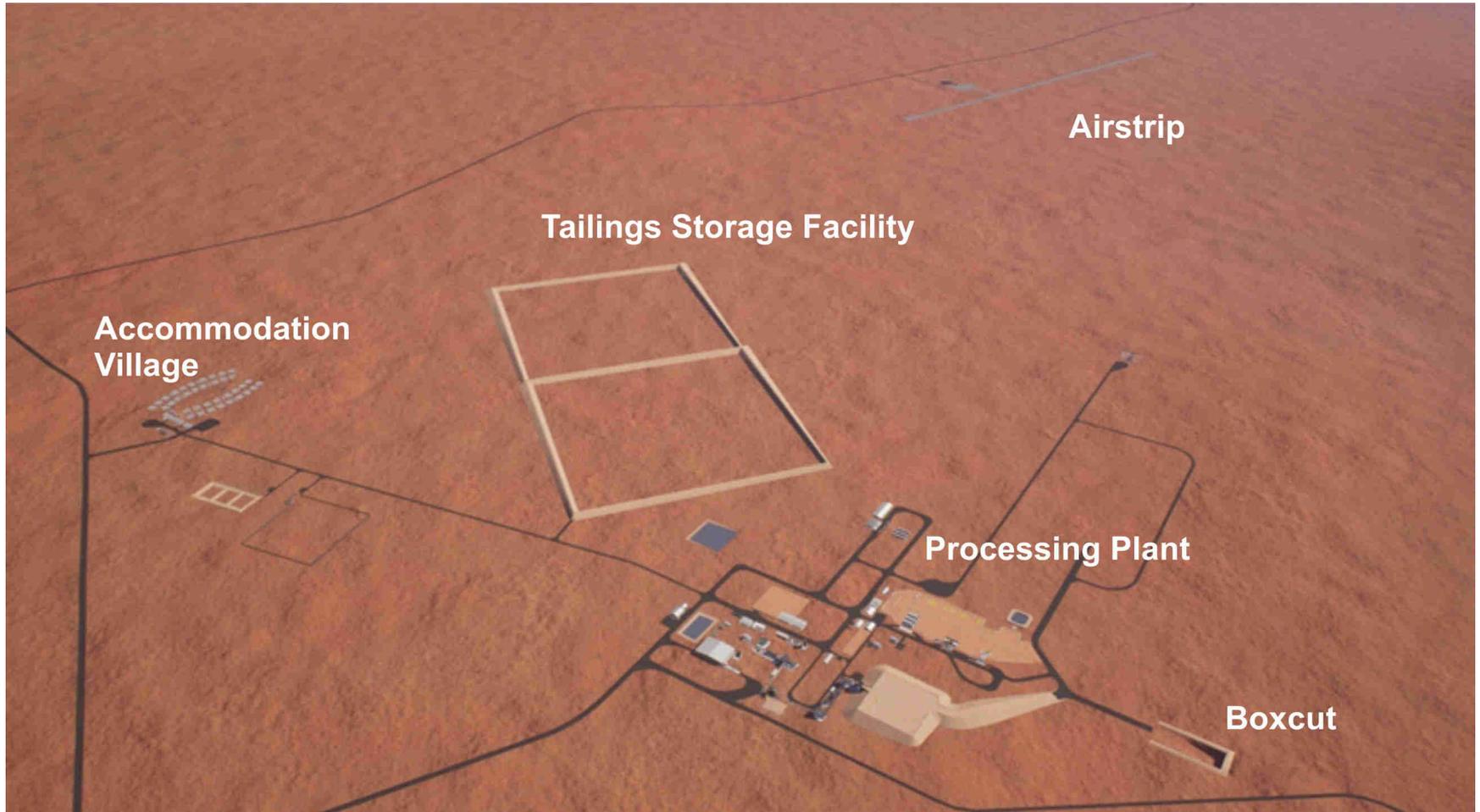
Abra FS pre-production capital expenditure	
	<u>A\$M</u>
Mine development (incl. box cut and access)	31.7
Processing plant (flotation concentrator)	54.8
Surface infrastructure	32.5
Offsite road upgrades and fencing	2.0
Tailings storage facilities	9.9
EPC	15.0
Contingency	7.7
Owner's and indirect costs	15.9
<b>Total</b>	<b>169.6</b>

Abra FS LOM operating cost estimates	
	<u>US\$ C/lb</u>
Mining	22
Processing	11
TCRCs and outbound logistics	8
Other	7
By-product credit for net silver revenue	(4)
<b>Lead C1 direct cash cost of production<sup>1</sup></b>	<b>44</b>
Royalties <sup>2</sup>	7

Notes: 1. Equates to A\$0.63/lb based on an exchange rate of A\$1=US\$0.70 2. For lead, 5.0% Western Australian State royalty plus 3.5% in vendor and other royalties, and for silver, 2.5% Western Australian State royalty plus 3.5% in vendor and other royalties.



# PROPOSED ABRA SITE LAYOUT



Source: GRES.



# UPCOMING MILESTONES

- **Finalising non-Toho offtake** – Continued engagement with a select sub-set of the nine parties that already submitted expressions of interest for Abra's high-value, high-grade lead-silver concentrate with a view to concluding formal offtake arrangements for the non-Toho 60% of Abra production
- **Project financing debt** – Mining-experienced international bank has been appointed to lead the process of structuring and concluding the project financing debt package. Due diligence and discussions with respect to structuring and terms ongoing
- **Results from ongoing project development drilling**
- **Updates for Mineral Resource and Ore Reserves** – Ongoing project development drilling program scheduled to complete in August and the data obtained will be included in updated estimates for Mineral Resources and Ore Reserves prior to the end of 2019
- **Project development milestones** – Initial camp (first 80 accommodation units, kitchen and ancillaries) has already been purchased and the Company has entered into an option to secure the purchase of an existing pastefill plant. Certain long-lead items have been ordered. Project development activities will accelerate through the remainder of 2019
- **Mobilisation of underground mining contractor**
- **Full construction decision and execution of plant EPC contract**



# A\$90M TOHO JOINT-VENTURE INVESTMENT



- Definitive agreements entered into with Toho Zinc (TYO: 5707) of Japan (12 April 2019) for investment of A\$90M in tranches into Abra holding company, Abra Mining Pty Limited (AMPL)
- A\$30M already received, with the remaining A\$60M to be received on confirmation of project financing debt
- Toho now owns 13.33% of AMPL (Galena retains 86.67%) but eventual ownership will be 40% (Toho) and 60% (Galena) once Toho's remaining investment tranche is paid
- Toho Zinc is a large-scale lead and zinc smelting company and experienced miner – In 2010 Toho acquired publicly-listed Australian lead and zinc mining company, CBH Resources Limited and continues to operate its Rasp and Endeavor mines in New South Wales
- Toho is assisting AMPL potentially procure a contribution to project financing debt from policy-related institutions in Japan for Japan-related projects
- Toho have rights to offtake 40% of Abra's product on 'arms length' benchmark terms
- Galena to retain 60% of AMPL and appoint majority of board members to joint-venture board





## Key technological changes affecting lead demand



Solar capacity



Rollout of 5G networks



Wind capacity



Idle-stop technology



Automotive market



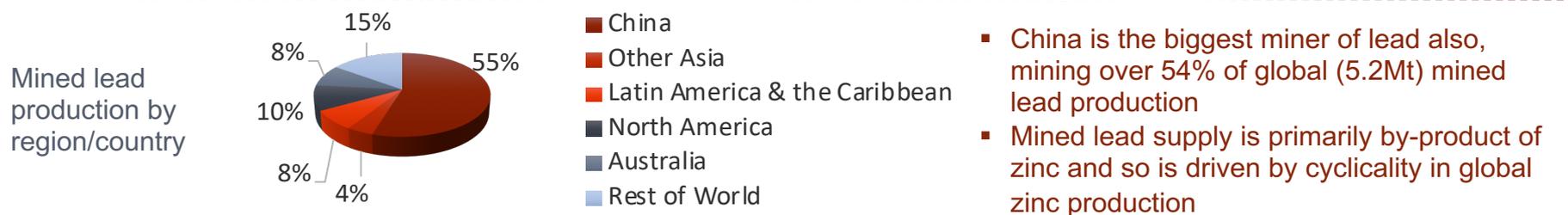
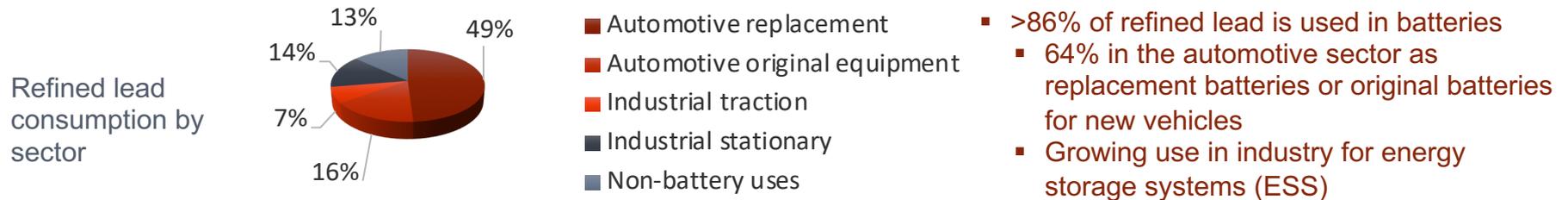
E-bikes / last mile electrification

- Wood Mackenzie's forecasts for global lead demand account for a transition to an electric vehicle future – EVs need a separate energy storage system to the lithium-ion propulsion batteries to run the Li-ion battery management computers and safety systems (electric braking, hazard lights etc.) – whilst lead is heavier (and therefore not logical for the propulsion battery), its around on tenth the cost per unit of storage so remains the core technology for this application in EVs – every Tesla has a lead-acid battery!
- Other transitional emissions reduction automotive technologies require larger than standard lead-acid batteries, ie, typical hybrid cars or internal combustion engine cars with 'idle-stop' technology
- Lead-acid has a role in electrification of bikes and 'last mile' transportation – approximately 15M electric bikes are sold in China each year
- The value proposition for lead means it continues to have strong take up in various energy storage solutions such as to provide energy storage for mobile phone tower installations, and small-scale roof-top solar and wind installations – ESS is the fastest growing sub-segment of the lead market



# LEAD MARKET DYNAMICS

- Lead is a larger overall market than nickel
- 50-60% of lead comes from recycling so the dynamic of the need for primary mine supply growth is equally as important as end-use demand growth for the metal itself



- Primary/secondary refined lead production
- Primary refined lead is sourced from mines as a concentrate, which then goes through smelting and refining
  - Secondary refined lead is produced by the recycling and processing of lead scrap

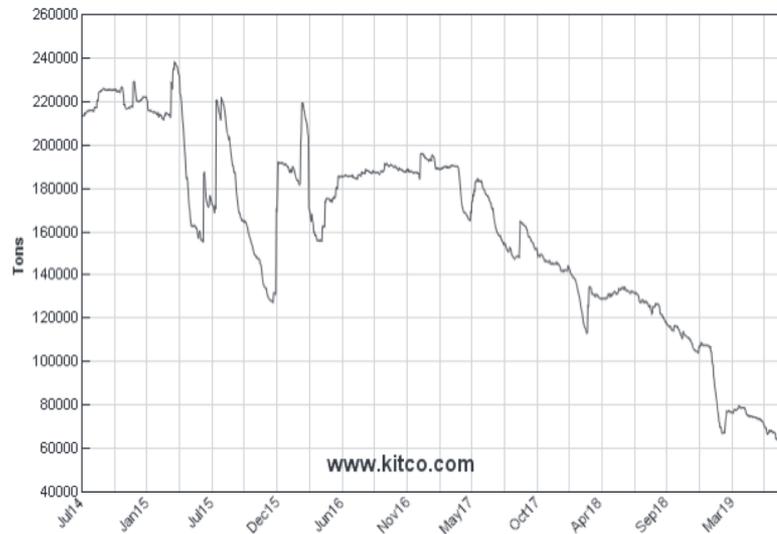
Source: Wood Mackenzie



# LEAD MARKET DYNAMICS

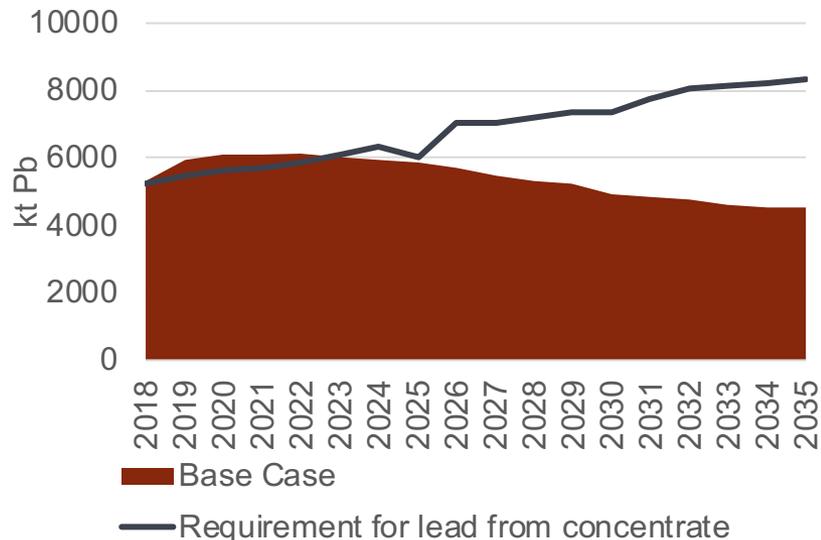
- Short-term conditions are becoming ‘extreme’ in terms of recent draw-down of physical refined lead stocks – now close to record lows
- Longer-term Wood Mackenzie expects refined lead metal demand to grow 2.4% per year through 2035 but secondary refining capacity issues mean more of the lead supply will need to be met by primary mined supply and thus demand for mined lead is expected to grow 2.9% per year
- Wood Mackenzie base case shows ‘deficit’ for mined lead re-opening from 2023 without additional new mine supply

### LME lead inventory (last 5-years)



Source: www.kitco.com

### Base case mined lead production vs. demand



Source: Wood Mackenzie



# GALENA MINING LIMITED

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