

6 June 2024



## Sorby Hills Project FEED Study

Boab Metals Limited (ASX: BML) ("**Boab**" or the "**Company**") is pleased to announce the results of its Front-End Engineering & Design ("**FEED**") Study for its 75% owned Sorby Hills Lead-Silver-Zinc Project ("**Sorby Hills**" or "**the Project**"), located in the Kimberley Region of Western Australia. The FEED Study augments and enhances the Sorby Hills Definitive Feasibility Study ("**DFS**") released by the Company in January 2023.

### HIGHLIGHTS

Project updates (excluding any change in macroeconomic assumptions) have delivered an **increase of +A\$73M Net Cash Flow and +A\$41M NPV<sub>8</sub>** compared to the DFS.

**Key Base Case Project Metrics** include **upfront Capital Expenditure of A\$264M**, average **CI Cost of US\$ 0.36/lb payable Lead** (including silver credits), **pre-tax NPV<sub>8</sub> of A\$411M**, **pre-tax IRR of 37%**, and **average annual EBITDA of A\$126M**.

Importantly, the net change to pre-production Capital Expenditure is limited and project pre-tax **cash flows over the initial 5 years of production have improved by +A\$150M** providing a stronger profile to support debt financing.

**Assuming current spot pricing<sup>1</sup>** for Lead, Silver, Exchange Rate and current Benchmark Lead Treatment and Silver Refining Charges results in an **NPV<sub>8</sub> of A\$596M**, **pre-tax IRR of 47%** and **average annual EBITDA of A\$160M**.

**Key Project updates include:**

- **Updated post FEED pricing for the Process Plant EPC Contract** provided by GR Engineering Service ("**GRES**").
- **Updated mining schedule** bringing forward mining of the high-grade Norton Deposit.
- **Updated metal recovery and concentrate grades for the Norton Deposit** based on new metallurgical testwork on core recovered during the Phase VII drilling program.
- **Updated pricing for the Mining and Earthworks Contracts** provided on a bundled basis and based on the optimised site layout and mining schedule.
- **Updated tailings strategy** with above-ground tailings disposal being employed for the Life of Mine as opposed to in-pit deposition previously adopted in the DFS.

**Boab Managing Director and CEO, Simon Noon, stated:**

*"Following the DFS, we identified clear opportunities to optimise and de-risk the Project both technically and economically. Over the past year, we have pursued these opportunities in conjunction with completing Front End Engineering & Design on our Process Plant with GRES.*

*We are pleased to present the results of our work during this period in the form of this FEED Study. We now look forward to accelerating our engagement with financiers and further advancing Sorby Hills toward a Final Investment Decision."*

<sup>1</sup> As at 28 May 2024 – See page 12

### **Cautionary Statements**

The FEED Study discussed herein has been undertaken to explore the technical and economic feasibility of developing an open pit mine and adjacent processing facility to economically and sustainably exploit the Sorby Hills Lead-Silver-Zinc Mineral Resource located in the Kimberley Region of Western Australia.

The Sorby Hills Project is subject to a Joint Venture Agreement between Boab and Yuguang. Boab holds a 75% interest in the Joint Venture via its 100% owned subsidiary Sorby Hills Pty Ltd. The Production Target and financial forecasts presented in the FEED Study are shown on a 100% Project basis and assume that outstanding environmental approvals are granted.

The Production Target underpinning financial forecasts included in the FEED Study comprises 57% Measured Resources, 26% Indicated Resources and 17% Inferred Resources. The estimated Ore Reserves and Mineral Resource underpinning the Base Case Production Target have been prepared by a Competent Person in accordance with the requirements in the JORC Code.

There is a low level of geological confidence associated with Inferred Resources and there is no certainty that further exploration work will result in the conversion of Inferred Resources to Indicated Resources or return the same grade and tonnage distribution. The stated Production Target is based on the Company's current expectations of the future results or event and should not be solely relied upon by investors when making investing decisions. Further evaluation work and appropriate studies are required to establish sufficient confidence that this target will be met.

The economic outcomes associated with the FEED Study 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 economic outcomes.

To achieve the range of outcomes indicated in the FEED Study, debt and equity funding will be required. Investors should note that there is no certainty that the Joint Venture may be able to raise the amount of funding when needed and/or reach a Final Investment Decision by the date proposed in the FEED Study. It is also possible that such funding may only be available on terms that may be dilutive to, or otherwise affect the value of Boab's existing shares. It is also possible that Boab could pursue other 'value realisation' strategies such as a sale or partial sale of the Company's share of the Project.

This announcement contains forward-looking statements. Boab has concluded it has a reasonable basis for providing the forward-looking statements included in this announcement and believes it has a reasonable basis to expect it will be able to fund the development of the project. However, several factors could cause actual results, or expectations to differ materially from the results expressed or implied in the forward-looking statements. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the FEED Study.

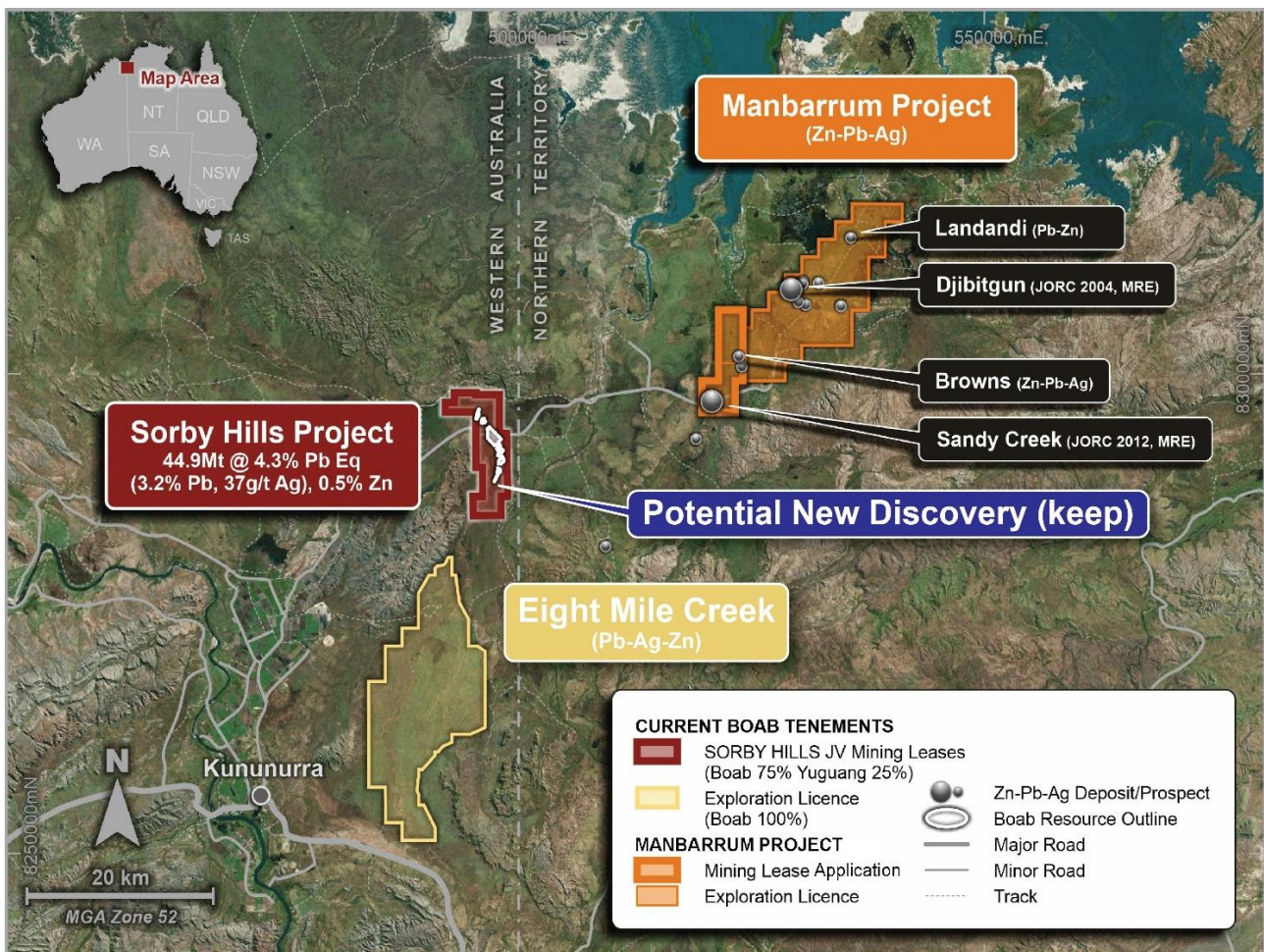
## Project Summary

The Sorby Hills Lead-Silver-Zinc Project ("**Sorby Hills**", the "**Project**") is the largest undeveloped, near-surface Lead-Silver-Zinc deposit in Australia. The Project comprises granted mining leases covering six known Lead-Silver-Zinc deposits in the Kimberley Region of Western Australia, 50km northeast of Kununurra and 90km east of Wyndham Port (Figure 1).

Boab Metals Ltd ("**Boab**", the "**Company**") holds a 75% interest in the Project. Boab's Joint Venture partner in the Project is Henan Yuguang Gold & Lead Co. Ltd, China's largest Lead smelters and silver producer<sup>2</sup>.

In addition to the Sorby Hills Project, Boab holds a 100% interest in both the Manbarrum Zinc-Lead-Silver Project, located 25km east of Sorby Hills and the Eight Mile Creek Project, located immediately south of Sorby Hills. Both project areas comprise tenure overlying geology genetically and stratigraphically related to that containing mineralisation at Sorby Hills.

Combined, the Sorby Hills Project, the Manbarrum Project and the Eight Mile Creek Project, support Boab's vision to establish a long-life presence in the east Kimberley Region.



**Figure 1: Location of the Sorby Hills Project with respect to Boab's other 100% owned Lead-Silver-Zinc exploration assets in the region.**

<sup>2</sup> Yuguang gold and lead group limited liability company (yuguanggold-lead.com.cn)

On 19 January 2023, Boab released a Definitive Feasibility Study (“**DFS**”) for the Project<sup>3</sup>. Over the initial 8.5-year processing period contemplated by the DFS, 18.3Mt of ore was proposed to be mined and processed through the Sorby Hills process plant to deliver an average 103ktpa of concentrate containing 64ktpa of payable lead and 2Mozpa of payable silver to generate a pre-tax NPV<sub>8</sub> of A\$370M and IRR of 35%. The DFS economics were underpinned by Ore Reserves of 15.2Mt at 3.5% Pb and 39g/t Ag, and a large, well-defined Mineral Resource of 47.3Mt at 3.1% Pb, 35g/t Ag and 0.4% Zn<sup>4</sup>.

The Front-End Engineering and Design (“**FEED**”) Study presented herein augments and enhances the DFS via various specific updates to the Project.

**Key updates include:**

- Updated post FEED pricing for the Process Plant EPC Contract provided by GR Engineering Service (“**GRES**”).
- Updated metal recovery for the Norton Deposit based on new metallurgical testwork on core recovered during the Phase VII drilling program.
- Updated mining schedule bringing forward mining of the Norton Deposit and high-grade silver production.
- Updated pricing for the Mining and Bulk Earthworks Contracts provided on a bundled basis and based on the optimised site layout and mining schedule.
- Updated tailings strategy with above-ground tailings disposal being employed for the Life of Mine as opposed to in-pit deposition previously adopted.

No further updates to the Mineral Resource or Ore Reserve have been undertaken at this point.

A high-level comparison of the DFS and FEED Study base case results and the impact of adopting current macroeconomics (“**Spot Case**”) is shown in Table 1.

**Table 1: Comparison of FEED Study Result with the DFS**

| Item                           | Unit                                                                                                   | DFS  | FEED        | Variance | “Spot Case” |
|--------------------------------|--------------------------------------------------------------------------------------------------------|------|-------------|----------|-------------|
| <b>Macroeconomics</b>          | Pb = US\$2,253/t, Ag = US\$27.4/oz; A\$:US = \$0.68, Pb TC = US\$125/t conc., Ag RC = US\$1.25/oz paid |      |             |          | See Page 12 |
| <b>Mining Inventory</b>        | 18.3 Mt at 3.4% Lead and 39g/t Silver                                                                  |      |             |          |             |
| <b>Recovered Lead</b>          | kt                                                                                                     | 571  | <b>575</b>  | 1%       | 575         |
| <b>Recovered Silver</b>        | Moz                                                                                                    | 18.6 | <b>18.6</b> | (0%)     | 18.6        |
| <b>Upfront Capital Cost</b>    | A\$M                                                                                                   | 245  | <b>264</b>  | 8%       | 264         |
| <b>C1 Cost (incl. credits)</b> | US\$/lb Pb                                                                                             | 0.39 | <b>0.36</b> | (8%)     | 0.25        |
| <b>Net Cash Flow</b>           | A\$M                                                                                                   | 705  | <b>778</b>  | 10%      | 1,067       |
| <b>LOM Average EBITDA</b>      | A\$M                                                                                                   | 119  | <b>126</b>  | 5%       | 160         |
| <b>Pre-Tax NPV<sub>8</sub></b> | A\$M                                                                                                   | 370  | <b>411</b>  | 11%      | 596         |
| <b>Pre-Tax IRR</b>             | %                                                                                                      | 35%  | <b>37%</b>  | 3%       | 47%         |

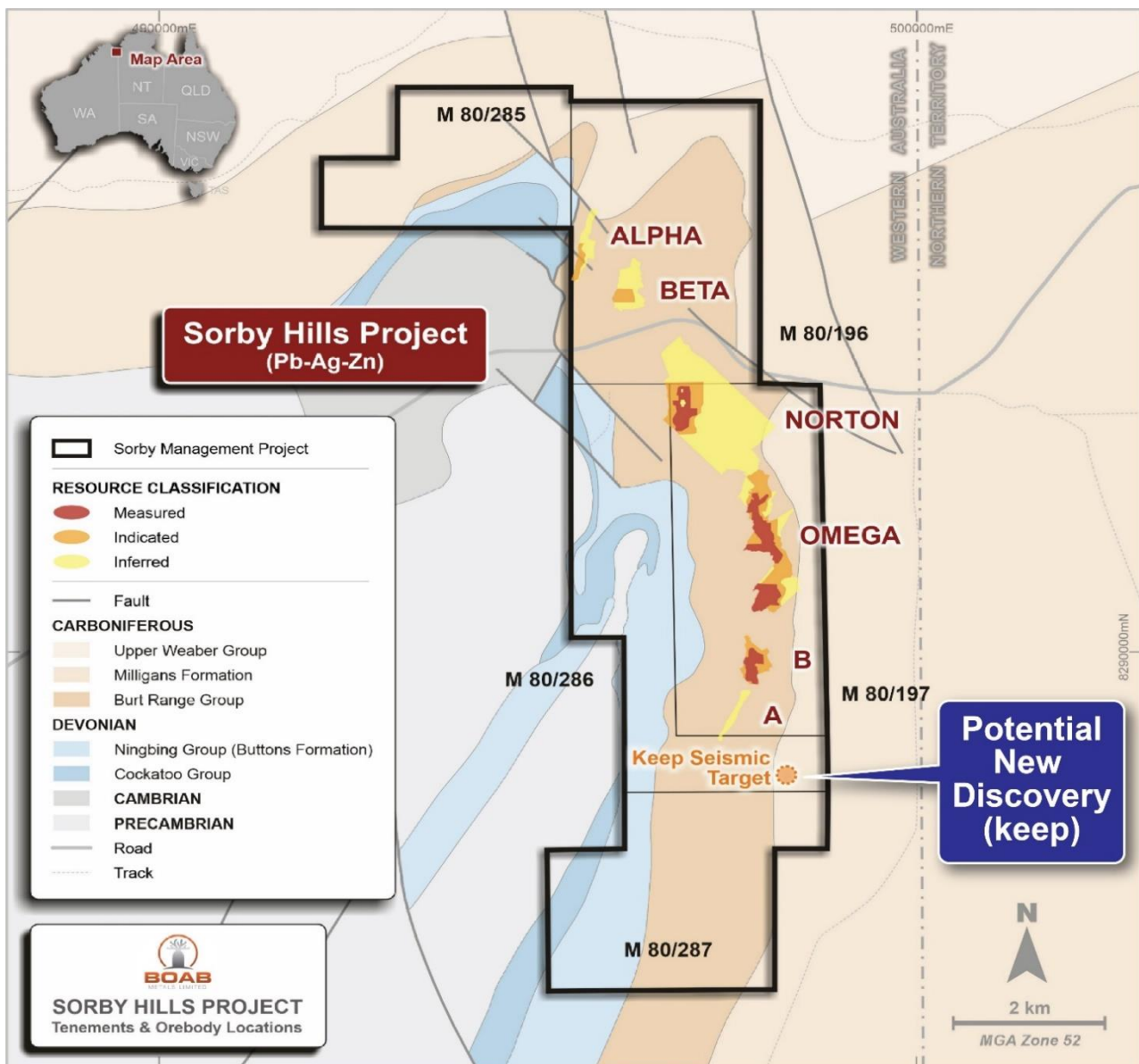
<sup>3</sup> ASX Release 19 January 2023

<sup>4</sup> ASX Release 17 December 2021

**Table 2: Sorby Hills Mineral Resource Estimate – Pb Domains only**

| Resource Classification | Tonnes (Mt) | Grade       |             |           | Contained Metal |            |               |
|-------------------------|-------------|-------------|-------------|-----------|-----------------|------------|---------------|
|                         |             | Pb          | Zn          | Ag        | Pb              | Zn         | Ag            |
|                         |             | %           | %           | g/t       | kt              | kt         | koz           |
| <b>Measured</b>         | 12.6        | 3.5%        | 0.4%        | 43        | 444             | 45         | 17,521        |
| <b>Indicated</b>        | 11.0        | 3.4%        | 0.4%        | 34        | 377             | 46         | 12,114        |
| <b>Inferred</b>         | 23.6        | 2.7%        | 0.5%        | 31        | 645             | 117        | 23,406        |
| <b>Total</b>            | <b>47.3</b> | <b>3.1%</b> | <b>0.4%</b> | <b>35</b> | <b>1,465</b>    | <b>207</b> | <b>53,042</b> |

Note: Tonnes and Grade are rounded. Reported at a 1.0% Pb Cut-Off. Discrepancies in calculated Contained Metal is due to rounding.



**Figure 2: Location of the Sorby Hills deposits, Resource classification and mining leases with respect to local geology.**

## Key Project Updates

### Tailings Strategy

The DFS outlined a tailings strategy whereby above-ground tailings deposition was employed for the initial stages of production after which the B-Deposit pit and Omega South Pit would be utilised for in-pit tailings deposition as mining in the respective pits concluded.

Following further discussion with Tetra Tech Coffey (who undertook the design of the proposed tailings storage facility ("**TSF**") and additional testwork on tailings samples), the Company decided to revert to a single above-ground TSF.

The TSF will be located approximately 1.3km south-east of the process plant and will be built in eight stages (6 x 4m lifts and 1 x 2m lift) resulting in a final footprint of approximately 102 Ha. The TSF will hold approximately 17.4Mt of tailings generated from the process plant.

Tetra Tech Coffey has completed a revised design of the TSF for the FEED Study.

### Mining Schedule

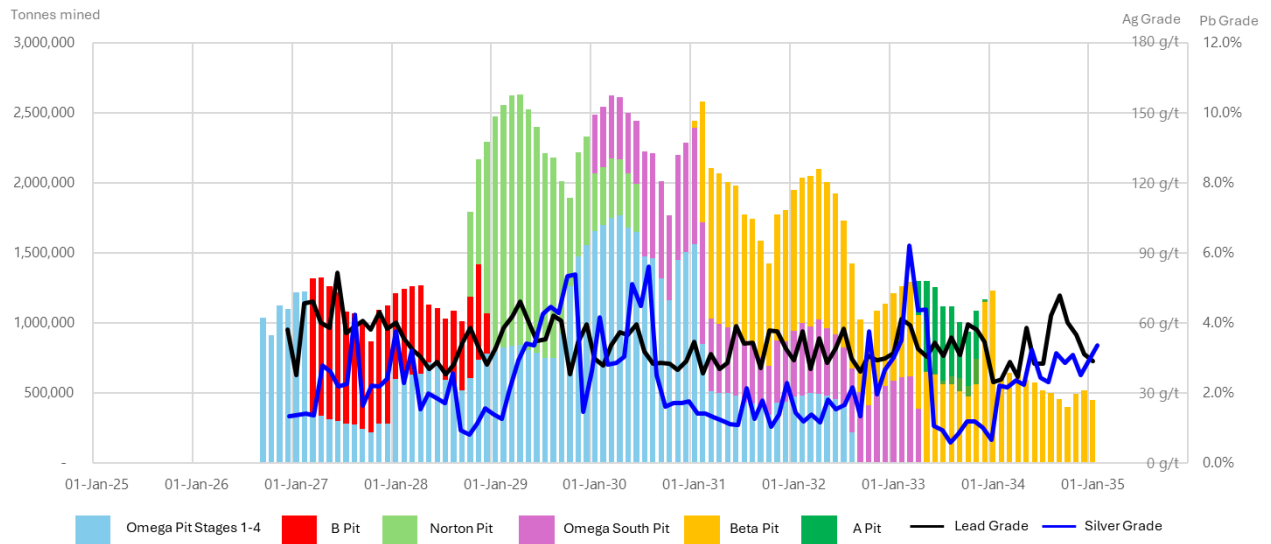
An updated mining and processing schedule has been prepared for the FEED study by independent mining consultant Entech Pty Ltd (Figure 3 and Figure 4). Like the DFS, the FEED Study proposes the open-pit mining and processing of 18.3Mt of ore from five of the six Sorby Hills deposits, namely: Omega, A, B, Beta, and Norton (Table 3).

**Table 3: FEED Study Production Target**

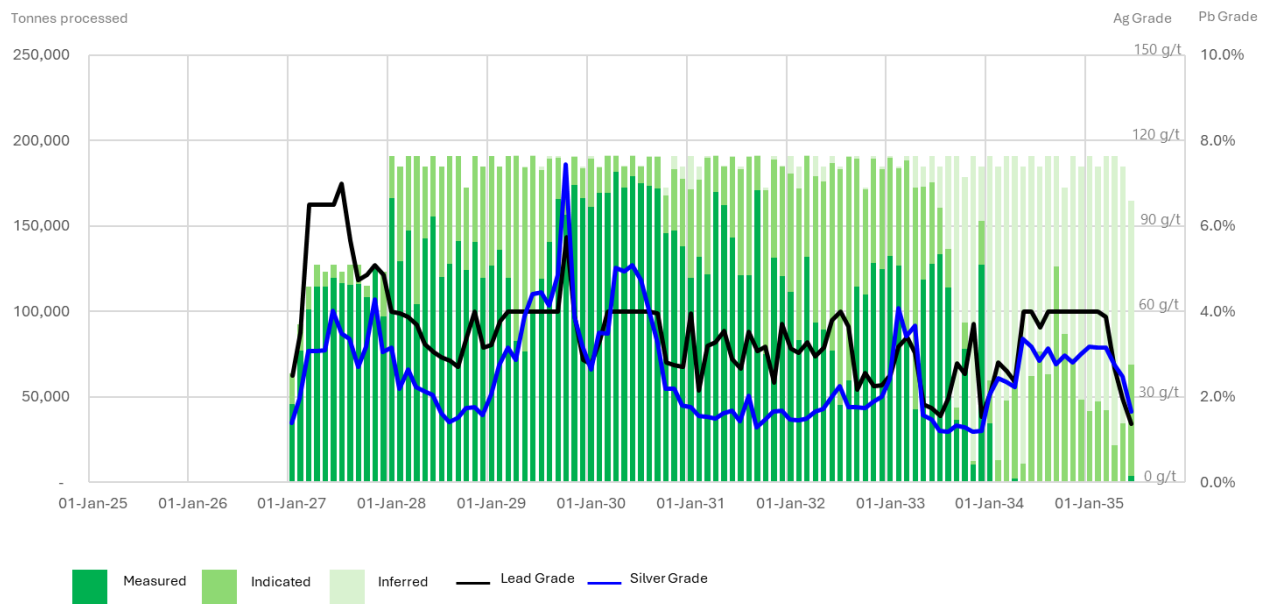
| Source       | Total        | Waste        | Ore         | Strip Ratio | Lead        | Silver      |
|--------------|--------------|--------------|-------------|-------------|-------------|-------------|
| Unit         | Mt           | Mt           | Mt          | t:t         | %           | g/t         |
| A Pit        | 4.1          | 3.7          | 0.5         | 8.1         | 3.7%        | 16.4        |
| B Pit        | 14.8         | 12.6         | 2.3         | 5.5         | 3.2%        | 17.4        |
| Norton       | 21.4         | 19.5         | 1.9         | 10.0        | 4.0%        | 78.5        |
| Omega 1      | 11.3         | 8.9          | 2.4         | 3.7         | 4.1%        | 47.0        |
| Omega 2      | 9.4          | 7.9          | 1.5         | 5.3         | 3.0%        | 35.0        |
| Omega 3      | 26.6         | 24.2         | 2.3         | 10.3        | 3.4%        | 28.3        |
| Omega 4      | 10.4         | 9.2          | 1.2         | 7.9         | 4.0%        | 47.5        |
| Omega South  | 21.1         | 18.3         | 2.8         | 6.5         | 2.9%        | 29.5        |
| Beta Pit     | 35.6         | 32.2         | 3.4         | 9.5         | 3.3%        | 41.5        |
| <b>Total</b> | <b>154.8</b> | <b>136.5</b> | <b>18.3</b> | <b>7.5</b>  | <b>3.4%</b> | <b>38.8</b> |

The Production Target underpinning financial forecasts included in the FEED Study comprises 57% Measured Resources, 26% Indicated Resources and 17% Inferred Resources. The estimated Ore Reserves and Mineral Resource underpinning the Base Case Production Target have been prepared by a Competent Person in accordance with the requirements in the JORC Code.

As a result of the updated tailings strategy, the requirement for the lower-grade Omega South Pit to be mined earlier in the schedule to facilitate in-pit tailings deposition has been relaxed allowing the higher-grade Norton Deposit to be brought forward. This optimisation of the schedule has resulted in the earlier production of metal, thus bringing forward revenue, particularly that derived from silver (Figure 5).



**Figure 3: FEED Study Mining Schedule showing total tonnes mined by source together with the average mined lead and silver grade through time**



**Figure 4: FEED Study Processing Schedule showing total tonnes processed by Resource Classification together with the average processed lead and silver grade through time**

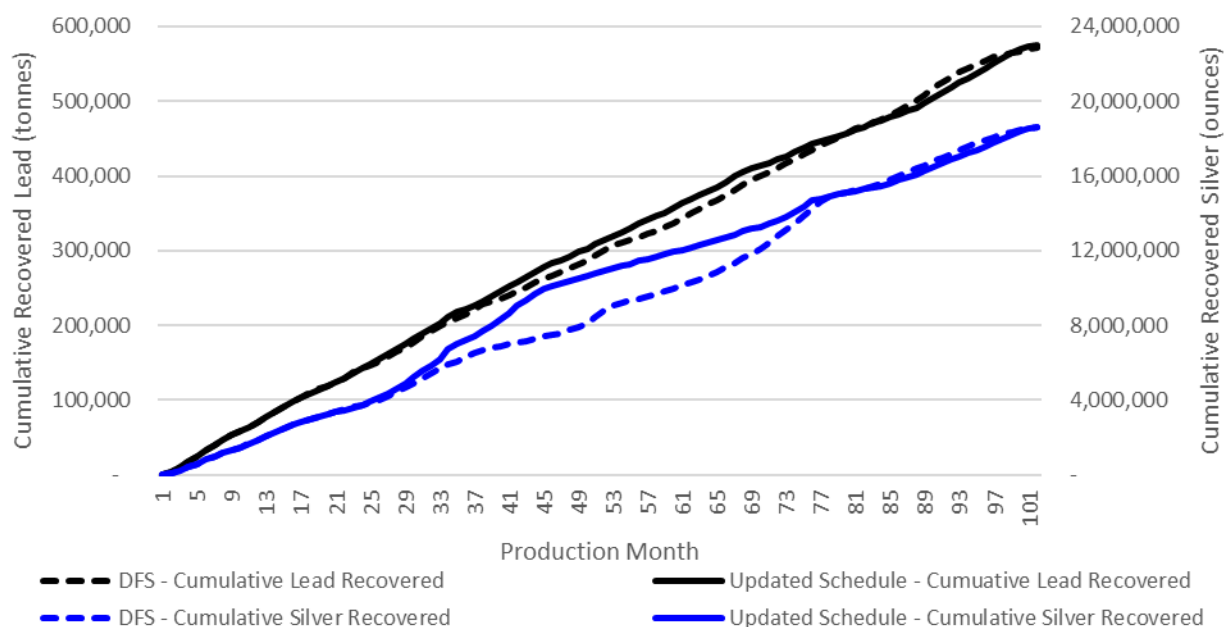
## Norton Metal Recoveries

Metallurgical testwork conducted during the DFS<sup>5</sup> returned metal recoveries for the Norton deposit that were unexpectedly lower than those achieved on samples from the other Sorby Hills deposits. While historic testwork had suggested higher recoveries were achievable at Norton, there was insufficient core available to undertake further testwork at the time therefore the reduced recoveries were adopted for the DFS. The reduced recoveries resulted in approximately 500kt of ore (17.7kt Lead and 1.3Moz Silver) dropping out of the Norton mining inventory compared with the Sorby Hills Pre-Feasibility Study<sup>6</sup>.

During 2023, the Company undertook a Phase VII diamond drilling campaign of which 13 holes were dedicated to the collection of metallurgical core samples from the Norton deposit. An additional 16 batch tests were undertaken<sup>7</sup>. The inclusion of these results together with the 5 used for the DFS has improved the average metal recoveries at the Norton deposit from 78% to 83% for lead and confirmed the silver recovery at 78% (Table 4).

**Table 4: Comparison of DFS and FEED Study Recoveries**

| Deposit / Study                     | Average Lead Recovery | Average Silver Recovery |
|-------------------------------------|-----------------------|-------------------------|
| <b>Norton Deposit - DFS</b>         | 78%                   | 78%                     |
| <b>Overall Average - DFS</b>        | 91%                   | 82%                     |
| <b>Norton Deposit – FEED Study</b>  | <b>83%</b>            | <b>78%</b>              |
| <b>Overall Average – FEED Study</b> | <b>92%</b>            | <b>82%</b>              |



**Figure 5: Comparison of cumulative metal recovered highlighting the acceleration of silver production and improved lead recoveries at Norton versus the DFS**

<sup>5</sup> ASX Release 19 December 2021

<sup>6</sup> ASX Release 25 August 2020

<sup>7</sup> ASX Release 22 May 2024

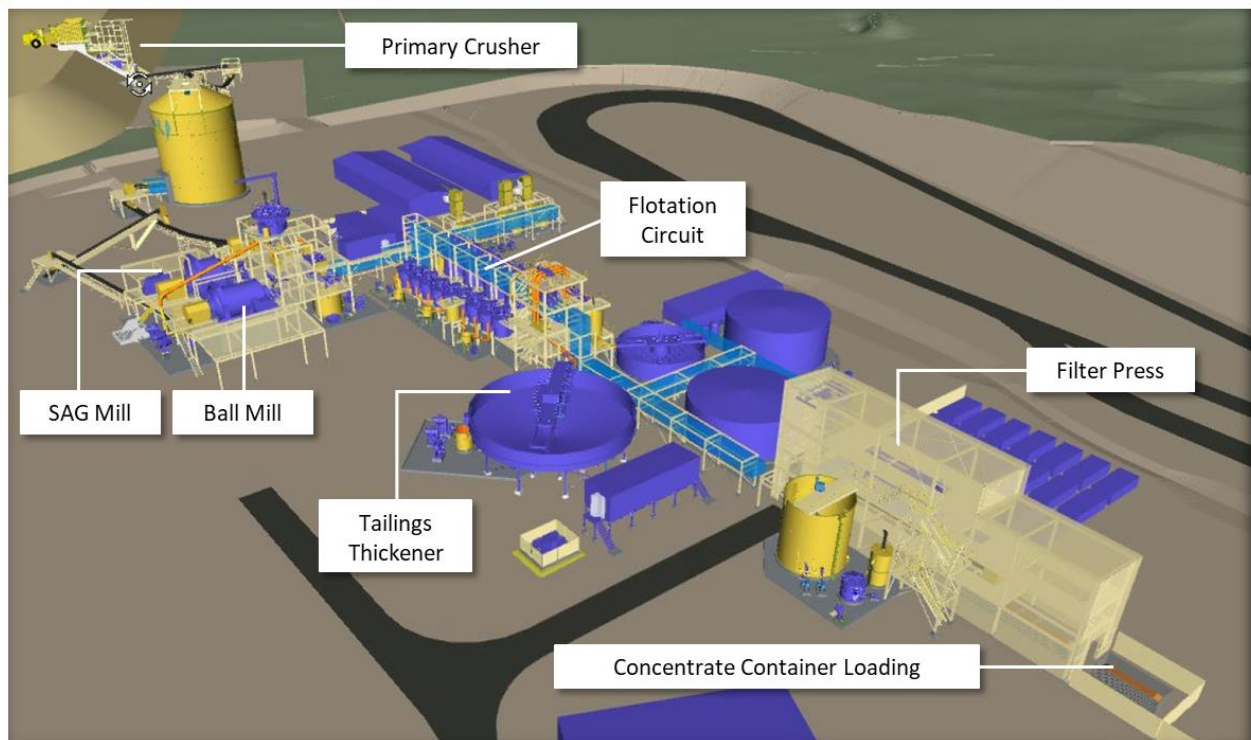
## Process Plant FEED and EPC Re-pricing

As for the DFS, the FEED Study is based on a conventional crush-mill-float processing circuit (Figure 6) to produce lead-silver concentrate at approximately 103ktpa. Initially, the process plant ore throughput rate will be 1.5Mtpa, however this will increase to 2.25Mtpa after 1 year of production via the bringing online of a ball mill that would be installed during the construction phase and provide operational flexibility during year 1 if required.

Preliminary designs for the Sorby Hill process plant were developed for the DFS and used as the basis for the EPC tender and associated pricing undertaken at the time. Following the DFS, GRES was commissioned to undertake FEED on the process plant and associated non-process infrastructure to progress design definition and maturity allowing for a more confident and refined pricing of the EPC contract.

Site layout changes include the relocation of the crusher, crushed ore bin and SAG/Ball mill to be situated within a cut-site established in the existing ridgeline. Furthermore, optimisation and rationalisation of the process plant, buildings and structures was undertaken.

Pricing for the process plant EPC contract in the DFS was A\$130.6M based on tenders received at the time. Following the conclusion of FEED, the EPC contract has been repriced at A\$134.9M representing a 3% increase over the DFS pricing.



**Figure 6: 3D Model of the Sorby Hills Process Plant produced by GRES during FEED**

## Mining and Bulk Earthworks Contract

The mining and bulk earthworks pricing for the DFS were based on separate tenders undertaken at the height of post COVID inflation. Subsequent to the DFS, and following the optimisation of the site layout, mining schedule and tailings strategy, the Company took the opportunity to retest the market with respect to these packages on a bundled basis. The Company received bundled tenders from multiple groups and has used this information for updating direct mining costs and bulk earthworks for the purpose of the FEED Study.

Results of the updated mining tender compared to the DFS are shown in Table 5.

**Table 5: Comparison of total Mining Costs between the DFS and FEED Study**

| Item                                  | Unit              | DFS   | FEED Study  | Variance |
|---------------------------------------|-------------------|-------|-------------|----------|
| <b>Life of Mine (incl. Pre-Strip)</b> | <b>A\$M</b>       | 591   | <b>561</b>  | (5%)     |
| <b>Unit Cost per BCM mined</b>        | <b>A\$/BCM</b>    | 10.26 | <b>9.40</b> | (8%)     |
| <b>Unit Cost per payable Lead</b>     | <b>US\$/lb Pb</b> | 0.34  | <b>0.31</b> | (9%)     |

The bulk earthworks package includes updates in the location of Mine Water Settling Pond (“**MWSP**”) and Evaporation Pond (“**EVP**”) and the inclusion of an Evaporation Basin (“**EVB**”) to provide further flexibility for the Project’s water management strategy. The EVP design has been updated by Tetra Tech Coffey to accommodate a forecast increased in water recovery from the TSF and a new Restricted Area Catchment (“**RAC**”) incorporating specified area of the process plant and non-process infrastructure.

Results of the updated bulk earthworks tender compared to the DFS are shown in Table 6.

**Table 6: Comparison of Life of Mine bulk earthwork cost between the DFS and FEED Study**

| Item                                    | Unit        | DFS         | FEED Study  | Variance      |
|-----------------------------------------|-------------|-------------|-------------|---------------|
| <b>Prelims &amp; Site Establishment</b> | <b>A\$M</b> | 17.9        | <b>10.9</b> | (7.0)         |
| <b>Tailings Dam</b>                     | <b>A\$M</b> | 8.7         | <b>11.7</b> | 3.0           |
| <b>Evaporation Pond</b>                 | <b>A\$M</b> | 5.6         | <b>6.1</b>  | 0.5           |
| <b>Mine Water Settling Pond</b>         | <b>A\$M</b> | 2.3         | <b>1.0</b>  | (1.3)         |
| <b>Water Storage Facility</b>           | <b>A\$M</b> | 4.1         | <b>2.8</b>  | (1.3)         |
| <b>Evaporation Basin</b>                | <b>A\$M</b> | -           | <b>2.8</b>  | 2.8           |
| <b>Haul Road</b>                        | <b>A\$M</b> | 11.3        | <b>1.6</b>  | (9.7)         |
| <b>Total Bulk Earthworks</b>            | <b>A\$M</b> | <b>50.0</b> | <b>36.9</b> | <b>(13.1)</b> |

The significantly reduced expenditure on the Haul Road resulted from a decision to include the construction and bulk earthworks component of the package under the mining contractor’s scope of works. The mining contractor would be responsible for providing and maintaining an appropriate and suitable Haul Road for the duration of the contract.

## Other Updates

### Concentrate Transport

An in-principal agreement between the Company and the departmental representatives of the Shire of Wyndham and East Kimberley (“**SWEK**”) provides for the ability to transport an increased volume of concentrate product to port per load in exchange for a modest payment contribution to SWEK for the upgrade of the road's infrastructure. The proposal was presented and approved at the 2023 end of year meeting of the SWEK council.

The approval for concessional loading allows Boab to transport approximately 20% more product per road train. This increase in additional overall movement of material per load results in an approximate A\$5 per wmt saving over the cost for non-concessional loading vehicle movements equating to an A\$4.5M saving in haulage costs over the current Life of Mine.

### ROM Loading

As a result of the updated mining tender, ROM ore handling cost has been reduced from A\$1.69/t ore to \$1.50/t ore resulting in a Life of Mine cash flow improvement of +A\$3.5M.

### Water Management

Pit dewatering requirements and the overall site water balance was revised based on the updated mining schedule and tailings strategy. While the revised mining schedule has increased project water drawdown (~31%), the updated strategy of above-ground tailings allows for completed open pits to be used for water management purposes thus reducing the volume of water required to be treated through the water treatment plant and providing operational flexibility in terms of water management strategy more generally. Consequently, a reassessment of the water piping requirements has reduced associated capital costs by A\$5.0M.

### Camp Refurbishment

In September 2022, Boab paid A\$1.3M to secure and relocate a second-hand camp comprising 178 rooms and laundry facilities. The DFS proposed this camp was to be refurbished to provide accommodation facilities for construction workers after which a new facility built in Kununurra in conjunction with SWEK would house the operational workforce.

For the FEED Study, the second-hand camp will be fully refurbished and upgraded to house the operational workforce on site (+A\$7.4M). Whilst the Company continues discussions with SWEK, the provision by the Company for a full-scale on-site accommodation facility at Sorby Hills decouples the project timeline from any potential risk relating to SWEK securing funding for the proposed Kununurra facility.

### Contingencies

Additional capital provisions have been made for owner's spares (+A\$3.0M). Upfront Capital Contingency has increased from A\$20.9M to A\$22.7M.

Other than the changes described in this announcement, no further material updates to operating or capital costs have been adopted in this FEED Study.

## Macroeconomic Assumptions

To highlight the impact of Project changes alone, the Company has adopted the same macro-economic assumptions that were used for the DFS (Table 7).

**Table 7: FEED Study macroeconomic assumptions**

| Assumption             | Unit         | FY2025 | FY2026 | FY2027 | FY2028 | FY2029+ |
|------------------------|--------------|--------|--------|--------|--------|---------|
| Lead Price             | US\$/t       | 2,259  | 2,268  | 2,269  | 2,254  | 2,251   |
| Silver Price           | US\$/oz      | 24.8   | 25.8   | 26.4   | 27.3   | 27.5    |
| Exchange Rate          | A\$:US\$     | 0.70   | 0.70   | 0.70   | 0.69   | 0.68    |
| Lead Treatment Charge  | US\$/t conc. | 125    | 125    | 125    | 125    | 125     |
| Silver Refining Charge | US\$/oz      | 1.25   | 1.25   | 1.25   | 1.25   | 1.25    |

**Based on spot prices as at 28 May 2024:** US\$2,344/t Lead, US\$32.1/oz Silver, A\$:US\$0.66, Benchmark Lead Treatment Charge of US\$98/t and Silver Refining Charge of US\$0.95/oz  
**Project NPV<sub>8</sub> = A\$596M, Pre-Tax IRR = 47% and average annual EBITDA = A\$160M.**

## Operating Cost Summary

The DFS forecast a C1 unit operating cost of US\$0.39/lb payable lead including silver credits. An independent review by CRU Global confirmed Sorby Hills as a 1<sup>st</sup> quartile lead producer on an ex-works (i.e. excluding credits and selling costs)<sup>8</sup>. Through a combination of operational optimisations including updated mining contract pricing and enhanced recoveries at Norton, unit operating costs have decreased to US\$0.36/lb payable lead (Table 8).

**Table 8: Operating Cost Summary**

| Operating Costs               | FEED Study   |              |                 | DFS             | Variance     |
|-------------------------------|--------------|--------------|-----------------|-----------------|--------------|
| Unit                          | A\$M         | A\$/t        | US\$/lb paid Pb | US\$/lb paid Pb | %            |
| Logistics                     | 117          | 6.40         | 0.07            | 0.07            | (4%)         |
| Mining                        | 547          | 29.96        | 0.31            | 0.34            | (8%)         |
| Processing                    | 388          | 21.27        | 0.22            | 0.22            | (1%)         |
| G&A                           | 88           | 4.80         | 0.05            | 0.05            | (1%)         |
| Lead Treatment                | 160          | 8.76         | 0.09            | 0.09            | -            |
| <b>C1 Costs (ex. Credits)</b> | <b>1,300</b> | <b>71.19</b> | <b>0.74</b>     | <b>0.77</b>     | <b>(5%)</b>  |
| Net Silver Credits            | (661)        | (36.21)      | (0.37)          | (0.38)          | (1%)         |
| <b>C1 Costs</b>               | <b>639</b>   | <b>34.98</b> | <b>0.36</b>     | <b>0.39</b>     | <b>(8%)</b>  |
| Royalties                     | 95           | 5.20         | 0.05            | 0.05            | -            |
| Sustaining Capital            | 26           | 1.45         | 0.01            | 0.03            | (52%)        |
| <b>AISC</b>                   | <b>760</b>   | <b>41.63</b> | <b>0.43</b>     | <b>0.48</b>     | <b>(10%)</b> |

<sup>8</sup> ASX Release 6 November 2023

## Capital Cost Summary

**Table 9: Capital Cost Summary**

| Capital Costs                    | FEED Study     |             |              | DFS          | Variance     |
|----------------------------------|----------------|-------------|--------------|--------------|--------------|
|                                  | Pre-Production | Sustaining  | Total        |              |              |
| Unit Cost                        | A\$M           | A\$M        | A\$M         | A\$M         | A\$M         |
| EPC Contract                     | 134.9          | -           | 134.9        | 130.5        | 4.3          |
| Site Est./Bulk Earthworks        | 31.9           | 4.9         | 36.9         | 54.5         | (17.6)       |
| Water Management                 | 8.1            | 11.7        | 19.8         | 24.8         | (5.0)        |
| Accommodation Village            | 11.5           | -           | 11.5         | 4.1          | 7.4          |
| Other Infrastructure             | 8.5            | 0.6         | 9.1          | 10.1         | (1.0)        |
| Owners Costs                     | 32.0           | -           | 32.0         | 31.0         | 0.9          |
| Contingency                      | 22.7           | -           | 22.7         | 20.9         | 1.8          |
| Pre-Production Opex              | 15.0           | -           | 15.0         | 14.6         | 0.4          |
| Closure Costs                    | -              | 9.3         | 9.3          | 9.3          | -            |
| <b>Total Capital Expenditure</b> | <b>264.5</b>   | <b>26.5</b> | <b>290.9</b> | <b>299.8</b> | <b>(8.8)</b> |

## Base Case Project Cashflows.

The Project generates A\$778M of pre-tax free cash flow over the Life of Mine with pre-production capital expenditure of A\$264M, a maximum negative cash balance of A\$282M and an average annualised EBITDA of A\$126M per annum during operations. The Project generates a pre-tax NPV<sub>8</sub> of A\$411M and an IRR of 37%. A summary of the annual Project financials, and the physicals underpinning them are shown in Table 10.

## Concentrate Offtake

The Company has held positive discussions with Offtakers dating back prior to the DFS and subsequently has shortlisted and advanced negotiations with preferred parties.

Negotiations have advanced to a stage where the Company anticipates awarding offtake in the coming months.

## Project Financing

It is proposed that the Project will be funded via a combination of debt and equity contributed by the Sorby Hills Joint Venture partners in proportion to their interest in the Joint Venture. Assessment of the debt-carrying capacity of the Project based on indicative commercial bank project financing terms and the FEED study project cashflows demonstrate that the Project can support up to 60% gearing at a Debt Service Coverage Ratios typical of those required to support project financing. Following the release of the FEED Study, the Company will step up its engagement with financiers, including the completion of typical project finance due diligence workstreams including an update of the Independent Technical Review, to secure financing binding terms sheet by Q4 2024.

**Table 10: Base Case Project Annual Physicals and Cashflow Summary**

| Calendar Year               | Unit        | Total        | 2025         | 2026         | 2027         | 2028         | 2029         | 2030         | 2031         | 2032         | 2033         | 2034         | 2035         | 2036       | 2037       |
|-----------------------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|------------|
| Waste Mined                 | Mt          | 136.5        | -            | 3.8          | 11.7         | 14.3         | 25.7         | 25.4         | 21.0         | 17.3         | 13.0         | 4.2          | 0.2          | -          | -          |
| <b>Ore Mined</b>            | <b>Mt</b>   | <b>18.3</b>  | <b>-</b>     | <b>0.4</b>   | <b>2.1</b>   | <b>2.3</b>   | <b>2.4</b>   | <b>2.5</b>   | <b>2.3</b>   | <b>2.0</b>   | <b>1.1</b>   | <b>3.0</b>   | <b>0.3</b>   | <b>-</b>   | <b>-</b>   |
| <b>Lead Grade</b>           | <b>%</b>    | <b>3.4%</b>  | <b>-</b>     | <b>3.8%</b>  | <b>4.1%</b>  | <b>3.2%</b>  | <b>3.8%</b>  | <b>3.3%</b>  | <b>3.1%</b>  | <b>3.1%</b>  | <b>3.6%</b>  | <b>3.4%</b>  | <b>2.9%</b>  | <b>-</b>   | <b>-</b>   |
| <b>Silver Grade</b>         | <b>g/t</b>  | <b>39</b>    | <b>-</b>     | <b>24</b>    | <b>39</b>    | <b>28</b>    | <b>60</b>    | <b>50</b>    | <b>22</b>    | <b>27</b>    | <b>42</b>    | <b>41</b>    | <b>50</b>    | <b>-</b>   | <b>-</b>   |
| % Measured                  | %           | 57%          | -            | 67%          | 92%          | 65%          | 72%          | 90%          | 72%          | 48%          | 17%          | -            | -            | -          | -          |
| % Indicated                 | %           | 26%          | -            | 33%          | 8%           | 35%          | 27%          | 9%           | 27%          | 50%          | 31%          | 31%          | -            | -          | -          |
| % Inferred                  | %           | 17%          | -            | -            | -            | -            | 1%           | 1%           | 2%           | 3%           | 53%          | 69%          | 100%         | -          | -          |
| <b>Ore Processed</b>        | <b>Mt</b>   | <b>18.3</b>  | <b>-</b>     | <b>-</b>     | <b>1.4</b>   | <b>2.3</b>   | <b>2.3</b>   | <b>2.3</b>   | <b>2.3</b>   | <b>2.3</b>   | <b>2.3</b>   | <b>2.3</b>   | <b>1.1</b>   | <b>-</b>   | <b>-</b>   |
| <b>Lead Grade</b>           | <b>%</b>    | <b>3.4%</b>  | <b>-</b>     | <b>-</b>     | <b>5.5%</b>  | <b>3.4%</b>  | <b>4.0%</b>  | <b>3.5%</b>  | <b>3.1%</b>  | <b>3.0%</b>  | <b>2.5%</b>  | <b>3.5%</b>  | <b>3.0%</b>  | <b>-</b>   | <b>-</b>   |
| <b>Silver Grade</b>         | <b>g/t</b>  | <b>39</b>    | <b>-</b>     | <b>-</b>     | <b>47</b>    | <b>30</b>    | <b>59</b>    | <b>54</b>    | <b>24</b>    | <b>27</b>    | <b>30</b>    | <b>41</b>    | <b>41</b>    | <b>-</b>   | <b>-</b>   |
| Lead Recovery               | %           | 91.6%        | -            | -            | 90.9%        | 94.1%        | 90.0%        | 88.0%        | 92.7%        | 94.7%        | 93.8%        | 90.3%        | 90.3%        | -          | -          |
| Silver Recovery             | %           | 81.7%        | -            | -            | 87.2%        | 86.2%        | 82.2%        | 81.4%        | 86.9%        | 86.9%        | 85.7%        | 70.4%        | 70.3%        | -          | -          |
| <b>Concentrate Produced</b> | <b>kt</b>   | <b>873</b>   | <b>-</b>     | <b>-</b>     | <b>109</b>   | <b>110</b>   | <b>126</b>   | <b>112</b>   | <b>99</b>    | <b>98</b>    | <b>80</b>    | <b>97</b>    | <b>42</b>    | <b>-</b>   | <b>-</b>   |
| <b>Lead Grade</b>           | <b>%</b>    | <b>65.8%</b> | <b>-</b>     | <b>-</b>     | <b>64.2%</b> | <b>65.6%</b> | <b>63.5%</b> | <b>62.4%</b> | <b>65.9%</b> | <b>66.0%</b> | <b>65.7%</b> | <b>72.2%</b> | <b>72.3%</b> | <b>-</b>   | <b>-</b>   |
| <b>Silver Grade</b>         | <b>g/t</b>  | <b>664</b>   | <b>-</b>     | <b>-</b>     | <b>529</b>   | <b>532</b>   | <b>860</b>   | <b>878</b>   | <b>479</b>   | <b>535</b>   | <b>730</b>   | <b>677</b>   | <b>770</b>   | <b>-</b>   | <b>-</b>   |
| Lead Revenue                | A\$M        | 1,803        | -            | -            | 198          | 225          | 260          | 215          | 207          | 208          | 165          | 226          | 98           | -          | -          |
| Silver Revenue              | A\$M        | 693          | -            | -            | 59           | 70           | 131          | 121          | 57           | 62           | 71           | 82           | 40           | -          | -          |
| <b>Total Revenue</b>        | <b>A\$M</b> | <b>2,496</b> | <b>-</b>     | <b>-</b>     | <b>257</b>   | <b>295</b>   | <b>392</b>   | <b>337</b>   | <b>264</b>   | <b>269</b>   | <b>237</b>   | <b>308</b>   | <b>138</b>   | <b>-</b>   | <b>-</b>   |
| Lead Treatment              | A\$M        | (160)        | -            | -            | (18)         | (20)         | (24)         | (20)         | (18)         | (18)         | (15)         | (18)         | (8)          | -          | -          |
| Silver Refining             | A\$M        | (32)         | -            | -            | (3)          | (3)          | (6)          | (6)          | (3)          | (3)          | (3)          | (4)          | (2)          | -          | -          |
| Royalties                   | A\$M        | (95)         | -            | -            | (10)         | (11)         | (14)         | (12)         | (10)         | (11)         | (9)          | (12)         | (5)          | -          | -          |
| <b>Net Revenue</b>          | <b>A\$M</b> | <b>2,209</b> | <b>-</b>     | <b>-</b>     | <b>227</b>   | <b>260</b>   | <b>348</b>   | <b>299</b>   | <b>233</b>   | <b>238</b>   | <b>210</b>   | <b>274</b>   | <b>123</b>   | <b>-</b>   | <b>-</b>   |
| Logistics                   | A\$M        | (117)        | -            | -            | (14)         | (15)         | (17)         | (15)         | (13)         | (13)         | (11)         | (13)         | (6)          | -          | -          |
| Mining                      | A\$M        | (547)        | -            | -            | (51)         | (62)         | (94)         | (93)         | (81)         | (71)         | (54)         | (36)         | (4)          | -          | -          |
| Processing                  | A\$M        | (388)        | -            | -            | (38)         | (47)         | (47)         | (47)         | (47)         | (47)         | (47)         | (47)         | (24)         | -          | -          |
| G&A                         | A\$M        | (88)         | -            | -            | (10)         | (10)         | (10)         | (10)         | (10)         | (10)         | (10)         | (10)         | (5)          | -          | -          |
| <b>Operating Cash Flow</b>  | <b>A\$M</b> | <b>1,069</b> | <b>-</b>     | <b>-</b>     | <b>114</b>   | <b>126</b>   | <b>180</b>   | <b>134</b>   | <b>81</b>    | <b>96</b>    | <b>88</b>    | <b>168</b>   | <b>84</b>    | <b>-</b>   | <b>-</b>   |
| Upfront Capex               | A\$M        | (264)        | (131)        | (133)        | -            | -            | -            | -            | -            | -            | -            | -            | -            | -          | -          |
| Sustaining Capex            | A\$M        | (26)         | -            | -            | (12)         | (1)          | (3)          | (1)          | (0)          | -            | -            | -            | (5)          | (4)        | -          |
| <b>Net Cash Flow</b>        | <b>A\$M</b> | <b>778</b>   | <b>(131)</b> | <b>(133)</b> | <b>101</b>   | <b>125</b>   | <b>177</b>   | <b>133</b>   | <b>81</b>    | <b>96</b>    | <b>88</b>    | <b>168</b>   | <b>78</b>    | <b>(4)</b> | <b>-</b>   |
| <b>Cumulative Cash Flow</b> | <b>A\$M</b> |              | <b>(131)</b> | <b>(265)</b> | <b>(163)</b> | <b>(38)</b>  | <b>139</b>   | <b>271</b>   | <b>352</b>   | <b>449</b>   | <b>536</b>   | <b>704</b>   | <b>782</b>   | <b>778</b> | <b>778</b> |
| <b>NPV</b>                  | <b>A\$M</b> | <b>411</b>   |              |              |              |              |              |              |              |              |              |              |              |            |            |
| <b>IRR</b>                  | <b>%</b>    | <b>37%</b>   |              |              |              |              |              |              |              |              |              |              |              |            |            |
| <b>Average EBITDA</b>       | <b>A\$M</b> | <b>126</b>   |              |              |              |              |              |              |              |              |              |              |              |            |            |
| <b>Operating Margin</b>     | <b>%</b>    | <b>43%</b>   |              |              |              |              |              |              |              |              |              |              |              |            |            |

## Project Execution Timeline

**Table 11: Indicative Project Execution Timeline**

| Item                                                     | Indicative Date      |
|----------------------------------------------------------|----------------------|
| <b>FEED Study Completion</b>                             | June 2024            |
| <b>EPBC Approval / EPA 45c Amendment</b>                 | June – November 2024 |
| <b>Close out Offtake / Project Financing workstreams</b> | June – November 2024 |
| <b>Final Investment Decision</b>                         | December 2024        |
| <b>Commencement of Site Establishment / Early Works</b>  | January 2025         |
| <b>Commencement of Process Plant Construction</b>        | July 2025            |
| <b>First Production</b>                                  | January – March 2027 |

## Opportunities

### Key opportunities include:

- **Backup Power Review** - The Company continues to explore initiatives to reduce the size of the proposed backup diesel power station to further reduce the cost of power supply and further increase to percentage of green, grid power from the hydroelectric plant beyond the current ~90%.
- **Further analysis of Norton metal recoveries** - The additional metallurgical testwork on Norton has improved average lead recoveries from ore sourced at that deposit. Further analysis will be aimed at gaining a clear understanding of the geological controls on recoveries and therefore the ability to selectively mine the deposit.
- **Updated Resource Statement** – Following further analysis of the Norton metallurgy, Boab will seek to update the Mineral Resource Estimate to incorporate drilling completed subsequent to the current estimate. Given that a significant portion of the drilling was in-fill drilling, the Company does not anticipate a material change in the Resource size or grade.
- **Updated Production Target and Ore Reserve** - Following further analysis of the Norton metallurgy and update of the Mineral Resource estimate, there is an opportunity to rerun pit optimisations and open pit designs incorporating the latest recovery results and updated costs/cut-off grades.
- **Project Execution** - Pursue opportunities to further de-risk project execution by reducing the procurement timeline for key capital items and/or accelerating the commencement of early works to Q4 2024.

---

The Board of Directors have authorised this announcement for release to the market.

**FOR FURTHER INFORMATION, PLEASE CONTACT:**

**Simon Noon**

**Managing Director & CEO**

Phone: **+61 (0)8 6268 0449**

Email: [info@BoabMetals.com](mailto:info@BoabMetals.com)

---

**About Boab Metals Limited**

Boab Metals Limited ("**Boab**", **ASX: BML**) is a Western Australian based exploration and development company with interests in Australia and South America. In Australia, the Company is currently focused on developing the Sorby Hills Lead-Silver-Zinc Joint Venture Project in WA. Boab owns a 75% interest in the Joint Venture with the remaining 25% (contributing) interest held by Henan Yuguang Gold & Lead Co. Ltd. Sorby Hills is located 50km from the regional centre of Kununurra in the East Kimberley and has existing sealed roads to transport concentrate from site to the facilities at Wyndham Port, a distance of 150km. Established infrastructure and existing permitting allows for fast-track production.

**Compliance Statements**

The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the 'JORC Code') sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves.

Information included in this announcement relating to Exploration Results has been extracted from the ASX Announcements titled "Metallurgical Testwork improves Metal Recovery and Concentrate Grades at the Norton Deposit" dated 22 May 2024, "Amended Drilling Announcement" dated 4 September 2023, "Assays Confirm Further Positive Outcome for Sorby" dated 23 January 2023, "High-Grade Lead-Silver Confirmed at Beta Deposit" dated 1 February 2022, and "Sorby Hills DFS Metallurgical Testwork Results" dated 19 November 2021 available to view at [www.boabmetals.com.au](http://www.boabmetals.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in these announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the form in which they were first presented.

Information included in this announcement relating to Mineral Resources has been extracted from the Mineral Resource Estimate dated 17 December 2021, available to view at [www.boabmetals.com.au](http://www.boabmetals.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the Mineral Resource Estimate and that all material assumptions and technical parameters underpinning the estimates, continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the Mineral Resource Estimate.

Information included in this announcement relating to Ore Reserve has been extracted from the Sorby Hills Definitive Feasibility Study dated 19 January 2023, available to view at [www.boabmetals.com.au](http://www.boabmetals.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the Ore Reserve Statement and that all material assumptions and technical parameters underpinning the estimates, continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the Ore Reserve Statement

## APPENDIX A: Additional Information

### Project Tenure

The Project is being developed by Boab Metals Limited ("**Boab**") (75%) and Henan Yuguang Gold, and Lead Co., Ltd (25%) ("**Yuguang**") via their respective subsidiaries Sorby Hills Pty Ltd ("**SHPL**") and Yuguang (Australia) Pty Ltd ("**HYL**"). The manager of the joint venture is Sorby Management Pty Ltd ("**SMPL**"), which is 100% owned by Boab. The relationship is governed by the Sorby Hills Joint Venture Agreement executed in 2010. The Project tenements include five granted Mining Leases: M80/285, M80/196, M80/197, M80/286 and M80/287 (Table A1).

**Table A1: Project Tenements**

| ID      | Holders                                            | Area (ha) | Grant Date | Expiry Date |
|---------|----------------------------------------------------|-----------|------------|-------------|
| M80/196 | Sorby Hills Pty Ltd<br>Yuguang (Australia) Pty Ltd | 999       | 22/01/1988 | 21/01/2030  |
| M80/197 | Sorby Hills Pty Ltd<br>Yuguang (Australia) Pty Ltd | 995       | 22/01/1988 | 21/01/2030  |
| M80/285 | Sorby Hills Pty Ltd<br>Yuguang (Australia) Pty Ltd | 558       | 29/03/1989 | 28/03/2031  |
| M80/286 | Sorby Hills Pty Ltd<br>Yuguang (Australia) Pty Ltd | 789       | 29/03/1989 | 28/03/2031  |
| M80/286 | Sorby Hills Pty Ltd<br>Yuguang (Australia) Pty Ltd | 816       | 29/03/1989 | 28/03/2031  |

The Project is located within the Native Title Claim area WAD124/04 as determined on the 24/11/2006 Miriung Gajerrong #4 (WC04/04). As the mining tenements pre-date the Native Title Act, SMPL does not have a mandatory requirement to negotiate a formal Indigenous Land Use Agreement / Co-existence Agreement with Traditional Owners. However, consistent with Company's social and community commitments and in the interests of developing positive working relationships with Traditional Owners, SMPL seeks to negotiate an agreement with the MG Corporation which outlines employment and contracting opportunities and other benefits that can be enabled through the Sorby Hills project to Miriung and Gajerrong peoples.

### Permitting & Approvals

The Project mine site itself has been broken into two stages, based on the existing approved footprint under Ministerial Statement 964, and future amendments required for inclusion of the Beta deposit. With respect to the current footprint, the status of environmental approvals and licensing applications are outlined in Table A2.

Boab has previously commissioned an independent Environmental and Social Review of the Sorby Hills Project with respect to ESG standards, including: International Finance Corporation Performance Standards and Environmental Health and Safety Guidelines for Mining, NAIF Investment Criteria, and • Equator Principles 4 (2020). The work, including a site visit of the Project and local communities delivered and Gap Analysis Report and Environmental Social Action Plan that highlighted to already strong ESG credentials of the Project and outlined recommended actions to ensure compliance with key ESG criteria.

**Table A2: Environmental Approvals and Licensing Applications**

| Relevant Legislation                               | Approval Required                                                                                                                               | Approval Status             | Scheduled Approval Date        |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------|
| Environmental Protection Act 1986 - Part IV        | Ministerial Approval                                                                                                                            | Approved                    | 2 <sup>nd</sup> April 2014     |
|                                                    | S45C Application (Camp & Access Road)                                                                                                           | Approved                    | 20 <sup>th</sup> June 2022     |
|                                                    | S45C Application (Extension to B Pit and addition of A pit, Increase in annual dewatering limit, Removal of minimum concentrate moisture limit) | Submitted                   | June 2024                      |
| Environmental Protection Act 1986 - Part V         | Works Approval - Category 12 [Early Works]                                                                                                      | Approved - W6366/2022/1     | 10 <sup>th</sup> March 2022    |
|                                                    | Works Approval - Category 5, Category 6                                                                                                         | To be submitted             | Q3 2024                        |
| DCCEEW - EPBC Act. Matter of National Significance | EPBC Act                                                                                                                                        | Preliminary advice received | August 2024                    |
| Mining Act 1986                                    | Mining Proposal & Mine Closure Plan [Early Works]                                                                                               | Approved - RegID 97509      | 21 <sup>st</sup> February 2022 |
|                                                    | Mining Proposal & Mine Closure Plan [Camp & Access Road]                                                                                        | Approved - RegID 110513     | 25 <sup>th</sup> July 2022     |
|                                                    | Revision to Mining Proposal & Mine Closure Plan [Mining Operations]                                                                             | To be submitted             | Q3 2024                        |
| Biodiversity Conservation Act 2016                 | Section 40 Authorisation to Take                                                                                                                | Approved - TFL 084-2122B    | 20 <sup>th</sup> December 2022 |
| Work Health and Safety (Mines) Regulations 2022    | Mining Operational Notification                                                                                                                 | Accepted                    | 1 <sup>st</sup> September 2022 |
| Rights in Water and Irrigation Act 1914            | 5C Licence to Abstract [Early Works]                                                                                                            | Approved - GWL202494        | 8 <sup>th</sup> August 2022    |
|                                                    | 5C Licence to Abstract [Mining Operations]                                                                                                      | Submitted                   | June 2024                      |
| Dangerous Goods Safety Act 2004                    | Dangerous Goods Licence                                                                                                                         | To Be Submitted             | March 2025                     |

The Project received clearance under the Environmental Protection and Biodiversity Conservation Act (“**EPBC**”) act in 2013. However, given the increased scale of the Project, compared to 2013, the Company deemed it prudent to seek reconfirmation.

In a request for further information received during the quarter, the Department of Climate Change, Energy, the Environment and Water (“**DCCEEW**”) confirmed the project is now considered a “controlled action” under the EPBC act assessed via preliminary documentation.

In early 2024, the Company completed, documented and submitted the results of environmental surveys requested by DCCEEW. An outcome is anticipated during the September quarter of 2024.

## Geology

The Sorby Hills mineralisation is classified as Mississippi Valley Type (“**MVT**”), implying replacement of carbonate and mixed carbonate siliciclastic rocks by Pb-Ag-Zn-Fe sulphides. Recent geological assessment has refined this to a sediment-replacement system, with mineralisation focused within an interval below the base of the Knox Sediments and the Sorby Dolomite (Transition Facies). The Late Devonian/Early Carboniferous host rock succession was transgressively deposited over the flanks of a Precambrian basement-high (Pincombe Inlier) that extended into the Burt Range Sub-basin which is part of the southern Bonaparte Basin.

The mineralisation is largely stratabound and hosted mainly in the Transition Facies, an interval of about 20 to 25m consisting of 1 to 2m thick cyclic bedded, beds of massive dolomite, silty dolomite and clay matrix breccias in the immediate footwall of the Knox Sediments and the uppermost interval of the Sorby Dolomite. A massive micritic fossiliferous dolomite interval is located in the hanging wall. Strata generally dip shallowly, but variably to the east, southeast and northeast. The mineralisation consists of seven discrete carbonate-hosted Pb-Ag-Zn deposits: A, B, Omega, Norton, Beta and Alpha (Pb and Zn) deposits. The deposits form a curvilinear north-trending belt extending over 7km, sub-parallel to the eastern margin of the Precambrian Pincombe Inlier with sub economic mineralisation linking all deposits (Figure A1).

## Mineral Resource Estimate

The Mineral Resource Estimate underpinning the DFS was undertaken by CSA Global Pty Ltd in accordance with the JORC Code (2012) and announced to the ASX on 17 December 2021.

The Mineral Resource Estimate comprises 47.3Mt at 3.1% Pb, 0.4% Zn and 35g/t Ag using a cut-off of 1% Pb. A comprehensive breakdown of the Mineral Resource by Resource classification and deposit is shown in Table A3. The updated estimate represents an increase in Measured and Indicated Tonnes of 2.8Mt (14%), 65kt contained Lead (9%) and 3.0Moz contained Silver (11%) versus the Mineral Resource Estimate that underpinned the Sorby Hill Pre-Feasibility Study and represents an increase of 5% Total Resources on the same basis.

The Mineral Resource estimate is supported by RC and DD drilling samples, with holes drilled over a time span between the 1970s and 2021. At the time of the December 2021 estimate, a total of 676 drill holes had intersected the mineralisation domains, with 212 holes drilled by Boab since 2018. A total of 244 holes are historical (pre-dating 2007) but were retained based upon acceptable quality control results.

## Resource Modelling

Drillholes were sampled at 1m intervals and the samples were accordingly composited to 1m lengths for most deposits, with the exception of the A and Beta deposits, where samples were composited to 2m lengths. Composited sample data were statistically reviewed to determine appropriate top-cuts, with top-cuts applied for Pb, Zn and Ag where appropriate. Sample populations for Pb, Zn and Ag were split by mineralisation domains as supported by statistical analysis of assay data. The top cut and composited drill samples were used for variogram modelling. Moderate relative nugget effects were modelled for these in the primary zone. A block model with block sizes of 10m (X) x 10m (Y) x 5m (Z) was constructed. The block sizes are approximately half the densest drill spacing, which generally supports a Measured or Indicated classification. Blocks and drill sample data were flagged according to the geological and mineralisation envelopes. Major variogram directions were modelled in the plane of the vein

towards the north-east. Grades for Pb, Zn, Ag, S and Fe were interpolated for all the grade variables by ordinary kriging. Blocks were estimated using a search ellipse of variable dimensions, ranging from 100m (major) x 30m (semi-major) x 5m (minor) dimensions for Beta, to 60m (major) x 30m (semi-major) x 5m (minor) for Omega North, with a minimum of 8 and maximum of 24 samples from a minimum of four drillholes. Search radii were increased, and the minimum number of samples reduced in subsequent sample searches if cells were not interpolated in the first two passes. Cell discretization of 5 x 5 x 1 (X, Y, Z) was employed.

### Density Modelling

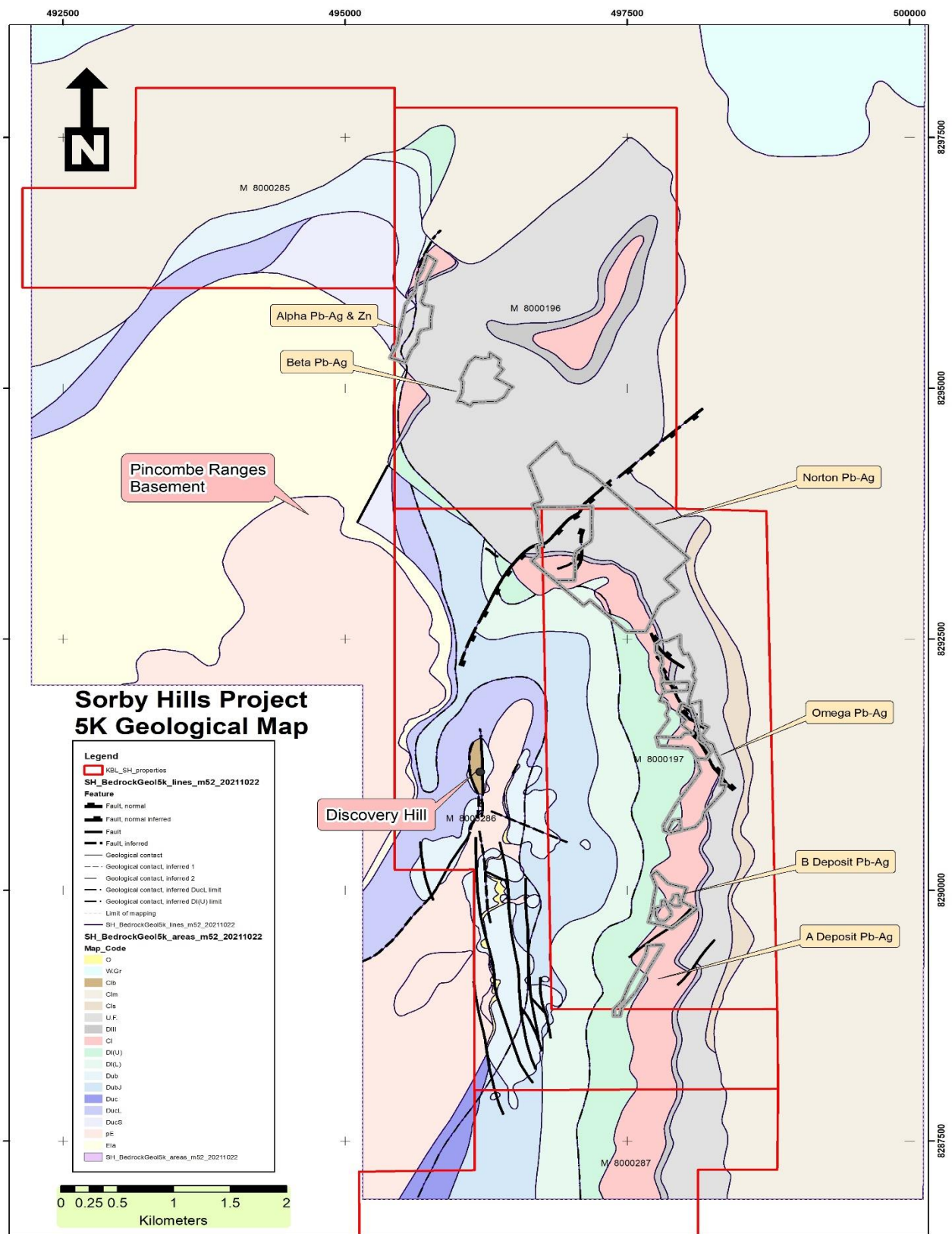
Density testwork was carried out on mineralised and un-mineralised DD core samples obtained between 2018 and 2021. Core segments were measured using either the water immersion (Archimedes) technique for both wax-coated and non-coated material and using the calliper method. There was a very strong correlation between the two methods. A total of 978 measurements were taken using the water immersion technique and these results were used to derive a base density value, and applied to an algorithm based upon interpolated Pb, Zn and Fe grades. The following formula was derived and used to calculate the bulk density for each block in the block model, where Pb, Zn and Fe are the estimated block grades, and BD is the base density value assigned to a combination of each of the lithostratigraphic and weathering domains -  $Density = 100 / ((100 - Pb\% - Zn\% - Fe\%) / BD) + Pb / 11.35 + Zn / 7.14 + Fe / 7.87$ . The host rock sequences exhibit a natural porosity related to mineralisation, which is not uniform in its distribution and sometimes not always recognisable during visual inspection of the DD core. The spatial distribution of the density data throughout the deposit do not fully capture the distribution of the porosity and therefore a cautionary tonnage adjustment factor was applied during the final grade-tonnage reporting stage. The final tonnage estimates were reduced by 1% globally to account for the visually estimated porosity levels.

### Resource Classification

The Mineral Resource was classified based upon drillhole spacing, quality of sampling and sample analyses, quantity of density measurements, the relative confidence in the geological interpretation, and the 'slope of regression' ("**SOR**") outputs from the kriging grade interpolation. A drill spacing equal to or less than 25m (north) by 25m (east) was used to initially define the Measured volumes and a drill spacing equal to or less than 50m (north) by 50m (east) was used to initially define the Indicated volumes. The block model was viewed in plan section, with blocks coloured by SOR (typically > 0.7) to assist this process. Inferred volumes are based upon a drill spacing of 50 to 100m (northing) by 50 to 100m (easting).

### Drilling Subsequent to the Mineral Resource Estimate

Following the 2021 Mineral Resource Estimate, the Company has received assay results from drilling across the Phase V, VI and VII campaigns comprising 64 RC and diamond drill holes across and proximal to the Sorby Hills deposits. The Company intends to incorporate these results into an updated the Mineral Resource prior to a Final Investment Decision. A key highlight of the most recent Phase VII was the intersection of ore grade mineralisation (9.55m at 5.1% PbEq from 243m at the Keep Seismic Target located 2km south of the existing Sorby Hills reserves. The intersection indicates replacement-type, stratiform MVT zinc & lead sulphide layers and disseminated mineralisation located within favourable structural and stratigraphic setting with potential for extensive development of mineralisation.



**Figure A1: Geological map of the Sorby Hills project area and surface projection of the Classified Mineral Resource**

**Table A3: Sorby Hills Mineral Resource Estimate<sup>9</sup> - Pb Domains only**

| Resource Classification by Deposit | Tonnes (Mt) | Grade       |             |           | Contained Metal |            |               |
|------------------------------------|-------------|-------------|-------------|-----------|-----------------|------------|---------------|
|                                    |             | Pb %        | Zn %        | Ag g/t    | Pb kt           | Zn kt      | Ag koz        |
| <b>A</b>                           |             |             |             |           |                 |            |               |
| Inferred                           | 0.6         | 5.3%        | 1.0%        | 23        | 31              | 6          | 427           |
| <b>Sub Total</b>                   | <b>0.6</b>  | <b>5.3%</b> | <b>0.1%</b> | <b>23</b> | <b>31</b>       | <b>6</b>   | <b>427</b>    |
| <b>B</b>                           |             |             |             |           |                 |            |               |
| Measured                           | 1.4         | 3.8%        | 0.3%        | 19        | 52              | 4          | 859           |
| Indicated                          | 1.3         | 3.4%        | 0.3%        | 21        | 44              | 4          | 862           |
| <b>Sub Total</b>                   | <b>2.7</b>  | <b>3.6%</b> | <b>0.3%</b> | <b>20</b> | <b>97</b>       | <b>8</b>   | <b>1,720</b>  |
| <b>Omega</b>                       |             |             |             |           |                 |            |               |
| Measured                           | 8.5         | 3.3%        | 0.4%        | 37        | 279             | 32         | 9,995         |
| Indicated                          | 5.8         | 3.5%        | 0.4%        | 34        | 205             | 25         | 6,331         |
| Inferred                           | 2.9         | 2.7%        | 0.4%        | 26        | 76              | 13         | 2,414         |
| <b>Sub Total</b>                   | <b>17.2</b> | <b>3.3%</b> | <b>0.4%</b> | <b>34</b> | <b>566</b>      | <b>71</b>  | <b>18,948</b> |
| <b>Norton</b>                      |             |             |             |           |                 |            |               |
| Measured                           | 2.8         | 4.1%        | 0.3%        | 75        | 112             | 9          | 6,668         |
| Indicated                          | 2.1         | 3.2%        | 0.5%        | 38        | 68              | 11         | 2,617         |
| Inferred                           | 16.2        | 2.5%        | 0.5%        | 27        | 402             | 75         | 14,039        |
| <b>Sub Total</b>                   | <b>21.1</b> | <b>2.8%</b> | <b>0.4%</b> | <b>34</b> | <b>590</b>      | <b>96</b>  | <b>24,090</b> |
| <b>Alpha</b>                       |             |             |             |           |                 |            |               |
| Indicated                          | 0.7         | 2.6%        | 0.5%        | 41        | 18              | 4          | 923           |
| Inferred                           | 0.8         | 3.6%        | 1.2%        | 86        | 27              | 9          | 2,052         |
| <b>Sub Total</b>                   | <b>1.5</b>  | <b>3.1%</b> | <b>0.9%</b> | <b>64</b> | <b>45</b>       | <b>13</b>  | <b>2,975</b>  |
| <b>Beta</b>                        |             |             |             |           |                 |            |               |
| Indicated                          | 1.0         | 4.1%        | 0.2%        | 42        | 42              | 2          | 1,382         |
| Inferred                           | 3.2         | 3.4%        | 0.4%        | 43        | 109             | 14         | 4,474         |
| <b>Sub Total</b>                   | <b>4.2</b>  | <b>3.6%</b> | <b>0.4%</b> | <b>43</b> | <b>151</b>      | <b>17</b>  | <b>5,856</b>  |
| <b>Total Resource</b>              |             |             |             |           |                 |            |               |
| <b>Measured</b>                    | <b>12.6</b> | <b>3.5%</b> | <b>0.4%</b> | <b>43</b> | <b>444</b>      | <b>45</b>  | <b>17,521</b> |
| <b>Indicated</b>                   | <b>11.0</b> | <b>3.4%</b> | <b>0.4%</b> | <b>34</b> | <b>377</b>      | <b>46</b>  | <b>12,114</b> |
| <b>Inferred</b>                    | <b>23.6</b> | <b>2.7%</b> | <b>0.5%</b> | <b>31</b> | <b>645</b>      | <b>117</b> | <b>23,406</b> |
| <b>Total</b>                       | <b>47.3</b> | <b>3.1%</b> | <b>0.4%</b> | <b>35</b> | <b>1,465</b>    | <b>207</b> | <b>53,042</b> |

Note: Tonnes and Grade are rounded. Reported at a 1.0% Pb Cut-Off. Discrepancies in calculated Contained Metal is due to rounding.

<sup>9</sup> ASX Release 17 December 2021

## Mining

The designed open pits contain a Production Target of 18.3Mt of ore, at a diluted grade of 3.4% Pb and 38.8g/t of Ag equating to 628kt of Pb and 22.8Moz of Ag metal. The pits also contain 136Mt of waste material for an average strip ratio of 7.5:1 (t:t).

A total of 154.8Mt will be mined via a conventional contract drill & blast, load & haul operation. Based on drill core logging descriptions, the weathering types 'black soil' (~0m to 6m) and oxide (~6m to 20m) have been interpreted as 'clay' and will be free dig (i.e. it will not require drilling and blasting). Transitional rock (~20m to 30m) has been assumed to align with 'weathered' (UCS of 106Mpa) and fresh rock has been assumed to align with 'fresh' (UCS of 137Mpa).

Following publication of the DFS, further work was undertaken on the mining schedule with mine engineering consultants, Entech Pty Ltd. Monthly mine production scheduling was conducted using GEOVIA MineSched® software.

A revision of the Sorby Hills tailings strategy away from in-pit tailings deposition relaxed the need for Omega South to be mined earlier in the schedule. For the FEED Study, the mining schedule was adjusted by moving the mining of the higher-grade Norton Pit further forward and pushing Omega South to later in the schedule (Figure A2, Table A4).

Accommodating the Norton Pit earlier in the schedule results in a need to accelerate mining earlier than previously reported however it was determined that this addition cost was outweighed by the benefits including:

- earlier higher-grade ore being available; and
- completed pit voids are available for placement of water.

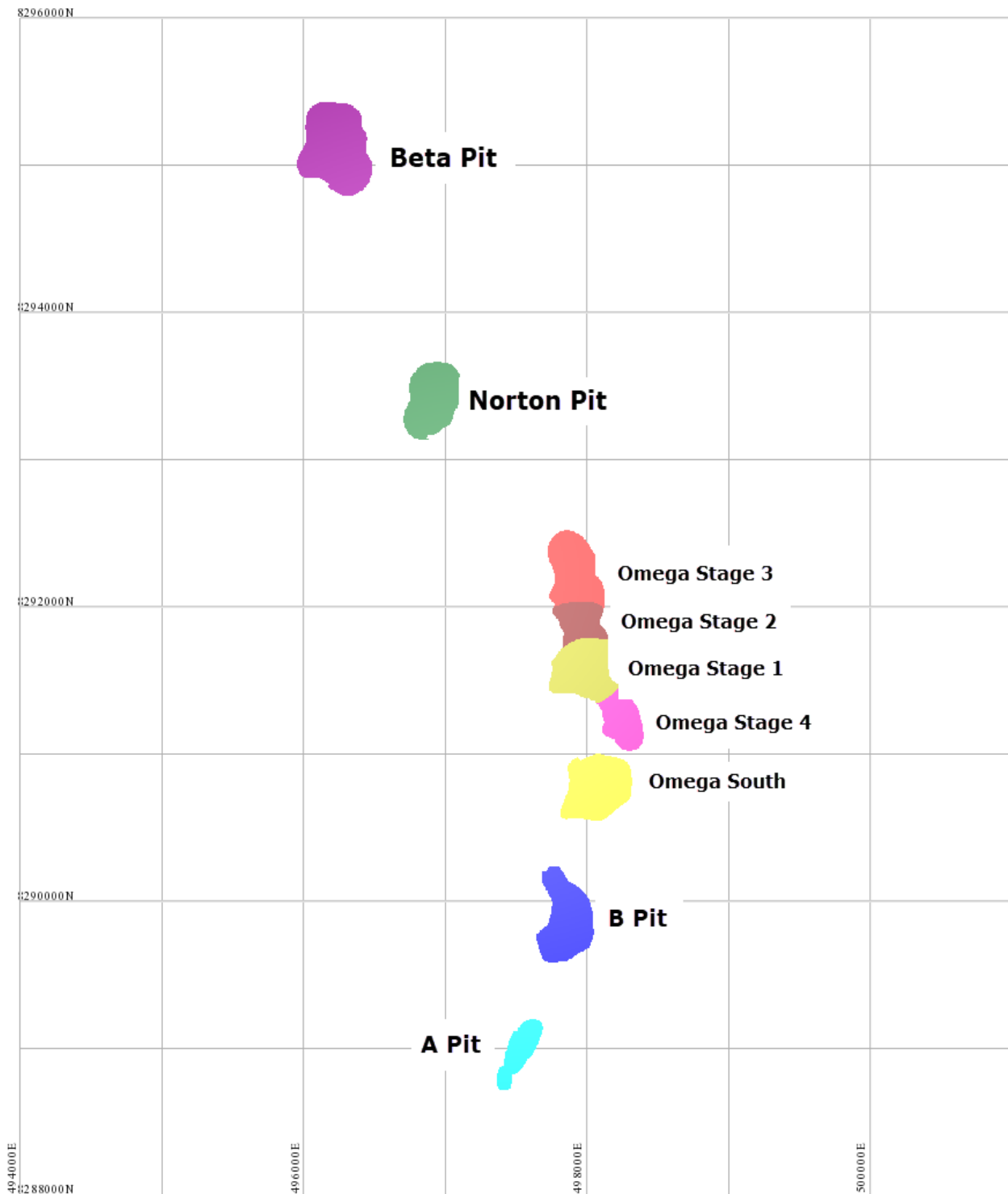
**Table A4: Annual Mining Sequence by Pit/Stage**

| Production Year | 1 |   |   |   | 2 |   |   |   | 3 |   |   |   | 4 |   |   |   | 5 |   |   |   | 6 |   |   |   | 7 |   |   |   | 8 |   |   |   | 9 |   |   |   |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quarter         | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| A Pit           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| B Pit           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Norton Pit      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Omega 1         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Omega 2         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Omega 3         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Omega 4         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Omega South     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Beta Pit        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

With multiple pits to mine, a balanced approach has been used in line with the objective of delivering an improved economic outcome. Constraints such as vertical rates of advance can limit the productivity in individual pits, but productivity rules have been used to ensure the number of active pits is achievable.

## Ore Movement and Blending

Ore is transported to the ROM Pad where it is blended and fed into the Plant for processing. To facilitate this process, ore has been categorised into three grade ranges based on the lead content (Table A5). During some months, a residual stockpile of up to 250kt of High-Grade and Medium-Grade ore is carried on the ROM to assist in material balancing, mitigating any risks of



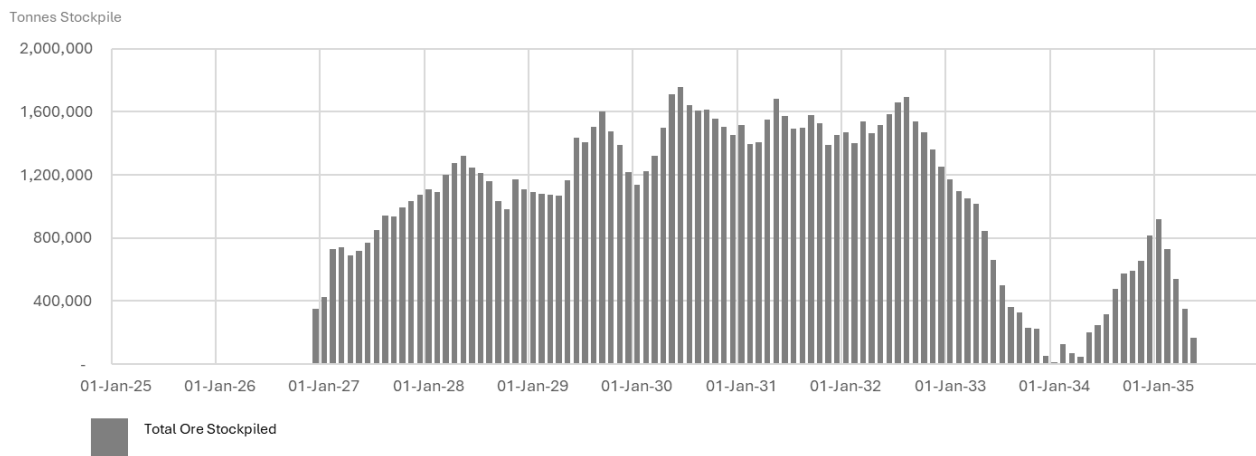
**Figure A2: Location of and staging of the Sorby Hills open pits**

supply disruption in the wet season. In most cases, particularly early in the schedule, Low Grade material is set aside in preference for processing the higher grades. This creates a Low-Grade stockpile up to 1.6Mt (Figure A3). Managing the size of this stockpile has been considered in the extraction sequencing.

**Table A5: Blending Grade Bin Cut-Off**

| Blending Classification | Range          |
|-------------------------|----------------|
| High Grade              | +4% Pb         |
| Medium Grade            | 2.5% - 4.0% Pb |
| Low Grade               | +1.3% Pb       |

Mineralised Waste is also identified in the schedule as below economic cut-off but with Pb grade greater than 0.03% Pb. Mineralised waste is moved to the Integrated Waste Landform (“IWL”) embedded in the TSF.



**Figure A3: Monthly balance of total ore stockpiled throughout the mining schedule**

## Waste Movement

The extraction and movement of waste rock has been designed in consideration of the requirement for construction materials for key infrastructure and the objective of backfilling open pits where operationally and economically feasible.

Mineralised Waste, Potentially Acid Forming (“PAF”) material, and Black Soil containing active clay will be excluded from construction activities where necessary. Black soil with inactive clay material will be used for lining dam walls. Fresh waste rock material mined early from Omega Stage 1 will be used for road sheeting.

Waste mined from any given pit is first backfilled into its own stage if there is enough space to do so and secondarily to the next nearest pit void where practical. Material that cannot be directly backfilled or is too costly to move to backfill is moved to the IWL for permanent storage. Waste is built up around the TSF and once the tailings has dried, waste material from mining operations will be reclaimed from the IWL to cap the TSF.

The 24.9M BCM of material stored in the IWL at the end of the mine life includes 1.4M BCM of Mineralised Waste which will be completely encapsulated in the NAF material.

## Schedule Equipment and Productivity

The mining schedule has been established using a 110t excavator and a 200t excavator used primarily for the bulk waste mining. The 200t excavator and fleet will be used at the top of the pits and develop the ore pit down to expose the top of the ore. The mining rate is slowed once the ore is encountered. This process is then replicated in each of the pits and stages.

The mining rate is initially reduced in the first months as the early access to high grade ore and the amount of low grade is controlled to satisfy processing requirements and inhibit the size of the Low-Grade stockpile which is constrained by working area. In month 26 after the beginning of mining, the production rate is doubled and then slowed again late in the schedule when the number of working areas has decreased, and vertical rates of advance impose a slower productivity.

It is expected that one of the excavators will be demobilised late in the schedule. Productivity of the excavators was modelled based on information provided from contractors on similar scale projects using the specific gravity of material from the deposit. Table A6 shows the productivity used for the schedule.

**Table A6: Excavator Productivity**

| Excavator Class | Maximum Productivity (t/hr) | Utilisation | Availability | Efficiency | Schedule Productivity (Mtpa) |
|-----------------|-----------------------------|-------------|--------------|------------|------------------------------|
| 110t            | 2,124                       | 88%         | 88%          | 95%        | 13.69                        |
| 200t            | 2,451                       | 88%         | 88%          | 95%        | 15.80                        |

Climate data has been considered in productivity for the schedule by adding equivalent days lost each month due to rain. Table A7 shows the equivalent days lost for the months related to the number of days where greater than 15 mm of rainfall is expected. The figures in this table have been provided by contractors and are typical of mines in the region. Months not listed in the table are assumed not to be affected by weather.

**Table A7: Days Impacted by weather (rainfall >15mm)**

| Month         | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Eq. Days Lost | 7   | 7   | 5   | 3   | 2   | 0   | 0   | 0   | 0   | 2   | 4   | 5   |

The schedule assumes the excavators are fully trucked. The vertical rate of advance in any one pit or stage has been targeted at 60m annually but can stretch to as far as 75m if there is a large enough safety area. A sufficient working area on consecutive benches has been maintained at a minimum of 80m with a minimum mining width of 20m.

Mining include Drill & Blast and, Load &Haul will be done on a contract basis with the mining contractor responsible for sizing and supplying the fleet to meet the mining schedule.

## Hydrology

Topography across the development envelope is extremely flat. Ignoring an encroaching hill and some artificially raised tracks and pads to the northwest, elevation levels within the envelope are largely constrained between 19.5 - 21.5m AHD. The envelope generally slopes from northwest to southeast and has no defined watercourse.

A two-dimensional fixed-grid model was developed by GHD using TUFLOW for the simulation of mine flood conditions. Modelling was undertaken using a 'rainfall-on-grid' approach, in which rainfall is directly applied on a grid, describing the Project Area's topography. The model was simulated for both the present-day baseline and proposed mine development scenario during the 1% AEP and 5% AEP storm events.

The following key observations are noted from the model:

- water flow across the site is predominantly a slow-moving shallow sheet flow;
- channelised flows are present at the steep, elevated areas of Sorby Hills and drain into the western side of the development envelope;
- depths average 0.3m in the 5% AEP storm event and 0.4m in the 1% AEP storm event;
- depths are highest along the southern boundary of the development area, which are as high as 0.65 m and 0.8m simulated in the 5% and 1% AEP storm events respectively;
- flow velocities are generally less than 0.2m/s, which is below typical erosive velocities of natural stream beds; and
- flow velocities greater than 0.5m/s are only observed in creeks flowing off Sorby Hills from the west and within Knox Creek.

The 1% AEP storm event was used in the by Tetra Tech Coffey to design the final top RL of the site access roads, haul road and infrastructure pads. This developed an island like infrastructure area to avoid significant inundation during major storms during the wet season. A number of culverts and diversion drains were recommended and were incorporated into the site layout designs. Pit abandonment bunds were sized and optimised at 2m high at the planned set-back from the pit crest. To ensure protection against pit flooding in the rare event of a TSF dam failure the abandonment height was set to 3-4m in potentially affected areas.

## Hydrogeology and Pit Dewatering

There have been numerous hydrogeological studies at Sorby Hills from 1975 through to 2020. Engineering consultants GHD, built on this previous work by undertaking a field program that installed test production bores and monitoring bores in all target orebodies and undertook a successful test pumping program. The analysis of the test pumping data provided both quantitative and qualitative data that were used to develop numerical models of pit water inflow and pit dewatering requirement for the DFS and incorporated the following:

- in-pit water levels were set at a nominal 10m below the lowest pit floor to provide a margin of safety; and
- three months of advanced dewatering was incorporated into the model. This was done to provide the opportunity for water in the dewatered zone to migrate downwards to the water table.

The results of these models were used to derive predictions for month by month and pit by pit

dewatering volumes for the FEED Study. The results are summarised annually in Table A8.

The water produced from the open pits is approximately 31% more than in the DFS. This is due to a combination of factors including the updated mining schedule where pits remain operational for longer periods and in the inclusion in the site water balance of rainwater harvested within the open pit abandonment bunds.

**Table 8: Open Pit inflow and dewatering summary**

| Source    | Total modelled ground water inflow to pits | Incremental contingency volume | Incremental rainwater captured within abandonment bunds | Total Open pit pumping requirement |
|-----------|--------------------------------------------|--------------------------------|---------------------------------------------------------|------------------------------------|
| Unit      | GL                                         | GL                             | GL                                                      | GL                                 |
| Year 1    | 1.9                                        | 0.3                            | 0.4                                                     | 2.6                                |
| Year 2    | 3.0                                        | 0.5                            | 0.5                                                     | 4.0                                |
| Year 3    | 3.3                                        | 0.5                            | 0.6                                                     | 4.3                                |
| Year 4    | 6.2                                        | 0.9                            | 0.5                                                     | 7.7                                |
| Year 5    | 4.7                                        | 0.7                            | 0.6                                                     | 6.0                                |
| Year 6    | 6.2                                        | 0.9                            | 0.7                                                     | 7.8                                |
| Year 7    | 3.4                                        | 0.5                            | 0.3                                                     | 4.3                                |
| Year 8    | 2.6                                        | 0.4                            | 0.2                                                     | 3.2                                |
| Year 9    | 1.5                                        | 0.2                            | 0.1                                                     | 1.8                                |
| LOM Total | 32.7                                       | 4.9                            | 4.0                                                     | 41.6                               |

The proposed dewatering strategy will continue to comprise of in-pit sump pumping by the mining contractor. The location of the majority of and main active sumps will be at the base of the footwall in each pit, to ensure dewatering has a minimal impact on mining activities. The rising main from each in-pit sump will deliver the pit dewatering and rainfall within the pit crest bund to a ring main associated with each pit or series of pits.

## Metallurgy

The DFS and FEED Study metallurgical testwork programs build upon a significant body of previous metallurgical testwork undertaken by the Company since acquiring Sorby Hills in 2018 and others dating back to 1979.

### DFS Metallurgical Testwork

The primary objective of the DFS Metallurgical Testwork Program was to deliver robust results to underpin the Sorby Hills DFS Process Plant design criteria.

The program comprised a total of 35 HQ diamond drill holes included in the Phase IV and V drilling. From these holes, approximately 1,420kg from 399m of half core was collected, combined and composited into Variability Samples, Schedule Composites and Master Composites. Samples and Composites were utilised for a range of testwork including Flotation, Comminution, Mineralogy, Heavy Liquid Separation, Tailings Thickening, Concentrate Filtration

and Concentrate Analysis.

### FEED Study Metallurgical Testwork

Following the DFS, the Company completed a further round of metallurgical testwork on new samples collected from the Norton Deposit to explore the opportunity to enhance the conservative recovery values adopted for the DFS.

A total of 20 samples were collected from Norton during the Phase VII drilling campaign. Batch flotation testwork based on the process flowsheet and fresh ore reagent regime was undertaken on 16 of these samples. Two were excluded due to the head grade being below the cut-off (<1% Pb). A further two samples were excluded due to their classification as oxidised ore based on their sulphur deficiency.

Two of the sample tested required the addition of sphalerite suppressing reagent to achieve target recoveries. It is anticipated that any impact of including sphalerite suppression in the reagent regime will have negligible impact on operating costs.

Inclusive of the five fresh ore samples tested as part of the DFS, the average recovery for Fresh ore at the Norton deposit, including adjustment for previous Locked-Cycle Testwork, increases from 78.2% to 82.8%<sup>10</sup>. Silver recovery at Norton has remained largely unchanged with a slight decrease from 78.1% to 77.6%.

The average recovery on a deposit by deposit is shown in Table A9.

**Table A9: Average Metallurgical Recovery by Deposit**

| Deposit         | Oxidised Ore |              | Fresh Ore    |              | Total        |              |
|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                 | Pb           | Ag           | Pb           | Ag           | Pb           | Ag           |
| Omega Pit       | 89.0%        | 91.7%        | 95.2%        | 86.6%        | 93.5%        | 87.8%        |
| B Pit           | 85.5%        | 88.3%        | 95.1%        | 83.9%        | 94.5%        | 84.2%        |
| Norton Pit      | 85.6%        | 89.9%        | 82.8%        | 77.6%        | 82.8%        | 77.6%        |
| Omega South Pit | 79.9%        | 89.3%        | 95.2%        | 87.0%        | 93.4%        | 87.1%        |
| A Pit           | 85.5%        | 88.3%        | 95.1%        | 83.9%        | 94.9%        | 84.0%        |
| Beta Pit        | 60.1%        | 56.5%        | 90.3%        | 70.3%        | 90.3%        | 70.3%        |
| <b>Total</b>    | <b>87.8%</b> | <b>91.4%</b> | <b>92.4%</b> | <b>80.7%</b> | <b>91.7%</b> | <b>81.8%</b> |

### Processing

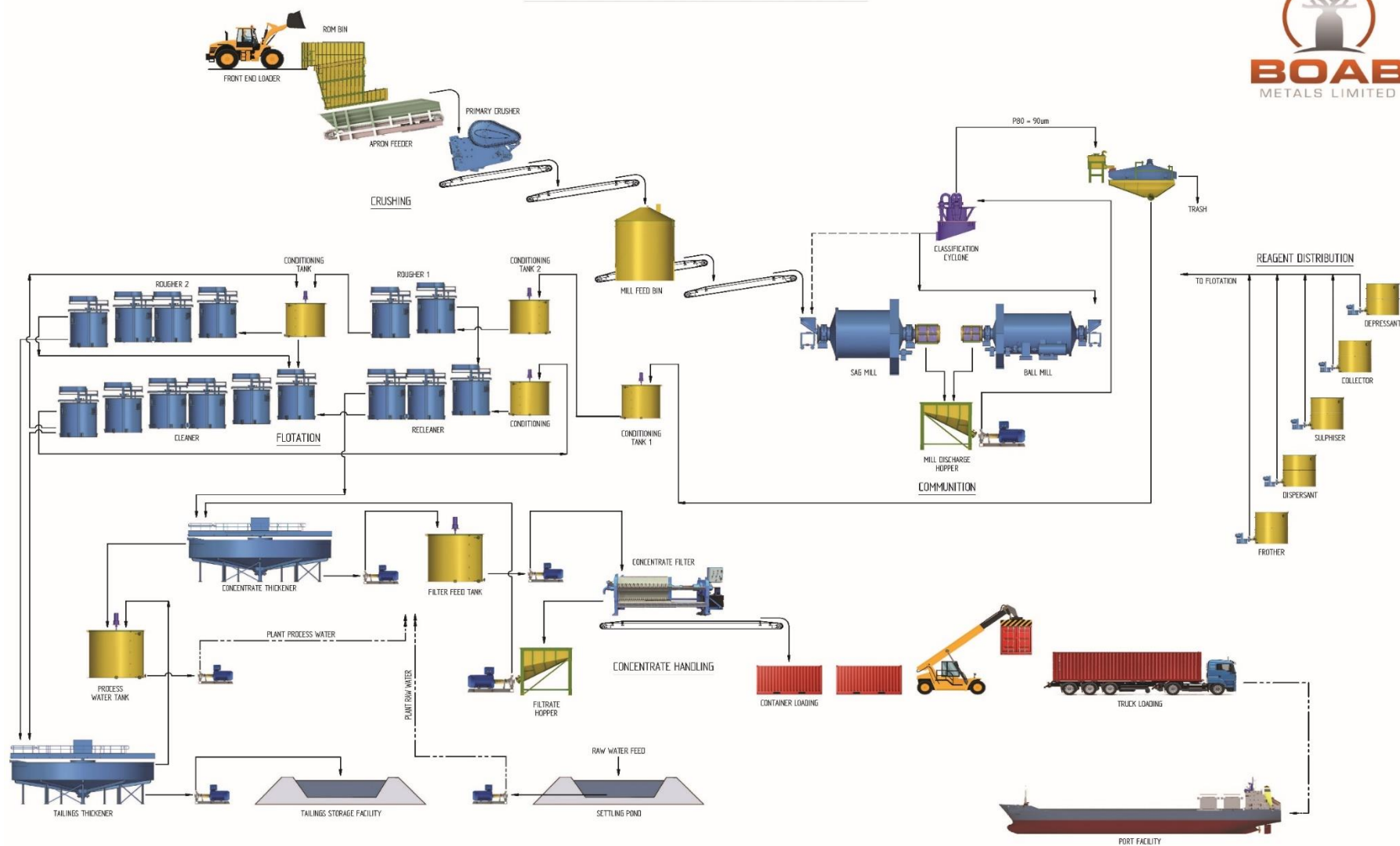
The core of the Sorby Hills project flowsheet remains unchanged from the DFS. Following the DFS report, GRES undertook the FEED process on the project which included progressing the detailed design to an approximate 25-30% completion. The FEED process included the update of the Flow Diagram, PFDs, P&IDs and PDC documents. The remaining detailed design will be completed upon full award of the execution package following FID.

The Sorby Hills process plant is designed to treat 2.25Mtpa of ore. In the initial year of operation while head grade is at its highest, the process plant throughput rate is at a nominal 1.5Mtpa. This processing rate profile maintains concentrate production at a nominal 110ktpa until the grade reduces after the first year. Comminution and flotation circuit equipment sizing has been based

<sup>10</sup> ASX Release 22 May 2024

on providing the required “turn-down” ability to operate at the lower initial throughput capacity. A high-level process diagram is presented in Figure A4.

## SORBY HILLS PROCESS PLANT FLOWSHEET



**Figure A4: Schematic flowsheet for the Sorby Hills Project**

The processing plant design has been undertaken in accordance with the following philosophy:

- a simple and robust flowsheet using well established methods;
- well proven equipment;
- ease of maintainability;
- best practice OHS&E protection;
- ten-year life operating continuously 24 hours per day, 365 days per year; and
- an overall plant availability of 91.3% or 8000h/yr.

Several plant design features were selected to maximise the occupational safety aspects from a lead exposure perspective including:

- dust misting spray systems,
- Dust extraction systems,
- a coarse ore bin eliminating crushed ore stockpiles,
- primary crushed ore fed SAG-ball grinding circuit eliminating fine crushing.

The crushing plant consists of a single stage jaw crusher with a fully enclosed crushed ore surge bin ahead of the grinding circuit. The grinding circuit consists of a SAG-ball circuit operating in closed circuit with hydrocyclone classification. Mill discharge trommel oversize is recirculated through the milling circuit feed via conveyor without pebble crushing. Cyclone overflow passes through a trash screen before entering the flotation circuit. As part of the process plant FEED, it was determined to relocate the crusher, crushed ore bin and SAG-ball within the cut back of the hill to provide added foundation integrity.

The flotation circuit consists of two stages of roughing, 1st cleaner, cleaner-scavenger and recleaner banks. Fast floating material from rougher 1 is directed to the recleaner feed. Rougher 2 concentrate feeds cleaner 1, while cleaner 1 concentrate also feeds the recleaner. Cleaner scavenger concentrate recycles to rougher 2 feed, while the cleaner scavenger tailings report to final tailings. Recleaner tails returns to 1st cleaner feed. Two conditioning tanks are provided for initial rougher reagent addition. An additional conditioner is provided for rougher 2 for additional sulphurisation. A 1st cleaner conditioning tank is also provided. The first rougher conditioning tank also has flow rate stabilisation functionality.

Concentrate is thickened and stored in a filter feed tank before being dewatered in a vertical plate and frame filter press with direct transfer of concentrate into half-height shipping containers for transport.

Tailings are thickened and sent to the Tailings Storage Facility ("TSF").

Plant services include reagents, water, air, office, workshop, stores and laboratory facilities. The plant is automated with a Programmable Logic Controller / Supervisory Control and Data Acquisition type configuration. An on-stream-analysis system is provided for major metals (Pb, Ag, Fe, Zn) in six flotation streams and feed galena / cerussite mineralogy on the feed stream.

## Concentrate Production and Logistics

### On Site Production

Concentrate is produced at the nominal rate of 110,000 dmt per year. The Processing plant has a dedicated half-height container loading and sampling system. This system loads the containers, samples the concentrate and then closes/locks the lid. With a sealed lid, the concentrate is protected from the environment.

### Transport to Port

Each container is transported to Wyndham Port on triple road trains. Each road train is washed down before leaving the site. There will be two road trains completing two round trips per day, delivering a total of 12 full containers to the port and returning 12 empty containers to the site. Each tip is 159km each way. Capital provision has been made for the purchase of 500 containers.

Following the completion of the DFS, the Company pursued an opportunity to attain Concessional Loading for the transport of the concentrate product from the mine to Wyndham Port. This concession is of significant benefit to the transport cost per tonne and will see an improvement of approximately \$5/wmt in transportation costs.

In consultation with GHD, the Company has worked with SWEK to develop a compensation model which would provide funds to the shore for the maintenance and upgrades of the road infrastructure along the transport corridor. This compensation model was presented to Council at their November 2023 meeting and subsequently approved for an initial one-year period with ongoing annual review that provided flexibility to ensure the compensation model remained aligned with each parties' objectives.

### Port Logistics

Wyndham Port (Figure A5), through which concentrates produced from Sorby Hills will be shipped, is the only deep-water port between Broome and Darwin. Current exports include live cattle, raw mined products from across northern Australia and produce from the Ord River irrigation area. Wyndham Port is designed and already established for the export of metal concentrates and bulk ore shipping. Imports include diesel and ammonium nitrate for the mining industry. Wyndham Port operations and management are currently overseen by Cambridge Gulf, however, the facility is owned by the Department of Transport and regulated by the Kimberley Ports Authority. The Company has executed a 10-year Agreement for Access and Stevedoring Service with Cambridge Gulf<sup>11</sup>.

Handy Class ships with a capacity of ~10,000 dmt will be employed to ship the concentrate to the market. Approximately one shipment per month is required. Half-height containers are shuttled to the wharf from the Port storage area, and the ship's crane lifts each container using a specialised Rotainer rotator jig. The containers are lifted directly into the ships hold before they are rotated and the lid opened. Dust suppression systems such as mist sprays are employed at the hold's hatch.

---

<sup>11</sup> ASX Release 31 March 2022



**Figure A5: Vessel loading activities at Wyndham Port**

### Geotechnical Investigations

Three previous geotechnical investigations have undertaken at Sorby Hills, by Soil Water Consultants (2011, 2012) and Tetra Tech Coffey (2021), to characterise surficial soil materials for the TSFs detailed design and site infrastructure design. A further two geotechnical investigations were undertaken by Entech (2019, 2020) to complete a mining geotechnical assessment for pit slope stability and pit design.

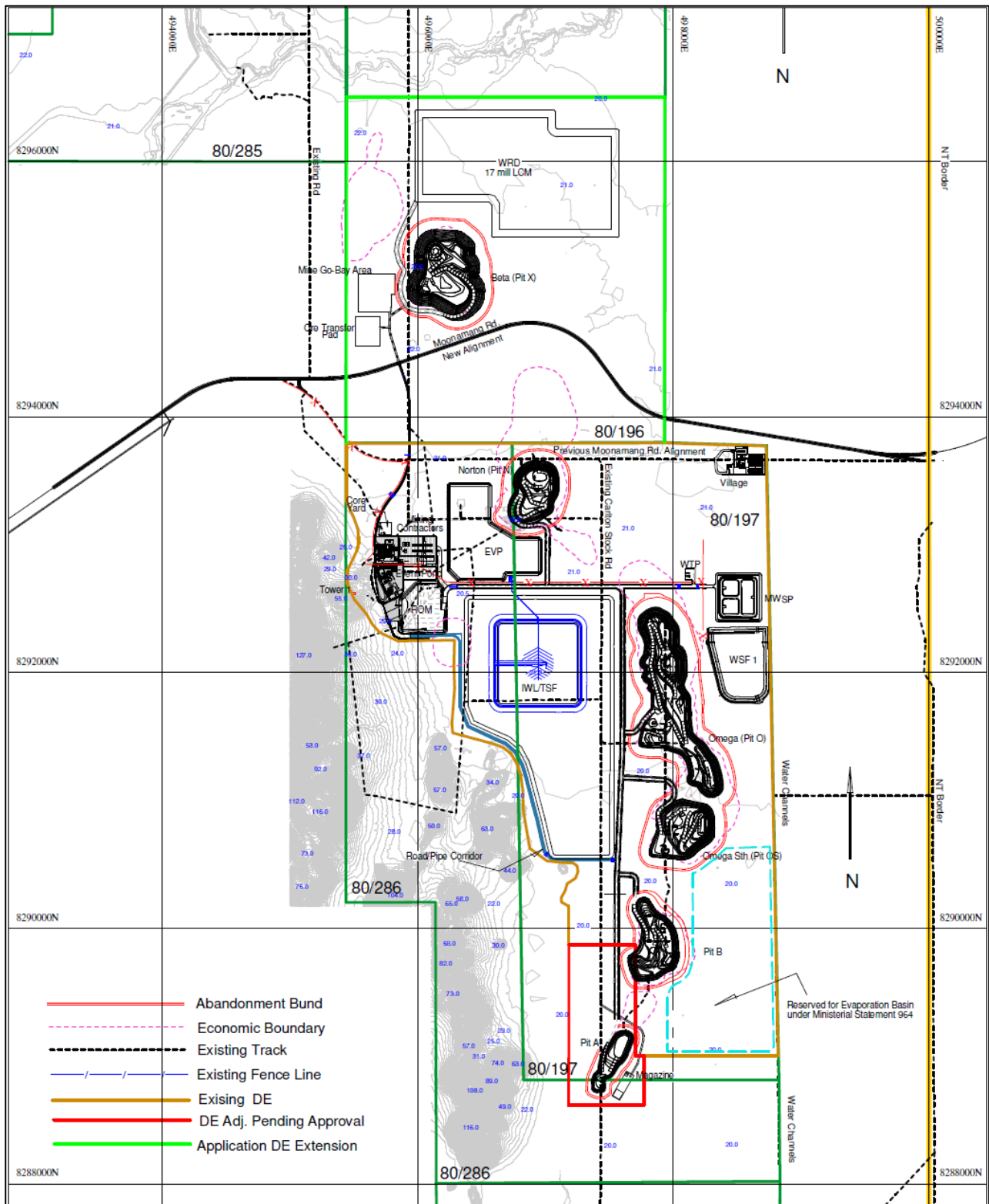
The Soil Water Consultants investigation (2011) comprised 12 test pits (2m depth), with lab tests conducted on soil samples, and the 2012 investigation comprised testing soil samples from previously drilled RC boreholes to ascertain geotechnical suitability of materials for construction.

The Tetra Tech Coffey investigation (2021) comprised 19 boreholes (15m to 18m depth), and 47 test pits (2.5m depth or refusal), with lab tests conducted on soil samples from both boreholes and test pits. Falling head permeability tests were conducted in the boreholes to estimate hydraulic conductivity (permeability). The investigation revealed the IWL/TSF area consisted predominantly clay material. The Process Plant area, closer to the hill, recorded more rocky and sandy gravel, whereas the remainder of the area consisted of clay soil. This gravel will be used for the Early Works construction of access roads and Process Plant pad on site, with designs conducted by Tetra Tech Coffey.

The Entech investigations (2019, 2020) comprised 29 diamond drill holes, in the vicinity of Norton, Omega and B pits. Soil samples were collected and tested to provide detailed geotechnical data, including rock mass and structure characterisation. Slope design parameters for each deposit were recommended, and generally comprised of 10m bench heights for transported and oxide material, and 20m bench heights for transitional and fresh material. Spill berm widths of 6m were recommended for transported and oxide material, and 9m for transitional and fresh material. The maximum inter-ramp slope angle in the fresh rock is 58° and is generally 35° in the overlying zones.

## Infrastructure

A Site Layout map is provided in Figure A6.



**Figure A6: Site Layout for the Sorby Hills Project**

## Access

The newly constructed Moonamang Road is located 630m immediately north of the Project. This provides all weather access to the Project via a sealed road to Kununurra and to the Wyndham Port. A new, fully engineered access road will connect the concentrate dispatch area to the main road. The process plant pad will be constructed at the same time.

## TSF and Integrated Waste Landform

The TSF has reverted to a single above ground facility that will be constructed in 8 stages (Table A10), within and in conjunction with the Integrated Waste Landform ("IWL") that will be constructed while mining the open pits. All the tailings will be stored in the above ground facility.

Tetra Tech Coffey have completed the revised design of the TSF based on the FEED Study mining schedule and the resultant tailings produced. The process plant will produce the tailings at a rate of approximately 0.83 and 1.89Mtpa (60% solids) for the year one and two respectively, and then increase to approximately 2.13 to 2.17Mtpa (52% solids) for the next six years (years three to eight), and then decrease slightly to approximately 1.77Mtpa (52% solids) for year nine. Total tailings production is approximately 17.4Mt. The TSF will be lined with suitable compacted clays sourced from topsoil overlying and proximal to the Sorby Hill deposits.

The IWL will reach a maximum height of 31.5m above the ground surface and have an outer slope of 18 degrees. One of the advantages of this structure is the staged construction (of each lift of the TSF) in the downstream direction is laid back against the surrounding mine waste rock storage and is placed over previously placed mine waste. Construction of future embankment lifts do not rely on the deposited tailings strength. Therefore, the rate of tailings rise and tailings strength do not impact construction considerations.

**Table A10: Summary of TSF Storage Characteristics**

| Stage | Crest | Storage Area   | Storage Volume  | Storage Capacity | Cumulative Capacity | Storage Life |
|-------|-------|----------------|-----------------|------------------|---------------------|--------------|
| #     | mRL   | m <sup>2</sup> | Mm <sup>3</sup> | Mt               | Mt                  | Years        |
| 1     | 26    | 364,930        | 1.21            | 1.69             | 1.69                | 1.55         |
| 2     | 30    | 390,490        | 1.46            | 2.05             | 3.74                | 1.01         |
| 3     | 34    | 416,890        | 1.57            | 2.20             | 5.94                | 1.02         |
| 4     | 38    | 444,140        | 1.67            | 2.34             | 8.28                | 1.08         |
| 5     | 42    | 472,240        | 1.78            | 2.49             | 10.77               | 1.15         |
| 6     | 46    | 501,180        | 1.89            | 2.65             | 13.41               | 1.23         |
| 7     | 50    | 530,970        | 2.00            | 2.80             | 16.22               | 1.37         |
| 8     | 52    | 549,830        | 1.04            | 1.46             | 17.67               | 0.82         |

## Water Management Infrastructure

Water will be pumped from active mining pits and pass through a Mine Water Settling Pond ("**MWSP**") comprising three cells. The location of the designed MWSP was moved as part of the FEED Study and the revised water quantities at the time were used to confirm the design. The only significant outcome was that Cell 3 of the MWSP will now be required to be ready for use in Period 11 rather than the year long delay as planned in the DFS.

The clear water from each MWSP cell (after allowing sediment to settle) will be pumped to the Water Treatment Plant ("**WTP**"). At the WTP, water will pass through a pre-filtration stage before being distributed as required for the operation. Only a small component will be subject to further Reverse Osmosis ("**RO**") treatment. The primary operational distribution will be the process plant (via the raw water and process water tanks) and the mining contractor for site dust suppression. The site potable water will receive most of the RO treated water.

During the first 30 periods until mining in the first pit is completed and that pit becomes available for direct placement of surplus water, all pit dewatering and harvested water will be required to be pumped to the MWSP and treated in the WTP. From period 31 onwards pit dewatering and harvested water in excess of the predicted site's needs will be preferentially placed in pits that have been mining completed.

Water for the process plant will be recovered from the TSF via Evaporation Pond ("**EVP**") and process water tank. Make-up water will be sourced from the WTP. Utilisation of the EVP has been optimised to accommodate additional water to be pumped from the pit dewatering during the dry season when the EVP was otherwise underutilised.

The Restricted Area Catchment ("**RAC**"), a rainfall catchment and run-off area incorporating all site areas considered to be reserved areas under WHS Regulations that may, at some time, be deemed a lead process area, was defined in the FEED Study and the rainfall and run-off included in the overall site water balance and the updated EVP sizing.

The site has a significant volume of water in excess of the site needs. This excess water, after being treated through the pre-filtration stage of the WTP will be stored in a Water Storage Facility ("**WSF**") and either be made available for local agricultural entities if they wish to take and blend it or periodically released into a contained Evaporation Basin ("**EVB**") subject to EPA approvals.

## Accommodation

Second-hand accommodation facilities previously secured and relocated to site by Boab will be fully refurbished and upgraded to house a construction and operational workforce of up to 200 personnel for the Project. The facility will include facilities typical of accommodation camps including kitchen, dining and cool room facilities, wet mess, gym, recreational facilities, commercial laundry facilities, ablution blocks and administration facilities.

The Company will continue discussions with SWEK with respect to locating a new operational accommodation facility in Kununurra, however, the provision by the Company for a full-scale on-site accommodation facility at Sorby Hills decouples the project timeline from any potential risk relating to SWEK securing funding for the proposed Kununurra facility.

## Power Supply

Horizon Power will supply hydroelectric power to Sorby Hills via a dedicated 33kV feeder and overhead powerline from the Kununurra substation to the Project (Figure A7). The power is sourced from the Ord hydro-power station.

A Heads of Agreement has been executed with Horizon Power with respect to a Power Purchase Agreement covering the infrastructure outlined above and the supply of electricity to the Project<sup>12</sup>. It is anticipated that the Ord hydro-power station will supply greater than 90% of the annual electricity consumed by the Project.

It is proposed that Horizon Power will also build a 12MW backup diesel power station on site to mitigate for periods when the Ord hydro-power station is unavailable. The Company continues to explore opportunities to remove the need for a full-size back-up diesel power plant on site.



**Figure A7: Location of Sorby Hills Project relative to Kununurra and the Ord River Hydroelectric Plant (Left). Members of the Boab and Horizon Power teams at the Ord-Hydro Power station (Right)**

## Other On-Site Non-process infrastructure

Other on-site non-process infrastructure will include concentrate storage shed; concentrate container storage area, vehicle wash-down bay, oil and fuel storage facility, laydown areas, administration buildings, mining contractor infrastructure, process plant crib, washroom and ablutions, medical facility, change-house and ablutions, warehouses, workshop, laboratory, reagent storage building, HV power distribution, and sewage treatment plant.

## Off-site infrastructure:

Off-site non-process infrastructure will include road upgrades to intersections on the proposed concentrate haulage route; concentrate container storage area at Wyndham Port; and container washdown station at Wyndham Port.

<sup>12</sup> ASX Release 22 April 2022

## Occupational Health and Safety

Boab is committed to designing, constructing and operating a project where the safety and health of everyone is valued, and people can be safe at work. The design of the mine and processing plant has considered safety in design principals to eliminate, or reduce, as many of the risks to personnel as possible. Systems to support the safe operation have been developed in preparation for construction and operation.

A risk management approach has been applied to the design of health and safety systems ensuring appropriate effort is applied to areas where engineering controls may be less effective.

The requirements of the Work Health and Safety Act (2021) and the Work Health and Safety (Mines) Regulations (2022) have been considered the 'minimum standard' for health and safety systems. Accordingly, a Mine Safety Management System ("**MSMS**") has been developed aligned with ISO standard 45000. Principal mine health and safety hazards and their controls have also been identified to address events where multiple fatality, or series of single fatality, events could occur. The MSMS and principal mine hazards will form the core for health and safety systems for the operation. Specific health and safety programmes will have worker involvement in design and implementation and appropriate reporting mechanisms will be implemented to monitor and report on success or areas of opportunity.

## Project Risk Assessment

A project risk review was completed during late 2021 and reviewed in 2022, considering additional information from mine planning, plant design, community consultation and progress with permitting. The assessments were undertaken using a process map approach to the project and in compliance with AS 31000. The Sorby Hills Likelihood and Consequence descriptors and 5 X 5 risk matrix were applied. The ratings were based on the outcomes from design work with the application of risk reduction principles during the FEED Study phase.

The scope of these risk assessments was limited to the operational aspects of the Project.

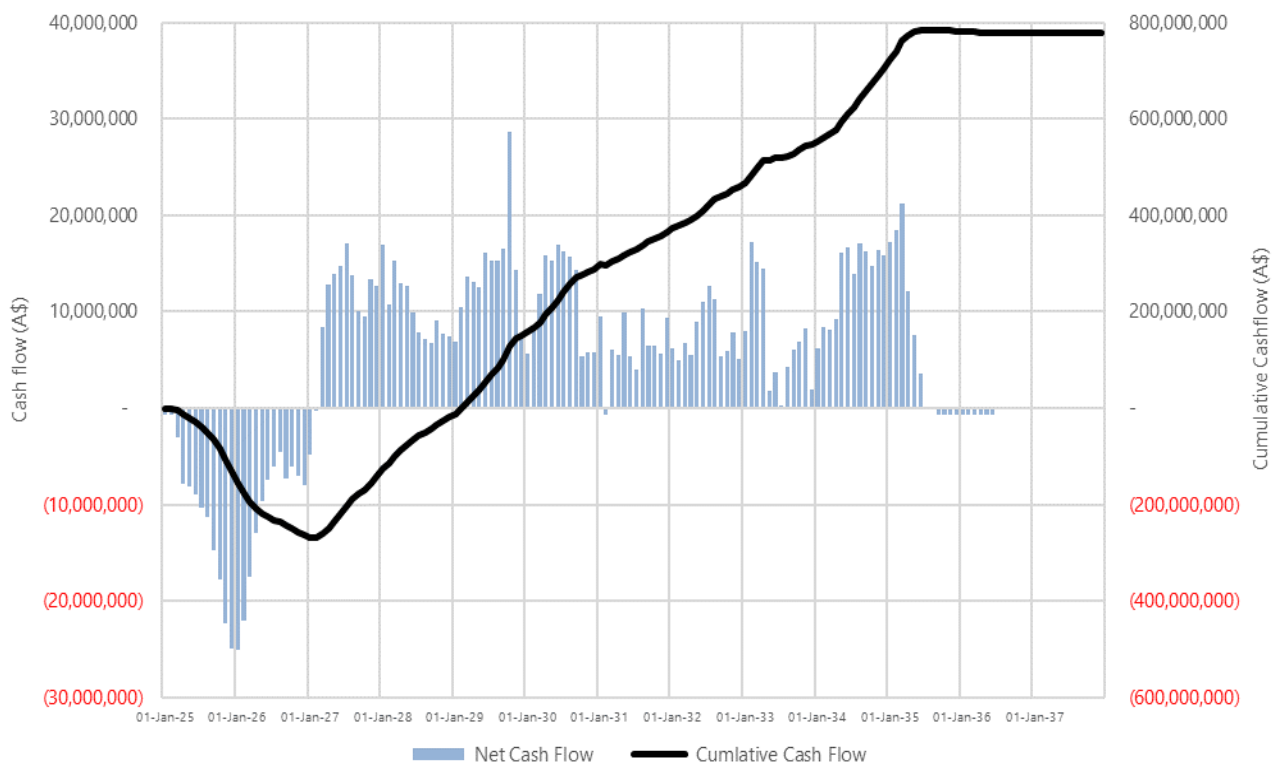
Additional risk reviews are planned by SMPL which will involve contracting partners and specialist consultants as appropriate. The risk register is an evolving document reviewed and updated periodically throughout the study, design, and construction phases. The continuous risk review process informs the mine and plant design and site layout planning to minimise risk and mitigate potential negative impacts.

## Base Case Economic Evaluation

The Project generates A\$778M of pre-tax free cash flow over the 8.5-year Life of Mine with pre-production capital expenditure of A\$264M, a maximum negative cash balance of A\$282M and an average annualised EBITDA of A\$126M per annum during operations. The Project generates a pre-tax NPV<sub>8</sub> of A\$411M and an IRR of 37% (Figure A8, Table A11).

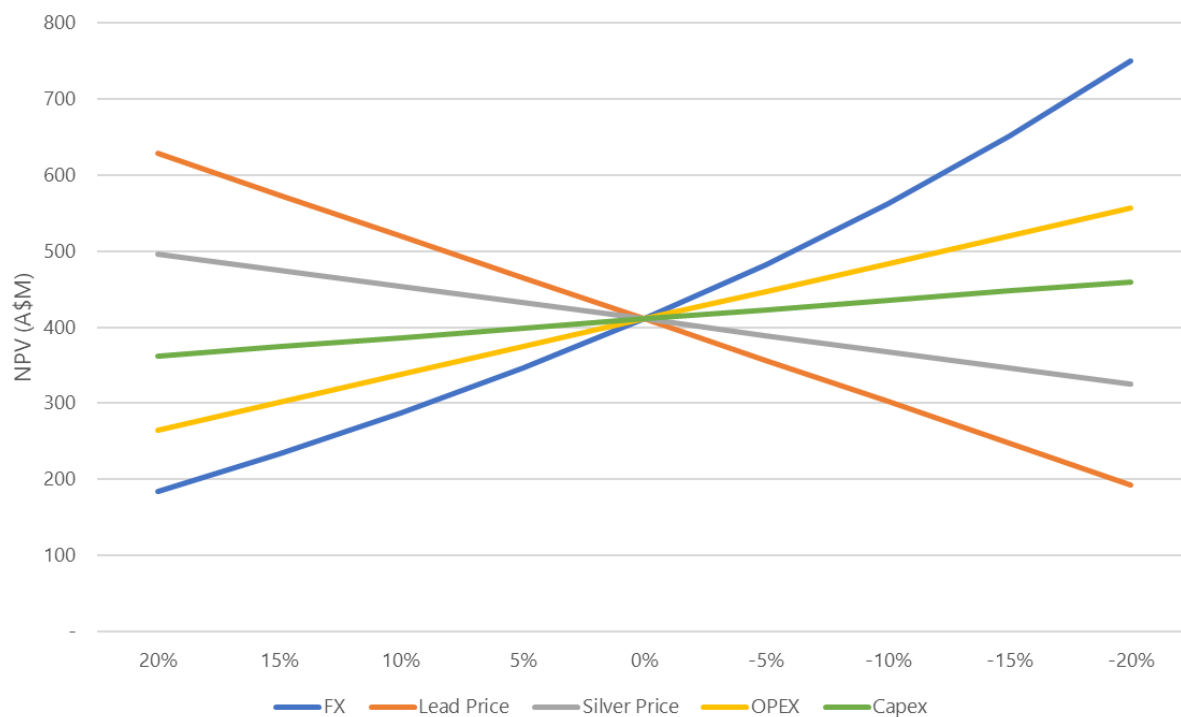
**Table A11: Sorby Hills Life of Mine Physical and Financial Metrics**

| Item                             | Unit        | Total        |
|----------------------------------|-------------|--------------|
| <b>Physicals</b>                 |             |              |
| Waste Mined                      | Mt          | 136.5        |
| <b>Ore Mined &amp; Processed</b> | <b>Mt</b>   | <b>18.3</b>  |
| <b>Lead Grade</b>                | <b>%</b>    | <b>3.4%</b>  |
| <b>Silver Grade</b>              | <b>g/t</b>  | <b>39</b>    |
| % Measured                       | %           | 56.7%        |
| % Indicated                      | %           | 26.5%        |
| % Inferred                       | %           | 16.8%        |
| Lead Recovery                    | %           | 91.6%        |
| Silver Recovery                  | %           | 81.7%        |
| <b>Concentrate Produced</b>      | <b>Kt</b>   | <b>873</b>   |
| <b>Lead Grade</b>                | <b>%</b>    | <b>65.8%</b> |
| <b>Silver Grade</b>              | <b>g/t</b>  | <b>664</b>   |
| Payable Lead                     | Kt          | 546          |
| Payable Silver                   | Moz         | 17.2         |
| <b>Financials</b>                |             |              |
| Lead Price                       | US\$/t      | 2,255        |
| Silver Price                     | US\$/oz     | 27.4         |
| Exchange Rate                    | AUD:USD     | 0.68         |
| Lead Revenue                     | A\$M        | 1,803        |
| Silver Revenue                   | A\$M        | 692          |
| <b>Total Revenue</b>             | <b>A\$M</b> | <b>2,496</b> |
| Lead Treatment                   | A\$M        | (160)        |
| Silver Refining                  | A\$M        | (32)         |
| Royalties                        | A\$M        | (95)         |
| <b>Net Revenue</b>               | <b>A\$M</b> | <b>2,209</b> |
| Logistics                        | A\$M        | (117)        |
| Mining                           | A\$M        | (547)        |
| Processing                       | A\$M        | (388)        |
| G&A                              | A\$M        | (88)         |
| <b>Operating Cash Flow</b>       | <b>A\$M</b> | <b>1,069</b> |
| Upfront Capex                    | A\$M        | (264)        |
| Sustaining Capex                 | A\$M        | (26)         |
| <b>Net Cash Flow</b>             | <b>A\$M</b> | <b>778</b>   |
| <b>NPV<sub>8</sub></b>           | <b>A\$M</b> | <b>411.</b>  |
| <b>IRR</b>                       | <b>%</b>    | <b>37%</b>   |
| <b>Average Annual EBITDA</b>     | <b>A\$M</b> | <b>126</b>   |



**Figure A8: Sorby Hills Project - Monthly Cashflows**

A sensitivity analysis of key parameters shows the Project valuation is most sensitive to movements in the exchange rate and Lead metal price (Figure A9).



**Figure A9: Sorby Hills Project - Valuation Sensitivities**

## Project Execution

**Table A12: Key Project Milestone Dates**

| Milestone                                    |                                            | Date             |                |
|----------------------------------------------|--------------------------------------------|------------------|----------------|
| Key Milestone Dates                          |                                            |                  |                |
| FEED Study Completion                        |                                            | June 2024        |                |
| Binding Financing and Offtake Agreements     |                                            | by November 2024 |                |
| Final Investment Decision                    |                                            | December 2024    |                |
| First Ore                                    |                                            | December 2026    |                |
| First Shipment of Lead-Silver Concentrate    |                                            | March 2027       |                |
| Dates for Key Contract Packages              |                                            | Commencement     | Completion     |
| Accommodation Village                        |                                            | January 2025     | September 2025 |
| Earthworks Package                           | Early Works                                | January 2025     | July 2025      |
|                                              | Evaporation Pond                           | April 2025       | November 2025  |
|                                              | TSF Stage 1                                | April 2025       | May 2026       |
|                                              | Water Storage Facility & Evaporation Basin | May 2025         | January 2026   |
|                                              | Mine Water Settling Pond                   | July 2025        | October 2025   |
| Process Plant and Non-Process Infrastructure |                                            | July 2025        | September 2026 |
| Mining Contract                              |                                            | September 2026   | January 2035   |

## APPENDIX B: Metal Equivalent Calculations

The contained metal equivalence formula is based on the Sorby Hills DFS including:

- Lead Price US\$2,253/t; and
- Silver Price US\$27.4/oz.

### Lead Equivalent Calculations

- Silver recovery of 82% (weighted average of oxide and fresh Ag recoveries); and
- Silver Payability rate of 95%.

### Silver Equivalent Calculations

- Lead recovery of 91% (weighted average of oxide and fresh Pb recoveries); and
- Lead Payability rate of 95%.

It is Boab's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold.

The formula used to calculate lead equivalent grade is:

$$\text{Metal Eq (percent)} = G_{\text{pri}} + (G_{\text{pri}} \times [\sum_i R_i S_i V_i G_i] / (R_{\text{pri}} S_{\text{pri}} V_{\text{pri}} G_{\text{pri}}))$$

where R is the respective metallurgical metal recovery rate, S is the respective smelter return rate, V is metal price/tonne or ounce, and G is the metal commodity grade for the suite of potentially recoverable commodities (i) relative to the primary metal (pri).

Metal equivalents are highly dependent on the metal prices used to derive the formula. Boab notes that the metal equivalence method used above is a simplified approach. The metal prices are based on the DFS values adopted and do not reflect the metal prices that a smelter would pay for concentrate nor are any smelter penalties or charges included in the calculation.

Owing to limited metallurgical data, zinc grades are not included at this stage in the lead equivalent grade calculation.