

## Positive Scoping Study for Tumblegum South

Star Minerals Limited (ASX: SMS, “the Company” or “Star”) is pleased to present the range of outcomes of a Scoping Study for open-pit mining and third-party toll treatment of the Tumblegum South gold deposit (“Tumblegum South” or “the Project”) which is located approximately 40km south of Meekatharra in the Murchison district of Western Australia.

The positive results of this Scoping Study provide a basis to refine material inputs and enhance project economics for the Tumblegum South gold deposit.

### Cautionary Statement

*The Scoping Study referred to in this announcement has been undertaken to determine the viability of open pit mining and third-party toll treatment of the Tumblegum South gold deposit. It is a preliminary technical and economic study of the potential viability of the Project. It is based on low level technical and economic assessments that are not sufficient to support estimation of ore reserves. Further evaluation work and appropriate studies are required before Star will be able to estimate any ore reserves or to provide any assurance of an economic development case.*

*The Scoping Study is based on the material assumptions outlined below. These include the availability of funding. While Star considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.*

*To achieve the range of outcomes indicated in this Scoping Study, funding in the order of \$2.0 million to \$4.2 million will likely be required. Investors should note that there is no certainty that Star will be able to raise that amount of funding when needed. It is also possible working capital may only be available on terms that may be dilutive to or otherwise affect the value of Star’s shares. It is also possible that Star could pursue other ‘value realisation’ strategies such as a sale, partial sale or joint venture of the Project. If it does, this could materially reduce Star’s proportionate ownership of the Project.*

*Potential funding options may also include third parties through a processing agreement, however at this stage the Company has not yet secured a processing contract and accordingly cannot make an assurance that it will have a processing contract available and, on the assumptions, made. The Company will update the market accordingly if any processing contracts are entered into.*

*Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study.*

### Study Highlights

- Various options utilising third-party processing plants operating under a toll treatment agreement were considered. There are currently two active processing plants with a radius of 50km to 150km from Tumblegum South. A range of outcomes were defined based on gold price, and processing cost including trucking costs.
- At gold prices from AUD\$2,250 to AUD\$3,000/oz, the Production Target for the Project ranges from approximately:
  - 116kt at 2.25g/t producing 7.6koz gold, to

- 286kt at 2.00g/t producing 16.6koz gold.
- The Production Target generates an undiscounted accumulated cash surplus after payment of all working capital costs, but excluding pre-mining capital requirements, of approximately **\$7.2M to \$16.3M**.
  - Mining is contemplated as a single campaign over approximately **18-months**.
  - Pre-mining capital and start-up costs are estimated to be approximately **\$0.7M to \$1.5M**.
  - Sensitivity of the Base Case scenario to gold price was assessed. Results suggest that **project economics are robust** for a broad range of gold prices.

Chair Ian Stuart commented:

*The Scoping Study has demonstrated the value and viability of the Tumblegum South Gold Project over a broad range of gold price. Star can now take the next steps to monetising this asset and more accurately assess various strategies to achieve this, including sale, partial sale or joint venture of the Project.*

*The Scoping Study also serves as basis for analysis by third parties wishing to evaluate the Project as potential ore feed for existing processing operations.*

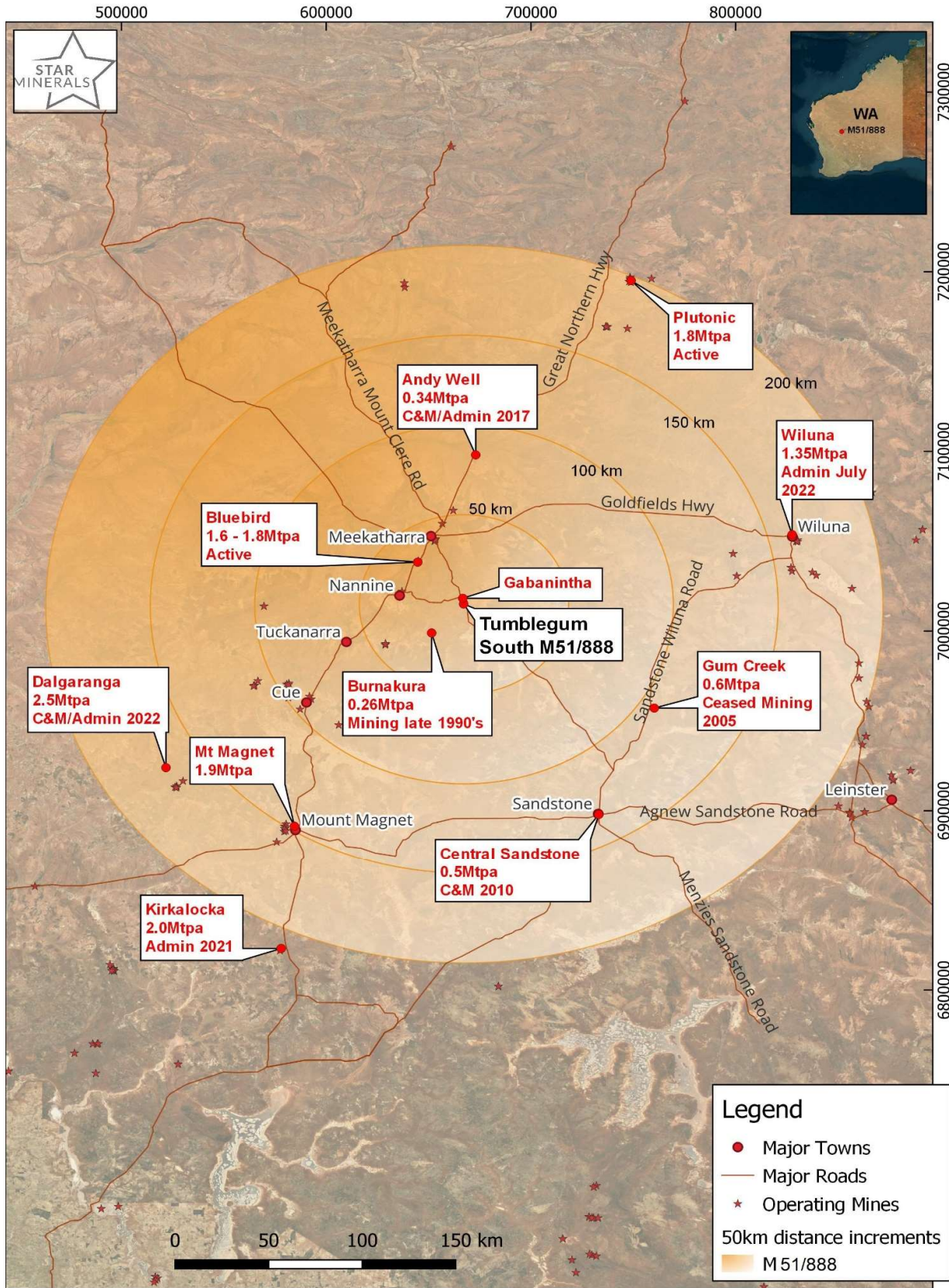
*We look forward to building on the knowledge gained through this Study and rapidly advancing the Project to commercialisation.*

## **Introduction**

Star commissioned Orelogy Consulting Pty Ltd, a Western Australian based mine planning consulting firm with extensive experience evaluating mining projects across Australia, to undertake a Scoping Study evaluating potential open pit mining at Tumblegum South and ore processing via toll treatment at an existing plant.

The processing plants considered for this study are located within a radius of 50-150km from Tumblegum South. No agreement has been entered into at the time of writing, and there is no guarantee an agreement will be entered into. It is noted the diluted Tumblegum South Production Target at 2.01g/t compares favourably with head grade mined at a number of plants in the Murchison and has the potential to provide valuable mill feed and ore blending opportunities.

Figure 1: Location map and relevant infrastructure in the area



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## Key Study Outcomes and Assumptions

The study is based on the Tumblegum South mineral resource estimate described in Star's announcement to the ASX on 29 May 2023<sup>1</sup>. The resource model was prepared by Entech, an independent competent person in accordance with the JORC Code (2012) and includes estimates classified as Indicated and Inferred. Oreology's study included generating an optimal pit geometry utilising Whittle optimisation software.

Based upon the resource estimate model, slope parameters and the cost structure applied, the Production Target at gold prices AUD\$2,250 to AUD\$3,000/oz, ranges from approximately:

- 116kt at 2.25g/t producing 7.6koz gold recovered and an undiscounted accumulated cash surplus of \$7.2M to
- 286kt at 2.00g/t producing 16.6koz gold recovered and an undiscounted accumulated cash surplus of \$16.3M.

Project sensitivities were examined for a range of gold prices demonstrating that Project economics are robust with positive outcomes returned for gold prices ranging from AUD\$1,750 to AUD\$3,250 per ounce.

A Base Case at AUD\$2,600 per ounce gold price was used to assess the components of Inferred and Indicated Mineral Resources. The Production Target at the Base Case is approximately:

- 192kt at 2.22g/t producing 12.3koz gold recovered and an undiscounted accumulated cash surplus of \$10.8M.

Approximately 70% of the total Production Target resulting from the Scoping Study is based on Indicated Mineral Resources, and approximately 30% is based on Inferred Mineral Resources. There is a low level of geological confidence in Inferred Mineral Resources and there is no certainty that further drilling will result in the determination of Measured or Indicated Mineral Resources or that the Production Target will be realised. Although some of the Inferred Mineral Resources occur at shallow depths, there is sufficient, easily mined and readily accessible Indicated Mineral Resources within the optimum shell to enable stockpiling of at least half of the Inferred Mineral Resources to be deferred to the latter processing (starting month 13) of the Project. This will mitigate the risk to the project as it can be grade controlled and resampled prior to processing.

No allowance was made for capital or start-up costs in the optimisation analysis stated above. The capital and start-up costs are comprised of the costs associated with, but not limited to mobilisation, site establishment, pre-mining earthworks, access and haulage road and demobilisation. These costs have been estimated for the purposes of the Scoping Study at approximately:

- \$1.1M and can be represented as a range from \$0.7M to \$1.5M to reflect the accuracy of cost parameters used in the study which is considered to be +/- 35%.

To estimate working capital requirements, an approach was taken to produce a mine schedule for the Base Case schedule at AUD\$2,600 per ounce gold price, which was evaluated using the same cost and revenue assumptions, with the maximum cash drawdown allocated as working capital.

The Base Case pit is estimated to have a mine life of less than 20 months with maximum cash drawdown occurring in month 6. Based upon this approach the total working capital requirements were estimated to be approximately \$2.3M and can be represented by a range from \$1.5M to \$3.1M to reflect the limited accuracy of cost parameters used in the study.

To achieve the range of outcomes indicated in the Scoping Study, funding in the order of \$3.4M (\$2.2M to \$4.6M) will likely be required for capital, start-up costs and working capital requirements.

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<sup>1</sup> See Star Minerals Limited (SMS) ASX announcement dated 29 May 2023 'Tumblegum South Mineral Resource Update'

## Material Assumptions and Modifying Factors

The Scoping Study and the Production Target derived from the study are based on the material assumptions and modifying factors described in the following notes and in the appended table of Modifying Factors in the format specified in the JORC Code (2012) Table 1 Section 4. Star's evaluation of the Project is at an early stage, and although there are reasonable grounds for these assumptions, they represent low level technical assessments that are not sufficient to support the estimation of Ore Reserves, or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

Material assumptions and modifying factors underpinning the Scoping Study and the Production Target comprise the following:

- The Ordinary Kriged (OK) resource estimate model was provided by Entech Geology Consultants (Australia). At a 0.5g/t cut-off, the resource estimate is:

Project Area	Resource Category	Weathering	Tonnes (kt)	Grade (g/t Au)	Gold ounces (koz)
Tumblegum South	Indicated	Transitional	25	2.99	2
		Fresh	312	2.48	25
		<b>Subtotal</b>	<b>337</b>	<b>2.52</b>	<b>27</b>
	Inferred	Transitional	40	1.76	2
		Fresh	239	2.03	16
		<b>Subtotal</b>	<b>279</b>	<b>1.99</b>	<b>18</b>
<b>Total</b>			<b>616</b>	<b>2.28</b>	<b>45</b>

\*Tonnes are dry metric tonnes. Minor discrepancies may occur due to rounding.

Table 1. Tumblegum South – May 2032 Mineral Resource Estimate at 0.5g/t cut-off by Weathering status

- The resource estimate model is a recoverable resource model and as such, no additional allowances are made for mining dilution and ore loss.
- Bulk densities were estimated on a dry in-situ basis. No studies have been completed on moisture content of the rock. The densities applied are shown below by weathering category. There is no fully oxidised rock at the deposit.

Regolith	Bulk Density t/m <sup>3</sup>
Transitional	2.7
Fresh	2.9

Table 2. Tumblegum South – Bulk Densities.

- A bulk density dataset that accounts for spatial, lithological and weathering variations has been recommended to be built by Entech and would lead to further refinement of the bulk density values used. At this stage, the bulk density values used in the resource estimates are considered reasonable given expected bulk density for mafic rocks.
- The gold price of AUD \$2,600/oz is considered conservative. It was selected for the base case with reference to the gold price through 8 months from August 2022 to July 2023 over which period the minimum price was AUD\$2,500 per ounce and the maximum was AUD\$3,046 per ounce. Sensitivity to gold price was assessed by evaluating the Mineral Resources for a gold price range of between AUD\$1,750/oz and AUD\$3,250/oz in \$250 increments.
- The study includes the Western Australian State Government royalty of 2.5% of revenue applied to gold production in the state. A production royalty of 0.75% NSR is also held by Australian Vanadium Limited (AVL).
- The Scoping Study incorporates a metallurgical recovery of 90% regardless of regolith. These figures are based upon metallurgical gold leachwell test work completed for Bryah Resources by Intertek laboratory and

announced to the ASX on 8 April 2020. Bryah Resources Limited being the previous owner of the Tumblegum South Gold Project. Metallurgical recoveries are based on this work and reported in this study on the same basis as the Company has reported in the ASX release 'Tumblegum Mineral Resource Update' 29 May 2023.

- No allowances have been made for capital and start-up costs in the optimisation analysis. The capital and start-up costs are comprised of, but not limited to, the costs associated with mobilisation, site establishment, pre-mining earthworks, access and haulage road construction and demobilisation. These costs were estimated by Orelogy, on the basis of considerable current experience in the region and first-pass evaluations of the specific requirements for Tumblegum South.
- Operating mining costs, including grade control costs are based on Orelogy's cost database for comparable projects reflecting extensive recent experience of comparable projects. They reflect conventional truck and excavator open pit mining, utilising nominally 100t excavator loading Caterpillar 777 (approximately 90 tonne capacity) dump trucks and associated ancillary equipment.
- No minimum mining widths were applied, however, the resource model assumes a 5m minimum width.
- The mining optimisation processes assumed a conservative 20% dilution and a 3% mining loss to match the equipment selection.
- Overall wall angles of 40 degrees were deemed applicable for first pass optimisation in similar geological settings and including perceived ramp configurations applicable to a 777-haulage truck mining fleet. Further geotechnical investigations are required and will be undertaken as study work progresses.
- Haulage costs reflect approximate costs of ore cartage from Tumblegum South to a processing plant located approximately between 50km to 100km from Tumblegum South along existing roads.
- Processing and administration costs reflect Orelogy's extensive recent experience of comparable projects, and Star's preliminary assessment of processing costs for toll-treating. Star has not entered into any formal agreement, or detailed discussions with processing plant operators.
- The Scoping Study assumes open pit mine development comprises a single mining stage reflecting the base case optimal pit shell generated by the Scoping Study. This main pit shell has a diameter of 215m and reaches a maximum depth of approximately 80m. The small pit shell to the north of the main pit is approximately 80m long and 50m wide and extends to a depth of 20m.
- The proposed mining area lies within Mining Lease M51/888. A Miscellaneous Licence, L51/112, for an ore haulage road is granted. The ore haulage road will link Tumblegum South to the Meekatharra-Sandstone Road, a distance of approximately 1.6km.
- Statutory and regulatory approvals for commencement of mining will need to be initiated and completed including environmental, social and heritage clearances.
- Fauna and flora studies as well as surface and groundwater studies and a detailed topographic survey will need to be completed as a component of permitting applications and statutory approval for mining. The proposed mining operation will not include any on-site storage of tailings. Waste rock at Tumblegum South is typically non-acid forming. There is not expected to be any environmental impacts of significance.
- A heritage survey of the entire extent of M51/888 was conducted by the Yugunga-Nya People in 2017 as commissioned by Australian Vanadium Limited, the owner of tenement E51/843 at the time. Four sites were flagged for avoidance but are located to the south and west of the gold deposit.

The cost parameters used for the study are considered to have an accuracy of +-35%.

Pre-mining costs	\$ ('000)
Capital and start-up costs	
Mobilisation	336
Site establishment (offices, workshops etc)	250
Mining establishment, ore pad, waste dump	165
Haul road construction	112
Demobilisation	232
<b>Total</b>	<b>1,095</b>

Revenue parameters	
Gold price per ounce	\$2,600
Western Australian State Government Royalty	2.5%
AVL Production Royalty	0.75%
Metallurgical recovery	90%

Summary of unit operating costs	
<b>Average mining costs per BCM (all material)</b>	
Mining (load, haul, dump)	\$5.35 to \$6.55
Blasting	\$1.57 to \$5.04
Ancillary extra costs	\$1.25
Rehabilitation	\$0.15
<b>Total</b>	<b>\$8.32 to \$12.99</b>
<b>Costs per tonne of material processed</b>	
Grade Control	\$1.50
Haulage (70km)	\$10.50
Treatment	\$16.50
Administration	\$3.50
<b>Total</b>	<b>\$32.00</b>

Table 3. Tumblegum South Scoping Study Material Assumptions.

### Study Results and Production Target

The results of the study are positive and justify Star committing to further work to refine material inputs and enhance project economics.

A Production Target derived from the Scoping Study is shown below. These approximate figures represent the potentially economic portions of the Mineral Resource based on the cost and revenue assumptions summarised in Table 3 and constrained to a base case Scoping Study optimal pit shell for a toll treatment haulage scenario.

The Production Target includes Inferred Mineral Resources for which there is a low level of geological confidence. There is no certainty that further drilling will result in the determination of Measured or Indicated Mineral Resources or that the Production Target will be realised.

The Base Case Production Target for the approximately 70km haulage base case option is estimated to comprise the following:

- 192kt at 2.22g/t for 12.3koz gold recovered and an undiscounted accumulated cash surplus of \$10.8M. These Mineral Resource tonnes are mined in conjunction with approximately 3,500kt of sub-grade and waste representing a stripping ratio of 17.1:1.

The cost and revenue assumptions used to define the Production Target were also applied to a conceptual pit.

The Production Target for the conceptual pit is estimated to comprise the following:

- Approximately 70% of the Production Target resulting from the Scoping Study is based on Indicated Mineral Resources and approximately 30% is based on Inferred Mineral Resources. Although some of the Inferred Mineral Resources occur at shallow depths, there is sufficient, easily mined and readily accessible Indicated Mineral Resources within the optimal shell to enable stockpiling of at least half of the Inferred Mineral Resources to be deferred for later processing (starting month 13) of the Project. This is illustrated in Figure 2 which represents a mining schedule on a quarterly basis for the Production Target.

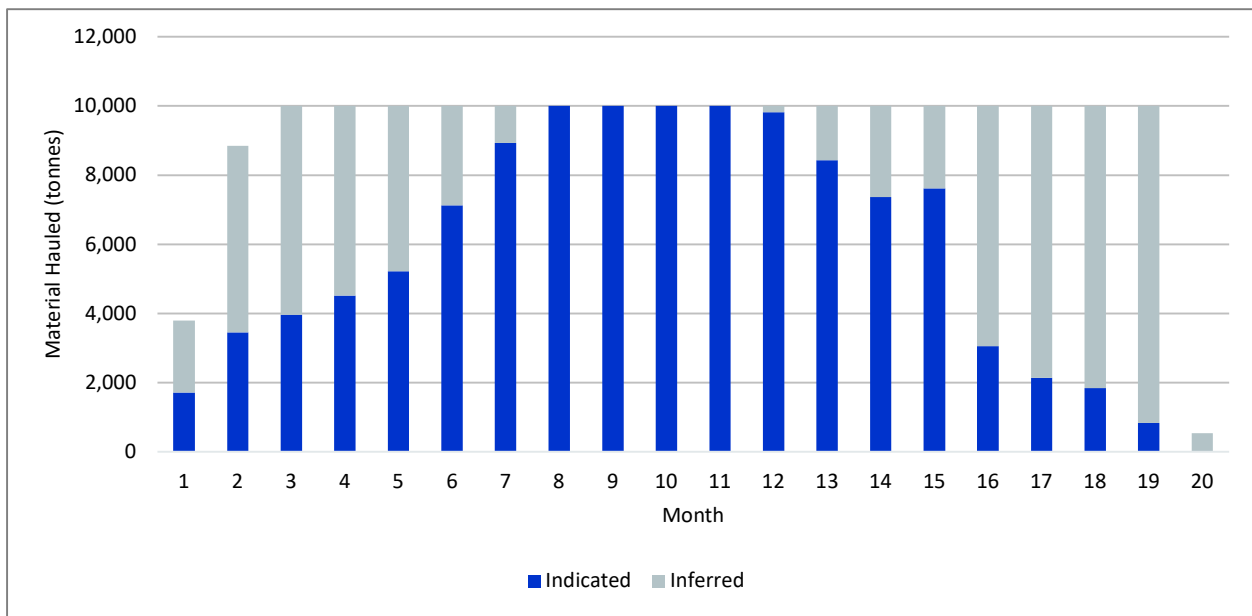


Figure 2. Base Case Production Target Monthly Haulage Schedule by Resource Category.

The total project has an estimated mine life of approximately 20 months with processing time potentially longer, dependent on mill availability. This is estimated to give an undiscounted accumulated cash surplus after payment of all working capital costs of approximately \$8.7M.

The AUD\$2,600 pit crest and corresponding cross section are shown in Figures 3 and 4.



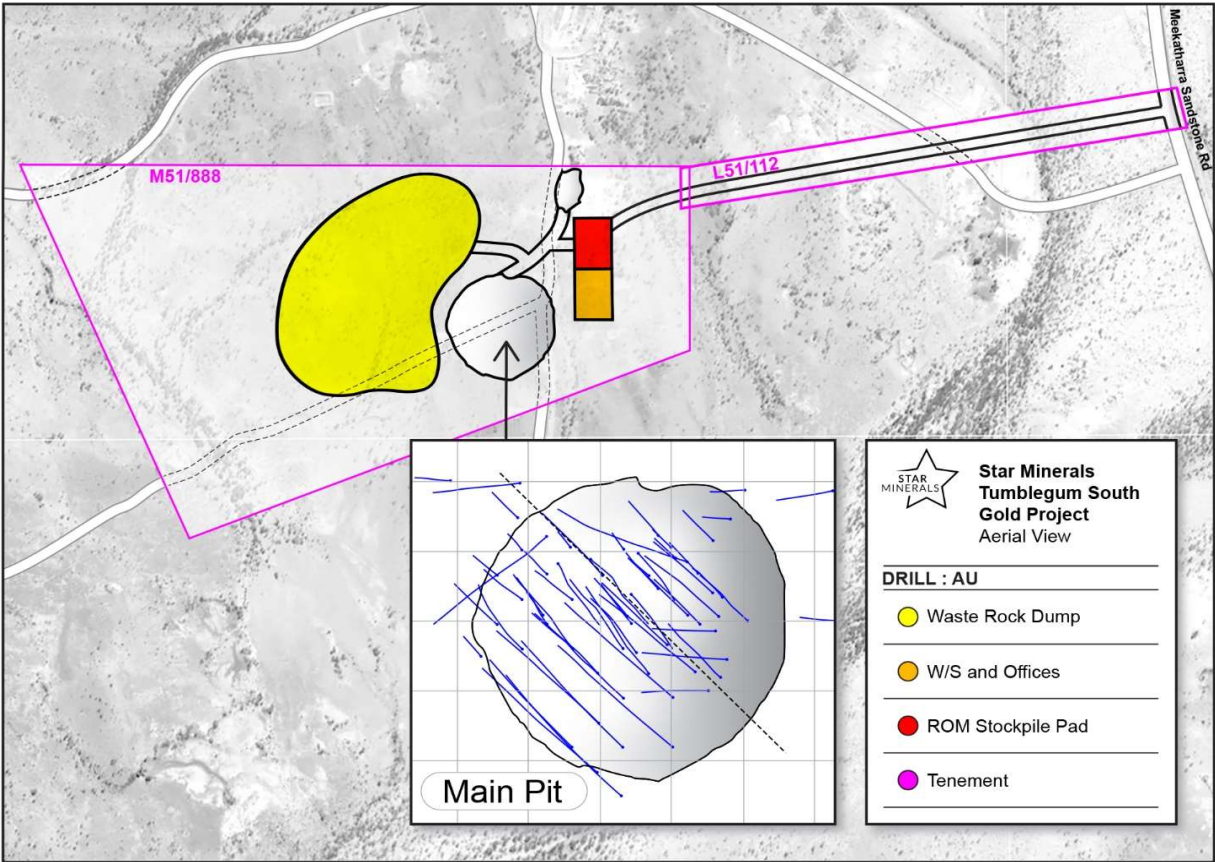


Figure 3. Tumblegum South Gold Deposit Optimised Pit Plan Over Geology.

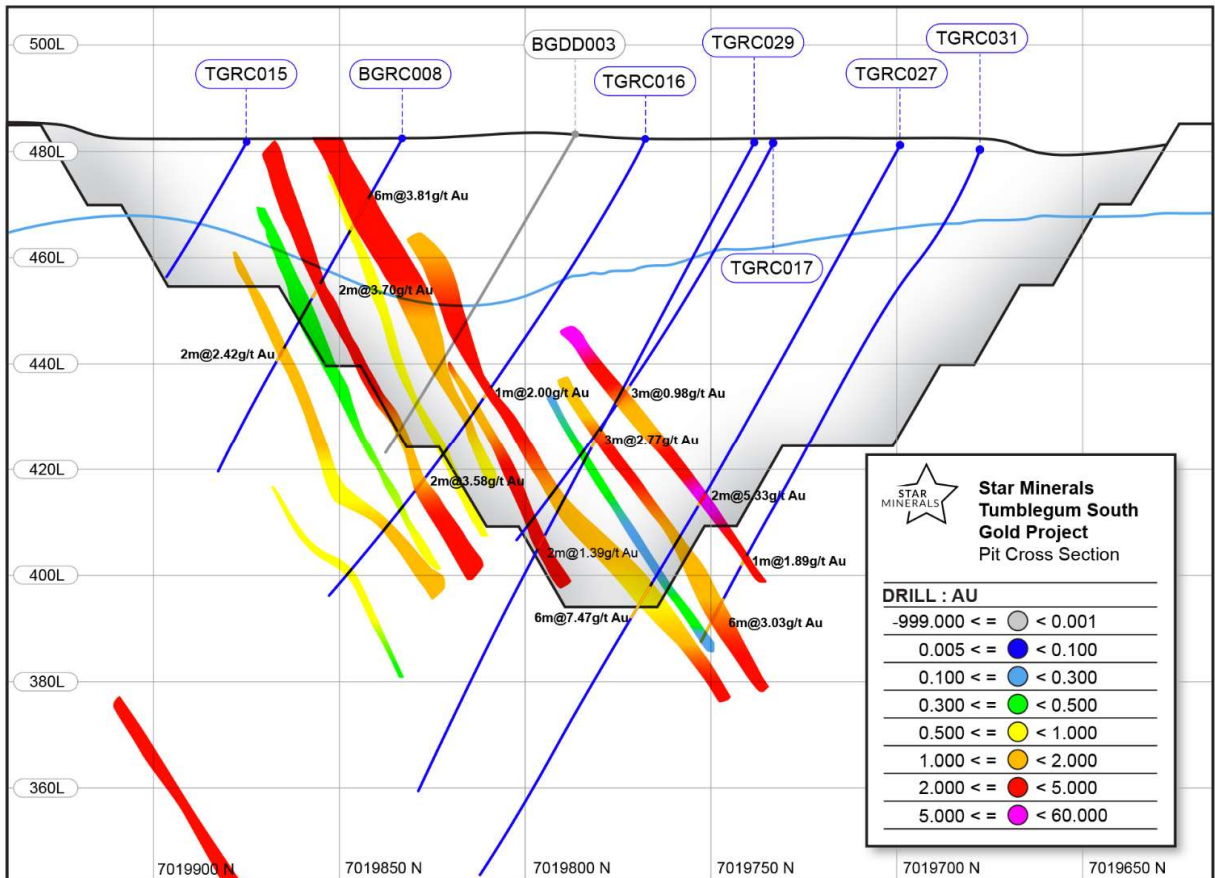


Figure 4. Tumblegum South Gold Deposit Cross Section Through Optimised Pit (refer Figure 3).

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## Sensitivity Analysis

The Scoping Study included sensitivity analysis assessing the impact of gold price on Production Target estimates by generating optimal pits for a range of gold prices from AUD\$1,750/oz to AUD\$3,250/oz.

The results of this analysis are summarised in Figure 5, which shows the change in Production Target tonnes and ounces with gold price. Figure 6 shows the change in operating profit and cash cost per ounce of gold produced with gold price. The Production Target is shown as profitable for the full range of gold prices.

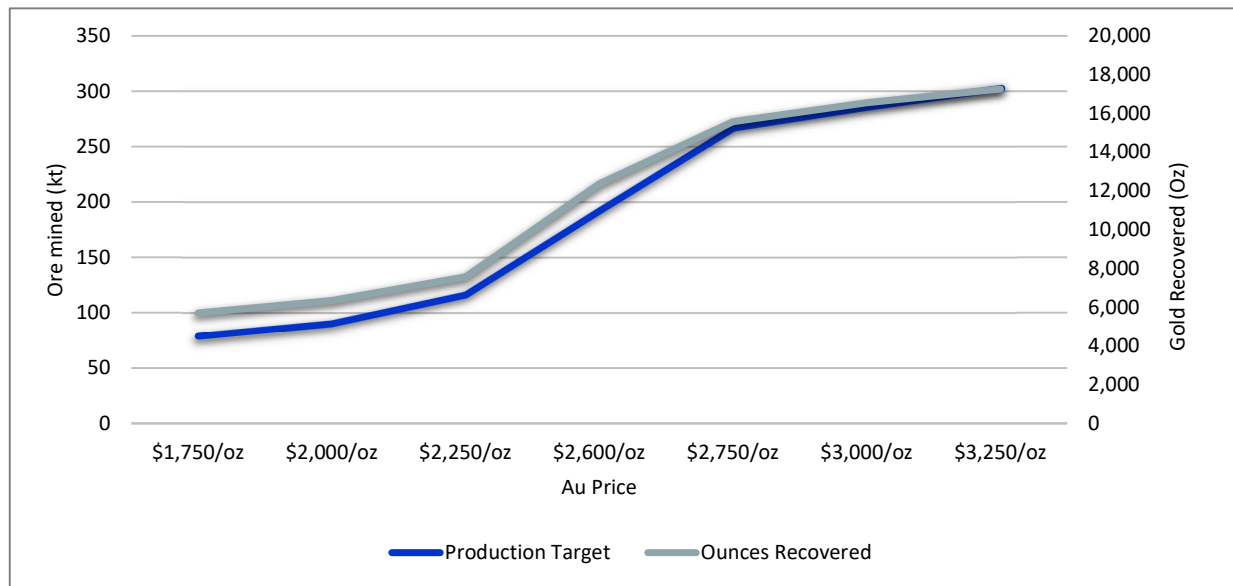


Figure 5. Production Target Tonnage and Corresponding Contained Gold Sensitivity to Gold Price.

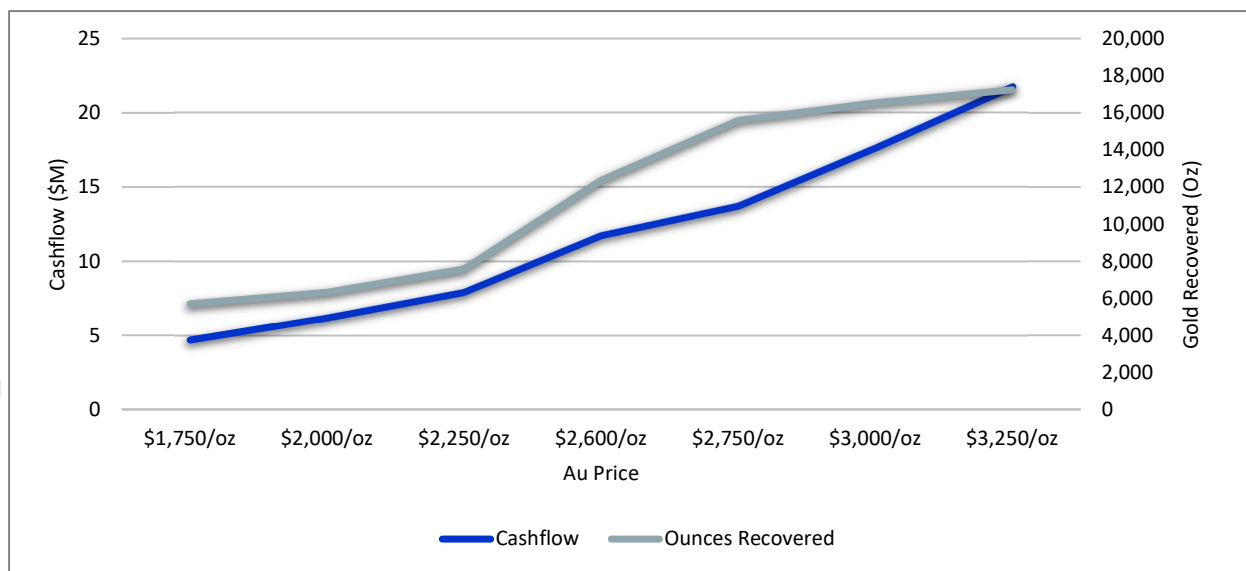


Figure 6. Operating Profit and Corresponding Cash Cost Sensitivity to Gold Price.

## Project Development Schedule

### Funding

To achieve the range of outcomes indicated in the Scoping Study, funding in the order of \$3.4M will likely be required, which includes all pre-production costs of which the pre-production capital requirement is approximately \$1.1M. The Company has formed the view that there is a reasonable basis to believe that requisite future funding for development of the Project will be available when required. The grounds on which this reasonable basis is established include:

- The Project has strong technical and economic fundamentals which provides an attractive return on capital investment and generates robust cashflows at conservative gold prices. This provides a strong platform to source debt and equity funding.
- The Company and its Directors have a strong track record of raising equity funds, as and when, required to further the exploration and evaluation of the Tumblegum South Gold Project.
- The Company has appointed Caravel Securities Pty Ltd as a corporate advisor in relation to ongoing funding of Star including the Tumblegum South Gold Project. Caravel Securities Pty Ltd have extensive experience in funding junior resource companies, including Western Australian gold projects.

There is, however, no certainty that the Company will be able to source funding as and when required. Typical project development financing would involve a combination of debt and equity. It is possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares.

### Conclusions and next steps

The Scoping Study provides justification the Tumblegum South Gold Project is commercially viable and accordingly, the Board of Star Minerals has approved progression of further work to progress environmental permitting and such regulatory permissions to advance a mining operation on this project.

The Company can now take the next steps to monetising this asset and more accurately assess various strategies to achieve this, including sale, partial sale or joint venture of the Project.

The Company will advance negotiations with third parties wishing to evaluate the Project as potential ore feed for existing processing operations and update the market accordingly should it reach commercial terms on a processing contract

### Compliance Statements

The information in this announcement relating to the current resource estimate for the Tumblegum South gold deposit is extracted from the Company's announcement 'Tumblegum South Mineral Resource Update' dated 29 May 2023 and is available to view on the Star website, [Starminerals.com.au](http://Starminerals.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement 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 original market announcement. The estimated mineral resources underpinning the Production Target have been prepared by the Competent Person in accordance with the requirements of the JORC Code (2012).

The information in this announcement relating to metallurgy of the Tumblegum South gold deposit is extracted from the announcement of Bryah Resources Limited<sup>2</sup> released to the market on 8 April 2020 and included in the

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<sup>2</sup> ASX announcement (ASX:BYH) 8 April 2020 'Positive Gold Recoveries for Tumblegum South'.

Company's announcement 'Tumblegum South Mineral Resource Update' dated 29 May 2023. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement 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 original market announcement.

The information in this report that relates to the Open Pit Mining Scoping Study for Tumblegum South and to the Production Target derived from the Scoping Study is based on information compiled by Mr Jake Fitzsimons, a Competent Person who is a Member or Fellow of The Australian Institute of Mining and Metallurgy and a full time employee of Orelogy Pty Ltd. Mr Fitzsimons has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves". Mr Fitzsimons consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.'

### **Forward Looking Statements**

This Announcement contains forward-looking statements which are identified by words such as 'may', 'could', 'should', 'believes', 'estimates', 'targets', 'expected', or 'intends' and other similar words that involve risks and uncertainties. These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions regarding future events and actions that, as at the date of this Announcement, are considered reasonable. Such forward-looking statements are not a guarantee of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, the Directors and the management. The Directors cannot and do not give any assurance that the results, performance, or achievements expressed or implied by the forward-looking statements contained in this announce will actually occur and investors are cautioned not to place undue reliance on these forward-looking statements.

**Ian Stuart**  
**Chair**

*This announcement has been approved for release by the Board.*

**Further information contact:** Ian Stuart [ian@starminerals.com.au](mailto:ian@starminerals.com.au)

## Reasonable Basis for Forward Looking Assumptions

No Ore reserve has been declared. This document has been prepared in compliance with the JORC Code (2012) and the ASX Listing Rules. All material assumptions on which the Scoping Study production target and projected financial information are based have been included in this release and disclosed in the table below.

### Consideration of Modifying Factors in the format specified by JORC CODE (2012) Section 4.

Criteria	JORC Code explanation	Commentary
<b>Mining factors or assumptions</b>	<ul style="list-style-type: none"> <li>The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).</li> <li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> <li>The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.</li> <li>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</li> <li>The mining dilution factors used.</li> <li>The mining recovery factors used.</li> <li>Any minimum mining widths used.</li> <li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>The infrastructure requirements of the selected mining methods.</li> </ul>	<ul style="list-style-type: none"> <li>No Ore Reserve has been declared.</li> <li>The Scoping Study assumes open pit mine development comprises a single mining stage reflecting the base case optimal pit shell generated by the Scoping Study.</li> <li>Overall wall angles of 40 degrees were deemed applicable for first pass optimisation in similar geological settings and including perceived ramp configurations applicable to a 777-haulage truck mining fleet. Further geotechnical investigations are required and will be undertaken as study work progresses.</li> <li>The Ordinary Kriged (OK) resource estimate model was provided by Entech Geology Consultants (Australia). At a 0.5g/t cut-off. The resource estimate model is a recoverable resource model and as such, no additional allowances are made for mining dilution and ore loss.</li> <li>Dilution and Oreloss factors of 20% and 3% respectively applied. With the high grade of this ore zone, the consequences of ore dilution (lower grade) are preferable to the consequences of ore loss (lost metal/revenue). These factors are in line with the oreloss and dilution factors for other similar gold projects in Western Australia.</li> <li>Recovery of gold from mined mineralisation factored at 90% as supported by 2020 Leachwell results from Intertek.</li> <li>No minimum mining widths were applied; however, the resource model assumes a 5m minimum width.</li> <li>The Main pit is circular in shape with an approximate diameter of 215m and extends to a depth of 80m. The Small pit is 80m long and 50m wide with a depth of 20m. An indicative site layout was developed on the basis of these shells. Waste from the pits totals 3.5Mt and can be stored in a single waste rock dump (WRD) located to the west of the mining area with a capacity of 2.2Mlcm, based on an assumed swell factor of 25%. A stockpile pad with a capacity of 60 kt has been situated between the two pits with a laydown area for workshop and office to the south as shown in Figure 4-1.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Metallurgical factors or assumptions</b>	<ul style="list-style-type: none"> <li><i>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</i></li> <li><i>Whether the metallurgical process is well-tested technology or novel in nature.</i></li> <li><i>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</i></li> <li><i>Any assumptions or allowances made for deleterious elements.</i></li> <li><i>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</i></li> <li><i>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</i></li> </ul>	<ul style="list-style-type: none"> <li>The Scoping Study incorporates a metallurgical recovery of 90% through standard cyanide leach extraction, regardless of regolith state. These figures are based upon metallurgical test work completed for Bryah Resources by Intertek and announced to the ASX on 8 April 2020. During development further work should be completed to determine whether higher grade material would benefit from a gravity circuit to separate nuggety gold prior to leach.</li> <li>The cyanide leach process is widely used and well understood in so far as producing a gold concentrate via a standard cyanide leach plant.</li> <li>Significant mining of the deposit continuation to the north in the now Monument Minerals tenements by Dominion Mining in the 1990s provides additional assurance the gold is amenable to standard leach (+ - gravity circuit) and is not refractory in nature.</li> <li>No assumptions or allowances have been made for deleterious elements.</li> <li>No minerals were defined by a specification and no ore reserve is stated in this announcement.</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li><i>The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.</i></li> </ul>	<ul style="list-style-type: none"> <li>Fauna and flora studies were completed over M51/888 by Onshore Environmental in 2017 over two seasons of survey as part of a large regional survey for Australian Vanadium Limited.</li> <li>Surface and groundwater studies need to be completed as a component of permitting applications and statutory approval for mining.</li> <li>A detailed topographic survey was flown by Arvista during 2019 and this data can be used for landform design for the mining.</li> <li>The proposed mining operation will not include any on-site storage of tailings.</li> <li>Waste rock characterisation studies at Tumblegum South have not yet been completed and are still required to determine the impact of waste stockpiling.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li><i>The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.</i></li> </ul>	<ul style="list-style-type: none"> <li>Sufficient land is available within the Mining Leases to accommodate the infrastructure contemplated by this Scoping Study, being the open pit, waste rock stockpiles, plus a temporary mining office and heavy equipment laydown, fuel, and service area.</li> <li>Good regional access exists with the close proximity of the Meekatharra – Sandstone Road (well-formed gravel road) and the Polelle – Nannine Road connecting through to Great Northern Highway to the west (well-formed gravel). Permission to use existing roads for haulage to a processing plant will require negotiation of a road use agreement with the Shire of Meekatharra.</li> <li>On site power requirements could be managed with relatively small-scale generators due to the temporary nature of the mining operation proposed in the scoping study (18 months toll mining), and scoping study assuming the gold processing occurs offsite at an existing gold processing plant.</li> <li>Mine dust suppression and pit dewatering have not yet been studied, and the water balance for the Project for mining only (not processing) is still to be determined.</li> <li>A temporary workers camp would be required unless the mining workforce travelled daily from Meekatharra (40km north) or a nearby purchasing Mining Operation with an existing camp.</li> </ul>
<b>Costs</b>	<ul style="list-style-type: none"> <li><i>The derivation of, or assumptions made, regarding projected capital costs in the study.</i></li> <li><i>The methodology used to estimate operating costs.</i></li> <li><i>Allowances made for the content of deleterious elements.</i></li> <li><i>The source of exchange rates used in the study.</i></li> <li><i>Derivation of transportation charges.</i></li> <li><i>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</i></li> <li><i>The allowances made for royalties payable, both Government and private.</i></li> </ul>	<ul style="list-style-type: none"> <li>No allowances have been made for capital and start-up costs in the optimisation analysis. The capital and start-up costs are comprised of but not limited to the costs associated with mobilisation, site establishment, pre-mining earthworks, access and haulage road construction and demobilisation. These costs were estimated by Orelogy, on the basis of considerable current experience in the region and first-pass evaluations of the specific requirements for Tumblegum South.</li> <li>Operating mining costs, including grade control costs are based on Orelogy’s cost database for comparable projects reflecting extensive recent experience of comparable projects. They reflect conventional truck and excavator open pit mining, utilising nominally 100t excavator loading Caterpillar 777 (approximately 90 tonne capacity) dump trucks and associated ancillary equipment.</li> <li>The study includes the Western Australian State Government royalty of 2.5% of revenue applied to gold production in the state, plus a production royalty of 0.75% NSR held by Australian Vanadium Limited (AVL).</li> </ul>

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<b>Revenue factors</b>	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul>	<ul style="list-style-type: none"> <li>The derivation of feed grades comes from the Mineral Resource estimates with the application of dilution modifying factors as outlined above.</li> <li>The product to be sold is gold in the form gold concentrate and doré bars produced on site at the toll treatment plant. The gold price assumed is A\$2,600 per ounce. Assumed gold concentrate pay ability is based on recent market observations.</li> </ul>
<b>Market assessment</b>	<ul style="list-style-type: none"> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul style="list-style-type: none"> <li>Gold price is buoyed by inflationary fears leading to an increase in gold demand. This source of demand is likely to continue as the federal reserve have been combatting inflation by increasing interest rates relatively consistently throughout 2023.</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul style="list-style-type: none"> <li>No NPV has been stated.</li> </ul>
<b>Social</b>	<ul style="list-style-type: none"> <li>The status of agreements with key stakeholders and matters leading to social licence to operate.</li> </ul>	<ul style="list-style-type: none"> <li>Given the history of mining on the lease and surrounding leases there are no expected issues expected around forming agreements with key stakeholders if so required to complete works as planned.</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> <li>The status of material legal agreements and marketing arrangements.</li> <li>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</li> </ul>	<ul style="list-style-type: none"> <li>No Ore Reserve has been declared.</li> <li>No material naturally occurring risks have been identified.</li> <li>The Project is 100% owned by White Star Minerals Pty Ltd, a 100% subsidiary of Star Minerals Limited and there are no marketing arrangements in place.</li> <li>All of the working area in the study are on approved mining leases with no outstanding issues or requirements with DMIRS. There are no third-party unresolved matters that may impact upon approvals.</li> </ul>
<b>Classification</b>	<ul style="list-style-type: none"> <li>The basis for the classification of the Ore Reserves into varying confidence categories.</li> </ul>	<ul style="list-style-type: none"> <li>No Ore Reserve has been declared.</li> </ul>



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	<ul style="list-style-type: none"> <li>• Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>• The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>• The results of any audits or reviews of Ore Reserve estimates.</li> </ul>	<ul style="list-style-type: none"> <li>• No Ore Reserve has been declared.</li> </ul>
<b>Discussion of relative accuracy/confidence</b>	<ul style="list-style-type: none"> <li>• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</li> <li>• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>• Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> <li>• It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul style="list-style-type: none"> <li>• No Ore Reserve has been declared.</li> <li>• Costs have been derived from both recent industry data and estimations from independent consultants and suppliers.</li> <li>• Cost estimate accuracy for the Scoping Study is considered to be in the order of <math>\pm 35\%</math>.</li> </ul>