



15 November 2023

CAPE FLATTERY SILICA UPDATED DFS SUPPORTS ~3MTPA SALEABLE PRODUCT

Highlights

- » The Updated DFS delivers:
 - Life of Project cash revenue of A\$3,065M, returning pre-tax Net Present Value (NPV¹⁰ nominal) of A\$702.4M, and an Internal Rate of Return (IRR) of 37.2%.
 - Average cash margin from the project increases to \$53.06 per tonne and average EBITDA is \$134.6M per annum.
- » Economies of scale are achieved with only a modest increase in capital costs. An additional dry mining unit, process plant, stockpile and stacker are included in the additional capital estimate. The marine infrastructure and transshipping operation do not require any additional capital resulting from the additional processing capacity.
- » Optimisation of the Definitive Feasibility Study (July DFS) (refer ASX release 17 July 2023) for the wholly owned Cape Flattery Silica Sand project (CFS), supports an increase in saleable product from 1.45Mtpa to approximately 3.0Mtpa and significantly improves forecast project economics.
- » The increase in production from Year 3 of the project delivers a significant decrease in unit operating costs and underpins a significant improvement in project economics.
- » The updated initial Capital Cost of the Cape Flattery Silica Sand Project is estimated to be \$236.7M (including a 10% contingency of \$21.5M) with a payback period from commencement of production of 3.2 years.
- » The Ore Reserve of 47 million tonnes (Mt) @ 99.18% SiO₂ (within a Mineral Resource of 49.5Mt @ 99.19% SiO₂, refer to Tables 4 and 5), is to be processed over a 15-year Project life. All production is based on the Ore Reserve of 47Mt (refer Table 4 – Ore Reserve).
- » The Updated DFS does not include the Inferred Resource for the Western Area of EPM 25734 (see ASX release 3 March 2023 “Maiden Inferred Resource of 12Mt at 99.15% SiO₂, 0.09% Fe₂O₃ Estimated for CFS West Project”). This may represent an additional opportunity to further improve the economics for the CFS Project.
- » Development of the Cape Flattery Silica Sand Project will deliver employment, apprenticeship training and new business opportunities to the townships of Hope Vale and Cooktown, particularly the local Indigenous communities.
- » The Cape Flattery Silica Sand Project will contribute to and benefit from the Queensland Government’s Critical Minerals Strategy which supports development of ‘new economy’ minerals projects in Far North Queensland.



Queensland-based high purity silica sand developer, Metallica Minerals Limited (Metallica, ASX: MLM) is pleased to announce the results following a comprehensive review of the Definitive Feasibility Study (July DFS) for its 100%-owned Cape Flattery Silica Sand (CFS) Project.

This updated DFS builds on the July DFS and enhances the CFS Project's potential as a low-cost, high-purity silica sand operation which could achieve greater project economics through accelerated productivity and higher utilization of capital intensive elements. The study has been prepared by Metallica Management with targeted support from Turner & Townsend JukesTodd, and based on parameters that formed the basis of the July DFS.

Based on independent market advice, and the Company's own market engagement and research, MLM is confident the expanding seaborne high purity silica sand market can absorb the additional production at an acceptable price.

Any items not described as a change or update in this document should be referred to the July 2023 DFS for additional information and details.

Metallica Minerals Executive Chairman, Theo Psaros said the company continues to be impressed with the economic potential of the CFS Project following the completion of the updated DFS:

"The updated DFS strengthens Cape Flattery Silica sand's status as a low-cost, high purity silica sand project that can achieve attractive profit margins. Our initial project scope is to start with the July 2023 DFS production tonnage of 1.8mtpa and subject to end user demand and the capital markets, we can efficiently construct the mine infrastructure to double production. We have assumed the ramp up of production from the second processing plant will begin in year 3. We will continue to monitor the expected growth in demand for HPSS as we work our way through the approvals processes at Commonwealth and State level.

The improvement in the project economics from the updated DFS illustrates the benefit of economies of scale, a shorter mine life with no change to the total project footprint and delivery of the same level of economic contribution to the local communities in a shorter timeframe."

Our planned timing for production and the potential for increased sales tonnes positions the CFS Project to meet the growth in demand for HPSS and the increasing manufacturing of solar panels in the Northern Asian region.

Table 1 summarises the key results of the Discounted Cash Flow (DCF) model on a pre-tax and post-tax basis.

Table 2 summarises the key sand extraction and processing metrics and Table 3 presents underlying key assumptions.



Table 1: Summary of key outcomes – Definitive Feasibility study (A\$ — Australian dollars) mid 2025 AUD

Key Financial Metrics	Unit	July DFS	Updated DFS	Percent Change
Pre-Tax Project NPV 10(nominal)	AUD m	\$437.3	702.4	61%
Pre-Tax Project IRR	%	32.19	37.21	16%
Post-Tax Project NPV 10(nominal)	AUD m	\$279.9	434.4	55%
Post-Tax Project IRR	%	26.59	29.71	12%
Total Silica Sales	Tonnes m	36.1	38.1	5%
Initial Construction CAPEX	AUD m	\$165.0	236.7	43%
Payback (no tax)	Years	2.85	3.20	12%
LOM Revenue	AUD m	\$2,910.1	3,064.6	5%
LOM C1 OPEX (excl Qld Gov't royalty)	AUD m	\$1,198.2	1,011.6	(16%)
LOM EBITDA	AUD m	\$1,679.5	2,018.8	20%
Cash Flow Pre-Tax	AUD m	\$1,341.0	1,539.0	15%
C1 Cost/t product	\$/prod tonne	\$33.16	26.58	(20%)
FOB Cost/t product	\$/prod tonne	\$34.06	27.48	(19%)
AISC/t product (including sustaining CAPEX)	\$/prod tonne	\$37.90	32.93	(13%)

Capex pricing reflects market conditions as at Q2, 2023. The base date of the estimate is then escalated to mid-2025.

Table 2: Key Sand Extraction & Processing Metrics

	Unit	July DFS	Updated DFS	Percent Change
Mineral Resources (see Table 5)	Tonnes M	49.5	49.5	-
Ore Reserve (see Table 4)	Tonnes M	47	47	-
LOM	Years	25	15	(40%)
Sand mined & processed	LOM Tonnes M	44.6	47.0	5%
Silica sand sales over LOM	LOM Tonnes M	36.1	38.1	6%
Plant operating capacity	Mtpa	1.8-1.9	3.6-3.9	
Plant yield	%	81%	81%	

Notes

- » The Probable Ore Reserve and Measured and Indicated Mineral Resource underpinning the above production assumption targets has been prepared by a Competent Person in accordance with the requirements of the JORC Code 2012 (refer Table 2 – Ore Reserves; and Table 3 – Mineral Resources).

Table 3: Discounted cash flow financial model key assumptions

LOM assumptions	Unit	Value
Exchange rate	AUD:USD	0.72
Discount rate (nominal, unleveraged)	% p.a.	10.00
Average sales price - real 2025	USD/prod t	\$57.92
Average sales price - real 2025	AUD/prod t	\$80.54



Project site layout

The updated study uses an almost identical project footprint as defined in the July DFS, with only modest reconfiguration. Changes are attributable to a second process plant, stockpile and stacker that are required to achieve the increase in production.

A second mining face, with two additional Front End Loaders (FELs) and an extra mobile feeder unit, will supply the second process plant with Run of Mine (ROM) sand. This second system will function independently to the first system. The two mining systems, (i.e. two mining faces, two slurry pipelines and two process plants) will mine, process and feed product onto their own respective stockpiles. Final product will be reclaimed from each of two stockpiles to load the single transshipment vessel (TSV) via a single conveyor.

As described in the July DFS, the CFS Project will utilise conventional mining equipment at each mining face and employ two pre-configured modular process plants. The process plants will be positioned side by side as shown in Figure 1 and Figure 2.

The key components of the Project in the July DFS versus the updated DFS are shown in the following table:

Component	July DFS	Updated DFS	Change
Mining Front End Loader (FEL)	2	4	+2
Dozer	2	2	NIL
Mobile Feeder Unit (Dry Mining Unit)	1	2	+1
Slurry Pipeline	1	2	+1
Process Plant (modular with circa 1.5Mtpa product capability each)	1	2	+1
Stacker & Stockpile (100kt each)	1	2	+1
Stockpile Front End Loader (FEL)	2	3	+1
Overland conveyor from stockpile to TSV Loading Facility	1	1	NIL
Power supply (MW)	3.3MW	5.3MW	+2.0MW
Jetty for loading Transshipment Vessel	1	1	NIL
Transshipment Vessel	1	1	NIL
Material Offloading Facility	1	1	NIL
Purpose built accommodation (rooms)	48	52	+4
Workshop, warehouse and administrative facilities	1	1	NIL
Ancillary & Light Vehicle Fleet	1	1	NIL

The addition of a second independent system from the mining face to the process plant establishes greater resilience of the Project as a whole.

Further details of the non-process infrastructure can be found in section 8 of the July DFS Executive Summary.

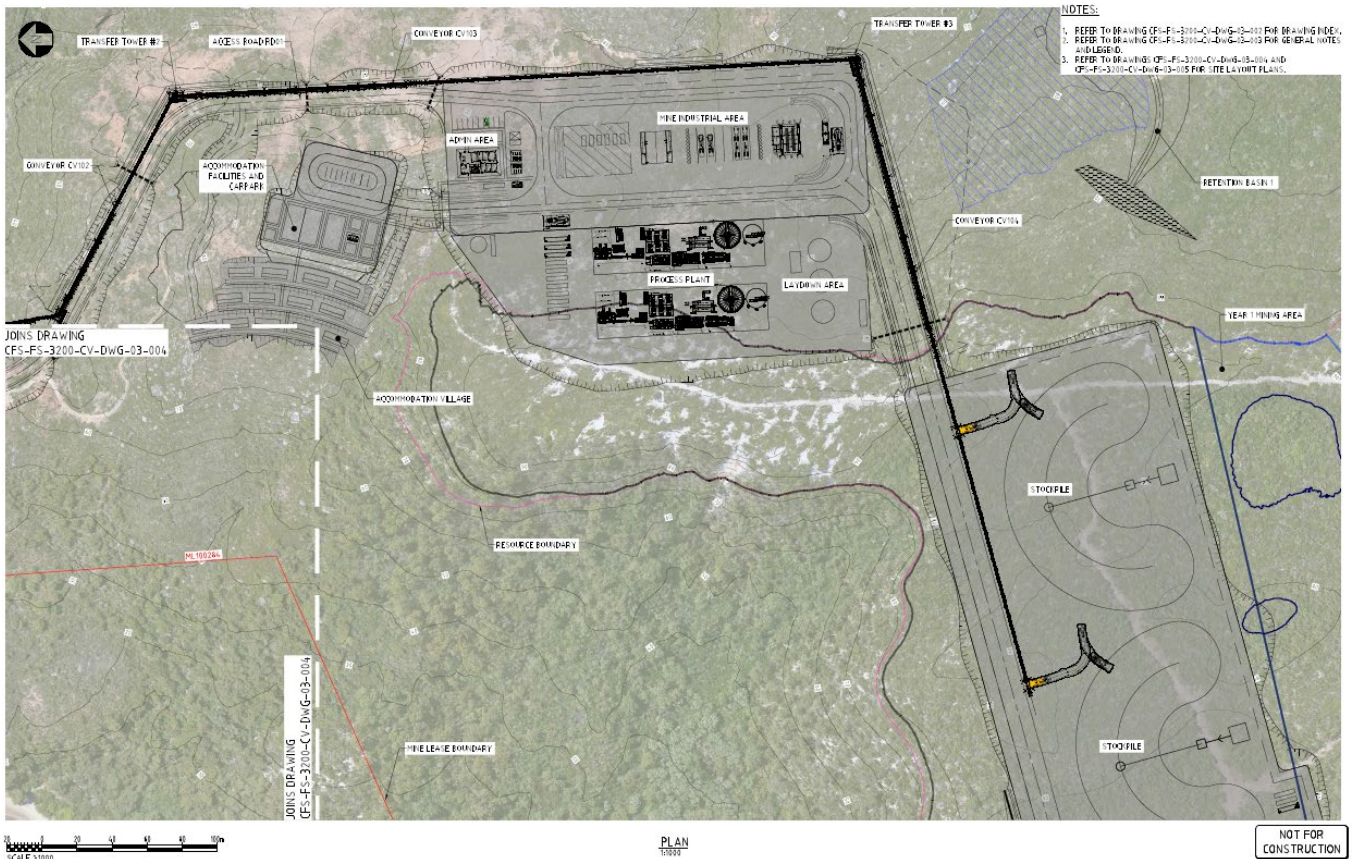


Figure 1: Mine infrastructure looking east

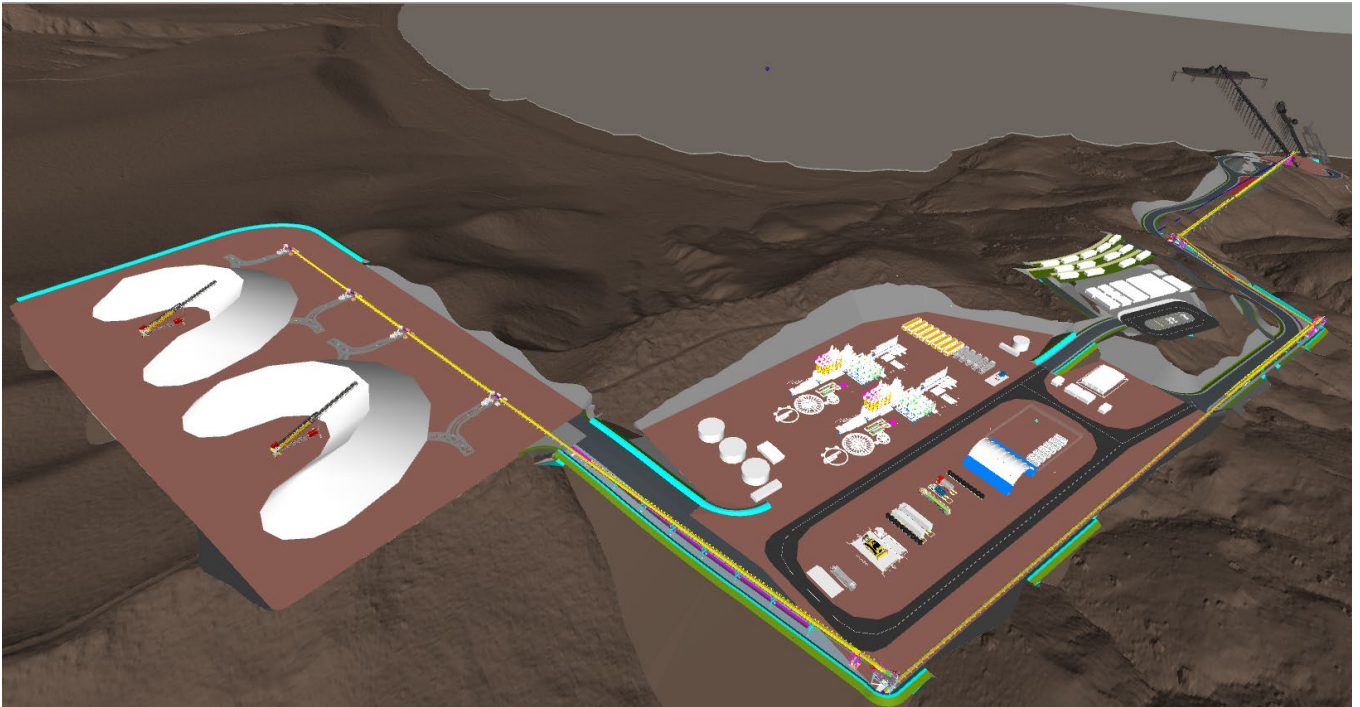


Figure 2: 3D render of Mine Infrastructure and Marine infrastructure looking northwest

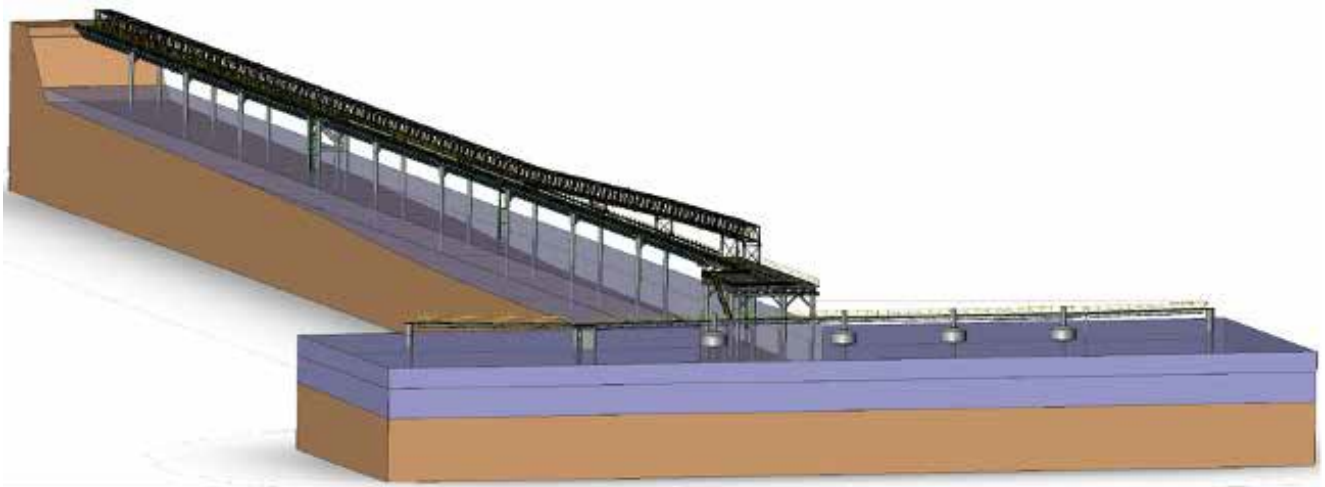


Figure 3: Barge Loading Facility - Looking southwest

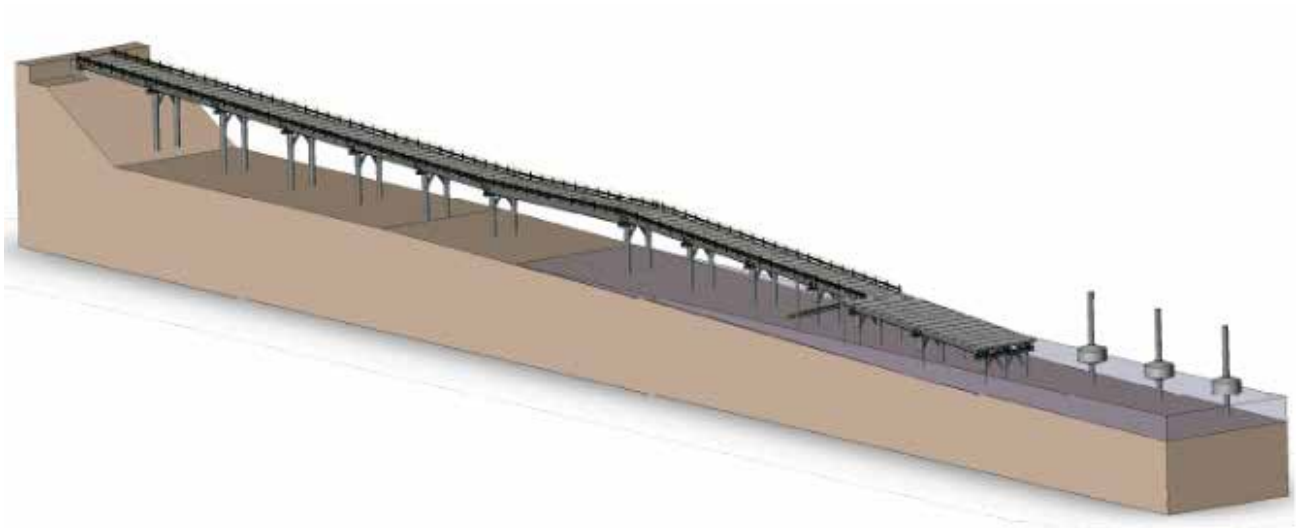


Figure 4: Material Offload Facility - Looking southwest

Ore Reserve

The Ore Reserve remains unchanged, as provided by the independent firm, Ausrocks Pty Ltd (Ausrocks). The Ore Reserve of 47Mt at 99.11% SiO₂ represents 95% of the Mineral Resource of 49.5Mt at 99.10% SiO₂ (see Tables 4 and 5).

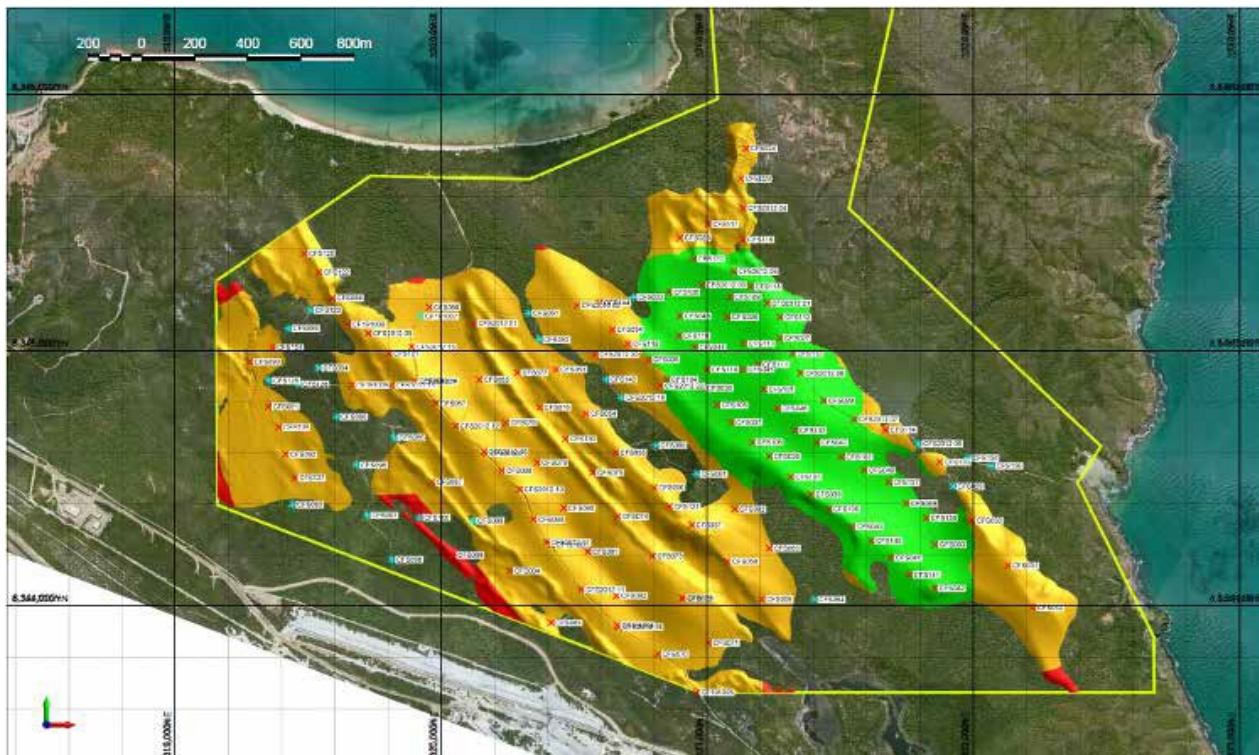


Figure 5: Overview of Drillholes and Resource Category Areas with Mining Lease (ML) boundary

Table 4: Ore Reserve

Ore Reserve Category	Tonnage Mt	SiO ₂ %	Fe ₂ O ₃ %	TiO ₂ %	Al ₂ O ₃ %	LOI %	Waste Mt
Probable Reserve	47	99.11	0.09	0.14	0.15	0.24	4.0

The Mineral Resource of 49.5Mt includes results from drilling campaigns in 2019 (hand auger), December 2020, July/August 2021 and December 2021. In total, eight (8) 5-meter-deep auger holes and one-hundred and forty-four (144) vertical holes comprising 2,524m of drilling have been completed within CFS's Mining Lease Application (MLA) area over a 2-year period, The data from these holes has been used in the resource estimate for the CFS Project.

Table 5: Cape Flattery Silica Sand Project – Mineral Resource for the Eastern Resource Area

Resource Category	Silica Sand Mt	SiO ₂ %	Fe ₂ O ₃ %	TiO ₂ %	LOI %	Al ₂ O ₃ %	Density t/m ³	Silica Sand Mm ³
Measured	16.1	99.20	0.08	0.12	0.13	0.22	1.6	10.1
Indicated	33.2	99.05	0.10	0.18	0.15	0.25	1.6	20.7
Inferred	0.2	99.00	0.12	0.27	0.13	0.28	1.6	0.1
Total	49.5	99.10	0.09	0.16	0.14	0.24	1.6	30.9

For Table 4 and 5, refer to ASX Release 17 July 2023 "Cape Flattery Silica DFS – confirms excellent economics"



The Mineral Resource Estimate was completed by Ausrocks in accordance with JORC Code 2012 guidelines using Micromine Origin 2023 to model and evaluate the resource. The parameters used in the Resource model are detailed in the Executive Summary in the original DFS. These results show there is positive potential to produce a premium grade silica product using standard processing techniques.

Metallurgical Bulk Testing

MLM engaged Mineral Technologies to carry out detailed metallurgical testing in a series of characterisation and bulk test work studies. The most recently completed test work (see ASX Release dated 19 September 2023 "Bulk metallurgical tests confirm High Purity Silica at CFS") confirmed the Process Flow Design (PFD) used in the July DFS, and that a high purity silica sand with Fe_2O_3 of 100ppm and SiO_2 of 99.9% can be produced at ~86% yield. The increased tonnage scenario contemplates a duplication of plant, using the same PFD as per the July DFS, and therefore no change in product quality or yield is expected. For further detail on the metallurgical aspects of the project please refer to ASX Release dated 19 September 2023 "Bulk metallurgical tests confirm High Purity Silica at CFS".

Silica Sand Mining

Sand mining is still planned to commence in the closest part of the Ore Reserves to the Mine Infrastructure Area (MIA). The sand extraction will now occur on two fronts, with two sets of dry mining units with two loaders each, both progressing their respective mining face south and to the west over the course of the life of mine. The two faces will work to produce approximately double the ROM tonnes. This duplication brings with it the added benefit of bringing forward Resource tonnes that previously fell outside of the 25 year mine life (standard Mining Lease duration) and therefore further improves the Project's economics.

Following vegetation clearing, topsoil is planned to be removed across a small initial footprint using a dozer or grader with separation of the soil and sub-soil horizon to an average depth of 500mm. Topsoil is planned to be stockpiled in 2m high (maximum) piles at the boundary of the clearing area to be used for progressive rehabilitation.

After removal of the topsoil, silica sand extraction can commence by free digging from the working faces with wheeled loaders. The loaders are sized to facilitate loading of silica sand into their respective mobile feeder units. Where areas of poorer quality silica sand are encountered, this sand will not be processed and will be placed in rehabilitation areas.

Water is added to the silica sand as it passes into the respective mobile feeder hoppers or dry mining units and the resulting slurry pumped to the processing plants individually through two discrete slurry pipelines.

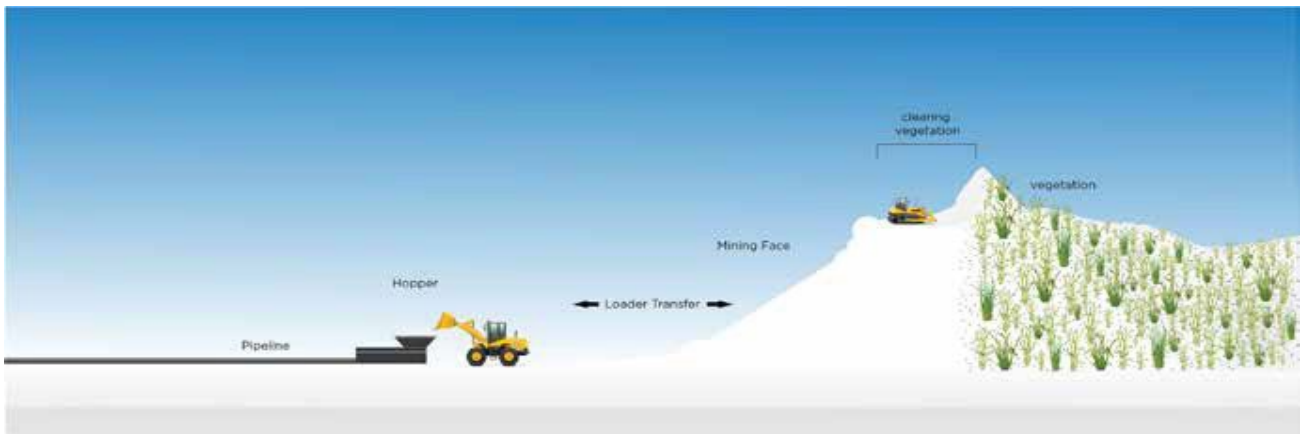


Figure 6: Production Overview – typical mining face (one of two)

The Wet Concentration Plants (WCP's) are designed to reduce heavy mineral content in the sand, being principally Fe_2O_3 , TiO_2 and Al_2O_3 contaminants. They are located to the northeast of the sand extraction area, near the MIA and BLF. No chemicals are added to the sand as it is processed through the WCPs.

The reject material from the WCP's contains low-grade silica sand containing Fe_2O_3 , TiO_2 and Al_2O_3 and other minerals. These all occur naturally in the Cape Flattery region at concentrations similar to the reject grade and do not pose a threat to the environment. Rejected material will be pumped back via pipelines to the active rehabilitation faces, to progressively rehabilitate the extraction area.

Processing

The WCP's utilise an industry standard process and are designed for continuous operation 24 hours per day, 300 days per year, with approximately 82% utilisation resulting in the nominal operating parameters.



Figure 7: CDE Group modular process plant (one of two plants)



Transshipping

MLM engaged with several providers of transshipping services as part of the July 2023 DFS process. The most feasible transshipping options had significant unused capacity at export rates of 1.45Mpta. Further engagement with these providers, and static modelling demonstrated that annual exports of 3Mpta is possible over the same marine infrastructure outlined in the July 2023 DFS with no changes. Transshipping rates per tonne will also decrease as a result of the increased annual throughput. As per the July 2023 DFS study, transshipping operations are subject to the approval of the relevant marine authorities.

Capital Expenditure

The capital cost estimate including contingency and escalations to represent the 2025 CAPEX is AUD\$236.7M.

The capital cost estimate has been developed in line with the requirements of the Association for the Advancement of Cost Engineering International (AACEi) Class 3 estimate in accordance with AACEi 47R-11 with an accuracy of -10% to +15%.

CAPEX pricing reflects market conditions as of Q2, 2023. The base date of the estimate is then escalated to mid-2025.

The initial CAPEX is AUD215.2 million before contingency.

Total initial CAPEX is AUD236.7 million, including an estimated contingency of AUD21.5 million and escalation of AUD14.3 million.

The intention is to install WHIMS from the outset for the first WCP and then in the following year install the second WCP, including WHIMS.

Deferred capital includes sustaining capital and a Buy Own Operate Transfer (BOOT) arrangement for the balloon payment for the transfer of ownership of the 52-bed camp.

Table 6: Level 1 LOM CAPEX Summary – Real mid-2025 \$

Description	Initial Construction CAPEX AUD Million		
	July DFS	Updated DFS	Change
Mining / MIA	3.9	5.2	
Processing Plant	44.6	89.5	
On-Site Infrastructure	18.9	29.1	
Product Transportation	32.8	32.8	
Off-Site Services / Utilities	-	-	-
Subtotal Direct Costs	100.2	156.5	\$56.3
Common Construction Facilities & Services	19.1	21.6	
Implementation Contractors	10.9	10.9	
Owner's Costs	11.1	12.8	
Subtotal Indirect Costs	41.2	45.3	\$4.1
Subtotal Base Estimate	141.4	201.8	\$60.4
Contingency	13.6	21.5	
Escalations	10.0	13.5	
Subtotal Escalation & Contingency	23.6	34.9	\$11.3
Total Installed Cost	165.0	236.7	\$71.7



Operating Expenditure

Operating costs for CFS were developed based on work undertaken by CFS in conjunction with Turner & Townsend Jukes Todd. The level of effort for each of the line items meets the Class 3 estimate as defined by the AACEi, and the extent of work performed allows for a $\pm 10\%$ to 15% accuracy.

Table 7: Operating Cost per tonne of product Summary Real mid-2025 \$

Operating costs	July DFS	Updated DFS	Change
Mining/MIA	\$4.58	\$3.75	(\$0.83)
Processing Plant	\$7.60	\$5.76	(\$1.84)
On-Site Infrastructure	\$2.86	\$1.80	(\$1.06)
Product Transportation	\$9.98	\$8.02	(\$1.96)
Off-Site Services/Utilities	\$1.80	\$1.05	(\$0.75)
General & Administrative*	\$2.77	\$2.39	(\$0.38)
Other Fees **	\$3.58	\$3.81	\$0.23
C1 cash cost	\$33.16	\$26.58	(\$6.58)
Qld Government Royalties	\$0.90	\$0.90	-
FOB cash costs	\$34.06	\$27.48	(\$6.58)

* General & Administrative expenditure includes HR, HSEC, IT, warehousing, pre-production drilling, freight, and general site office costs.

** Other Fees expenditure includes estimated TLO Royalties, demurrage, marketing fees and water licence fees. It has been assumed that there will be an increase to demurrage fees due to the additional sales per year.

Table 8: Operating Cost Summary Real mid-2025 \$

Operating costs	Average AUD Million		
	July DFS	Updated DFS	Change
Mining/MIA	165.5	142.8	(\$22.7)
Processing Plant	274.6	219.3	(\$55.3)
On-Site Infrastructure	103.3	68.5	(\$34.8)
Product Transportation	360.5	305.3	(\$55.2)
Off-Site Services/Utilities	65.0	39.8	(\$25.2)
General & Administrative*	100.0	91.0	(\$9.0)
Other Fees **	129.2	144.9	\$15.7
C1 cash cost	1,198.1	1,011.6	(\$186.5)
Qld Government Royalties ***	32.5	34.3	\$1.8
FOB cash costs	1,230.6	1,045.8	(\$184.8)

* General & Administrative expenditure includes HR, HSEC, IT, warehousing, pre-production drilling, freight, and general site office costs.

** Other Fees expenditure includes estimated TLO Royalties, demurrage, marketing fees and water licence fees. It has been assumed that there will be an increase to demurrage fees due to the additional sales per year.

*** Qld Government Royalty payments have increased due to the additional sales.



Figure 8 presents the annualised LOM cash flow forecast including the cumulative cashflow curve to the end of the Project life. Note that annual periods discussed are financial years.

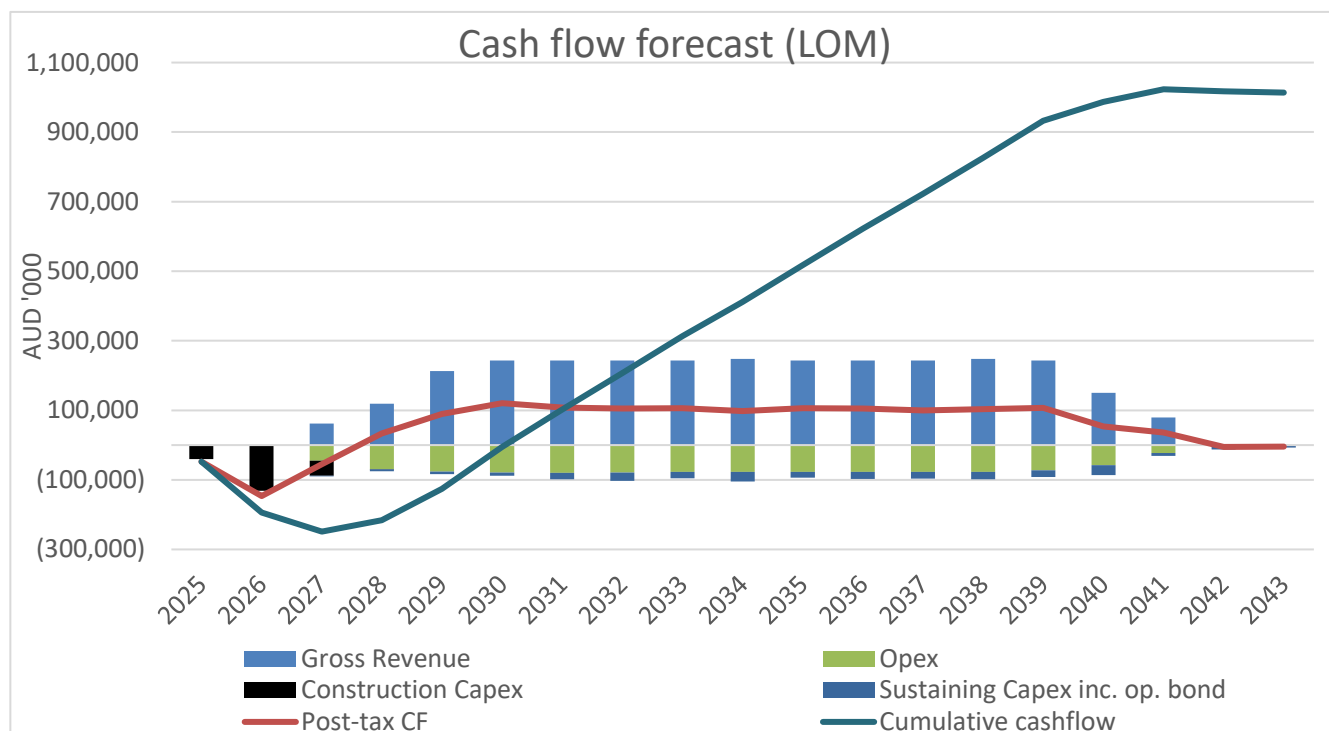


Figure 8: Annualised Cash Flow Forecast

Silica Sand Marketing and Price Forecast

Given the short time frame between Prime Gain Limited's (PGL) May 2023 Market Report (Asia Pacific Silica Sand Market) which was used in the July DFS, PGL was asked to assess whether or not their market forecasts from that report were appropriate for use in this updated DFS.

The key points from PGL's review are as follows:

- China remains the largest consumer of low-iron silica sand, which is driven by PV Glass production. However, over the past 12 months, the market price of 'factory door delivered' silica sand in China has softened, falling from RMB 530 per metric tonne to a range of RMB 420 to 470 per metric tonne. This is due to solar panel overproduction and a corresponding build-up of inventory, particularly in Europe. This build-up has caused a ripple effect on the short-term demand for associated raw material inputs, including silica sand.
- Nevertheless, the fundamental demand for solar energy and the related need for low-iron silica sand remains.
- Seaborne supply dynamics may change as Indonesia is anticipated to cease exports within the next 12 months. Indonesia, having entered the seaborne supply of low-iron silica sand in 2020, exports almost exclusively to China.
- There has been a significant increase in mechanical processing production capacity of silica sand in China. Several new market players have emerged, who will rely on seaborne silica sand feedstock, or a combination of seaborne and domestic supply.



- Considering China's insufficient domestic supply of low-iron silica sand, and the environmental implications of acid washing, we anticipate a sustained demand for seaborne low-iron product from Australia, particularly if Indonesia exits the export market. Furthermore, the rapidly growing mechanical processing capacity in China indicates increasing demand growth for seaborne low-iron feedstock. Given these current circumstances, we maintain our outlook from the Market Report dated 3 May 2023, forecasting that the demand and pricing for seaborne low-iron silica sand will remain robust, with potential for still higher demand and pricing in 2026.
- The July DFS pricing estimate for high purity silica sand, which has been maintained in this updated DFS, based on the advice of PGL is FOB USD 54.00 to USD 65.00 / AUD 75.00 to AUD 90.28 per tonne

Prime Gain confirmed its pricing forecast for a high-grade Cape Flattery silica sand product to achieve FOB pricing of AUD\$75.00 to \$A90.28 per tonne, subject to various market conditions and variables.

Table 9: Prime Gain pricing analysis – Pricing estimate for a Cape Flattery high purity silica sand commencing 2026 from Australia to China using forward ocean freight rates

	Low-range estimate	High-range estimate
FOB AUD/t	75.00	90.28
FOB USD/t	54.00	65.00
Ocean Freight USD/t	16.00	16.00
CIF USD/t China	70.00	81.00

For the purposes of the DFS, CFS has used US\$57.92/A\$80.54/t FOB for the financial modelling of the Project's economics (Average sales price in real mid-2025 dollars).

Project Risks

The principal risks for CFS include:

- Inability to secure appropriate offtake agreements;
- Inability to secure future funding for the Project;
- Loss of product sales revenue;
- Multiple competitors entering the market;
- Environmental and social licences to operate, including delays to project approvals;
- Long lead delays in project delivery;
- Major weather events;
- Delivery of Transshipment Vessel (TSV)
- Delivery of jetty infrastructure; and
- Disruption to shipping and increased shipping costs.

Metallica continually reviews and respond to project risks as part of planning and operational management processes.



Sensitivity Analysis

Sensitivity analysis allows the analysis of how different values of an independent variable affect a particular dependent variable under a certain set of assumptions and studies how various sources of uncertainty contribute to the financial forecast's overall uncertainty by posing questions to which the output is an opaque function of several variables.

The following tornado chart illustrates the project's financial sensitivity, on an individual basis, to the five key drivers and assumptions. The chart shows the project can withstand strong changes in the economic environment. The project is most sensitive to (from most to least sensitive):

- Exchange rate
- Silica sand Price
- Recovery rate
- OpEx
- CapEx

Figure 9 illustrates the dollar value change in pre-tax nominal NPV (measure in A\$'000) for a 10% favourable and 10% unfavourable change in each of the named variables.

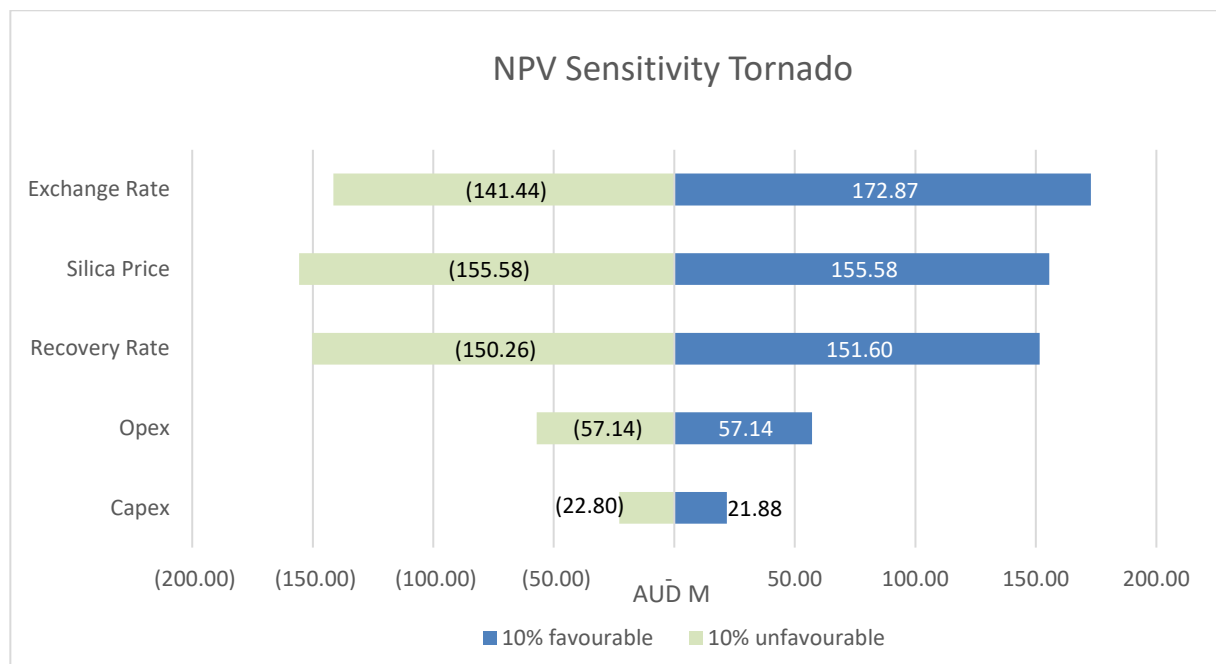


Figure 9: Sensitivity Tornado NPV

Funding Plan

The July DFS further illustrates the potential for even stronger economic returns from the increased production and saleable product. Metallica expects these strong economic returns may facilitate preparation of a structured project finance package from debt providers and further equity investment.

Metallica has been previously supported by major shareholders who have contributed to prior equity capital raisings.



A preliminary funding plan has been prepared for the July DFS saleable production of 1.45mtpa and this plan is still current for the updated DFS, given the improved project economics.

The extent and form of project finance will, in part, depend on risk, the bankability of offtake agreements, cost and allocation of capital. A combination of finance options are expected to be available to Metallica to progress funding the development of the CFS Project, including debt, equity, and government assistance.

The financing solution and capital management strategy includes:

- Securing a fully funded solution for the CFS Project;
- Maximising returns to all stakeholders whilst minimising dilution to existing shareholders; and
- Capitalising on prevailing positive trends in the silica sand market.

The Company is evaluating its financing strategy with the objective of minimising dilution for existing shareholders and for managing priorities of all invested stakeholders. Metallica anticipates that, subject to prevailing economic conditions, it should be able to secure funding on terms consistent with peer project developers. Metallica has held multiple discussions with potential financiers, in Australia, Asia, and Europe who have expressed an interest in project funding.

Regardless of the strong economic returns of the project and developed funding plans, the future funding of the Project has an inherent risk until funding is secured. Project funding can be impacted by a number of factors including the macroeconomic environment at the time funding is being sought. As such, there is no guarantee that Metallica will be able to secure the total funding required to develop the Project, and the amount of dilution for shareholders from the funding is uncertain until the funding is secured.

Next Steps

The July DFS and this updated study reinforces the very positive economic potential of the CFS project. The updated study also provided significant financial results that support Metallica's strategy of continuing to develop the CFS Project.

The immediate priority is to start the Environmental Impact Study (EIS). While finalisation of the Terms of Reference with relevant statutory bodies has not yet occurred, Metallica's Board has approved a number of studies related to the EIS to be commenced as soon as possible.

The Company had sought to complete formal negotiations with the Traditional Landowners, namely Hopevale Congress Aboriginal Corporation (Hopevale Congress), as agent for the Nguurruumungu Clan, and Walmbaar Aboriginal Corporation, as agent for the Dingaal Clan. The challenges of seeking a unified response to the outstanding matters has resulted in Metallica requesting the assistance of the National Native Title Tribunal to mediate among the Negotiation Parties - being the Dingaal and Nguurruumungu Clans, the State of Queensland and Metallica's subsidiary Cape Flattery Silica Pty Ltd - to assist in obtaining their agreement for the grant of mining lease 100284.



Metallica continues to engage with a number of potential offtake parties who have expressed interest in securing seaborne supply of a high purity silica sand product. A number of these parties have visited the project. MLM's General Manager Commercial has completed a second visit to China, meeting with top tier photovoltaic glass manufacturers, potential supply chain partners, and sand processors to discuss offtake, and also to understand the competitive environment. Discussions include the potential to value add through additional processing. Discussions continue with parties in Taiwan, South Korea and Malaysia.

Additional Information

Included below in this announcement are supporting material containing detailed information about the Updated DFS and its outcomes. This information includes, as applicable, the material assumptions, underlying methodologies and detailed reasoning supporting and used to derive the financial and production outcomes and other forward-looking statements set out in this release (including above), such as the material price and operating cost assumptions. Accordingly, this announcement should be read together with these supporting materials.

The Company has concluded that it has a reasonable basis for providing the forward-looking statements and forecast financial information included in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and all material assumptions including the JORC modifying factors, upon which the forecast financial information is based are disclosed in this announcement. This announcement has been prepared in accordance with JORC Code 2012 and the ASX Listing Rules.

The Updated DFS discussed herein has been undertaken to study a range of options to further develop the technical and economic feasibility of the CFS Project. The production target incorporates the Maiden Ore Reserve that sits within the proposed sand extraction area. Drilling completed in December 2021 (see ASX release 23 February 2022) has not been assessed for inclusion in the Mineral Resource and Ore Reserve.

The Ore Reserve and Mineral Resource Estimate underpinning the Updated DFS have been prepared by Competent Persons in accordance with the requirements of the JORC Code. Competent Persons' Statements are included in this document. Production scheduling and pit design is document in further detail and can be found in section 5.3 of the Executive Summary.

Previous ASX Announcements

The Company confirms that except as expressly set out in this announcement:

- A. All the material assumptions underpinning the production target, or the forecast financial information derived from a production target, in cited ASX announcements that are mentioned in this announcement, continue to apply and have not materially changed; AND
- B. In relation to ASX announcements cited in this announcement that contained exploration results or estimates of mineral resources and ore reserves, the Company is not aware of any new information or data that materially affects the information included in those announcements and that all material assumptions and technical parameters underpinning the estimates in those announcements continue to apply and have not materially changed.



Investors should note that there is no certainty that the Company will be able to raise the funding required to commercialise the Project when needed. It is also 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. It is also possible that the Company could pursue other 'value realisation' strategies to provide alternative funding options.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Project's DFS. Actual results and development of projects may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors. A key conclusion of the DFS, which is based on forward-looking statements, is that the Project is considered to have positive economic potential.

This ASX Announcement has been approved in accordance with the Company's published continuous disclosure policy and has been approved by the Board.

For further information, please contact:

Mr Theo Psaros
Executive Chairman
+61 (7) 3249 3000

Mr Scott Waddell
CFO & Company Secretary
+61 (7) 3249 3000



COMPETENT PERSON STATEMENT

Cape Flattery Silica Sand Exploration Results

The information in this report that relates to the Exploration Sampling and Exploration Results is based on information compiled by Mr Patrick Smith, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy.

Mr Smith is the owner and sole Director of PSGS Pty Ltd and is contracted to Metallica Minerals as its Exploration Manager. Mr Smith confirms there is no potential for a conflict of interest in acting as the Competent Person. Mr Smith has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”.

Mr Smith consents to the inclusion of this information in the form and context in which it appears in this release/report.

The overall resource work for the Cape Flattery Silica Project – Eastern Resource Area is based on the direction and supervision of Mr Mutton who has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken.

Cape Flattery Silica Sand Resource

The information in this report that relates to the Cape Flattery Silica Project – Eastern Resource Area is based on information and modelling carried out by Chris Ainslie, Project Engineer, who was a full-time employee of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy. The work was supervised by Mr Carl Morandy, Mining Engineer who is Managing Director of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy, and also by Mr Brice Mutton who is a Senior Associate Geologist for Ausrocks Pty Ltd. Mr Mutton is a Fellow of the Australasian Institute of Mining & Metallurgy and Fellow the Australian Institute of Geoscientists. Mr Morandy and Mr Ainslie and Mr Mutton are employed by Ausrocks Pty Ltd which has been engaged by Metallica Minerals Ltd to prepare this independent report, there is no conflict of interest between the parties.

Mr Morandy, Mr Ainslie and Mr Mutton consent to the disclosure of information in the form and context in which is appears in the original Definitive Feasibility Study (July DFS) (refer ASX release 17 July 2023).

The overall resource work for the Cape Flattery Silica Project – Eastern Resource Area is based on the direction and supervision of Mr Mutton who has sufficient experience that is relevant to the style of mineralization and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”.

Cape Flattery Silica Sand Ore Reserves

The information in this report that relates to Ore Reserves at the Cape Flattery Silica Sand Project is based on information reviewed or work undertaken by Mr Carl Morandy. Mr Morandy is a Mining Engineer, the Managing Director of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy. Mr Morandy has relied on Metallica Minerals Limited for marketing, environmental, economic, social and government permitting. Ausrocks Pty Ltd have been engaged by Metallica Minerals Limited to prepare this independent report and there is no conflict of interest between the parties.

Mr Morandy has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the preparation of mining studies to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Ore Reserves (The JORC Code). Mr Morandy consents to the inclusion in the report on the matters based on their information in the form and context in which it appears. The corresponding JORC 2012 Table 1 attached to the original Definitive Feasibility Study (July DFS) (refer ASX release 17 July 2023).



Cape Flattery Silica Sand Metallurgy

The technical information in this report that relates to process metallurgy is based on work completed by Mineral Technologies and information reviewed by Etienne Raffailac (MAusIMM), who is a Principal Process Engineer and employee of Mineral Technologies. The metallurgical aspects including process flowsheet design, product grades and recoveries and assumptions for the metallurgical sample processing and characterisation that relate to the Cape Flattery Silica Sand project have been reviewed and accepted by Mr Raffailac.

Mr Raffailac has sufficient experience that is relevant to the type of processing under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the JORC Code 2012. Mr Raffailac consents to inclusion in the report of the matters based on his information in the form and context in which it appears.

Cape Flattery Silica Sand Process Design and Engineering

The technical information in this report that relates to process design and engineering is based on work and information reviewed by Jeff Brown, who is a qualified consultant Metallurgist. The process design and engineering aspects including process plant design and assumptions for the processing that relate to the Cape Flattery Silica Sand project have been reviewed and accepted by Jeff Brown.

Jeff Brown has sufficient experience that is relevant to the type of process plant design under consideration and to the activity being undertaken. Jeff Brown consents to the inclusion in the report of the matter based on his information in the form and context in which it appears.

Forward-looking Statements

Forward-looking statements are based on assumptions regarding Metallica, business strategies, plans and objective of the Company for future operations and development and the environment in which Metallica may operate.

Forward-looking statements are based on current views, expectations and beliefs as at the date they are expressed and which are subject to various risks and uncertainties. Actual results, performance or achievements of Metallica could be materially different from those expressed in, or implied by, these forward-looking statements. The forward-looking statements contained in this presentation are not guarantees or assurances of future performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of Metallica, which may cause the actual results, performance or achievements of Metallica to differ materially from those expressed or implied by the forward-looking statements. For example, the factors that are likely to affect the results of Metallica include general economic conditions in Australia and globally; ability for Metallica to fund its activities; exchange rates; production levels or rates; demand for Metallica's products, competition in the markets in which Metallica does and will operate; and the inherent regulatory risks in the businesses of Metallica. Given these uncertainties, readers are cautioned to not place undue reliance on such forward-looking statements.