

Cape Flattery Silica

Noosa Mining Conference

20 to 22 July 2022



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Metallica Minerals Limited (ASX: MLM)
A new economy minerals company

**Metallica Minerals
is an Australian
development
company focused on
delivering high purity
silica sand to a
diversified global
customer-base.**



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Listing Rule & Competent Person Statements



ASX Announcements cited

The following ASX Announcements are cited in this presentation

1. See ASX Release 7 April 2022 “Significant Increase in Measured & Indicated Resources at Cape Flattery Silica Project”
2. See ASX Release 15 June 2021 “Mining Lease Application lodged for Cape Flattery Silica”
3. See ASX Release 21 March 2022 “Cape Flattery Silica Pre Feasibility Study”
4. See ASX Results 28 April 2022 “Positive Metallurgical test work results achieved at CFS”
5. See ASX Release 10 November 2021 “Cape Flattery Silica Sand Project Production Target”

The statements in this presentation concerning Mineral Resource Estimates at the CFS Project are derived from ASX announcements 1, 3 and 5 above.

Listing Rule 5.23

The Company confirms that it is not aware of any new information or data that materially affects the information included in these original market announcements and, in the case of estimates of mineral resources or ore reserves and production forecasts and forecast financial information, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements 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.

Statements concerning production targets and related financial information are derived from ASX announcements 3 and 5 above.

Listing Rule 5.19.2

The Company confirms that all material assumptions underpinning the production target and corresponding financial information continue to apply and have not materially changed.

Competent Person Statement

The information in this presentation relating to mineral resource estimates or ore reserves is based on information compiled and reviewed by Mr Carl Morandy, who is a Member of the Australian Institute of Mining & Metallurgy. Carl is a fulltime employee of Ausrocks Pty Ltd and has sufficient experience that is relevant to the styles of mineralisation under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Carl consents to the inclusion in the presentation of the matters based on his information in the form and context in which it appears.

Ore Reserve Category	Tonnage Mt	SiO ₂ %	Fe ₂ O ₃ %	TiO ₂ %	Al ₂ O ₃ %	LOI %	Waste Mt	Silica Sand Mm ³
Probable Reserve	46	99.18	0.12	0.14	0.11	0.19	2.6	28.76

- > High purity silica sand resource of 52.2Mt @ 99.18% SiO₂
- > 144 Drill holes completed
- > In-situ SiO₂ averages 99.2% at an 98.5% cut-off grade

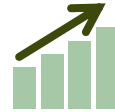
Classification	Silica Sand (Mt)	SiO ₂ %	Fe ₂ O ₃ %	Al ₂ O ₃ %	TiO ₂ %	LOI %	Silica Sand (Mm ³)	Density (t/m ³)
Measured Resource	16.7	99.26	0.10	0.08	0.13	0.17	10.4	1.6
Indicated Resource	35.2	99.14	0.13	0.13	0.14	0.19	22.0	1.6
Inferred Resource	0.3	99.06	0.14	0.16	0.12	0.23	0.20	1.6
Total	52.2	99.18	0.12	0.11	0.14	0.18	32.80	1.6

See ASX Release 7 April 2022 “Significant Increase in Measured & Indicated Resources at Cape Flattery Silica Project”

Company Highlights



Cape Flattery Silica (CFS) is **100% owned by** Metallica Minerals



Booming production of Solar panels stimulates significant demand for high purity silica sand



46Mt Reserve high purity Silica Sand resource₁



Mining Lease Application lodged₂



CFS project has a **transport solution** – located within Port Limit of Cape Flattery



Strong financial results from Pre-Feasibility Study₃



Project has low Capex, low Opex and a Reserve for 25 years production



Excellent internal Metallurgical test results received – potential customer acceptance underway₄

1. See ASX Release 7 April 2022 "Significant Increase in Measured & Indicated Resources at Cape Flattery Silica Project", 2. See ASX Release 15 June 2021 "Mining Lease Lodged for Cape Flattery Silica"
3. See ASX Release 21 March 2022 "Cape Flattery Silica PFS – confirms excellent economics, 4. See ASX Results 28 April 2022 "Positive Metallurgical test work results achieved at CFS"

Corporate snapshot



Share Price
2.9c
(as at 15 July 2022)

Cash
\$5.3m
(as at 30 June 2022)

Ordinary Shares
665.9m

Debt
Nil

Options
179.6m
\$0.06

Market Cap
\$19.3m

Top 20
shareholders
hold **55%**
of Register

Metallica Board & Management

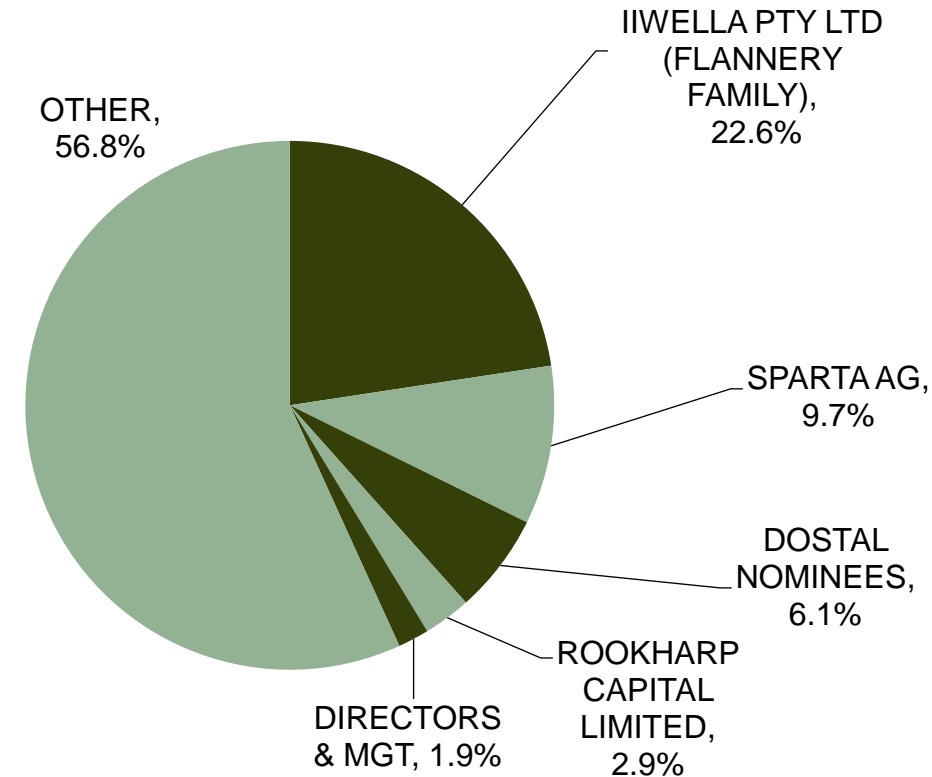
Theo Psaros,
Executive Chairman

Brad Sampson,
Non-Executive Director

Mark Bojanjac,
Non-Executive Director

Scott Waddell,
CFO and Company
Secretary

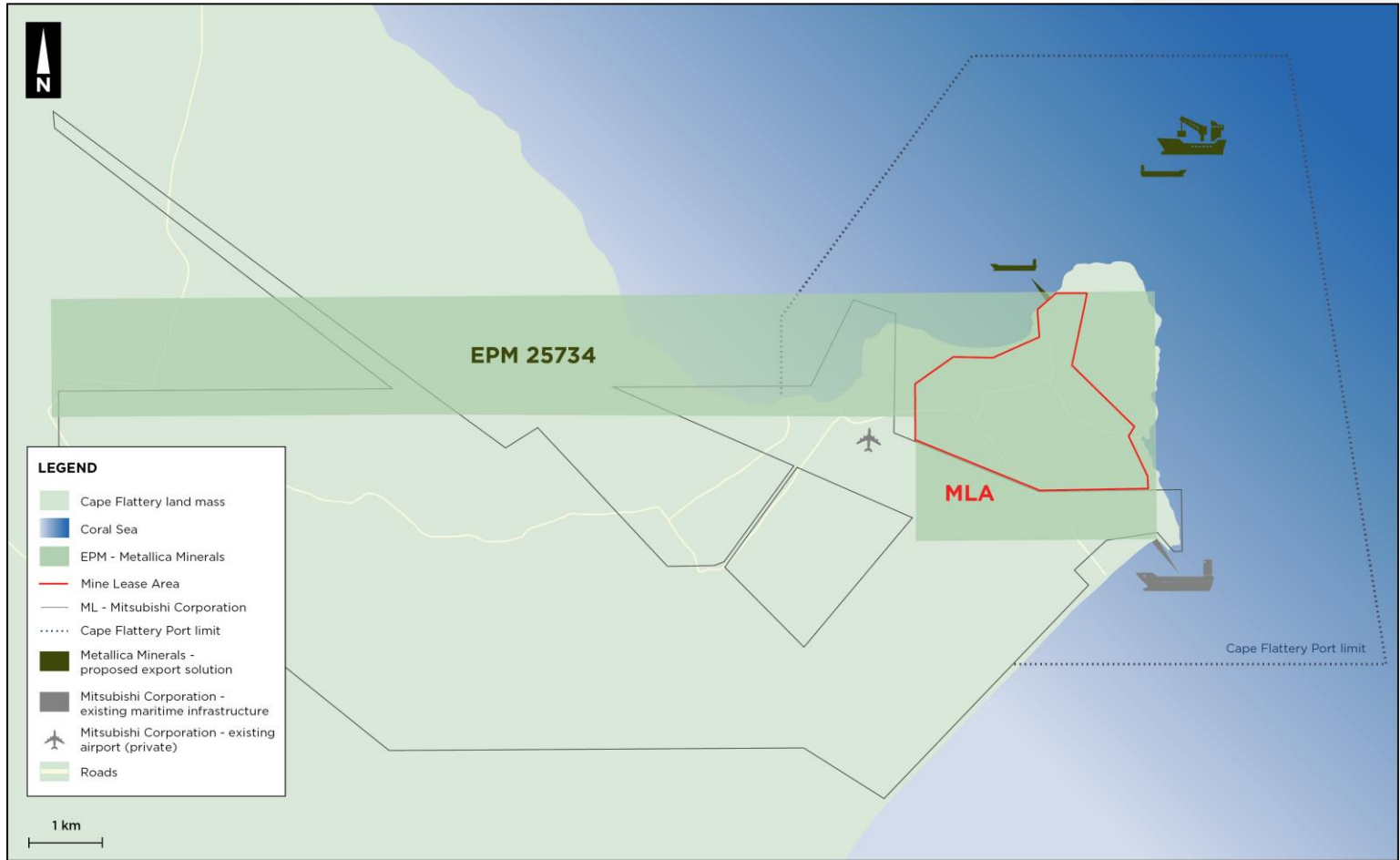
Nicholas Villa,
General Manager,
Cape Flattery Silica



Cape Flattery Silica Location



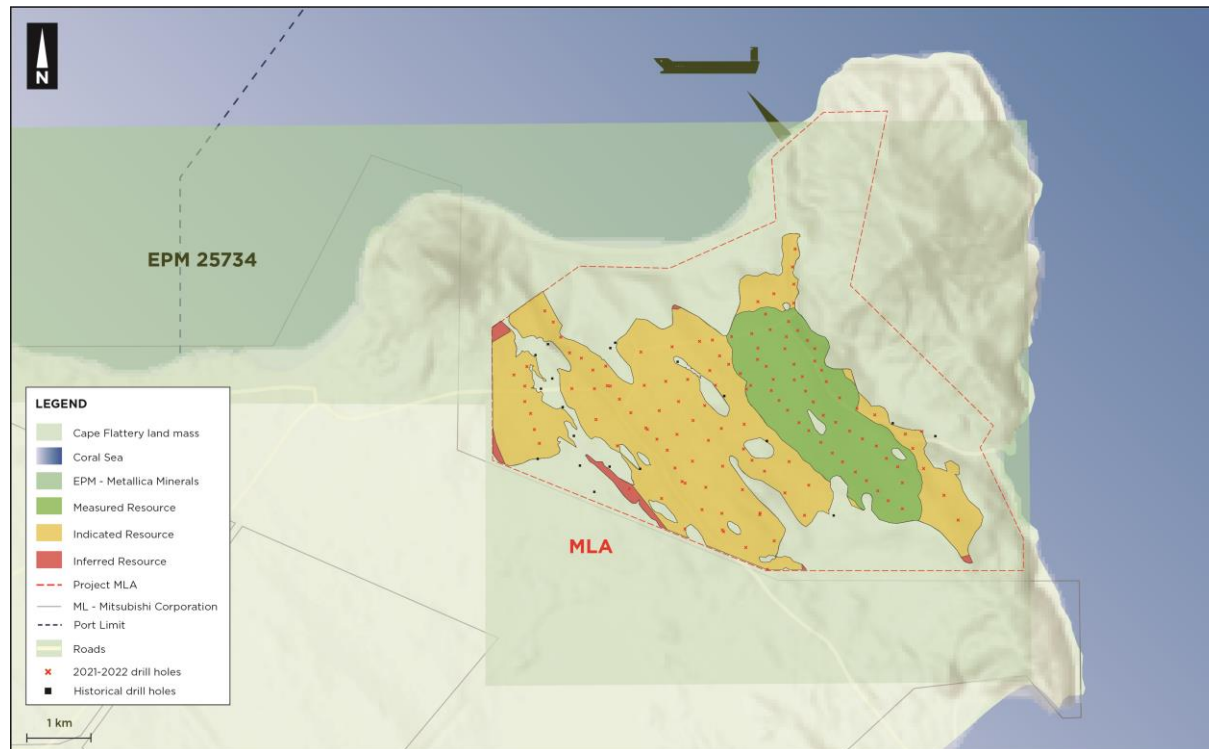
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JORC Resource₁



Ore Reserve Category	Tonnage Mt	SiO ₂ %	Fe ₂ O ₃ %	TiO ₂ %	Al ₂ O ₃	LOI%	Waste Mt	Silica Sand Mm ³
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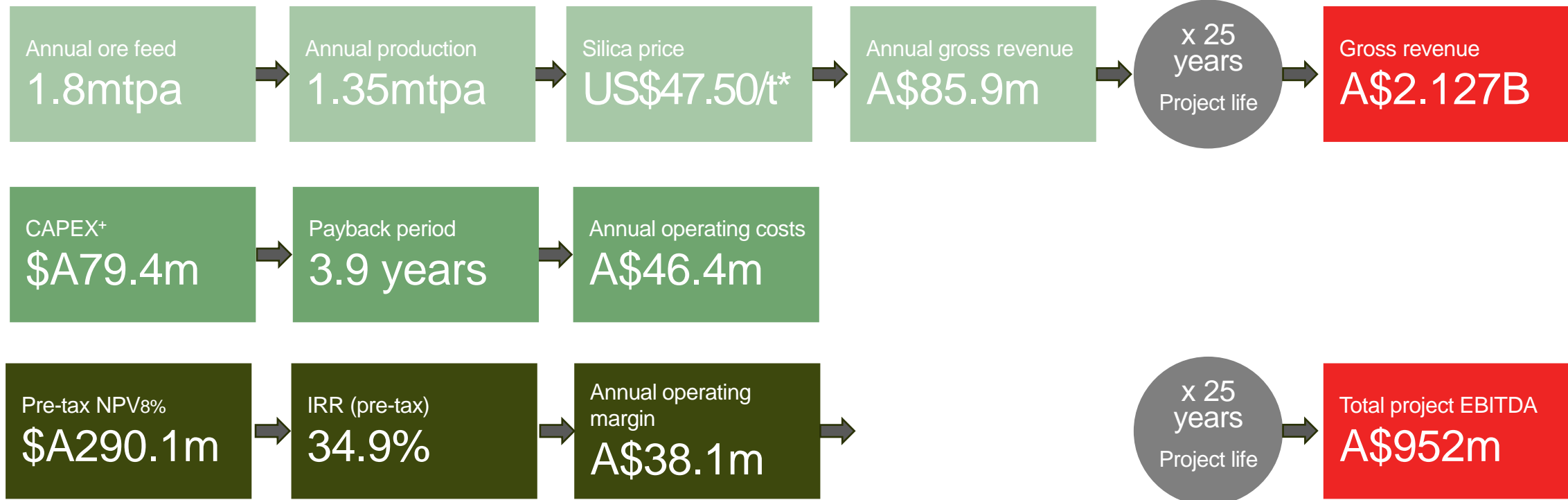
- > High purity silica sand resource of 52.2Mt @ 99.18% SiO₂
- > 144 Drill holes completed
- > In-situ SiO₂ averages 99.2% at an 98.5% cut-off grade

Resource Category	Measured	Indicated	Inferred	Total
Silica Sand (Mt)	16.7	35.2	0.3	52.2
SiO ₂ (%)	99.29	99.15	99.26	99.18
Fe ₂ O ₃ (%)	0.10	0.13	0.14	0.12
TiO ₂ (%)	0.13	0.14	0.12	0.14
LOI (%)	0.17	0.19	0.23	0.18
Al ₂ O ₃ (%)	0.08	0.13	0.16	0.11
Density (t/m ³)	1.6	1.6	1.6	1.6
Silica Sand (Mm ³)	10.40	22.00	0.2	32.60

CFS Project – Distribution of the various Resource categories

See ASX Release 7 April 2022 “Significant Increase in Measured & Indicated Resources at Cape Flattery Silica Project”

Pre-Feasibility Study outcomes₃

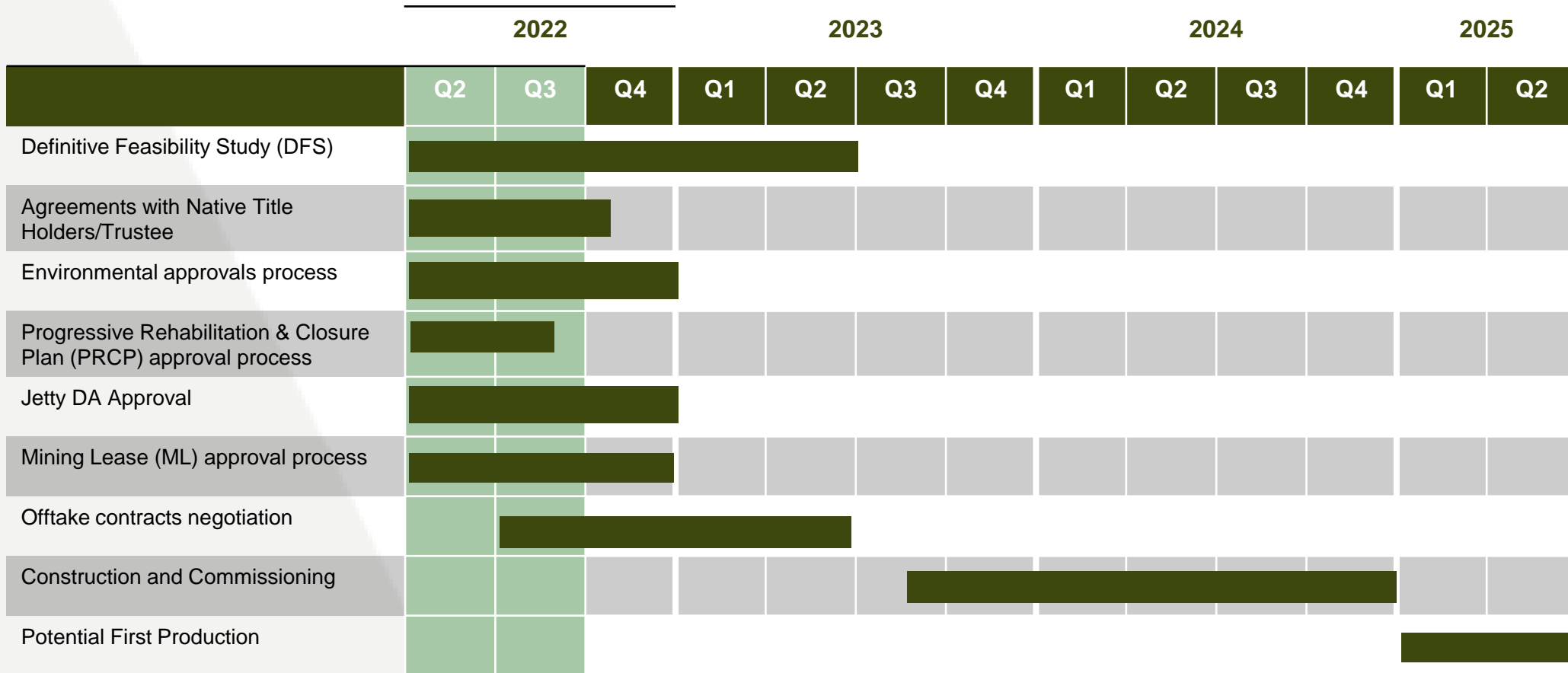


* The price assumption is for a 'low iron' silica sand product suitable for solar PV cover glass manufacturing (FOB-Cape Flattery Port)

+ Capital development costs include a 15% contingency (\$9.6m)

3. See ASX Release 21 March 2022 "Cape Flattery Silica PFS – confirms excellent economics"

Conceptual Development Timeframe*

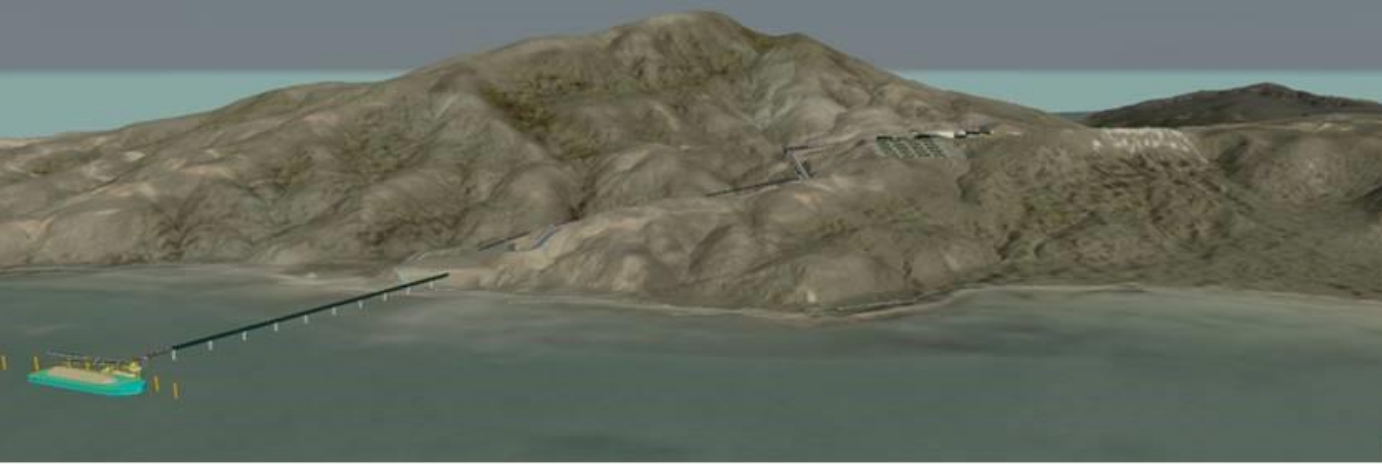
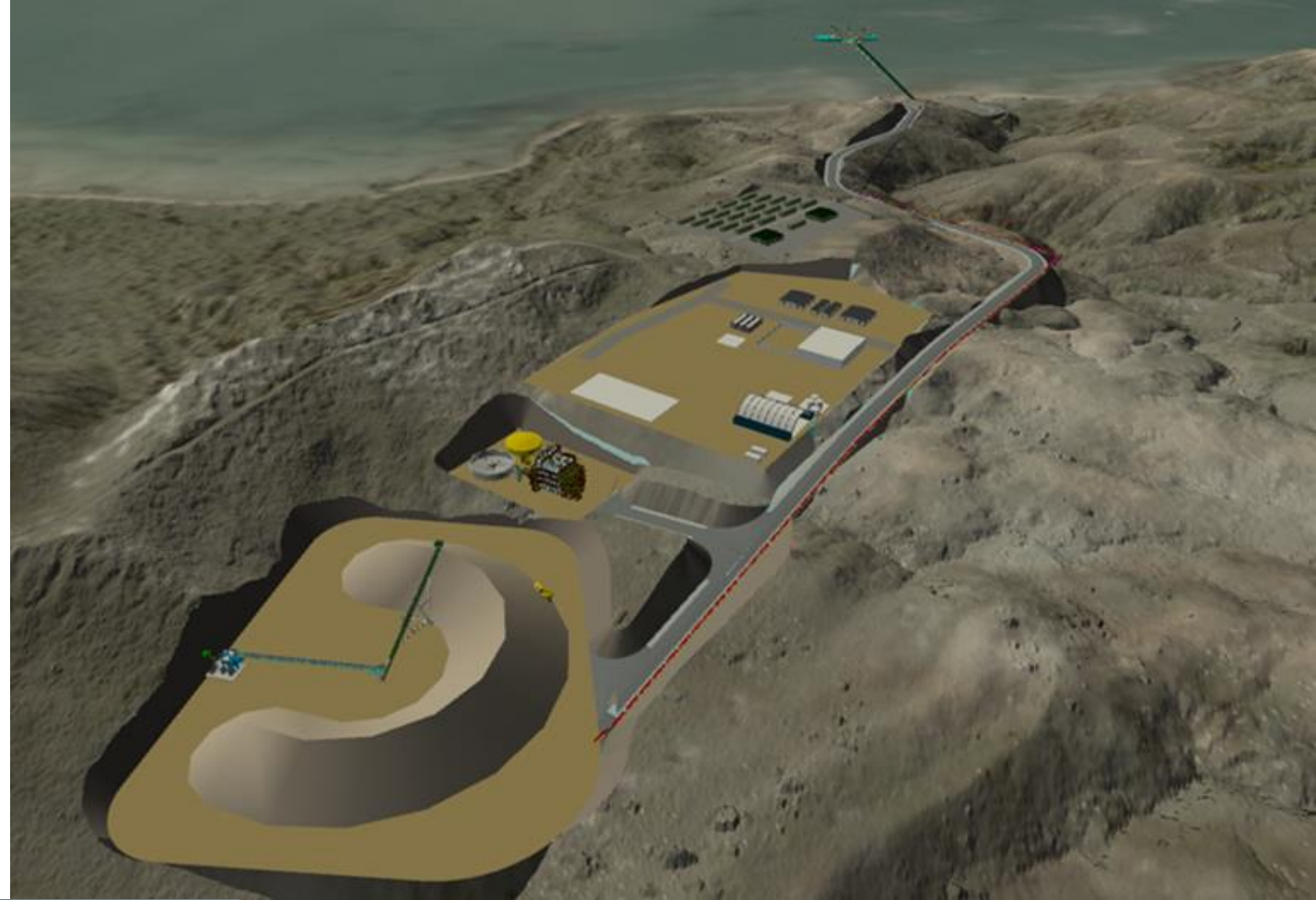


- > *Timing expectations are based on current best estimates and are subject to change depending upon exploration and metallurgical success, government and third party approvals, market conditions and funding availability.
- > Based on granting of Environmental Authority (EA), with no Environmental Impact Statement (EIS) required.

Planned project operations

Key site infrastructure includes:

- > Product stockpile
- > Processing plant and pad
- > Conveyor
- > Jetty infrastructure facility
- > Purpose-built accommodation facility.



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The silica sand story



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- > Silica sand is the key ingredient in glassmaking
- > High-quality silica sand, like Cape Flattery's silica, is an essential raw material for the production of hi-tech glass (solar cells, technology).
- > Increasing demand for high-grade silica sand underpinned by:
 - » population growth and adoption of "screen" devices
 - » accelerating electrification
 - » carbon neutrality objectives and Government policy
 - » transition from fossil fuels to greener technologies, particularly solar energy
- > Readily accessible high quality Silica Sand is a finite resource that is in limited supply

Pathway to net zero



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- > The International Energy Agency (IEA) highlights reaching net zero by 2050 will be based largely on renewables, with solar power as the single biggest supply source.
- > IEA report states the pathway to net zero requires annual additions of solar PV to reach 630 gigawatts and wind power to reach 390 gigawatts by 2030.*
- > Together this is four-times the record level achieved in 2020.
- > For solar PV, this means installing the world's current largest solar park roughly every day.

*IEA, 2021: <https://iea.blob.core.windows.net/assets/4719e321-6d3d-41a2-bd6b-461ad2f850a8/NetZeroBy2050-ARoadmapfortheGlobalEnergySector.pdf>

CFS Project Benefits: a significant contributor to achieving Net Zero



- > CFS's 1.35 Mtpa production of high quality Silica sand could produce over 133 million 375W solar panels on the basis of 74% of the panel comprised of SiO_2
- > That's equivalent to 3.35 billion panels over a 25 year mine life at full production
- > With an assumed output of 4.0 kWh/day, those panels have the potential to generate over 41,312 MWh of renewable energy over their operating life (25 years)



Enough Silica to produce over **3.35 billion** solar panels



With the potential to generate over **41,312 MWh** of renewable energy

* Detailed analysis of energy production and emissions abatement opportunity carried out by Arche Energy using information derived from third parties, heuristics and assumptions.

Our Environmental, Social & Governance (ESG) approach



- > Adopting a low-impact approach to silica sand mining to minimise environmental impact.
- > Environmental management at the Cape Flattery Silica project will be comprehensive.
- > Key objectives include:
 - » minimising the operation's footprint
 - » protecting biodiversity
 - » responsible water use
 - » rehabilitating disturbed areas after disturbance.
- > No chemicals will be used in production.
- > Minimal dust will be produced during mining activities.
- > Adopting progressive rehabilitation.
- > Appropriate buffers, tree protection zones and offsets will be established.
- > Additional seeding with preferred species will be undertaken.

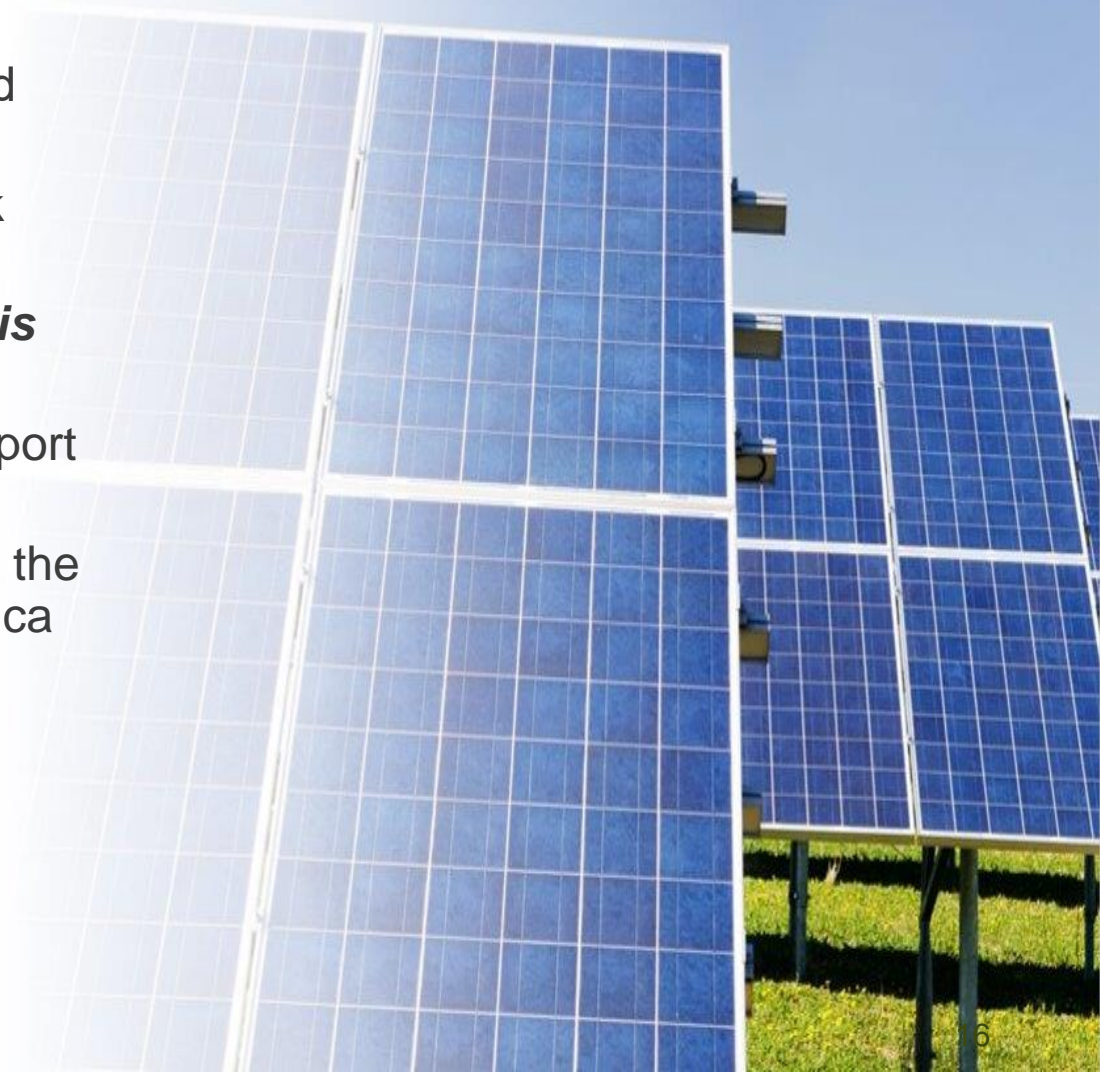


L-R Nathaniel Walker, Naamon Walker, Niall Corbus, Vernon Yoren, Shailand Deeral-Rosendale and Trenton McLean



What is going to drive value for MLM?

- > CFS silica sand product is expected to be highly sought after
- > Silica is a 'critical' mineral and the Asian high quality silica sand market is expected to grow significantly
- > The project has low capex, very positive NPV and the payback period is short
- > ***Recognition that our project has a transport solution that is located within the Port of Cape Flattery***
- > The proximity of the project to its proposed 100% owned transport solution will minimise opex
- > Recent corporate activity in the Cape Flattery region highlights the growing interest in new projects that will deliver high quality silica sand to the booming Asian markets
- > Subject to the level of environmental approvals required, the project is forecast to be exporting in H2 2025



“I’d put my money on the sun and solar energy. What a source of power! I hope we don’t have to wait until oil and coal run out before we tackle that.” — Thomas Edison, 1931.



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Thank you



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