

# Quarterly Activities Report

For the quarter ending 31 March 2023



## HIGHLIGHTS

- A Definitive Feasibility Study (DFS) for the Donald Rare Earth and Mineral Sands Project was announced on 26 April 2023
- Financial analysis supports an after-tax NPV<sub>8</sub> of \$852 million over a 41.5-year mine life, that accesses 17% of the total Donald Project Mineral Resource
- Forecast capital expenditure of \$364 million, including a 12% contingency; total funding requirement of \$392 million, including working capital and start-up costs
- Base case internal rate of return (IRR) of 25.8%; payback of 3.75 years
- As part of the DFS, an Ore Reserve of 309mt at 4.4% total HM has been estimated for Mining Licence MIN 5532, including of Proved Reserves of 263mt at 4.4% HM
- Strengthened organisational capability for the next phase of Donald Project through the appointment of experienced Human Relations and Sustainability executives.
- A scoping study has been completed for Donald Project Phase 2 which is planned to commence five years after the start of Phase 1 production. Phase 2 entails further development of the Donald Mineral Resources through doubling production and providing for the production of final zircon and titania products
- Astron renewed the Mining Licence for the Niafarang Project, Senegal, and remains in discussions with stakeholders to progress final approvals for this dunal mineral sands deposit

**Note: Unless otherwise stated, all dollar values are expressed in real 2023 Australian Dollars**

## Summary of Main Activities

During the March quarter, Astron announced the results of the Definitive Feasibility Study (DFS) for the first phase (Phase 1) of the Donald Rare Earth and Mineral Sands Project (Donald Project), located in the Wimmera region of western Victoria. The DFS was completed to an AACE Class 2 estimate standard. The DFS analysis demonstrates that the project represents a financially robust investment, which has been significantly de-risked through extensive metallurgical test work, detailed engineering evaluation, the achievement of advanced regulatory approvals and a conventional mining approach.

Phase 1 of the Donald Project, located on the mining licence MIN5532 which contains 17% of the total project's Mineral Resources, is forecast to deliver the following economic outcomes: a post-tax real NPV<sub>8</sub> of \$852 million and an IRR of 25.8%. It is expected to generate \$4.3 billion of free cashflow, \$13.0 billion in revenue and \$6.1 billion of EBITDA over its 41.5-year mine life from an average annual production of 7.2kt of rare earth element concentrate (REEC) at over 60% total rare earth oxide (TREO) content and 228.7kt of heavy mineral concentrate (HMC).

As part of the DFS, a new Ore Reserves has been estimated for Mining Licence MIN5532. The updated Ore Reserves contains 309mt of Ore at 4.4% HM, of which 263mt at 4.4% HM has been classified as Proved Ore Reserves. The estimated Ore Reserves represents a 59% increase over the Ore Reserves announced in February 2021.

A scoping study has been completed for the second phase (Phase 2) of the Donald Project which is planned to be developed on Retention Licence RL2002. Planned to commence five years after Phase 1 production, Phase 2 will involve the duplication of the Phase 1 mining infrastructure, effectively doubling production, as well as the addition of downstream processing to separate the HMC into final zircon and titania products through the inclusion of a mineral separation plant (MSP).

Astron holds an interest in the Niafarang mineral sands project, located in the Casamance region of Senegal. In 2017, a mining licence was granted over an area of 185 hectares. During the quarter, the company received confirmation of the renewal of the mining licence for a further 5 years.

## Donald Rare Earth and Mineral Sands Project

### Description

The Donald Project, located in regional Victoria, has the potential to represent a globally significant, long-life source of the critical mineral elements of zirconium, hafnium, titanium, as well as rare earth elements including neodymium, praseodymium, dysprosium, and terbium.

The Donald Project contains over 2,634 million tonnes of Mineral Resource at 4.4% heavy mineral (HM) grade and comprises of two adjoining deposits, the Donald deposit (which is contained within the area covered by Mining Licence MIN5532 and Retention Licence RL2002) and the Jackson deposit (RL2003). The mining licence area is the site of the Phase 1 project and the subject of the DFS.

A scoping study for Phase 2 of the Donald Project, which is based on the Mineral Resources contained in retention licence RL2002 and entails a doubling of production as well as the inclusion of downstream processing to produce final zircon and titania products, has indicated that it is highly accretive. A pre-feasibility study for Phase 2 is planned for completion in the June quarter.

The Jackson deposit, with Mineral Resources of 823 million tonnes at 4.8% HM, represents further Donald Project upside.<sup>1</sup>

### Project Configuration

Phase 1 of Donald Project involves:

- A conventional truck and shovel contract mining operation to produce 7.5 Mtpa of ore fed to a mining unit plant (MUP) located adjacent to the pit;
- Stockpiling topsoil, subsoil and overburden for subsequent use in rehabilitation of mined areas;
- concentration of ore using gravitational separation spirals via a wet concentration plant (WCP);
- further processing through a concentrate upgrade plant (CUP), separating the rare earth elements from the titanium and zircon concentrate by flotation;
- REEC product being packaged for sale to external parties;
- the transport of the heavy mineral concentrate (HMC) by truck in half-height containers to the Wimmera Intermodal Rail Terminal before being railed to a Victorian port for bulk export;
- sand tailings, mixed with slimes deposited in an above ground surface tailings storage facility (TSF) during project start-up and commissioning, and subsequently, returned directly to mined areas as part of progressive mine rehabilitation; and
- replacing topsoil and subsoil on the mined areas to return them to productive farmland or native vegetation (usually within 3-5 years of mining).

The Donald Project is the only rare earth and mineral sands project in Victoria that currently holds a positively assessed Victorian Government Environmental Effects Statement (EES), Commonwealth Government Environmental Protection Biodiversity Conservation (EPBC) approval and a granted Mining Licence. Astron also owns water rights which are sufficient to meet the requirements of the project for many years, as well as land ownership covering a significant portion of the project area.

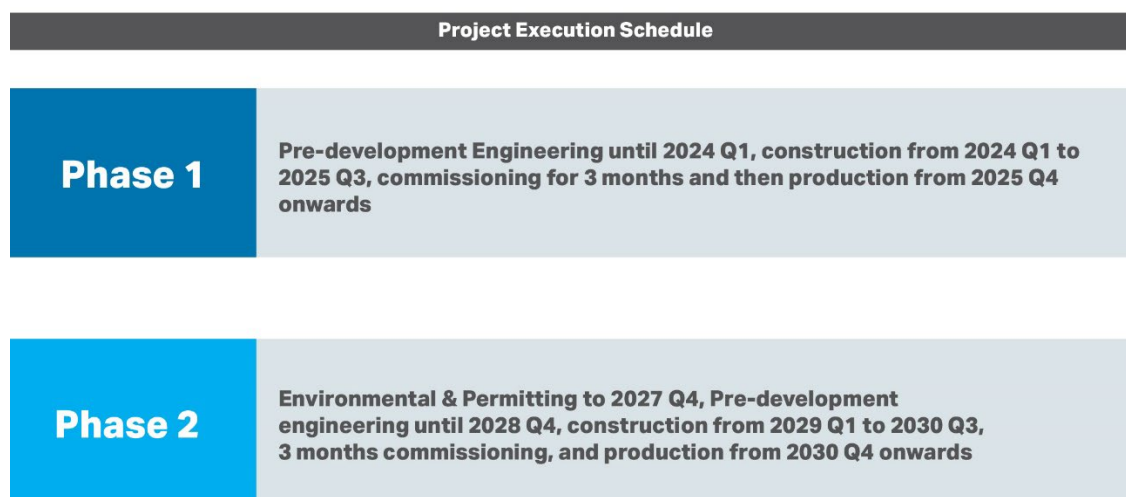
Subsequent phases of the Donald Project are planned to involve at least the doubling of production throughput, operation of on-site mineral separation plant (MSP) for processing of the HMC into final products, and the investigation of further downstream processing options in both mineral sands and rare earths.

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<sup>1</sup> See ASX Announcement, Donald Mineral Sands Project Mineral Resource Update, 7 Apr 2016

## Project Execution Schedule

Astron is targeting a final investment decision (FID) for the Phase 1 project in the first quarter of calendar year 2024 followed by an 18-month construction period. Commissioning is targeted for the third quarter of 2025 with first shipments of HMC and REEC shortly thereafter. The second phase of the Donald Project is subject to additional permitting requirements. Indicatively, construction for Phase 2 operations is planned to commence in the first quarter of 2029, with commissioning towards the end of 2030.



**Figure 1– Donald Project Phase 1 Indicative Development Timeline**

## Financial Analysis

The DFS for the Donald Project (Phase 1) included detailed physical and financial metrics for the project. These are outlined below:

Metric	Unit	Phase 1
Post-tax NPV <sub>8</sub> (FID)	[A\$m]	852
Post-tax IRR	[%]	25.8%
Pre-tax NPV <sub>8</sub> (FID)	[A\$m]	1,294
Pre-tax IRR	[%]	33.9%
Payback period from commencement of operations	[years]	3.75
Execution capital cost	[A\$m]	364
Cumulative free cash flow	[A\$m]	3,869
Life of Mine	[years]	41.5
Ore processing throughput	[Mtpa]	7.5
Average ore grade	[HM%]	4.4%
Average strip ratio	[Ratio]	1.6
REEC average production	[ktpa]	7.2
HMC average production	[ktpa]	228.7
Average revenue per annum	[A\$m]	314.4
Average EBITDA per annum	[A\$m]	147.8
Average post-tax free cash flow	[A\$m]	103.1

The financial analysis demonstrates attractive project economics over a 40 year plus mine life. The financial analysis is based on the following key assumptions:

- all product pricing assumptions stated on a real 2023 basis;
- REEC pricing based on CIF USA provided by Adamas Intelligence in February 2023. Long-term pricing from 2035 onwards is maintained at the same real price as 2034;
- HMC pricing based on CIF China provided by TZMI in Q1 2023. Long term pricing from 2030 onwards is based on TZMI long term inducement pricing on a real 2022 basis;
- FID from Q1 2024;
- AUD/USD exchange rate of 0.70;
- Phase 1 first production in Q3 2025 with first product sales in Q4 2025.

Phase 1 comprises a MUP, WCP, CUP, associated on-site non-process infrastructure (NPI) and off-site infrastructure including road, electricity and water supply infrastructure. Total execution capital, on a 2023 real basis, is estimated to an AACE Class 2 level of accuracy, with the major components detailed below:

Project Area	A\$m
Mining Unit Plant	20.5
Wet Concentrator Plant	70.0
Concentrate Upgrade Plant	38.1
On-site non-process infrastructure (on-site road, electricity and water upgrades)	33.6
Overhead 66kv powerline supply	27.6
Water supply upgrade	11.9
Off-site road upgrades	13.9
Other off-site infrastructure	10.0
Project engineering and technical services	47.9
Construction In-directs	26.9
Land acquisition	13.4
Other	11.6
Contingency (@12%)	39.2
<b>Total</b>	<b>364.7</b>

The capital expenditure estimate required to bring the Project into operation is denominated on a real 2023 basis. The estimate includes the detailed design and engineering of the associated mining and processing plant, as well as on-site and off-site infrastructure. No forward escalation or environmental bond costs have been included in the capital estimate.

The annual operating expenditure estimate has been derived from a first principles build-up of operating costs, benchmarked against other similar projects in Australia. Offsite operating expenditure (such as transport) has been derived from specialist consultants and service providers. Operating expenditure, as shown in Table 3, is in 2023 real terms and not adjusted for inflation. No formal tenders have been issued for any operating expenditure included in the financial model at this stage. Key assumptions used in the evaluation of operating expenditure include:

- run of mine ore throughput of 7.5mtpa;
- average final REEC production of ~7.2ktpa;
- average final HMC production of ~228.7ktpa;
- a tactical mine schedule that takes into account variations in grade, ore content, overburden, strip ratios and final REEC and HMC products; and
- transport costs from Australian port to USA and China in accordance with CIF pricing.

The average operating expenditure is shown below:

Operating area	Average Expenditure A\$M	Average Expenditure %
Mining costs	65.9	39.5
Processing costs	23.9	14.4
Transport – mine site to port	13.3	8.0
Transport – port to customer	28.7	17.2
Royalties	7.5	4.5
Labour	17.9	10.7
Non-process operating and maintenance costs	6.1	3.7
Accommodation camp costs	2.0	1.2
Other operating expenses	1.3	0.8
<b>Total</b>	<b>166.6</b>	

### ***Project Resourcing***

Key personnel appointments were made during the quarter to further strengthen Astron's organisational capabilities for the next stage of the development and operation of the Donald Project. Notably, Jessica Reid, with over 18 years' experience in environmental, social and sustainability management across Australia and Papua New Guinea, most recently with Tetra Tech (formerly Coffey Environmental), has been appointed General Manager – Sustainability.

### ***Customer Engagement***

Discussions with potential customers in relation to off-take arrangements for both REEC and HMC continued during the quarter.

### ***Project Financing***

Following the completion of the DFS, including the financial analysis and funding requirements for the Project, the Board of Astron will develop a detailed funding strategy for the Project and the company to facilitate the next stage of activities up to and including FID, and the subsequent pre-execution and project development expenditure stages. This plan will include appropriate debt options, as well as equity funding strategies and will include consideration of appropriate balance sheet and leverage metrics. Selection of key capital market advisers will form part of this exercise.

### ***Geological Assessment***

On 1 December 2022, Astron announced an updated Mineral Resource Estimate (MRE) for Mining Licence MIN5532. The results were incorporated into mining studies which formed part of the Ore Reserves announced on 31 March 2023. As over 75% of the Mineral Resource is in the Measured category, no further drilling is planned until pre-production following final investment decision (FID).

Sonic drilling results, which formed the basis of the metallurgical studies, demonstrated, on a consistent basis, higher HM grades compared to the reverse core Air-core (RCAC) drilling, which formed the basis of the Mineral Resource Estimation. It is hypothesised that a difference in the sample preparation technique used for the metallurgical test work, one where additional scrubbing was applied to the sample, was responsible for increased liberation of HM from oversize material or sample agglomerates. The difference in the results is significant but, as the metallurgical test results report higher values, the Mineral Resource Estimation is considered to represent a conservative outlook for the project.

Further test work is being performed on samples from the 2022 Air Core drilling program to identify the source of the discrepancies.

## Mining Studies

An updated Ore Reserve was announced on 31 March 2023 for MIN5532.2 The Ore Reserve was prepared by AMC Consultants (AMC). A summary of the updated Ore Reserves is shown below:

Classification	Tonnes (Mt)	Total HM %	Slimes %	Oversize %	% of total HM					
					Zircon	Rutile	Ilmenite	Leucoxene	Monazite	Xenotime
Proved	263	4.4	15.4	9.8	16.7	5.5	21.6	25.9	1.8	0.67
Probable	46	4.1	19.7	11.1	15.3	5.5	21.3	20.1	1.8	0.64
<b>Total</b>	<b>309</b>	<b>4.4</b>	<b>16.1</b>	<b>10.0</b>	<b>16.5</b>	<b>5.5</b>	<b>21.6</b>	<b>25.1</b>	<b>1.8</b>	<b>0.66</b>

### Notes:

1. The ore tonnes have been rounded to the nearest 1Mt and grades have been rounded to two significant figures.
2. The Ore Reserve is based on Indicated and Measured Mineral Resources contained within mine designs above an economic cut-off.
3. A break-even cut-off has been applied defining any material with product values greater than processing cost as Ore.
4. Mining recovery and dilution have been applied to the figures above.
5. The area is wholly within the mining licence (MIN5532).
6. The rutile grades are a combination of rutile and anatase minerals.

For the Ore Reserves Estimation, AMC developed an updated detailed mine plan aligned to the 2008 EES. This mine plan included:

- a strategic mine schedule within the MIN5532 to DFS accuracy;
- review and assessment of truck and excavator mining equipment;
- updated production rates based on the 2022 Mineral Resource Estimate;
- detailed design of mining blocks including in-situ bunds, constructed bunds, backfilled tails cells and backfilled overburden dumps; and
- preparation of a first principle mining costs model using AMC's OPMInCost model.<sup>3</sup>

## Geotechnical Studies and Tailings Management

ATC Williams issued a report for the DFS which included the design of the surface tailings storage facilities (TSF) and in-pit tailings management plans.

## Metallurgical Studies

No further metallurgical studies were undertaken during the quarter, following the receipt of metallurgical study reports from Mineral Technologies in the prior quarter, which confirmed the processing approach.

## Process Plant Engineering

Mineral Technologies concluded DFS level engineering studies for the Donald process plant during the quarter, with capital and operating expenditure estimates incorporated into DFS. (Refer Table 2 and Table 3).

## Infrastructure Design

Basic design work for project infrastructure continued during the March quarter. A preliminary route for the 66kV over-head powerline from the Horsham sub-station to the mine site has been selected, while detailed design for the powerline commenced with an offer to connect expected in the June quarter of 2023. Road upgrade and water pipeline design work has also continued. A preliminary location for a workforce accommodation facility has been selected and design work is in train.

<sup>2</sup> Refer ASX Announcement, Donald Project Phase 1 Project Ore Reserves Update, 31 March 2023

<sup>3</sup> For more information of the detailed mine plan, refer ASX Announcement, Donald Project Phase 1 DFS Release, 26 April 2023

## Regulatory Approvals

The key remaining regulatory approval for the Donald Project is a Victorian Work Plan. Work streams to progress the Work Plan have been identified and are being implemented. Technical studies and test-work for the Mining Work Plan are advanced and include groundwater modelling, surface water management design and radiation management studies.

## Community Engagement

Donald Project Community Liaison personnel held further meetings with residents and council representatives, with the Project continuing to enjoy strong community support.

## Expenditure Summary

No commercial production was recorded during the quarter.

	Q3 2023	YTD 2023
<b>Production activities</b>	-	-
<b>Development activities</b>	1,003,407	3,690,339

*Note: the development activities expenditure includes procurement, design and consulting.*

## Niafarang Mineral Sands Project

The Niafarang Project is located within a 397 square kilometre exploration licence area on the Casamance coast of Senegal, West Africa. Astron has the rights to a licence issued under Order Number 09042/MIM/TMG through its subsidiary company, Senegal Mineral Resources (SMR). Environmental and mining licences were granted to SMR in 2017 and a Small Mining Licence (SML) was granted in 2017, which has been renewed recently until May 2027.

Engagement with local, regional and federal governmental representatives has continued. During the quarter, Astron's representative visited Senegal to meet with government and local representatives and received high-level support for the development and progression of the project. The company is committed to supporting sustainable development objectives within the project area.

## Expenditure Summary

No commercial production was recorded during the quarter.

	Q3 2023	YTD 2023
<b>Production activities</b>	-	-
<b>Development activities</b>	49,580	149,969

*Note: the development activities expenditure includes procurement, design and consulting.*



## Astron China Operations

### **Description**

In Yingkou, Liaoning, Astron operates a mineral separation plant with an annual capacity of 150,000 tonnes. The company holds intellectual property and production capabilities in a range of minerals processing areas, including pure hafnium-free zirconia production; a method for reducing impurities in zircon; fine rutile recovery and agglomeration; and the production of nuclear grade zirconium and zirconium oxychloride.

The Yingkou mineral separation plant undertakes two main commercial operations, the processing of concentrates and middlings (including zircon and rutile) to final products of zircon and rutile, as well as agglomeration technology to produce a pelletised rutile product from fine rutile feedstock and chloride slag fines.

### **Operations Update**

Production in the March quarter of 2023 was curtailed due to the lack of availability of suitable feedstock. The company is undertaking confirmatory metallurgical test work on a potential feedstock source before finalising commercial negotiations for a potential supply arrangement.

### **ASX Additional Information**

ASX listing rule 5.3.5 – Payment to related parties of the entity and their associates as per Appendix 5B, Section 6.1 – Description of payments:

Total Directors remuneration for the quarter - \$159,830 (includes superannuation)

**This announcement is authorised by the Managing Director of Astron Corporation Limited.**

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### **About Astron**

Astron Corporation Limited (ASX: ATR) is an ASX listed company, with over 35 years of experience in mineral sands processing and downstream product development, as well as the marketing and sales of zircon and titanium dioxide products. Astron's prime focus is on the development of its large, long-life and attractive zircon assemblage Donald Rare Earth and Mineral Sands Project in regional Victoria. Donald has the ability to represent a new major source of global supply in mineral sands and rare earths. The company conducts a mineral sands trading operation based in Shenyang, China; operates a zircon and titanium chemicals and metals research and facility in Yingkou, China; and is the owner of the Niafarang Mineral Sands Project in Senegal.



## **Competent Persons Statement**

The information in this document that relates to the estimation of the MIN5532 Mineral Resource is based on information and supporting documentation compiled by Mrs Christine Standing, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mrs Standing is a full-time employee of Optiro Pty Ltd (Snowden Optiro) and is independent of Astron Corporation, the owner of the Mineral Resources. Mrs Standing has sufficient experience that is relevant to the style of mineralisation and type of deposit 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'. The Company confirms that the form and context in which the Competent Persons' findings are presented have not materially modified from the relevant original market announcement.

The information in this document that relates to the estimation of the RL2002 and RL2003 Mineral Resources is based on information compiled by Mr Rod Webster, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and Australian Institute of Geoscientists. Mr Webster is a full-time employee of AMC Consultants Pty Ltd and is independent of DMS, the owner of the Donald Project Mineral Resources. Mr Webster has sufficient experience that is relevant to the style of mineralisation and type of deposit 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'. The Company confirms that the form and context in which the Competent Persons' findings are presented have not materially modified from the relevant original market announcement.

The information in this document that relates to the estimation of the Ore Reserves is based on information compiled by Mr Pier Federici, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Federici is a full-time employee of AMC Consultants Pty Ltd and is independent of Astron. Mr Federici has sufficient experience that is relevant to the style of mineralisation and type of deposit 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'. The Company confirms that the form and context in which the Competent Persons' findings are presented have not materially modified from the relevant original market announcement.

## **Cautionary Statement**

Certain sections of this document contain forward looking statements that are subject to risk factors associated with, among others, the economic and business circumstances occurring from time to time in the countries and sectors in which the Astron group operates. It is believed that the expectations reflected in these statements are reasonable, but they may be affected by a wide range of variables which could cause results to differ materially from those currently projected.

The information contained in this document is not investment or financial product advice and is not intended to be used as the basis for making an investment decision. Please note that, in providing this document, Astron has not considered the objectives, financial position or needs of any particular recipient. Astron strongly suggests that investors consult a financial advisor prior to making an investment decision.

This document may include "forward looking statements" within the meaning of securities laws of applicable jurisdictions. Forward looking statements can generally be identified by the use of the words "anticipate", "believe", "expect", "project", "forecast", "estimate", "likely", "intend", "should", "could", "may", "target", "plan", "guidance" and other similar expressions. Indications of, and guidance on, future earning or dividends and financial position and performance are also forward-looking statements. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of Astron and its related bodies corporate, together with their respective directors, officers, employees, agents or advisers, that may cause actual results to differ materially from those expressed or implied in such statement. Actual results, performance or achievements may vary materially from any forward looking statements and the assumptions on which those statements are based. Readers are cautioned not to place undue reliance on forward looking statements and Astron assumes no obligation to update such information. Specific

regard should be given to the risk factors outlined in this document (amongst other things).

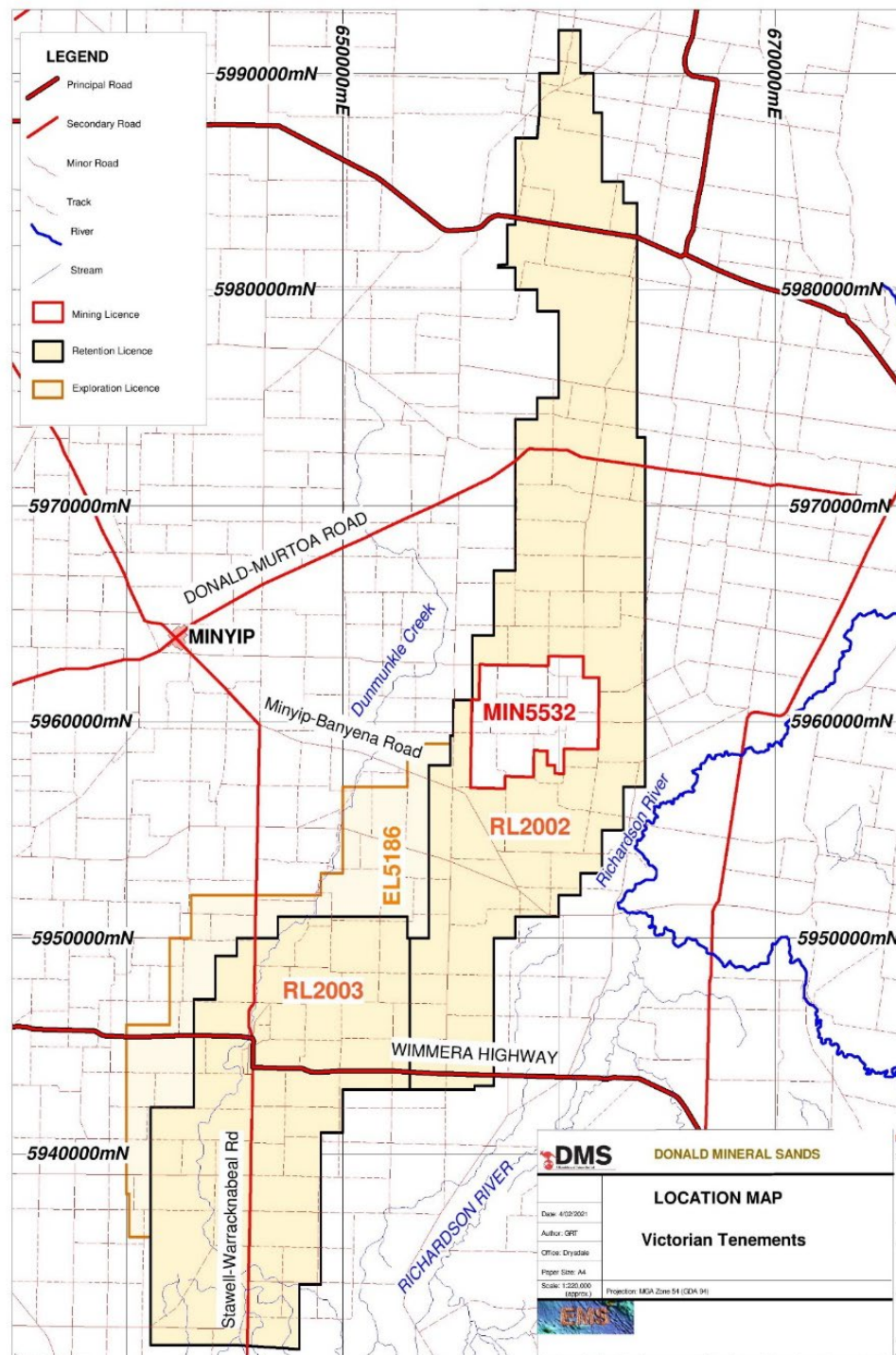
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## Schedule 1 – Donald Mineral Sands and Rare Earth Project Interests in Tenements

Location	Tenement	% held	Holder
Victoria Australia	RL 2002	100	Donald Mineral Sands Pty Ltd
Victoria Australia	RL 2003	100	Donald Mineral Sands Pty Ltd
Victoria Australia	MIN5532	100	Donald Mineral Sands Pty Ltd
Victoria Australia	EL5186	100	Donald Mineral Sands Pty Ltd

**Figure 1: Donald Project Tenement Map**



## Schedule 2 – Donald Rare Earths and Mineral Sands Project Mineral Resources

Classification	Tonnes (Mt)	HM (%)	Slimes (%)	Oversize (%)	% of total HM			
					TiO <sub>2</sub>	ZrO <sub>2</sub> +HfO <sub>2</sub>	CeO <sub>2</sub>	Y <sub>2</sub> O <sub>3</sub>
Measured	394	4.2	16	10	34	10.9	0.51	0.28
Indicated	110	3.5	24	11	29	9.9	0.48	0.26
Inferred	20	2.3	22	14	30	8.9	0.40	0.23
<b>Subtotal</b>	<b>525</b>	<b>4.0</b>	<b>18</b>	<b>10</b>	<b>33</b>	<b>10.7</b>	<b>0.50</b>	<b>0.27</b>

### Notes:

1. Mineralisation reported above a cut-off grade of 1.0% total heavy minerals (HM).
2. The Mineral Resource has been classified and reported in accordance with the guidelines of the JORC Code (2012).
3. Total HM is from within the +20 µm to -250 µm size fraction and is reported as a percentage of the total material. Slimes is the -20 µm fraction and oversize is the +1 mm fraction.
4. Estimates of the mineral assemblage (zircon, ilmenite, rutile and leucoxene) and are presented as percentages of the total HM component, as determined from grain counting, QEMScan, XRF and laser ablation analysis. QEMScan data was aligned with the grain counting data and the following breakpoints are used for used definition of the titania minerals: rutile >95% TiO<sub>2</sub>, leucoxene: 50 to 95% TiO<sub>2</sub>, ilmenite: 30 to 50% TiO<sub>2</sub>.
5. TiO<sub>2</sub>, ZrO<sub>2</sub>+HfO<sub>2</sub> and CeO<sub>2</sub> from XRF and Y<sub>2</sub>O<sub>3</sub> from laser ablation data are presented as percentages of the total HM component. All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus the sum of columns may not equal.

Classification	Tonnes (Mt)	HM (%)	Slimes (%)	Oversize (%)	Zircon	Rutile+ Anatase	% of total HM		
							Ilmenite	Leucoxene	Monazite
Within RL2002 excluding MIN5532									
Measured	185	5.5	19	7	21	9	31	19	2
Indicated	454	4.2	16	13	17	7	33	19	2
Inferred	647	4.9	15	6	18	9	33	17	2
Subtotal	1,286	4.8	16	9	18	8	33	18	2
Jackson Deposit (RL2003)									
Measured	-	-	-	-	-	-	-	-	-
Indicated	668	4.9	18	5	18	9	32	17	2
Inferred	155	4.0	15	3	21	9	32	15	2
Subtotal	823	4.8	18	5	19	9	32	17	2
Total Donald Project excluding MIN5532									
Measured	185	5.5	19	7	21	9	31	19	2
Indicated	1,122	4.6	17	9	18	8	32	18	2
Inferred	802	4.7	15	5	19	9	33	17	2
Total	2,109	4.8	17	7	18	8	33	18	2

### Notes to:

1. MRE is based on heavy liquid separation analysis and mineralogy by XRF and optical methods
2. The total tonnes may not equal the sum of the individual resources due to rounding.
3. The cut-off grade is 1% HM.
4. The figures are rounded to the nearest: 1Mt for tonnes, one decimal for HM, whole numbers for slimes, oversize, zircon, rutile + anatase, ilmenite, leucoxene and monazite (outside MIN5532).
5. Zircon, ilmenite, rutile + anatase, leucoxene, monazite and xenotime percentages are reported as a percentage of the HM.
6. Rutile + anatase, leucoxene and monazite resource has been estimated using fewer samples than the other valuable heavy minerals outside MIN5532. The accuracy and confidence in their estimate is therefore lower.
7. For further details including JORC Code, 2012 Edition – Table 1 and cross-sectional data, see previous announcements dated 7 April 2016, available at ASX's website at [www.asx.com.au/asxpdf/20160407/pdf/436cjqc3cf47.pdf](http://www.asx.com.au/asxpdf/20160407/pdf/436cjqc3cf47.pdf)

### Schedule 3 – Donald Rare Earths and Mineral Sands Project Ore Reserves

Classification	Tonnes (Mt)	Total HM %	Slimes %	Oversize %	Zircon	Rutile	% of total HM			
							Ilmenite	Leucoxene	Monazite	Xenotime
Proved	263	4.4	15.4	9.8	16.7	5.5	21.6	25.9	1.8	0.67
Probable	46	4.1	19.7	11.1	15.3	5.5	21.3	20.1	1.8	0.64
<b>Total</b>	<b>309</b>	<b>4.4</b>	<b>16.1</b>	<b>10.0</b>	<b>16.5</b>	<b>5.5</b>	<b>21.6</b>	<b>25.1</b>	<b>1.8</b>	<b>0.66</b>

#### Notes:

1. The ore tonnes have been rounded to the nearest 1Mt and grades have been rounded to two significant figures.
2. The Ore Reserve is based on Indicated and Measured Mineral Resources contained within mine designs above an economic cut-off.
3. A break-even cut-off has been applied defining any material with product values greater than processing cost as Ore.
4. Mining recovery and dilution have been applied to the figures above.
5. The area is wholly within the mining licence (MIN5532).
6. The rutile grades are a combination of rutile and anatase minerals.

Classification	Tonnes (Mt)	Total HM %	Slimes %	Oversize %	Zircon	Rutile	% of total HM			
							Ilmenite	Leucoxene	Monazite	Xenotime
Proved	140	5.6	19	7	21	9.6	31	18	1.8	N/A
Probable	268	4.0	16	14	17	7.5	32	19	1.6	N/A
<b>Total</b>	<b>408</b>	<b>4.5</b>	<b>17</b>	<b>12</b>	<b>19</b>	<b>8.4</b>	<b>32</b>	<b>19</b>	<b>1.8</b>	<b>N/A</b>

#### Notes

1. The ore tonnes have been rounded to the nearest 1mt and grades have been rounded to two significant figures.
2. The Ore Reserve is based on indicated and Measured Mineral Resource contained with mine designs above an economic cut-off. The economic cut-off is defined as the value of the products less the cost of processing.
3. Mining recovery and dilution have been applied to the figures above.
4. The JORC Code 2012 Table 1, Section 4 to support the Ore Reserve Estimate is included in Appendix B of the Donald Project Ore Reserve Statement released 18 February 2021.
5. The Ore Reserve estimates have been compiled in accordance with the guidelines defined in the 2012 JORC Code.

### Schedule 4 – Niafarang Project Tenement Interests

Location	Tenement	% held	Holder
Casamance, Senegal	09042/MIM/TMG	100	Senegal Mineral Resources S.A.