SOVEREIGN METALS LIMITED

ASX Announcement

22 | Jan | 2025

KASIYA - OPTIMISED PFS RESULTS

OPTIMISED PFS COMPLETED WITH OVERSIGHT FROM SOVEREIGN-RIO TINTO TECHNICAL COMMITTEE

LARGEST AND LOWEST-COST STRATEGIC CRITICAL MINERALS PRODUCER POTENTIAL REAFFIRMED

SUPERIOR PROJECT DELIVERY, OPERATIONAL FLEXIBILITY, PERMITTING, ENVIRONMENTAL AND SOCIAL OUTCOMES

US$2.3Bn NPV (pre-tax)	**US$16.4Bn** Total Revenue	**US$423/t** Operating Cost (FOB Nacala)
27% IRR (pre-tax)	**US$409M** Ave. Annual EBITDA	**US$665M** Capital Expenditure (to 1st Production)

"The level of accuracy and confidence in the economic and technical fundamentals of Kasiya have taken a massive step forward. The successful completion of large-scale field trials, in particular for dry mining, the high degree of technical rigour by our enhanced owner's team, and Rio Tinto's technical support have all contributed to confirming Kasiya's potential to become a long-life, low-cost, secure source of two genuine critical and globally strategic minerals."

- Frank Eagar, Managing Director and CEO

Sovereign Metals Limited (ASX:SVM; AIM:SVML; OTCQX: SVMLF) (**Sovereign** or **the Company**) is pleased to announce the results of an Optimised Pre-feasibility Study (**OPFS**) for its Kasiya Rutile-Graphite Project (**Kasiya** or **the Project**) undertaken following a strategic investment by Rio Tinto Mining and Exploration Limited (**Rio Tinto**) in 2023, which established a joint Technical Committee to advance the development of Kasiya.

Following input from various organisations, including world-class consultancies, the Company's owner's team, and subject matter experts from Rio Tinto, the OPFS has reconfirmed Kasiya as a leading global future supplier of strategic critical minerals outside of China.

The OPFS proposes a large-scale, long-life operation to deliver substantial volumes of natural rutile and graphite while generating significant returns.

Table 1 summarises the key findings from the OPFS and includes a comparison to the Pre-Feasibility Study (**PFS**) results released 16 months ago, in September 2023. **It is important to note that the results for the 2023 PFS in Table 1 have not been updated or adjusted for inflation since their release in September 2023.**

TABLE 1: KEY OPFS METRICS

	Units	**OPFS Results Jan 25**	*2023 PFS Sep 23*
Production			
Initial Mine Life	*Years*	**25**	*25*
Plant Throughput (Stage 1: Years 1-4)	*Mtpa*	**12**	*12*
Plant Throughput (Stage 2: Years 5-25)	*Mtpa*	**24**	*24*
Average Annual Rutile Produced (95%+TiO_2)	*ktpa*	**222**	*222*
Annual Average Graphite Produced (96% TGC)*	*ktpa*	**233**	*244*
Operating and Capital Expenditure			
Capex to First Production (Stage 1)	*US$M*	**665**	*597*
Total LOM Development Capex	*US$M*	**1,127**	*1,250*
Total LOM Sustaining Capex	*US$M*	**397**	*470*
Operating Costs (FOB Nacala)	*US$/t product*	**423**	*404*
Financial Performance			
Total Revenue*	*US$M*	**16,367**	*16,121*
Annual Revenue (Average LOM)	*US$M*	**640**	*645*
Annual EBITDA (Average LOM)	*US$M*	**409**	*415*
NPV_8 (real, pre-tax)	*US$M*	**2,322**	*2,419*
IRR (pre-tax)	*%*	**27%**	*32%*
Revenue to Cost Ratio	*x*	**2.8**	*2.8*

*Annual average graphite produced includes 292kt of graphite processed and sold in two years post cessation of active ore mining. Average graphite produced during the 25-year initial mine life only is 240ktpa; total revenue during the same period is US$15,990 million. All rutile is produced and sold during the 25-year initial mine life. Note: All cashflows and costs are presented in US$ real January 2025 terms unless otherwise stated. Operating costs exclude mineral royalties and community development support costs.

SUMMARY OF OPTIMISATIONS

The OPFS optimises seven key areas compared to the 2023 PFS as summarised below.

Mining Method

The PFS proposed a 25-year initial LOM based on a hydraulic mining process where slurry material would be screened and pumped overland to processing plants.

Based on findings from the mining trials undertaken as part of the Pilot Mining and Land Rehabilitation (**Pilot Phase**), the **OPFS proposes a large-scale open-pit dry mining operation using draglines** and trucking of material to the processing plants. The change in mining method has not changed the initial mine life of 25 years.

Operating Model

The 2023 PFS envisaged mining would take place on a contractor basis.

During the OPFS, Sovereign undertook a trade-off analysis between the following operating options:

- Fully owner-operated mine with draglines and trucks purchased by the owner
- Owner-operated mine with draglines and trucks leased by the owner
- Mining contractor operation using excavators and trucks

Due to the preference for draglines and maintaining flexibility, an **owner-operated mine with leased equipment** is selected as the preferred operating model.

Plant Configuration

Dry mining Kasiya means the material received at the plant is not pre-wet and pre-scrubbed. Therefore, the OPFS proposes a **process plant front end consisting of two scrubbers and two oversize screens** per 12Mt plant. No further changes are proposed to the processing plant flowsheet.

Plant Location

Per the 2023 PFS, mining would commence in the southern area of the Kasiya deposit, ramping up to 12Mt per annum and then scaling up to 24Mt per annum in Year 5 by constructing a second plant module in the same area, reaching nameplate capacity by the end of the year.

In Year 10 of production, another new 12Mt per annum plant module would be built and commissioned in the northern area of Kasiya, supported by the relocation to the north of one of the southern plants to maintain a steady state of 24Mt per annum.

However, the OPFS has determined the most efficient plant locations to be an **initial 12Mtpa South Kasiya plant followed by the construction of another 12Mtpa North Kasiya plant in year 5** of production, negating any relocation requirements in later years.

The OPFS maintains the ROM schedule with operations commencing with 12Mt per annum of throughput during the first four years of production (**Stage 1**) and expanding to 24Mt per annum in year 5, with full capacity reached by end of year 5 (**Stage 2**).

Tailings Management

Per the PFS, a conventional process would be used to produce rutile and graphite concentrate with tailings in separate sand and fines streams being pumped to a conventional TSF. Mined out pit areas would be backfilled as part of a rehabilitation process.

The OPFS proposes **maximising backfilling of pits** as undertaken during the Pilot Phase and the **introduction of mud farming on the TSF** to accelerate dewatering. This approach has reduced tailings volumes in the TSF by 44% from 187 Mm^3 to 105 Mm^3.

Mud farming is a technique used by Rio Tinto at operations such as its 100%-owned Weipa bauxite operations in Queensland, Australia, which has been in production since 1963 and produced 35.1Mt of bauxite in 2023.

Water Management

The PFS proposed that the primary water supply for the Kasiya mining complex would be created by building a dam and collecting run-off water from the greater catchment area. Following the introduction of dry mining and mud farming, the size of the water dam proposed in the PFS has been significantly reduced, with less process water required and more process water recovered.

The OPFS mining trials and material deposition tests indicated a water demand of 10.2 Mm^3 per annum, almost a **40% decrease in water requirement** from the PFS (16.7 Mm^3). The effect on the raw water dam wall could be a reduction in volume from 0.79 Mm^3 to 0.57 Mm^3 and a reduction in dam wall height from 20 metres to 17 metres.

Power

The 2023 PFS envisaged a hybrid hydro-generated grid power plus solar power system solution.

The Malawi grid reliability has improved since completion of the PFS and is expected to further improve considerably with the commissioning of the country's first HV transmission interconnector to Mozambique in Q2 2025.

This will provide the Project with sufficient power and therefore the OPFS proposes to connect the Project's power system to the **hydro-sourced grid network only**. This mitigates any risks associated with commissioning a new solar power project and reducing the overall power tariff by eliminating the need for an Independent Power Producer as per the 2023 PFS.

Figure 1: Pilot Phase test pit during mining trials (left) and subsequently backfilled (right)

OPTIMISATION MAINTAINS KASIYA'S GLOBAL LEADER POTENTIAL

Kasiya, located in central Malawi, is the **world's largest known natural rutile deposit and second-largest flake graphite deposit**.

Natural Rutile is the purest, highest-grade form of naturally occurring titanium feedstock.

Natural Graphite is required for various technological and industrial applications.

Both titanium and graphite have been designated "Critical Minerals" by the USA and the EU. In December 2024, NATO designated both titanium and graphite as defence-critical, strategic minerals essential for the Allied defence industry.

Over the 25-year LOM, Kasiya is set to produce an average of 222kt of natural rutile and 233kt of natural flake graphite per annum. At steady state throughput of 24 million tonnes of ore per annum the Project is anticipated to produce approximately 246kt of natural rutile and 265kt of natural graphite per annum, positioning Sovereign as potentially the **world's largest producer of natural rutile and natural flake graphite**.

Further, the depletion of rutile reserves at Lenoil Company Limited's Area 1 Mine[1] in the coming 2-3 years and the recent cessation of mining activities at Energy Fuels Inc.'s Kwale Operations[2] in Kenya means that Sovereign could potentially become the **world's only primary natural rutile producer** of scale (see Appendix 2).

The incremental cost of producing a tonne of graphite from Kasiya under the OPFS is US$241/t[3]. Based on public disclosures by listed graphite companies that have undertaken project studies up to a pre-feasibility stage or later, an incremental graphite cost of production of US$241/t would make Sovereign the **world's lowest-cost graphite producer outside of China** (see Appendix 3).

The rutile-graphite-rich mineralisation will be extracted from surface and trucked to the process plant front end to scrub and screen ROM before it enters a Wet Concentration Plant (**WCP**) where a low-energy requirement, chemical-free process using gravity spirals produces a Heavy Mineral Concentrate (**HMC**). The HMC is transferred to the dry Mineral Separation Plant (**MSP**) where premium quality rutile (+95% TiO_2) is produced via electrostatic and magnetic separation.

The high quality Kasiya rutile product will be amenable for use in high-end titanium products including aerospace and defence applications.

Graphite rich concentrate is collected from the gravity spirals and processed in a separate graphite flotation plant, producing a high purity, high crystallinity and high value coarse-flake graphite product.

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[1] In 2024, the previous owner of the Area 1 Mine, Sierra Rutlie Limited, was acquired by Lenoil Company Limited, a private company based in Sierra Leone.
[2] In 2024, the previous owner of the Kwale Operations, Base Resources Limited was acquired by Energy Fuels Inc., a US-based uranium and critical minerals company.
[3] Incremental cost of graphite production is calculated with the following costs attributed to rutile production: all mining costs, all G&A, all material handling costs except for graphitic fines reclamation and graphite concentrate transport, and approximately half of total processing costs. Incremental cost of graphite production therefore includes only those costs incurred on top of primary rutile production to produce an incremental tonne from the process plant and transport the graphite to market. Unit cost of rutile production under this scenario would be US$628/t (FOB Nacala)).

Kasiya's graphite has been confirmed to produce outstanding anode materials suitable for battery production as well as demonstrating suitability for traditional industrial uses such as the production of refractory materials.

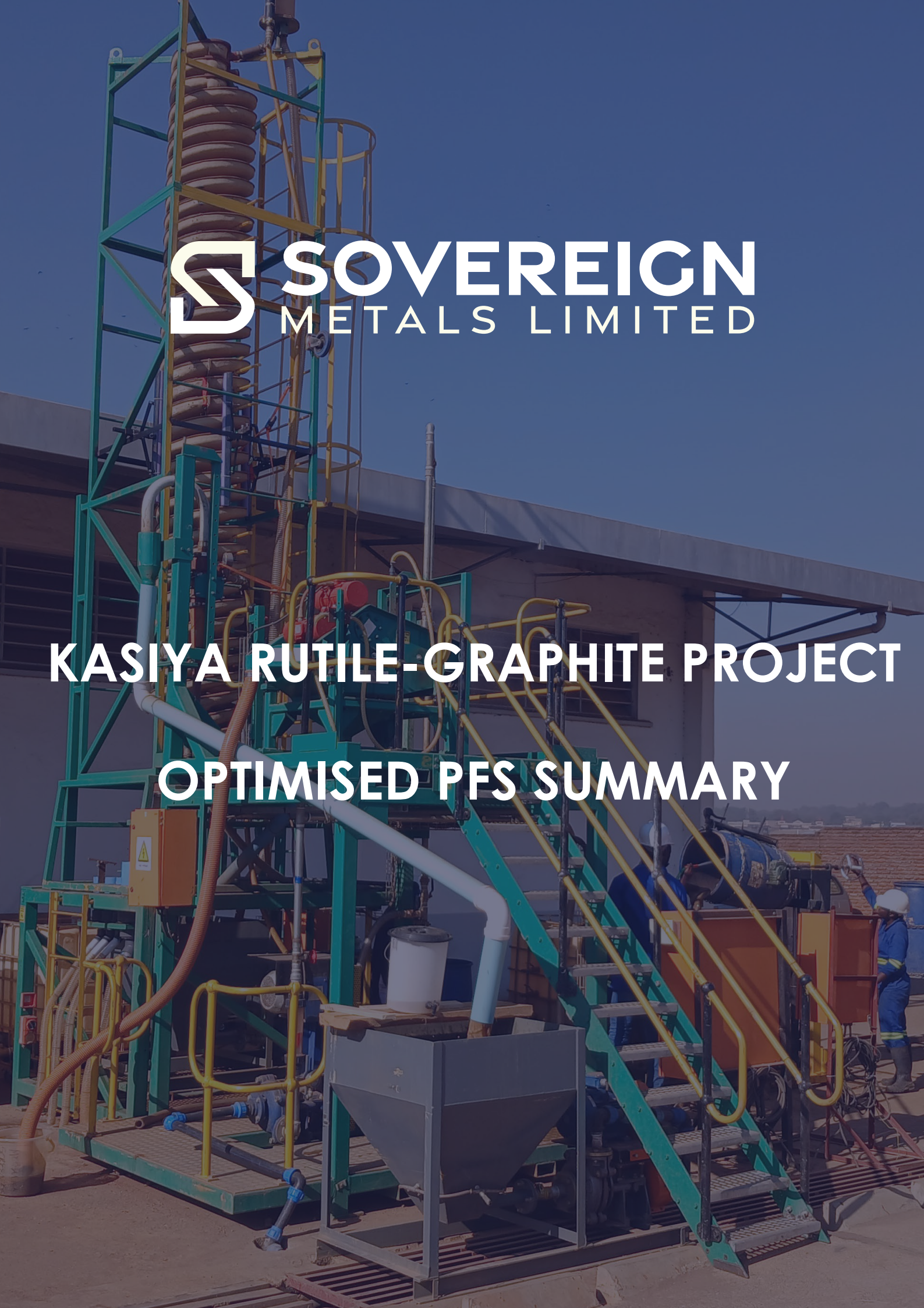
The Project has excellent surrounding infrastructure including sealed roads, a high-quality rail line connecting to the deep-water port of Nacala on the Indian Ocean and hydro-sourced grid power.

For the duration of the operation, Kasiya's highly sought-after rutile and graphite products will be railed directly from a purpose-built rail dry port at the mine site eastward via the Nacala Logistics Corridor (**NLC**) to the port of Nacala. The southern port of Beira, connecting Kasiya via the recently refurbished Sena Rail Line, offers a secondary export route.

Enquiries

Frank Eagar, Managing Director & CEO
South Africa / Malawi
+27 21 065 1890

Sapan Ghai, CCO
London
+44 207 478 3900



SOVEREIGN METALS LIMITED

KASIYA RUTILE-GRAPHITE PROJECT

OPTIMISED PFS SUMMARY

1.0 INTRODUCTION

In September 2023, the Company announced the results of a PFS confirming Kasiya as a major critical minerals project with the potential to become a major supplier of natural rutile and graphite.

Following various key management appointments in October 2023, the Company commenced an optimisation phase to complete an Optimised Pre-Feasibility Study (**OPFS**) prior to advancing to a Definitive Feasibility Study (**DFS**). The optimisation phase has been conducted in collaboration with the Company's strategic partner, Rio Tinto, following its investment into Sovereign in July 2023.

The main objective of the OPFS was to address and optimise a number of key areas, specifically:

- Mining method and resulting plant configuration and location
- Tailings management and strategy
- Water and power management
- Operating model

All new options were designed and investigated to an appropriate engineering level where they could be adequately ranked and evaluated, accounting for risk, technical, costing and financial parameters.

2.0 STUDY PARTNERS

To conduct the OPFS, the Company used empirical data gathered from the Pilot Phase along with assumptions provided by a range of independent, internationally recognised industry leading engineering groups, specialists and consultants (the **Consultants**). The key Consultants and their assigned project scopes were as follows:

- **DRA Limited (DRA):** Project Management and Engineering, Dry Mining Options Investigation, Process Engineering Support, Operating Cost Estimating
- **Moletech Consulting Pty Ltd** (Independent Mining Consultancy): Ore Reserves and Production Target
- **Fraser Alexander Ltd (FA):** Hydraulic Mining and Backfill Trials
- **Paterson & Cooke (P&C):** Laboratory Testwork for Pumping, Settling and Dewatering Testwork
- **Epoch Resources (Pty) Ltd (Epoch):** Tailings Management
- **Professional Cost Consultants (Pty) Limited (PCC)** – Capital Costing
- **Practara Metals & Mining Advisory (Pty) Ltd (Practara)** – Financial Valuation Modelling

3.0 PROJECT LOCATION

The Project is located in the Lilongwe District, Central Region of Malawi, as shown in Figure 2. The indicated resource for the Kasiya Rutile Project is immediately proximate to the township of Kasiya, which is approximately 30 km to the northwest of Lilongwe (direct line) and about 45 km by existing roads.

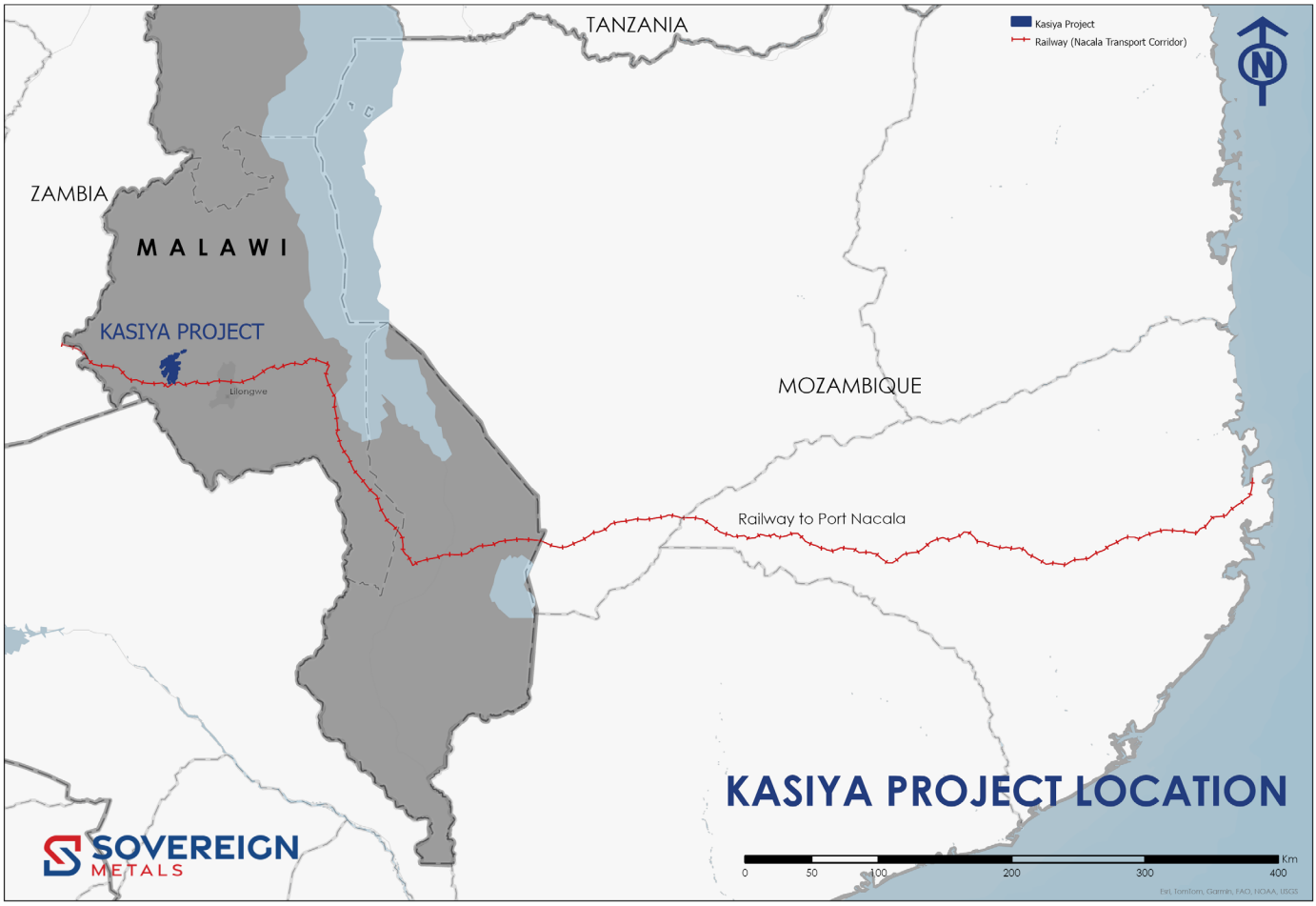


Figure 2: Kasiya Regional Project Location

4.0 GEOLOGY AND RESOURCES

4.1 Geology

Kasiya is located on the Lilongwe Plain, which is underlain by the Basement Complex paragneisses and orthogneisses of the Mozambique Belt. The paragneiss unit (**PGRG**) is enriched in rutile and graphite and is the primary source of both minerals.

The mineralised PGRG t strikes north in the south of the deposit and then northeast around a central regional fold.

Rutile mineralisation lies in relatively flat lateral near-surface bodies in areas where the weathering profile is preserved and not significantly eroded. It is geologically continuous with limited variability along and across strike. Rutile concentrations are generally highest near the surface, decreasing with depth. The high-grade rutile deposit at Kasiya is best described as a residual placer where the resistate minerals, including rutile, have been concentrated during in-situ weathering, which has depleted the less resistant minerals.

Graphite mineralisation as reported in the Mineral Resource Estimate (**MRE**) is depleted near surface, with higher grades occurring from 6m and deeper in mottled and saprolite units. Graphite mineralisation extends into the saprock and fresh rock, but this extension is currently not included in the MRE.

4.2 Mineral Resources & Ore Reserves

An initial MRE was released for Kasiya in June 2021 followed by an Indicated Resource in December 2021.

Sovereign's 2022 drill program at Kasiya used push tube (**PT**) core holes to in-fill and convert Inferred mineralisation into the Indicated category. The consistency and robustness of the geology allowed for an efficient conversion of this previously Inferred material on a near-identical one-for-one basis to the Indicated category. A resource upgrade was released in April 2022 and in April 2023, 81% of Inferred Resource was converted to the Indicated category.

Further advancement of the MRE in 2023 was achieved through the application of air-core (**AC**) drilling to define the depth of mineralisation in several selected higher-grade areas. As expected, this drilling showed that high-grade rutile and graphite mineralisation extends to the base of the soft saprolite unit which terminates on the saprock basement averaging about 22m depth. This AC drilling targeted early-scheduled mining pits mainly in the southern areas of the MRE footprint.

The higher-grade graphite zones identified at depth in the AC drilling are generally associated with higher grade rutile at surface. Some of these zones have graphite grades at depths >6m in the 4% to 8% TGC range and represent significant contained coarse flake graphite tonnages.

The resulting MRE (ASX announcement dated 5 April 2023: *Kasiya Indicated Resource Increased by over 80%*) formed the basis for the PFS and forms the basis of the OPFS. The MRE defines very broad and contiguous zones of high-grade rutile and graphite which occur across a very large area of over 201km^2.

The MRE is reported at a 0.7% rutile cut-off grade and classified following JORC Code 2012 guidelines. Graphite within the rutile resource is reported as a by-product. No inclusion of rutile equivalent or graphite value has been used in reporting the MRE.

Table 2: Kasiya Mineral Resource Estimate at 0.7% Rutile Cut-off (inclusive of Ore Reserves)					
Mineral Resource Category	**Tonnes (Mt)**	**Rutile Grade (%)**	**Contained Rutile (Mt)**	**Graphite Grade (TGC, %)**	**Contained Graphite (Mt)**
Indicated	1,200	1.0%	12.2	1.5%	18.0
Inferred	609	0.9%	5.7	1.1%	6.5
Total	**1,809**	**1.0%**	**17.9**	**1.4%**	**24.4**

An initial Ore Reserve of 538Mt was declared for the PFS and has been revisited based on the updated Modifying Factors for the OPFS. The Ore Reserve that underpins the OPFS is summarised in Table 3 below.

Ore reserves have not changed since the PFS. The OPFS assumes:

- same pit shell designs;
- same area mined; and
- same tonnages, grades and contained product as the PFS.

In addition, all the assumptions around the processing plant like recovery and product grade remained unchanged including commodity price assumptions. Further discussion on the Ore Reserve for the OPFS are included in the Ore Reserve and Modifying Factors sections below.

Table 3: Ore Reserves for the Kasiya Deposit					
Classification	**Tonnes (Mt)**	**Rutile Grade (%)**	**Contained Rutile (Mt)**	**Graphite Grade (TGC, %)**	**Contained Graphite (Mt)**
Proved	-	-	-	-	-
Probable	538	1.03%	5.5	1.66%	8.9
Total	**538**	**1.03%**	**5.5**	**1.66%**	**8.9**

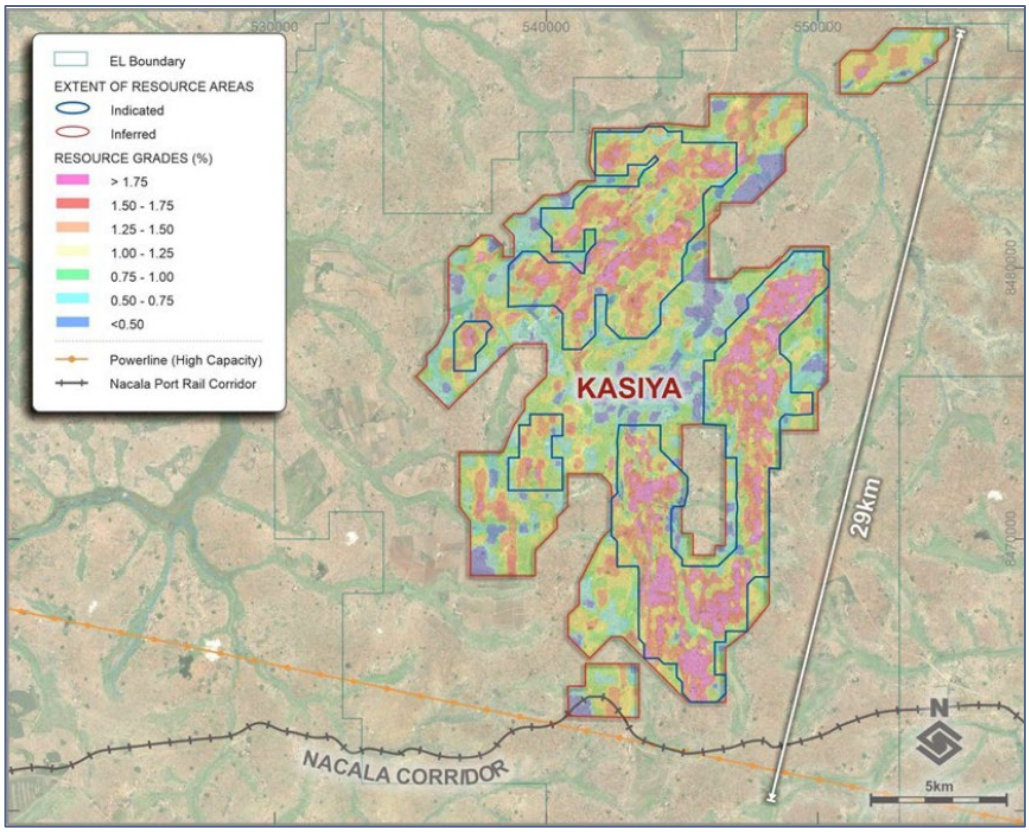


Figure 3: Plan View of Rutile Grade within the Sovereign Tenements

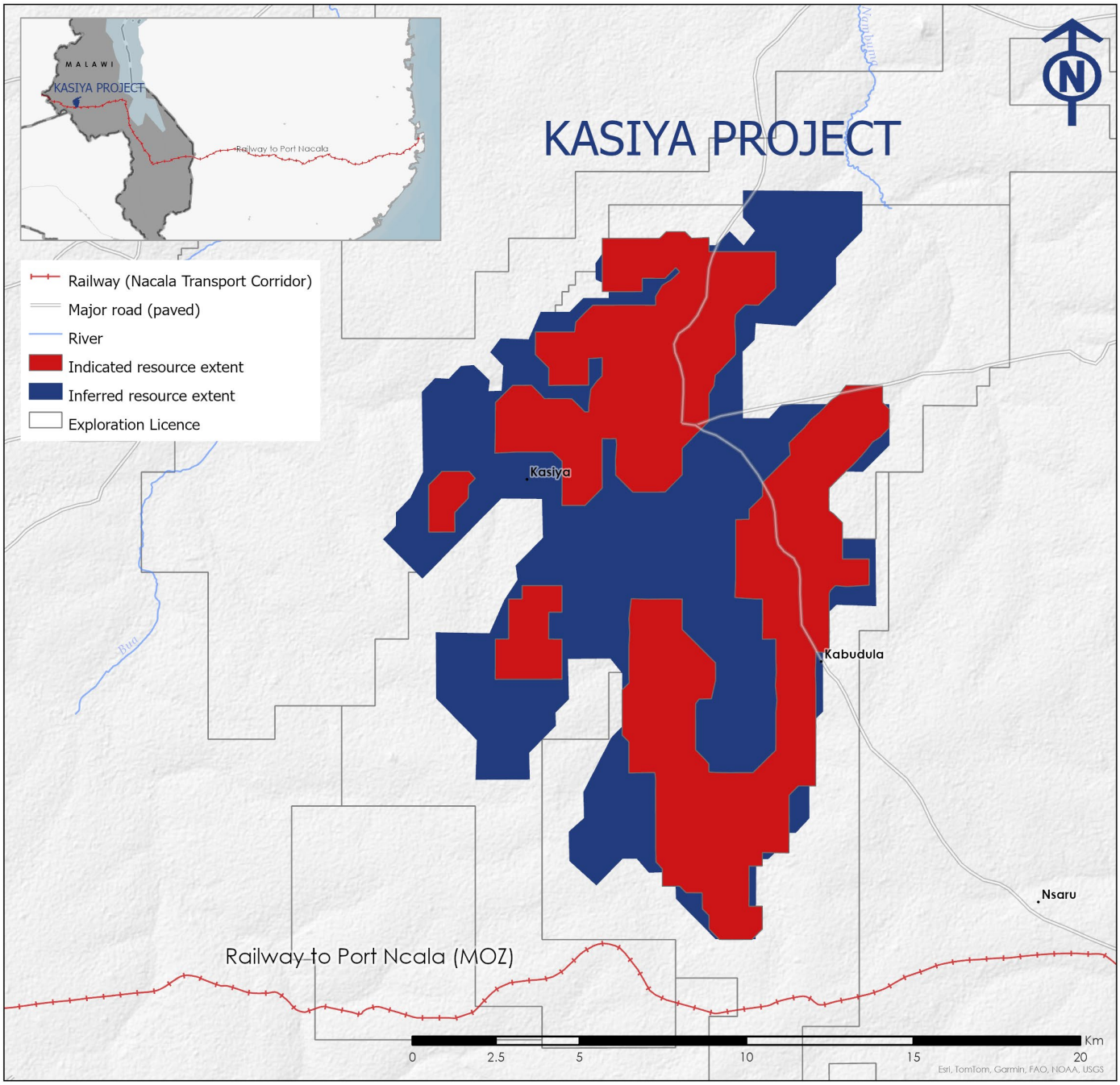


Figure 4: Indicated and Inferred Resources of Kasiya

4.3 Strategic Project of Global Significance

Kasiya is the largest known natural rutile deposit in the world. Additionally, the graphite MRE positions Kasiya as the second-largest flake graphite deposit in the world.

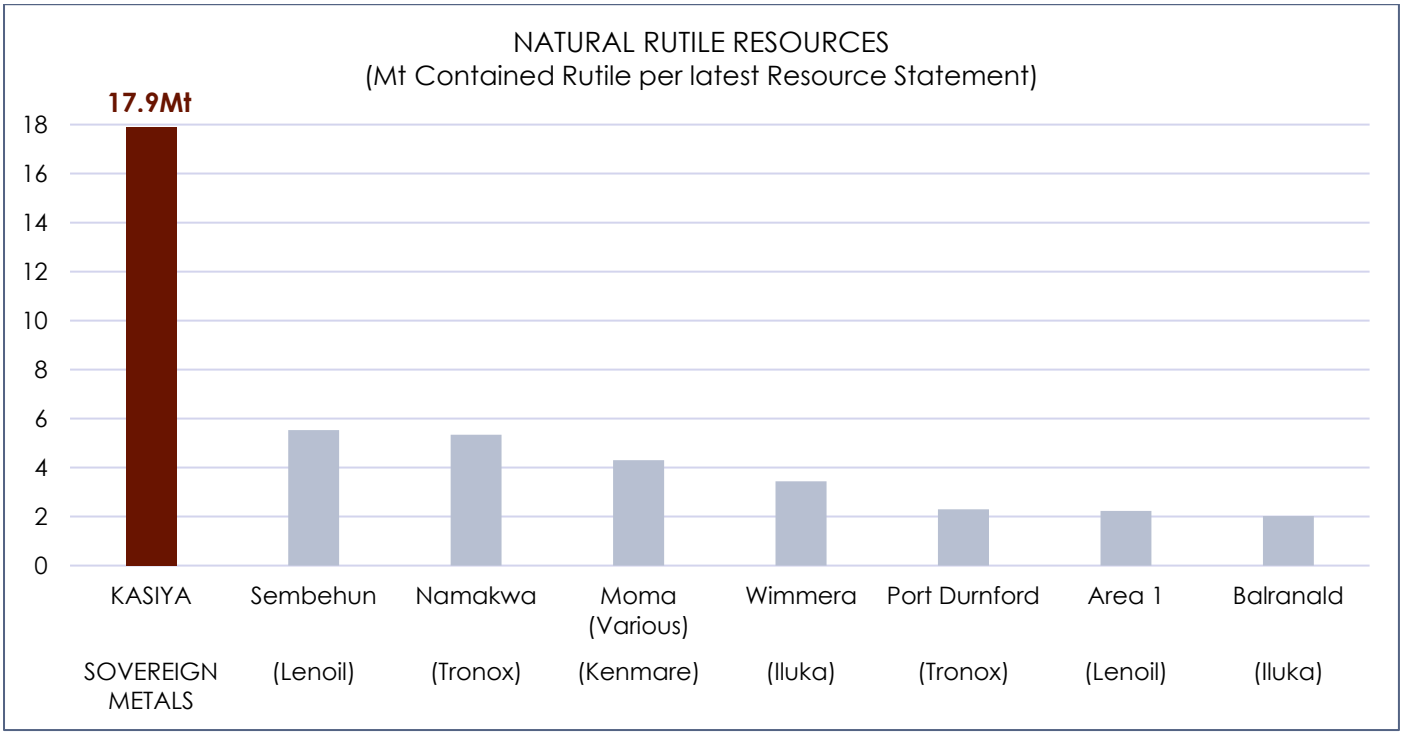


Figure 5: Mineral Resources by contained rutile (>2Mt contained; 49 projects with <2Mt contained rutile not shown)
(Sources and notes: Refer to Appendix 4)

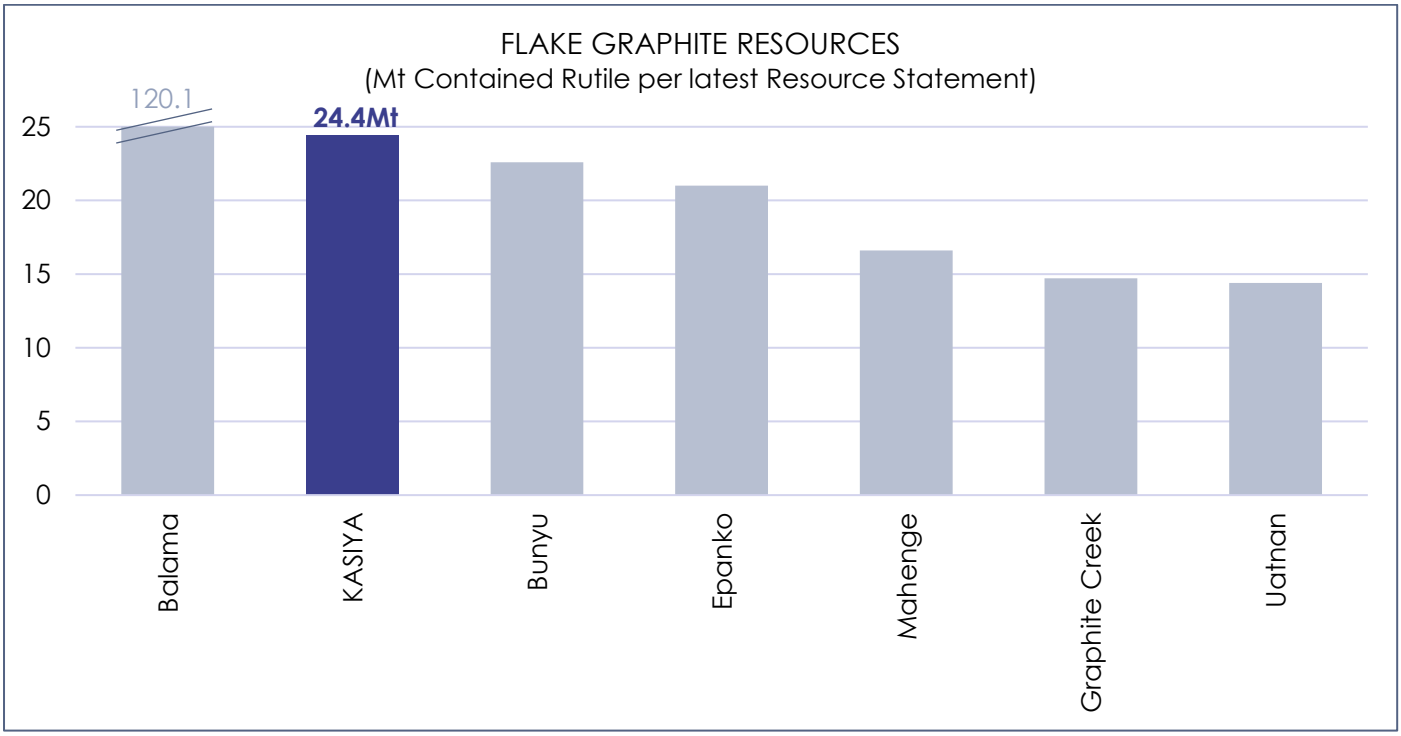


Figure 6: Graphite Mineral Resources by contained graphite (>10Mt Contained)
(Sources and notes: Refer to Appendix 5)

5.0 MINING

5.1 Pilot Phase Mining Trials

During the Pilot Phase, the Company successfully completed dry and hydraulic mining trials, excavating a test pit at Kasiya. Local civil and mining contractor Mota-Engil Malawi undertook the dry mining trials and global industry leader Fraser Alexander conducted the hydraulic mining trail.

The test pit covered the planned area of 120 metres by 110 metres and was excavated to a depth of 20 metres through the weathered ore at Kasiya. The dry mining trial confirmed that Kasiya ore can be efficiently mined using conventional dry mining techniques.

Figures 7 & 8: Simple excavator fleet mining the test pit

Figure 9: Kasiya Pilot Phase test pit site

The saprolite-hosted mineralisation at Kasiya is largely homogenous and has relatively consistent physical properties throughout the 1.8 billion tonnes MRE. Data collected from the Pilot Phase confirmed that no drilling, blasting, crushing, grinding or milling will be required before processing the ROM material into rutile and graphite products.

5.2 Mining Method Selection

Following the successful completion of dry and hydraulic mining trials during the Pilot Phase, several dry mining methods were evaluated to determine the optimal method for a large-scale operation which would mine soft, friable mineralisation from surface.

Evaluation criteria included safety, technical and operational risk factors, operational flexibility, infrastructure requirements, and capital and operating costs.

Based on these criteria, a dragline mining method was one of the safest, lowest risk and most flexible mining methods. The conclusions drawn from the dragline mining methods in the Kasiya context are listed below:

- Draglines will be predominantly single-bench digging operations that can pre-mine the few areas where the required mining depth exceeds the maximum dragline digging depths.
- Due to the single-bench operations and the dragline's extended reach, there will be fewer relocation operations than for any other mining method.
- Due to the single-bench operations, the dragline mined materials will be a more consistent blend than those of other mining methods.
- Draglines can excavate key cuts on the pit or mining block edges that can assist with pit dewatering, ensuring that the bulk of the mined materials will be dry enough for truck transport.

Figure 10: Example of a dragline excavator in action (Source: Liebherr Group)

5.3 ROM Material Transport

Further consideration was also given to handling/transporting dry mined material. The PFS envisaged hydraulic mining using high-pressure jets of water to dislodge loose, friable material with the resulting slurry being transported to the processing facility via a network of pipelines/pumps.

Three main material handling options were considered under a dry mining scenario:

- Trucking from the southern mining areas to the southern plant area and then trucking from the northern mining areas to the northern plant area.
- Trucking 1-3 km from the southern mining area to the semi-mobile ROM Tip and conveying to the southern plant areas and then trucking from the northern mining areas to the semi-mobile ROM Tip and conveying to the northern plant area.
- In/Ex Pit Conveying - Excavators and Draglines excavating directly into mobile tips, which will feed an overland conveyor from the southern mining areas to the southern plant area and then from the northern mining areas to the northern plant area.

Based on fuel and electricity usage and costs, maintenance and repairs, labour costs, water usage and other life cycle costs, the optimal ROM material transport solution has been determined to be trucking to the respective southern and northern plant areas using 120 – 140 tonne trucks.

Figure 11: Example of a 139tonne payload off-highway truck (Source: Caterpillar Inc.)

5.4 Mine Schedule

The scheduling objectives were focused on the following:

- Two-stage operation with ROM throughput in line with the PFS:
  - Year 1 ramp up to 12 Mtpa ROM throughput until Year 4 (**Stage 1**)
  - Subsequent ramp up to 24Mtpa by end of Year 5, maintaining 24Mtpa throughput for the remaining LOM (**Stage 2**)
- Mine the closest pit to each plant location with the highest rutile grade first
- Once a pit has been started, only move to the next pit if the first pit has been mined to completion. This is to reduce dragline movements
- Mine with several draglines, each with a production capacity of 6 Mtpa
- Direct trucking of ROM to the plant

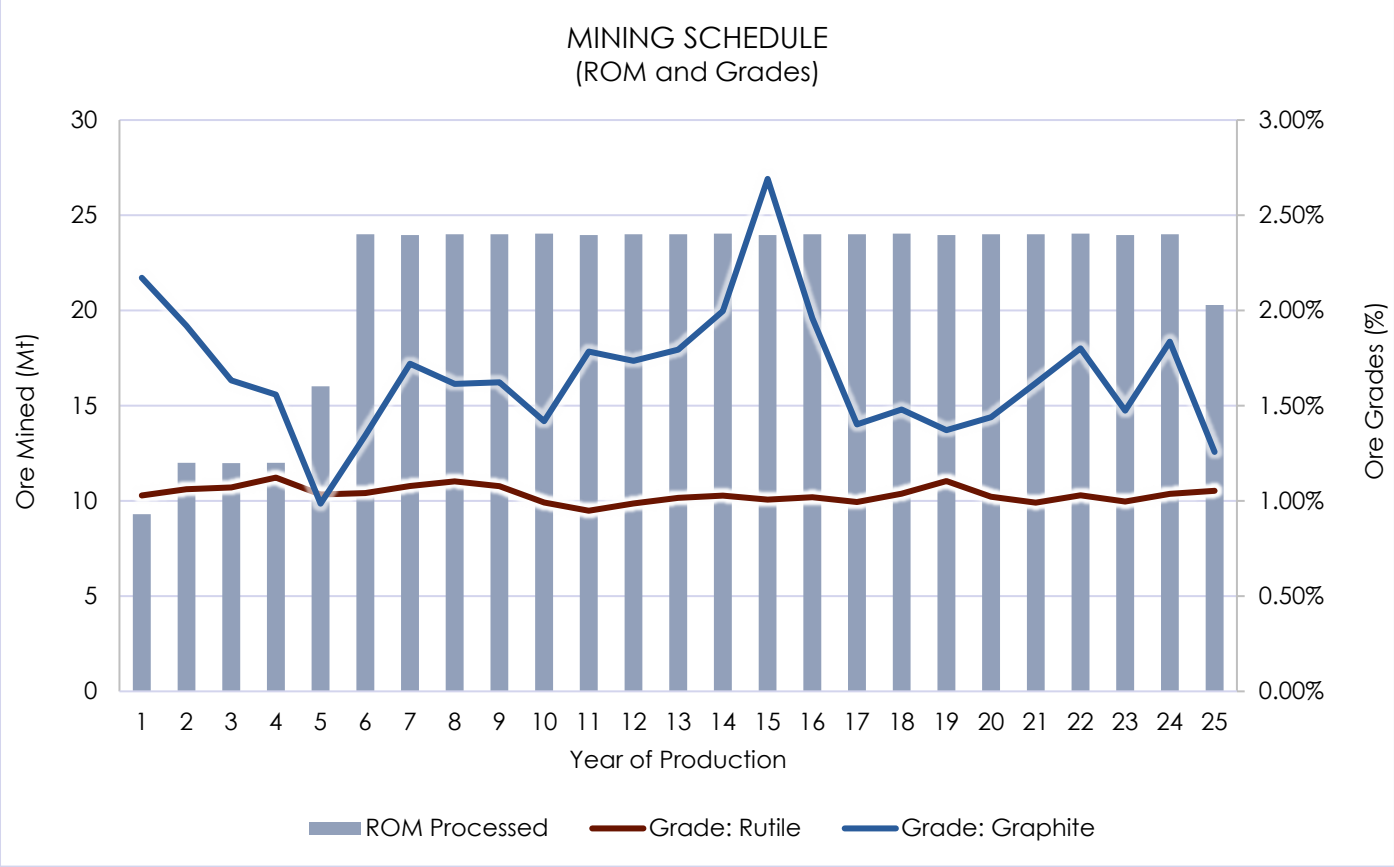


Figure 12: Kasiya OPFS Mining Schedule

Based on Kasiya's Ore Reserve, areas identified for mining were divided into Southern, Northern and Eastern groups as show in Figure 13.

The initial mining areas targeted higher-grade rutile areas in the larger Southern Group before a ramp up in ore production from Year 5 onwards. The Southern Group provides ore feed for approximately the first 12 years of production, before a move to the Northern Group. From Year 20 onwards, the mining areas move to the Eastern Group.

6.0 PROCESSING AND METALLURGY

6.1 Process Plant Front-End Requirements for Dry Mining

The 2023 PFS base case for overland transport of ROM was by hydraulic means and had the intrinsic advantage of wetting and scrubbing the mined material as part of the pumping process and thus no further wetting and screening action was required to introduce the ore in slurry form to the process plant.

Dry mining lacks this advantage and, therefore, requires pre-wetting and scrubbing of the ROM material before it is introduced to the process plant. This requires a scrubbing and screening module.

At the process plant, trucks will discharge either directly into the plant feed ROM tip bins or onto a stockpile. Each 12 Mtpa processing plant will have a dedicated ROM feed area, consisting of an elevated discharge and storage pad, a tip bin fitted with a static grizzly, and a belt feeder to withdraw material onto the plant feed conveyor.

Scrubbing and screening will consist of two scrubbers in parallel configuration along with two oversize screens for each 12 Mtpa plant module. Dry ROM will be introduced into the scrubbers via a splitter box, where process water is added and the ROM is washed into the scrubber. The scrubber is sized to have a nominal retention time of two minutes to ensure sufficient scrubbing and attrition before entering the process plant. The scrubber discharge stream is passed over a scalping screen to remove +2 mm material. This material is the first waste stream and will be returned to the pits.

Apart from the inclusion of the stockpile and scrubber circuit, no further changes were made to the processing plant flowsheet designed in the 2023 PFS.

6.2 Metallurgy & Process Design

Sovereign has conducted extensive metallurgical testwork to support the process design and flowsheet development for Kasiya. Rutile metallurgical test work was performed at the globally recognised minerals sands laboratory, Allied Minerals Laboratories (**AML**) in Perth. Graphite test-work was completed at ALS laboratories in Perth with supervision from the principal metallurgist at Metpro (Canada).

Test work programs have been designed to produce premium-specified rutile and highly crystalline, high-purity flake graphite products. To date, all test work has been very successful, and conventional flowsheets have proved highly effective for producing premium-quality rutile and graphite products.

Each 12Mtpa plant will recover rutile and graphite via the process route presented in Figure 13 which includes distinct processing areas. The process flowsheet following the scrubber circuit is as follows:

Wet Plant:

- Receives <2mm material from the pits.
- Removes fine particles (nominally <45 µm) using cyclones and up-current classifiers.
- Recovers a heavy mineral concentrate (**HMC**) via coarse and fine spiral circuits.
- Produces separate coarse and fine gravity tailings streams enriched in graphite.
- Produces a coarse tailings (nominally <2 mm and >45 µm) low in rutile and graphite.

Mineral Separation Plant (MSP):

- Electrostatic separation to separate the HMC into conductive minerals (including rutile) and a non-conductive concentrate.
- Magnetic separation to separate the conductive non-magnetic rutile from magnetic mineral concentrates.
- Bagging of rutile products for sale.

Graphite Plant:

- Recovery of graphite from combined gravity separation tailings by froth flotation, inclusive of polishing and stirred media mills.
- Graphite concentrate thickening, filtration, drying, screening
- Bagging of graphite products for sale.

Tailings Functions:

- Thickening of fine tailings in a conventional thickener

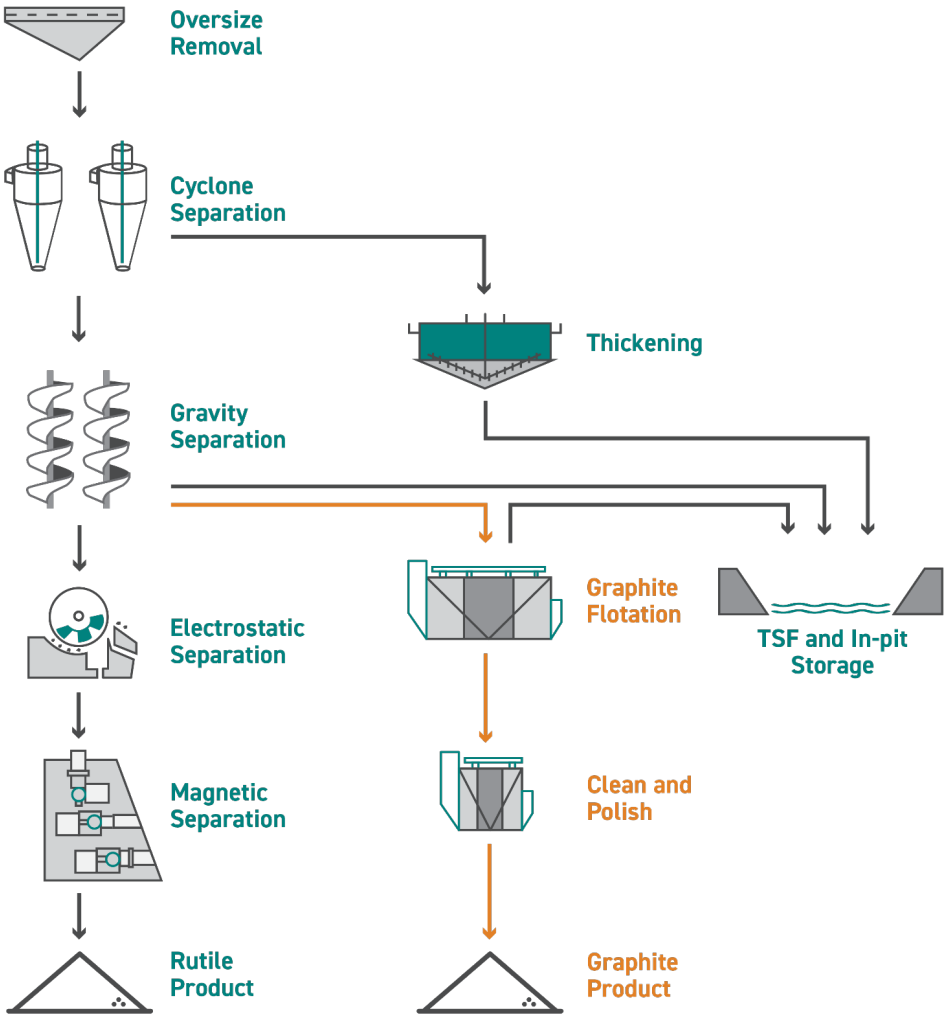


Figure 13: High-level process flowsheet for rutile and graphite production post front end

Data from metallurgical testwork performed during the OPFS will be used to inform the DFS.

6.3 Product Recoveries

Product recoveries remain unchanged from the 2023 PFS:

- Rutile recovery: 100%
- Graphite recovery: 67.5%

Rutile

The recovery to saleable premium rutile product is determined by dividing the percentage weight of the product at requisite product specification by the percentage weight rutile contained in the feed. The feed assay is determined by the Sovereign Lilongwe Laboratory Method (**SLLM**) i.e. the same assay method used to populate the drill-hole database and inform the MRE and Ore Reserve.

In bulk metallurgical testwork, recovery to product is increased over and above the SLLM grade due to inclusion of slightly magnetic high TiO_2 mineral species not able to be measured by the SLLM. The non-magnetic fraction produced in metallurgical bulk sample processing routinely assays in the order of 97%-98% TiO_2, well above the 95% TiO_2 necessary for market, allowing inclusion of some of the additional slightly magnetic high TiO_2 components and explaining why recovery to product in bulk testwork is routinely greater than 100% of the SLLM grade. The product recovery relationship to SLLM assays is robust and repeatable over six separate bulk samples processed at AML. For the purposes of the OPFS, a conservative 100% recovery to product is used.

Graphite

The total metallurgical recovery for graphite used in the OPFS is 67.5%. Since the production process has been engineered for primary rutile recovery, and therefore ore is processed through deslime and gravity stages prior to entering the graphite flotation plant, total graphite recovery is generally lower than traditional graphite projects. Losses of finer graphite occur in both of these pre-flotation stages.

6.4 Product Production Profiles

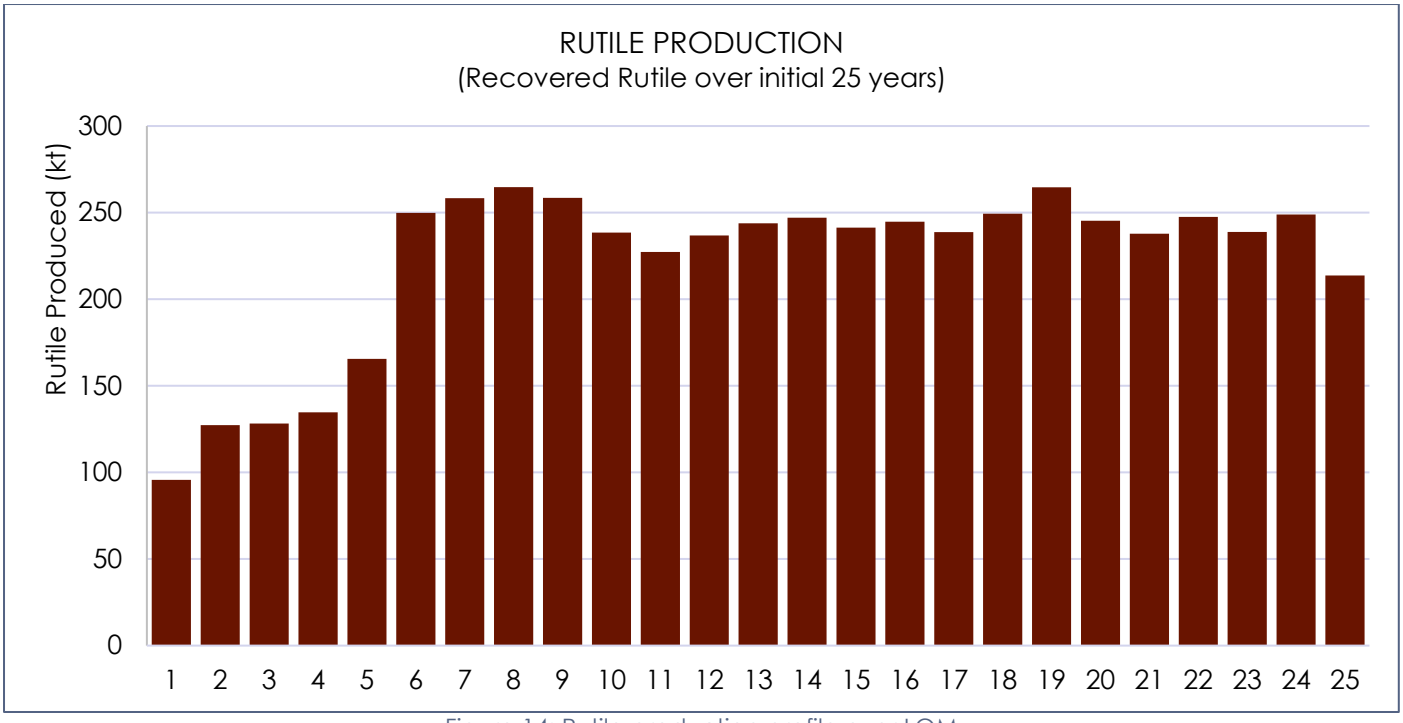


Figure 14: Rutile production profile over LOM

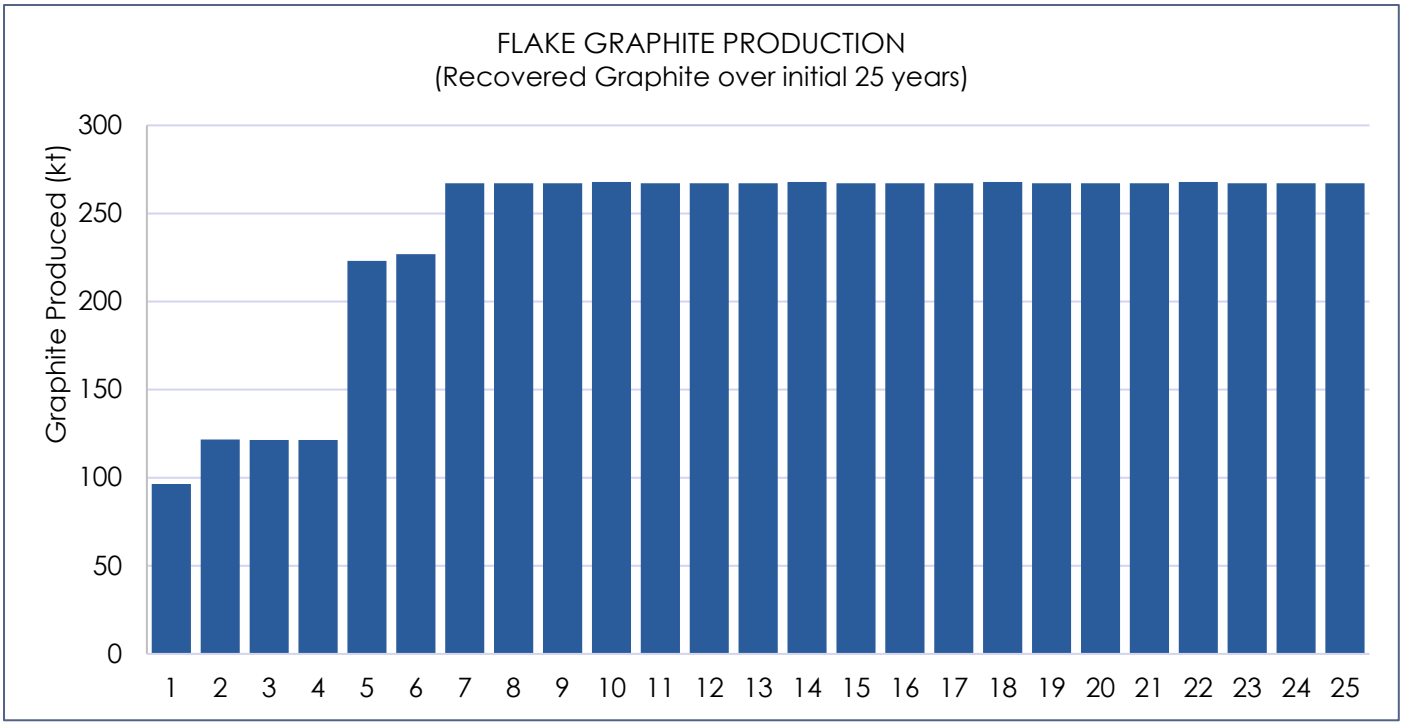


Figure 15: Flake graphite production profile over LOM

7.0 PREMIUM PRODUCT SPECIFICATIONS

Kasiya has proven its ability to produce world-class product specifications. The rutile product is reported at ~96% TiO_2 with low impurities and high metallurgical recoveries (Table 4).

The rutile and graphite mineralisation at Kasiya can be processed via conventional flowsheets using "off-the-shelf" processing equipment. Overall, the superior metallurgical performance at Kasiya is interpreted to be due to the following characteristics:

- coarse, highly crystalline rutile grains that are naturally well-liberated and largely free of inclusions or attachments (Figure 17);
- low chemical impurities in the rutile crystal lattices;
- simple HMC mineralogy with very little difficult-to-separate or near-density gangue minerals present; and
- coarse, highly crystalline graphite being well liberated and pre-concentrating easily in the spiral gravity separation process

7.1 Rutile Product

The premium chemical parameters and particle sizing (d_{50} 126µm, 8.6% <75µm) of the rutile produced means the product is suitable for all major end-use markets including TiO_2 pigment feedstock, titanium metal and the welding sector. Specifically, Kasiya's rutile product specification makes it a suitable feedstock for superior, high-quality titanium metal products.

Table 4: Kasiya Rutile Specifications

Constituent		Kasiya (Sovereign Metals) OPFS	Sierra Rutile* (Sierra Rutile Limited)	Kwale (Base Resources)
TiO_2	%	**95.7**	96.3	96.2
ZrO_2+HfO_2	%	**0.18**	0.78	0.72
SiO_2	%	**0.70**	0.62	0.94
Fe_2O_3	%	**0.98**	0.38	1.25
Al_2O_3	%	**0.44**	0.31	0.23
Cr_2O_3	%	**0.10**	0.19	0.17
V_2O_5	%	**0.58**	0.58	0.52
Nb_2O_5	%	**0.37**	0.15	-
P_2O_5	%	**0.018**	0.01	0.00
MnO	%	**0.007**	0.01	0.03
MgO	%	**0.001**	0.01	0.10
CaO	%	**0.011**	0.01	0.04
S	%	**0.005**	<0.01	-
U+Th	ppm	**30**	26	53

Selected rutile product specification derived from bulk testwork on samples representing the first three years of mining, which is broadly representative of the overall Kasiya Ore Reserve. Energy Fuels Inc. acquired all the shares of Base Resources in October 2024.

Sources: Sierra Rutile and Kwale data from the 2010 BGR Assessment Manual titled "Heavy Minerals of Economic Importance."

*In 2024, Lenoil Company Limited acquired Sierra Rutile following a takeover offer.

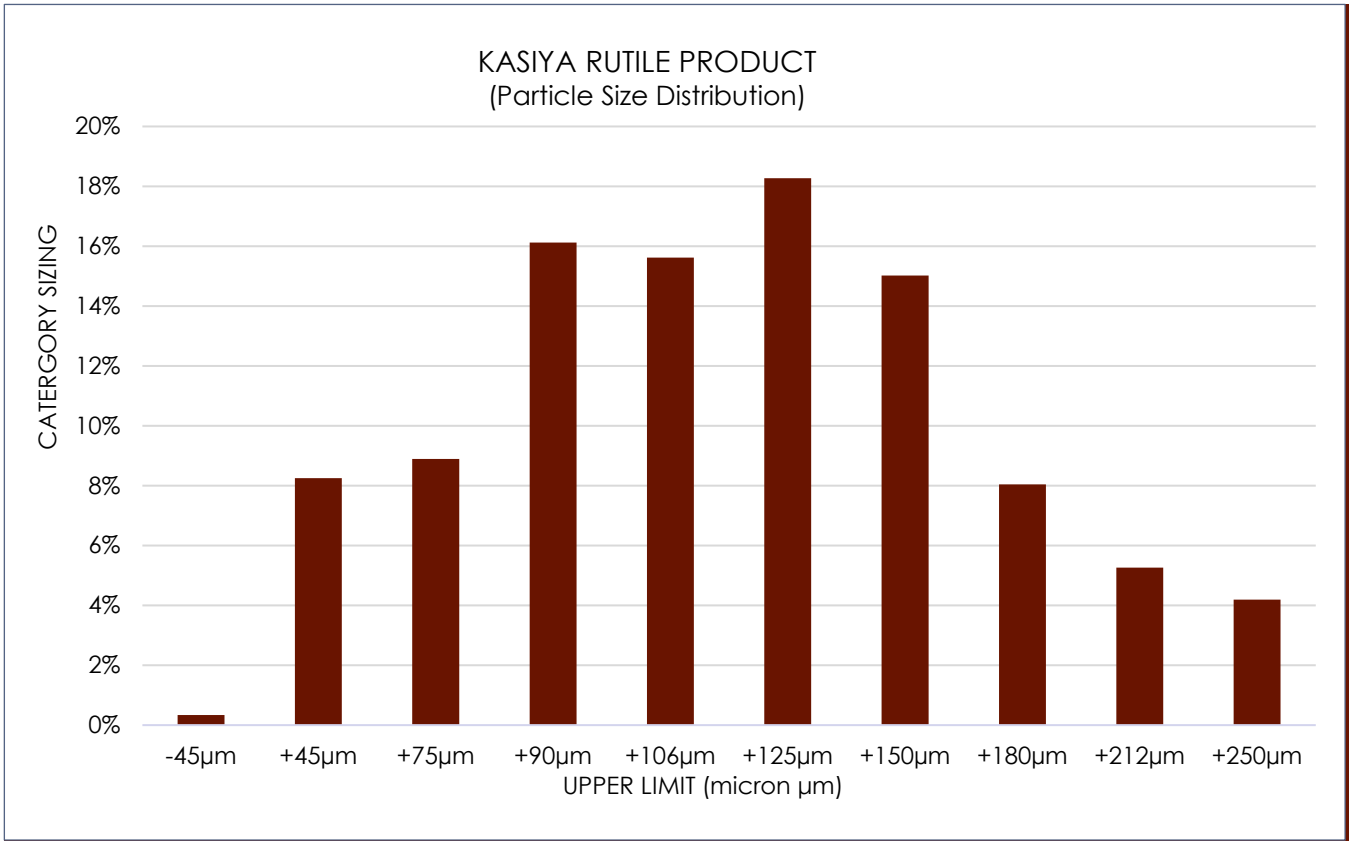


Figure 16: Particle size distribution of Kasiya rutile product

Sovereign has already shared samples of rutile product from Kasiya with major end-users globally, all of which have confirmed its premium chemical and physical specifications will be suitable for use in their titanium metal, welding products and pigment processes.

Figure 17: Photomicrograph of high-purity rutile product

7.2 Graphite Product

The specifications for the graphite product produced during the testwork are also considered to be premium. The product naturally grades over 96% Ct, with approximately 57% in the large to super-jumbo fractions (+180µm). The grade and size distribution are shown in Table 5 below.

Table 5: Graphite Specification

Particle Size		Carbon	Weight Distribution	Flake Category
Tyler Mesh	Micron (µ)	(C^t %)	(% w/w)	
+32	+500	97.1	5.6	Super Jumbo
-32 +48	-500 +300	96.4	24.2	Jumbo
-48 +80	-300 +180	96.7	27.1	Large
-80 +100	-180 +150	97.1	11.6	Medium
-100 +150	-150 +106	96.9	12.3	Small/Medium
-150 +200	-106 +75	98.2	7.7	Small
-200	-75	94.1	11.7	Amorphous
Total		**96.5**	**100**	

Selected graphite specification from bulk sample testwork from samples representing the first three years of mining which in general is also broadly representative of the +200 mesh products in the overall Kasiya Ore Reserve.

In September 2024, Sovereign announced an update on the downstream testwork which demonstrated that Coated Spherical Purified Graphite (**CSPG**) produced from Kasiya natural flake graphite has performance characteristics comparable to the leading Chinese natural graphite anode materials manufacturers such as BTR New Material Group (**BTR**). Electrochemical testing of the CSPG samples at a leading German institute achieved first cycle efficiencies (**FCE**) of 94.2% to 95.8%, with results above 95%, a key specification for highest quality natural graphite anode materials under the Chinese standard.

BTR has a 20-year track record in the production of lithium-ion battery anode materials, is a dominant player in the market and has recently concluded anode material offtake agreements with global automotive companies including Ford. BTR's highest specification CSPG materials, that have low swelling, long cycle life, good processability and outstanding electrochemical performance include their GSN17 and LSG17 products (with D50 of 17.0+/- 1.5µm).

Table 6: Electrochemical Results – BTR CSPG products

		CSPG Sample		BTR*	
		1	2	GSN 17	LSG 17
First Cycle Efficiency	**%**	95.8	94.2	≥95	≥94
Initial Capacity	***mAh/g***	362	364	≥360	≥355
D50	***µm***	17.5	17.3	17.0+/- 1.5	17.0+/- 1.5

* BTR anode material specs taken from this webpage: https://www.btrchina.com/en/NegativeProducts/info.aspx?itemid=1069

8.0 TAILINGS MANAGEMENT

Kasiya has been designed to minimise social and environmental impact. The operation will systematically extract and process ore then progressively backfill and rehabilitate the pits. The objective of the Project is to minimise the overall disturbance of land resources, as well as keeping the active overall mining footprint as small as reasonably possible.

To meet the OPFS technical objectives of minimising the size requirement of the Project's TSF to store tailings volumes which cannot be backfilled into mined-out open pit areas, Sovereign appointed Epoch Resources (**Epoch**) to assess various tailings management options which would comply with GISTM.

8.1 In-Pit Deposition Optimisation

In-pit deposition will be via hydraulically deposited co-disposal to minimise the volume of the TSF. Using test work data from various testwork programs performed at Paterson & Cooke's (**P&C**) laboratory to understand the behaviour and characteristics of the material, the backfill design was optimised for maximum capacity. This approach uses a 65%:35% sands to fines co-disposal ratio backfilled in the pit voids.

Figure 18: Backfilling of test pit during the Pilot Phase

8.2 Tailings Storage Facility Optimisation

The TSF shall employ mud farming to accelerate dewatering and reduce the required footprint of the TSF. The introduction of mud farming follows the confirmation of mud farming feasibility from Phibion Pty Ltd, a mud farming contractor, and positive results from area and rheological analyses.

Along with the co-disposal ratio of tailings deposited into the pits as backfill, these optimisations have reduced the size of the TSF from 150 Mt in the PFS to 132 Mt for the OPFS. This is based on a volume of 105 Mm^3 at a dry density of 1.26 t/m^3, reduced from a volume of 187 Mm^3 at a dry density of 0.8 t/m^3.

The TSF location has remained unchanged from the PFS.

The design approach adopted for the TSF is a series of downstream lifts consisting of cyclone sands material above an engineered starter wall. A drainage network within the basin of the TSF will promote drainage of the deposited tailings and/or saturation of wall and foundation. Seepage collected from the drains would report to a seepage collection sump to be pumped back onto the TSF.

8.3 Tailings Strategy

Years 1 to 5:

- Sand and fines are pumped to the TSF during the first five years of operation, while only one plant module (12 Mtpa) is operational
- No backfilling of pits will take place

Years 6 to 25:

- No sand will report to the TSF
- Only one plant's fines are pumped to the TSF basin
- The second module's fines are pumped to the pits for the use of backfill
- All sand will report to the pits
- Backfilling of pits will take place in same order as the mine plan and will commence once mining of a specific pit has been completed

9.0 INFRASTRUCTURE

Kasiya's central location and proximity to Lilongwe, Malawi's capital, boasts enviable access to services and infrastructure. Further, significant investment into infrastructure that can support a multi-generational operation and can be used well beyond the modelled life of 25 years is planned.

9.1 Site Layout

The Project layout was determined by evaluating technical, environmental and social factors. The layout was developed around the mining schedule, TSF and the water storage dam, as these were the leading factors in deciding the location of the other various elements.

The major design objectives influencing the site location and arrangement were minimising environmental and social impact and keeping facilities as central and convenient to the mine pits as possible.

In the 2023 PFS, the process plant configurations and locations was as follows:

- First 12 Mtpa plant to be constructed in the South (South Plant 1)
- Second 12 Mtpa plant to be constructed in the South from Year 5 (South Plant 2)
- A third 12 Mtpa plant to be constructed in the North from Year 10
- South Plant 2 relocated to the North plant area as per LOM schedule to maintain 24 Mtpa ROM for the remainder of the project life

Moving the processing facility from the south to the north over the life of the mine was primarily driven by hydraulic mined ROM and tailings pumping costs. Analysis based on using dry mining methods with trucking ROM concludes that the optimal scenario is now:

- Initial 12Mtpa Plant to be constructed in the South (**South Plant**)
- Second 12Mtpa plant to be constructed in the North from Year 5 (**North Plant**)

This option has the lowest haulage costs in the early LOM due to the two plant locations allowing the targeting of closer pits to mine for more extended periods and being able to delay mining further pits that require more trucks for hauling later in the LOM.

The South Plant's location has been repositioned to around 3.5 km northwest of the 2023 PFS location. The new position is more favourable as it is more central to the surrounding future pit areas and less obtrusive to local communities. The rail line and siding will be positioned at the revised South Plant location.

9.2 Water

The Project is considered to have good water availability. Malawi features a humid subtropical climate, with generally dry and mild winters and the majority of rainfall occurring during the summer months of December to March. Temperatures are moderated by elevation and average 20.3°C with annual precipitation averaging 784mm. Average monthly rainfall peaks in January at 225mm with the minimum rainfall of near zero being encountered in June to September.

Process water to sustain the operation will be supplied from a purpose-built raw water dam. The dam will be built in a low-lying contour northwest of the processing plant. The greater project area features a catchment from which a reliable raw water supply can be sourced. A raw water dam will be constructed to guarantee a secure and consistent water supply for the project's operations. The dam will capture and store run-off during the wet season, storing sufficient water to sustain the operation during the dry season.

The introduction of dry mining methods, TSF mud farming, and tailings management, required a revised water requirement for the Project. Nyeleti Consulting and Artesium Consulting who were used in the PFS, were again approached in the OPFS to revise the water balance based on the tailings work outputs from Epoch and also taking into account the requirements of dry mining and any other sensitive parameters such as TSF pool size and return water for example.

The revised water balance model indicates the Project will have a significantly lower water demand of 10.2 Mm^3 per annum versus 16.7Mm^3 in the 2023 PFS. The effect on the raw water dam wall could be a reduction in volume from 0.79 Mm^3 to 0.57 Mm^3 and the dam wall height being reduced from 20 m to 17 m.

9.3 Power

During the OPFS, Malawi's state-owned power transmission and distribution company, Electricity Supply Corporation of Malawi ESCOM Limited (**ESCOM**) confirmed that it has significant projects underway to become a power exporter. Most notable are the following projects:

- A 400 kV interconnector from Mozambique to be commissioned in Q2 2025. This project is significant as ESCOM has signed for a 50 MW take-off, and a further 70 MW is available from this source should ESCOM require it.
- A 375 MW hydropower station called Mpatamanga to be commissioned in 2030.
- A total of 28 IPPs at various stages of development, all wanting to supply power to the Malawian grid.

Kasiya would therefore have access to the future national supply capability at the ESCOM tariff, which would result in a substantially lower cost compared to that of an Independent Power Producer (**IPP**) proposal as used in the 2023 PFS.

To connect the power system to the hydro-sourced grid network, a 132kV overhead power line is required to be installed and connected to the Nkhoma substation located 97km from Kasiya. Nkhoma is considered the most suitable substation based on a reliable power supply, technical design, and environmental and social impact. This powerline will feed the 132/33kV Kasiya bulk intake substation.

Figure 19: Nkhoma substation has capacity for connection to the Kasiya operation (Source: Millenium Challenge Corporation, USA)

It is also proposed that a 30 MW generator farm be built in the initial phase of the Kasiya Project to ensure an alternative power source. The intention is to de-risk the project by guaranteeing power availability so that the mine always has operating capability.

9.4 Human Resources

The project's proximity to Lilongwe offers several benefits, including access to a large pool of professionals and skilled tradespeople. Malawian national employees will be employed predominantly from the Kasiya area and the capital city of Lilongwe.

During construction, Kasiya will employ a total of 995 workers, the majority of whom will be employed in plant operations.

During steady-state operations, Kasiya will employ nearly 1,100 people, the majority of whom will be employed in plant operations. Expatriates make up approximately 5% of the planned workforce. Similar projects in Africa typically witness a flow-on effect for employment in local communities. For every person employed directly in the project, a significant multiplier of people will be employed in indirect jobs supporting the project.

Sovereign has structured training and skills transfer programs covering on-the-job training for full-time employees, as well as programs for local graduates and interns. The programs focus on building skills capacity in the surrounding community.

The Company currently has 80 full time employees and is an equal opportunity employer with a gender diverse workforce. Currently, 30% of Sovereign's professional Malawian staff and at least 50% of our regular interns are female.

Figure 20: Sovereign's female team members at the Company's laboratory facility in Lilongwe, Malawi

10.0 TRANSPORT & LOGISTICS

10.1 Existing Rail Infrastructure

Kasiya benefits from two options for transporting its rutile and graphite products from the mine operations to seaports, being the Nacala Rail Corridor (**NLC**) and the Sena Rail Line to the Port of Beira (**Beira Corridor**).

The NLC offers the preferred logistics route to the deep-water Indian Ocean port of Nacala to export to global markets. This established and operation-ready logistics infrastructure provides significant capital and operating cost savings to Kasiya. To access the NLC, Sovereign plans to construct a 6km rail spur to connect directly with the plant, increasing efficiencies in handling inbound and outbound freight compared to any road alternative.

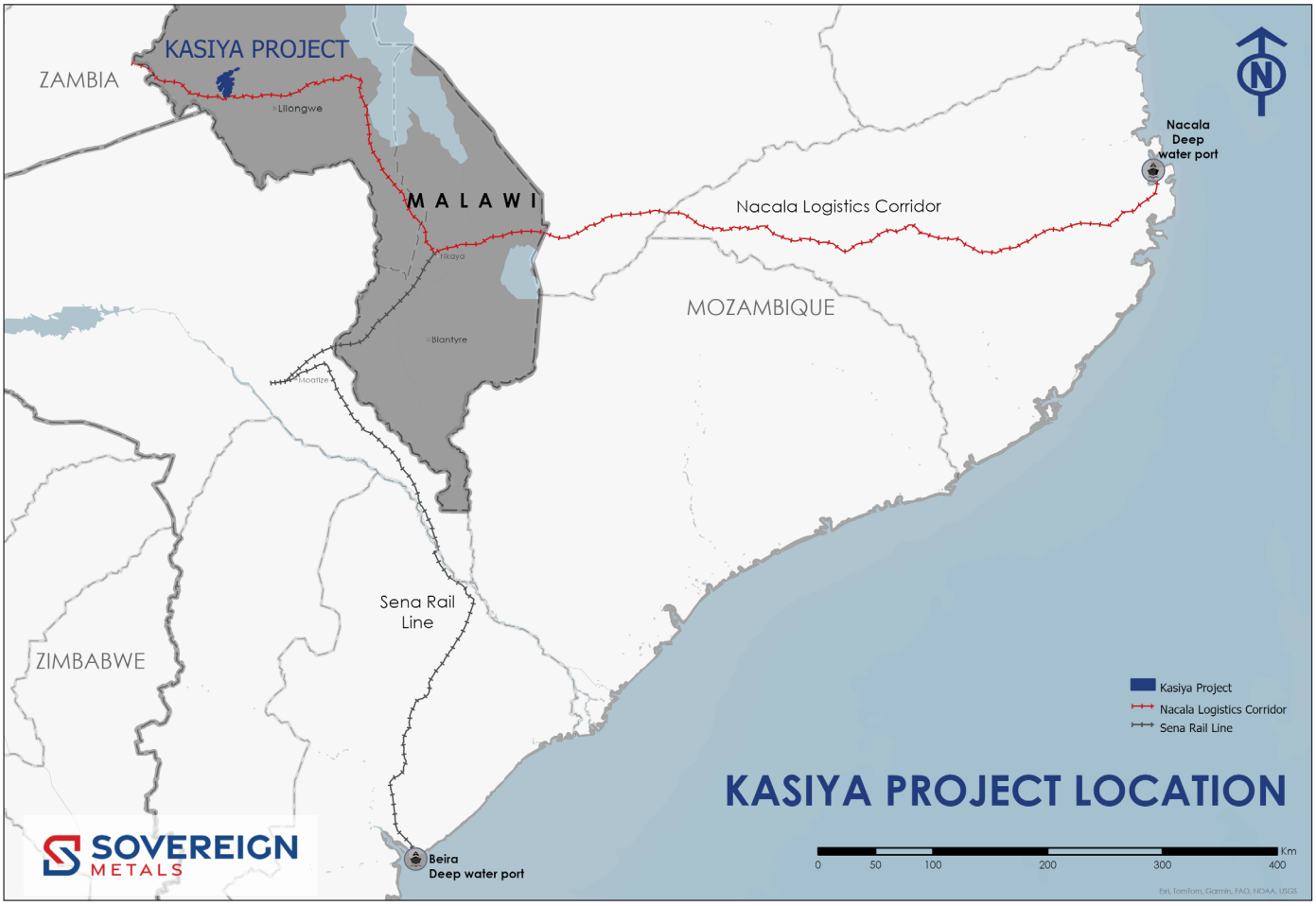


Figure 21: The Kasiya Project area showing rail and port infrastructure for product export to global markets

Sovereign appointed independent African logistic consultants Thelo DB and Grindrod to assess the options for exporting Kasiya's natural rutile and graphite products to global markets for the PFS. Thelo and Grindrod confirmed that the preferred logistics routes to global markets are via the NLC rail and the deep-water port of Nacala.

The cost for transporting from Kasiya, storing, customs and port fees for both natural rutile and graphite products was estimated to be US$108 per tonne, an increase from US$98 per tonne in the 2023 PFS due to inflation.

Figure 22: Nacala Logistics' train transporting coal on the NLC

10.2 Port Infrastructure & Handling

Products will be transported from Kasiya to Nacala Port where they are stored at a "back of port" facility. The products are then prepared for shipment and transported to the side of port for ship loading. Sovereign engaged Grindrod Logistics an experienced freight handler and current operator at the Nacala Port to provide a solution for the PFS.

Figure 23: Grindrod's back of port facility at Nacala Port

Figure 24: Port of Nacala, Mozambique

10.3 Existing Secondary Route

The Beira Corridor, comprised of the Sena Rail Line and the Port of Beira, provides Sovereign with a second route to export markets and is currently undergoing its own upgrade works.

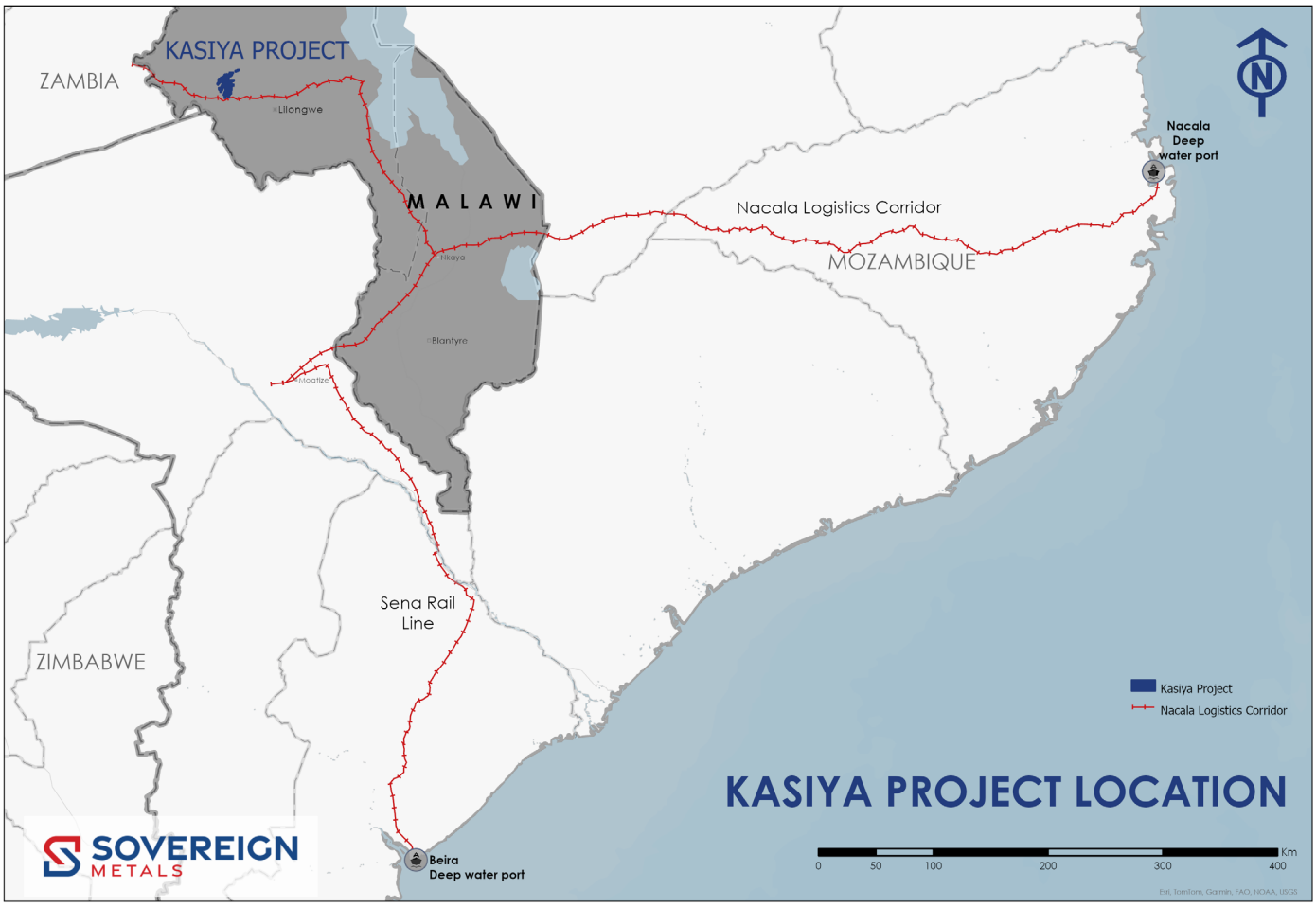


Figure 25: Kasiya has two routes to market

In 2023, the Beira Development Corridor Agreement was approved, to connect the Democratic Republic of Congo, Zambia, Zimbabwe, and Malawi to the Mozambican Port of Beira through road and rail networks. As Mozambique's second largest port, the Port of Beira is a significant driver of the region's economy and an important gateway for global trade, handling a wide variety of containerised and bulk cargo. The Beira Development Corridor Agreement project aims to eliminate logistical bottlenecks for international and intra-African trade. The African Development Bank is a major financier of the project.

Figure 26: Port of Beira, Mozambique (Source: Cornelder de Moçambique)

11.0 ENVIRONMENTAL AND SOCIAL IMPACT

Sovereign remains committed to maintaining its rigorous Environmental, Social and Governance (**ESG**) principles and standards. This includes meeting Malawian legal standards as well as international good practice standards (as defined by the International Finance Corporation (**IFC**) performance standards).

Sovereign ensured that environmental and social considerations were fully integrated into the OPFS and planning of the Kasiya Project. This was supported through a series of environmental and social studies to allow for sensitivity mapping.

Sovereign has incorporated several ESG aspects into the OPFS, including substantial advancements in key areas below.

11.1 Environmental and Social Impact Assessment

Sovereign commenced an Environmental and Social Impact Assessment (**ESIA**) of the Kasiya Project in March 2024. The Scoping Phase has recently been concluded following engagement with over 10,000 stakeholders ranging from the Government of Malawi to communities neighbouring the Project.

Summary of the stakeholder database:	
Total number of registered stakeholders :	1,373
Male	1,154
Female	219
Total number of community members :	8,839
Male	5,177
Female	3,662

Government (National, Regional and District)	187
Traditional Authority	6
Community Representatives (GVHs, VDCs, ADCs etc)	990
Vulnerable Groups	32
Civil Society and Nongovernmental Organisation	94
Faith Based Organisation	13
Commerce and Industry	11
Media	56
Other	16

Figures 27 and 28: Stakeholder meetings during the ESIA scoping phase

Broad public support for the Project is largely founded on its ability to support the national fiscus and stabilise Malawi's foreign exchange concerns, which is deeply rooted in the national consciousness. Stakeholders also showed interested in understanding the evolving Project design,Project social and environmental impacts, and the economic benefits of the Project in relation to employment, business development and government royalties.

As part of the ESIA, Sovereign has commenced a suite of specialist biophysical, ecology and social studies. This work will be undertaken in the first quarter of 2025.

11.2 Biodiversity Stewardship

Sovereign has undertaken terrestrial flora and fauna, wetlands and aquatic ecology studies to inform the Company's biodiversity stewardship. The Project is in an area of extensive small-scale farming and settlement development which has resulted in much of the local natural environment being lost, with a severe lack of biomass to support natural habitats or local communities.

The only ecological sensitive areas are isolated remnants of the local Miombo Woodland and the riverine and valley bottom systems (locally called Dambos). The size of the Kasiya mineral resource has allowed the Company to avoid these areas.

11.3 Water Resources

Sovereign currently has a permanent water quality monitoring network comprised of 50 groundwater points and 20 surface-water points throughout the Kasiya Project area.

The Company undertakes quarterly samples at all 70 sites to better understand the existing water quality and determine whether there are any substantive changes through the wet and dry seasons. Over the last three years of monitoring, the Company has observed remarkable consistency in water quality. Both surface and groundwater are of good quality and within both the World Health Organisation (**WHO**) and Malawi guidelines for drinking water. The baseline indicates slightly elevated levels of aluminium, iron and manganese, which are part of the natural background levels.

These promising results show that the wider surface and groundwater systems still provide good quality water to local ecosystems and local communities, even though much of the region has been converted into subsistence farming and local wetland systems have been moderately degraded.

11.4 Land, Soil Remediation, Rehabilitation and Closure Planning

Sovereign is committed to ensuring that all mined-out land is appropriately rehabilitated to support sustainable farming practices after closure. The Company has adopted agronomist principles and practices to revitalise local soils. Sovereign will return a good mix of soils as part of the backfilling, as well as introduce carbon and soil nutrients through organic and inorganic inputs.

Sovereign will also plant climate-friendly bamboo intercropped with maize and other food crops. In unison, we will be able to introduce carbon, stabilize soils, and import soil activity, while ensuring that food crops can be grown.

Sovereign is currently undertaking live rehabilitation trials on a 10-hectare site. On this site we are testing different soil configurations, as well as differing types of organic and inorganic inputs. Finally, we are working closely with local communities to plant bamboo and various food crops. This will allow them and Sovereign to learn together which rehabilitation approach is best.

The rehabilitation approach is linked with the closure goal of handing the rehabilitated land back to the local landowners so they may continue to undertake farming.

The proposed soil remediation methods aim to revitalise the soils within a short period of time (two to three years) as well as ensure that the soils can be sustainably farmed in the long term. By remediating the soils 1m from the surface to a minimum depth of 1m, the land can support small-scale, quasi-commercial and full-commercial farming operations.

Figure 29: Introduction of lime at the backfilled test pit

Figure 30: Farming equipment incorporating lime, biochar and fertiliser into the previously mined soil

11.5 Climate Profile

Kasiya has the potential to provide two products with very favourable low greenhouse gas emissions advantages. Previous Benchmark Life Cycle Assessment (**LCA**) studies for natural rutile and natural graphite produced from Kasiya indicated the potential for a substantially reduced carbon footprint compared to other titanium feedstocks and natural graphite products in the market.

Natural rutile (~95% TiO_2) is the cleanest, purest natural mineral form of TiO_2 with the other major source being ilmenite (~50% TiO_2). The genuine scarcity of natural rutile prompted the titanium industry to develop upgraded titanium feedstock products from ilmenite that can be used as substitutes for natural rutile (i.e. synthetic rutile and titania slag).

Two energy and carbon intensive processes are used by major market participants to produce the upgraded synthetic rutile and titania slag. Both methods use ilmenite (~$FeTiO_3$) as the raw feedstock and are essentially processes for the removal of iron oxide. The downstream pigment production process relies heavily on the use of these upgraded titanium feedstocks, each having an associated substantial environmental impact.

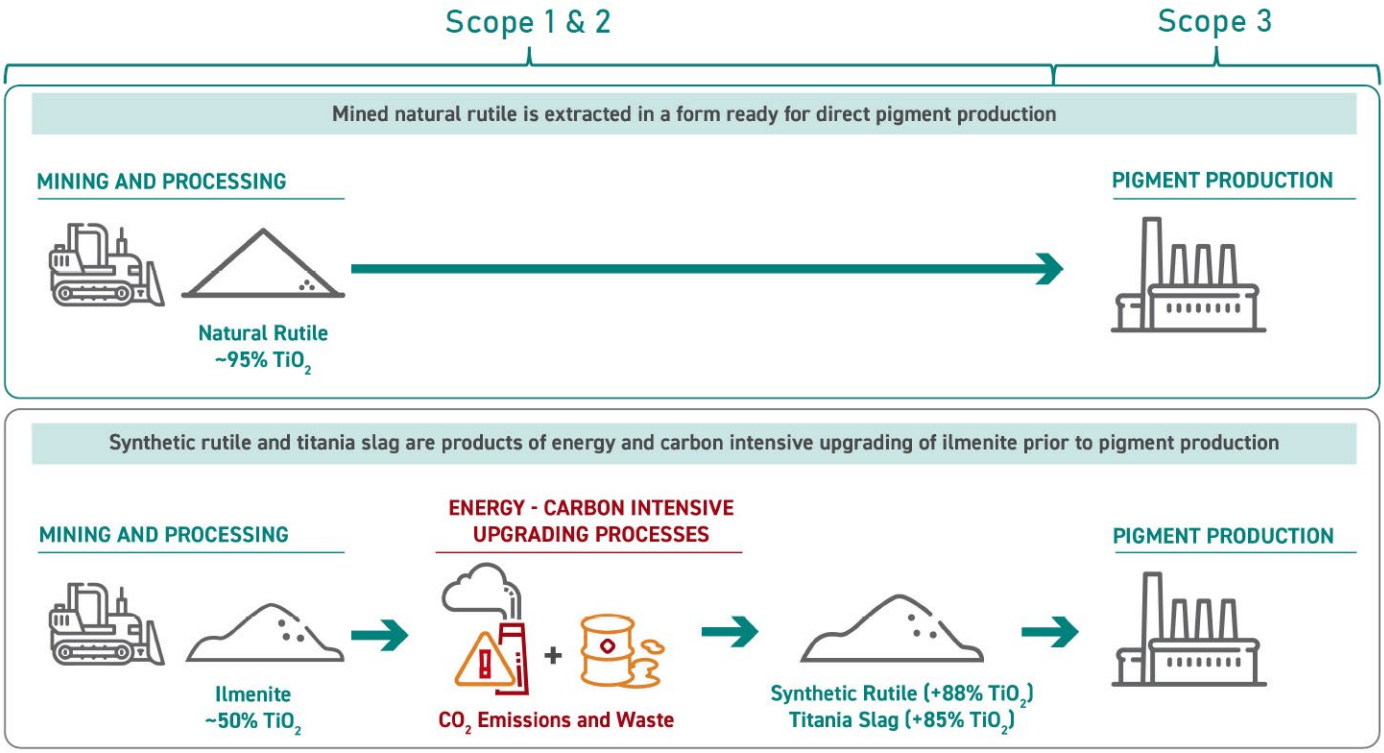


Figure 31: Natural rutile versus synthetic rutile and titania slag flowchart

Sovereign takes pride in its low climate impact.

Based on LCA work conducted in 2022 and 2023, the Project was estimated to generate 0.2 CO_2 equivalent / tonne of Titanium Dioxide feedstock, which would result in a carbon footprint 97% lower when compared to the same feedstock produced from Ilmenite. The Project therefore has the potential to play a critical role in decarbonising Titanium-based supply chains. The Company plans to update LCA work based on the OPFS.

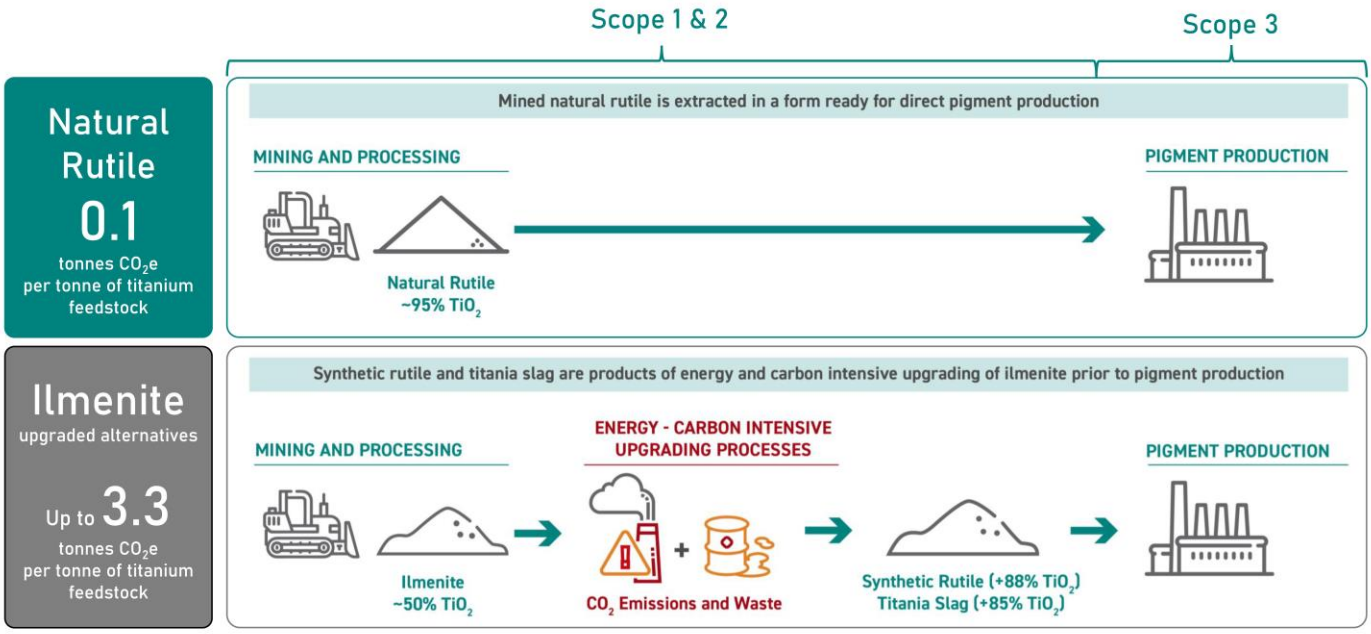


Figure 32: Natural rutile versus synthetic rutile and titania slag flowchart (Source: Minviro Ltd)

Sovereign plans to reduce our carbon footprint even further. As part of the land and soil rehabiltiation approach we plan on planting giant bamboo which has the potential to act as a significant carbon sink. Early indicators suggest we will be able to sequestor up to 40-50 tonnes of CO_2 per annum per hectare of land under bamboo.

11.6 Social Responsibility

Sovereign is committed to minimising and mitigating any potential negative impacts, enhancing its positive impacts and meaningfully engaging its stakeholders. Sovereign has adopted a Social Responsibility Framework (**SRF**) which functions as the social safeguard under which the Company will develop the Project from early planning, into construction, through operations and finally in mine closure and land rehabilitation. The framework is comprised of key Investment Areas to be developed and managed under the Project Environmental and Social Management System (**ESMS**). Through the optimisation of its PFS, Sovereign has continued to demonstrate its commitment to being a socially responsible business.

The social performance team was significantly expanded, growing from 8 to 23 full-time staff, supported by 90 volunteers and 20 enumerators. This increased capacity enabled extensive engagement with approximately 45,000 individuals during the OPFS phase. Advanced data management systems, including ESRI Survey123 and ArcGIS Online, were deployed to monitor and report on stakeholder engagement, grievances, and socio-economic conditions. A grievance mechanism aligned with IFC standards resolved 46 of 49 grievances, further reinforcing trust and transparency with stakeholders.

To address potential project-induced in-migration, Sovereign collaborated with the Government of Malawi to gazette a Special Planning Area (**SPA**). This initiative establishes land-use controls to prevent uncontrolled settlement and guide development in the Project area. The SPA is supported by cadastral surveys, satellite monitoring, and capacity building to support monitoring and implementation.

Sovereign has also successfully piloted a conservation farming program, demonstrating a 306% increase in yields compared to conventional methods.

Cultural heritage preservation has also been prioritised. A Cultural Heritage Management Plan (**CHMP**) will be developed during the DFS, ensuring continued respect for local traditions.

Community development activities during the OPFS included the repair of 54 boreholes, sponsorship of 24 secondary school students (leading to a 10% improvement in grades), and the establishment of science clubs and an annual science fair. These initiatives underline Sovereign's commitment to delivering tangible benefits to local communities. Community development contributions will adhere to the mandated 0.45% of annual gross sales revenue, with formal agreements to be finalised prior to a Final Investment Decision.

Sovereign is committed to maximising local employment. Vocational scholarships will commence in 2025 and plans for local recruitment and procurement will be developed during the DFS. Gender equality remains a priority, with women comprising 25% of the workforce and 50% of participants in the conservation farming program. Human rights remain central to Sovereign's social performance work. A human rights risk assessment and management plan will also be developed during the DFS to ensure inclusive and equitable outcomes.

As part of its closure strategy, Sovereign aims to restore mined land to productive use, transforming the area into a surplus agricultural producer.

These optimisation achievements reflect Sovereign's dedication to balancing economic opportunity with social responsibility, setting a strong foundation for sustainable development and long-term community benefits at the Kasiya Rutile Project.

Figure 33: Planted field using traditional techniques (left) and field farmed under Sovereign's Conservation Farming Program showing substantially more crop growth (right)

12.0 RUTILE MARKET

Natural rutile is the purest, highest-grade natural form of titanium dioxide (**TiO_2**) and is the preferred technical feedstock in manufacturing titanium pigment and producing titanium metal.

Natural rutile's high purity (95%+ TiO_2) classifies it as a high-grade titanium feedstock. Natural rutile is a genuinely scarce commodity with no other large rutile-dominant deposits having been discovered in the last half century. The titanium industry has therefore had to rely on lower-purity substitutes derived from the titanium-bearing mineral ilmenite (30-60% TiO_2) through high energy and carbon intensive manufacturing processes.

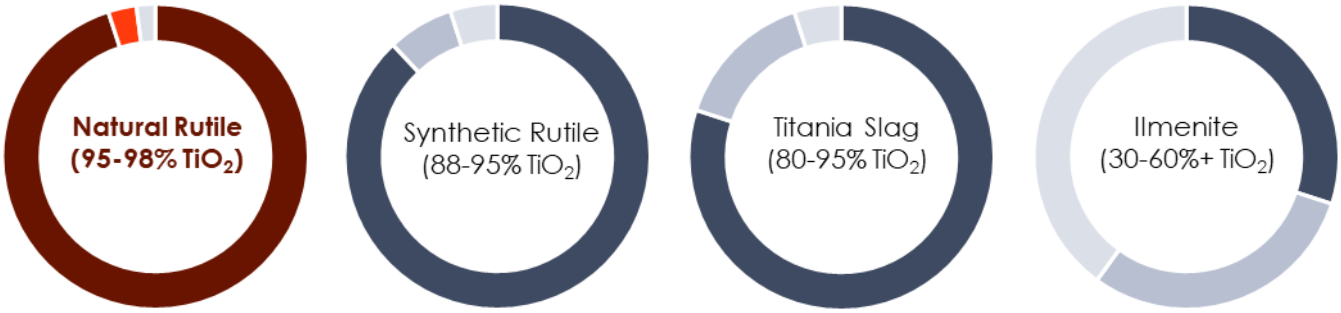


Figure 34: Titanium dioxide content in different titanium feedstocks (Sources: Rio Tinto, Iluka Resources Limited)

Global rutile supply is projected to decline sharply beyond 2024 following the scheduled closures of Base Resource's Kwale and Sierra Rutile's Area 1 mines. Limited new deposits are forecast to come online, resulting in the supply of natural rutile being likely to remain in structural deficit for the long term, even with Kasiya at full production.

According to leading titanium consultants TZ Minerals International Pty Ltd (**TZMI**), 2024 natural rutile supply was forecast to be ~480kt versus an overall titanium feedstock demand of over 9Mt. By 2030, annual titanium feedstock demand is expected to be over 10Mt while rutile supply is expected to fall by a third. By 2033, rutile supply is expected to decrease by almost 50%.

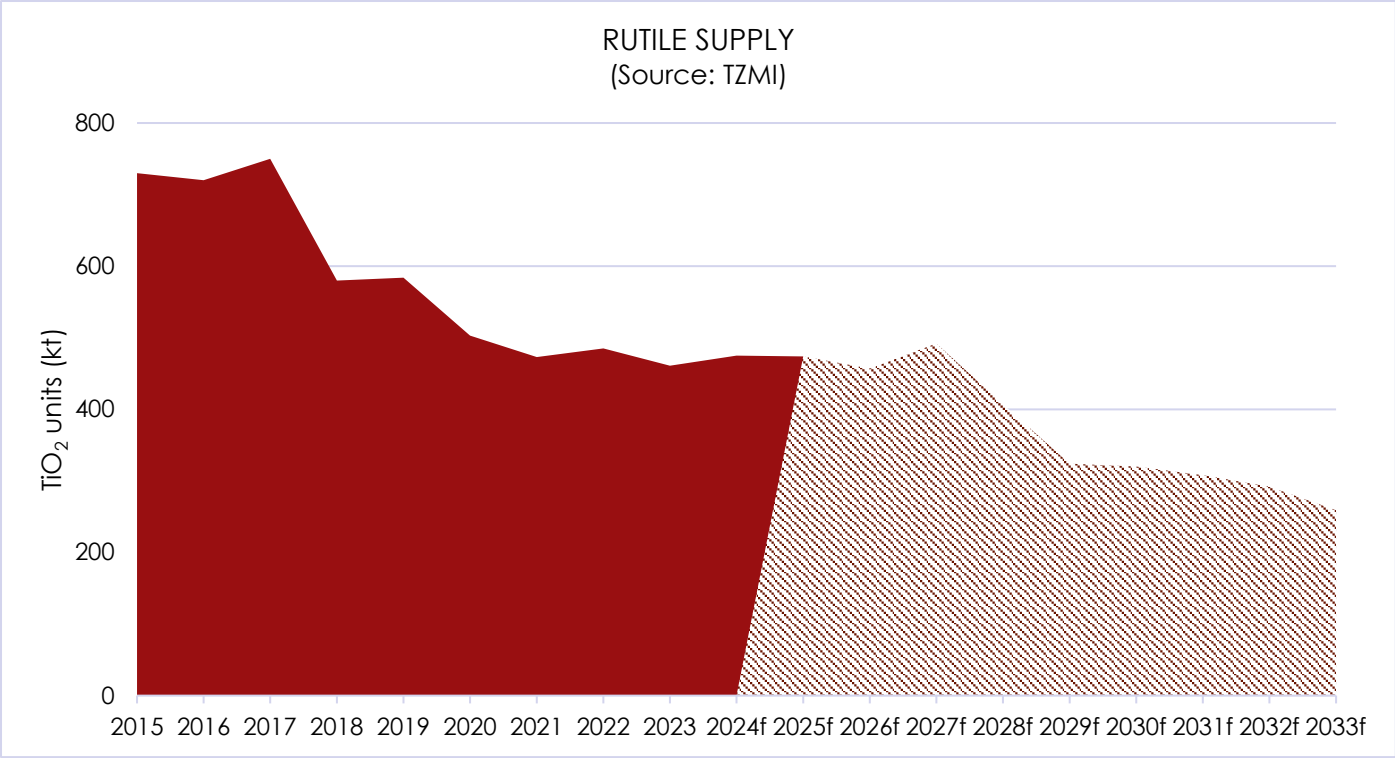


Figure 35: Actual and forecast global rutile supply (Source: TZMI)

The rutile market fundamentals continue to be robust with current and forecast pricing remaining strong and demand for titanium feedstocks continuing to rise.

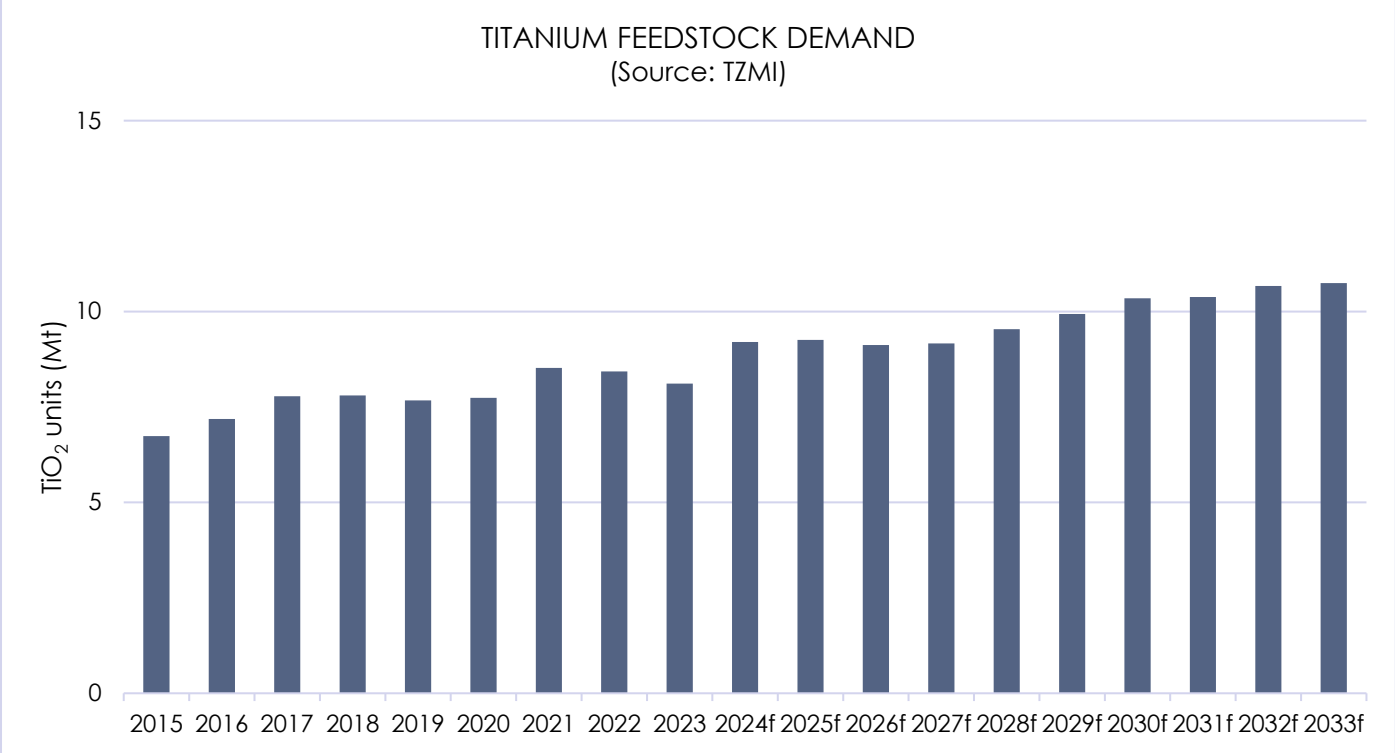


Figure 36: Titanium feedstock demand (Source: TZMI)

12.1 Rutile Pricing

The natural rutile market can be divided into two discrete sectors;

- Bulk rutile mostly sold on contract to chloride pigment and titanium sponge (metal) producers (**Standard Grade Rutile** (**SGR**))
- Bagged rutile sold to welding and other industrial sectors (**Industrial Grade Rutile** (**IGR**))

IGR often achieves a 25%+ price premium to SGR pricing.

The rutile pricing scheme applied for the OPFS assumed the product mix between SGR and IGR to be:

- 50% SGR and 50% IGR for Stage 1 (12Mtpa throughput); and
- 70% SGR and 30% IGR for Stage 1 (24Mtpa throughput).

The rutile price adopted in the OPFS is unchanged from the 2023 PFS rutile price which was based on TZMI's real 2023 price forecast and confirmed by TZMI as part of the OPFS. Using the above product mix, the LOM average "realised" price for rutile was US$1,490 per tonne FOB, Nacala.

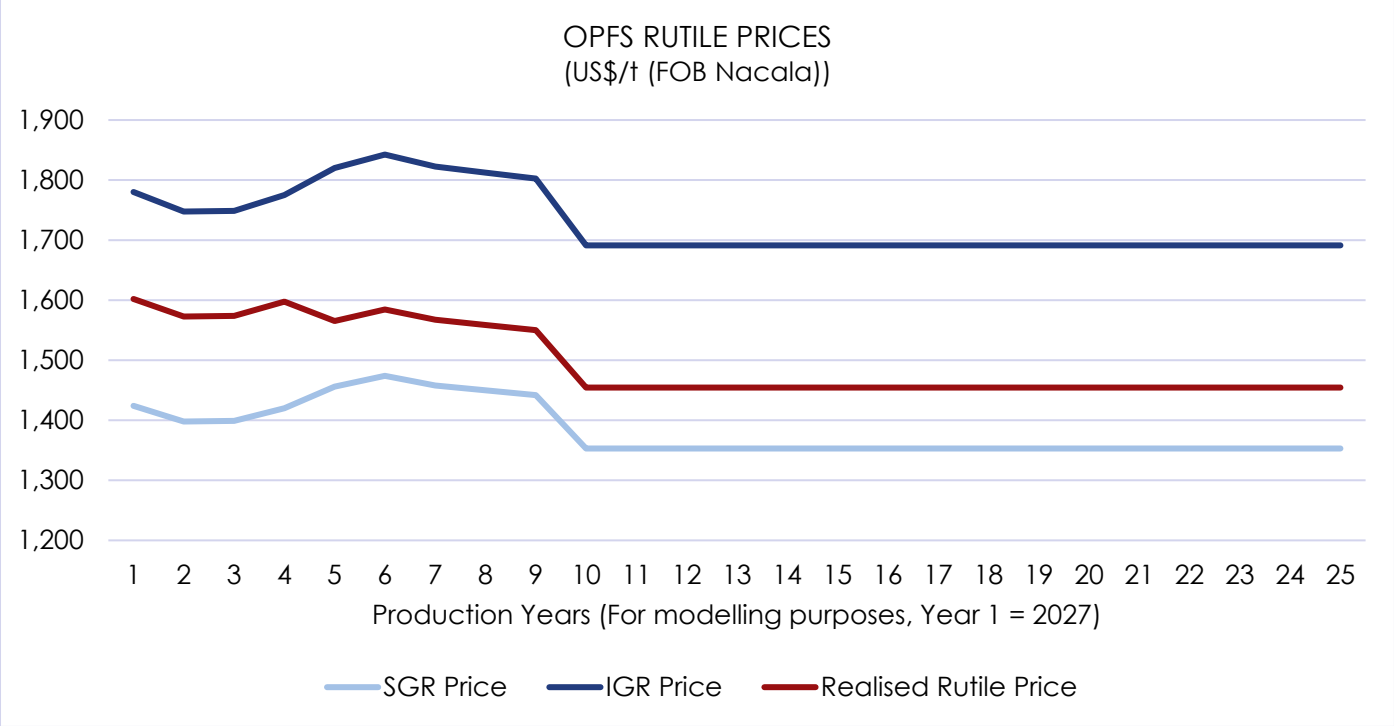


Figure 37: Realised rutile price in OPFS (Source: TZMI)

12.2 Marketing Strategy

The Company engaged TZMI to provide a bespoke marketing report to support the PFS and engaged them again for the OPFS to update the rutile price. TZMI is a global, independent consulting and publishing company which specialises in technical, strategic and commercial analyses of the opaque (non-terminal market) mineral, chemical and metal sectors.

TZMI's assessment has confirmed that, based upon their view on global demand and supply forecasts for natural rutile, and with reference to the specific attributes of Kasiya, there is a reasonable expectation that the product can be placed into existing and future rutile markets.

Since July 2023, leading global mining company, Rio Tinto has made an investment in Sovereign for A$60 million resulting in an 19.9% shareholding in the Company.

Rio Tinto is a global leader in titanium feedstock production and is set to produce 1.0 to 1.2 Mt of TiO_2 products in 2025 according to company guidance, giving it a 14% market share.

Under an Investment Agreement signed with Rio Tinto, Rio Tinto will provide assistance and advice on technical and marketing aspects of Kasiya. Also, included under the Investment Agreement, Rio Tinto has the option to become the operator of Kasiya on commercial arm's-length terms.

In the event, Rio Tinto elects to become the operator of Kasiya, and for so long as Rio Tinto remain the operator, Rio Tinto shall have exclusive marketing rights to 40% of the annual production of all products from the Project as identified in the DFS on arm's-length terms.

Rio Tinto's option over operatorship and 40% marketing rights lapse if not exercised by the earlier of (i) 90 days after the Company announces its DFS results or 180 days after the announcement of the DFS if Rio Tinto's advises it needs additional time to consider the exercise of its option to become operator or (ii) Rio Tinto ceasing to hold voting power in the Company of at least 10%.

Prior to entering into its transaction with Rio Tinto, the Company had been able to enter into the following Memorandums of Understanding (MoU) (non-binding) for annual rutile sales:

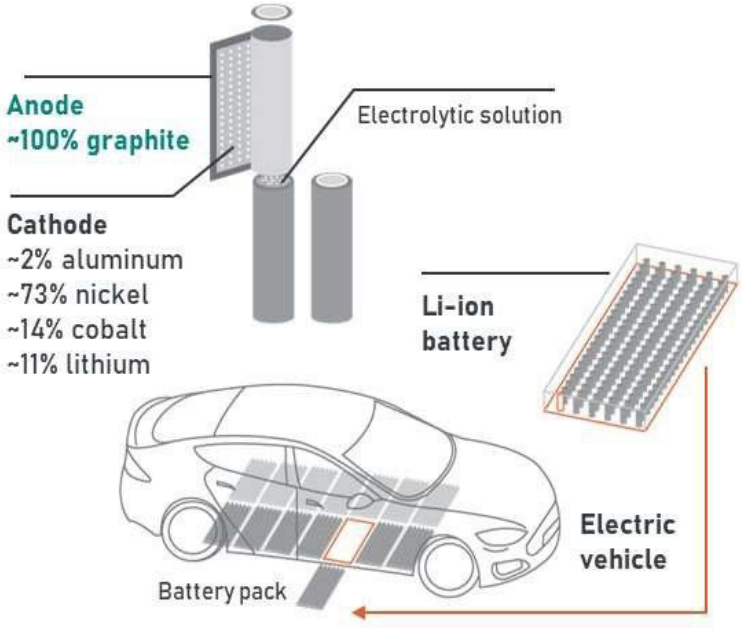
Mitsui & Co	Global trading and investment company	30,000 tonnes
Chemours	One of the world's largest producers of high-quality titanium dioxide	20,000 tonnes
Hascor	Global processor and distributor of rutile for the welding industry	25,000 tonnes

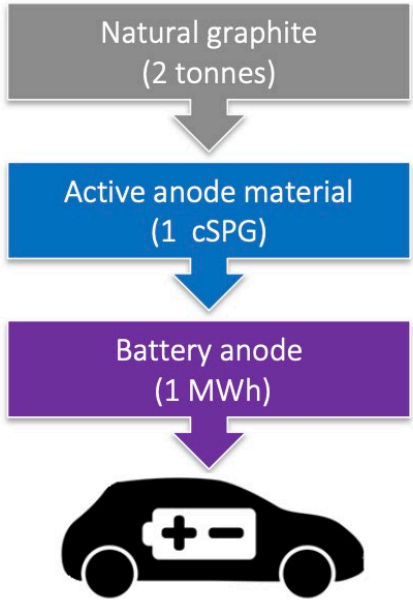
Based on product quality assessments performed by offtakers and customers, Kasiya's natural rutile has premium chemical parameters and is suitable for all major end-use markets including welding, pigment feedstock and titanium metal.

13.0 GRAPHITE MARKET

Graphite plays a vital role across many industries, but its demand is accelerating most notably in the battery sector. In 2023 global graphite consumption totalled 4 million tonnes, with batteries accounting for 33% of the market. By 2034, overall demand is expected to more than double to 9.1 million tonnes, driven by the battery sector's expanding share, which is forecast to rise to 67%.

Natural graphite undergoes a three-stage transformation process for use in the battery industry. This includes spheronisation, purification, and coating. The result is coated spherical purified graphite (**CSPG**), the key material for active anode material (**AAM**) in lithium-ion batteries. As the global transition to clean energy intensifies, this value-added product is poised to become an essential component in the growing battery supply chain.





Figures 38 and 39: Graphite can account for up to 50% of the composition of a lithium-ion battery used in an EV (Source: Fastmarkets)

Forecasts for electric vehicle (**EV**) adoption vary across commentators but consistently indicate double-digit growth rates over the next 10 to 20 years. This growth is driven by global efforts to reduce transportation emissions, advancements in battery technology, and increasing government policies supporting EV adoption. This trend underscores the importance of materials like graphite, which play a key role in EV battery production.

Looking further ahead, per Tesla Inc.'s (**Tesla**) Master Plan 3, which details a pathway to global battery deployment, the biggest mining and refining investments required by Tesla's plan are for lithium and graphite. The Tesla Master Plan 3 highlights US$104 billion of new investment in graphite mining would be required to reach the goal of 10.5Mt of graphite per year (source: Tesla Master Plan 3 (April 2023)).

China currently dominates the natural graphite supply; however, the development of new mines, particularly in East Africa, is expected to reduce China's market share to below 50% by 2028.

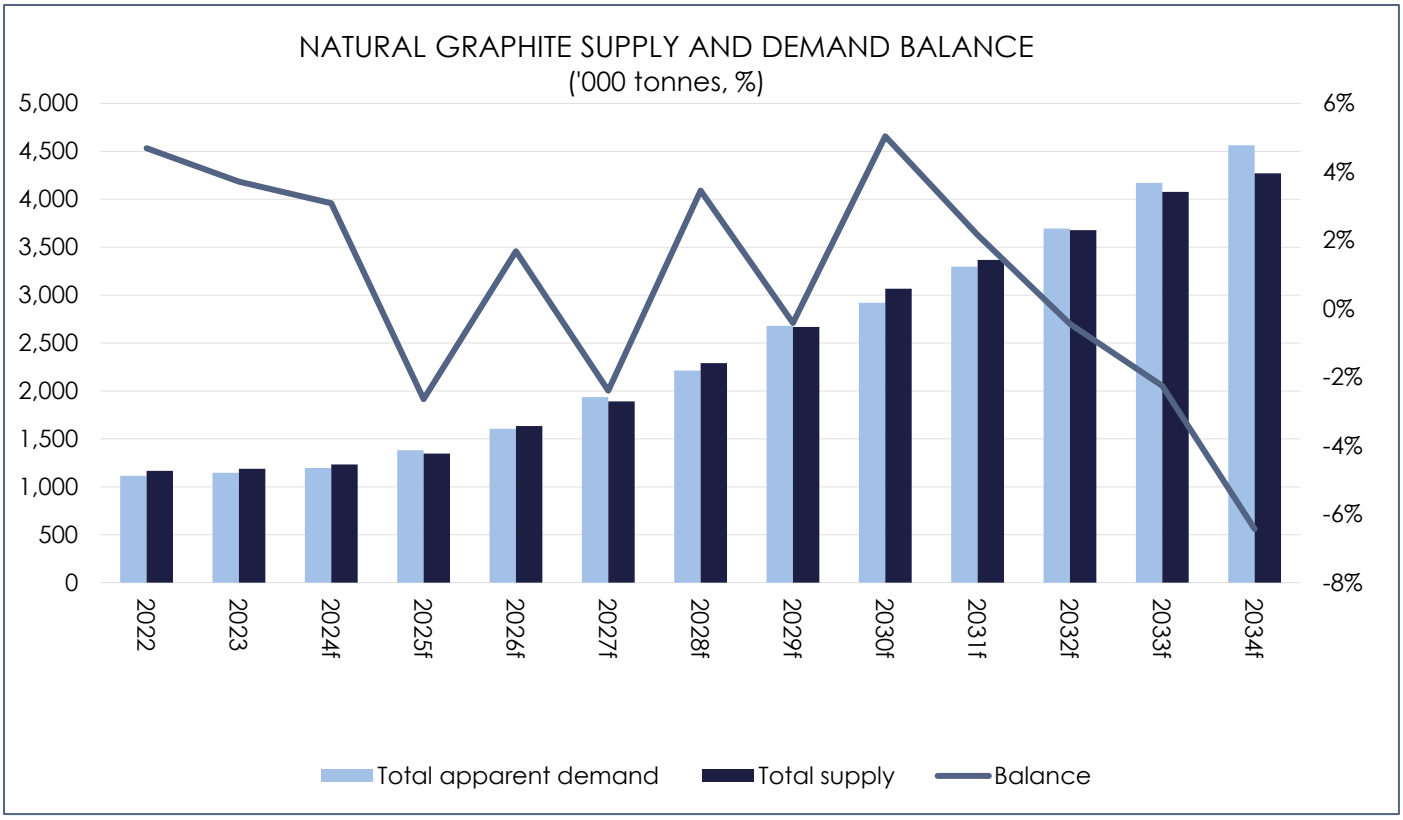


Figure 40: Natural graphite supply and demand balance (Source: Fastmarkets)

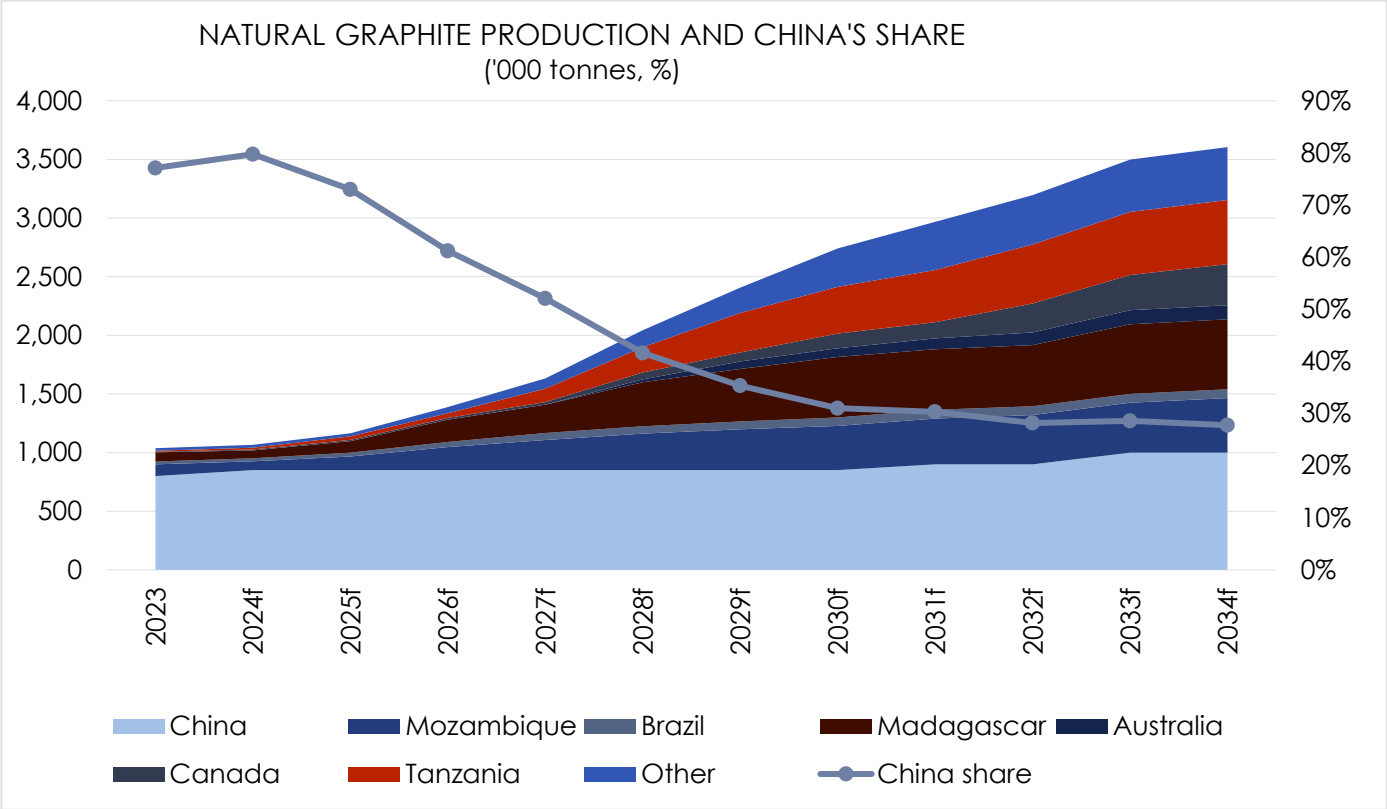


Figure 41: Natural graphite production and China's share ('000 tonnes) (Source: Fastmarkets)

Development of Graphite Mines

Graphite mines are being established worldwide, with a strong focus on East Africa and additional projects emerging in Australia and North America. Global natural graphite resources are estimated at 800 million tonnes, with 320 million tonnes identified as reserves. African mines are particularly appealing due to the larger graphite flake sizes, which are better suited to higher-value applications.

Natural vs. Synthetic Graphite in Anodes

Natural graphite competes with synthetic graphite in the anode market, with selection influenced by factors including price, availability, and performance properties. Synthetic graphite benefits from a stronger focus on performance metrics, while natural graphite gains favour in scenarios emphasising emissions reduction. Regional variations, such as regulatory, carbon emissions and pricing differences in China, Europe, and North America, are expected to shape the mix of anode materials.

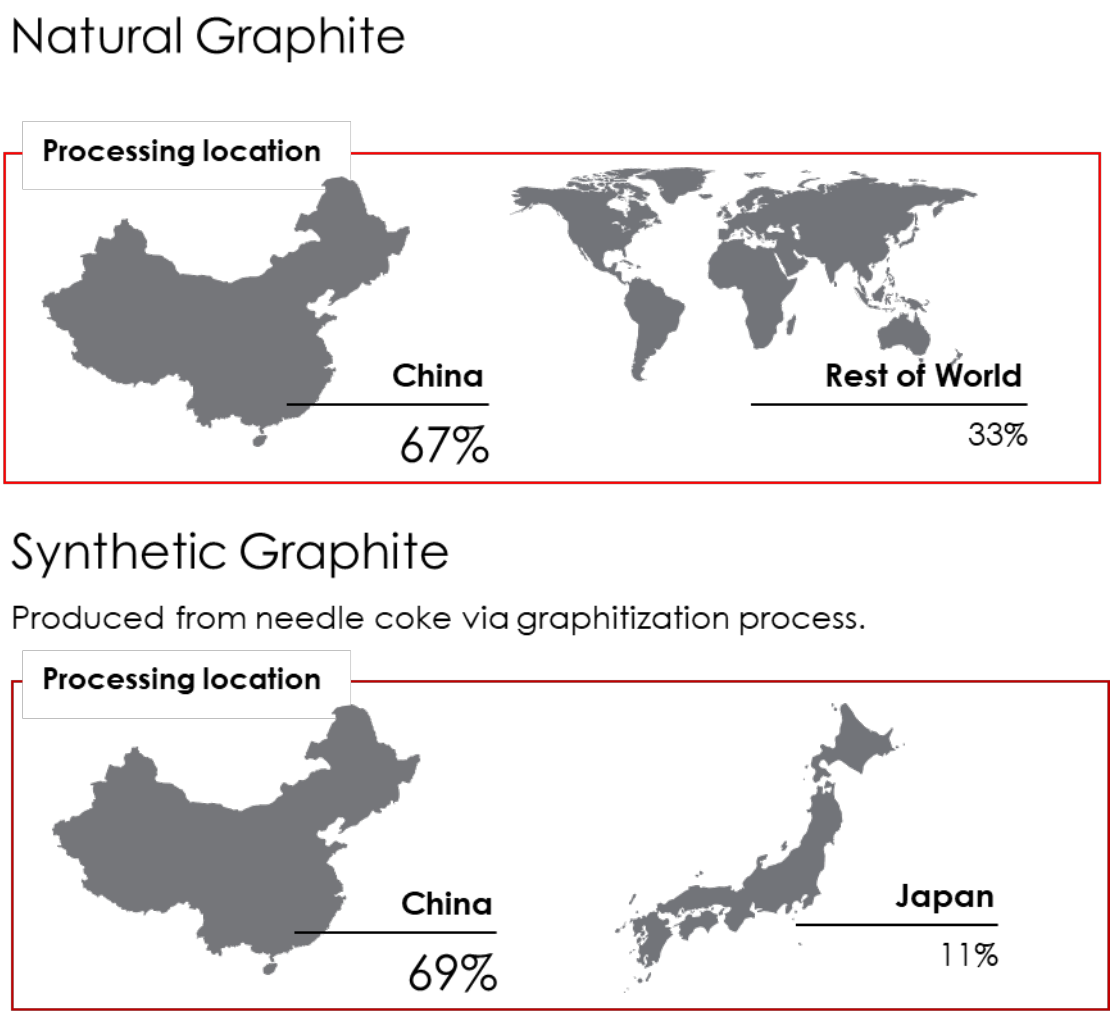


Figure 42: Supply of natural and synthetic graphite is dominated by China
(Source: Benchmark Mineral Intelligence)

13.1 Price Forecast

The Company has taken a deliberately conservative view on graphite pricing. The basket price used for the OPFS remains unchanged from the 2023 PFS, remaining at US$1,290/t (real) for the LOM.

For assurance, price forecasts for Kasiya's graphite basket were sourced from independent commodity price reporting agency Fastmarkets. The graphite price used in the OPFS is 30% lower than Fastmarkets' long-term price forecast of US$1,846.

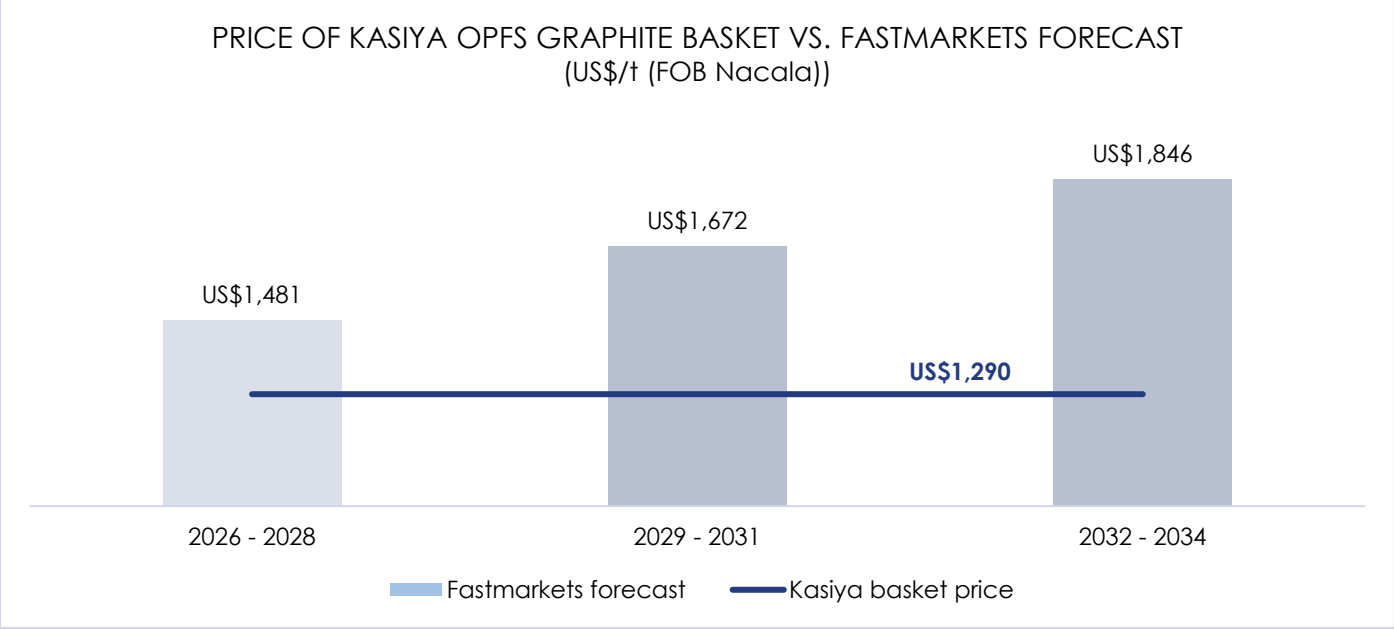


Figure 43: Kasiya PFS Graphite basket price versus Peer Average and Fastmarkets forecast long term prices

13.2 Marketing Strategy

Sovereign has built a strong understanding of the graphite market and developed a number of well-established relationships with potential offtakers.

A major component to graphite sales agreements is customer qualification, and this is a key reason for initiating the graphite bulk sample program and scaling up to commercial-scale spirals at the Lilongwe laboratory to continuously produce bulk sample over the coming quarters. The graphite produced from this program is being shared with prospective end-users and is an important next step for Sovereign to qualify the Kasiya graphite product.

Testwork conducted at the independent consultancy ProGraphite in Germany confirmed that results for CSPG produced from Kasiya's natural flake graphite exhibits performance characteristics comparable to those of leading Chinese natural graphite anode material manufacturers, including BTR New Material Group (BTR).

Kasiya's natural graphite offers a distinctive, cost-effective solution for developing lithium-ion battery supply chains outside of China.

- Electrochemical testing achieved exceptional first cycle efficiencies of 94.2% to 95.8%, ensuring long battery life.

- Outstanding initial discharge capacities exceeding 360 mAh/g meet the standards required for top-tier natural graphite anode materials.
- Low specific surface areas (BET ≤ 2.0 m^2/g) reduce lithium loss during the first charge cycle.
- Tap densities of 1.11 to 1.18 g/cm^3 enable superior electrical storage.
- The anode material results stem from the distinctive geological characteristics of Kasiya's highly weathered orebody compared to traditional rock-hosted graphite deposits. Key benefits include:
- High natural flake purity,
- Near-perfect crystallinity, and
- Extremely low levels of sulphur and other impurities.

Sovereign and Rio Tinto are working together to qualify Kasiya's graphite product with a particular focus on supplying the spherical purified graphite segment of the lithium-ion battery anode market. In 2021, Rio Tinto set up a battery materials business, including plans to set up a battery testing plant in Melbourne, Australia. In 2024, Rio Tinto announced the acquisition of Arcadium Lithium plc (**Arcadium**), stating that the transaction would "bring Arcadium's world-class, complementary lithium business into Rio Tinto's portfolio, establishing a leader in energy transition commodities".

Sovereign engaged Fastmarkets, a specialist international publisher and information provider for the global steel, non-ferrous and industrial minerals markets, to assess the marketability of Sovereign's graphite product.

Fastmarkets' assessment has confirmed that, based upon their high-level view on global demand and supply forecasts for natural flake graphite, and with reference to the specific attributes of Sovereign's graphite, there is a reasonable expectation that the product will be able to be sold into existing and future graphite markets. Given the extremely low-cost profile and high-quality product, it is expected that output from Kasiya will be able to fill new demand or displace existing lower quality / higher cost supply.

14.0 COST ESTIMATIONS

Kasiya's cost profile matches the envisaged long-life, large-scale operation with significant investment in key infrastructure to support a potential multi-generational project and flexibility to increase scale.

The Project leverages excellent existing infrastructure, including a hydropower grid and an extensive sealed road network. Kasiya is strategically located close to the capital city of Lilongwe, providing access to a skilled workforce and industrial services.

The existing quality logistics route to the Indian Ocean deep-water ports of Nacala and Beira for exporting products to global markets provides significant capital cost savings compared to many other undeveloped projects.

The Project has low estimated operating costs due to its size, grade, location, and existing infrastructure. The high-grade mineralisation occurring from surface results in no waste stripping and the amenability to simple dry mining methods means the mining cost component is relatively low.

14.1 Capital Costs (CAPEX)

Capital estimates for the process plant have been prepared by DRA Ltd and PCC, together with input from the various OPFS consultants. A large portion of the cost estimates were derived from supplier quotations, historical data, benchmarks and other independent sources. The capital cost estimate has an accuracy of -20% and +25% and compiles with a Class 3 Estimate as defined by the Association for the Advancement of Cost Engineering International (**AACEI**). A summary of the capital cost breakdown is presented below.

Table 7: Capital Cost Estimates

	Capex to 1st Production (Stage 1) US$m	Expansion Capex (Stage 2) US$m	Total Development Capex US$m
Mining	55	75	131
Processing	211	180	391
Infrastructure	139	65	204
Tailings	34	21	55
Mud Farming	13	20	33
Backfill	-	6	6
Indirect	121	34	155
Contingencies	91	61	152
Total	**665**	**462**	**1,127**

*Totals may not add due to rounding

Stage 1 capex to first production is the capital required to build and commission a 12Mtpa operation. Stage 2 capex is made up of capital required to sustain the 12 Mtpa operation (US$92m) and expand the operation to nameplate throughput of 24Mtpa from Year 5 of production

(US$370m). Sustaining Capex is US$397m over the 25-year LOM of which US$102m relates to mining sustaining capex and US$220m relates to materials handling.

14.2 Operating Costs (OPEX)

Operating costs have been built up using inputs including consumable costs, maintenance costs, electrical power costs, labour costs and other assumptions and inputs.

The following operating costs were estimated:

- **Mining**
  - Mining
  - ROM transfer
- **Plant front end**
- **Processing plant**
  - Water supply
  - Graphite transfer
- **Tailings treatment**
  - Tailings transport to TSF
  - Tailings transport to pits
  - Tailings transport – Plant to plant (north to south)
  - TSF
  - Backfill
- **Other**
  - Rehabilitation
  - General and administration (G&A)
  - Product transport

Table 8: Operating Cost Estimates

	US$/t Product
Mining	84
Materials Handling	59
Processing	143
General & Administration	28
OPEX Mine Gate	**314**
Logistics	109
OPEX FOB Nacala	**423**
Mineral Royalties & Regulatory Fees	70
Total Operating Costs	**493**

15.0 FINANCIAL & ECONOMIC ANALYSIS

15.1 Modelling Assumptions

A detailed project economic model was built and prepared by independent advisors, Practara, as part of the OPFS. The economics include the following key modelling assumptions.

- Rutile and graphite prices are as detailed in this announcement and remain unchanged from the 2023 PFS
    - Average realised rutile price of US$1,490/t FOB Nacala (real, 2024)
    - Average graphite basket price of US$1,290/t FOB Nacala (real, 2024)
- Capital and operating costs are in accordance with the OPFS outcomes
- Project is owner-operated with leased equipment
- Stage 1 (Capex to 1st Production) construction period is 30 months prior to first production.
- Stage 2 (Expansion Capital) construction begins immediately following first production and split:
    - US$92m capital costs in first two years of production
    - US$370m capital costs over Years 5 and 6 of production
- Stage 1 ramp up assumes 77.5% of 12Mtpa throughput capacity in Year 1 of production before achieving nameplate production at the start of Year 2
- Stage 2 ramp up assumes 66.6% of 24Mtpa throughput capacity in Year 5 of production before achieving full nameplate production at the start of Year 6
- Financial modelling was completed on a monthly and annual basis
- Malawi mineral royalty of 5% *ad valorem* (levied on the adjusted gross sale value of rutile and graphite)
- Community development fund royalty of 0.45%, levied on total revenue
- Vendor gross profit royalty of 2%

Tax Application

There is uncertainty in the tax law applicable to mining companies in Malawi. The 2023 PFS assumed a 30% corporate income tax rate and a resource rent tax (**RRT**) equating to 15% of post-tax profits.

In 2024, mining companies Lotus Resources Limited (**Lotus**) and Mkango Resources Limited (**Mkango**) entered into fiscal stability agreements known as Mine Development Agreements (**MDA**) with the Government of Malawi. In both the Lotus and Mkango MDA's, it was agreed that no RRT shall be payable until such time that the Government of Malawi completed a review of the relevant legislation.

As such, and until such time Sovereign has sight of what fiscal terms would apply to the Kasiya Project, results for the OPFS have been reported on a pre-tax basis only. A sensitivity analysis and inclusion of post-tax financial outcomes has been provided in the Modifying Factors below.

15.2 Key OPFS Economic Outcomes

TABLE 9: KEY OPFS OUTCOMES		
	Units	**OPFS Results**
NPV_8 (Pre-Tax)	*US$m*	**2,322**
NPV_{10} (Pre-Tax)	*US$m*	**1,704**
IRR (Pre-Tax)	*%*	**27%**
ROM Processed (LOM Total)	*Mt*	**538**
Total Rutile Produced	*Kt*	**5,547**
Total Graphite Produced	*Kt*	**6,281**
Operating Margin	*%(real)*	**64%**
EBITDA (Avg. Annual)	*US$m*	**409**
Free Cash Flow (Avg. Annual Pre-tax, Unlevered)*	*US$m*	**302**

*Includes free cash flows in development stage and excludes free cash flows from processing and sale of graphite for two years post-mining.

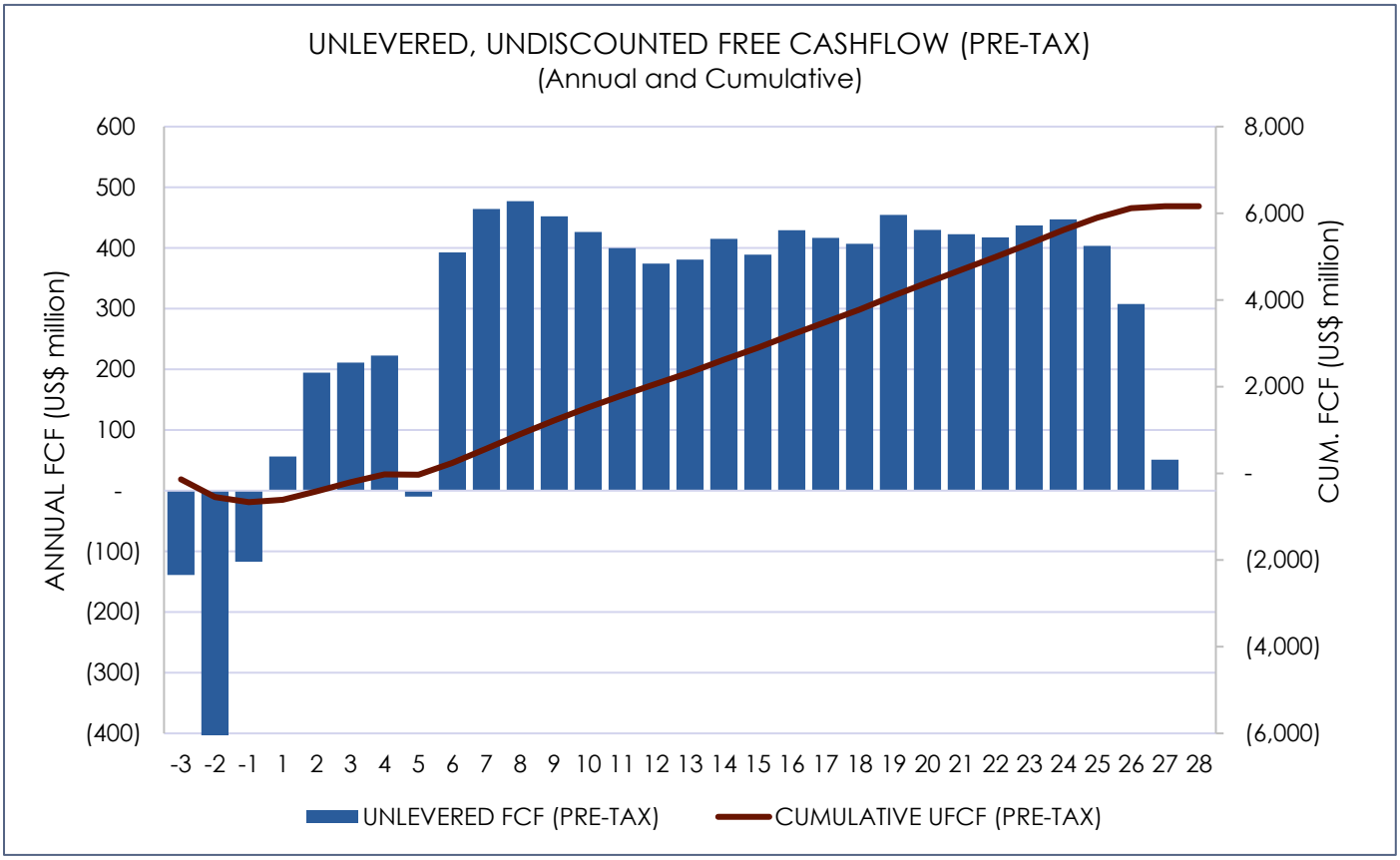


Figure 44: Free cashflow profile (pre-tax) over LOM

15.3 Sensitivity Analysis

Key inputs into the OPFS have been tested for capital cost, operating costs and price sensitivities.

TABLE 10: NPV (Pre-Tax) Sensitivity to Discount Rates

NPV (Pre-tax) (US$m)				
6%	7%	**8%**	9%	10%
3,183	2,716	**2,322**	1,988	1,704

TABLE 11: NPV (Pre-Tax) Sensitivity to Key Inputs

	-25%	-20%	-15%	-10%	-5%	**Base**	5%	10%	15%	20%	25%
Rutile Price	1,675	1,804	1,934	2,063	2,193	**2,322**	2,452	2,581	2,711	2,840	2,970
Graphite Price	1,727	1,846	1,965	2,084	2,203	**2,322**	2,441	2,560	2,679	2,799	2,918
Operating Cost	2,729	2,648	2,566	2,485	2,404	**2,322**	2,241	2,159	2,078	1,997	1,915
Capital Expenditure	2,578	2,527	2,476	2,424	2,373	**2,322**	2,271	2,220	2,169	2,118	2,067

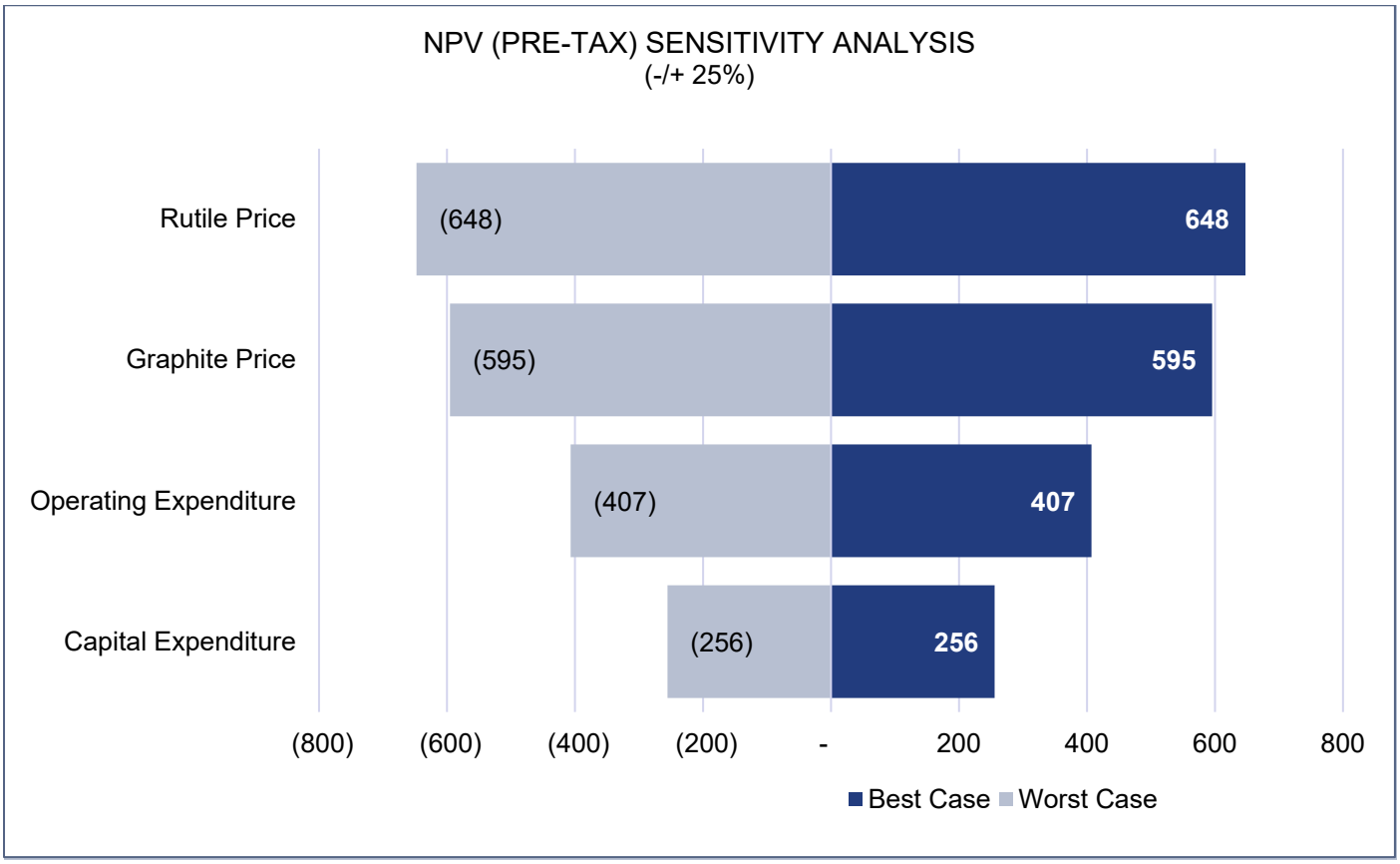


Figure 45: NPV8 (pre-tax) sensitivity analysis of key inputs

16.0 PERMITTING

Sovereign holds a number of licences validly granted under the Malawi Mines and Minerals Act (No 8. Of 2019) (**2019 Mines Act**):

TABLE 12: LICENCES

Licence	Holding Entity	Interest	Type	Licence Renewal Date	Expiry Term Date[1]	Licence Area (km²)	Status
EL0609	MML	100%	Exploration	25/09/2026	25/09/2028	219.5	Granted
EL0582	SSL	100%	Exploration	15/09/2025	15/09/2027	141.3	Granted
EL0492	SSL	100%	Exploration	29/01/2025	29/01/2025[2]	454.9	Granted
EL0528	SSL	100%	Exploration	27/11/2025	27/11/2025	16.2	Granted
EL0545	SSL	100%	Exploration	12/05/2026	12/05/2026	24.2	Granted
EL0561	SSL	100%	Exploration	15/09/2025	15/09/2027	61.9	Granted
EL0657	SSL	100%	Exploration	3/10/2025	3/10/2029	2.3	Granted
EL0710	SSL	100%	Exploration	1/02/2027	1/02/2031	38.4	Granted

Notes:

SSL: Sovereign Services Limited, MML: McCourt Mining Limited

[1] An exploration licence (**EL**) covering a preliminary period in accordance with the 2019 Mines Act is granted for a period not exceeding three (3) years. Thereafter two successive periods of renewal may be granted, but each must not exceed two (2) years. This means that an EL has a potential life span of seven (7) years. ELs that have come to the end of their term can be converted by the EL holder into a retention licence (**RL**) for a term of up to 5 years subject to meeting certain criteria. All of Sovereign's ELs were originally granted under the 2019 Mines Act. On 28 June 2024, the Mines and Minerals Act (2023) (**2023 Mines Act**) was gazetted and came into force. As previously disclosed, the New Act introduces amendments to improve transparency and governance of the mining industry in Malawi. Sovereign notes the following updates in the New Act which may affect the Company going forward: (i) ELs will now be granted for an initial period of 5 years with the ability to extend by 3 years on two occasions (total 11 years); (ii) the Malawian Government maintains a right to free equity ownership for large-scale mining licences but the New Act has removed the automatic free government equity ownership with the right to be a negotiation matter; and (iii) A new Mining and Regulatory Authority will be responsible for implementing the objectives of the New Act.

[2] In October 2024, SSL applied for RLs in relation to EL0492 in accordance with the 2023 Mines Act.

DISCLOSURES & DISCLAIMERS

Competent Person Statements

The information in this announcement that relates to Production Targets and Ore Reserves is based on and fairly represents information provided by Mr Frikkie Fourie, a Competent Person, who is an Associate Member of The South African Institute of Mining and Metallurgy and a Registered Professional Engineer with the Engineering Council of South Africa, a Recognised Professional Organisation' (**RPO**) included in a list promulgated by ASX from time to time. Mr Fourie is employed by Moletech Consulting Pty Ltd, an independent consulting company. Mr Fourie has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the to the activities 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 Fourie consents to the inclusion in the Announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to Infrastructure, Capital and Operating Costs and process engineering fairly represents information compiled or reviewed by Mr James Gemmel, a Competent Person, who is a who is a Registered Professional Engineer with the Engineering Council of South Africa, a RPO included in a list promulgated by ASX from time to time. Mr Gemmel is employed by DRA Limited, an independent consulting company. Mr Gemmal has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activities 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 Gemmel consents to the inclusion in the Announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to Metallurgy - rutile and graphite is extracted from announcements dated 28 September 2023, 8 May 2024, 15 May 2024 and 4 September 2024, which are available to view at www.sovereignmetals.com.au. Sovereign confirms that a) it is not aware of any new information or data that materially affects the information included in the original announcement; b) all material assumptions included in the original announcement continue to apply and have not materially changed; and c) the form and context in which the relevant Competent Persons' findings are presented in this report have not been materially changed from the announcement.

The information in this announcement that relates to the Mineral Resource Estimate is extracted from Sovereign's 2024 Annual Report and is based on, and fairly represents information compiled by Mr Richard Stockwell, a Competent Person, who is a fellow of the Australian Institute of Geoscientists (AIG). Mr Stockwell is a principal of Placer Consulting Pty Ltd, an independent consulting company. Sovereign confirms that a) it is not aware of any new information or data that materially affects the information included in the original announcement; b) all material assumptions included in the 2024 Annual Report continue to apply and have not materially changed; and c) the form and context in which the relevant Competent Persons' findings are presented in 2024 Annual Report have not been materially changed from the disclosure in the 2024 Annual Report.

Forward Looking Statement

This release may include forward-looking statements, which may be identified by words such as "expects", "anticipates", "believes", "projects", "plans", and similar expressions. These forward-looking statements are based on Sovereign's expectations and beliefs concerning future events. Forward looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Sovereign, which could cause actual results to differ materially from such statements. There can be no assurance that forward-looking statements will prove to be correct. Sovereign makes no undertaking to subsequently update or revise the forward-looking statements made in this release, to reflect the circumstances or events after the date of that release.

This ASX Announcement has been approved and authorised for release by the Board of Directors.

SUMMARY OF MATERIAL ASSUMPTIONS

Material assumptions used in the estimation of the production target and associated financial information are set out in the following table.

TABLE 13: ASSUMPTIONS	
Assumption	**Inputs**
Maximum accuracy variation - Capital costs	-20%/+25%
Maximum accuracy variation - Operating costs	-20%/+25%
Minimum Life of Mine	25 years
Annual average throughput (tonnes) – Stage 1	12,000,000
Annual average throughput (tonnes) – Stage 2	24,000,000
Head grade – rutile	1.03%
Recovery – rutile	100%
Product grade (TiO_2) - rutile	96%
Head grade – graphite	1.66%
Recovery – graphite	67.5%
Product grade (TGC) - graphite	96%
Annual production (average LoM) – rutile (tonnes)	222,000
Annual production (average LoM) – graphite (tonnes)	233,000
Sales Price – rutile (average LoM)	US$1,490/t
Sales Price – graphite (average LoM)	US$1,290/t
Government Royalty	5% of gross revenue
Vendor Royalty	2% of gross profit
Community Development Fund	0.45% of gross revenue
Stage 1 Capital (12Mtpa South Plant)	US$665m
Stage 2 Capital (12Mtpa North Plant)	US$462m
Sustaining Capital	US$397m
Operating Costs excluding royalties (LoM) – FOB Nacala	US$423/t
Operating Costs including royalties (LoM) – FOB Nacala	US$493/t
Discount Rate	8%

ORE RESERVE STATEMENT

As part of the PFS, an initial Probable Ore Reserve of 538Mt was declared at Kasiya, in accordance with the guidelines of the JORC Code 2012.

As part of the OPFS, a review of the Ore Reserve was completed, taking into account the optimised sections of the OPFS including mining method, operating model, plant configuration and locations, capital and operating costs, and updated financial model. The findings and learning during the Pilot Phase were also considered. As a result of this review, the Ore Reserve at Kasiya remains unchanged.

The current Kasiya MRE was used as the basis for the OPFS Ore Reserve estimate. Mineral Resources were converted to Ore Reserves in line with the material classifications which reflect the level of confidence within the resource estimate. The Ore Reserve reflects that portion of the Mineral Resource which can be economically extracted by open pits utilising dry mining methodologies. The Ore Reserve considers the Modifying Factors and other parameters detailed in the relevant sections of the OPFS report, including but not limited to the mining, metallurgical, social, environmental, approvals, tenure, statutory and financial aspects of the Project.

In line with the JORC 2012 guidelines, the Kasiya Probable Ore Reserve is based on Indicated classified Mineral Resources. There is no Measured classified Mineral Resource at Kasiya and consequently no Proved Ore Reserve.

The reported MRE is inclusive of the Ore Reserve.

The Ore Reserve includes an allowance for mining dilution and ore loss on the basis that all material within the shell is classified and extracted as ore.

The open pit geometries developed for the purposes of mine planning, and which define the subsequent Ore Reserve, are based on Whittle pit shells edited to comply with practical mining requirements and identified exclusion zones.

The information that relates to Ore Reserves for the OPFS was reviewed and compiled by Mr Frikkie Fourie who takes overall responsibility for the Ore Reserve as Competent Person (see Competent Persons Statement above). Mr Fourie is Associate Member of The South African Institute of Mining and Metallurgy and a Registered Professional Engineer with the Engineering Council of South Africa, and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Person in terms of the JORC (2012 Edition).

A site visit has been undertaken by Mr Fourie who also oversaw excavation of the trial mining pit as part of the Pilot Phase.

The Ore Reserve estimate is summarised in Table 14 below, along with the associated cut-off grade used to define the shell.

Table 14: Ore Reserve for the Kasiya Deposit

Classification	Tonnes (Mt)	Rutile Grade (%)	Contained Rutile (Mt)	Graphite Grade (TGC, %)	Contained Graphite (Mt)
Proved	-	-	-	-	-
Probable	538	1.03%	5.5	1.66%	8.9
Total	**538**	**1.03%**	**5.5**	**1.66%**	**8.9**

Pit Optimisation

An open pit optimisation utilising Whittle™ software was carried out on the Kasiya deposit using Indicated Mineral Resources only (in line with the JORC 2012 guidelines). The latest parameters available were used to determine the economic extent of the open pit excavation. The process plant production parameters were supplied by Sovereign with an initial rate of 12Mtpa and a ramp up in production in year 5 to annual rate of 24Mtpa by the beginning of year 6.

Whilst dry mining lends itself to a selective mining approach, the basis of the OPFS is a bulk mining operation and therefore, all material within the "shell" will be extracted and fed to the plant as ore and any interstitial waste and/or sub-economic grade material will be likewise treated as diluent material. However, due to the relatively homogenous and continuous nature the orebody, the quantities of this material will be relatively small and therefore a simple 5% dilution was applied within the Whittle™ tool to approximate this assumption.

For the production schedule on which the Ore Reserve is based all material within the shell was treated as "ore" to ensure the appropriate dilution was captured.

Mineable Pit Geometries

Based on the cut-off grades applied the mining areas was further interrogated to determine the potential recoverable mining inventory. The interrogation process applied the following constraints to determine the bulk mining boundaries:

- A minimum depth of 5m.
- Pit extents limited to mineable areas and to remain outside of identified exclusion areas wherever reasonably possible. Sovereign identified all local village areas and areas of cultural or environmental significance within the potential mining envelope that should not be disturbed during the mining phase of the Project.

MODIFYING FACTORS

The Modifying Factors included in the JORC Code (2012) have been assessed as part of the Optimised Pre-Feasibility Study (**OPFS**), including mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and government factors. The Company has received advice from appropriate experts when assessing each Modifying Factor.

A summary assessment of each relevant Modifying Factor is provided below.

Mining – refer to section entitled 'Mining' in the Announcement.

For The OPFS, the Company engaged independent consultants, DRA Limited, Fraser Alexander and Moletech to carry out and determine the pit optimisations, mine design, scheduling, mining cost estimation, updated production schedules and Ore Reserves.

During the second half of 2024, trial mining was successfully completed as part of Pilot Phase at Kasiya. As part of the Pilot Phase, a dry mining trial confirmed Kasiya can be efficiently mined to depth using standard mobile excavators and trucks. Following completion and results of the Pilot Phase and dry mining trial, the proposed mining method for the Study is dry mining using draglines. The Pilot Phase provided significant insight and real mining data as the test pit, which was excavated using conventional dry mining techniques and a simple mobile excavator fleet, covered an area of 120 metres by 110 metres, was mined to a depth of 20 metres through the weathered ore at Kasiya. Dry mining is considered appropriate, safe, low-risk and operationally flexible for this style of shallow, soft and friable saprolite-hosted rutile and graphite mineralisation. Dry mining is used across numerous at-surface mining operations globally and is well suited for the Kasiya style of mineralisation, as evidenced in the Pilot Phase dry mining trial.

Metallurgy and Processing – refer to section entitled 'Processing and Metallurgy' in the Announcement.

Rutile

The Company completed bulk rutile testwork programs at the globally recognised AML in Perth, Australia. Testwork programs are supervised by Sovereign's Head of Development, Paul Marcos. Mr Marcos is a metallurgist and process engineer and a mineral sands industry veteran. Bulk test-work programs have confirmed premium grade rutile can be produced via a simple and conventional process flow sheet.

All the Rutile metallurgical and processing design and performance assumptions of the PFS were carried through to the OPFS and remained unchanged.

Processing engineering was completed by DRA Limited who developed the process plant design and associated cost estimate for the OPFS. An average product grade of 95% TiO_2 and 100% recovery to product factor has been applied.

Graphite

The Company has conducted graphite testwork across ALS Laboratory in Perth, SGS Lakefield in Canada and ProGraphite GmbH in Germany.

DRA's Senior Engineer, Stewart Calder and Manager Metallurgy, John Fleay supervised and advised on sample selection, testwork scope and results from the latest testwork programs. Both consultants are considered to have the appropriate capabilities and similarities with the material and the early stage of the project.

Processing engineering was completed by DRA Limited who developed the process plant design and associated cost estimates for the PFS. Overall average graphite recovery applied in the model was 67.5%. Gravity recovery ranges between 73.6% to 86.2%, averaging 77.9% and flotation plant recovery ranges between 89.2% and 96.1%, averaging 91.4%. Total Graphite (TGC) recovery average is 72.5%. Overall concentrate grades average 96% C(t) with over 57% of the graphite flake product being larger than 180µm.

All the graphite metallurgical and processing design and performance assumptions of the PFS were carried through to the OPFS and remained unchanged.

Rutile & Graphite

It is acknowledged that laboratory scale test-work will not always represent actual results achieved from a production plant in terms of grade, chemistry, sizing and recovery. Further test-work will be required to gain additional confidence on specifications and recoveries that will be achieved at full-scale production.

Overall, the process flow-sheet is conventional for both rutile and graphite with no novel features or equipment incorporated.

Infrastructure – refer to sections entitled 'Infrastructure', and 'Transport and Logistics' in the Announcement.

The indicated resource for the Kasiya Rutile Project is immediately proximate to the township of Kasiya, which is approximately 30 km to the northwest of Lilongwe (direct line) and about 45 km by existing roads. The proximity to Lilongwe gives the project a number of benefits, including access to a large pool of professionals and skilled tradespeople, as well as industrial services.

Logistics cost estimates, including rail and port infrastructure and handling, were provided by Thelo DB, Nacala Logistics and Grindrod based on market data, suppliers' quotations, industry databases, industry contacts and consultants' existing knowledge of southern African transport infrastructure and freight markets. All consultants are independent with substantial experience in the management of transport logistics studies in southern Africa.

Marketing – refer to sections entitled 'Rutile Market' and Graphite Market' in the Announcement.

Rutile

During the PFS, the Company engaged TZMI to provide a bespoke marketing report to support the PFS and engaged them again for the OPFS to update the rutile price. TZMI is a global, independent consulting and publishing company which specialises in technical, strategic and commercial analyses of the opaque (non-terminal market) mineral, chemical and metal sectors.

TZMI's assessment has confirmed that global demand and supply forecasts for natural rutile, and with reference to the specific attributes of Kasiya, there is a reasonable expectation that the product will be able to be sold into existing and future rutile markets.

Since July 2023, leading global mining company Rio Tinto has made an investment in Sovereign for A$60 million resulting in a shareholding of 19.9%. Rio Tinto is a global leader in titanium feedstock production and is set to produce 1.0 to 1.2 Mt of TiO_2 products in 2025 according to company guidance, giving it a 14% market share.

Under an Investment Agreement, Rio Tinto has been providing assistance and advice on technical and marketing aspects of Kasiya as part of the Sovereign-Rio Tinto technical committee. Also,

included under the Investment Agreement, Rio Tinto has the option to become the operator of Kasiya on commercial arm's-length terms.

In the event, Rio Tinto elects to become the operator of Kasiya, and for so long as Rio Tinto remain the operator, Rio Tinto shall have exclusive marketing rights to 40% of the annual production of all products from the Project as identified in the DFS on arm's-length terms.

Rio Tinto's option over operatorship and 40% marketing rights lapse if not exercised by the earlier of (i) 90 days after the Company announces its DFS results or 180 days after the announcement of the DFS if Rio Tinto's advises it needs additional time to consider the exercise of its option to become operator or (ii) Rio Tinto ceasing to hold voting power in the Company of at least 10%.

Graphite

The Company engaged Fastmarkets, a specialist international publisher and information provider for the global steel, non-ferrous and industrial minerals markets, to prepare a marketing report for graphite.

Fastmarkets' assessment has confirmed that global demand and supply forecasts for natural flake graphite, and with reference to the specific attributes of Sovereign's project, there is a reasonable expectation that the product from Sovereign's Kasiya project will be able to be sold into existing and future graphite markets. Given the extremely low-cost profile and high-quality product, it is expected that output from Kasiya will be able to fill new demand or substitute existing lower quality / higher cost supply.

Project considerations taken by Fastmarkets in forming an opinion about the marketability of product include:

- Low capital costs (incremental)
- Low operating costs
- High quality concentrate specifications

Industry participants confirm that the highest value graphite concentrates remain the large, jumbo and super-jumbo flake fractions, primarily used in industrial applications such as refractories, foundries and expandable products. These sectors currently make up the significant majority of total global natural flake graphite market by value.

Fastmarkets have formed their opinion based solely upon project information provided by Sovereign Metals to Fastmarkets and have not conducted any independent analysis or due diligence on the information provided.

As noted above, Rio Tinto have made a A$60 million investment in Sovereign and own 19.9% of the Company. Since 2023, Sovereign and Rio Tinto have been working together to qualify Kasiya's graphite product with a particular focus on supplying the spherical purified graphite segment of the lithium-ion battery anode market. Rio Tinto has set up a battery materials business in 2021, including its announced plans to set up a battery testing plant in Melbourne, Australia.

In September 2024, Sovereign announced an update on the downstream testwork which demonstrated that Coated Spherical Purified Graphite (**CSPG**) produced from Kasiya natural flake graphite has performance characteristics comparable to the leading Chinese natural graphite anode materials manufacturers such as BTR New Material Group (**BTR**). Electrochemical testing of the CSPG samples at a leading German institute achieved first cycle efficiencies (**FCE**) of 94.2% to 95.8%, with results above 95%, a key specification for highest quality natural graphite anode materials under the Chinese standard.

BTR has a 20-year track record in the production of lithium-ion battery anode materials, is a dominant player in the market and has recently concluded anode material offtake agreements with global automotive companies including Ford. BTR's highest specification CSPG materials, that have low swelling, long cycle life, good processability and outstanding electrochemical performance include their GSN17 and LSG17 products (with D50 of 17.0+/- 1.5µm).

Economic – also refer to sections entitled 'Cost Estimations' and 'Financial & Economic Analysis' in the Announcement.

Capital estimates for the process plant have been prepared by PCC, together with input from DRA Limited, the Company and other contributing consultants using combinations of cost estimates from suppliers, historical data, benchmarks and other independent sources. The accuracy of the initial capital cost estimate for the Project is -20%/+25%.

Capital costs include the cost of all services, direct costs, contractor indirects, EPCM expenses, non-process infrastructure, sustaining capital and other facilities used for the mine. Capital costs make provision for mitigation expenses and mine closure and environmental costs.

Working capital requirements (including contingency) for plant commissioning and full ramp-up have been included in the headline capital estimate reported under construction, owner's and start-up costs.

Mining costs have been estimated by DRA Global, an independent Mining EPCM and Engineering consulting company. Mining costs have been built up from first principles based on equipment, vendor, and contractor quotations, local unit cost rates, and benchmarked costs.

Labor costs have been developed based on a first-principles build-up of staffing requirements with labour rates benchmarked in Malawi and expatriate rates benchmarked for professionals from South Africa and other jurisdictions.

A Government royalty of 5% (applied to revenue) and a vendor profit share of 2% (applied to gross profit) have been included in all project economics. A 0.45% royalty (applied to revenue) has been applied for the community development fund.

Rehabilitation and mine closure costs are included within the reported capital and operating cost figures.

A detailed financial model and discounted cash flow (**DCF**) analysis has been built and prepared by an independent specialist mining financial modelling firm, Practara (**Practara**), using inputs from various expert consultants in order to demonstrate the economic viability of the Project. The financial model and DCF were modelled with conservative inputs to provide management with a baseline valuation of the Project.

The DCF analysis demonstrated compelling economics of the prospective Project, with an NPV (ungeared, pre-tax, at an 8% discount rate) of US$2,322 million, and an (ungeared) IRR of 27%.

Sensitivity analysis was performed on all key assumptions used. The robust project economics insulate the Kasiya Project from variation in market pricing, capital expense, or operating expenses. With both rutile and graphite concentrate prices simultaneously 25% lower than the OPFS prices, the Project still displays a positive NPV (ungeared, pre-tax, 8% discount rate) of US$1,079 million and pre-tax IRR of 18%.

Sovereign estimates the total capital cost to construct the mine to be US$665m (which includes a contingency of 16% of direct and indirect costs).

Key parameters are disclosed in the body of the announcement, and include:

- Life of Mine: 25 years
- Discount rate: 8%
- Royalty rate: 5% royalty (Government), 2% of gross profit (Original Project Vendor) and 0.45% Community Development Fund.
- Pricing: Rutile average price of US$1,490 per tonne and Graphite average basket price of US$1,290 per tonne

There is uncertainty in the tax law applicable to mining companies in Malawi. The 2023 PFS assumed a 30% corporate income tax rate and a resource rent tax (**RRT**) equating to 15% of post-tax profits.

In 2024, mining companies Lotus and Mkango entered into fiscal stability agreements known as MDA with the Government of Malawi. In both the Lotus and Mkango MDAs, it was agreed that no RRT shall be payable until such time that the Government of Malawi completed a review of the relevant legislation. As such, and until such time Sovereign has sight of what actual fiscal terms would apply to the Kasiya Project, results for the OPFS have been reported on a pre-tax basis only.

Applying a 30% corporate income tax rate and a range of RRT from 15% to 0% would result in post-tax NPV at an 8% discount rate of US$1,284 million to US1,557 million.

The financial model has been built and prepared by Practara using inputs from the various expert consultants and has been reviewed by SP Angel Corporate Finance LLP, the Company's Nominated Advisor and Corporate Broker as defined by the AIM Rules for Companies set out by the London Stock Exchange, to validate the functionality and accuracy of the model.

The Company engaged the services of advisory firm, Argonaut PCF Limited (**Argonaut**), with regards to project economics. Argonaut is a financial advisory firm that offers full-service advisory, stockbroking and research, which specialises in the resources sector. Argonaut is well regarded as a specialist capital markets service provider and has raised project development funding for companies across a range of commodities including the industrial and speciality minerals sector.

Following the assessment of a number of key criteria, Argonaut has confirmed that, on the basis of continued support from Rio Tinto, that a DFS arrives at a result that is not materially negatively different than the OPFS, all in-country government and regulatory approvals are received, commercial offtake agreements are in place for the majority of rutile and graphite production for at least the first five years of mine life, and that there has not been any material adverse change in financial condition, results of operations, or business prospects of the Company, or any material adverse changes in global financial markets in general, Sovereign should be able to secure necessary financing for the development of the Project.

Since July 2023, leading global mining company Rio Tinto has made an investment in Sovereign for A$60 million resulting in a shareholding of 19.9%. The investment proceeds are being used to advance Kasiya and represent a significant step towards unlocking the Project as a major new supplier of natural rutile and flake graphite. Under the Investment Agreement with Rio Tinto, it has been agreed with Rio Tinto that if Sovereign is raising debt finance for the development of the Project, Sovereign and Rio Tinto will negotiate, in good faith, financing arrangements in order to put in place an acceptable mine construction funding package. Further, Rio Tinto has a right of first refusal on equity raisings that if the Company undertakes equity raisings (other than pursuant to a pro rata entitlement offer), Rio Tinto has a right to be consulted and a right of first refusal to participate in the equity raisings up to a level where Rio Tinto's aggregate voting power does not exceed 19.9%.

Since initial exploration of the Kasiya Project in November 2019, the Company has completed extensive drilling, sampling, metallurgical test-work, geological modelling and defined an Indicated and Inferred Mineral Resource Estimate which was converted to Ore Reserves as part of the

September 2023 PFS and underpins this OPFS. Over this period, with these key milestones being attained and the Project de-risked, the Company's market capitalisation has increased from approximately A$18m to over A$450m. As the Project continues to achieve key milestones, which can also be significant de-risking events, the Company's share price could be anticipated to increase.

The Company has an uncomplicated, clean corporate and capital structure, is debt free and is in a strong financial position, with approximately A$34 million cash on hand (31 December 2024(unaudited)). The current financial position means the Company is soundly funded to continue into a DFS phase to further develop and de-risk the Project.

The Company's shares are listed on the ASX and AIM which are premier markets for growth companies and provide increased access to capital from institutional and retail investors in Australia and the UK. The Company's shares are also quoted on the OTCQX and Frankfurt Stock Exchange.

Sovereign has a strong track record of successfully raising equity funds for Kasiya plus it has an experienced and high-quality Board and management team comprising highly respected resource executives with extensive technical, financial, commercial and capital markets experience. The directors have previously raised more than A$2.5 billion from capital markets for a number of exploration and development companies.

As a result, the Board has a high level of confidence that the Project will be able to secure funding in due course, having particular regard to:

1. Required capital expenditure;
2. Sovereign's strategic partner relationship with Rio Tinto;
3. Sovereign's market capitalisation;
4. Recent funding activities by directors in respect of other resource projects;
5. Recently completed funding arrangements;
6. The range of potential funding options available;
7. The favourable key metrics generated by the Kasiya Project;
8. Ongoing discussions for potential offtake agreements;
9. Investor interest to date;
10. the Company owns 100% of Kasiya which is highly attractive to potential financiers;
11. the OPFS demonstrates that the Project is commercially viable and provides justification to progress to DFS stage.

Environmental, Social, Legal and Governmental – refer to section entitled 'Environmental and Social Impact' in the Announcement.

Sovereign is committed to conduct its activities in full compliance to the requirements of national regulations, its obligations under international conventions and treaties and giving due consideration to international best practices and policies. The Company has appointed an experienced environmental consultant to manage the ESIA process, and environmental and social baseline studies have commenced with appropriately qualified independent experts.

The Company has also completed a high-level risk assessment to identify major environmental and social risks which could affect the development of the Project, along with mitigating strategies to allow identified risks to be addressed early in the project design phase.

The Company has embarked on several community engagement exercises in the area and there is a general positive acceptance of the Project. Social responsibility/RAP costs totalling US$97m have been included in this OPFS, as well as a 0.45% revenue royalty for the community development fund.

Based on the current assessments and commenced ESIA, the Company believes there are no environmental issues currently identified that cannot be appropriately mitigated in accordance with standard practices adopted for the development of mining projects.

Subject to further positive technical studies, Sovereign intends to apply for a Mining Licence (**ML**) to secure mineral deposits for mining. Under the Mines Act there are certain requirements, milestones and approvals required prior to submission of a ML application. At this point of Kasiya's development, the Company notes no known issues or impediments obtaining a ML under normal course of business.

Under the Mines and Minerals Act (2023) (**Mines Act**), the Government of Malawi has a right to equity ownership for large-scale mining licences (>5Mt mined per annum or >US$250m Capex) with the right a negotiation matter, likely as part of any future MDA. The Mkango and Lotus MDAs included a 10% non-diluting equity interest to the Malawi Government.

In a Press Release issued on 20 July 2023, the Government of Malawi publicly applauded the timely investment by Rio Tinto and marked it as a milestone towards realising the country's aspirations of growing the mining industry as promoted in the Malawi Vision 2063, which identifies mining as a priority industry. The Malawi Mines department has also set up a technical working group, with resources dedicated to the Kasiya Project to ensure its continual progress and development.

The Government's statement and actions confirms its commitment to ensuring the growth of the mining sector through deliberate initiatives aiming at establishing a conducive investment environment in the sector.

Following successful completion of the mining trials stage at the Pilot Phase, the test pit mined at Kasiya has been successfully backfilled which has allowed Sovereign to commence with on-site soil remediation and land rehabilitation activities, testing our proposed rehabilitation approach and demonstrating that the mined land can support sustainable farming post-closure.

During the Pilot Phase mining trials, 170,000m^3 was mined using a conventional excavator fleet. The fleet was then used to place mined material back into the pit, filling the pit to the original ground level in less than two months and ahead of schedule.

The rehabilitation approach has been based on agronomic principles, including promoting sustainable farming practices and providing various end-land uses. Rehabilitation is underway through a five-step process:

Step 1: Introduce Lime

The land rehabilitation demonstration commenced with the application and incorporation of locally sourced dolomitic lime (calcium and calcium-magnesium-carbonate) to improve naturally low PH levels.

Step 2: Introduce Carbon and Basic Nutrients

Sovereign is augmenting the mined area with organic carbon and basic nutrients to support post-closure farming. The Company is testing the application of biochar (to provide carbon) and fertiliser (in the form of potash (**MOP**), phosphate (**MAP**) and a blend of nitrogen, potash, and sulphur (**NPK**) 15:23:16).

Step 3: Grading, Ripping and Discing

Lime, biochar, and fertiliser are incorporated into the soil through grading, ripping, and discing using graders and locally sourced farming equipment. This ensures the land is level and safe and that essential inputs are incorporated into the soil.

Step 4: Planting of Rehabilitation Crops

In December 2024 and January 2025, Sovereign has planted rehabilitation crops to maximise the benefit of the coming summer rainfall. Giant bamboo has been introduced in 4 by 8-metre blocks and will act as the primary crop to enhance carbon and bioactivity in the remediated soils. To return the land to farmers, maize and other cover crops will be intercropped between the giant bamboo in formalised farm blocks.

Step 5: Monitoring and Evaluation

Sovereign will monitor soil remediation, plant growth and crop yields. As part of stakeholder engagement, the Company will work with local farmers to improve results through conservation farming, composting operations, testing new seed varieties and establishing an indigenous, fruit and farming nursery. This will serve as a live demonstration of rehabilitation and timely return of land to pre-mining use.

APPENDIX 1 – JORC CODE, 2012 EDITION – TABLE 1

Section 1 – Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	Hand Auger (**HA**) samples are composited based on regolith boundaries and sample chemistry generated by hand-held XRF (**pXRF**). Each 1m of sample is dried and riffle-split to generate a total sample weight of 3kg for analysis, generally at 2 - 5m intervals. This primary sample is then split again to create a 3kg composite to provide a 1.5kg sample for both rutile and graphite analyses. Infill Push-Tube (**PT**) core drilling is sampled routinely at 2m intervals by compositing dried and riffle-split half core. A consistent, 1.5kg sample is generated for both the rutile and graphite determination. Air-Core (**AC**) samples are composited based on expertly logged regolith boundaries. Each 1m of sample is dried and riffle-split to generate a total sample weight of 3kg for analysis, generally at 2m intervals. This primary sample is then split again to provide a 1.5kg sample for both rutile and graphite analyses.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Drilling and sampling activities are supervised by a suitably qualified company geologist who is present at all times. All drill samples are geologically logged by the geologist at the drill site/core yard. Each sample is sun dried and homogenised. Sub-samples are carefully riffle split to ensure representivity. The 1.5kg composite samples are then processed. An equivalent mass is taken from each sample to make up the composite. A calibration schedule is in place for laboratory scales, sieves and field XRF equipment. Placer Consulting Pty Ltd (**Placer**) Resource Geologists have reviewed Standard Operating Procedures (**SOPs**) for the collection and processing of drill samples and found them to be fit for purpose and support the resource classifications as applied to theMRE. The primary composite sample is considered representative for this style of rutile mineralisation.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Logged mineralogy percentages, lithology/regolith information and TiO_2% obtained from pXRF are used to assist in determining compositing intervals. Care is taken to ensure that only samples with similar geological characteristics are composited together.
Drilling Techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	A total of 1,357 HA holes for 12,643m have been drilled to date at the Kasiya Rutile Deposit to obtain samples for quantitative determination of recoverable rutile and Total Graphitic Carbon (**TGC**). A PT infill drilling programme, designed to support the resource estimate, was completed. An additional 234 core holes for 2,368.5m were included in the updated MRE. The total PT holes contributing to the updated MRE are 488 for 4,669m. A total of 182 AC holes for 4,404m were completed in six locations across the Kasiya deposit deemed likely to fall into mining pit areas. The results are included in this updated MRE. Placer has reviewed SOPs for HA, PT and AC drilling and found them to be fit for purpose and support the resource classifications as applied to the MRE. Sample handling and preparation techniques are consistent for PT and coring samples.

Criteria	JORC Code explanation	Commentary
		Two similar designs of HA drilling equipment are employed. HA drilling with 75mm diameter enclosed spiral bits (**SOS**) with 1m long steel rods and with 62mm diameter open spiral bits (**SP**) with 1m long steel rods. Drilling is oriented vertically by eye. Each 1m of drill sample is collected into separate sample bags and set aside. The auger bits and flights are cleaned between each metre of sampling to avoid contamination. Core-drilling is undertaken using a drop hammer, Dando Terrier MK1. The drilling generated 1m runs of 83mm PQ core in the first 2m and then transitioned to 72mm core for the remainder of the hole. Core drilling is oriented vertically by spirit level. AC drilling was completed by Thompson Drilling utilising a Smith Capital 10R3H compact track-mounted drill. The drilling is vertical and generates 1m samples with care taken in the top metres to ensure good recoveries of the high-grade surface material. Each 1m sample bag is immediately transported back to Sovereign's field laydown yard where they await processing.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Samples are assessed visually for recoveries. The configuration of drilling and nature of materials encountered results in negligible sample loss or contamination. HA and PT drilling is ceased when recoveries become poor once the water table has been reached. Water table and recovery information is included in lithological logs. Core drilling samples are actively assessed by the driller and geologist onsite for recoveries and contamination. AC drilling recovery in the top few metres are moderate to good. Extra care is taken to ensure sample is recovered best as possible in these metres. Recoveries are recorded on the rig at the time of drilling by the geologist. Drilling is ceased when recoveries become poor or once Saprock or refusal has been reached.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	The Company's trained geologists supervise drilling on a 1 team 1 geologist basis and are responsible for monitoring all aspects of the drilling and sampling process. For PT drilling, core is extruded into core trays; slough is actively removed by the driller at the drilling rig and core recovery and quality is recorded by the geologist. AC samples are recovered in large plastic bags. The bags are clearly labelled and delivered back to sovereign's laydown yard at the end of shift for processing.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No relationship is believed to exist between grade and sample recovery. The high percentage of silt and absence of hydraulic inflow from groundwater at this deposit results in a sample size that is well within the expected size range. No bias related to preferential loss or gain of different materials is observed.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation mining studies and metallurgical studies.*	Geologically, data is collected in detail, sufficient to aid in Mineral Resource estimation. All individual 1m HA intervals are geologically logged, recording relevant data to a set log-chief template using company codes. A small representative sample is collected for each 1m interval and placed in appropriately labelled chip trays for future reference. All individual 1m PT core intervals are geologically logged, recording relevant data to a set log-chief template using company codes. Half core remains in the trays and is securely stored in the company warehouse. All individual AC 1-metre intervals are geologically logged, recording relevant features.

Criteria	JORC Code explanation	Commentary
		data to a set log-chief template using company codes. A small representative sample is collected for each 1-metre interval and placed in appropriately labelled chip trays for future reference.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging includes lithological features and estimates of basic mineralogy. Logging is generally qualitative. The PT core is photographed dry, after logging and sampling is completed.
	The total length and percentage of the relevant intersection logged	100% of samples are geologically logged.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Due to the soft nature of the material, core samples are carefully cut in half by hand tools.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	HA, PT and AC hole samples are dried, riffle split and composited. Samples are collected and homogenised prior to splitting to ensure sample representivity. ~1.5kg composite samples are processed. An equivalent mass is taken from each primary sample to make up the composite. The primary composite sample is considered representative for this style of mineralisation and is consistent with industry standard practice.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Techniques for sample preparation are detailed on SOP documents verified by Placer Resource Geologists. Sample preparation is recorded on a standard flow sheet and detailed QA/QC is undertaken on all samples. Sample preparation techniques and QA/QC protocols are appropriate for mineral determination and support the resource classifications as stated.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	The sampling equipment is cleaned after each sub-sample is taken. Field duplicate, laboratory replicate and standard sample geostatistical analysis is employed to manage sample precision and analysis accuracy.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.	Sample size analysis is completed to verify sampling accuracy. Field duplicates are collected for precision analysis of riffle splitting. SOPs consider sample representivity. Results indicate a sufficient level of precision for the resource classification.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample size is considered appropriate for the material sampled.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	<u>Rutile</u> The Malawi onsite laboratory sample preparation methods are considered quantitative to the point where a heavy mineral concentrate (**HMC**) is generated. Final results generated are for recovered rutile i.e, the % mass of the sample that is rutile that can be recovered to the non-magnetic component of a HMC. Heavy liquid separation (**HLS**) of the HM is no longer required and a HM result is not reported in the updated MRE. The HMC prepared via wet-table, gravity separation at the Lilongwe Laboratory provides an ideal sample for subsequent magnetic separation and XRF. All 8,855 samples (not incl. QA) included in the MRE update received the following workflow undertaken on-site in Malawi; • Dry sample in oven for 1 hour at 105℃ • Soak in water and lightly agitate • Wet screen at 5mm, 600µm and 45µm to remove oversize and slimes material

Criteria	JORC Code explanation	Commentary
		• Dry +45µm -600mm (sand fraction) in oven for 1 hour at 105°C 7,904 of the 8,855 samples received the following workflow undertaken on-site in Malawi • Pass +45µm -600mm (sand fraction) across wet table to generate a HMC. • Dry HMC in oven for 30 minutes at 105°C Bag HMC fraction and send to Perth, Australia for quantitative chemical and mineralogical determination. 951 of the 8,855 samples received the following workflow undertaken at Perth based Laboratories (superseded). • Split ~150g of sand fraction for HLS using Tetrabromoethane (**TBE**, SG 2.96g/cc) as the liquid heavy media to generate HMC. Work undertaken at Diamantina Laboratories. 4,738 of the 8,855 samples received magnetic separation undertaken at Allied Mineral Laboratories in Perth, Western Australia. • Magnetic separation of the HMC by Carpco magnet @ 16,800G (2.9Amps) into a magnetic (**M**) and non-magnetic (**NM**) fraction. 4,117 of the 8,855 samples received magnetic separation undertaken on-site in Malawi. • Magnetic separation of the HMC by Mineral Technologies Reading Pilot IRM (Induced Roll Magnetic) @ 16,800G (2.9Amps) into a magnetic (**M**) and non-magnetic (**NM**) fraction. All 8,855 routine samples received the following chemical analysis in Perth, Western Australia. • The routine NM fractions are sent to ALS Metallurgy Perth for quantitative XRF analysis. Samples receive XRF_MS and are analysed for: TiO_2, Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, SiO_2, V_2O_5, ZrO_2, HfO_2. <u>Graphite</u> 8,078 graphite samples are processed at Intertek-Genalysis Johannesburg and Perth via method C72/CSA. A portion of each test sample is dissolved in dilute hydrochloric acid to liberate carbonate carbon. The solution is filtered using a filter paper and the collected residue is the dried to 425°C in a muffle oven to drive off organic carbon. The dried sample is then combusted in a Carbon/ Sulphur analyser to yield total graphitic or TGC. An Eltra CS-800 induction furnace infra-red CS analyser is then used to determine the remaining carbon which is reported as TGC as a percentage.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Acceptable levels of accuracy and precision have been established. No pXRF methods are used for quantitative determination.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicate, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Sovereign uses internal and externally sourced wet screening reference material inserted into samples batches at a rate of 1 in 20. The externally sourced, certified standard reference material for HM and Slimes assessment is provided by Placer Consulting. An external laboratory raw sample duplicate is sent to laboratories in Perth, Australia as an external check of the full workflow. These duplicates are produced at a rate of 1 in 20.

Criteria	JORC Code explanation	Commentary
		Accuracy monitoring is achieved through submission of certified reference materials (**CRM's**). ALS and Intertek both use internal CRMs and duplicates on XRF analyses. Sovereign also inserts CRMs into the sample batches at a rate of 1 in 20. Three Rutile CRMs are used by Sovereign and range from 35% - 95% TiO_2. Three Graphite CRMs are used by Sovereign and range from 3% – 25% TGC. Analysis of sample duplicates is undertaken by standard geostatistical methodologies (Scatter, Pair Difference and QQ Plots) to test for bias and to ensure that sample splitting is representative. Standards determine assay accuracy performance, monitored on control charts, where failure (beyond 3SD from the mean) may trigger re-assay of the affected batch. Examination of the QA/QC sample data indicates satisfactory performance of field sampling protocols and assay laboratories providing acceptable levels of precision and accuracy. Acceptable levels of accuracy and precision are displayed in geostatistical analyses to support the resource classifications as applied to the estimate.
Verification of sampling & assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Results are reviewed in cross-section using Datamine Studio RM software and any spurious results are investigated. The deposit type and consistency of mineralisation leaves little room for unexplained variance. Extreme high grades are not encountered.
	The use of twinned holes.	Twinned holes are drilled across a geographically dispersed area to determine short-range geological and assay field variability for the resource estimation. Twin drilling is applied at a rate of 1 in 20 routine holes. Twin paired data in all drill methods represent ~4% of the database included in the updated MRE. Substantial comparative data between different drilling types and test pit results are also available but not referenced in the MRE.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data are collected electronically using coded templates and logging software. This data is then imported to a cloud hosted Database and validated automatically and manually. A transition to electronic field and laboratory data capture has been achieved.
	Discuss any adjustment to assay data.	Assay data adjustments are made to convert laboratory collected weights to assay field percentages and to account for moisture. QEMSCAN of the NM fraction shows dominantly clean and liberated rutile grains and confirms rutile is the only titanium species in the NM fraction. Recovered rutile is defined and reported here as: TiO_2 recovered in the +45 to -600um range to the NM concentrate fraction as a % of the total primary, dry, raw sample mass divided by 95% (to represent an approximation of final product specifications). i.e recoverable rutile within the whole sample.
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	A Trimble R2 Differential GPS is used to pick up the collars. Daily capture at a registered reference marker ensures equipment remains in calibration. No downhole surveying of any holes is completed. Given the vertical nature and shallow depths of the holes, drill hole deviation is not considered to significantly affect the downhole location of samples.
	Specification of the grid system used.	WGS84 UTM Zone 36 South.
	Quality and adequacy of topographic control.	The digital terrane model (**DTM**) was generated by wireframing a 20m-by-20m lidar drone survey point array, commissioned by SVM in March 2022. Major cultural features were removed from the survey points file prior to generating the topographical wireframe for resource model construction. The ultra-high resolution 3D drone aerial survey was executed utilising a RTK GPS equipped Zenith aircraft with accuracy of <10cm ground

Criteria	JORC Code explanation	Commentary
		sampling distance (GSD). Post-processing includes the removal of cultural features that do not reflect material movements (pits, mounds, etc) The DTM is suitable for the classification of the resources as stated.
Data spacing & distribution	*Data spacing for reporting of Exploration Results.*	The HA collars are spaced at nominally 400m along the 400m spaced drill-lines with the PT holes similarly spaced at an offset, infill grid. The resultant 200m-by-200m drill spacing (to the strike orientation of the deposit) is deemed to adequately define the mineralisation in the MRE. The AC collars are spaced on a 200m x 200m grid which is deemed to adequately define the mineralisation. The PT twin and density sample holes are selectively placed throughout the deposit to ensure a broad geographical and lithological spread for the analysis.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The drill spacing and distribution is considered to be sufficient to establish a degree of geological and grade continuity appropriate for the Mineral Resource estimation. Kriging neighbourhood analysis completed using Supervisor software informs the optimal drill and sample spacing for the MRE. Based on these results and the experience of the Competent Person, the data spacing and distribution is considered adequate for the definition of mineralisation and adequate for Mineral Resource Estimation.
	Whether sample compositing has been applied.	Individual 1m auger intervals have been composited, based on lithology, at 2 – 5m sample intervals for the 1,357 HA holes. 488 PT core holes have been sampled at a regular 2m interval to provide greater control on mineralisation for the Indicated Resource. Individual 1m intervals have been composited, based on lithology, at a max 2m sample interval for the 182 AC holes. The DH Compositing tool was utilised in Supervisor software to define the optimal sample compositing length. A 2m interval is applied to the MRE.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known considering the deposit type*	Sample orientation is vertical and approximately perpendicular to the orientation of the mineralisation, which results in true thickness estimates, limited by the sampling interval as applied. Drilling and sampling are carried out on a regular square grid. There is no apparent bias arising from the orientation of the drill holes with respect to the orientation of the deposit.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	There is no apparent bias arising from the orientation of the drill holes with respect to the orientation of the deposit.
Sample security	*The measures taken to ensure sample security*	Samples are stored in secure storage from the time of drilling, through gathering, compositing and analysis. The samples are sealed as soon as site preparation is complete. A reputable international transport company with shipment tracking enables a chain of custody to be maintained while the samples move from Malawi to Australia. Samples are again securely stored once they arrive and are processed at Australian laboratories. A reputable domestic courier company manages the movement of samples within Perth, Australia. At each point of the sample workflow the samples are inspected by a company representative to monitor sample condition. Each laboratory confirms the integrity of the samples upon receipt.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data*	The CP Richard Stockwell has reviewed and advised on all stages of data collection, sample processing, QA protocol and Mineral Resource Estimation. Methods employed are considered industry best-practice. Perth Laboratory visits have been completed by Mr Stockwell. Field and in-country lab visits have been completed by Mr Stockwell. A high standard of operation, procedure and personnel was observed and reported.

Section 2 – Reporting of Exploration Results

Criteria	Explanation	Commentary
Mineral tenement & land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environment settings.*	The Company owns 100% of the following Exploration Licences (**ELs**) issued under the 2019 Mines Act, held in the Company's wholly-owned, Malawi-registered subsidiaries: EL0609, EL0582, EL0492, EL0528, EL0545, EL0561, EL0657 and EL0710. A 5% royalty is payable to the government upon mining and a 2% of net profit royalty is payable to the original project vendor. No significant native vegetation or reserves exist in the area. The region is intensively cultivated for agricultural crops.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and no known impediments to exploration or mining exist.
Exploration done by other parties	*Acknowledgement and appraisal of exploration by other parties.*	Sovereign is a first-mover in the discovery and definition of residual rutile and graphite resources in Malawi. No other parties are, or have been, involved in exploration.
Geology	*Deposit type, geological setting and style of mineralisation*	The rutile deposit type is considered a residual placer formed by the intense weathering of rutile-rich basement paragneisses and variable enrichment by elluvial processes. Rutile occurs in a mostly topographically flat area west of Malawi's capital, known as the Lilongwe Plain, where a deep tropical weathering profile is preserved. A typical profile from top to base is generally soil ("SOIL" 0-1m) ferruginous pedolith ("FERP", 1-4m), mottled zone ("MOTT", 4-7m), pallid saprolite ("PSAP", 7-9m), saprolite ("SAPL", 9-25m), saprock ("SAPR", 25-35m) and fresh rock ("FRESH" >35m). The low-grade graphite mineralisation occurs as multiple bands of graphite gneisses, hosted within a broader Proterozoic paragneiss package. In the Kasiya areas specifically, the preserved weathering profile hosts significant vertical thicknesses, from near surface, of graphite mineralisation.
Drill hole information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: easting and northings of the drill hole collar; elevation or RL (Reduced Level-elevation above sea level in metres of the drill hole collar); dip and azimuth of the hole; down hole length and interception depth; and hole length*	All intercepts relating to the Kasiya Deposit have been included in public releases during each phase of exploration and in this report. Releases included all collar and composite data and these can be viewed on the Company website. There are no further drill hole results that are considered material to the understanding of the exploration results. Identification of the broad zone of mineralisation is made via multiple intersections of drill holes and to list them all would not give the reader any further clarification of the distribution of mineralisation throughout the deposit.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case	No information has been excluded.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high-grades) and cut-off grades are usually Material and should be stated.*	All results reported are of a length-weighted average of in-situ grades. The resource is reported at a range of bottom cut-off grades in recognition that optimisation and financial assessment is outstanding. A nominal bottom cut of 0.7% rutile is offered, based on preliminary assessment of resource product value and anticipated cost of operations.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No data aggregation was required.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	**Rutile Equivalent (RutEq) – where applicable**

Criteria	Explanation	Commentary
		Formula: ((Rutile Grade x Recovery (100%) x Rutile Price (US$1,484/t) + Graphite Grade x Recovery (67.5%) x Graphite Price (US$1,290/t)) / Rutile Price (US$1,484/t)). ***Commodity Prices:*** • Rutile price: US$1,484/t • Graphite price: US$1,290/t ***Metallurgical Recovery to Product:*** • Rutile Recovery: 100% • Graphite Recovery: 67.5% All assumptions taken from this Study and with discussion and Modifying Factors included in this document.
Relationship between mineralisation widths & intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.*	The mineralisation has been released by weathering of the underlying, layered gneissic bedrock that broadly trends NE-SW at Kasiya North and N-S at Kasiya South. It lies in a laterally extensive superficial blanket with high-grade zones reflecting the broad bedrock strike orientation of ~045° in the North of Kasiya and 360° in the South of Kasiya.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The mineralisation is laterally extensive where the entire weathering profile is preserved and not significantly eroded. Minor removal of the mineralised profile has occurred in alluvial channels. These areas are adequately defined by the drilling pattern and topographical control for the resource estimate.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known'.	Downhole widths approximate true widths limited to the sample intervals applied. Mineralisation remains open at depth and in areas coincident with high-rutile grade lithologies in basement rocks, is increasing with depth. Graphite results are approximate true width as defined by the sample interval and typically increase with depth.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of the drill collar locations and appropriate sectional views.*	Refer to figures in this report and in previous releases. These are accessible on the Company's webpage.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high-grades and/or widths should be practiced to avoid misleading reporting of exploration results.*	All results are included in this report and in previous releases. These are accessible on the Company's webpage.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to: geological observations; geophysical survey results; geochemical survey results; bulk samples - size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Limited lateritic duricrust has been variably developed at Kasiya, as is customary in tropical highland areas subjected to seasonal wet/dry cycles. Lithological logs record drilling refusal in just under 2% of the HA/PT drill database. No drilling refusal was recorded above the saprock interface by AC drilling. Slimes (-45 µm) averages 46wt% in the Indicated Resource at a 0.7% rutile bottom cut. Separation test work conducted at AML demonstrates the success in applying a contemporary mineral sands flowsheet in treating this material and achieving excellent rutile recovery. Sample quality (representivity) is established by geostatistical analysis of comparable sample intervals. Several generations of QEMSCAN analysis of the NM performed at ALS Metallurgy fraction shows dominantly clean and liberated rutile grains and confirms rutile is the only titanium species in the NM fraction.
Further work	The nature and scale of planned further work (e.g. test for lateral extensions or depth extensions or large-scale step-out drilling).	Further AC drilling will allow the definition of a more extensive saprock-interface basement and should continue to deliver additional resources below the HA/PT-drilled regions. A greater understanding of the lithological character and extent of those basement units, where high-grade (>1%) rutile persists at the saprock interface, may assist in focussing further resource definition and exploration targeting.

Criteria	Explanation	Commentary
		Further metallurgical assessment is suggested to characterise rutile quality and establish whether any chemical variability is inherent across the deposit. Trialling drill definition at a 100m spacing is suggested for Measured Resource assessment.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Refer to diagrams in the body of this report and in previous releases. These are accessible on the Company's webiste.

Section 3 – Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Data are manually entered into database tables according to SOPs and conforming to company field names and classifications. These are then migrated to Datashed5 cloud-hosted database managed internally by the Company with validation and quarantine capability. Relevant tables from the database are exported to csv format and forwarded to Placer for independent review.
	Data validation procedures used.	Validation of the primary data include checks for overlapping intervals, missing survey data, missing assay data, missing lithological data, missing and mis-matched (to Lithology) collars. Statistical, out-of-range, distribution, error and missing data validation is completed by Placer on data sets before being compiled into a de-surveyed drill hole file and interrogated in 3D using Datamine Studio RM software. All questions relating to the input data are forwarded to the client for review and resolution prior to resource estimation.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Perth Laboratory visits have been completed by the Competent Person, Mr Richard Stockwell. Field and in-country lab visits were complete over a 1-week period in May 2022. A high standard of operation, procedure and personnel was observed and reported.
	If no site visits have been undertaken indicate why this is the case.	Not applicable
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	There is a high degree of repeatability and uniformity in the geological character of the Kasiya Deposit demonstrated by lithological logging of AC, PT core and HA samples. Satellite imagery and airborne geophysical data provided guidance for interpreting the strike continuity of the deposit. Drill hole intercept logging and assay results (AC, PT and HA), stratigraphic interpretations from drill core and geological logs of drill data have formed the basis for the geological interpretation. The drilling exclusively targeted the SOIL, FERP, MOTT and SAPL weathering horizons, with no sampling of the SAPR and below the upper level of the fresh rock (**FRESH**) domain.
	Nature of the data used and of any assumptions made.	No assumptions were made.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations on Mineral Resource Estimation are offered.
	The use of geology in guiding and controlling Mineral Resource estimation.	The mineral resource is constrained by the drill array plus one interval in each of the X, Y and Z axes. The topographical DTM constrains the vertical extent of the resource. Rutile, enriched at surface by deflation and elluvial processes, is constrained internally by a hard boundary at the base of the SOIL and FERP horizons that overly the (generally less-mineralised) MOTT and SAPL horizons. In this way, continuity of rutile, observed in surface drilling results, is honoured between drill lines rather than being diluted by averaging with underlying, lower-grade material. The base to mineralisation is arbitrarily designated at effective drill depth plus one (average sample width) interval in the Z orientation in HA/PT drilling. The effective drill depth is where HA drilling intersects the static water table, rather

Criteria	JORC Code explanation	Commentary
		than being a true depth to un-mineralised basement. Deeper drilling using the AC method has shown rutile enrichment persists to bedrock and a material resource increase is anticipated upon application of this method to a broader area. A base to mineralisation of BOH plus 2.7m (-2.7 RL) is retained for this estimate, where drilled by HA/PT methods. This basement horizon is interpreted on 200m north sections and accounts for artifacts of ineffective drilling terminating in soil or ferp horizons. It is applied consistently to both Indicated and Inferred resource areas. AC drilling has accurately defined depth to basement at the saprock interface, which has been modelled where intersected in the updated MRE.
	The factors affecting continuity both of grade and geology.	Rutile grade is generally concentrated in surface regolith horizons. Deposit stratigraphy and weathering is consistent along and across strike. Rutile grade trend is oriented at 45 degrees at Kasiya North and 360 degrees at Kasiya South, which mimics the underlying basement source rocks and residual topography. Rutile varies across strike as a result of the layering of mineralised and non-mineralised basement rocks.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The Kasiya mineralised footprint strikes NE – SW and currently occupies an area of about 201km^2. Depth to basement is described previously.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	Datamine Studio RM and Supervisor software are used for the data analysis, variography, geological interpretation and resource estimation. Key fields are interpolated into the volume model using a range of parameters and interpolation methods to establish best fit for the deposit. For the Kasiya MRE update, the Inverse Distance weighting (power 4) method was seen to perform a superior interpolation of informing data and replication of the high-value and thin, surface (SOIL/FERP) grade distribution. This was assisted by the (customary) application of a Dynamic Anisotropy search, informed by the results of variography, Suitable limitations on the number of samples and the impact of those samples, was maintained. Extreme grade values were not identified by statistical analysis, nor were they anticipated in this style of deposit. No top cut is applied to the resource estimation. Interpolation was constrained by hard boundaries (domains) that result from the geological interpretation.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	This is the fourth MRE for the Kasiya Deposit. Bulk-scale test work has been completed and results support the view of the Competent Person that an economic deposit of readily separable, high-quality rutile is anticipated from the Kasiya Deposit. The recovery of a coarse-flake graphite by-product was achieved by the test work.
	The assumptions made regarding recovery of by-products.	A graphite co-product was modelled as recoverable TGC.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No significant deleterious elements are identified. A selection of assay, magnetic separation and XRF results are modelled and are reported.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The average parent cell size used is equivalent to the average drill hole spacing within the Indicated Resource (200m*200m). Cell size in the Z-axis is established to cater for the composite sample spacing and definition of the Topsoil domain. This resulted in a parent cell size of 200m x 200m x 3m for the volume model with 5 sub-cell splits available in the X and Y axes and 10 in the Z axis to smooth topographical and lithological transitions. Both parent cell and sub-cell interpolations were completed and reported. The sub-cell interpolation was again applied to this MRE as it better reflected the geological interpretation and a reasonable graduation of informing data through intermediate cell areas. A Topsoil horizon has been defined at 0.3m thickness throughout the Indicated Resource area to support anticipated ore reserve calculation and mining

Criteria	JORC Code explanation	Commentary
		studies. Topsoil is disclosed separately but remains in the MRE in recognition of advanced rehabilitation studies in the PFS by Agreenco.
	Any assumptions behind modelling of selective mining units.	No assumptions were made regarding the modelling of selective mining units. The resource is reported at an Indicated level of confidence and is suitable for optimisation and the calculation of a Probable Reserve.
	Any assumptions about correlation between variables.	No assumptions were made regarding the correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Interpolation was constrained by hard boundaries (domains) that result from the geological interpretation.
	Discussion of basis for using or not using grade cutting or capping.	Extreme grade values were not identified by statistical analysis, nor were they anticipated in this style of deposit. No top cut is applied to the resource estimation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of grade interpolations was done visually In Datamine by loading model and drill hole files and annotating, colouring and using filtering to check for the appropriateness of interpolations. Statistical distributions were prepared for model zones from both drill holes and the model to compare the effectiveness of the interpolation. Distributions of section line averages (swath plots) for drill holes and models were also prepared for each zone and orientation for comparison purposes. The resource model has effectively averaged informing drill hole data and is considered suitable to support the resource classifications as applied to the estimate.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages are estimated on a dry basis. No moisture content is factored.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The resource is reported at a range of bottom cut-off grades in recognition that optimisation and financial assessment is outstanding. A nominal bottom cut of 0.7% rutile is offered, based on preliminary assessment of resource value and anticipated operational cost.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	Dry-mining has been determined as the optimal method of mining for the Kasiya Rutile deposit. The materials competence is loose, soft, fine and friable with no cemented sand or dense clay layers, allowing for a free dig mining method. It is considered that the strip ratio would be zero or near zero. Dilution is considered to be minimal as mineralisation commonly occurs from surface and mineralisation is generally gradational with few sharp boundaries. Recovery parameters have not been factored into the estimate. However, the valuable minerals are readily separable due to their SG differential and are expected to have a high recovery through the proposed, conventional wet concentration plant.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Rigorous metallurgical testwork on rutile and graphite recoverability and specifications has been completed on numerous bulk samples since 2018. Rutile recovered to product is modelled at 100% and graphite recovered to product is modelled at 67.5%. Both products have best-in-class chemical and physical specifications. Refer to text of the announcement for further details.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of*	A large portion of the Mineral Resource is confined to the SOIL, FERP and MOTT weathering domains, and any sulphide minerals have been oxidised in the

Criteria	JORC Code explanation	Commentary
	the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	geological past. Therefore, acid mine-drainage is not anticipated to be a significant risk when mining from the oxidised domain. The Kasiya deposit is located within a farming area and has villages located along the strike of the deposit. Sovereign holds regular discussions with local landholders and community groups to keep them well informed of the status and future planned directions of the project. Sovereign has benefited from maintaining good relations with landowners and enjoys strong support from the community at large. Kasiya is in a sub-equatorial region of Malawi and is subject to heavy seasonal rainfall, with rapid growth of vegetation in season. Substantial vegetation or nature reserve is absent in the area.
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Density was calculated from 310 full core samples taken from geographically and lithologically-diverse sites across the deposit. Density is calculated using a cylinder volume wet and dry method performed by Sovereign in Malawi and calculations verified by Placer Consulting. Density data was loaded into an Excel file, which was flagged against weathering horizons and mineralisation domains. These results were then averaged, by domain and applied to the MRE.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vughs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	As above.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average density of 1.65 t/m^3 was determined for the total weathering profile. This incorporates and average density of 1.39 t/m^3 for the SOIL domain, 1.58 t/m^3 for the FERP domain, 1.66 t/m^3 for the MOTT domain, 1.69 t/m^3 for the PSAP domain, 1.97 t/m^3 for the SAPL domain, and 1.95 t/m^3 for the LAT domain. Density data are interpolated into the resource estimate by the nearest neighbour method.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Classification of the MRE is at an Indicated and Inferred category. Minor regions of unclassified material occur in sparsely drilled, typically extraneous regions of the mineralised area. These are excluded from the resource inventory. Inferred classification is attributed to those areas with drilling spaced at 400m x 400m. Indicated classification is attributed to those areas with drilling spaced at 200m x 200m.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All available data were assessed and the competent person's relative confidence in the data was used to assist in the classification of the Mineral Resource.
	Whether the result appropriately reflects the Competent Person's view of the deposit	Results appropriately reflects a reasonable and conservative view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Independent audit of the MRE construction was contracted to Datamine Australia by Placer prior to delivery to SVM. A third party is engaged by SVM for a further verification of the MRE.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource 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 resource within stated confidence limits, or, if such an*	Substantial additional mineralisation was expected to occur below the effective depth of HA and PT drilling. This has been confirmed by the deeper AC drilling. A high-degree of uniformity exists in the broad and contiguous lithological and grade character of the deposit. Drilling technique have been expertly applied and data collection procedures, density assessments, QA protocols and interpretations conform to industry best practice with few exceptions.

Criteria	JORC Code explanation	Commentary
	approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	Assay, mineralogical determinations and metallurgical test work conform to industry best practice and demonstrate a rigorous assessment of product and procedure. The development of a conventional processing flowsheet and marketability studies support the classification of the Kasiya Resource.
	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.	The estimate is global.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No production data are available to reconcile model results.

Section 4 – Estimation and Reporting of Ore Reserves

Criteria	Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	The current identified MRE underpins the Ore Reserve. Sovereign engaged independent geological and mining consultants Placer to complete the MRE for the Kasiya deposit. The principal resource geologist Mr Richard Stockwell is highly experienced with more than 25 years in resource estimation and mine geology. Mr Richard Stockwell is a Competent Person for the purposes of the MRE as defined and in accordance with the JORC Code 2012. The MRE as reported in this document is inclusive of the Ore Reserve declared in this document. The Ore Reserve does not include Inferred Mineral Resources.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Site visits have been carried out by the following personnel: • Mr Frikkie Fourie, the Competent Person for the JORC Mineral Reserve Estimate update, has conducted multiple site visits, overseeing the excavation of the trial mining pit as part of the recent Pilot Phase. • Mr Richard Stockwell, the Competent Person for the JORC Mineral Resource Estimate and a representative of Placer Consulting Pty Ltd has conducted one site visit.
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	The technical and financial information in this release is at PFS-level enabling the restament of Ore Reserves. The studies carried out have determined a mine plan that is technically achievable and economically viable with all material Modifying Factors having been considered. The Ore Reserve in this OPFS, in underpinned by a mine plan detailing mining locations, ore and waste quantities; plant feed quantities and plant head grades. Scheduling was undertaken in annual and quarterly periods. The Mine planning activities included an updated pit optimisation, development of mineable pit geometries, scheduling, mining cost estimation and financial analysis in order to confirm the ability to economically mine the Kasiya Ore Reserve. Modifying factors considered and reviewed during the OPFS mine planning process included pit slope design criteria, mining costs, mining dilution and ore loss, processing recoveries, processing costs, selling costs, general and administration costs and product price.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Pit cut-off grades varied between 0.7% and 0.9% rutile with cut-offs selected to provide the most tonnage whilst minimising the pit footprint to have as little environmental/social impact as possible. The selected cut-off grades are above the final project breakeven cut-off grade of approximately 0.40% rutile.

Criteria	Explanation	Commentary
Mining factors or assumptions	*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).* *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.* *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.* *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* *The mining dilution factors used.* *The mining recovery factors used.* *Any minimum mining widths used.* *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* *The infrastructure requirements of the selected mining methods.*	The Kasiya MRE was used as the basis for the PFS Ore Reserve estimate. Mineral Resources were converted to Ore Reserves in line with the material classifications which reflect the level of confidence within the resource estimate. The Ore Reserve reflects that portion of the Mineral Resource which can be economically extracted by open pits utilising using conventional dry mining techniques and a simple mobile excavator fleet. The Ore Reserve considers the modifying factors and other parameters detailed in the relevant sections of the OPFS report, including but not limited to the mining, metallurgical, social, environmental, approvals, tenure, statutory and financial aspects of the project. In line with the JORC 2012 guidelines, the Kasiya Probable Ore Reserve is based on Indicated classified Mineral Resources. There is no Measured classified Mineral Resource at Kasiya and consequently no Proved Ore Reserve. Inferred classified material is not included in the Ore Reserve and therefore is not considered for mining. The reported MRE is inclusive of the resources converted to Ore Reserves. The Ore Reserve includes an allowance for mining dilution and ore loss on the basis that all material within the shell is classified and extracted as ore. The open pit geometries developed for the purposes of mine planning, and which define the subsequent Ore Reserve, are based on Whittle pit shells edited to comply with practical mining requirements and identified exclusion zones. **Selection of Mining method** The mining options were evaluated in detail during the OPFS to determine the best suited mining method for the operation. The criteria for selection were based not only on capital and operating cost, but ESG considerations, infrastructure requirements and operability. Sovereign performed testwork on ROM material and conducted an extensive trial mining, backfilling and rehabilitation operation. The outcomes of this work resulted in a dry mining solution, utilising draglines, shovels and trucks. The conversion to conventional dry mining methods adds significant production flexibility and lower operational risk. **Pit Optimisation** An open pit optimisation utilising Whittle™ software was carried out on the Kasiya deposit using Indicated Mineral Resources only (in line with the JORC 2012 guidelines). The latest parameters available were used to determine the economic extent of the open pit excavation. The process plant production parameters were supplied by Sovereign with an initial rate of 12mtpa and a ramp up in production in year 5 to an annual rate of 24Mtpa by the beginning of year 6. Whilst dry mining lends itself to a selective mining approach, the basis of the OPFS is a bulk mining operation and therefore, all material within the "shell" will be extracted and fed to the plant as ore and any interstitial waste and/or sub-economic grade material will be likewise treated as diluent material. However, due to the relatively homogenous and continuous nature the orebody, the quantities of this material will be relatively small and therefore a simple 5% dilution was applied within the Whittle™ tool to approximate this assumption. The OPFS uses an overall slope angle of 20 degrees has been applied within the optimisation. **Mineable Pit Geometries** Based on the cut-off grades applied, the optimization shells were further were further refined to develop a mineable geometry. The process applied the following constraints: – A minimum depth of 5m. – Pit extents limited to mineable areas and to remain outside of identified exclusion areas wherever reasonably possible. Sovereign identified all local village areas and areas of cultural or environmental significance within the potential mining envelope that should not be disturbed during the mining phase of the Project.

Criteria	Explanation	Commentary
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* *Whether the metallurgical process is well-tested technology or novel in nature.* *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* *Any assumptions or allowances made for deleterious elements.* *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* *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet specifications?*	**Rutile** Sovereign completed bulk rutile testwork programs at the globally recognised AML in Perth, Australia. The program was supervised by Sovereign's Head of Development, Paul Marcos. Mr Marcos is a metallurgist and process engineer and a mineral sands industry veteran. Bulk test-work programs have confirmed premium grade rutile can be produced via a simple and conventional process flow sheet. Processing engineering was completed by DRA Limited who developed the process plant design and associated cost estimate for the OPFS. An average product grade of 96% TiO_2 with 100% recovery to rutile product was assumed for the PFS. **Graphite** Sovereign has conducted graphite testwork across ALS Laboratory in Perth and SGS Lakefield in Canada. Veteran graphite metallurgist Oliver Peters, MSc, P.Eng., MBA (Consulting Metallurgist for SGS and Principal Metallurgist of Metpro Management Inc.) was engaged to supervise and consult on the testwork programs. Mr Peters has over 25 years' experience in metallurgy on graphite and other commodities. He has operated numerous graphite pilot plants and commissioned a number of full-scale processing facilities. DRA's Senior Engineer, Stewart Calder and Manager Metallurgy, John Fleay supervised and advised on sample selection, testwork scope and results from the latest testwork programs for the PFS. Both consultants are considered to have the appropriate capabilities and similarities with the material and the early stage of the project. An average product grade of 96% C^t with 67.5% recovery to product was assumed for the PFS. **Rutile & Graphite** It is acknowledged that laboratory scale test-work will not always represent actual results achieved from a production plant in terms of grade, chemistry, sizing and recovery. Further test-work will be required to gain additional confidence of specifications and recoveries that will be achieved at full-scale production. Overall, the process flow-sheet is conventional for both rutile and graphite with no novel features or equipment incorporated.
Environmental	*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.*	An Environmental Impact Assessment (ESIA) is underway with reference to applicable Malawian and international environmental and social permitting and baseline requirements for the Kasiya Project. Sovereign is committed to conduct its activities in full compliance to the requirements of national regulations, its obligations under international conventions and treaties and giving due consideration to international best practices and policies. Sovereign has appointed an experienced environmental consultant to manage the ESIA process, and environmental and social baseline studies have commenced with appropriately qualified independent experts. Sovereign has also completed a high-level risk assessment to identify major environmental and social risks which could affect the development of the Project, along with mitigating strategies to allow identified risks to be addressed early in the project design phase. Sovereign has embarked on several exercises with the communities in the area and there is a general positive acceptance of the Project. Based on the current assessments and commenced ESIA, the Competent Person believes there are no environmental issues currently identified that cannot be appropriately mitigated in accordance with standard practices adopted for the development of mining projects.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour,*	Kasiya is located approximately 40km northwest of Lilongwe, Malawi's capital, and boasts favourable access to services and infrastructure. The proximity to Lilongwe gives the project access to a large pool of professionals and skilled tradespeople, as well as industrial services. Logistics cost estimates, including rail and port infrastructure and handling,

Criteria	Explanation	Commentary
	accommodation; or the ease with which the infrastructure can be provided, or accessed.	were provided by Thelo DB, Nacala Logistics and Grindrod based on market data, suppliers' quotations, industry databases, industry contacts and the consultant's existing knowledge of southern African transport infrastructure and freight markets. The above consultants are independent with appropriate experience in the management of transport logistics studies in southern Africa.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.* *The methodology used to estimate operating costs.* *Allowances made for the content of deleterious elements.* *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.* *Derivation of transportation charges.* *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* *The allowances made for royalties payable, both Government and private.*	Capital estimates for the Project have been prepared by PCC, together with input from DRA Limited, Sovereign and other contributing consultants using combinations of cost estimates from suppliers, historical data, benchmarks and other independent sources. The accuracy of the initial capital cost estimate for the Project is -20% and +25%. Capital costs include the cost of all services, direct costs, contractor indirects, EPCM expenses, non-process infrastructure, sustaining capital and other facilities used for the mine. Capital costs make provision for mitigation expenses and mine closure and environmental costs. Working capital requirements (including contingency) for plant commissioning and full ramp-up have been included in the headline capital estimate reported under construction, owner's and start-up costs. Labor costs have been developed based on a first-principles build-up of staffing requirements with labor rates benchmarked in Malawi and expatriate rates benchmarked for professionals from South Africa and other jurisdictions. A Government royalty of 5% (applied to revenue) and a vendor profit share of 2% (applied to gross profit) has been included in all project economics. A 0.45% royalty (applied to revenue) has been applied for the community development fund. Rehabilitation and mine closure costs are included within the reported operating cost and sustaining capital estimates.
Revenue factors	*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.* *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	Sales pricing for both products is based on current market analysis conducted by independent parties (see below).
Market assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* *A customer and competitor analysis along with the identification of likely market windows for the product.* *Price and volume forecasts and the basis for these forecasts.*	Sovereign obtained independent market assessments for both products. **Rutile** Sovereign engaged market leading TZMI to provide a bespoke marketing report to support the Study. TZMI is a global, independent consulting and publishing company which specialises in technical, strategic and commercial analyses of the opaque (non-terminal market) mineral, chemical and metal sectors. TZMI's assessment has confirmed that, based upon their high-level view on global demand and supply forecasts for natural rutile, and with reference to the specific attributes of Kasiya, there is a reasonable expectation that the product will be able to be sold into existing and future rutile markets. Given the premium specifications of Kasiya's natural rutile, the product should be suitable for all major natural end-use markets including TiO_2 pigment feedstock, titanium metal and welding sectors. The rutile price adopted in the OPFS is unchanged from the 2023 PFS rutile price which was based on TZMI's real 2023 price forecast and confirmed by TZMI as part of the OPFS. Using the above product mix, the LOM average "realised" price for rutile was US$1,490 per tonne FOB, Nacala **Graphite**

Criteria	Explanation	Commentary
		Sovereign engaged Fastmarkets, a specialist international publisher and information provider for the global steel, non-ferrous and industrial minerals markets, to prepare a marketing report for graphite. Fastmarkets' assessment has confirmed that based upon their high-level view on global demand and supply forecasts for natural flake graphite, and with reference to the specific attributes of Sovereign's projects, there is a reasonable expectation that the product from Sovereign's projects will be able to be sold into existing and future graphite markets. Given the extremely low-cost profile and high-quality product, it is expected that output from Kasiya will be able to fill new demand or substitute existing lower quality / higher cost supply. Project considerations taken by Fastmarkets in forming an opinion about the marketability of product include: – Low capital costs (incremental) – Low operating costs – High quality concentrate specifications Industry participants confirm that the highest value graphite concentrates remain the large, jumbo and super-jumbo flake fractions, primarily used in industrial applications such as refractories, foundries and expandable products. These sectors currently make up the significant majority of total global natural flake graphite market by value. Fastmarkets have formed their opinion based solely upon project information provided by Sovereign to Fastmarkets and have not conducted any independent analysis or due diligence on the information provided. The Company has taken conservative view on graphite pricing. The basket price used for the OPFS remains unchanged from the 2023 PFS, remaining at US$1,290/t (real) for the LOM. Price forecasts for Kasiya's graphite basket were sourced Fastmarkets as part of the OPFS. The graphite price used in the OPFS is 30% lower than Fastmarkets' long-term price forecast of US$1,846.
Economic	*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* *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	Key parameters are disclosed in the body of the announcement, and include: – Life of Mine: 25 years – Discount rate: 8% – Royalty rate: 5% royalty (Government), 2% of gross profit (Original Project Vendor) and 0.45% Community Development Fund. – Pricing: Rutile average price of US$1,490 per tonne and Graphite average basket price of US$1,290 per tonne The OPFS financial model has been built and prepared by Practara, an independent specialist mining financial modelling company using inputs from the various expert consultants and has been reviewed by SP Angel Corporate Finance LLP, the Company's Nominated Advisor and Corporate Broker as defined by the AIM Rules for Companies set out by the London Stock Exchange, to validate the functionality and accuracy of the model. NPV sensitivity to costs and price were assessed utilising the Project financial model developed by Practara. As is the case for most commodity-based projects, the NPV is most sensitive to changes in price, with a +/-25% variation in both rutile and graphite price generating a +/-54% variation in project pre-tax ungeared net present value at an 8% discount. It is moderately sensitive to operating cost changes, with a +/-25% cost change producing a -/+18% fluctuation in project pre-tax ungeared net present value at an 8% discount. Approximately 3% of this value change is attributable to mining costs, 4% to logistics costs and the remaining 10% to processing/labour/G&A related costs. The project is less sensitive to capital cost changes, with a +/-25% variation in capital affecting NPV by -/+11%.
Social	*The status of agreements with key stakeholders and matters leading to social license to operate.*	Sovereign expects to enter into a Community Development Agreement ("CDA") with the surrounding communities. Significant engagement with these communities has occurred over the exploration phases and is ongoing

Criteria	Explanation	Commentary
		ahead of negotiation of the CDA which is expected to be concluded during the DFS stage.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* *Any identified material naturally occurring risks.* *The status of material legal agreements and marketing arrangements.* *The status of government 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.*	No identifiable naturally occurring risks have been identified to impact the Kasiya Ore Reserve. Sovereign has no existing binding offtake agreement in place. Sovereign is yet to apply for a Mining Licence ("ML") covering the footprint of the project, however it is not anticipated for there to be any objections in obtaining the necessary government approvals.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	The Kasiya Ore Reserves comprise Indicated Mineral Resource material converted to "Probable" reserves. In line with JORC 2012 guidelines, Inferred Mineral Resource material has not been included. 100% of the Kasiya Ore Reserve is in the Probable Reserves category.
Audit or reviews	The results of any audits or reviews of Ore Reserve estimates.	No external audits or reviews have been carried out to date.

APPENDIX 2 – MINERAL SANDS COST INFORMATION

Company	Project	Stage of Development	Operating Costs (FOB) *US$/t*	Current Rutile Production *tpa*	Source
Lenoil	Area 1	Production	1,174	44.0	Sierra Rutile Quarterly Report June 2024
Energy Fuels	Kwale	Closure	-	-	Base Resources Annual Report 2024 (26/08/24)

Notes:
Area 1 current production based on pro rata of previous quarterly reported production (June 2024). In October 2024, the previous owner of the Area 1 Mine, Sierra Rutlie Limited, previously listed on the ASX under the ticker SRX, was acquired by Lenoil Company Limited, a private company based in Sierra Leone.
In 2024, the previous owner of the Kwale Operations, Base Resources Limited was acquired by Energy Fuels Inc., a US-based uranium and critical minerals company.

APPENDIX 3 – FLAKE GRAPHITE OPERATING COST INFORMATION

Company	Project	Stage of Development	Operating Costs (FOB) *US$/t*	Steady State Production *Tpa*	Current Production *tpa*	Notes	Source
Black Rock Mining	Mahenge	Financing post DFS	466	89,000	-	Operating costs are for first 10 years therefore prodcution of first 10 years only shown	Company Announcement: Black Rock Completes FEED and eDFS Update (10 October 2022)
Blencowe Resources	Orom-Cross	PFS Complete	499	101,000	-	-	Company Announcement: Major Milestone as Blencowe Delivers US$482M NPV Pre-Feasibility Study for Orom-Cross Graphite Project (19 July 2022)
Ecograf	Epanko	BFS Complete	508	73,000	-	-	Updated Epanko Ore Reserve (25 July 2024) Epanko Pre-Development Program Delivers Outstanding Results (28 April 2023)
Evion	Maniry	DFS Complete	657	56,400	-	Production of 56.4ktpa is from year 4. Years 1-3 production is 39ktpa	BlackEarth Minerals Maniry Graphite Project Definitive Feasibility Study (3 November 2022)
Evolution Energy	Chilalo	DFS Complete	773	52,000	-	Operating costs are for first 9 years of produciton	Company Announcement: FEED and updated DFS confirms Chilalo as a standout high margin, low capex and development-ready graphite project (20 March 2023)
Falcon Energy Materials	Lola	Updated DFS Complete	588	92,435	-	-	SEDAR Filing: Lola Graphite Project NI 43-101 Technical Report - Updated Feasibility Study (7 April 2023)
Focus Graphite	Lac Knife	FS Complete	413	50,000	-	Converted from Canadian Dollars to US Dollars based on exchange rate used in source document of 1.00 CAD / 0.736 USD	Company Announcement: NI 43-101 Technical Report – Feasibility Study Update Lac Knife Graphite Project Québec, Canada (14 April 2023)
Graphite One	Graphite Creek	PFS Complete	1,394	51,813	-	Production and costs relate to Graphite Creek Mine and not the proposed graphite manufacturing facility	Company Announcement: Graphite One Advances its United States Graphite Supply Chain Solution Demonstrating a Pre-tax USD$1.9B NPV (8%), 26.0% IRR and 4.6 Year Payback on its Integrated Project (29 August 2022)
Mineral Commodities	Skaaland	Production	1,434	10,000	10,000	Production based on annual operating target, costs based on latest reported numbers for September 2024	Quarterly Activities Report: September 2024
Mineral Commodities	Munglinup	DFS Complete	491	54,000	-		Company Announcement: Robust Munglinup DFS Results Allow MRC to Move to 90% Ownership of Munglinup Graphite Project (8 January 2020)
NextSource Materials	Molo	Construction	541	150,000	-	Figures relate to Molo expansion case. Operating Costs are	Company Announcement: Nextsource Materials announces robust feasibility

Company	Project	Stage of Development	Operating Costs (FOB) *US$/t*	Steady State Production *Tpa*	Current Production *tpa*	Notes	Source
						US$392.59/t Minesite Operating Cost plus Selling Cost of US$148.80	study results for Molo Mine expansion to 150,000 tonnes per annum of Superflake® graphite concentrate (12 December 2023)
NGX	Malingunde	PFS Complete	396	52,000	-	-	Company Presentation: Clean Energy Minerals in Africa (August 2024)
Nouveau Monde Graphite	Matawinie	Construction	443	103,328	-	Exchange rate used as per technical report	Technical Report: Feasibility Study for the Matawinie Property
Renascor	Siviour	DFS Complete	472	150,000	-		Company Announcement: Siviour Battery Anode Material Study Results (8 August 2023)
South Star Battery Metals	Santa Cruz	Production	396	20,318	Not disclosed	Cost is ex mine - not FOB as does not include unit transport costs.	Technical Report: Updated Resources and Reserves Assessment and Pre-feasibility Study (18 March 2020)
Syrah Resources	Balama	Production	455	240,000	-	Production based on Company guidance of 20kt per month production rate. Operating costs based on midpoint of Balama C1 cost (FOB Nacala/Pemba) medium-term guidance of US$430-480 per tonne.	Company Quarterly Activities Report September 2024 (30 October 2024)
Triton	Ancuabe	DFS Complete	634	60,000	-	2023 updates to DFS do not include updated costs and base case production figures. On 9th December 2024, Triton Minerals announced that it had executed a Share Sale and Purchase Agreement with Shandong Yulong Gold Limited for the sale of at least 70% of its interests in the entities that hold the Ancuabe Graphite Project	Company Announcement: Triton Delivers Robust Ancuabe Definitive Feasibility Study and Declares Maiden Ore Reserve (15 December 2017)
Volt Resources	Bunyu	Stage 1 FS Complete	670	24,780	-	Relates to stage 1 development which has had a feasibility study completed	Company Announcement: Feasibility Study Update for Bunyu Graphite Project Stage 1, Tanzania, delivers significantly improved economics (14 August 2023)

Note:
Magnis not included while shares are suspended by the ASX in December 2023
Walkabout's Lindi Project not included following appointment of voluntary administrators and Receivers in November 2024
Leading Edge Materials Woxna Graphite not included as it is currently under care and maintenance
Northern Graphite's Lac des Iles not included due to recent maintenance
Talga Group not shown as latest technical study based on integrated anode plant strategy
Tirupati Graphite not included due to lack of disclosure

APPENDIX 4 – MINERAL SANDS RESOURCE INFORMATION

Ref	Project	Company	Status	Source
1	Sembehun	Lemoil Company Limited	DFS	2023 Annual Report https://sierra-rutile.com/media/52zon0go/sierra-rutile-2023-annual-report.pdf
2	Namakwa	Tronox Holdings plc	Production	2023 Annual Report https://s1.q4cdn.com/960380961/files/doc_financials/2023/ar/2023_trox_annual_report.pdf
3	Moma (Various)	Kenmare Resources plc	Production	2023 Annual Report https://www.kenmareresources.com/application/files/6417/1377/1105/2024-04-04_Kenmare_2023_Annual_Report_-_interactive.pdf#page=53
4	Wimmera	Iluka Resources	DFS	https://iluka.com/media/tvooma0v/2023-resource-reserve-deposit-tables-website-update.pdf
5	Port Durnford	Tronox Holdings plc	Pre-development	2023 Annual Report https://s1.q4cdn.com/960380961/files/doc_financials/2023/ar/2023_trox_annual_report.pdf
6	Area 1	Lemoil Company Limited	Production	2023 Annual Report https://sierra-rutile.com/media/52zon0go/sierra-rutile-2023-annual-report.pdf
7	Balranald	Iluka Resources	Construction	https://iluka.com/media/tvooma0v/2023-resource-reserve-deposit-tables-website-update.pdf

Note: In October 2024, the previous owner of the Area 1 Mine, Sierra Rutlie Limited, previously listed on the ASX under the ticker SRX, was acquired by Lenoil Company Limited, a private company based in Sierra Leone.

Detailed Mineral Resources by Category

1. Sembehun – Lenoil			
	Mt	**Rutile Grade***	**In-situ Rutile**
Measured	133.77	1.38%	1.85
Indicated	166.82	1.05%	1.75
Inferred	207.20	0.93%	1.93
Total	**507.79**	**1.09%**	**5.53**
2. Namakwa – Tronox			
	Mt	**Rutile Grade***	**In-situ Rutile**
Reserves not included in resources	666	0.61%	4.0
Measured	112	0.43%	0.5
Indicated	84	0.36%	0.3
Inferred	110	0.45%	0.5
Total	**972**	**0.55%**	**5.3**
3. Moma (various) – Kenmare			
	Mt	**Rutile Grade***	**In-situ Rutile**
Measured	362	0.06%	0.2
Indicated	2,878	0.05%	1.4
Inferred	4,298	0.04%	1.8
Total	**7,538**	**0.05%**	**3.5**
4. Wimmera – Iluka Resources			
	Mt	**Rutile Grade***	**In-situ Rutile**
Measured	**0**	**0**	**0**
Indicated	**159**	**0.24%**	**0.4**
Inferred	**993**	**0.26%**	**2.5**
Total	**1,377**	**0.25%**	**3.4**

5. Port Durmford – Tronox			
	Mt	**Rutile Grade***	**In-situ Rutile**
Measured	**143**	**0.27%**	**0.4**
Indicated	**340**	**0.25%**	**0.9**
Inferred	**466**	**0.22%**	**1.0**
Total	**949**	**0.24%**	**2.3**
6. Area 1 – Lenoil			
	Mt	**Rutile Grade***	**In-situ Rutile**
Measured	**41.85**	**0.99%**	**0.41**
Indicated	**103.53**	**0.91%**	**0.94**
Inferred	**123.32**	**0.71%**	**0.88**
Total	**268.7**	**0.83%**	**2.23**
7. Balranald – Iluka Resources			
	Mt	**Rutile Grade***	**In-situ Rutile**
Measured	**6**	**5.7%**	**0.3**
Indicated	**35**	**4.1%**	**1.4**
Inferred	**13**	**3.0%**	**0.4**
Total	**54**	**3.7%**	**2.0**

* Where not disclosed separately, rutile grade calculated as HM% times rutile % of assemblage

APPENDIX 5 – FLAKE GRAPHITE RESOURCE INFORMATION

Ref	Project	Company	Status	Source
1	Balama	Syrah Resources	Production	https://www.syrahresources.com.au/our-business/reserves-resources
2	Bunyu	Volt Resources	Stage 1 FS Complete	https://api.investi.com.au/api/announcements/vrc/716eabf2-08b.pdf
3	Epanko	Ecograf	BFS Complete	ASX announcement "Updated Epanko Ore Reserve", dated 25 July 2024
4	Mahenge	Black Rock Mining	Post eDFS	https://blackrockmining.com.au/wp-content/uploads/AnnualReportToShareholders23Sep24.pdf
5	Graphite Creek	Graphite One	PFS Complete	https://www.graphiteoneinc.com/wp-content/uploads/2022/10/JDS-Graphite-One-NI-43-101-PFS-20221013-compressed.pdf
6	Uatnan	Nouveau Monde Graphite	PEA Complete	https://nmg.com/acquisition-lac-gueret/

Note:
Magnis not included while shares are suspended by the ASX in December 2023
Walkabout's Lindi Project not included following appointment of voluntary administrators and Receivers in November 2024

1. Balama – Syrah			
	Mt	**Graphite Grade**	**Contained Graphite**
Measured	21	16.9%	3.5
Indicated	240	13.0%	31.2
Inferred	774	11.0%	85.1
Total	**1,035**	**11.6%**	**120**
2. Bunyu – Volt			
	Mt	**Graphite Grade**	**Contained Graphite**
Measured	20	5.3%	1.1
Indicated	155	5.0%	7.8
Inferred	286	4.9%	14.0
Total	**461**	**4.9%**	**22.6**
3. Epanko – Ecograf			
	Mt	**Graphite Grade**	**Contained Graphite**
Measured	32.3	7.8%	2.5
Indicated	55.7	7.5%	4.2
Inferred	202.8	7.2%	14.3
Total	**290.8**	**7.2%**	**21.0**
4. Mahenge – Black Rock			
	Mt	**Graphite Grade**	**Contained Graphite**
Measured	31.8	8.6%	2.7
Indicated	84.6	7.8%	6.6
Inferred	96.7	7.4%	7.2
Total	**213.1**	**7.8%**	**16.6**
5. Graphite Creek – Graphite One			
	Mt	**Graphite Grade**	**Contained Graphite**
Measured	4.7	5.8%	0.3
Indicated	27.9	5.2%	1.4
Inferred	254.7	5.1%	13.0
Total	**287.2**	**5.1%**	**14.7**

6. Uatnan – Nouveau Monde			
	Mt	**Graphite Grade**	**Contained Graphite**
Measured	19.0	17.9%	3.4
Indicated	46.7	16.9%	7.9
Inferred	17.8	17.2%	3.1
Total	**83.5**	**17.2%**	**14.4**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