ASX RELEASE

7 NOVEMBER 2018

SOVEREIGN METALS LIMITED

ASX:SVM

MALINGUNDE PFS DELIVERS LOWEST OPERATING COST COARSE FLAKE GRAPHITE PROJECT GLOBALLY

Sovereign Metals Limited ("**the Company**" or "**Sovereign**") is pleased to announce the Pre-Feasibility Study ("**PFS**") for the Company's Malingunde Saprolite-Hosted Graphite Project ("**Malingunde Project**" or "**the Project**") in Malawi. The PFS shows the Project's low capital and very low operating costs are at the bottom of the graphite supply cost-curve at a scale appropriate for the current market.

US$323/t Average OPERATING COST	**US$49m** Total DEVELOPMENT CAPEX (including contingency of US$5.2m)	**US$201m** NPV 10% Pre-tax	**IRR 56%** Pre-tax
9.5% TGC HIGH HEAD GRADE	**16 years** Total MINE LIFE	**52,000t** Average ANNUAL PRODUCTION	**600,000t** Average annual PLANT THROUGHPUT

MAIDEN ORE RESERVE

9.5Mt at 9.5% TGC

(32% PROVED & 68% PROBABLE)

The PFS confirms Malingunde's world-class status based on the following:

- **Maiden Ore Reserve declared:** high grade Reserve with 32% in the Proven and 68% in the Probable categories. PFS based 100% on Reserves.
- **Extremely low operating costs:** due to the advantages of the soft saprolite-hosted deposit.
  - US$323/t concentrate (FOB) LoM average, moving to as low as US$284/t after year 7.
  - Mine gate LoM average US$257/t moving to as low as US$218/t after year 7.
- **Low technical risk:** free-dig mining, low strip ratio with simple, proven process flowsheet.
- **High-quality concentrates:** sales targeted to traditional industrial sector (refractories, foundries, expandables) as well as the emerging Li-ion battery sector.
- **Substantial upside:** huge scalability and expansion opportunities.

Sovereign's Managing Director, Dr Julian Stephens, said "We believe Malingunde is the world's best flake graphite project. The high-grade, soft, free-dig saprolite-hosted ore, requiring no primary crush or grind combined with a simple and proven flowsheet results in low capital intensity and extremely low operating costs. Malingunde is an unparalleled, low technical risk, high margin project that provides significant cashflows with substantial upside scalability into a growing graphite market."

ENQUIRIES
+618 9322 6322

Dr Julian Stephens – Managing Director
Sam Cordin – Business Development Manager

Extremely Low Operating & Low Capital Costs, High Margins

- Average LOM ("life of mine") **operating costs of US$323/t** concentrate FOB with long-term, steady-state operating costs averaging as low as US$284/t FOB (year 7 to end LoM).
- **High quality product with ~60% +150µm, 96-98% TGC** commanding high revenues.
- Total **capital cost of US$49 million** including contingency of US$5m.
- **NPV of US$201m** pre-tax, using conservative long-term average basket pricing assumption of US$1,216 per tonne of concentrate.
- Average **EBITDA over US$42m per annum** over LoM.
- Payback: 3.0 years from start of production.

Excellent Existing Infrastructure

- **Recently refurbished rail line to Nacala Port**: MOU signed with rail concessionaire - drafting of full transport agreement currently underway.
- **High quality existing road network** to site: mostly bitumen with ~10km all-weather gravel road.
- 10km from planned Bunda electricity sub-station, 44km from new Nkhoma sub-station: **grid power provision slated for 2024**.

Strong Relationships and Partnerships

- Project located in the **mining friendly jurisdiction of Malawi.** Strong government and community support with long standing relationships.
- **Rail and port export logistics partnership with CEAR** (controlled by Vale and Mitsui).
- Well advanced sales negotiations with numerous Tier 1 and other high quality off-take parties across a number of industrial sectors and global locations.

Commentary

Sovereign's 100%-owned Malingunde saprolite-hosted graphite project is a globally significant, coarse flake graphite development. It represents a high quality potential future mining operation producing premium quality natural graphite products. The PFS demonstrates extremely low operating and low capital costs providing excellent margins. The compelling economic estimates can be attributed to the deposit being hosted entirely by soft saprolite material, its high grade at 9.5% TGC and the excellent infrastructure availability.

Soft-saprolite hosted graphite deposits are sought after as they have distinct operating and capital cost advantages over hard-rock deposits. Currently operating saprolite-hosted flake graphite mines are located in Madagascar, however these are mostly small and low grade (typically 4-6% TGC). Malingunde is rare in that it is the world's largest reported saprolite-hosted flake graphite deposit and also has a high-grade ore reserve at 9.5% TGC.

The PFS shows that Malingunde offers a technically and economically robust, low risk pathway to production of premium quality, coarse flake graphite concentrates. The significant cost savings, compared to hard-rock peers, are realised by the soft, free dig nature of the mineralisation and low strip ratios, with no requirement for primary crushing or grinding in the processing plant. Additionally, the project is located just 20km from Lilongwe, the capital of Malawi, which brings with it access to important infrastructure including rail and grid power.

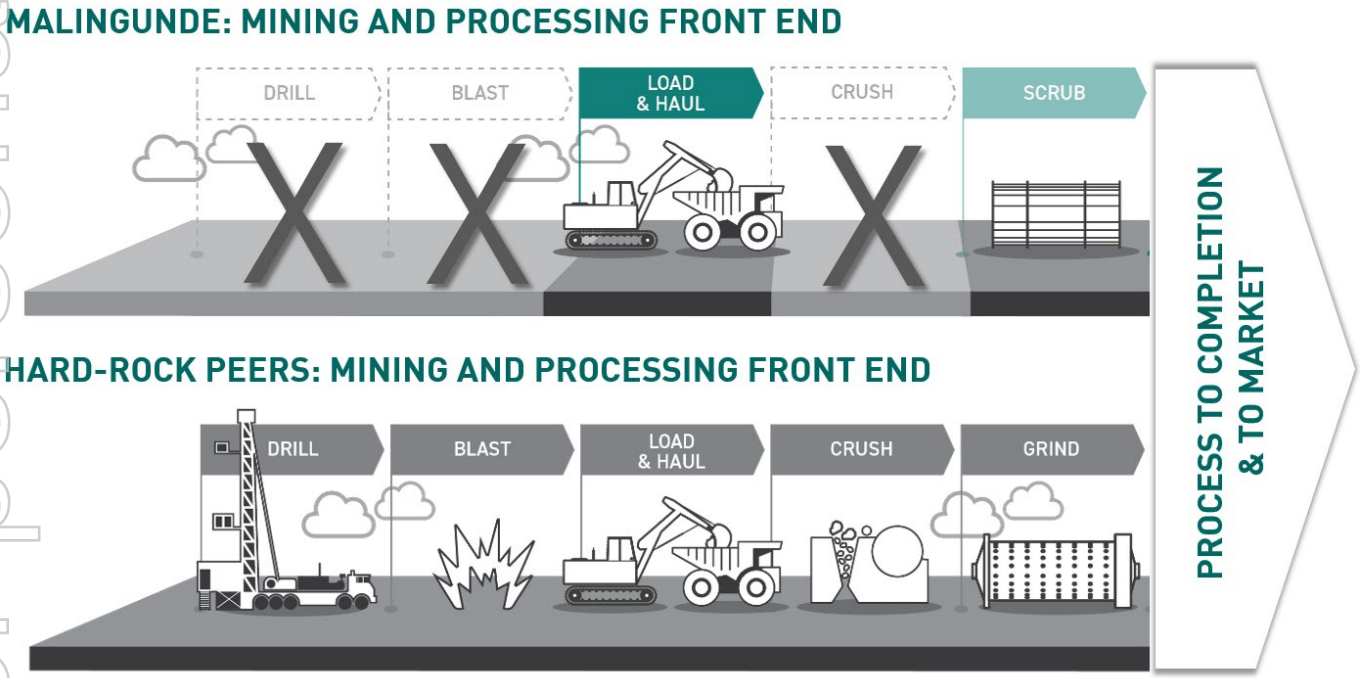

Figure 1: The Saprolite Advantage

TABLE 1 - KEY PROJECT METRICS

MALINGUNDE PROJECT PARAMETERS	*Unit*	Estimated Value
ECONOMIC		
Development capital	*US$m*	33
Indirect costs & contingency	*US$m*	16
Total development capital	***US$m***	**49**
Sustaining capital (over life-of-mine)	*US$m*	23
Mine gate opex. (LoM, ex. royalties, inc. G&A)	*US$/t conc.*	257
Transport & logistics cost	*US$/t conc*	66
Average LOM operating cost (FOB Nacala)[1]	*US$/t conc*	**323**
PHYSICAL		
Average annual plant throughput	*tpa*	600,000
Average annual concentrate production	*tpa*	52,000
LoM average feed grade	*%*	9.5%
LoM average product grade	*% TGC*	97.0%
LoM average recovery	*%*	90%
Mine life	*Years*	16
LoM average strip ratio (inclusive of capitalised pre-strip)	*waste : ore*	1.0
FINANCIAL		
NPV (10%) – Pre-tax	*US$m*	201
NPV (10%) – Post-tax	*US$m*	141
IRR – Pre-tax	*%*	56
IRR – Post-tax	*%*	43
Basket price applied	*US$/t conc.*	1,216
EBITDA average LoM	*US$m*	42
EBITDA average long term (after year 7)	*US$m*	45
Annual revenue average (post ramp-up)	*US$m*	62

Notes:

1. LoM operating cost: cost per tonne including mining, processing, G&A and transportation.

EXTREMELY LOW, FIRST QUARTILE CASH OPERATING COSTS

The Malingunde PFS estimates operating costs of approximately US$323 per tonne concentrate free on board ("FOB"), or US$257 at mine gate ("MG"), for its high quality graphite concentrates at a production rate averaging 52,000 tonnes per annum over the life of mine. Additionally, estimated long term average costs move to just US$284 FOB or US$218 MG after year 7. The project has the lowest estimated unit operating cost of the current and future listed graphite development pipeline, at a reasonable scale that can easily be placed into existing traditional markets and the growing battery supply chain.

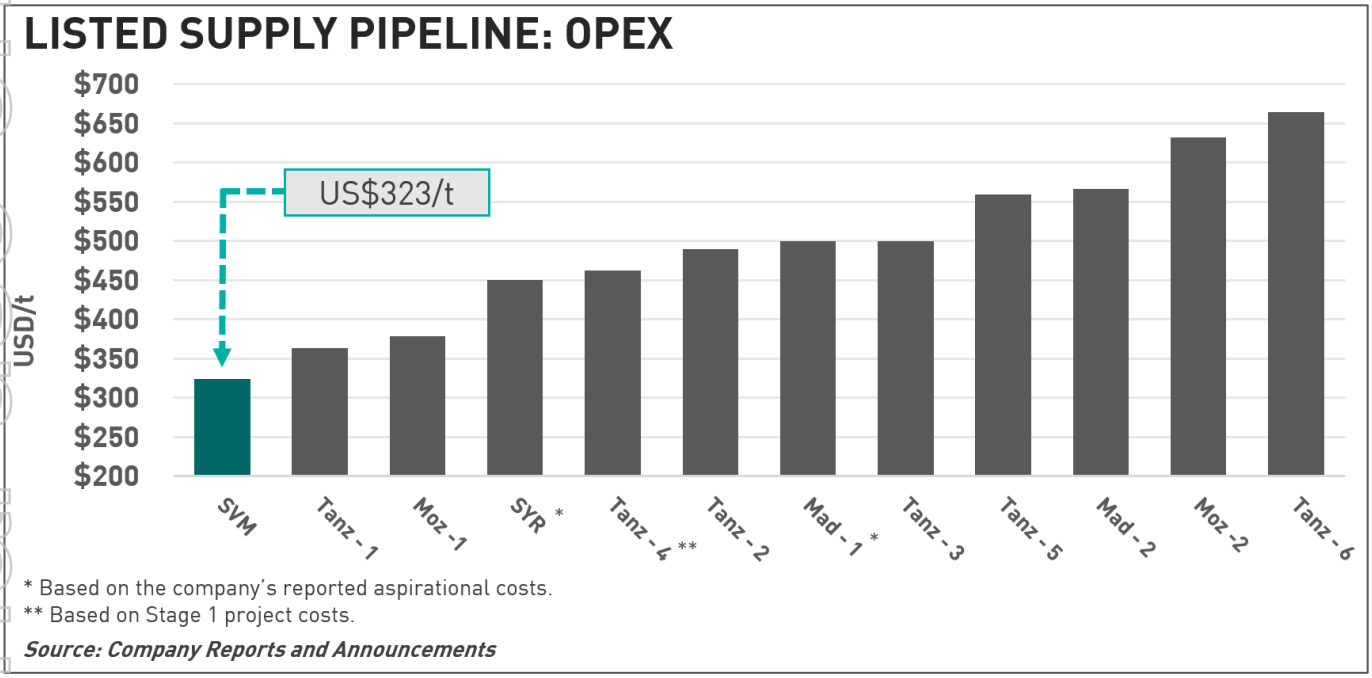

Figure 2: Operating cost per tonne of graphite concentrate versus selected ASX & TSX-listed peer companies.

LOW CAPITAL COSTS

The results of the PFS demonstrate low overall capital requirements and low capital intensity. This allows rapid payback of development capital, even in low global graphite pricing scenarios. This is a significant advantage in terms of seeking potential offtake partners and financing for development.

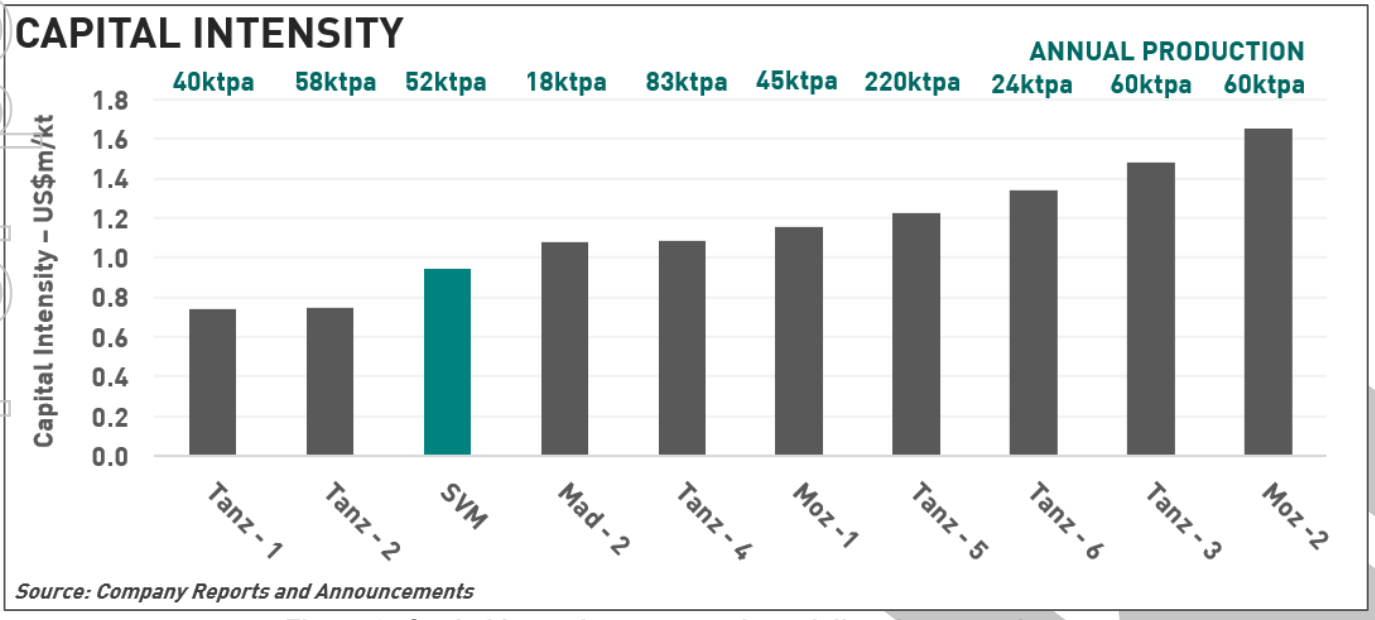

Figure 3: Capital intensity versus selected, listed peer projects.

LOW COST, HIGH MARGIN OPERATION AT MARKETABLE SCALE

Sovereign is in a unique position of being able to target profitable production of graphite without relying on extreme size to achieve economies of scale, or assuming optimistic product pricing scenarios.

The Company has taken a deliberately conservative view for its base-case PFS scenario on graphite pricing. Using these assumptions, the PFS shows high operating margins and significant cash generation. Importantly, downside pricing scenarios also show good margins and short payback periods, meaning the project is profitable even in extremely low global graphite market pricing conditions.

The combination of very low operating cost, low capital cost and high quality, high value concentrates allows Sovereign to focus on entry into existing primary end-markets, including refractories and foundries. The low-cost profile of the Malingunde Project means it is able to compete on price point with China, the world's largest supplier and consumer of natural flake graphite.

The Project is also exposed to the strongly emerging Lithium-ion battery market with significant forecasted upside. Recent test-work demonstrated very high purity ("five nines" +99.999% C) graphite is easily achievable, facilitating future entry into the lithium-ion battery supply chain and other high-tech, emerging industries.

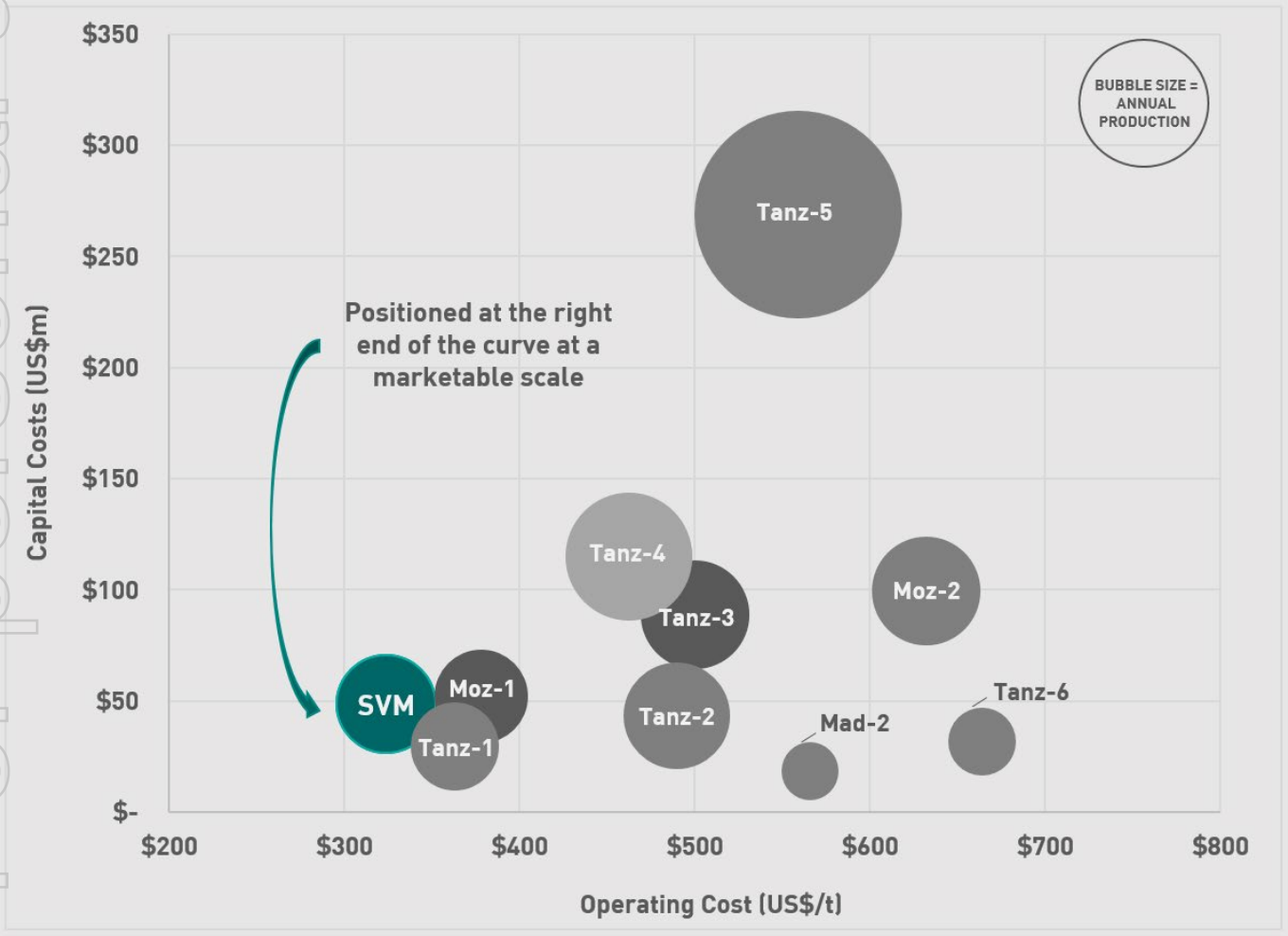

Figure 4: Production scale, operating costs and capital costs of key undeveloped graphite projects.

PROJECT SUMMARY

BACKGROUND

In 2015, Sovereign's geological team identified a large area on the Lilongwe Plain that was prospective for saprolite-hosted graphite deposits. Saprolite is the very soft, graphite-bearing, clay-rich oxide material that is formed from intense weathering of the original underlying bedrock.

A significant graphite discovery was made at Malingunde and in 2016 the maiden JORC resource was announced, highlighting it as the world's largest known saprolite-hosted graphite resource. The project also showed very simple and favourable metallurgy and high-quality product specifications. A Scoping Study based on the maiden resource was completed in 2017 and showed compelling economics.

In June 2018, the Company announced a Mineral Resource upgrade with a total of (saprolite + saprock) 45.7Mt @ 7.2% TGC including a higher grade component of 14.5Mt @ 9.7% TGC. The PFS focuses on a Ore Reserve of 9.5Mt @ 9.5% TGC for a 16 year life of mine with an average of 52,000 tonnes of concentrate produced per annum. The already large resource base also has significant potential to grow further and larger production rates could therefore also be considered in the future.

The saprolite-hosted Malingunde deposit is located just 20km south-west of Lilongwe, Malawi's capital city, with excellent access to infrastructure. It is 25km from operating rail and just 10km from a planned power sub-station at Bunda expected to be completed in 2024, with plentiful process water also available.

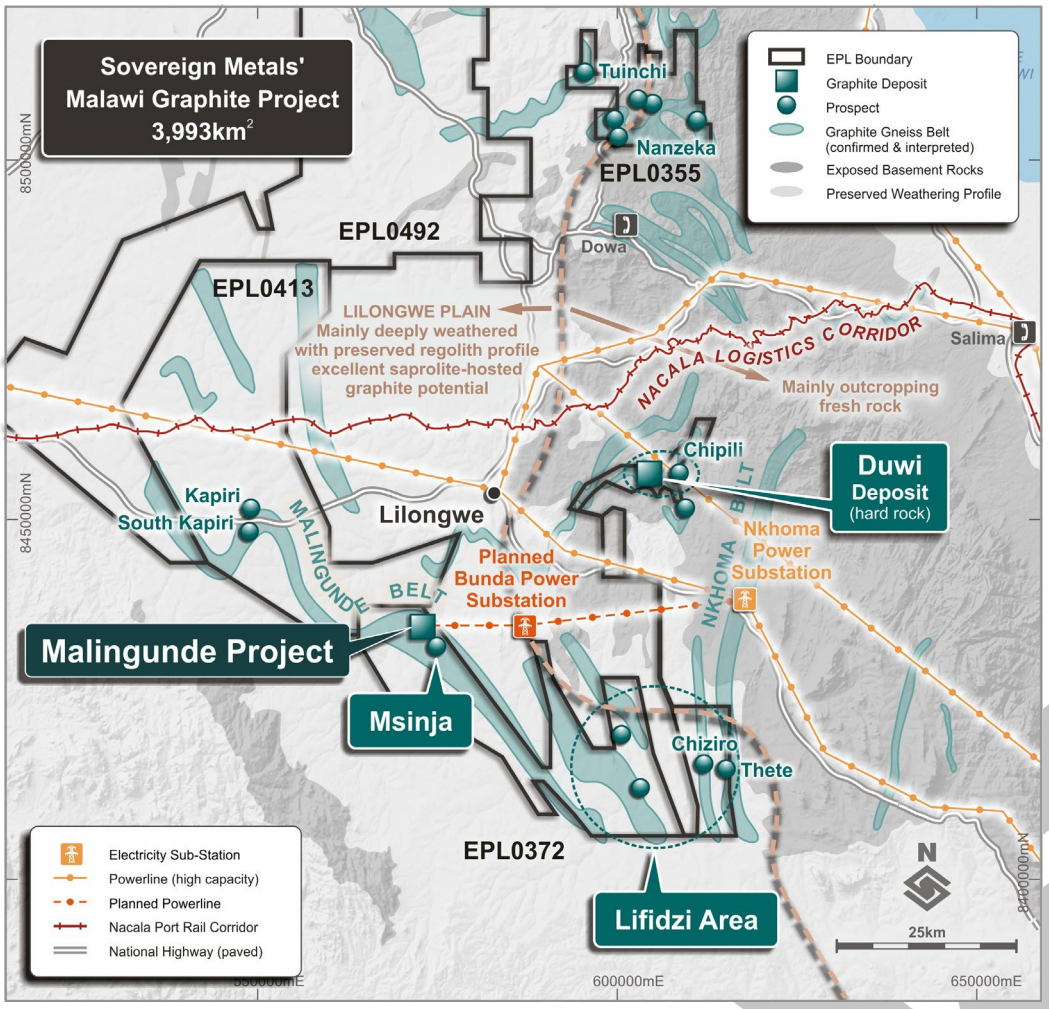

Figure 5: Map showing location of the Malingunde Project in relation to important infrastructure.

Pre-Feasibility Study Consultants

The PFS uses information and assumptions provided by a range of independent specialist consultants, including the following who have contributed to the key components of the PFS:

CONSULTANT	SCOPE OF WORK
Minnovo Pty Ltd (wholly owned by DRA)	Process plant design, process plant infrastructure and collation of study report
CSA Global Pty Ltd	Resource estimate
SGS Canada Inc	Metallurgical test-work
Orelogy Mining Consultants Pty Ltd	Mine design and scheduling
Peter O'Bryan and Associates	Open pit geotechnical assessment
SLR Consulting	Tailings storage facility and water studies
Dhamana Consulting	Environmental studies management
AECOM	Social studies and relocation action plan
Grindrod Rail Consultancy Services (Pty) Ltd	Outbound logistics

Table 2: Key study consultants.

Figure 6: Recent mechanical, wide-diameter auger bulk sample drilling at Malingunde.

Geology and Mineral Resource Estimate

The Malingunde saprolite-hosted graphite deposit is the result of millions of years of tropical weathering of primary graphitic gneisses. Most of the silicate minerals other than quartz have been altered to clay, resulting in a soft, friable saprolite horizon averaging about 25m vertical thickness from surface. Graphite is unreactive in this weathering environment and as such the large graphite flakes are preserved in the clay-dominant matrix.

An updated Mineral Resource Estimate ("MRE"), reported in accordance with the JORC Code (2012 Edition), was undertaken by CSA Global and reported to the ASX on 12th June 2018. Results confirm Malingunde as the world's largest reported soft saprolite-hosted graphite resource. The total MRE is classified as Measured, Indicated and Inferred.

Additional and substantial exploration potential also exists within the very large 3,993km^2 ground package, containing numerous other saprolite prospects discovered but not yet drilled to resource status.

MINERAL RESOURCE ESTIMATE TABLES

MALINGUNDE MINERAL RESOURCE ESTIMATE *4.0% cut-off grade*								
	Measured		Indicated		Inferred		Total	
	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)
Saprolite	4.8	8.5%	18.7	7.1%	5.4	6.3%	28.8	7.2%
Saprock	-	-	13.6	7.4%	3.3	6.3%	16.9	7.2%
Total	**4.8**	**8.5%**	**32.3**	**7.2%**	**8.6**	**6.3%**	**45.7**	**7.2%**
Fresh rock	-	-	-	-	19.3	7.3%	19.3	7.3%
Total resource	**4.8**	**8.5%**	**32.3**	**7.2%**	**27.9**	**7.0%**	**65.0**	**7.2%**

MALINGUNDE MINERAL RESOURCE ESTIMATE *7.5% cut-off grade*								
	Measured		Indicated		Inferred		Total	
	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)
Saprolite	2.7	10.0%	5.4	9.6%	1.1	9.0%	9.2	9.7%
Saprock	-	-	4.7	10.0%	0.6	9.1%	5.3	9.9%
Total	**2.7**	**10.0%**	**10.1**	**9.8%**	**1.7**	**9.0%**	**14.5**	**9.7%**
Fresh rock	-	-	-	-	6.5	9.9%	6.5	9.9%
Total resource	**2.7**	**10.0%**	**10.1**	**9.8%**	**8.3**	**9.7%**	**21.0**	**9.8%**

Table 3: Summary of June 2018 Malingunde JORC Mineral Resource Estimate inclusive of the Malingunde and Msinja deposits at 4.0% and 7.5% TGC cut-off grades.

**Totals may not sum exactly due to rounding.*

Ore Reserves and Mining

Pit optimisation, mine design and mine scheduling was completed by Orelogy and is based on an average of 52,000 tonnes of concentrate produced per annum over 16 years LOM. This equates to an average throughput of 600,000 tonnes per year, with declared Mineral Reserves shown below in (Table 4).

Reserves were defined by using a lower cut-off grade of 6.75% TGC for saprolite and between 9.5% and 11.0 % TGC for saprock.

MALINGUNDE ORE RESERVE						
	Proved		Probable		Total	
	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)	Tonnes (Mt)	Grade (% C)
Saprolite	3.1	9.5%	5.3	8.9%	8.4	9.1%
Saprock	-	-	1.2	12.3%	1.2	12.3%
Total	**3.1**	**9.5%**	**6.4**	**9.5%**	**9.5**	**9.5%**

Table 4: Malingunde Ore Reserve as at November 2018.
**Totals may not sum exactly due to rounding.*

A schedule was developed that progressively mines material from the northern-west zones 1 and 2, then the central zones 3 and 4 and finally the south-east zone 5 (Figure 7). A three month pre-strip of 190k waste tonnes is required in order to provide sufficient material to construct the initial tailings storage facility ("TSF"). The life of mine strip ratio is 1:1 waste:ore including the capitalised pre-strip.

Pit geotechnical studies were undertaken by Peter O'Bryan and Associates. A recommended maximum overall pit slope of 58 degrees was adopted for pit design purposes.

Mining will be undertaken via conventional truck and shovel methods. An initial contract mining strategy was selected for the first 7 years, transitioning to owner-operator model after this.

There is significant opportunity to increase the mine life beyond 16 years by processing lower grade material from the large resource base, or by discovering additional high-grade resources within reasonable trucking distance to the proposed processing plant.

The total Production Target of 9,514,298 tonnes run-of-mine (to produce 830,602 tonnes of concentrate) is underpinned by Proved Ore Reserves of 3.1Mt (32%) and Probable Ore Reserves of 6.4Mt (68%).

The Ore Reserve was derived by conversion of a portion of the Measured and Indicated Resource categories to Proven and Probable Ore Reserve categories respectively. No Inferred Resource material has been used in the PFS.

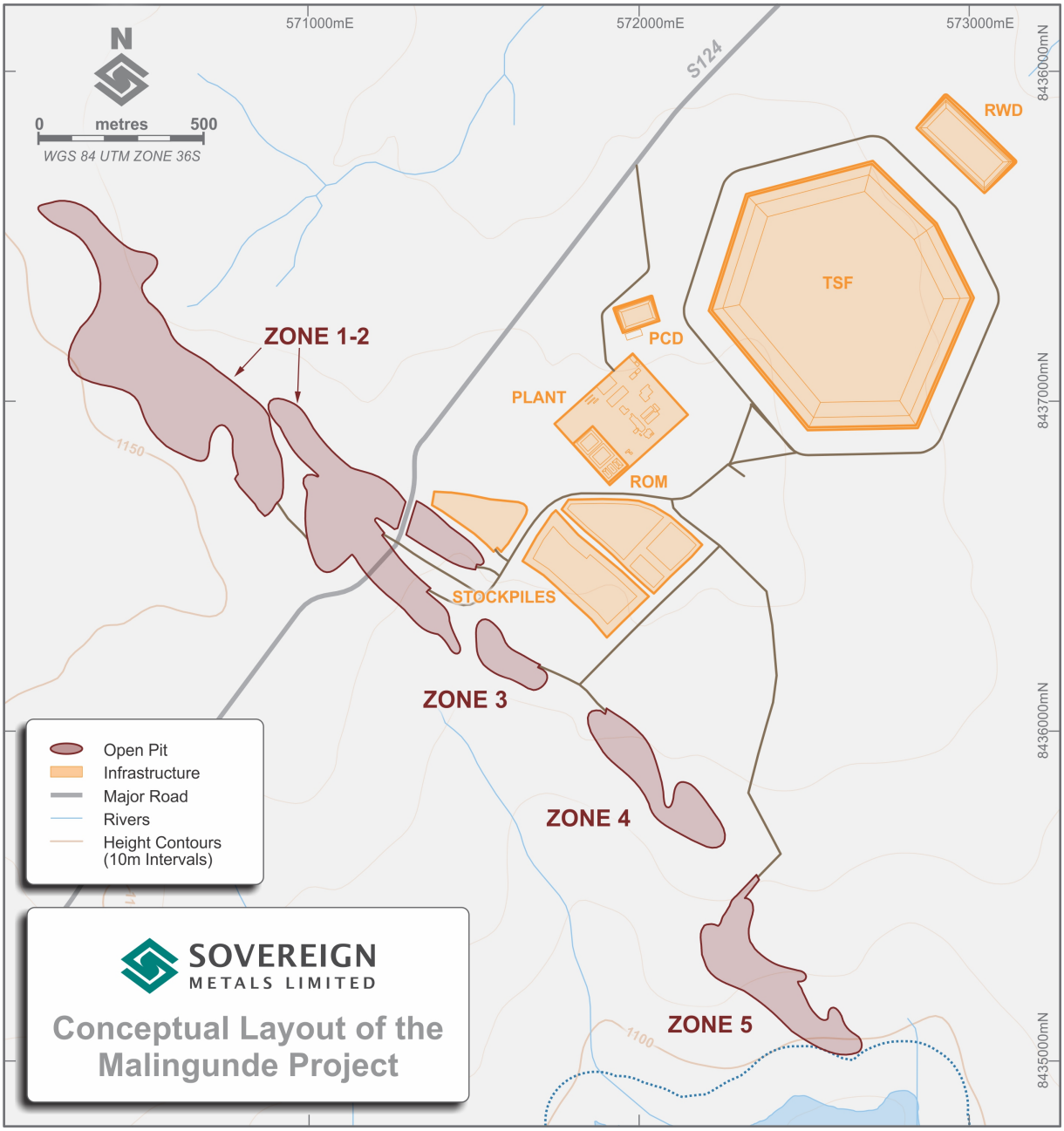

Figure 7: Outline of pit shells showing the planned mining order.

Metallurgy

Significant metallurgical test-work programs have been conducted on the Malingunde saprolite hosted graphite deposit since 2016.

An optimised flowsheet was developed by SGS at Lakefield in Canada, and numerous variability tests were carried out on samples from varied lateral and vertical locations within the deposit. Overall, the test-work showed relatively consistent results across the deposit with 48%-78% of the concentrate in the coarser size fractions >149µm (>100 mesh). Concentrate grades consistently range between 95% and 99% C(t). Open circuit and locked cycle flotation tests (LCT) produced recoveries between 85% and 94%.

A substantial upscaled metallurgical program was undertaken as part of the PFS. This consisted of comminution and scrubber test-work undertaken at ALS in Perth and flotation and solid / liquid separation and tailings geochemical / geotechnical test-work undertaken at SGS in Canada. The test-work identified the ability to process the more competent saprock, located vertically beneath the very soft saprolite, as up to 15% of the overall feed blend. This enables access to substantial additional high-grade mineralised material previously not considered in the 2017 Scoping Study production target.

Overall, all metallurgical test-work undertaken to date shows a robust flowsheet capable of repeatable metallurgy for a wide range of feed samples has been developed for Malingunde.

The Company has used results from two recent locked cycle tests (LCTs) conducted as part of the PFS metallurgical program to estimate product grade, flake size distribution and recoveries.

The Company has applied an assumption of 97% C and an overall recovery of 90% for modelling production over the life of mine (LoM). These metallurgical results were the weighted average of two LCTs on a master composite ore sample that aimed to represent the LoM feed.

MALINGUNDE FLOTATION RESULTS – PFS INPUTS				
PARTICLE SIZE		C (%)	Distribution (wt. %)	Flake Category
Tyler Mesh	(µm)			
+32	+500	98%	5%	Super Jumbo
-32 +48	-500 +297	97%	19%	Jumbo
-48 +80	-297 +177	97%	26%	Large
-80 +100	-177 +149	97%	9%	Medium
-100 +200	-149 +74	97%	25%	Small
-200	-74	94%	16%	Amorphous
TOTAL		**97%**	**100%**	

Table 5: Malingunde Flake Distribution – weighted average LCT results.

Process Design

The design of the processing plant is based on the SGS test-work and best practice in similar operations. Importantly, the process requires no primary crushing or grinding of the ore, a material advantage over hard-rock graphite deposits. The basic flowsheet is summarised below and also shown in Figure 8:

- The plant feed will be delivered from the ROM run-of-mine stockpile (ROM) by front-end-loader (FEL) to the grizzly and ROM bin.
- Material is passed through a mineral sizer for primary size reduction and then processed through a scrubber charged with steel media.
- Scrubber discharge slurry is passed through a 10 mm screen with a small quantity (0-15%) oversize being directed to a small pebble crusher.
- Scrubber undersize at 100% passing 2 mm is pumped to the rougher flotation section for processing. Rougher tailings are pumped to the tailings thickener.
- Rougher concentrate undergoes a polishing regrind.
- The concentrate undergoes cleaner flotation stages with cleaner concentrate split into coarse and fine fractions at 180 µm.

- Three stages of recleaner flotation attritioning of the coarse and fine fractions, followed by three stages of cleaner flotation (separately).
- The final concentrate fractions +180 µm (+80 mesh) and -180 µm (-80 mesh) streams will be combined, thickened, and fed to a filter.
- The concentrate is dewatered using a plate and frame filter and air blow and membrane squeeze steps.
- The filtered concentrate will be dried using a flash dryer.
- Dried product will be screened producing up to four fractions and bagged for dispatch and sale.

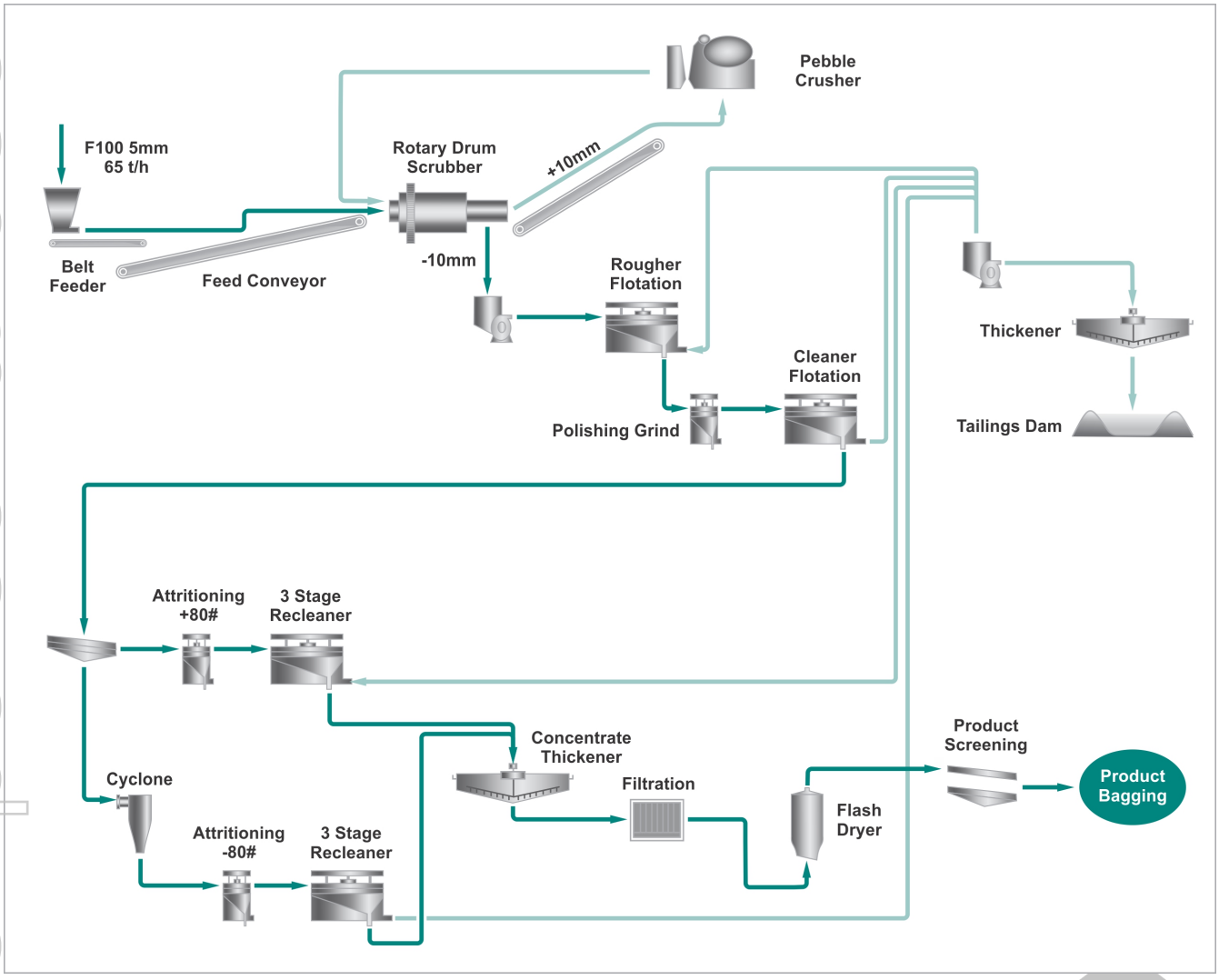

Figure 8: Simplified process flowsheet for Malingunde.

Infrastructure and Services

Malingunde is located approximately 20km south west of Lilongwe, Malawi's capital, and boasts excellent access to services and infrastructure. The site is serviced by a bitumen road from the main M1 highway to within 10km where it becomes an all-weather gravel road.

The proximity to Lilongwe gives the project a number of benefits, including access to a large pool of professionals and skilled tradespeople. This removes the requirement for site accommodation during the mining phase. Additionally, product is only required to be hauled a short distance by road to the existing and underutilised operational intermodal rail siding at Kanengo.

The Malawi Electrical Supply Corporation ("**ESCOM**") plans to construct a 132/11kV substation near Bunda, just 10km to the east of Malingunde which will be linked to the national grid (Figure 9). The Company has received advice from ESCOM that the planned Bunda substation will be operational by 2024. Construction of the transmission line linking the Project to the Bunda sub-station is planned to be complete by the time the Bunda sub-station comes online in 2024. The Project economic model therefore assumes on site diesel power generation to 2024, with grid power availability from this point.

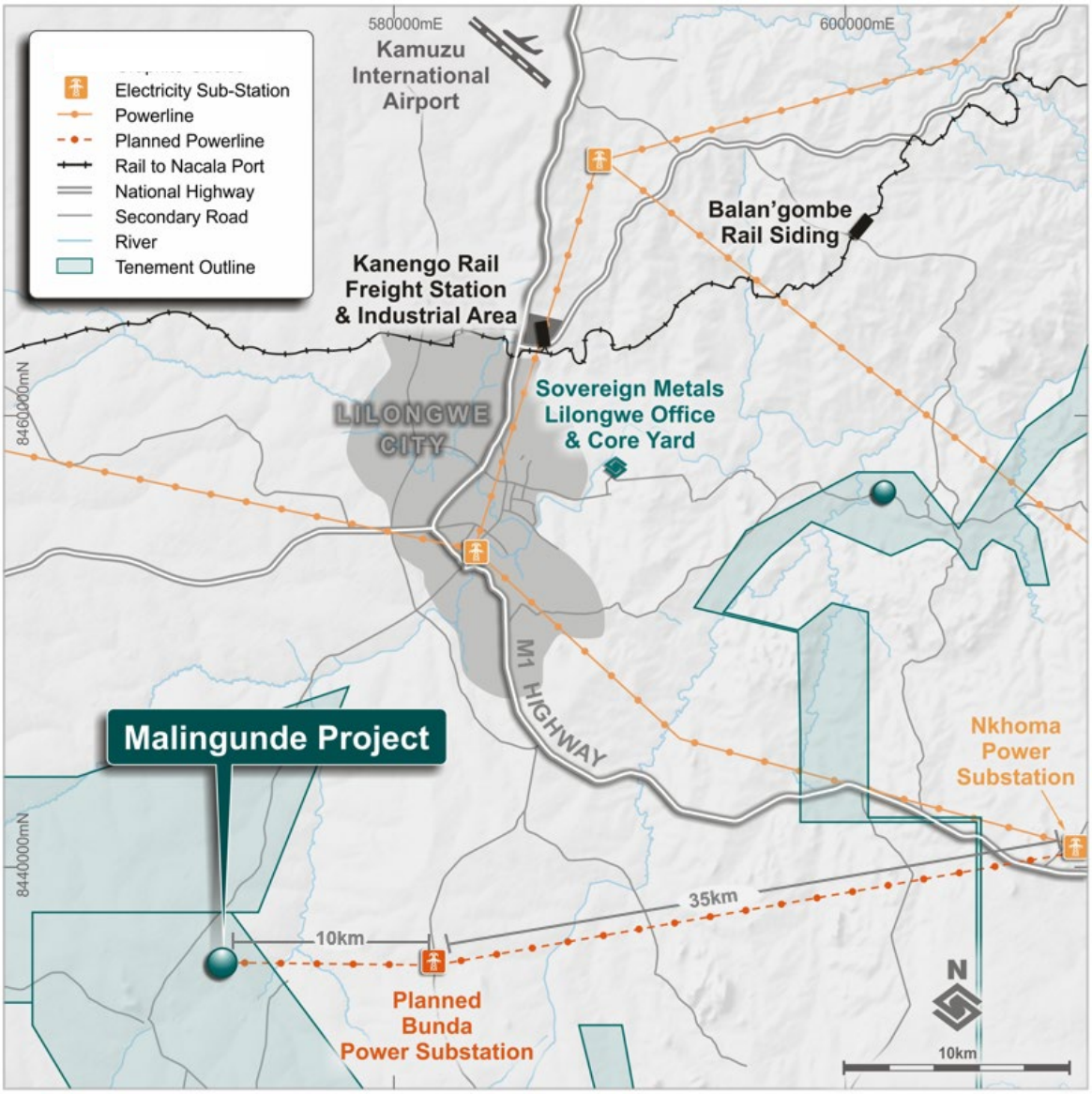

Figure 9: Map of infrastructure in proximity to Malingunde.

Water Supply, Hydrogeology and Tailings Management

Hydrology, hydrogeology and geochemical assessments were undertaken by SLR at a PFS level for the Project. Baseline sampling assessments indicates that most of the samples collected are within Malawian and international standards (e.g. IFC, WHO).

The baseline work for the hydrogeological studies indicate an approximately uniform hydrogeological environment. Modelling showed that for the pits the cone of drawdown is at a maximum extent at the end of the mining period and recovers rapidly thereafter.

The Tailings Storage Facility (TSF) for the Project was designed by SLR Consulting to safely contain the life of mine estimated tailings of approximately 8.6Mt. Test-work has indicated a final settled density of 1.1t/m^3 which is the figure adopted for the study.

The maximum plume extent from the downstream toe of the TSF is predicted to reach 1,053m at the end of year 100. Geochemical test-work indicates that the TSF pool and seepage water is of relatively good quality with low acid potential and low neutralising potential. The concentration in the seepage waste water is therefore not expected to be a concern.

In terms of water balance, it is expected the project will require an additional ~20,000m^3 per month during each nine month dry season for the first two years of operation.

Logistics

The basis and cost build-up for product export logistics comprises the following:

- Road transport of bagged product on flat-bed trucks from the mine site to the Kanengo rail head in Lilongwe.
- Packing bags into shipping containers at Kanengo and periodic loading onto lightweight rail wagons.
- Rail transport to Nacala port in Mozambique.
- Storage and loading onto seaborne container carriers.

Figure 10: Operational Kanengo rail head in Lilongwe.

Rail freight cost estimates were provided by Central East African Railways ("**CEAR**"), the existing rail concessionaire and rail operator. The rail concession is operated as a joint venture between Mitsui & Co., Ltd, Vale SA and the Malawi and Mozambique Governments. CEAR have advised that there is available capacity to accommodate Malingunde concentrates. The Company is in the process of drafting a formal agreement with CEAR, in accordance with the existing MOU between the parties.

Other transport cost estimates were provided by Grindrod Rail Consultancy Services (Pty) Ltd ("**Grindrod**") based on market data, industry databases, industry contacts and Grindrod's existing knowledge of southern African transport infrastructure and freight market.

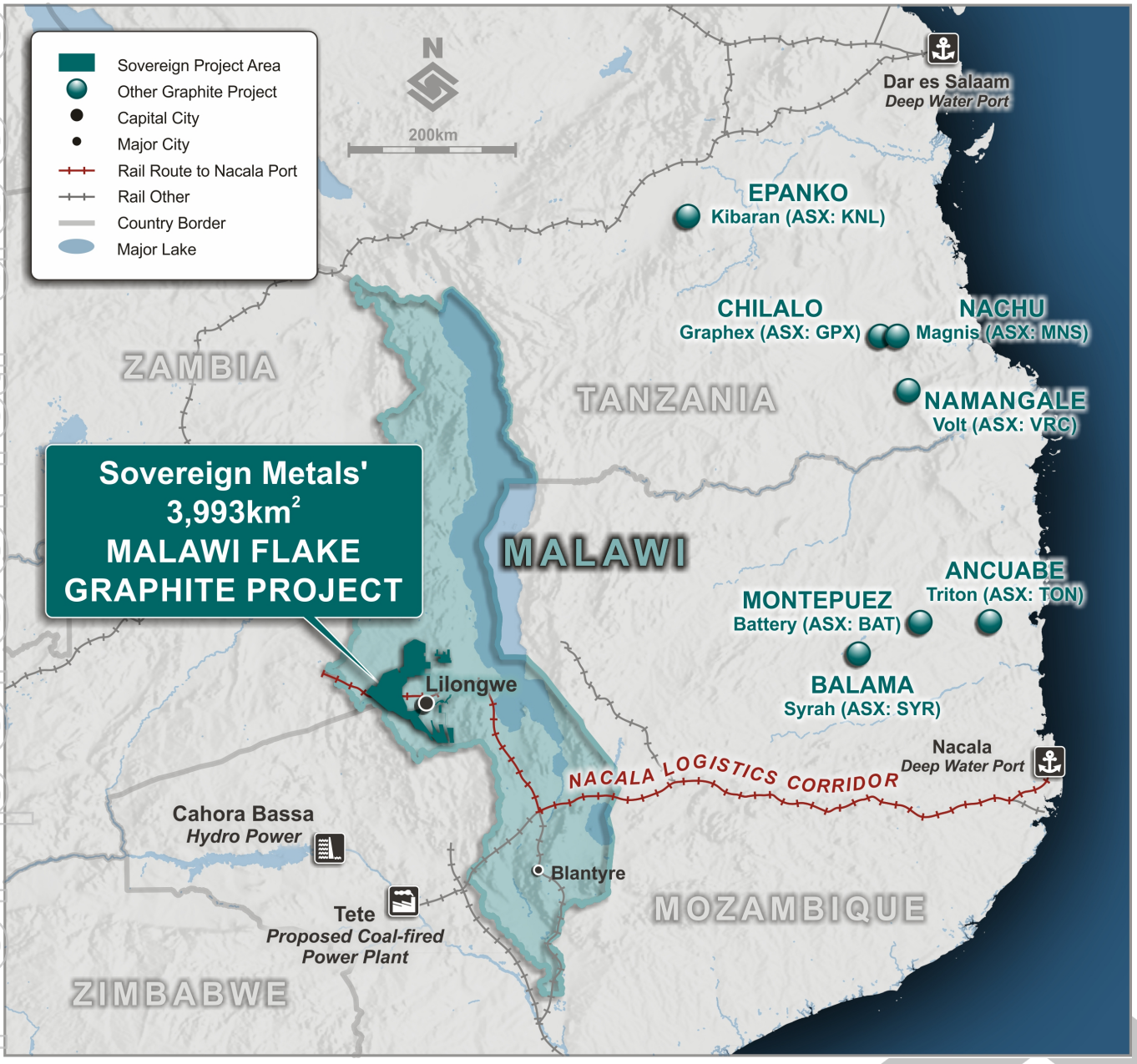

Figure 11: Map highlighting the rail corridor from Lilongwe to Nacala port.

Environmental & Social Impact

The project location in relation to the environmental and social setting is important and will inform project alternatives. These are important in evaluating project trade-offs and developing the appropriate management and mitigation measures to be implemented for the project. Consequently, they will also influence the feasibility of the Project in terms of cost related to environmental and social drivers.

The ESIA process in Malawi is undertaken in three distinct phases, namely the Project Brief, Environmental Scoping and ESIA Phases.

A Project Brief was submitted to the Environmental Affairs Department ("**EAD"**) on 12 June 2017 to initiate the ESIA process for the Project. The EAD indicated that, based on the nature and scale of the activities, an ESIA is required to be undertaken and an ESIA Report is to be submitted. The ESIA must be compliant with the Malawi Guidelines of Environmental Impact Assessment (1997).

Collection of environmental data and a number of baseline studies have been undertaken since April 2017 and were largely completed by July 2018. This included surface and groundwater sampling, aquatic biomonitoring, fish and mollusc sampling, air quality monitoring, terrestrial ecological surveys, wetland surveys, noise and vibration baseline surveys, soil sampling, socio-economic data collection and household surveys.

Information from initial surveys, baseline data collection and consultation as part of the environmental scoping phase were collated and documented in the form of an environmental scoping report ("**ESR**"). The draft ESR was made available from 5 March to 13 April 2018 for review and comments by stakeholders. Comments and queries were incorporated in the comments and response report, and the draft ESR was amended as needed. The revised ESR was submitted to the EAD for review and was approved in 20 June 2018.

The ESIA process will ultimately culminate in the compilation of an ESIA report that will be prepared in accordance with the requirements of the EIA Guidelines (1997). The detailed ESIA phase and all specialist studies are currently near completion. The final ESIA report is expected to be submitted to the EAD by Q1 2019.

Acquisition of land for the Project will physically and economically displace a number of households and land users. The Company will adequately and satisfactorily mitigate and offset these impacts, should the proposed project be implemented, by providing the affected parties with the necessary resettlement measures.

A resettlement action plan ("**RAP**") for the Project is being prepared which will conform to both Malawian legislation and international best practice standards, specifically the IFC Performance Standards (2012) that deals with land acquisition and resettlement. At the current time the Company is unable to reliably estimate resettlement costs and has not included a provision in the estimated development costs.

An environmental and social management plan ("**ESMP**") is being developed as part of the ESIA process. The ESMP will contain specific measures to minimise and manage potential environmental and social impacts of project activities, as well as monitoring programs to evaluate compliance with environmental targets and standards.

The ESMP will address project aspects such as land clearing, management of topsoil, protection of cultural heritage, management of waste materials, prevention of surface and groundwater contamination, management of storm water, management measures for dust and noise, rehabilitation and revegetation, and management of community impacts.

Closure Plan

Consideration of mine closure has been incorporated into the planning phase of the Malingunde Graphite Project to ensure long-term social and environmental impacts are considered.

A conceptual mine closure plan will be developed as part of the ESIA and included in the ESIA report. The conceptual closure plan will be updated on a regular basis throughout The Project development phases and throughout the life-of-mine. Sovereign will consider the following guidelines in developing a conceptual closure plan for the Malingunde Project:

- Applicable Malawi legislation;
- The IFC Environmental Health and Safety Guidelines for Mining (IFC, 2007);
- The International Council on Mining and Metals (ICMM) Toolkit (2008); and
- The Australian Government Leading Practice Sustainable Development Program for the Mining Industry – Mine Closure (2016).

Sovereign is currently assessing options to rehabilitate disturbed areas in such a manner that the area reflects a landscape that is:

- Safe for both humans and animals.
- Geotechnically stable.
- Non-polluting.
- Capable of sustaining the specified post-mining land use.

In addition, strategies will be developed to minimise adverse socio-economic impacts and maximise socio-economic benefits.

The closure of Malingunde Project will be completed in three phases:

- Decommissioning.
- Rehabilitation and revegetation.
- Post-closure monitoring and maintenance works.

It is anticipated that at least some of the exhausted pits will remain as open voids due to the unavailability of sufficient non-mineralised material to act as backfill. The open voids will fill with water to the natural groundwater level once dewatering has ceased. Geochemical information indicates that the material from the pit walls or floors will not result in acid mine drainage nor will seepage from remnant ore or waste rock be acidic.

The stability of the pit walls will be reviewed prior to closure; however, it is considered that as a minimum the pits will need to be reshaped above the water line and berms or similar built to minimise access and the issues of long-term public safety.

The tailings storage facility ("**TSF**") embankments will be reprofiled to create a safe and stable landform. Based on the final drainage plan the final landform will be contoured and where applicable spread with topsoil and revegetated to reduce long term dust generation. Appropriate surface drainage will be re-established around the TSF to prevent scouring of the embankments and toe of the TSF.

Power and water supply infrastructure to the site will be disconnected and made safe. All buildings, structures and the processing plant will be dismantled, demolished and removed from the area. Equipment and supporting structures that have been dismantled will be salvaged and sold as second-hand equipment or scrap metal where possible. Portable office buildings may be considered for donation to local

communities for use as community infrastructure. Concrete slabs will either be excavated and material disposed of in the open pits or TSF, or alternatively broken up and buried under an appropriate layer of cover material that can sustain vegetation. Hydrocarbon-contaminated soils, if any, will be treated on-site by bioremediation. Cleared areas will be re-contoured, topsoiled and revegetated. Process and return water dams will be rehabilitated upon closure and surface water drainage reinstated, where appropriate. The impoundments' embankments will be breached at the lowest point to prevent further water retention if a gravity drainage plan is selected. The areas will be contoured, ripped, spread with topsoil and revegetated.

On completion of the final closure measures, a monitoring and maintenance program will be implemented to ensure that the closure measures are robust, have been performed adequately and that no further liabilities arise. At this stage of the Malingunde Project, it is assumed that a minimum monitoring period of 10 years will be required post-closure.

Marketing

Global Natural Flake Graphite Demand

The primary end-market for natural flake graphite is the refractory, foundries and crucible sector which consumed approximately 60% (620,000 tonnes) of flake graphite production in 2017.

The refractory industry is the volume driver for flake graphite, with foundries and crucibles offering smaller markets for higher purity graphite products. This sector is the primary user of the large, jumbo and super-jumbo flake fractions, which currently makes up the significant majority of total global natural flake graphite market by value.

The main refractory products consuming flake graphite are magnesia-carbon bricks, a mainstream, global refractory brick commonly used in the steel industry.

The lithium-ion battery sector is the major emerging market for flake graphite. Flake graphite is spheronised and carbon coated to construct lithium-ion battery anodes. Greater capacity batteries, such as those required for electric vehicles, are expected to drive significant demand for natural flake graphite over the coming years.

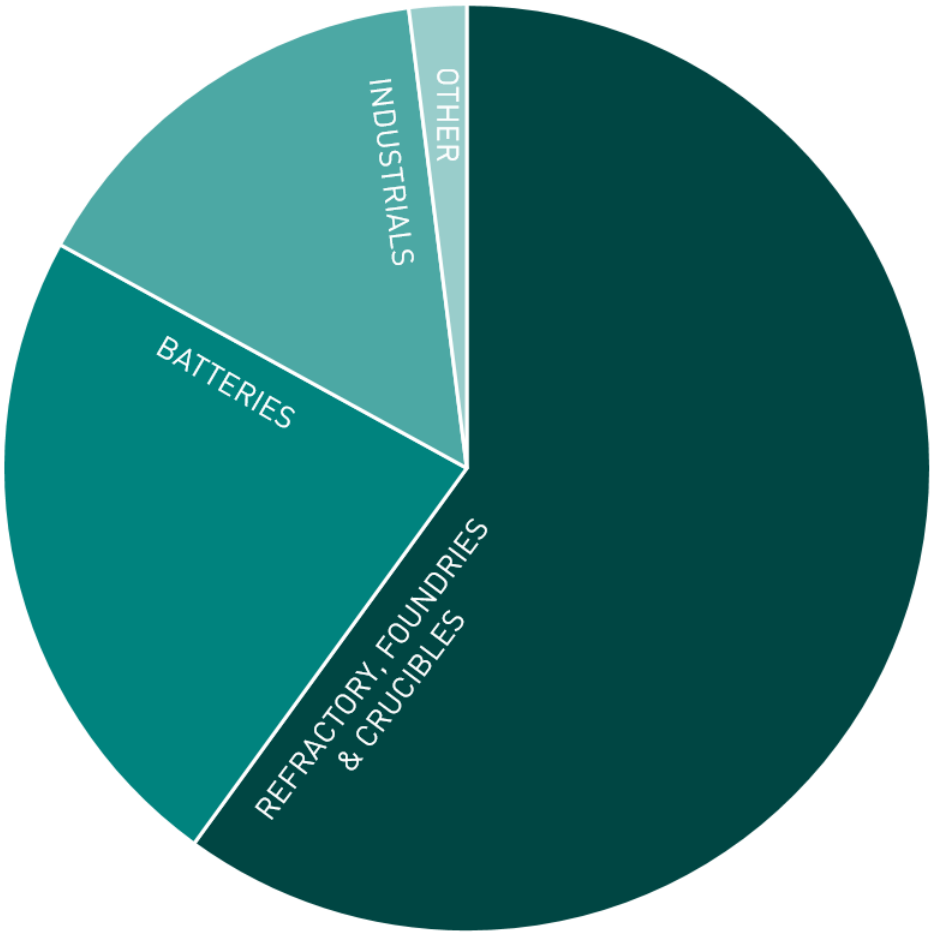

Figure 12: Natural graphite market by sector.

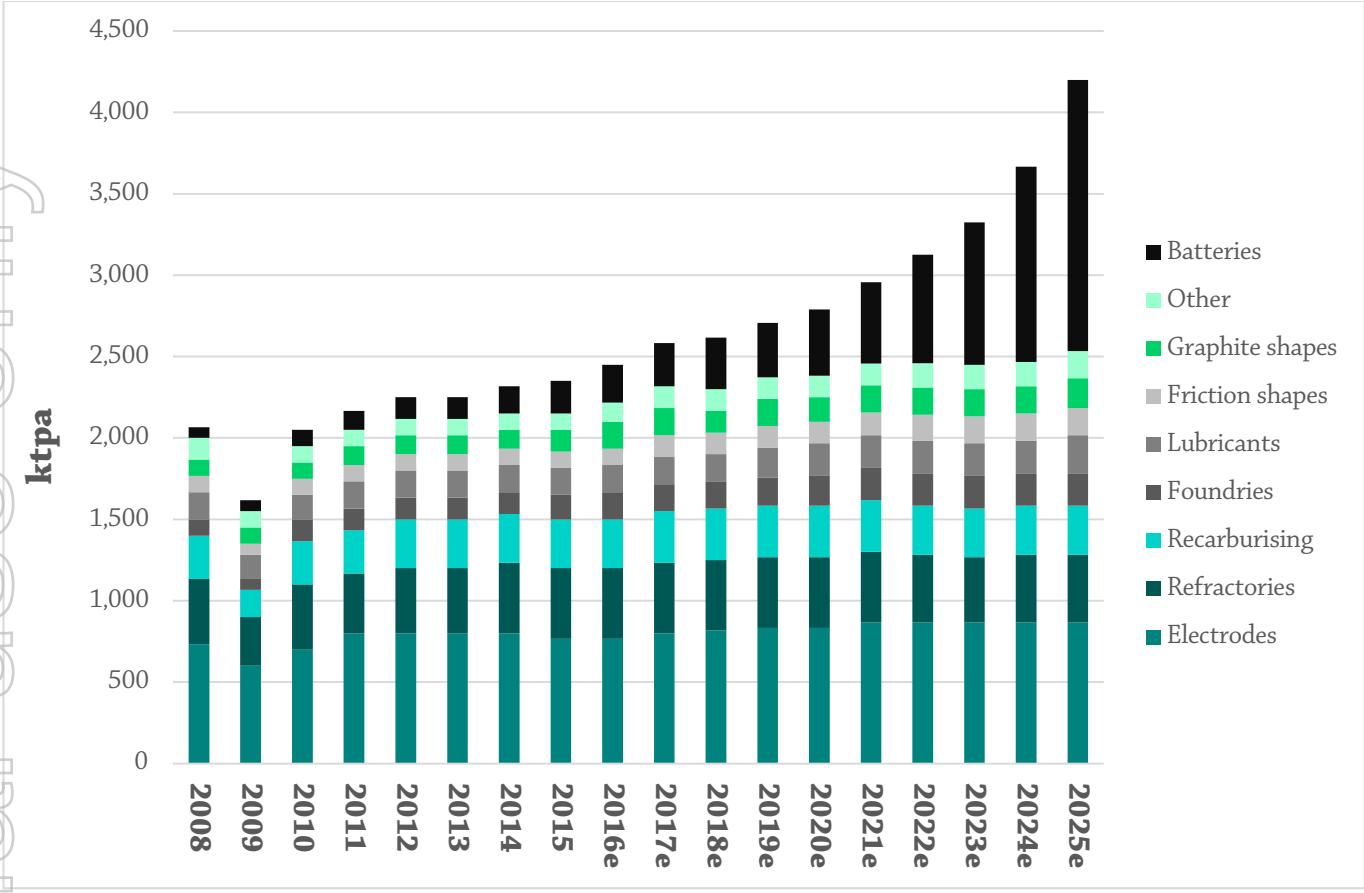

Figure 13: Forecast graphite (natural and synthetic) demand by source (Roskill).

Global Graphite Supply

China is the world's leading producer of natural flake graphite, supplying approximately 65% of the market in 2017. Brazil, India, Canada, Mozambique, Madagascar and North Korea were major contributors to the remaining 35% of global production.

China's coarse flake graphite reserves have largely diminished and supply is also under threat by environmental restrictions forcing mine closures. Due to the reduction in supply and increasing demand, there is currently general upward pressure on prices.

Marketing Strategy

Sovereign is targeting a very simple mining and processing operation, selling reasonable volumes of very high-quality, dominantly coarse flake graphite products into existing markets.

The Company is focusing on initial entry into existing primary end-markets, including the refractory, foundry and expandable graphite sectors. The Project's very low production costs will allow Sovereign to compete on price point with China, the world's largest supplier of natural flake graphite.

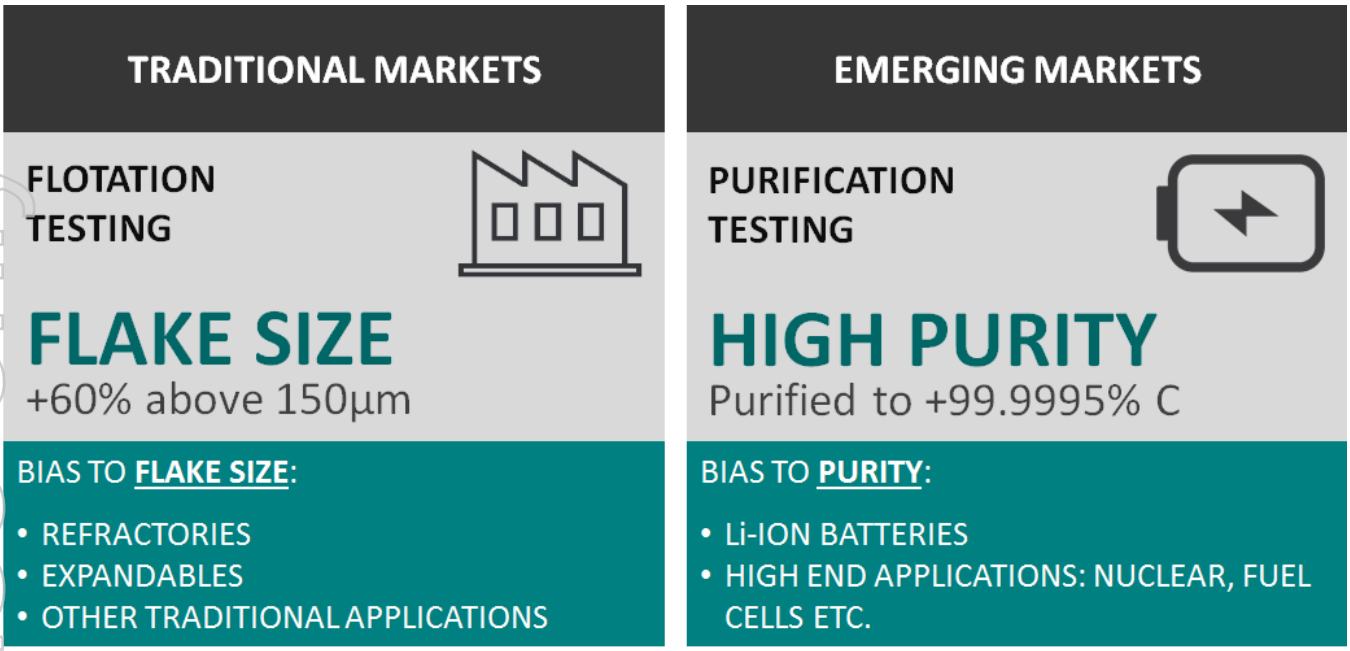

Figure 14: Graphite market sectors, Malingunde product types and market suitability.

Test-work on Malingunde flake graphite has demonstrated suitability for traditional markets and lithium-ion battery anode applications (Figure 14). Sovereign has been able to achieve a 5-Nines graphite product via a relatively simple process. This allows Sovereign to expand its market reach to capitalise on future growth in demand in lithium-ion battery demand.

The Company has engaged with a diverse range of potential off-takers across a number of industrial sectors and global locations. To date, concentrate samples have been provided to a significant number of potential partners for assessment. Larger quantities of sample are now being requested by a number of these groups in order to validate and qualify Sovereign's flake graphite concentrates for their particular requirements.

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.

The Project's bias to large, jumbo and super-jumbo flake concentrates has resulted in the Company receiving significant interest from potential purchasers of these high-value graphite products. Sovereign is pursuing credible sales agreements with Tier 1 organisations to support the project's development.

Sovereign's process flowsheet can produce graphite concentrates with both excellent purity and outstanding flake distribution from the soft, saprolite ore. This allows unique optionality to produce a range of high-quality products and provides the Company the potential to generate revenues from sales of premium products into existing traditional markets as well as emerging markets including the lithium-ion battery sector. Coarse flake products are globally relatively scarce, and hence fetch much high premiums than finer grained concentrates. Continued supply constraint in the coarse flake market sector is expected to result in continued strong pricing in the near to medium term (Figure 15).

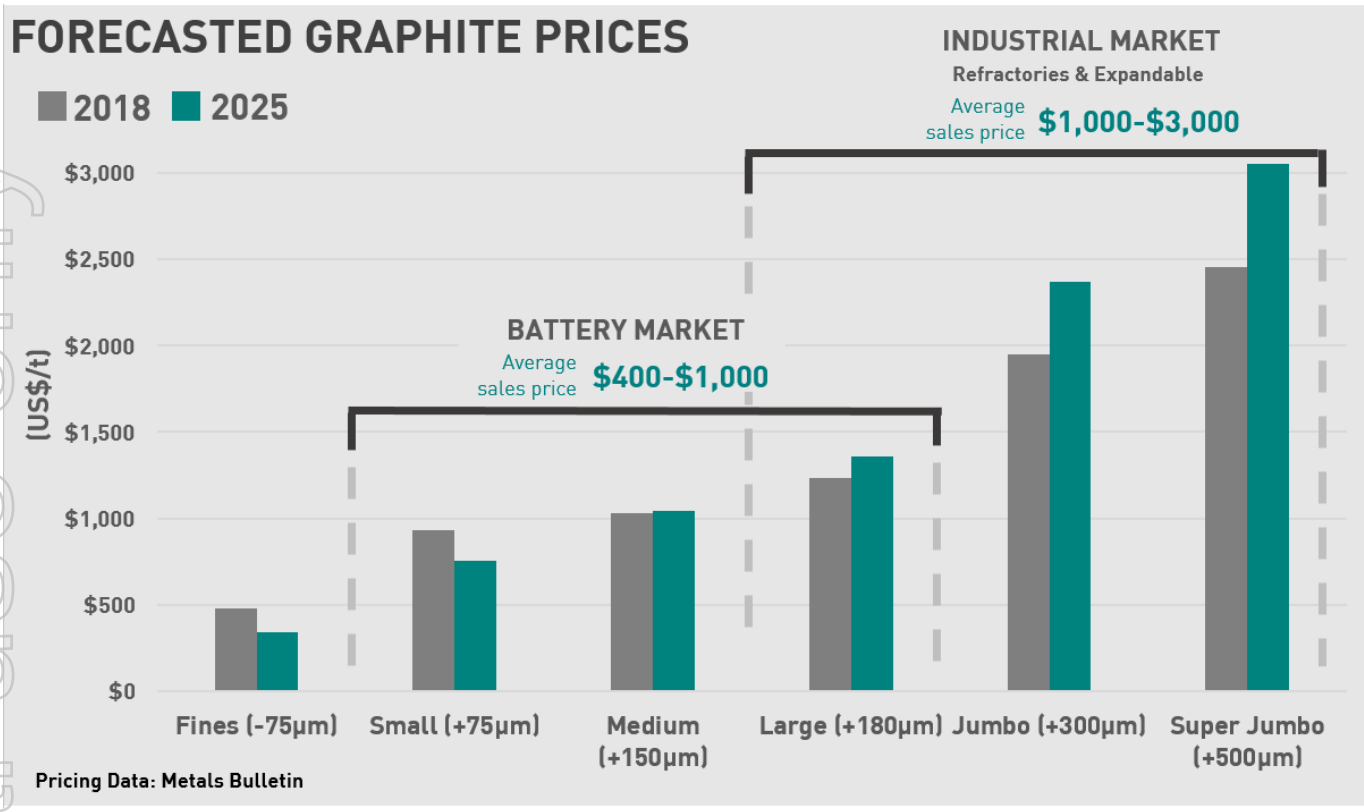

Figure 15: Forecast graphite pricing (Metals Bulletin).

Marketability of Malingunde Product

Sovereign engaged Metal Bulletin Research ("Metal Bulletin"), a specialist international publisher and information provider for the global steel, non-ferrous and industrial minerals markets, to assess the marketability of Malingunde graphite product.

Metal Bulletin's PFS level assessment has confirmed that based upon their global demand and supply forecasts for natural flake graphite, and with reference to the specific attributes of the Malingunde Project, 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 Malingunde will be able to fill new demand or displace existing lower quality / higher cost supply.

Project attributes considered by Metal Bulletin in forming an opinion about the marketability of Malingunde flake graphite include:

- Modest production target.
- Low capital costs.
- Low operating costs.
- High quality concentrate specifications.

Economics

Operating Costs

Graphite operations which process saprolite-hosted material have historically been the world's lowest cost producers of natural flake graphite concentrates. The Malingunde PFS estimates operating costs of approximately US$323 per tonne concentrate free on board ("**FOB**"), or US$257 at mine gate ("**MG**"), for its high quality graphite concentrates at a production rate of 52,000 tonnes per annum over the life of mine. Additionally, estimated long term average costs move to just US$284 FOB or US$218 MG after year 7. The project is amongst the very lowest for unit operating costs amongst the current and future graphite development pipeline. The Project aims to produce at a reasonable scale that can easily be placed into existing traditional markets and the growing battery supply chain.

The extremely low operating cost is driven primarily by the saprolite advantage and low logistics costs compared to most East African peers. As the ore is hosted in soft saprolite, it offers a huge cost advantage for mining with its low strip ratios and free-dig nature. In terms of processing, no primary crush or grind is required, resulting in lower processing costs compared to hard-rock operations.

The proximity of the Project to Malawi's capital city Lilongwe offers significant infrastructure and other advantages. Access to an already established labour pool and other industrial services provides operating efficiencies. The largest advantages are the access to high voltage grid power after year 3, and the existing, operating rail/port logistics solution for product export.

The Project's average operating costs are summarised in Table 6.

	Operating Costs		
	LOM total (US$m)	Unit cost (US$/t Feed)	Unit cost (US$/t Conc.)
Mining	49	5	59
Processing	98	10	118
G&A	67	7	80
Transport & Logistics	55	6	66
Total	**268**	**28**	**323**

Table 6: Study operating cost summary LoM.

The low-risk, conventional truck and shovel mining of soft, free-dig saprolite ore results in very low cost mining providing a substantial cost advantage over hard rock peers (Figure 16). Additionally, processing of the soft material does not require the usual high cost, power intensive primary crushing or grinding (Figure 17). The favourable head grade of ~9.5% TGC is also contributes positively to mining and processing costs, particularly when compared to lower grade saprolite-hosted operations in Madagascar for example.

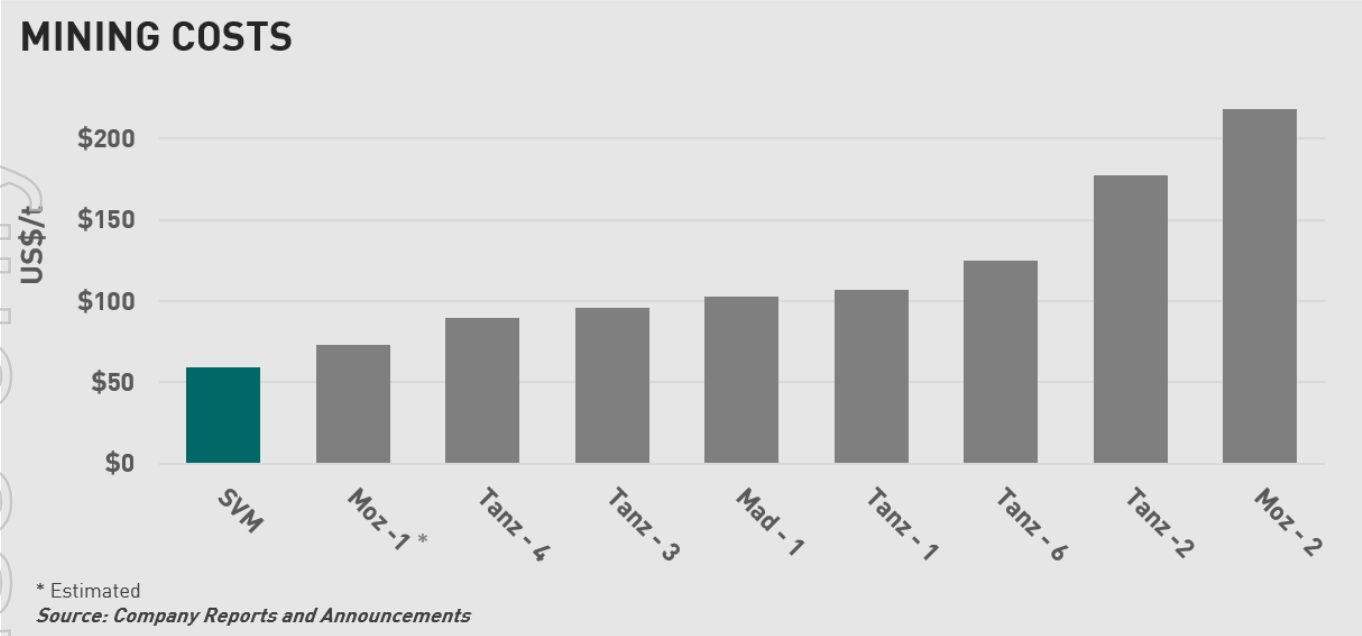

Figure 16: Peer comparison - mining costs.

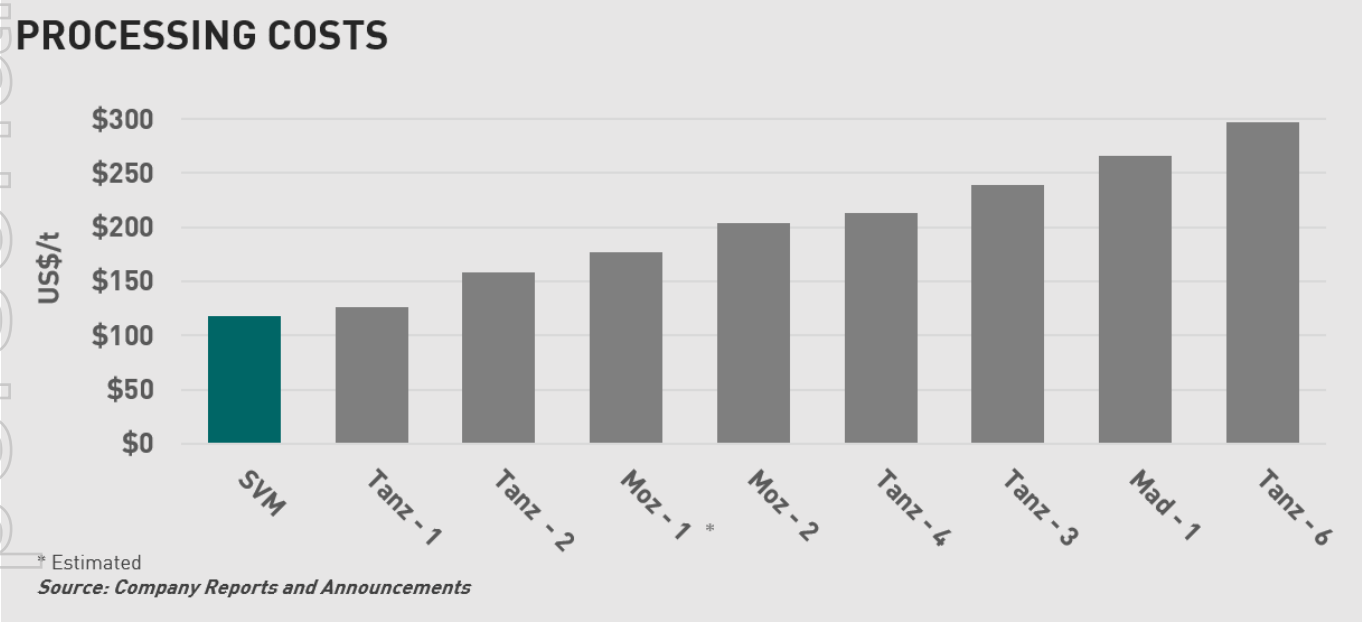

Figure 17: Peer comparison - processing costs.

The low cost profile of the Malingunde Project means the project still delivers significant margins and cashflow in bearish pricing environments. The position of the project on the cost curve means it is able to compete on price point with China, the world's largest supplier and consumer of natural flake graphite.

The Project's economics are robust with significant cashflow generated over its life. The low-cost, high margin operation provides a stable entry level development into the growing natural flake graphite market. The Project contains a large resource which can be utilised to potentially increase production levels once the positive cashflow is achieved and the Company establishes itself in the graphite market.

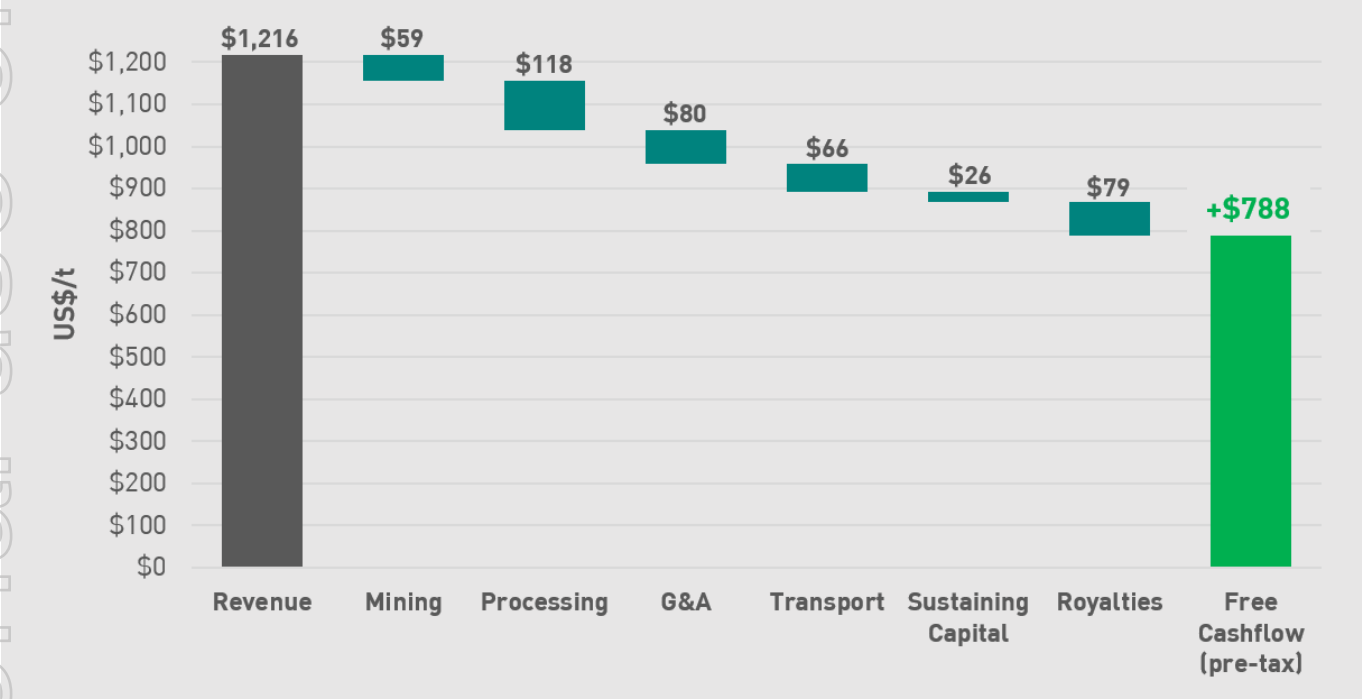

Figure 18: Average operating unit cost waterfall per tonne of graphite concentrate.

The total modelled operating costs can be broken down into four discrete operating periods (Figure X):

Years 0-1 $732/t concentrate. Ramp up period with full expatriate staffing levels, diesel generated power and contract mining.

Years 2-3 $394/t concentrate. Nameplate production reached with full expatriate staffing levels, diesel generated power and contract mining.

Years 4-7 $312/t concentrate. Grid power is installed, expatriate staff levels are reduced, contract mining.

Years 8-16 $284/t concentrate. The project moves to owner operator mining with grid power and minimal expatriate staff levels.

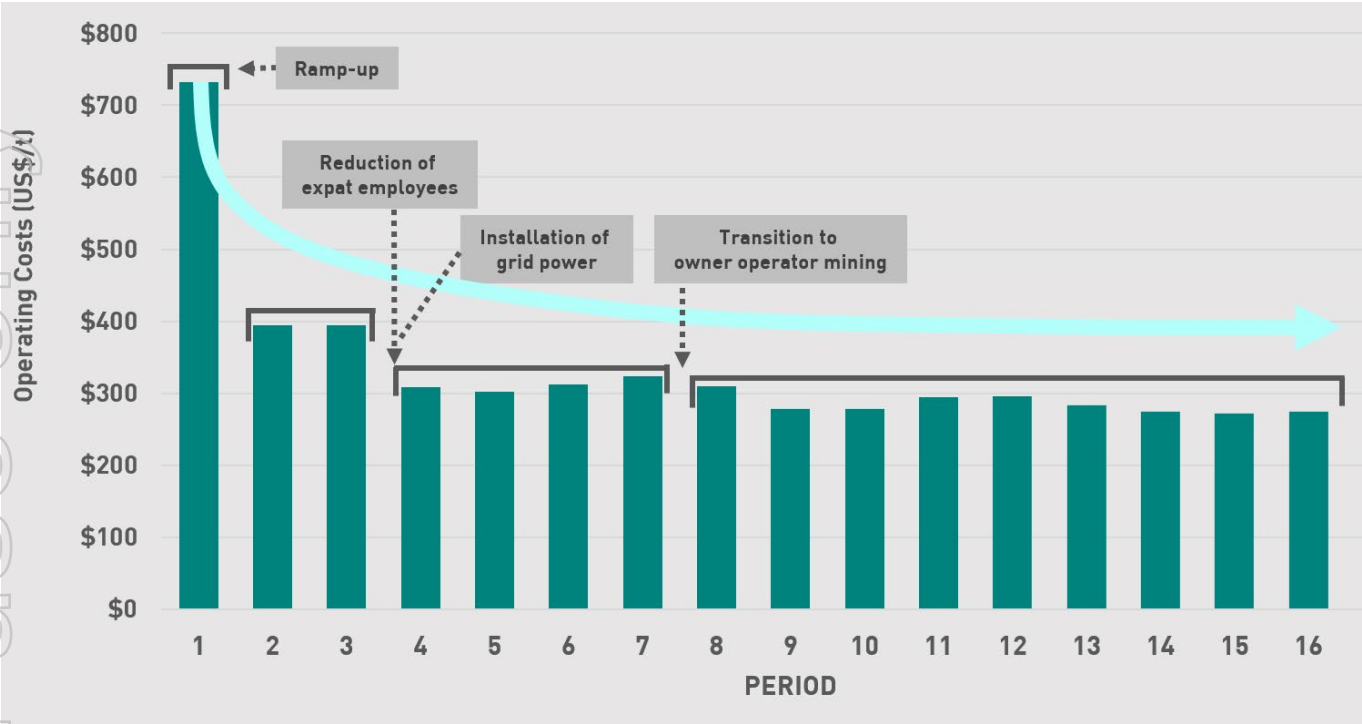

Figure 19: Operating unit costs over the life of mine.

Capital Costs

The initial capital cost to develop and commence production at Malingunde has been estimated at US$49m. The Project capital costs are summarised in Table 7.

	Capital Costs
	US$m
Mining	0.2
Capitalised pre-strip	2.3
Processing	22.2
Infrastructure	3.2
Tailings	4.8
Total	**32.7**
Indirect & contingency	*16.0*
Total development capital	**48.7**
Deferred & sustaining	23.0

Table 7: PFS capital cost summary.

This places Malingunde at the low end of the future supply pipeline in terms of both absolute capital and capital intensity. Capital costs have increased from the 2017 Scoping Study primarily due to the following:

- An increase in scale of approximately 18% from ~44,000tpa in the Scoping Study to ~52,000 in the PFS
- Additional drainage and other components are required for the TSF that were not considered in the Scoping Study
- Processing plant costs have increased due to selection of high-quality components for most of the plant and a reduction in China-sourced components
- Additional plant components have been included to allow processing of up to 15% of the more competent saprock material beneath the saprolite zone

Graphite Basket Price

The Company has taken a deliberately conservative view for its base-case PFS scenario on graphite pricing. Using these assumptions, the PFS shows high operating margins and significant cash generation.

	µm	%	Metals Bulletin Pricing (US$)	Contribution (US$)
Super jumbo +32 mesh	+500	5%	$2,450	$131
Jumbo +48 mesh	+300	19%	$1,950	$366
Large +80 mesh	+180	26%	$1,230	$325
Medium +100 mesh	+150	9%	$1,030	$88
Small +200 mesh	+75	25%	$930	$234
Amorphous -200 mesh	-75	16%	$460	$72
Basket Price				**$1,216**

Table 8: Basket price composition.

The basket price used for the PFS was based on current pricing sourced from independent consultant, Metals Bulletin. Prices are forecast to increase in the medium to long-term. The prices reported are in line with reported prices being received by other graphite producers.

Financial Modelling

The Company modelled numerous scenarios analysing the impact on a number of key inputs, including sales price, operating cost and capital cost. Based on the base case scenario and the following key parameters.

- Life of Mine: 16 years
- Discount rate: 10%
- Tax rate: 30%
- Royalty rate: 5% of Royalty (Government) and 2% of gross profit (Original Project Vendor)
- Pricing: Basket price of US$1,216 per tonne

Sensitivity Analysis

The Study was prepared at a ±25% level of accuracy to investigate the technical and economic parameters of a natural flake graphite operation at Malingunde.

During the study process the Company modelled a number of different scenarios to evaluate the impact of key inputs to the project's economics.

In the early stages of the project, the major power source will be diesel generators prior to the availability of grid power. Changes in the diesel price have been modelled to analyse the impact it has on the operating costs of the project over its life. Based on the modelling a 10% increase in diesel price results in an increase in the operating costs of less than 2%.

The Company has received written advice from ESCOM (Malawian Electrical Supply Corporation) that grid power will be available to the site by 2024. Any delays in availability will result in modest increases in operating costs until grid power is available.

The Company has applied an assumption of 97% C(t) and an overall recovery of 90% for modelling production over the life of mine based on a conservative basket price. Large flake sizes and higher purity concentrates attract a premium price. If at an operational level a better flake distribution is able to be achieved margins maybe be improved.

	Sensitivity *Weighted Average Cost of Capital (WACC)*			
	6%	8%	**Base (10%)**	12%
NPV (US$m) – pre-tax	305	247	**201**	165

Table 9: NPV Sensitivity based on discount rate.

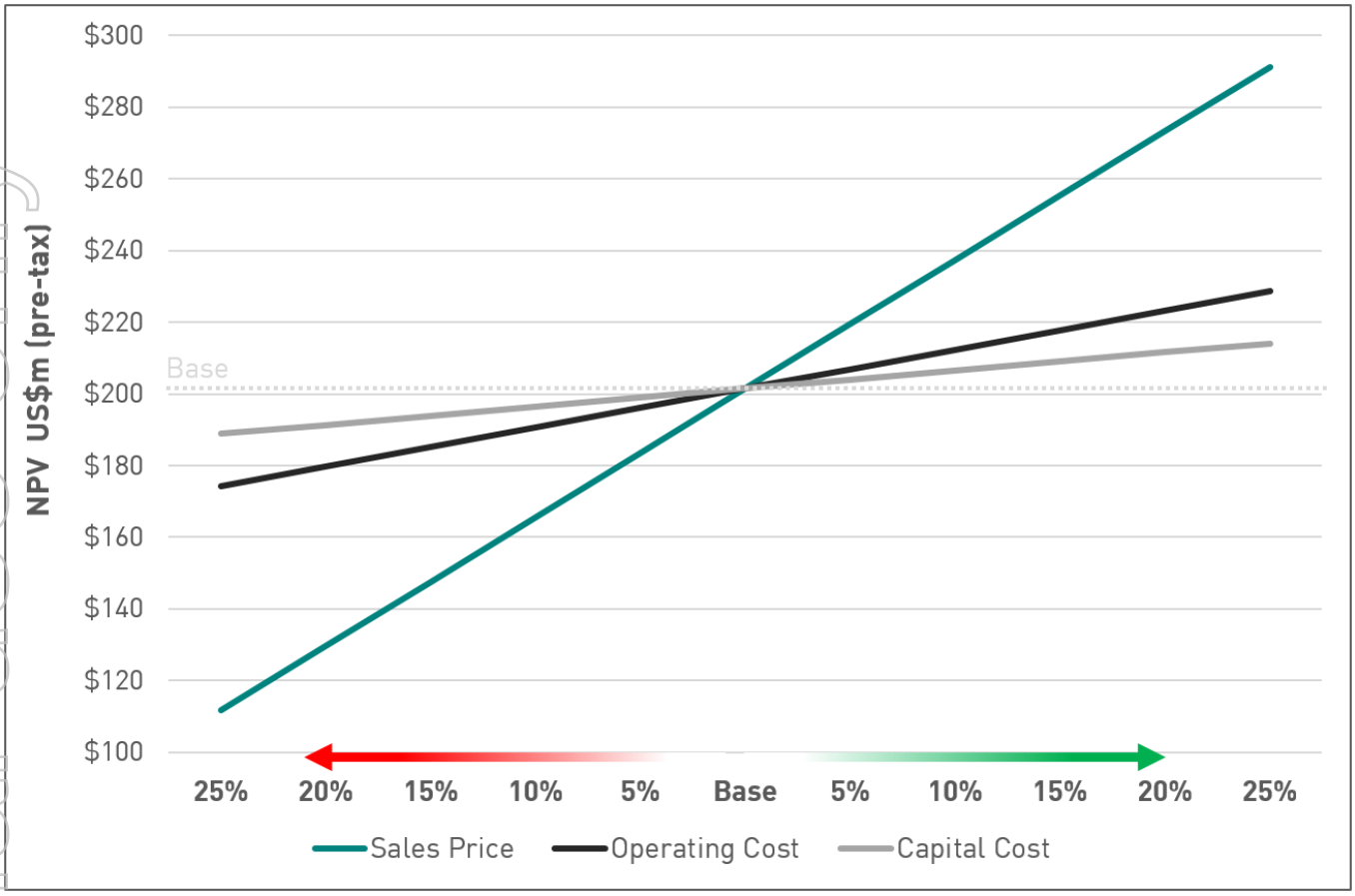

Figure 20: Sensitivity analysis of key inputs against base case, pre-tax NPV.

	NPV 10% (Pre-tax) US$m										
	-25%	-20%	-15%	-10%	-5%	**Base**	+5%	+10%	+15%	+20%	+25%
Sales Price	$112	$130	$148	$166	$184	**$201**	$219	$237	$255	$273	$291
Operating Cost	$174	$180	$185	$191	$196	**$201**	$207	$212	$218	$223	$229
Capital Cost	$189	$191	$194	$196	$199	**$201**	$204	$207	$209	$212	$214

Table 10: NPV Sensitivity Analysis on key variables.

Opportunities

The PFS outcomes confirm the financial attractiveness of the Project and provide the rationale to move the project to a DFS stage. Additional value-add opportunities have been identified during the PFS which will be examined further in the DFS stage. These include:

- Expansion of the saprolite + saprock resource base both in the immediate Malingunde deposit area and in Sovereign's large, regional ground package in central Malawi.
- Addition of high-value rutile (TiO_2) as a potential co-product.
- Improvements in the flowsheet in order to recover a larger portion of the higher value +150µm concentrate.

Next steps

Based on the outstanding results of the PFS, the Company plans to proceed to the DFS stage immediately. As previously indicated, the PFS has been undertaken to high standard, with many of the work programs required for the DFS having been already completed or substantially advanced. This includes:

- All resource drilling is now entirely completed. No drill-out is required for the DFS stage.
- Resource modelling is complete.
- The significant majority of field work related to the ESIA has been completed. The ESIA is expected to be ready for submission by Q1 2019.
- No further laboratory-scale metallurgical test-work is required.

Work programs that will be included in the DFS study phase include:

- A pilot plant program in order to confirm the flowsheet at a large scale, and to provide significant quantities of material for assessment by potential offtake partners. ~40 tonnes of ROM material for pilot plant purposes has already been despatched to SGS Lakefield in Canada.
- An infrastructure assessment program aimed at identifying opportunities to enhance the project economics through further capital and operating cost reductions.
- Detailed design and engineering of the process plant and associated infrastructure.
- Completion of the ESIA which is currently well advanced and expected to be completed in early 2019.
- Ongoing marketing – the Company is well advanced in discussions with numerous Tier 1 end users and traders of graphite, and is ramping up its product sales and marketing activities as the project is de-risked and development are established.
- Advancement of product transport and logistics agreements, particularly focused on completing a binding rail transport agreement with the rail concessionaire, CEAR.
- Commencement of meaningful discussions with finance providers with the intent of securing funding for the development and construction of the Malingunde Project.

Conclusion

Sovereign is pleased to present a PFS that clearly demonstrates the Malingunde Project's strong commercial potential, centred on very low operating and capital costs, with product revenues generated from a very high-quality product.

The PFS validates Sovereign's strategy of exploring for soft, saprolite-hosted graphite mineralisation, with the aim of delivering:

- Very low operating costs.
- Low capital costs.
- Very simple mining & processing.
- Targeting entry to existing refractory, foundry and expandable graphite markets, with Li-ion battery markets as future upside.

The PFS shows that the Project is not reliant on an unrealistically large scale or overly optimistic basket pricing assumptions to be economically viable. The very low operating cost nature of the Project provides protection, and ensures profitability for the project, even in extreme downside global graphite pricing scenarios.

Competent Person Statements

The information in this Announcement that relates to Production Targets and Ore Reserves is based on and fairly represent information provided by Mr Ryan Locke, a Competent Person, who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Locke is employed by Orelogy Group Pty Ltd, an independent consulting company. Mr Locke 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 a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Locke 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 Processing, Infrastructure and Capital and Operating Costs are based on and fairly represent information compiled or reviewed by Mr Matthew Langridge, a Competent Person, who is a Fellow Member of The Australasian Institute of Mining and Metallurgy. Mr Langridge is employed by Minnovo Pty Ltd, an independent consulting company. Mr Langridge has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activities undertaken. Mr Langridge, 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 is based on, and fairly represents, information provided by Mr Oliver Peters, M.Sc., P.Eng., MBA, who is a Member of the Professional Engineers of Ontario (PEO), a 'Recognised Professional Organisation' (RPO) included in a list promulgated by the ASX from time to time. Mr Peters is the President of Metpro Management Inc and a consultant to SGS Canada Inc. ("SGS"). SGS is engaged as a consultant by Sovereign Metals Limited. Mr Peters has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking, to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Oliver consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this Announcement that relates to Mineral Resources is extracted from an announcement dated 12 June 2018. This announcement is available to view on www.sovereignmetals.com.au. The information in the original ASX Announcement that related to Mineral Resources was based on, and fairly represents, information compiled by Mr David Williams, a Competent Person, who is a Member of The Australian Institute of Geoscientists. Mr Williams is employed by CSA Global Pty Ltd, an independent consulting company. Mr Williams 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 a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement

The information that relates to Exploration Results is extracted from announcements on 29 August 2016, 12 October 2016, 26 November 2016, 18 January 2017, 21 February 2017, 15 March 2017, 17 January 2018, 18 February 2018, 19 March 2018 and 3 April 2018. These announcements are available to view on www.sovereignmetals.com.au. The information in the original announcements that related to Exploration Results were based on, and fairly represents, information compiled by Dr Julian Stephens, a Competent Person who is a member of the Australasian Institute of Geoscientists (AIG). Dr Stephens is the Managing Director of Sovereign Metals Limited and a holder of shares, options and performance rights in Sovereign Metals Limited. Dr Stephens has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

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.

SUMMARY OF MATERIAL ASSUMPTIONS AND MODIFYING FACTORS

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

Table 11: Assumptions	
Maximum accuracy variation - Capital costs	+25%/-15%
Maximum accuracy variation - Operating costs	±25%
Minimum LoM	16 years
Annual throughput (tonnes)	600,000
Head grade (TGC)	9.5%
Recovery	90%
Concentrate grade (TGC)	97%
Annual production (tonnes)	~52,000
USD:AUD	0.75
USD:RMB	0.147
USD:MWK	0.0014
USD:ZAR	0.0769
Basket Price (sale price)	US$1,216/t
Government Royalty	5% of net sales revenue
Vendor Royalty	2% of gross profit
Initial Development Capital	US$48.7m
Sustaining Capital	US$23.2m
Operating Costs (LoM) – FOB Nacala	US$322.90/t
Corporate Tax Rate	30%
Discount Rate	10%
Installation of grid power	2024

MODIFYING FACTORS

The Modifying Factors included in the JORC Code have been assessed as part of the PFS, 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.

***Mining** – refer to sections entitled 'Ore Reserves and Mining" and "Water Supply, Hydrogeology and Tailings Management" in the Announcement.*

The Company engaged independent consultants Orelogy Mining Consultants Pty Ltd to carry out the pit optimisations, mine design, scheduling, mining cost estimation and Ore Reserve generation for the Malingunde PFS. The proposed mining method is a conventional truck and shovel mining operation. Free dig mining is considered appropriate for this style of shallow, saprolite-hosted graphite mineralisation. This methodology is used throughout the region for open pit mining operations and is a robust, easily implementable approach. No alternative mining methods were considered in this study.

Mine designs have been undertaken using the geotechnical recommendation provided by Peter O'Bryan and Associates (POBA), the independent geotechnical consultant appointed by Sovereign Metals Ltd to undertake the geotechnical assessment. POBA provided specific berm, batter and inter-ramp angle design criteria for the deposit. The risk around any geotechnical uncertainty is mitigated by:

- The pits are relatively shallow, being a maximum of ~30m below surface.
- Sensitivity to slope angles was assessed during the optimisation phase and showed the deposit discounted value was insensitive (less than -4%) to changes in slope parameters.
- The nature of the deposit and the small scale and low strip ratio of the mining stages will enable access to other areas of the deposit in the event a mining area is inaccessible.

The mine schedule is based on achievable production rates for the specified size of mining fleet with only a single shift per day required.

The proposed mining method requires conventional mining infrastructure including but not limited to mining equipment workshop, fuel & oil storage facilities, wash bay, offices, lunch and ablution facilities and a first aid room. These are to be supplied by the mining contractor. Sovereign Metals have defined a mining infrastructure area and will supply water and power to this location. As there is no anticipated requirement for blasting, no infrastructure is required for explosives storage.

The Tailings Storage Facility (TSF) for the Project was designed by SLR Consulting to safely contain the life of mine estimated tailings of approximately 8.6Mt. Test-work has indicated a final settled density of 1.1t/m^3 which is the figure adopted for the study.

In terms of water balance, it is expected the project will require and additional ~20,000m^3 per month during each nine-month dry season for the first two years of operation. After this point, the mine becomes water positive for the remainder of its life and there will be a requirement to discharge the clean water from dewatering of the pits to the environment.

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

The Company engaged graphite-industry veteran metallurgist Oliver Peters, MSc, P.Eng., MBA (Consulting Metallurgist for SGS and Principal Metallurgist of Metpro Management Inc.) to complete initial variability comminution and flotation bench-scale test-work on mineralised sample material from Malingunde. This was followed by completion of a number of locked-cycle tests (LCTs) which were used as the basis for the processing design in the PFS. 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. Mr Peters has developed the process flowsheet employed for the PFS.

The flowsheet involves washing and disaggregation by high-energy scrubber with ceramic media, followed by rougher flotation, polishing grind and final attritioning and cleaner flotation stages.

Processing engineering was completed by Minnovo (recently acquired by DRA Global) who developed the process plant design and associated cost estimate for the PFS.

Overall average flotation recovery of 90% has been used. Overall concentrate grades average 97% C(t). These figures were derived from averaging 2 recent, optimised and representative LCTs.

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

Overall, the process is conventional for saprolite-hosted graphite mineralisation and no novel features or equipment are incorporated.

Infrastructure *– refer to section entitled 'Infrastructure and Services' and 'Logistics' in the Announcement.*

Malingunde is located approximately 20km south west of Lilongwe, Malawi's capital, and boasts excellent access to services and infrastructure. The site is serviced by a bitumen road from the main M1 highway to within 10km where it becomes an all-weather gravel road.

The proximity to Lilongwe gives the project a number of benefits, including access to a large pool of professionals and skilled tradespeople. This removes the requirement for site accommodation during the mining phase. Additionally, product is only required to be hauled a short distance by road to the existing and underutilised operational intermodal rail siding at Kanengo.

The Malawi Electrical Supply Corporation ("**ESCOM**") plans to construct a 132/11kV substation near Bunda, just 10km to the east of Malingunde which will be linked to the national grid. The Company has received advice from ESCOM that the planned Bunda substation will be operational by 2024. Construction of the transmission line linking the Project to the Bunda sub-station is planned to be complete by the time the Bunda sub-station comes online in 2024. The Project economic model therefore assumes on site diesel power generation to 2024, with grid power availability from this point.

Rail freight cost estimates were provided by Central East African Railways ("**CEAR**"), the existing rail concessionaire and rail operator. The rail concession is operated as a joint venture between Mitsui & Co., Ltd, Vale SA and the Malawi and Mozambique Governments. CEAR have advised that there is available capacity to accommodate Malingunde concentrates. The Company is in the process of drafting a formal agreement with CEAR, in accordance with the existing MOU between the parties.

Other transport cost estimates were provided by Grindrod Rail Consultancy Services (Pty) Ltd ("Grindrod") based on market data, industry databases, industry contacts and Grindrod's existing knowledge of southern African transport infrastructure and freight market. Grindrod is a JSE-listed specialist freight and shipping services provider, with substantial experience in the management of transport studies from mining operation through to port in southern Africa. Grindrod undertook direct interaction with informed industry participants, including meetings with truck and rail haulage providers in Malawi and Mozambique, rail leasing companies and shipping consultants.

Marketing *– refer to sections entitled 'Marketing' in the Announcement.*

The Company engaged Metal Bulletin Research ("**Metal Bulletin**"), a specialist international publisher and information provider for the global steel, non-ferrous and industrial minerals markets, to prepare a marketing report as a key input into the PFS.

Metal Bulletin's 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 the Malingunde project, there is a reasonable expectation that the product from the Malingunde 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 Malingunde will be able to fill new demand or substitute existing lower quality / higher cost supply.

Project considerations taken into account by Metal Bulletin in forming an opinion about the marketability of product include Malingunde's:

- Modest production target
- Low capital costs
- Low operating costs
- High quality concentrate specifications

The Company has engaged with a diverse range of potential off-takers across a number of industrial sectors and global locations. To date, concentrate samples have been provided to a significant number of potential partners for assessment. Larger quantities of sample are now being requested by a number of these groups in order to validate and qualify Sovereign's flake graphite concentrates for their particular requirements.

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.

The Project's bias to large, jumbo and super-jumbo flake concentrates has resulted in the Company receiving significant interest from potential purchasers of these high-value graphite products. Sovereign is pursuing credible sales agreements with Tier 1 organisations to support the project's development.

Metal Bulletin have confirmed that based on a high-level view of the market, there is a reasonable expectation the Company will be able to execute off-take agreements with customers.

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

***Economic** – also refer to section entitled 'Economics' in the Announcement. Please also refer to the attached Appendices and the Further Economic Analysis below.*

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

- Life of Mine: 16 years
- Discount rate: 10%
- Tax rate: 30%
- Royalty rate: 5% royalty (Government) and 2% of gross profit (Original Project Vendor)
- Pricing: Basket price of US$1,216 per tonne

The financial model has been prepared internally by the Company using inputs from the various expert consultants, and has been reviewed by an international accounting firm to validate the functionality and accuracy of the model.

The Company engaged the services of advisory firm, Argonaut, with regards to project economics. Argonaut is a financial advisory firm which specialises in multiple sectors, including metals and oil & gas. 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 that a DFS arrives at a result that is not materially negatively different than the PFS as noted above, Sovereign should be able to raise sufficient funding to develop the Project.

An assessment of various funding alternatives available to Sovereign has been made based on precedent transactions that have occurred in the mining industry, including an assessment of alternatives available to companies that operate in industrial and specialty minerals sector. The assessment and advice from Argonaut Capital (referred to above) indicates that financing for industrial mineral companies often involves a broader mix of funding sources than just traditional debt and equity. Argonaut Capital considers that given the nature of the Project, funding is likely to involve specialist funds, with potential funding sources including, but not limited to, traditional equity and debt, royalty financing and off-take agreements, at either the corporate or project level. It is important to note that no funding arrangements have yet been put in place as these discussions continue to take place. The composition of the funding arrangements ultimately put in place may also vary, so it is not possible at this stage to provide any further information about the composition of potential funding arrangement.

Since initial exploration of the Malingunde Project in December 2014, the Company has completed extensive drilling, sampling and geophysical surveys to understand the geological setting and define graphite resources within the Malingunde Project area. Over this period, with these key milestones being reach and the Project de-risked, the Company's market capitalisation has increased from approximately A$11m to over A$21m. As the Project continues to achieve key develop milestones, which can also be significant de-risking events, the Company's share price is likely to increase.

The Company is debt free and is in a strong financial position, with approximately A$2.1m cash on hand (30 September 2018). The current financial position means the Company is soundly funded to continue into a DFS phase to further develop the Project.

Sovereign has a high-quality Board and management team comprising highly respected resource executives with extensive finance, commercial and capital markets experience. The Directors have previously raised more than A$800m from capital markets for a number of exploration and development companies. Further, a number of the Directors have recently secured funding of approximately A$80m in equity and debt funding to fully fund the construction and working capital requirements for a resources project.

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

An Environmental Impact Assessment (ESIA) is currently underway with reference to applicable Malawian and international environmental and social permitting and baseline requirements for the Malingunde 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. 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 exercises with the communities in the area and there is a general positive acceptance of the Project. No social responsibility costs have been factored into this PFS, however they will be assessed as part of the overall ESIA for the Project in the future.

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.

The Company expects to enter into a Community Development Agreement ("CDA") with the surrounding communities. Significant engagement with these communities has occurred is ongoing ahead of negotiation of the CDA which is expected to be concluded during the DFS stage.

Appendix 1: JORC Code, 2012 Edition – Table 1

SECTION 1 - SAMPLING TECHNIQUES AND DATA

Criteria	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), Air-core (AC) and Diamond core (DD) drilling form the basis of the Mineral Resource Estimate (MRE) and are described below: **HA** drilling was employed to obtain samples vertically from surface at nominal 1-metre depth intervals, with samples composited on geologically determined intervals. Composite samples were riffle split on site. A total of 1,053 HA holes (10,686 m) support the MRE. **AC** drilling was employed to obtain bulk drill cuttings at nominal 1-metre (downhole) intervals from surface. All 1-metre samples were collected in plastic bags directly beneath the drilling rig cyclone underflow. The entire 1-metre sample was manually split using either a 3-tier (87.5:12.5 split) or single tier (50:50 split) riffle splitter or a combination thereof to facilitate the mass reduction of a laboratory assay split. Compositing of the laboratory sample split was performed on a geological basis. Mineralised (>=3% v/v visual) laboratory splits of 1-metre intervals from surface to the top of the saprolite zone were not composited whereas mineralised splits of the underlying saprolite and saprock intervals were composited nominally at 2-metres. Unmineralised (=<3% v/v visual), laboratory splits of 4-metre intervals from top of hole to bottom of hole were composited. A total of 384 AC holes (11,595.8 m) support the MRE. **DD** drilling (angled and vertical) was designed to obtain representative large diameter (PQ3) core for geological, geotechnical and metallurgical testwork purposes. Subsequent to completion of all geological and geotechnical logging and sampling (whole core samples removed laboratory bulk density and strength testing) drill core was either manually hand split or sawn using a circular saw and sampled as ¼ PQ3 core. Upon completion of laboratory bulk density and strength testing of the whole core intervals the entire core was submitted to the laboratory. A total of 13 DD holes (487.75 m) support the MRE. Laboratory splits were submitted Intertek Perth for assay sample preparation. Total Graphitic Carbon (TGC) analysis of all assay pulps samples was undertaken by Intertek Perth. **Metallurgy** samples were collected from PQ drill-core and comprise whole, three-quarter and half core. Metallurgical samples were composited into a Master Composite which is approximately weighted on weathering types within the Ore Reserve model.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Drilling and sampling activities were supervised by a suitably qualified Company geologist who was present at the drill rig at all times. All bulk 1-metre drill samples were geologically logged by the geologist at the drill site. All 1-metre downhole drill samples collected in plastic bags from directly beneath the cyclone underflow were individually weighed and moisture content was qualitatively logged prior to further splitting and sampling. All mass reduction (field and laboratory splitting) of samples were performed within Gy's Sampling Nomogram limits relevant to this style of mineralisation. Field duplicate splits were undertaken nominally every 20th sample to quantify sampling and analytical error. A program of field replicate splitting of selected (~5%) mineralised intervals was completed at the conclusion of the drill program. **HA:** The auger spiral and rods are cleaned between each metre of sampling to avoid contamination. **AC:** The sampling cyclone was routinely cleaned out between each drill hole. Sample recovery was quantitatively assessed throughout the duration of the drilling program. A program of field replicate splitting of selected (~5%) mineralised intervals was completed at the conclusion of the drill program to assess the sampling repeatability **DD:** core recovery was closely monitored during drilling particularly through the mineralised zones. Standard industry drilling mud mixtures were employed to improve core recovery especially through the softer upper clay rich pedolith and saprolith horizons.

Criteria	Explanation	Commentary
	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.	Flake graphite content is visually estimated as volume % (% v/v) of each 1-metre bulk drill samples during geological logging by Company geologist. A nominal lower cut-off of 5% TGC assay has been applied to define zones of 'mineralisation'.
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.).*	**HA:** drilling was performed manually by Sovereign employees using a conventional hand auger employing a combination of 62mm and 50mm diameter spiral auger flight and 1-metre long steel rods. Each 1m of drill advance is withdrawn and the contents of the auger flight removed. An additional 1-metre steel rod is attached and the open hole is re-entered to drill the next metre. This is repeated until the drill holes is terminated or reaches a maximum depth of 12m. The auger spiral and rods are cleaned between each metre of sampling to avoid contamination. **AC:** conventional blade bit aircore drilling was employed to obtain all drill cuttings from surface. Drilling was completed using a P900 truck mounted rig with and separate truck mounted air compressor. Drilling was completed using standard 3-inch or 4-inch diameter/3m length drill rods equipped with inner tubes. Drilling was performed with standard face discharge aircore blade bits. The nominal drill hole diameter for 3-inch and 4-inch holes is 85mm and 114mm respectively. The nominal inner tube inside diameter for 3-inch and 4-inch holes is 37mm and 45mm respectively. Drilling of all 3-inch holes employed a 2-stage compressor rated at 300CFM:200PSI run continuously on high stage. All 4-inch holes were drilled employing a 2-stage compressor rated at 900CFM:350PSI with high-stage generally run below about 15m downhole. **DD:** conventional wireline PQ triple tube (PQ_3) diamond drilling (DD) was employed to obtain all drill core. Drilling was undertaken with an Atlas Copco Christensen CT14 truck mounted drilling rig. The nominal core diameter is 83mm and the nominal hole diameter is 122mm. Coring was completed with appropriate diamond impregnated tungsten carbide drilling bits. Drill runs were completed employing either a 1.5m or 3.0m length PQ_3 core barrel. Core from all drilling runs was orientated using a Reflex ACTIII Electronic Orientation device. The orientation and marking of the bottom of hole (BOH) orientation line along the core was completed whilst the core was still within the drilling split. Core was transferred from the drilling split into PVC splits which were then wrapped with plastic layflat material, securely sealed and placed into core trays.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	**HA:** sample recovery was monitored visually during removal of the sample from the auger flights. **AC:** sample recovery was recorded for all holes. The 1-metre drill samples collected in plastic bags from directly beneath the cyclone underflow were individually weighed and moisture content (dry/damp/moist /wet/saturated) recorded prior to further splitting and sampling. The outside diameter of the drill bit cutting face was measured and recorded by the driller prior to the commencement of each drill hole. Each 1-metre sample interval was separately geologically logged using standard Company project specific logging codes. Logging of weathering and lithology along with drill hole diameter, recovered sample weight, moisture content and dry bulk density measurements of PQ diamond core allow the theoretical sample recovery to be assessed. Analysis of the calculated sample recoveries indicate an average recovery of greater than 75% for all mineralised (>=4% TGC) intervals. **DD:** drilling core recovery was recorded for each drill run by measuring the total length whilst still in the drilling splits prior to being transferred into core trays. Downhole depths were validated against core blocks and drill plods during each shift. Holes MGDD0001, MGDD0004 and MGDD0005 were re-drilled due to core loss within a number of mineralised zones. An overall core recovery of 92% was achieved for all sampled core.

Criteria	Explanation	Commentary
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	**HA:** drill holes were terminated where they intersected the upper (perched) water table (approx.. 7-8m) **AC:** drill bit type (face discharge) used were appropriate for the type of formation to maximise amount of drill cutting recovered. Drill bits were replaced where excessive wearing of the tungsten cutting teeth had occurred. Adequate CFM/PSI of compressed air was used to maximise the drying of sample prior to recovering up the drill string. A number of the 2016 PQ diamond core holes were twinned by aircore holes to assess the representivity of AC drill samples. Where the ingress of water in deeper sections of holes resulted in wet samples (usually at the Saprolite/Saprock interface) the drill hole was terminated. **DD:** core recovery was closely monitored during drilling particularly through the mineralised zones. Standard industry drilling mud mixtures were employed to improve core recovery especially through the softer upper clay rich material of the Pedolith and Saprolith zones. Other measures such quantity of water, amount of rotation and drill bit types that are appropriate to soft formation drilling were considered and employed during drilling when required. At the completion of each drill run the steel splits containing the core were pumped out of the retrieved core tube. Core was then carefully transferred from the drill split into plastic sleeves (layflat) which were secured in rigid PVC splits. The layflat was securely bound and sealed (to preserve moisture) with tape prior to transferring PVC splits into plastic core trays.
	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.	Twin hole comparison of aircore vs hand auger and diamond core drill hole visually estimated grades indicates that no sample bias exists. There does not appear to be any relationship between aircore sample recovery and TGC % v/v grade.
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.*	All drill holes were geologically logged by a suitably trained Company geologist using standard Company code system. Relevant data for each individual 1-metre sample for aircore or for each geological interval for diamond was initially recorded using a standard A4 paper template and later digitally entered into customised Company MS Excel spreadsheets designed with fully functional validation. Excel files are checked and loaded to MS Access by the Database Administrator. Upon loading into the Access database further validation is performed. In addition, all core is photographed wet and dry for future reference. This information is of a sufficient level of detail to support appropriate Mineral Resource estimation.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is both qualitative and quantitative. Geological logging includes but is not limited to lithological features, volumetric visual estimates of graphite content and flake characteristics.
	The total length and percentage of the relevant intersection logged	100% of drill hole sample intervals have been geologically logged.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Quarter PQ3 DD core is manually split and/or cut using a motorised diamond blade core saw and sampled for laboratory analysis.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	**HA:** 1-metre samples are composited on geological intervals and then riffle split at 50:50 using a standard Jones riffle splitter. Wet samples are first air dried and then manually broken up prior to compositing or splitting. **AC:** The entire 1-metre sample was manually split using either a 3-tier (87.5:12.5 split) or single tier (50:50 split) riffle splitter or a combination thereof to facilitate the mass reduction of a laboratory assay split. Compositing of the laboratory sample split was performed on a geological basis. Mineralised (>=3% v/v visual) laboratory splits of 1-metre intervals from surface to the top of the saprolite zone were not composited whereas mineralised splits of the underlying saprolite and saprock intervals were composited nominally at 2-metres. Unmineralised (=<3% v/v visual), laboratory splits of 4-metre intervals from top of hole to bottom of hole were composited. All wet samples were removed from the drill site without splitting and relocated to the Company's premises in Lilongwe. The wet samples were transferred into large metal trays and sun dried. Samples were subsequently hand pulverised and thoroughly homogenised prior to splitting 50:50 with a single tier riffle splitter. One of the off-splits was submitted to the laboratory for assay. All reject splits (i.e. the material not sent for assaying) of each individual 1-metre interval were returned to original sample bag, cable tied and placed in storage for future reference.

Criteria	Explanation	Commentary
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	**HA samples:** sample preparation is conducted at Intertek's laboratory in Johannesburg. Each entire sample is crushed to nominal 100% -3mm in a Boyd crusher then pulverised to 85% -75µm in a LM5. Approximately 100g pulp is collected and sent to Intertek Perth for TGC analysis. **AC samples:** sample preparation was conducted at either Intertek in Perth or Johannesburg. The entire submitted sample (=< ~3kg) is pulverised to 85% -75µm in a LM5. Approximately 100g pulp is collected and sent to Intertek-Genalysis Perth for chemical analysis. **DD samples:** all sample preparation was conducted at Intertek Perth. Each entire sample is crushed to nominal 100% -3mm in a Boyd crusher then pulverised to 85% -75µm in a LM5.The entire submitted sample (=< ~3kg) is pulverised to 85% -75µm in a LM5. Approximately 100g pulp is collected and sent to Intertek-Genalysis Perth for chemical analysis.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All sampling was carefully supervised. Ticket books were used with pre-numbered tickets placed in the laboratory sample bag and double checked against the sample register. Subsequent to splitting an aluminium tag inscribed with hole id/sample interval was placed inside the bulk 1-metre sample bag. Field QC procedures involve the use of certified reference material assay standards, blanks, duplicates, replicates for company QC measures, and laboratory standards, replicate assaying and barren washes for laboratory QC measures. The insertion rate of each of these averaged better than 1 in 20.
	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.	All mass reduction (field and laboratory splitting) of samples were performed within Gy's Sampling Nomogram limits relevant to this style of mineralisation. Field duplicate splits of HA/AC samples and quarter DD core were undertaken nominally every 20th sample to assess sampling errors. A program of field replicate splitting of selected (~10%) "mineralised" AC intervals was completed at the conclusion of the drill program. In addition, a number of air core holes were drilled to "twin" existing HA and DD holes, to assess the representivity of the AC drill samples. The results of these programs indicate there are no significant sampling errors.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	All mass reduction of aircore drill samples undertaken during field sampling and laboratory sample preparation were guided by standard sampling nomograms and fall within Gy's safety limits for the type of mineralisation 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.*	**HA, AC and DD** assaying and laboratory procedures are considered to be appropriate for reporting graphite mineralisation, according to industry best practice. Each entire sample was pulverised to 85% -75µm. Approximately 100g pulp is collected for analysis at Intertek-Genalysis Perth. A sample of 0.2g is removed from the 100-gram pulp, first digested in HCl to remove carbon attributed to carbonate, and is then heated to 450°C to remove any organic carbon. An Eltra CS-2000 induction furnace infra-red CS analyser is then used to determine the remaining carbon which is reported as Total Graphitic Carbon (TGC) as a percentage. **Metallurgy**: Two Locked Cycle Tests (LCT) were conducted using the Scrubbed Master Composite. Each of the tests consisted of 6 cycles with the recycle tails from each cycle utilised in each subsequent cycle. The test used the conditions from optimisation program completed prior to the start of LCT. In the second LCT a marginal higher reagent dosage in the rougher circuit was trialled (120g/t vs 80g/t), all other conditions were the same. The LCTs involved the following; - Polishing grind (20 min, pebble mill, 1/2" ceramic) - +65 mesh Polishing Grind (10 min, SMM, steel) - -65 mesh Polishing Grind (20 min, SMM, steel)
	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.	No non-laboratory devices were used for chemical analysis.
	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.	Field QC procedures involve the use of certified reference material assay standards, blanks, duplicates and replicates for company QC measures, and laboratory standards, replicate assaying and barren washes for laboratory QC measures. The insertion rate of each of these averaged better than 1 in 20.
Verification of sampling & assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant mineralisation intersections were verified by alternative company personnel. An independent resource consultant (Competent Person, Mineral Resources) conducted a site visit during December 2016 during the aircore drilling program. All drilling and sampling procedures were observed by the CP during the site visit. These procedures remained in use for the 2017 drilling program.

Criteria	Explanation	Commentary
	The use of twinned holes.	Several of the 2016 PQ diamond core holes were twinned by aircore holes to assess sampling representivity.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data is initially collected on paper logging sheets and codified to the Company's templates. This data was hand entered to spreadsheets and validated by Company geologists. This data was then imported to a Microsoft Access Database then validated automatically and manually. Assay data is provided as .csv files from the laboratory and loaded into the project specific drill hole database. Spot checks are made against the laboratory certificates.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data.
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.*	Collar points were set out using the Company's R2 Rover DGPS (accuracy 0.04m x/y), and upon completion of drilling all collars were picked-up again using the same survey tool. The accuracy of R2 Rover unit is quoted to be 0.04m x/y and 0.09m z. Down-hole surveying was undertaken on selected holes to determine drill hole deviation. Surveys were carried out using a Reflex Ez-Trak multi-shot survey tool at nominal 30m intervals down hole on selected holes was used to show that significant deviation does not occur over the relatively short length of the aircore holes. As such drill hole deviation is not considered material throughout the program.
	Specification of the grid system used.	WGS84 (GRS80) UTM Zone 36 South
	Quality and adequacy of topographic control.	The Company's DGPS survey tool has sub 0.1m accuracy in the X, Y and Z planes. This is considered sufficiently accurate for the purposes of topographic control. In addition, the Company has installed several independently surveyed control pegs and undertakes QC surveys on these points before every survey program. Given the low topographic relief of the area it is believed that this represents high quality control. Previous checking of Hand Auger holes with the Shuttle Radar Topographic Mission (SRTM) 1-arc second digital elevation data has shown that the Leica GPS System produces consistently accurate results.
Data spacing & distribution	*Data spacing for reporting of Exploration Results.*	Drill holes occur along east-west sections spaced at between 100-400m north-south between 8,434,400mN to 8,437,800mN. Spacing along drill lines generally ranges between 15m and 40m. Between sections 8,436850 and 8,437,150 drill lines are spaced at 50 m intervals with holes along section lines at 20 m spacing.
	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 Company's independent resource consultants completed a Mineral Resource Estimate (MRE) for Malingunde in 2017 following the completion of the 2016 drilling program. The drill hole sample data sourced in 2017 has allowed an update to the MRE (this document).
	Whether sample compositing has been applied.	No sample compositing has occurred.
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*	No bias attributable to orientation of sampling upgrading of results has been identified.
	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.	No bias attributable to orientation of sampling upgrading of results has been identified. Flake graphite mineralisation is conformable with the main primary layering of the gneissic and schistose host lithologies. Drill hole inclination of -60 degrees are generally near orthogonal to the interpreted regional dip of the host units and dominant foliation.
Sample security	*The measures taken to ensure sample security*	Samples are securely stored at the Company's compound in Lilongwe. Chain of custody is maintained from time of sampling in the field until sample is dispatched to the laboratory.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data*	The Competent Person (Mineral Resources) reviewed sampling techniques and data during the December 2016 site visit. The field crew were following company sampling procedures and the CP did not note any issues of significance during the inspection. It is considered by the Company that industry best practice methods have been employed at all stages of the exploration.

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 4 Exclusive Prospecting Licences (EPLs) in Malawi. EPL0355 renewed in 2017 for 2 years, EPL0372 renewed in 2018 for 2 years and EPL0413 renewed in 2017 for 2 years. EPL0492 was granted in 2018 for an initial period of three years (renewable).
	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.*	No other parties were involved in exploration.
Geology	*Deposit type, geological setting and style of mineralisation*	The graphite mineralisation occurs as multiple bands of graphite gneisses, hosted within a broader Proterozoic paragneiss package. In the Malingunde and Lifidzi areas specifically, a deep tropical weathering profile is preserved, resulting in significant vertical thicknesses from near surface of saprolite-hosted graphite mineralisation. Malingunde occurs in a topographically flat area west of Malawi's capital known as the Lilongwe Plain and 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).
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*	No new exploration results are included in this release.
	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	All drill holes within the resource area have previously been reported in releases to the ASX providing collar easting, northing, elevation, dip, azimuth, length of hole, and mineralised intercepts as encountered. All drill holes were used to prepare the MRE.
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.*	No new exploration results are included in this release. All drill holes within the resource area have previously been reported.
	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 new exploration results are included in this release. All drill holes within the resource area have previously been reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values are used in this report.
Relationship between mineralisation widths & intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.*	Interpretation of mineralised zones in aircore holes supported by DD (2016) orientated core measurements indicate that mineralised zones are shallow-moderate north-east dipping.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Flake graphite mineralisation is conformable with the main primary layering of the gneissic and schistose host lithologies. Drill hole inclination of -60 degrees are generally near orthogonal to the regional dip of the host units and dominant foliation and hence specific drill hole intercepts for -60 degree holes may only approximate true width. The averaged strike of mineralised zones is approximately 160° grid whereas all -60 inclined aircore holes were orientated at grid east.

Criteria	Explanation	Commentary
	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'.	Refer to the statement above.
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 the body of this report.
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.*	Exploration results are not reported here. All drill hole sample data were used to support the Mineral Resource estimate.
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.*	No additional meaningful and material exploration data has been excluded from this report that has not previously been reported to the ASX.
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).*	The next phase of exploration is to complete aircore drilling on regional saprolite targets identified through hand auger drilling.
	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.

SECTION 3 - ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	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 used in the Mineral Resource estimate is was sourced from an MS Access database. The database is maintained by Sovereign. Relevant tables from the database were exported to csv format, and then imported into Datamine Studio RM software for use in the Mineral Resource estimate.
	Data validation procedures used.	Validation of the data import include checks for overlapping intervals, missing survey data, missing assay data, missing lithological data, and missing collars.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person (Mineral Resources) visited the project in December 2016. The aircore drilling rig was in operation and the Competent Person reviewed drilling and sampling procedures. Planned drill sites were examined and assessed with respect to strike and dip of the interpreted geological model. Sample storage facilities were inspected. Discussions were held with the Sovereign geological staff regarding all drilling and sampling procedures and outcomes. Selected diamond drill core was inspected, with all weathering types pertinent to the Mineral Resource reviewed. There were no negative outcomes from any of the above inspections, and all samples and geological data were deemed fit for use in the Mineral Resource estimate.
	If no site visits have been undertaken indicate why this is the case.	Not applicable, site visit was undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	There is a high level of confidence in the geological interpretation in the Measured Mineral Resource volumes, based upon lithological logging of diamond drill core, aircore chip samples and hand auger samples. Multi-spectral satellite imagery and airborne geophysical data provided guidance for the initial geological interpretation of the strike continuity of the deposit.

Criteria	Explanation	Commentary
		Drill hole intercept logging and assay results (aircore, hand auger and diamond core), structural interpretations from drill core and geological logs of aircore and hand auger drill data have formed the basis for the geological interpretation.
	Nature of the data used and of any assumptions made.	Assumptions were made on depth and strike extension of the gneiss, using drill hole assays as anchor points at depth and at intervals along strike. Geological mapping also supports the geological model. Seven weathering domains were modelled and support the grade interpolation and Mineral Resource classification.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations were considered because the geophysical models and diamond core support the current interpretation.
	The use of geology in guiding and controlling Mineral Resource estimation.	Graphitic Graphite mineralisation is hosted within a graphitic gneiss, which is mapped along its strike length within the project area and within the license area. Grade (total graphitic carbon, TGC%) is assumed to be likewise continuous with the host rock unit. Mineralised waste and non-mineralised waste zones were modelled within the graphitic gneiss.
	The factors affecting continuity both of grade and geology.	The graphitic gneiss is open along strike and down dip. The interpretation of the mineralisation domains is based upon a pre-determined lower cut-off grade for TGC, which is equivalent to the graphitic gneiss domain boundary. A variation to the cut-off grade will affect the volume and average grade of the domains, however there are no geological reasons identified to date to support higher grade TGC domains within the graphitic gneiss.
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 Malingunde Deposit comprises 4,500 m strike length of shallowly north-east dipping, north-west striking graphitic gneisses. The mineralised package has up to six separate sub-parallel zones of graphite gneiss with cumulative across strike widths averaging 120 m and locally exceeding 200 m. The Msinja Deposit has a strike length of approximately 1.0 km with about five parallel zones of mineralisation. Across strike cumulative widths range between 40 and 100 m. The depth extent of the MRE is approximately 50 m although the mineralisation is believed to extend considerably deeper, but is not considered as an exploration target at this stage.
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 software was used for all geological modelling, block modelling, grade interpolation, Mineral Resource classification and reporting. GeoAccess Professional and Snowden Supervisor (V8.7) were used for geostatistical analyses. All samples were composited to 2 m intervals. All drill hole assay data (diamond, aircore and hand auger) were utilised in the grade interpolation. A block model with parent cell sizes 10 m (E) x 25 m (N) x 5 m (RL) was constructed for Malingunde, compared to typical drill spacing of 20 m (E) x 50 m (N) within the Measured volumes.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Inverse distance squared (IDS) estimation was run as a check estimate of the ordinary kriging (OK) grade estimation. No depletion of the Mineral Resource due to mining activity was required due to no mining having occurred historically. The Malingunde MRE was previously reported in 2017 and the current MRE has not presented an adjustment of any significance to tonnes or grade, but has improved the confidence levels as demonstrated in the classification of the MRE.
	The assumptions made regarding recovery of by-products.	No by-products were modelled.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables of economic significance were modelled.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Grade estimation was by ordinary kriging (OK) with inverse distance squared (IDS) estimation run as a check estimate. A minimum of 12 and maximum of 28 composited samples were used in any one block estimate for all domains. A maximum of 6 composited samples per drill hole were used in any one block estimate. Cell discretisation of 3 x 3 x 3 was used. No hard estimation domain boundaries at weathering domain interfaces were used, although each mineralisation domain was a separate domain for grade interpolation.
	Any assumptions behind modelling of selective mining units.	No selective mining units were assumed in this model.
	Any assumptions about correlation between variables.	TGC grade was the only variable estimated.
	Description of how the geological interpretation was used to control the resource estimates.	Drill hole intercept logging and assay results (aircore, hand auger and diamond core), structural interpretations from drill core and geological logs of aircore and hand auger drill data have formed the basis for the geological interpretation. The drilling mostly targeted the SAPL and SAPR

Criteria	Explanation	Commentary
		weathering horizons, with limited sampling below the upper level of the fresh rock (FRESH) domain. The MRE block model consists of 6 zones of TGC mineralisation in the Malingunde deposit, and 5 in the Msinja deposit. Mineralisation domains were encapsulated by means of 3D wireframed envelopes based upon a lower cut-off grade of 4% TGC. Weathering domains were interpreted based upon geological logs of drill samples.
	Discussion of basis for using or not using grade cutting or capping.	Top cutting of composited sample assays was applied to constrain extreme grade values when warranted. Top cuts were determined by reviewing histograms and log probability plots of domained assays, and iterative calculations of mean domain TGC grades, testing a range of top cuts. All top cuts were applied to data in the 99th percentile of data.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The grade model was validated by 1) creating slices of the model and comparing to drill hole samples on the same slice; 2) swath plots comparing average block grades with average sample grades on nominated easting, northing and RL slices; 3) mean grades per domain for estimated blocks and flagged drill hole samples; and 4) cross sections with block model and drill hole data colour coded in like manner. No reconciliation data exists to test the model. The estimated tonnes and grade compare favourably with the previous MR model.
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.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Visual analysis of the drill analytical results demonstrated that the lower cut-off interpretation of 4% TGC corresponds to a natural break in the grade population distribution. The lower cut-off of 4% TGC is approximately equivalent to the graphitic gneiss domain boundary, from logging of diamond drill core, aircore and hand auger chips.
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.	It is assumed the deposit, if mined, will be developed using open pit mining methods. No assumptions have been made to date regarding minimum mining widths or dilution. The largest mineralisation domains in plan view have an apparent width of up to 250 m which may result in less selective mining methods, as opposed to (for example) mining equipment that would need to be used to mine narrow veins in a gold mine. The insitu rock mass within the saprolite weathering zones are relatively friable and present an attractive mining scenario where drill and blast is generally not required for excavation of ore.
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.	Sovereign announced metallurgical results to the ASX on a number of occasions during 2016 and 2017, relating to flake size distribution and purity of graphite concentrate. Metallurgical testwork is ongoing as part of the Prefeasibility Study. Metallurgical data previously reported in 2017, plus new data generated in 2018, support the Mineral Resource classification. The flotation testwork on auger and diamond drill core samples demonstrated that approximately 50-80% of the liberated flakes are larger than 150 µm (100 mesh), and that final overall concentrate grades are in the range of approximately 97-99% Carbon for all weathering domains. The conventional flotation process produced flake graphite concentrates of acceptable quality, potentially for markets such as spherical graphite, expandable graphite, graphite foil, brake lining pads, lubrication and refractories. Performance tests verified that Malingunde graphite concentrates should meet or exceed the specifications for expandable graphite. The available process testwork in conjunction with drill sample observations from the remainder of the deposit supports the classification of the Malingunde deposit as an Industrial Mineral Resource in terms of the JORC Code Clause 49. The Competent Person recommends continued variability flotation testing to verify product quality across the deposit.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of 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	A large portion of the Mineral Resource is confined to the saprolitic weathering domains, and any sulphide minerals have been oxidised in the geological past. Therefore acid mine-drainage is not anticipated to be a significant risk when mining from the oxidised domain. Acid-mine drainage would be considered if mining of the fresh-rock domain was to be undertaken in the future. No major water courses run through the resource area, although a fresh water dam is located at the southern end of the Malingunde deposit, with the deposit believed to have strike continuity below the dam and extends to the Msinja deposit to the south-east. No Mineral Resources are reported within the dam limits. The Malingunde and Msinja deposits are located within a farming area and has villages located along the strike of the deposit. Sovereign holds regular discussions with local landholders and

Criteria	Explanation	Commentary
	be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	community groups to keep them well informed of the status and future planned directions of the project. Malingunde is in a sub-equatorial region of Malawi and is subject to heavy seasonal rainfall, with rapid growth of vegetation in season.
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 213 billets of core taken from across the deposit, with density measured using wax coated immersion method performed by Intertek Perth. Density data was loaded into a Datamine drill hole file, which was flagged against weathering horizons and mineralisation domains.
	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.	All bulk density determinations were completed by the waxed immersion method.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average density value of 1.7 t/m3 was determined for the soil domain, 1.8 t/m3 for the ferruginous pedolith (FERP) domain, 1.8 t/m3 for the mottled zone (MOTT) domain, 2.0 t/m3 for the pallid saprolite (PSAP) domain, 2.0 t/m3 for the saprolite (SAPL) domain, and 2.2 t/m3 or 2.3 t/m3 for the saprock (SAPR) rock profile, dependent upon the depth of the profile. A value of 2.4 t/m3 was assigned to the upper 10 m of the fresh rock profile, which is reported as an Inferred Mineral Resource. A small data population did not allow for discernible differences in density between the waste and mineralisation zones to be determined.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification of the Mineral Resource estimates was carried out taking into account the geological understanding of the deposit, quality of the samples, density data and drill hole spacing, supported by metallurgical test results that indicate general product marketability. The Mineral Resource is classified as a combination of Measured, Indicated and Inferred, with geological evidence sufficient to confirm geological and grade continuity in the Measured volumes. The Malingunde MRE is classified as Measured where drill spacing of 50 m (N) by 20 m (E) supports the geological interpretation and grade interpolation. Eight DD holes were drilled within the Measured footprint and provided detailed geological information as well as samples for metallurgical testwork. Drill spacing of 100 m (N) by 20 m (E) supports the Indicated classification, whilst drill spacing of 200 m (N) by 20 m (E) to 200 m (N) by 50 m (E) supports the Inferred classification. Drill spacing at Msinja supporting the Inferred classification ranges from 100 m (N) by 20 m (E) to 200 m (N) by 20 m (E).
	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 was 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	The current classification assignment appropriately reflects the Competent Person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	No audits or reviews of the current Mineral Resource estimate have been undertaken, apart from internal reviews carried out by CSA Global and Sovereign.
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 approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	An inverse distance estimation algorithm was used in parallel with the ordinary kriged interpolation, with results very similar. No other estimation method or geostatistical analysis has been performed. Relevant tonnages and grade above nominated cut-off grades for TGC are provided in the introduction and body of this report. Tonnages were calculated by filtering all blocks above the cut-off grade and sub-setting the resultant data into bins by mineralisation domain. The volumes of all the collated blocks were multiplied by the dry density value to derive the tonnages. The graphite metal values (g) for each block were calculated by multiplying the TGC grades (%) by the block tonnage. The total sum of all metal for the deposit for the filtered blocks was divided by 100 to derive the reportable tonnages of graphite metal.
	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	The Mineral Resource is a local estimate, whereby the drill hole data was geologically domained above nominated TGC cut-off grades, resulting in fewer drill hole samples to interpolate the block model than the complete drill hole dataset, which would comprise a global estimate.

Criteria	Explanation	Commentary
	and economic evaluation. Documentation should include assumptions made and the procedures used.	
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No mining has taken place to date therefore no production data is 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 Minerals Resource Estimate ("MRE") declared on 12th June 2018 underpins the Ore Reserve. The Company engaged independent geological and mining consultants CSA Global Pty Ltd ("CSA") to complete the MRE for the Malingunde deposit. The principal resource geologist Mr David Williams is highly experienced with more than 25 years in resource estimation and mine geology. David Williams 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: • Dr Julian Stephens, the Competent Person for Exploration Results and Managing Director of Sovereign Metals Ltd has conducted multiple site visits since the discovery of the Malingunde deposit; • Mr David Williams, the Competent Person for the JORC Resource Estimate, and a representative of CSA Global has conducted one site visit; and • Mr Ryan Locke, the Competent Person for the JORC Reserve estimate and a representative of Orelogy 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 are at PFS-level enabling the declaration 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 was underpinned by a mine plan detailing mining locations, ore and waste quantities; mill feed quantities and mill head grades. Scheduling was undertaken in monthly and quarterly periods. Mine planning activities included an updated pit optimisation, mine design, scheduling, mining cost estimation and financial analysis in order to confirm the ability to economically mine the Malingunde Ore Reserve. Modifying factors considered during the 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.*	A cut-off of 4% Total Graphitic Carbon (TGC) was applied to the global JORC resource. Ore Reserve cut-off grades were determined as follows:

Criteria	Explanation	Commentary
		• The break-even cut-off grade (i.e. material is treated as ore if the net revenue exceeds the total cost of processing) was determined based on the economic inputs. The break-even cut-off grade was calculated to be 2.1% TGC. • In order to reduce the global operating costs on a per tonne of concentrate basis, an elevated cut-off grade was assessed during the optimisation phase where multiple cut-off grades sensitivities were applied. • The final TGC cut-off grades applied to determine the Ore Reserve estimate are: - 6.75% TGC to the saprolite material, - 9.5% TGC to the Saprock material located in the northern zone, and 11.0% TGC to the Southern Saprock material. (Saprock material incurred a higher cut-off grade over the saprolite material to reduce the proportion of Saprock material within the processing stream. The Southern proportion of the Saprock material incurred a higher COG than the Northern zone to ensure the processing blend could be achieved in the later years of the mine life) Material mined above the 4% TGC break-even cut-off grade and below the Ore Reserve cut-off grade defined above is planned to be stockpiled for potential future processing. However, this material does not contribute to the Ore Reserve or project value estimation.
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 Company engaged independent consultants Orelogy Mining Consultants Pty Ltd to carry out the pit optimisations, mine design, scheduling, mining cost estimation and Ore Reserve generation for the Malingunde PFS. The proposed mining method is a conventional truck and shovel mining operation. Free dig mining is considered appropriate for this style of shallow, saprolite-hosted graphite mineralisation. This methodology is used throughout the region for open pit mining operations and is a robust, easily implementable approach. No alternative mining methods were considered in this study. Zero dilution factor was assumed and is warranted because the majority of the high-grade production target mineralisation is bounded by lower grade mineralisation, and, the free digging, non-blocky nature of the material would result in no displacement by blasting. An allowance of 2% ore loss was applied to account for mining inaccuracies. A contract mining strategy was selected for the initial eight years to mitigate project risk, although operational management will be retained by Sovereign personnel. An owner-operator model is adopted from Year 9 onwards. The deposit is planned to be mined on 2.5m high benches to maximise mining selectivity and therefore minimise dilution. A minimum mining width of 20m was used for all pit designs. Mine designs have been undertaken using the geotechnical recommendation provided by Peter O'Bryan and Associates (POBA), the independent geotechnical consultant appointed by Sovereign Metals Ltd to undertake the geotechnical assessment. POBA provided specific berm, batter and inter-ramp angle design criteria for the deposit. The risk around any geotechnical uncertainty is mitigated by: • The pits are relatively shallow, being a maximum of ~30m below surface. • Sensitivity to slope angles was assessed during the optimisation phase and showed the deposit discounted value was insensitive (less than -4%) to changes in slope parameters.

Criteria	Explanation	Commentary
		• The nature of the deposit and the small scale and low strip ratio of the mining stages will enable access to other areas of the deposit in the event a mining area is inaccessible. The mine schedule is based on achievable production rates for the specified size of mining fleet with only a single shift per day required. No inferred mineral resources have been used in the determination of the Malingunde Ore Reserve. The proposed mining method requires conventional mining infrastructure including but not limited to mining equipment workshop, fuel & oil storage facilities, wash bay, offices, lunch and ablution facilities and a first aid room. These are to be supplied by the mining contractor. Sovereign Metals have defined a mining infrastructure area and will supply water and power to this location. As there is no anticipated requirement for blasting, no infrastructure is required for explosives storage.
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?*	The Company engaged graphite-industry veteran metallurgist Oliver Peters, MSc, P.Eng., MBA (Consulting Metallurgist for SGS and Principal Metallurgist of Metpro Management Inc.) to complete initial variability comminution and flotation bench-scale test-work on mineralised sample material from Malingunde. This was followed by completion of a number of locked-cycle tests (LCTs) which were used as the basis for the processing design in the PFS. 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. Mr Peters has developed the process flowsheet employed for the PFS. The flowsheet involves washing and disaggregation by high-energy scrubber with steel media, followed by rougher flotation, polishing grind and final attritioning and cleaner flotation stages. Processing engineering was completed by Minnovo (recently acquired by DRA Global) who developed the process plant design and associated cost estimate for the PFS. Overall average flotation recovery of 90% has been used. Overall concentrate grades average 97% C(t). These figures were derived from averaging 2 recent, optimised and representative LCTs. Particle size / C (%) / Distribution (wt. %) *Tyler mesh* + 32 / 98 / 5 + 48 - 32 / 97 / 19 - 48 + 80 / 97 / 26 -80+100 / 97 / 9 - 100 + 200 / 97 / 25 - 200 / 94 / 16 TOTAL / 97 / 100 It is acknowledged that laboratory scale test-work will not always represent actual results achieved from a production plant in terms of grade, flake size and recovery. Further upscaled test-work will be required to gain additional confidence of specifications and recoveries that will be achieved at full-scale production.
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*	An Environmental Impact Assessment (ESIA) is currently underway with reference to applicable Malawian and international environmental and social permitting and baseline requirements for the Malingunde 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. The Company has appointed an experienced

Criteria	Explanation	Commentary
	storage and waste dumps should be reported.	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 exercises with the communities in the area and there is a general positive acceptance of the Project. No social responsibility costs have been factored into this Study, however they will be assessed as part of the overall ESIA for the Project in the future. 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.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	Malingunde's proximity to the major city of Lilongwe means relatively minor area infrastructure upgrades and modifications are required outside of the immediate proposed mine-site area. Minnovo is a recognised global leader in mining and processing with capabilities extending to detailed engineering, procurement and construction management. All infrastructure related capital and operating costs were estimated by Minnovo. Power at site will be sourced from the local grid system with additional power provided via diesel generator located onsite as required.

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.
		Operating Costs
		
		• All cost information has been estimated to a PFS level of accuracy (±25%). Costs are presented in real 2018 terms and are exclusive of escalation.
		
		• Mining costs have been calculated based on the submissions received for a Request for Budget Pricing (RFPB) sent to a range of African based mining contractors. The submission prices used have been adjusted to allow for the differences in the mine plan from the one presented in the RFBP. This includes:
		  ○ Overhaul rates for longer haulage distances
		  ○ Updated diesel fuel price received.
		
		• The in-country diesel fuel price was supplied by Puma Energy.
		
		• Processing costs have been estimated by Minnovo, a global expert in minerals processing. Processing costs are based upon a combination of first principle cost build-up, direct supplier quotes and similar projects in the region. Labour costs have been developed from similar projects in the region adjusted for Malawian labour rates.
		
		• General & administrative costs have been estimated by Minnovo.
		
		• The PFS power supply model assumes provision of grid power to the project by 2024 based on written advice received from ESCOM, the Malawi power utility.
		
		• A Government royalty of 5% (applied to revenue) and a vendor profit share of 2% (applied to earnings) has been included in all project economics. Royalties are not included in the headline life of mine unit operating cost of US$323/t concentrate.
		
		• Operating costs do not make provision for the following;
		  ○ Corporate head office costs
		  ○ Mine closure and environmental costs
		  ○ Social responsibility costs
		
		Capital Costs

Criteria	Explanation	Commentary
		• Capital estimates have been developed by Minnovo, using a combination of quotations and cost estimates from suppliers, historical data and reference to recent comparable projects. Costs are presented in real 2018 terms and are exclusive of escalation. The overall accuracy is determined to be ±25/-15%. • Capital costs include the cost of all services, infrastructure and facilities used for the operation of the mine and processing plant. Capital costs do not make provision for the following: o Mine closure and environmental costs; and o Social responsibility costs. • Working capital requirements prior to plant commissioning and full ramp up have been excluded from the capital estimate, and are captured in project operating costs.
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 is based on current market analysis by an independent party (see below) The Company has provided samples to multiple end-users which has generated substantive interest in the supply of high-quality natural flake from the Project. The Company has applied a conservative flake distribution and assumed pricing for the concentrate as shown in the economic model presented. No co-product revenue is considered.
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 Metals engaged Metal Bulletin Research ("Metal Bulletin"), a specialist international publisher and information provider for the global steel, non-ferrous and industrial minerals markets, to prepare a marketing report as a key input into the Malingunde Graphite Project PFS in August 2018. Metal Bulletin's 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 the Malingunde project, there is a reasonable expectation that the product from the Malingunde 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 Malingunde will be able to fill new demand or substitute existing lower quality / higher cost supply. Project considerations taken into account by Metal Bulletin in forming an opinion about the marketability of product include Malingunde's: • Ore Reserves • Capital costs • Operating costs • Concentrate specifications Sovereign has undertaken extensive market discussions with international graphite industry participants, which have indicated substantive interest in the supply of high quality natural flake from a Malawian natural flake graphite project. Metal Bulletin have confirmed that based on a high level view of the market, there is a reasonable expectation the Company will be able to execute off-take agreements with customers. Metal Bulletin have formed their opinion based solely upon project information provided by Sovereign Metals to Metal Bulletin, and have not conducted any independent analysis or due diligence upon the information provided.
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*	Key parameters are disclosed in the body of the announcement, and include: • Discount rate: 10% • Tax rate: 30% (Super tax of 10% has not been applied) • Royalty rate: 5% (Revenue) Government, 2% (Earnings) Vendor • Pricing: Sensitivity analysis only

Criteria	Explanation	Commentary
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The financial model has been prepared internally by the Company using inputs from the various expert consultants, and has been reviewed by an international accounting firm to validate the functionality and accuracy of the model. Refer to table 10. The Company engaged the services of advisory firm, Argonaut, with regards to project economics. Argonaut is a financial advisory firm which specialises in multiple sectors, including metals and oil & gas. 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 that a DFS arrives at a result that is not materially negatively different than the PFS as noted above, Sovereign should be able to raise sufficient funding to develop the Project. Argonaut considers that given the nature of the Project, funding is likely to involve specialist funds, with potential funding sources including, but not limited to traditional equity and debt, offtake agreements, and royalty financing, at either the corporate or project level. Since initial exploration of the Malingunde Project in December 2014, the Company has completed extensive drilling, sampling and geophysical surveys to understand the geological setting and define graphite resources within the Malingunde Project area. Over this period, with these key milestones being reach and the Project de-risked, the Company's market capitalisation has increased from approximately A$11m to over A$22m. As the Project continues to achieve key develop milestones, which can also be significant de-risking events, the Company's share price is likely to increase. The Company is debt free and is in a good financial position, with approximately A$2.1m cash on hand as at 30 September 2018. The current financial position means the Company is soundly funded to continue into a DFS phase to further develop the project. Sovereign has a high-quality Board and management team comprising highly respected resource executives with extensive finance, commercial and capital markets experience. The Directors have previously raised more than A$800m from capital markets for a number of exploration and development companies. Further, a number of the Directors have recently secured funding of approximately A$80m in equity and debt funding to fully fund the construction and working capital requirements for a resources project. 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 market capitalisation; 3. Recent funding activities by Directors in respect of other resource projects; 4. Ongoing discussions for potential offtake agreements; and 5. Investor interest to date.
Social	*The status of agreements with key stakeholders and matters leading to social license to operate.*	The Company expects to enter into a Community Development Agreement ("CDA") with the surrounding communities. Significant engagement with these communities has occurred is ongoing 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.*	No identifiable naturally occurring risks have been identified to impact the Malingunde Ore Reserve. The Company has no existing offtake agreement in place. The Company 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.

Criteria	Explanation	Commentary
	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.*	
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 Malingunde PFS Ore Reserves comprise Measured Mineral Resource material converted to "Proved" reserves and Indicated Mineral Resource material converted to "Probable" reserves. In line with JORC 2012 guidelines, Inferred Mineral Resource material has not been included. Approx. 32% of the Malingunde PFS Ore Reserve is Proved Reserves, with the remainder being in the Probable Reserve 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.