KANYIKA NIOBIUM PROJECT

PROJECT FEASIBILITY AND ECONOMICS

Globe Metals & Mining Limited (ASX: **GBE**, **Globe** or the **Company**) is extremely pleased to provide an overview of the Kanyika Niobium Project Feasibility and Economics following the grant of a Large-Scale Mining Licence for the Kanyika Niobium Project in Malawi to Globe's wholly owned Malawian subsidiary Globe Metals & Mining (Africa) Limited.

The results of the Feasibility Study highlight a robust project with strong financial returns.

STUDY HIGHLIGHTS:

- Kanyika Niobium Project is positioned to be the first niobium mine in Africa and the first new producer in 50 years.
- Over 90% of niobium is used in the manufacture of High Strength Alloy Steels. Steel production is growing year on year. Intensity of usage in steel is rising rapidly as markets, and in particular China, moves towards the manufacture of higher quality steels.
- Niobium's unique characteristics make it central to many of the world's past, present and future technologies with scientists and manufacturers only now beginning to imagine the range of technological applications for niobium.
- Niobium is critical to military, aerospace, space and medical industries and becoming increasingly important in quantum electronics, in the manufacture of semiconductors and in the electrical vehicle industry.
- Globe will target high-end, high-value applications for niobium.
- A mine life of ~ 23 years with capability to extend mine life to 38 years subject to the conversion of inferred resources through further drilling.
- The Feasibility Study is based on material assumptions outlined in this announcement. Globe considers the material assumptions to be based on reasonable grounds, there is no certainty that they will prove correct or that the range of outcomes indicated will be achieved.
- Average annual production of 3,250 tonnes of niobium and 140 tonnes of tantalum.
- High metal recoveries of ~75% for niobium and ~73% for tantalum
- Patented metallurgical advancements (*commercial in confidence*) provide competitive advantage allowing substantially simpler beneficiation with greater recovery and lower process OPEX.
- Pre-production capital costs of ~USD250m.
- KNP will generate revenues of USD5.6B over its 23-year mine life, valued at a base price of US$55/kg for Nb_2O_5 and US$410/kg for Ta_2O_5 mostly as Tantalum K-Salts.
- Net Present Value of US$1B (pre-tax) at a discount rate of 8% per annum.
- Internal Rate of Return of ~50% (pre-tax).
- Payback period of ~ 1.5 years (from first production).
- All approvals in place to immediately commence construction upon funding and relocation of affected persons.

The Kanyika Niobium Project promises to be a world-leading project, utilising state-of-the-art technology for a state-of-the-art metal. It is projected to employ and train thousands of local staff over its life, and through the many community programs envisaged, it can be expected to improve the lives of the Kanyika community and make for a better Malawi.

EXTRACT OF FEASIBILITY STUDY

OVERVIEW

This feasibility study was undertaken to establish the most appropriate configuration for the Kanyika Niobium Project (**KNP** or **Project**) and to determine its economic feasibility.

The KNP is geographically located in central Malawi, approximately 250 km north of the capital Lilongwe. The mine will produce about 260,000 tonnes of niobium and tantalum concentrate over the 23-year life of operations and on average about 11,300 tonne per annum. Concentrate will be transported to a refinery for processing into a marketable product. The refinery will produce high-purity and high-quality niobium and tantalum products to customer specification.

Key Aspects:

- The 2018 Mineral Resource estimate (MRE), that is consistent with the JORC Code guidelines (2012), consists of 68.3 million tonnes of mineralisation with a grade of 2,830 ppm Nb_2O_5 and 135 ppm Ta_2O_5.
- The feasibility study has resulted in a mineral mining inventory (Ore Reserve) of 33.8 Mt at a grade of 3,038 ppm Nb_2O_5 and 141 ppm Ta_2O_5 and supports a mine life of 23 years.
- Mining will involve conventional open pit mining, consisting of drill-and-blast followed by load-haul using 70 tonne shovels and 40 tonne off-road articulated haul trucks. The life of mine average strip ratio is 1.54 waste to 1 ore (SR W:O 1.54:1).
- Mineral processing of ore will involve comminution at a rate of 1.5 million tonne per annum;
    - Comminution involves crushing, followed by Semi-Autogenous Grinding (SAG) and ball milling in a closed circuit with Derrick screen classifiers.
    - Concentration involves magnetic separation, flotation beneficiation and gravity separation to produce a (niobium/tantalum) pyrochlore mineral concentrate.
    - Mineral concentrate from the mine is transported by road, rail, and ship to the refinery.
- Construction of supporting infrastructure at the mine site is needed to allow a continuous high-availability operation, including a river diversion, roads, a tailings storage facility, camp and general buildings, water supply, and grid power connection.
- The initial capital investment for the Kanyika mine site is forecast at US$200M expended over a 24-month development period. Refinery capital investment is estimated at US$50M. Mine site sustaining and deferred capital of US$80M will be deployed over the life of operations funded from cash flow and US$20M for the refinery over the life mine.
- Revenue from refinery sales is valued at a base price of US$55/kg for Nb_2O_5 and US$410/kg for Ta_2O_5 generating revenue, with by-products, of US$5.6B.
- Total operating costs average US$70 million per annum with logistics, sales, and marketing costs to average US$13M per annum.
- Total environmental management costs during operations and for post operations rehabilitation total US$48m.
- Marketing studies evaluating the sale of niobium and tantalum products remain works-in-progress at the time of this study with pricing sourced from research reports and communication with marketing specialist groups. The current business case for Kanyika mine involves the sale and export of all mineral concentrate.

KEY COMMERCIAL FEATURES

CAPEX	US$250M
REVENUE	LOM US$5.6B
OPEX	LOM US$1.6B
GSM	LOM US$0.26B
EBITDA	LOM US$3.74B
Economics $NPV_{8\%}$	US$1B

KEY CAPITAL COST BREAKDOWN

Mine	US$200M
Refinery	US$50M
Corporate	US$15M over 3 years
Working Capital	US$20M on operations
Sustaining Capital	US$100M LOM

KEY TECHNCIAL FEATURES

Resources	68.3MT (JORC 2012)
Reserves	33.8MT (JORC 2012)
Mine Life	23 years
Production	1.5mtpa at 75% recovery
Concentrate	11,000tpa
Refinery	LOM 3,250tpa Nb_2O_5 and 140tpa Ta_2O_5

KEY OPERATING COST BREAKDOWN

Mine LOM avg	US$50M pa
Refinery LOM avg pa	US$20M
Sales & Marketing	US$13M pa
Corporate	US$5M pa
Total	US$88M pa

PROJECT DETAILS

CAPITAL INVESTMENT

The projected capital investment requirement of US$250 million[1] comprises the major components detailed below:

- US$200M for Plant Property and Equipment "PPE" and community relocation,
- US$50M for refinery property, plant and equipment,
- 10% each for both EPCM and contingency;
- and US$10M of owner development team management costs.

Additional costs are associated with:

- US$15M for head office and administrative management over three years of development,
- US$20M for working capital on commencement of production.

The quality of the engineering studies for a large proportion of the plant design qualifies the project as a Class 3, FEL3 standard under AACE[2] practices with components at Class 4, FEL2. Since the study has been completed a significant time has passed related to the negotiations on the Development Agreement with the Government, resulting in the associated quotations and related cost estimates being outdated. Parts of the plant where intellectual property has enhanced project metrics are at prefeasibility status where a capital estimate has been allocated but the quantum is not significant to total capital costs but is material to operations. The Company will progress the project to Front-End Engineering Design (FEED) and complete associated marketing and financing agreements and can upgrade the study to an AACE Class 2 FEL4 bankable engineering estimation standard in time.

Working capital of US$30M covers the capital required to fund the operation for less than +90-day payment terms. Sustaining and deferred capital is $100M, which allows for mining, maintenance of essential infrastructure and tailings storage facility expansion and refinery maintenance.

Operations Period	***LoM***	***Upfront***	***Y 1-5***	***Y 6-10***	***Y 11 - 15***	***Y 16 -20***	***Y 21 - 23***	***+24***
All 2018 PV US$	US$M	US$M	US$M	US$M	US$M	US$M	US$M	
Initial Capital	250	250						
Working Capital	30		30					
Sustaining plant	100		25	25	25	25		
Environmental Bond	5	5						
Rehabilitation	25						10	15
TOTAL	**410**	**255**	**55**	**25**	**25**	**25**	**10**	**15**

All values in 2021 present value (PV) United States Dollars. Rehabilitation costs have been adjusted to account for the Environmental Bond.

[1] Numbers rounded

[2] "Association for the of Advancement of Cost Engineering" that is referencing practice for the AUSIMM Cost Estimation handbook Monograph 27.

OPERATING COSTS MINING

Operating costs were collated by Wood plc (AMEC), Orelogy Mine Consulting and the Company in late 2018 and require updating and retendering.

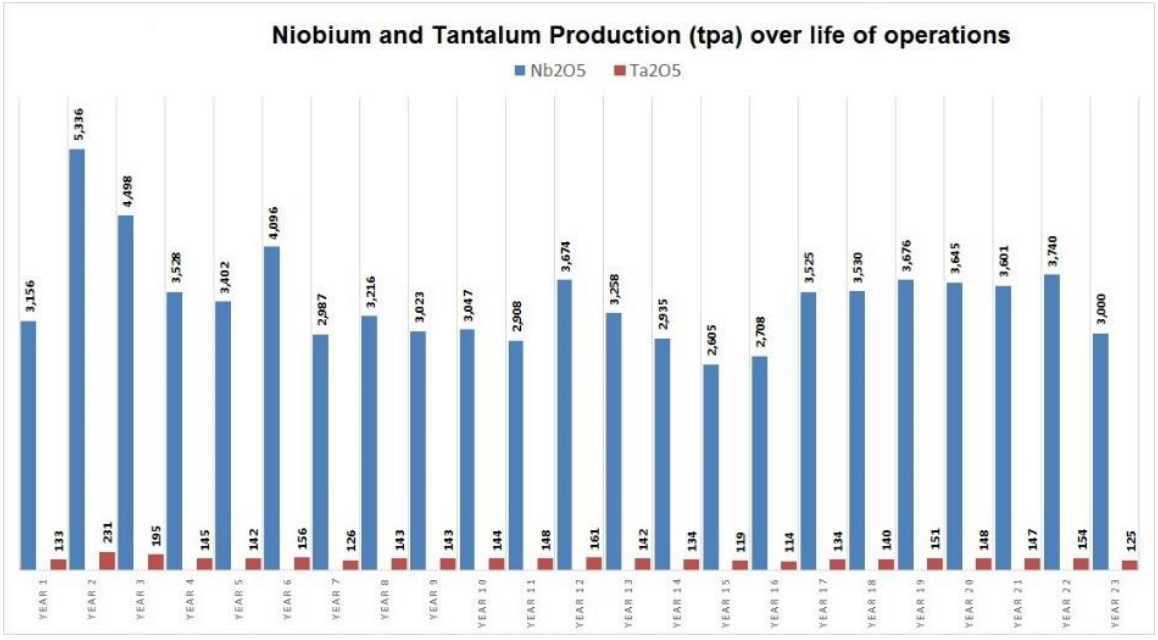
Mining Operating Cost Summary

OPEX	*Unit*	*Ann. Average (LOM) (US$M/year)*	*LOM US$M*	*US$/t (ore)*	*%LoM*
Administration	$M	5	114	3.4	10%
Mining	$M	14	320	9.5	25%
Concentrator	$M	22.5	515	15.2	42%
Environmental*	$M	1.5	48	1.4	5%
Logistics	$M	9.5	215	6.4	18%
Contingency	$m				0%
TOTAL COGS	**$M**	**52.5**	**1,212**	**35.9**	**100%**

*includes **annual contributions to the environmental bond** to end of mine rehabilitation but excludes post operational rehabilitation costs. Excludes cost on mine closure for redundancies of $5m plus $15 rehabilitation for a total of $20M.

PRODUCTION

The mine schedule has been designed to bring forward higher grade materials early in the mine life to improve cash flow and reduce the payback period of debt finance. Outline of the production profile in tonne per annum of niobium and tantalum as pentoxide.



Contained niobium and tantalum (pentoxide) produced.

Production *Kanyika concentrate*	*Unit*	*Minimum*	*LOM Average (T)*	*Total LOM (T)*
Niobium grade in concentrate	%	> 30%		
Tantalum grade in concentrate	%	~1%		
Concentrate Tonnes	T		11,300	260,000
Contained niobium	T		3,440	73.250
Contained tantalum	T		147	3,240

REVENUES

Price expectations for the KNP are based upon market intelligence, details of which can be found in press and or in publications, whether printed or on the internet. Examples of such press include Asian Metal, Argus, Platts and CRU Price Services or other websites where pricing is relevant. Price expectations can be expected to vary as market dynamics change in the lead up to production commencing and during the life cycle of the project.

Historically, the prices for niobium have been very stable, having a 20-year period of rising prices and no downside. There is a marginal commodity volatility cycle. Tantalum is subject to greater volatility. Niobium contributes 85% to revenue and Tantalum 15%. Presently, the price outlook for niobium is stable with little or no downside risk and significant upside. The price outlook for tantalum is most likely sustainable but volatile. Utilising the current price of niobium and tantalum as the basis of price expectations is regarded as a base case scenario. Revenues do not consider periods of higher prices typical of a commodity price cycle.

Niobium and Tantalum Concentrate Sales Revenue

REVENUE *Kanyika concentrate*	*Unit*	*Unit prices* *US$/Kg*	*Ann. Average (LOM)* *($USM/year)**	*Total LOM ($M)***
Niobium		55		
Tantalum		410		
Revenue Niobium	$M		175	4,022
Revenue Tantalum	$M		58	1,327
Other products	$M		12	271
Total	$M		245	5,620

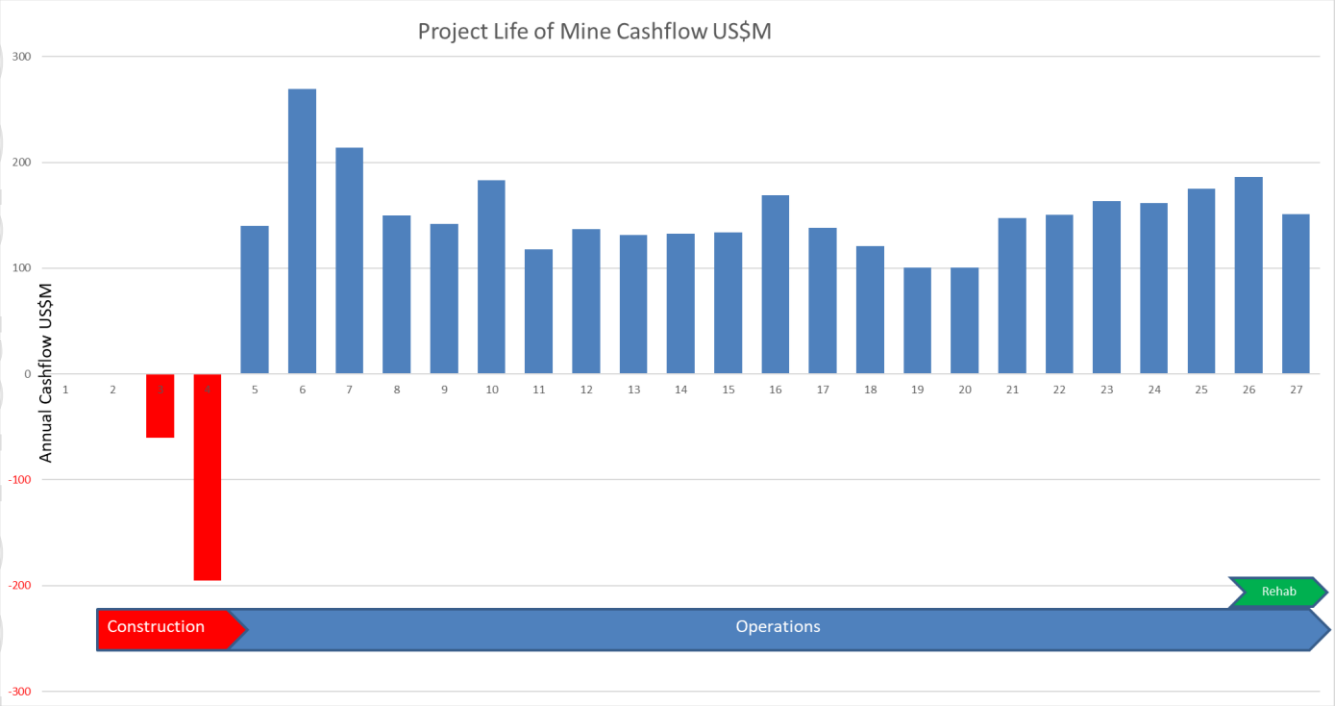
* excludes pre-production product and costs. **includes pre-production (commissioning) product and costs sold in production years. Administration costs are allocated under the terms of the development agreement. Excludes royalties.

Zircon is a rejected mineral from the concentration process. The zircon produced is elevated in both uranium and iron resulting in an undervalued product with poor marketability. The Kanyika project study is based on stockpiling the zircon for later reprocessing and sale should a viable market emerge.

CASH FLOW

The initial project capital cost estimate (CAPEX) and operating costs (OPEX) estimations for mine plant and processing equipment were prepared and compiled by Wood plc engineers based on inputs from the various sub-consultants and Wood plc databases and modified and reviewed by Globe. Orology Mine Consulting undertook mining studies including capital and operating cost estimation.

Valuation methodology uses the net present value and internal rate of return on real costs and revenue. A simple life of consolidated operations cash flow curve based on the project EBITDA is presented below.



SENSITIVITIES

The project economics have a high sensitivity to revenue and operating costs, while being relatively insensitive to CAPEX. The high ratio of operating cost to capital cost means the overall profitably of the mine is reliant on minimising costs and maximising revenues throughout the operational phase.

Major outgoings, particularly in energy purchases and reagents, have a major impact on project value. The effect of revenue is equivalent to reduction in operating cost. The sensitivity to cash flow has a significant impact on the project risk profile and the mine becomes a relatively high economic risk proposition sensitive to variation in commodity pricing, and costs of energy and flotation reagents, leaving the project exposed to pricing fluctuation risks. The price stability of niobium, representing 85% of the project revenue, significantly reduces this risk profile. A significant milestone for the operation is to be connected to a regenerative power system, which would significantly reduce risks associated with diesel supply and power generation cost.

ASSUMPTIONS

The material assumptions to be based on reasonable grounds, there is no certainty that they will prove correct or that the range of outcomes indicated will be achieved.

The material assumptions applied in the Feasibility Study include, but are not limited to, the following:

Financing: To achieve the range of outcomes outlined in the Study, funding in the order of US$350M over the life of the Project, inclusive of working capital, is likely to be required. Investors should note that there is no certainty that Globe will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that are dilutive or otherwise affect Globe's existing shares.

Currency and exchange rates: Cost estimates are made in United States dollars. Where the cost is denominated in a foreign currency they have been converted on exchange rates current at July 2020. Costs denominated in currencies other than United States dollars account for less than 10% of overall costs.

Capital costs: Capital estimates have been based on quoted budget prices or known factors and industry standard unit costs provided predominantly by specialist suppliers as well as current knowledge and industry experience where applicable.

Revenue factors: The study assumes a base price of US$55/kg for Nb_2O_5 and US$410/kg for Ta_2O_5 $55/kg mostly as Tantalum K-Salts and that all product manufactured by Globe is sold.

Operating costs: Mining costs are based on industry standard unit rates. Processing operating cost estimates are from industry standard unit rates, and first principles. Transport and shipping costs are based on industry standard unit rates. Power, gas and water costs are based on industry standard rates, and first principles.

Royalties and taxes: Royalties payable to the Malawi government and to the Kanyika community are in accordance with Malawi legislation. Taxes payable to the Malawi government are based on projected profits and the rates applicable as set out in Malawi tax legislation.

Market assessment: Whilst the international market for niobium is based on individual supplier vendor negotiations, Globe staff and its industry specialist advisors have a good understanding of market volumes and prices and this information has been used in the Study.

Economic: A financial model of the Project has been prepared by Globe using input factors outlined herein. The model shows the Project is comfortably economically viable with a low initial capex, short payback, high NPV and high IRR. A discount rate of 8% to 16% has been used in the NPV analysis, and the inflation rate has been assumed at 0%, with fixed costs and product prices through LOM. Sensitivity of the Project to changes in the key drivers of sales prices, operating costs (mining and processing costs) was carried out and showed the Project NPV to be most sensitive to significant changes in sales prices. The Study uses both a pre-tax and after-tax basis, and a 100% Project basis for the financial assessment.

RISK

The project has certain risks with mitigation required in several key areas. The main sources of risks are associated with operations, marketing and location. A non-exhaustive list of key areas is summarised below:

- Technical risk due to the relatively complex nature of processing.
  - Located in a relatively remote area in a country with minimal mining experience.
  - Operating cost very sensitive to energy.
  - Requires a technically competent workforce and extensive training of local workforce.
  - Aggressive acid and flammable liquids used in the refinery requires a highly specialised and technically competent personnel working in a highly automated operating environment (staff requirement are low).
- Sovereign and social risk due to the large, long term Investment in a country with a limited history of mining:
  - Social risks associated with a potentially agitated local community with significant influence of Non-Government Organisations (NGO's) resistant to mining projects,
  - Slow Government and poorly coordinated bureaucratic processes; and
  - Community unrest and legal contention,
  - GlobalEdge (2020) country risk rating of "D" equating to "High Risk" for political and economic conditions and a very difficult business environment,
  - GlobalEdge (2020) Business Climate Risk of "D" equating to "High Risk" where the legal system makes debt collection unpredictable, institutional frameworks has serious weakness, and intercompany and interdepartmental government management is difficult to manage.
  - The GlobalEdge (2020) corruption index is 123 out of 198 and ease of doing business is 136 out of 161.
- Marketing and Revenue Risk:
  - the products are bouquet specialty metals that lack market transparency.
  - a few (3) dominant players in the niobium industry with little known market dynamics.
  - the niobium market is a small market at about 100,000 tonne per annum (tpa), and the project will produce about ~2.5% of global demand and is unlikely to impact price; and
  - the tantalum market is a small market of about 2,200 tpa and KNP will produce up to 5% of global demand. It is unlikely that this will impact price, but lithium producers that have tantalum concentrate by-products are likely in time to create oversupply in the concentrate market.

STRATEGIC DEVELOPMENT

The Company has made the judgement that because of practical, technical, and logistical factors, as well as the lack of any advanced chemical industries in Malawi, the mine site will be the location for the production of pyrochlore (niobium and tantalum bearing) concentrate to be transported and processed at a refinery proximal to an advanced chemical manufacturing facility where highly skilled technical staff can be sourced globally.

MINE TENURE

The Company applied for a mining license (designated AML0026) within the original exploration licence area of the original EPL1008. The conversion of AML0026 to a mining licence (ML) occurred on 13 August 2021 with the grant of a Large-Scale Mining Licence No. LML0216/21 by the Honourable Rashid Abdul Gaffar, Minister of Mines, pursuant to the Mines and Minerals Act (Act No.8 of 2019) – see Appendix B.

Coordinates for the licence area are listed below under ARC1950 grid coordinate system.

ARC1950 Co-ordinates for Kanyika Mining Lease Application AML0026

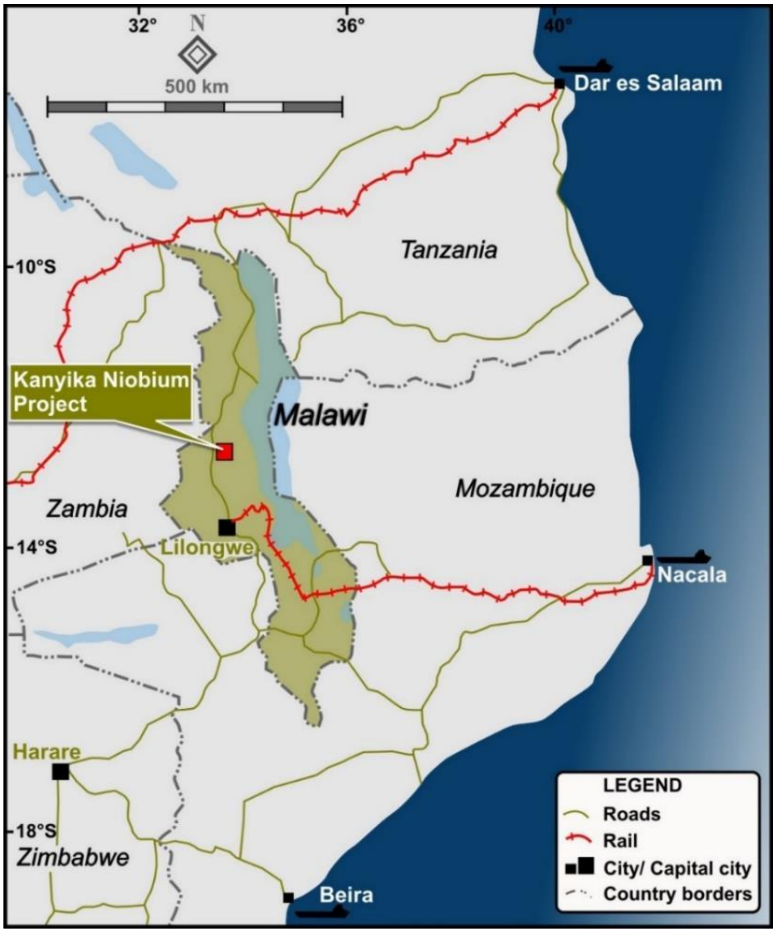
Point	*Easting*	*Northing*
A	570 269	8599 321
B	576 784	8599 281
C	577 172	8594 317
D	570 269	8594 321

MINE PROJECT SETTING

The site is serviced by a 29 km gravel road which accesses the main Malawian M1 highway at the trading centre of Chatoloma. The M1 provides good, fully sealed road access north to Tanzania and on to Dar es Salaam, or south through the capital of Lilongwe and on to Mozambique and Southern Africa. Dar es Salaam (Tanzania) and Nacala (Mozambique) are likely to be the principal ports of export and import, although significant trade directly with other neighbouring countries, especially the Republic of South Africa is anticipated. The location of Kanyika and the principal transport corridors is presented below.

The mine is located at 1,050 mASL approximately 60 kilometres to the west of Lake Malawi. After climbing the escarpment from the lake, the topography is moderate with small hills and incised streams and river valleys. The area surrounding the mine is generally flatter with a more undulating topography but interspersed with hills and bluffs. The area is well populated with extensive subsistence level agriculture and domestic cattle, chickens and goats and limited commercial cropping.

Mineralisation is orientated N-S along a low-lying ridge and extends across the Milenje River in the northern section and the Kanyika River in the south. Drainage flows towards the Milenje River cutting into the topography on the western and eastern sides of the mine area. The most prominent topographical feature in the area is Mphunju, a hill located approximately 5 km east of the ore body at a height of about 1,225 mASL.



Project Access and Transport Corridors

The area experiences a sub-tropical climate, which is relatively dry and strongly seasonal. The warm-wet season stretches from November to April, during which 95% of the annual precipitation occurs. A cool, dry winter season extends from May to August, and frost may occur in isolated areas in June and July. A hot, dry season lasts typically during September and October. The annual average rainfall, based on several stations in the Kasungu area since 1974, is about 800 mm.

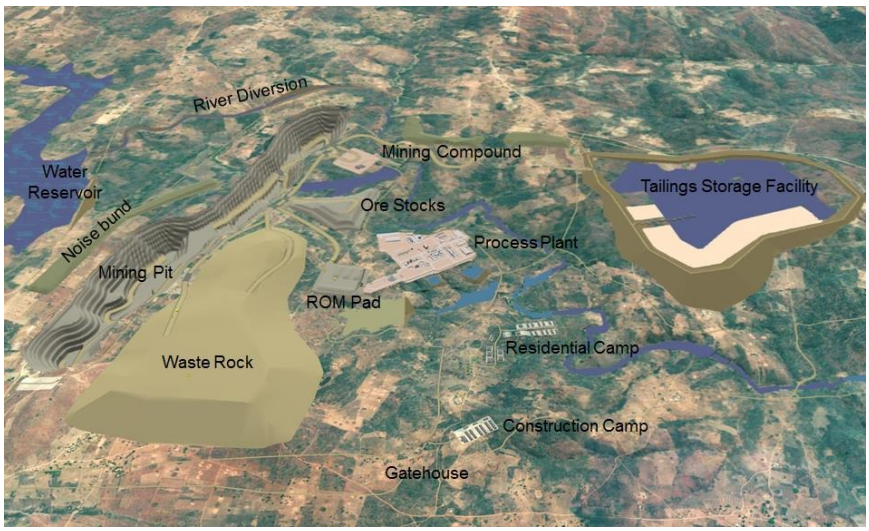
Most of the mine envelope is located in degraded miombo-type woodland areas that have been extensively disturbed through various land use activities, most significantly by cultivation, harvesting of timber and grazing by livestock. Evidence of wood harvesting suggests a long history of deforestation. The area is broadly described as low, open canopy and scrub vegetation.

Malawi is within a seismically active belt of the East African Rift System and is characterised by moderate magnitude earthquakes (M ≤ 6.0). Historical records show minor earthquakes reported in various parts of the country, but no damage to property or loss of life had been recorded since the 2009 Karonga earthquake, in which four people died.

PROJECT GENERAL ARRANGEMENT

The following development criteria were used to establish the layout:

- Mining will be carried out using open cut, drill and blast strategies and material haulage distances will be minimised. The access ramp will exit the pit to the east close to the plant and stockpiles.
- A blasting safety zone of minimum 500 metres will be demarked.
- The Milenje River passes through the northern portion of the ore body and will be diverted to the north to accommodate the mining operation.
- Ore will be crushed, with grinding occurring in an initial semi-autogenous mill and subsequently in a ball mill at a throughput rate of 1.5 mtpa. The material will be beneficiated by magnetic separation and flotation beneficiation to produce a mineral concentrate.
- The operation is a net water consumer. Hydrogeological and hydrological investigations have indicated groundwater resources in the granite host rock are insufficient, and surface water storage is necessary. An integrated river diversion and water storage facility will be constructed to the west of the pit on the confluence of the Milenje and Chimwa Rivers. Water will be directed around the pit in a diversion channel to re-join the existing river channel downstream.
- Topography around the target mineralisation is generally undulating and elevated at about 1,050Masl. Ground conditions are generally favourable with up to 10-20 metre of competent clay-materials over bedrock.
- The operations area will be fenced for safety and security. Villagers currently living in the area will be relocated when notice is provided (no notice has been provided).
- The site layout was optimised to minimise civil works and maximise utilisation of natural materials and topography for the main project structures, including:
    - Tailings Storage Facility
    - Process plant
    - Pollution containment structures.
- The prevailing wind is an easterly. To mitigate impact to the communities along Entandweni – Kanyika village axis, all development has been kept to the East of the pit thus allowing maximum buffer zones for abatement issues.
- A bund wall of mined waste to the west of the open pit will be progressively built to abate noise downwind of operations.



General Arrangement of the Kanyika Niobium Project

CULTURAL CONTEXT

The Company will work closely with Government and Traditional Authorities (TA) to facilitate the relocation and resettlement of people within the mine area when it is appropriate to do so.

Kanyika inhabitants are mostly Christian-faith subsistence farmers with a preponderance of Ngoni people in the North and Chewa people to the south of the mine site. The mine area is in the Mzimba District and administered from Mzimba approximately 90 km to the north. The town of Kasungu, 55 km to the south-west is the regional and administrative centre of the Kasungu district. The predominant language of the area is Thumbuka and English is spoken by many people.

The mine site is administered under Traditional Authority delegated to the seven group village heads (GVHs) of Yobe Nhlane, Mberebere Ngwenya, Sotchangala, Chidyaki Sibande, Chinkhwagwa, Chombwe and Chibandauka. All this fall under Inkosi Mabulabo's administrative area. The administrative control of the mine area resides with the District Commissioner resident in Mzimba.

Relocation and Resettlement

The Company has undertaken social, cultural and archaeological studies of the mining area to establish the scope and cost of the relocation activities required to prepare the area for construction and operations. All persons residing within the relocation area, defined within an exclusion zone surrounding the mine, will require relocation.

A census was undertaken by the Company and followed up with a detailed census conducted by the Malawian Department of Lands, in co-operation with the Mzimba District Commissioner's office and the TA. These data together have been used to nominate the total relocation area which encompasses approximately 250 homesteads with an estimated total of about 1,400 people. The Company has prepared a relocation policy which was submitted as part of an Environmental and Social Impact Assessment (ESIA). Since the publication of the ESIA changes in Malawian legislation will result in a different process for relocation. The framework drafted considers the policy and commitments to be made by the Company in implementing the resettlement and the relocation plan sets out the detailed action plan and responsibilities for implementation of the resettlement process.

The relocation plan details the background of the resettlement area including a description of the affected area, land tenure and an initial description of the assets requiring relocation. It provides the legal framework for land acquisition, compensation and resettlement, and provides guiding principles and commitments by the Company for resettlement preparation and implementation. The relocation plan will culminate in an agreement with the affected persons to be resettled including the compensation required. The Company will ensure that in this process the rights of the affected persons are not compromised, and that compensation is fair to all persons.

Graveyards and Heritage

In accordance with the Malawi Monuments Act, 9th August 1965, a Heritage and Cultural Impact Assessment (HIA) was completed on the area enclosed by the mine fence. Features of high and medium heritage value include the remnants of 3 Iron Age smelting sites and an early Iron Age settlement which identified and these sites will be relocated to a community accessible location or preserved in-situ.

There are 7 recognized graveyards within the proposed relocation area and numerous individual gravesites. A cemetery is positioned on the actual resource and will be moved prior to commencement of mining. The Company commissioned a preliminary survey of gravesites by Mlambe Consulting of Malawi, and the Malawian Department of Antiquities (MDA) has been engaged to prepare a detailed inventory of graves and a relocation strategy. The MDA will manage the actual relocation of those graves that are exhumed for relocation which will only occur late in project implementation after extensive community consultations.

GEOLOGY

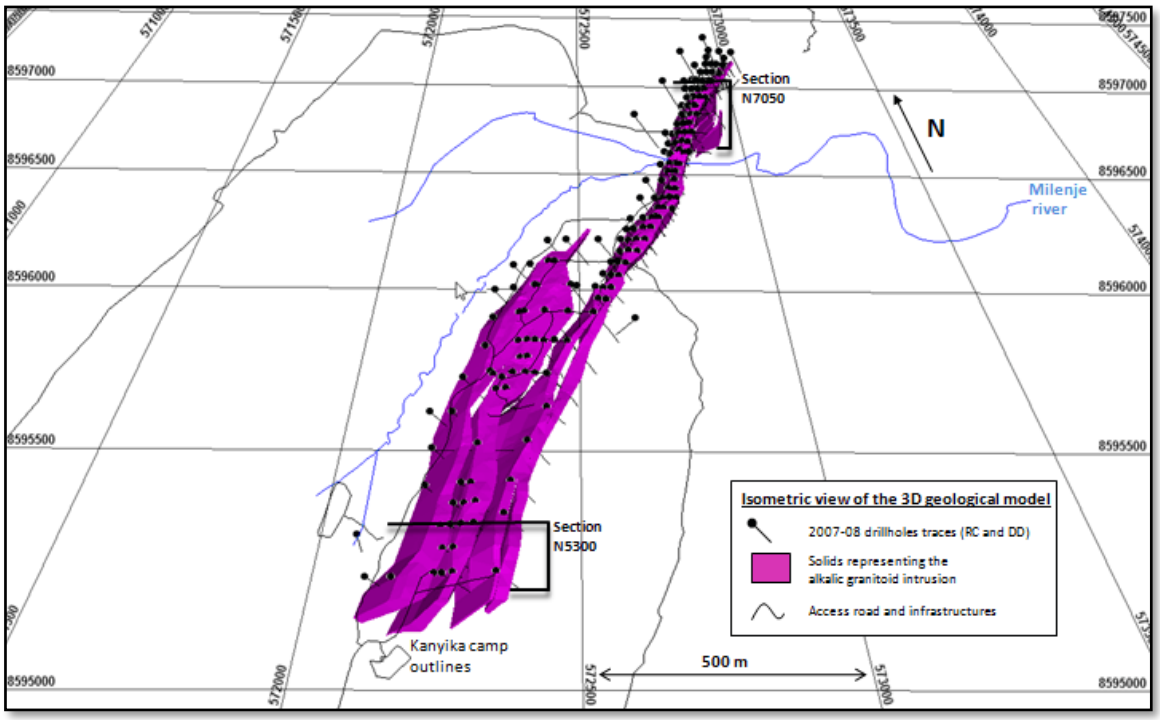
The Kanyika deposit is orientated in a N-S direction, is steeply dipping, and is open to the north and to the south. The deposit lies on the western flank of a regional fold associated with an alkali granite which can be traced for about 15 km and is several hundred meters wide.

The intrusion appears to be divided into two planar units separated by biotite-rich rock and;

- contains pyrochlore and zircon mineralisation in disseminated zones;
- has niobium and tantalum mineralization occurring within the mineral pyrochlore, with negligible tantalum minerals such as tantalite and microlite. Pyrochlore appears typically as a disseminated and a relatively non-metamict (absence of crystalline destruction) form within the alkaline granite, as well as in clustered aggregates forming centimetre wide bands; and
- high-grade mineralisation features pyrochlore bands associated with euhedral centimetre size zircon crystals. Generally, zircon is not always directly associated with pyrochlore.

The Kanyika deposit is hosted within a NNE striking, westerly dipping, fractionated, grey-white, alkali granite in concordance with the surrounding biotite gneiss. The alkali granite crops out cover a strike length of 3.5 km with an average width of 200 m in the south and 50 m in the north.

The figure below displays an isometric 3D view of the intrusion together with drill-holes. The purple solid represents the intrusion model obtained from drill-hole information. The actual granite extends further in all directions, at depth and both to the north and to the south. The model boundaries to the south and north are respectively N8595150 and N8597250. The mineralised host generally dips to the west.



Isometric view of the Kanyika Geological Model.

MINERAL RESOURCE ESTIMATE

The Company has completed two resource drilling campaigns reported in 2010 and 2012. Mr Michael Job of Quantitative Group was responsible for preparation and is the Competent Person for the 2012 Mineral Resource Estimate (MRE) as defined by the 2004 JORC Code. Mr Alistair Stephens, a Fellow of the Australasian Institute of Mining and Metallurgy and Mr Andrew Bewsher, a Member of the Australian Institute of Geoscientists, are subsequently responsible for the preparation and are the Competent Persons for the Mineral Resource Statement in 2018 as meeting the requirement of the 2012 JORC code.

The mineral resource reported above a 1500 ppm Nb_2O_5 cut-off and above a 3000 ppm Nb_2O_5 cut-off, are shown in the tables below.

2012 Kanyika Total Mineral Resource above 1,500 ppm Nb_2O_5

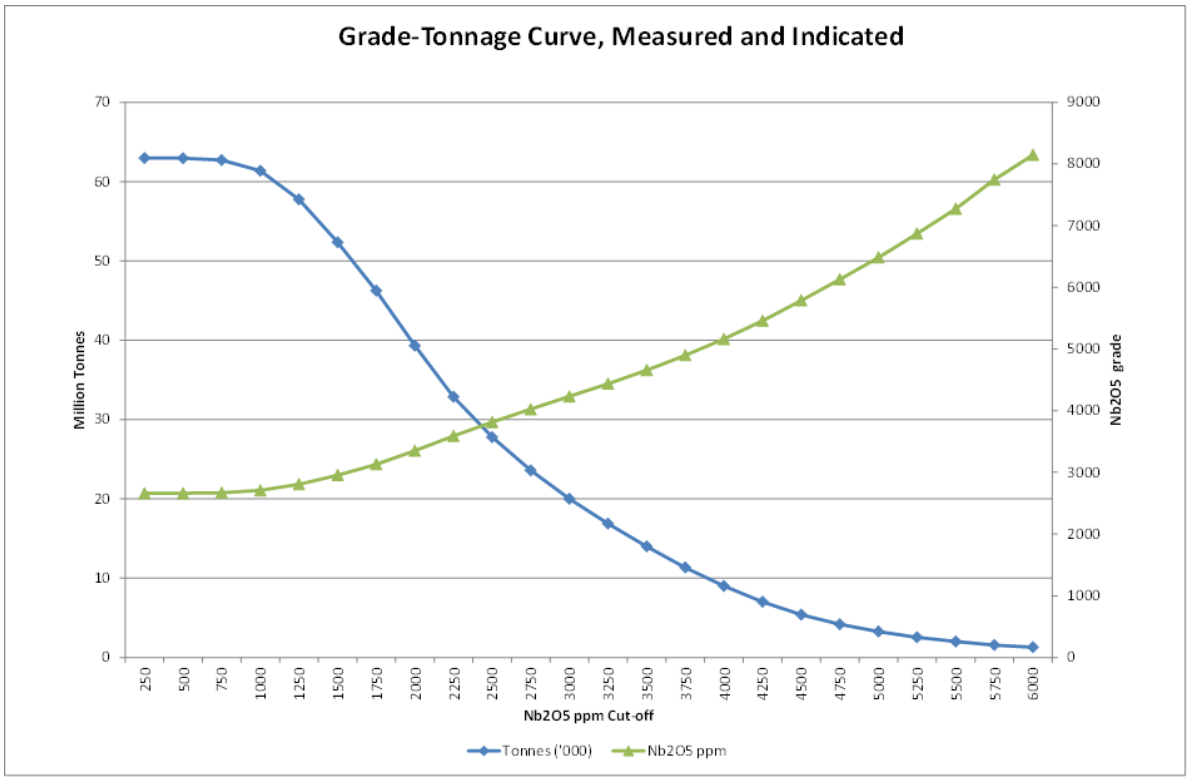
Category	*Resource (Mt)*	*Grade*			
		Nb_2O_5 (ppm)	**Ta_2O_5 (ppm)**	**U_3O_8 (ppm)**	**$ZrSiO_4$ (ppm)**
Measured	5.33	3791	177	107.8	5057
Indicated	47.01	2860	135	78.0	4784
TOTAL (M+I)	**52.34**	**2954**	**140**		
Inferred	15.95	2427	122	70.4	5210
TOTAL	**68.30**	**2832**	**135**	**78.5**	**4905**

2012 Kanyika Total Mineral Resource above 3,000 ppm Nb_2O_5

Category	*Resource (Mt)*	*Grade*			
		Nb_2O_5 (ppm)	**Ta_2O_5 (ppm)**	**U_3O_8 (ppm)**	**$ZrSiO_4$ (ppm)**
Measured	3.37	4790	224	135.2	5989
Indicated	16.62	4120	187	106.9	5538
Inferred	2.83	4107	188	103.9	6279
TOTAL	**22.82**	**4217**	**193**	**110.7**	**5697**

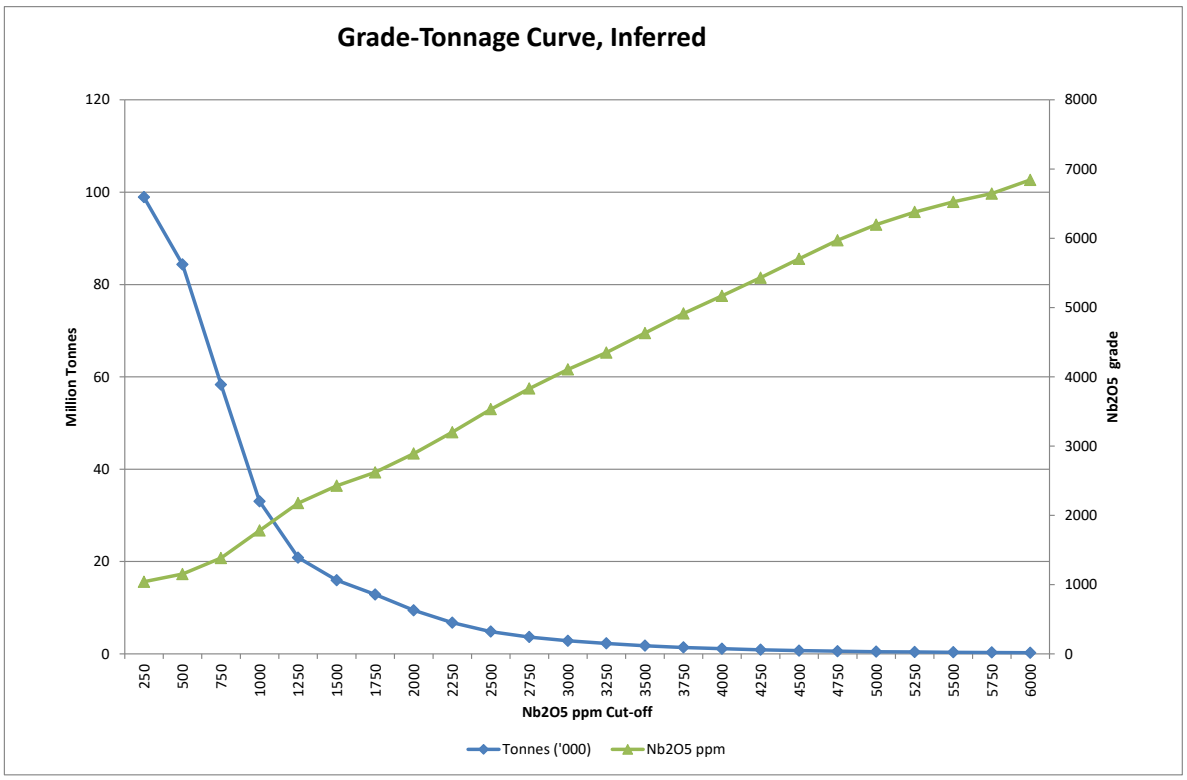
*the tables above may have numerical rounding issues that result in the sub-totals and totals appearing to not be mathematically consistent.

The Nb_2O_5 grade-tonnage curve for Measured and Indicated (M+I) in the model is shown below and for Measured and Indicated and Inferred (M+I+I) is shown in graph below.



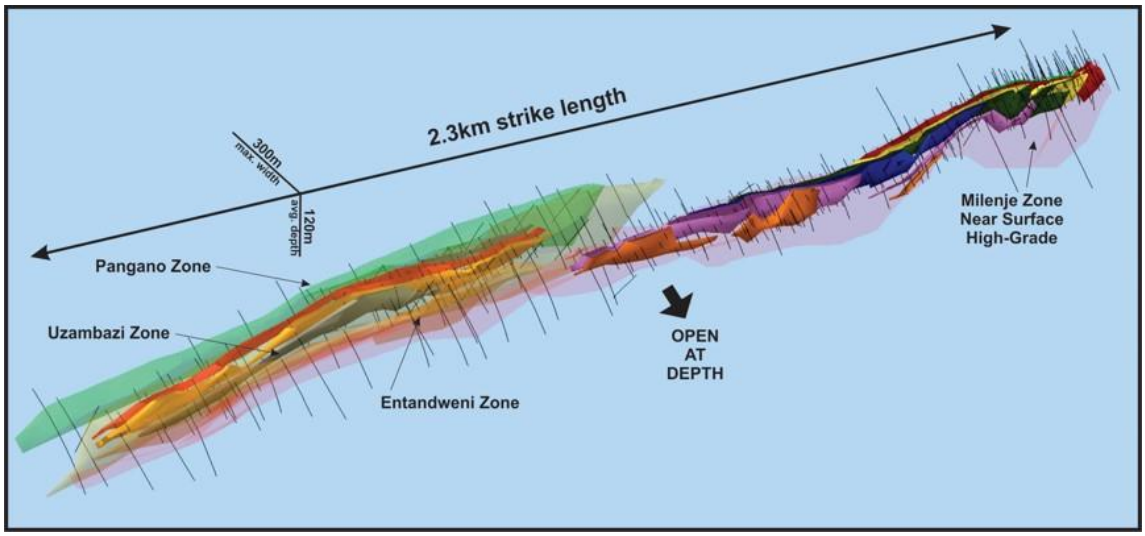
Grade Tonnage Curve: Measured + Indicated

Grade Tonnage Curve: Measured + Indicated + Inferred



Four mineralised zones have been modelled in this resource estimate, over a strike length of 2.25 kilometres represented below.

- The Milenje Zone (red) is the northernmost and most extensive. This zone extends 2,200 metres from 5200 mN to 7400 mN along a NNE strike direction and remains open to the north.
- The Entandweni Zone (orange) is located just west of the Milenje Zone and forms the hanging wall mineralised zone of the eastern sheet-like granitoid unit and is open to the south.
- The Pangano Zone (green), is located on the western side of the central section of the deposit, and has an overall NNE strike. Uzambazi and Pangano Zones (from east to west) together make up the central/southern area.
- The Uzambazi Zone (yellow) lies parallel to the Pangano Zone and forms the footwall mineralised zone of the western sheet-like granitoid unit and remains open to the south.



Kanyika Mineralised Zones (Oblique long section)

Based on the outcomes from geological logging, examination and the subsequent testwork, Kanyika mineralisation has been classified into 3 vertical domains, based generally on degree of apparent oxidation:

- Saprock comprised of decomposed saprolite (rock and fines) is generally homogenous across the mineralised body and usually constitutes no more than the upper 5m of the horizon, (up to 10 m).
- Transition materials can be extensive. The unit can exhibit considerable variation in oxidation from weak to moderate and be distinguished on the degree of competency.
- Fresh rock is characterized by a lack of oxidation. The rock is generally competent, highly siliceous with distinct veining of pyrochlore and zircon.

There are several sub-domains within each classification, including biotite, amphibolite and variable zircon. Some samples also exhibit hematite and goethite and other minor minerals. Typically, pyrochlore mineralisation remains constant through each domain and throughout the resource. The mineral particle size decreases moving from Milenjie to Uzambazi and the degree of pyrochlore compositing increases.

METALLURGY

Research and development-focused test work was undertaken to understand the metallurgy of the Kanyika mineralisation and thereby provide a technological foundation for development of the ensuing processing flowsheet. The Kanyika mineralisation is unique and not analogous to other niobium-tantalum projects and therefore the extensive effort has been focused to devise a process scheme suitable for a commercially favourable outcome.

The concentrator will produce a pyrochlore concentrate bearing niobium and tantalum.

The key steps in the devised Kanyika project metallurgical process are as follows:

a) Comminution (crushing and grinding) to a p_{80} size of ~106 µm (approx. 100% material below 175 µm) to liberate pyrochlore mineralisation,

b) Magnetic separation to remove gangue components and upgrade the pyrochlore,

c) Combination of flotation and magnetic beneficiation to further concentrate the pyrochlore concentrate such that it is suitable for transport and processing.

d) Filtration, drying and product packaging.

The Company undertook its own internal test work program for magnetic separation and developed a magnetic separation circuit that allowed rejection of waste material with minimal losses of Nb and Ta.

The optimisation program consisted largely of batch and locked-cycle flotation tests and focused on an organic acid reagent-based flotation scheme. Lock cycle tests for recovery-grade outcomes have been undertaken. The results demonstrated that the concentrate grade and niobium pentoxide (Nb_2O_5) recovery were approximately ~30% and 76% respectively, over a wide variety of samples.

MINING OPERATIONS

Ore production rates will ramp up from 1.0 Mtpa in the first year to 1.5 Mtpa (million tonne per annum) with the life-of-mine stripping ratio to average 1.54:1 (waste : ore). The final open pit dimensions are expected to be in the order of 250 m wide, 2.2 km long (north-south) and average 130 m deep.

Drill and Blast

Rock fragmentation will be undertaken by drilling and blasting based on the rock characteristics obtained during geotechnical drilling investigation. Weathered material makes up about 5% of the total ore material, therefore it is assumed that drill and blast will be used for all material types. It is anticipated that there will be minimal or no water issues for drilling and blasting controls.

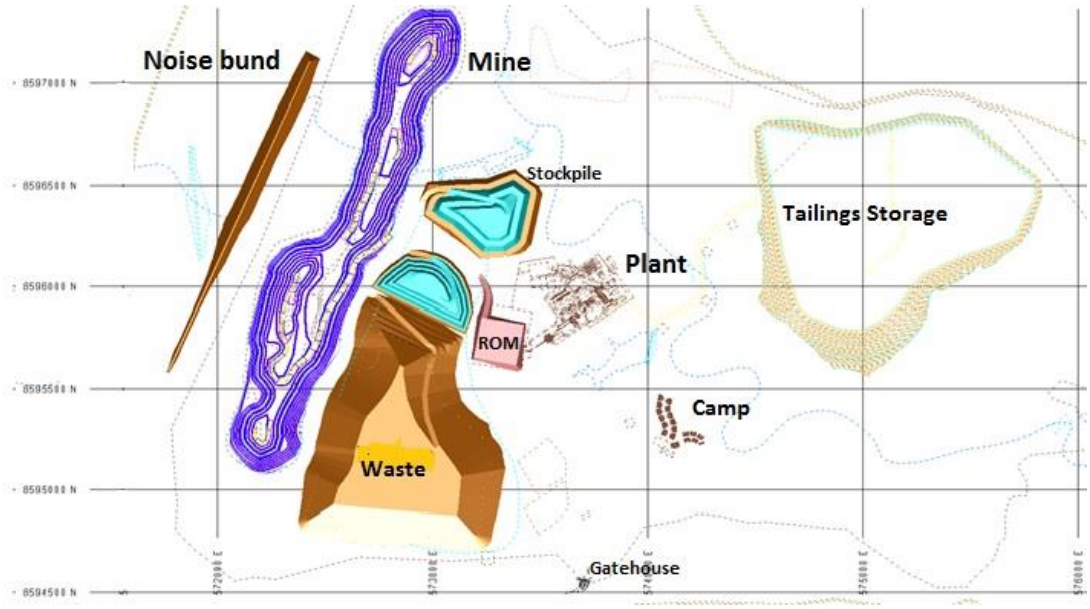
A 500-metre blast exclusion zone will be maintained around the pit, with no permanently occupied residences or facilities within the zone. Approximately 250 tonnes of high-energy fuel (HEF) emulsion or ammonium nitrate (AN) will be stored in silos within a fenced compound along with magazines for packaged explosives, initiation devices and blasting accessories. Construction of the magazines will meet the criteria as specified in the Malawian Explosives Act (Cap 14:09) Subsidiary Legislation: Explosives Regulations, Part III: Construction of Magazines (Government of Malawi, 1986). Secondary movements will also occur with placement of waste rock as engineering fill in the tailing storage facility and for other engineering works.

Load and Haul

Mining will involve the extraction of ore from several open pits from along a single longitudinal strike at a rate of +1.5 Mtpa mill feed, using conventional open pit methods; drill and blast followed by excavation and load and haul activities. The mining fleet will consist of hydraulic excavators, off-highway dump trucks, and standard open pit drilling and auxiliary equipment. All waste will be stockpiled in a dedicated waste dump to the southeast of the pit.

Process mill-feed and waste will be transported from the pit to either the Run of Mine (ROM) pad for immediate processing, or the low-grade stockpile for later re-handling and processing, and to the waste rock storage dump. During the early years of operation, low grade mill feed will be stockpiled adjacent to the ROM pad to maximise the high-grade feed at the start of operations. A dedicated network of haul roads will be built to separate light vehicles from the haul trucks. The roads will be graded and watered to mitigate dust generation.

Mill feed will be hauled to a single ROM pad located adjacent to the process plant and due east of the pit, with the bulk of the waste dumped to the south east of the main pit. There will be two stockpiling areas. One of the stockpiles will be adjacent to the waste dump and after depletion will be re-designated a waste dump. The arrangement of the main features of the mining program is shown below.



Mining Infrastructure

Pre-Production and Site Establishment

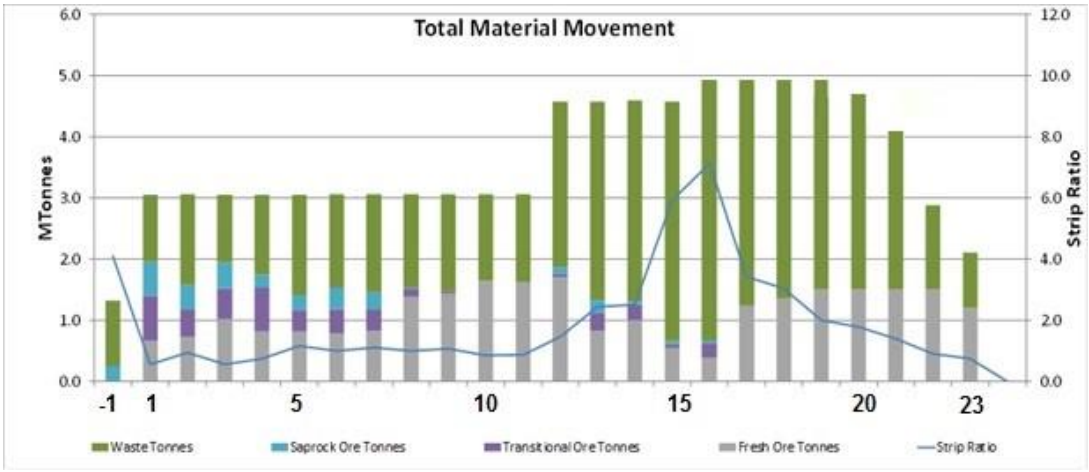
The mining fleet will mobilise to site in the year prior to commencement of production for the pre-production period prior to when the process plant is commissioned. The mining operations will provide infrastructure including heavy vehicle workshops, explosives magazine, tyre change bay and other services necessary to complete the pre-production scope, establish the haul roads from pit to the ROM pad and waste dumping areas, generate sufficient waste to build any infrastructure items that are required for the operation of the mine, provide waste and low-grade mineralisation for the construction of the ROM pad, and have a stock of mill feed equivalent to about four (4) weeks mill feed ready for commissioning the process plant.

Mine Schedule

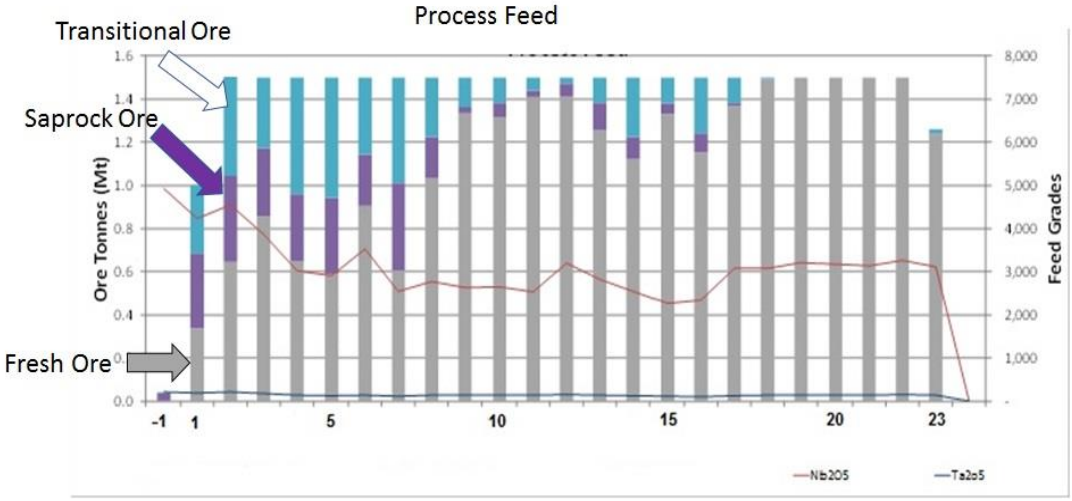
The mine production schedule prepared by Orelogy Mining Consultants has been designed to produce 1.5 Mtpa of mill feed (see table below). Higher-grade material is treated initially to improve project economics and low-grade material is stockpiled and rehandled in later years (overpage).

Material Movement Schedule

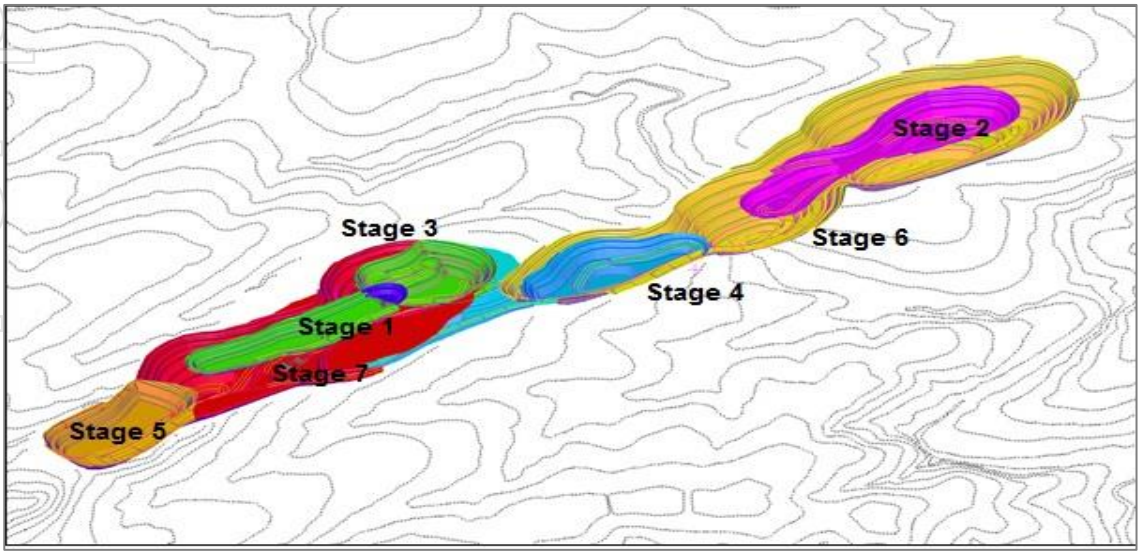
Year	*Period*	*Total Mined (t)*	*Total Waste (t)*	*Mined Ore (t)*	*Mill Feed (t)*	*Stockpile Balance*
Pre-production	0	1,320,000	1,061,772	259,133	37,828	221,133
Year 01	1	3,052,979	1,097,109	1,955,871	1,000,303	1,176,873
Year 02	2	3,061,277	1,483,581	1,577,696	1,505,387	1,249,181
Year 03	3	3,051,385	1,108,178	1,943,207	1,500,023	1,692,364
Year 04	4	3,050,834	1,308,295	1,742,539	1,500,218	1,934,686
Year 05	5	3,050,846	1,637,675	1,413,171	1,500,402	1,847,455
Year 06	6	3,059,714	1,528,461	1,531,253	1,500,032	1,878,677
Year 07	7	3,059,886	1,605,524	1,454,362	1,500,004	1,833,034
Year 08	8	3,059,841	1,526,572	1,533,269	1,500,010	1,866,293
Year 09	19	3,059,545	1,586,687	1,472,858	1,500,014	1,839,137
Year 10	10	3,059,598	1,413,045	1,646,553	1,500,010	1,985,680
Year 11	11	3,059,806	1,426,721	1,633,085	1,500,047	2,118,718
Year 12	12	4,576,258	2,710,682	1,865,575	1,500,023	2,484,270
Year 13	13	4,576,339	3,247,118	1,329,221	1,500,006	2,313,485
Year 14	14	4,589,500	3,285,716	1,303,784	1,500,001	2,117,268
Year 15	15	4,576,230	3,914,824	661,406	1,500,012	1,278,662
Year 16	16	4,900,392	4,823,756	676,636	1,500,031	455,267
Year 17	17	4,900,404	4,256,837	1,243,567	1,500,000	198,834
Year 18	18	4,900,024	4,138,516	1,361,508	1,500,012	60,330
Year 19	19	4,908,385	3,008,376	1,500,009	1,500,009	60,330
Year 20	20	4,980,322	2,680,273	1,500,049	1,500,049	60,330
Year 21	21	4,217,047	2,116,748	1,500,299	1,500,299	60,330
Year 22	22	2,879,864	1,379,458	1,500,406	1,500,406	60,330
Year 23	23	2,103,060	902,406	1,200,654	1,260,984	0
Year 24	24					
Total		**85,054,378**	**53,248,268**	**33,806,110**	**33,806,110**	



Material movement per year over life of operation



Proportion of Material types to Mill Feed



Stages of open pit mine development

ORE RESERVE ESTIMATE

The Company has completed an ore reserve estimate based on modifying factors included in the feasibility report including but not limited to geology, mineralogy, resource estimate, metallurgy, mining, processing, capital costs, operating costs, environmental monitoring and rehabilitation, community, cultural issues, legal environment, marketing, logistics, water supply, power supply, waste disposal, product sales, market value and risk. These modifying factors were used to derive a mining inventory outlined below. Mr Alistair Stephens has been responsible for preparation of the Reserve Estimate and is the Competent Person for the Mineral Reserve Estimate as defined by the 2012 JORC Code.

2012 Kanyika Total Ore Reserves

	Mt	*$Nb_2O_{5\ ppm}$*	*$Ta_2O_{5\ ppm}$*
Proved	5.3	3,680	171
Probable	28.5	2,935	136
Total	33.8	3,048	141

The mineral reserve has the following ratios in respect to the mineral resources.

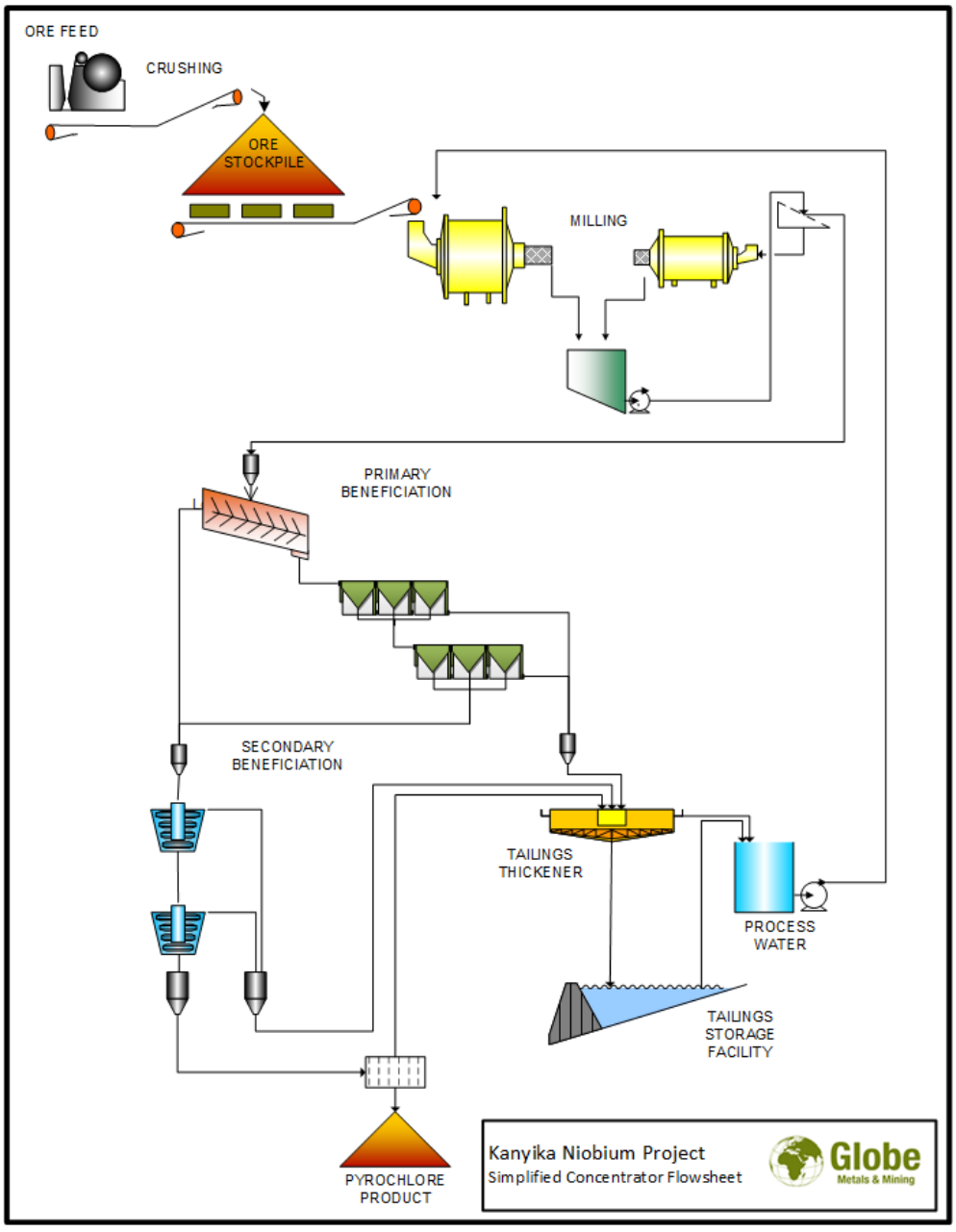
2012 Kanyika Total Ore Reserves Ratio to Mine Inventory

Category	*Measured*	*Indicated*	*Inferred*	*Total Resource*
Proved	**96%**	**0**	**0%**	**7.5%**
Probable	**0%**	**61%**	**0%**	**42%**
Total			**0%**	**49.5%**

It is important to note that this Ore Reserve Statement is based on the likely and probable financial conditions currently specified in the Development Agreement and that this refers to current legislation. Significant deviations to these conditions could potentially result in changes to the economic model and Ore Reserve Statement. This statement refers to the project using 100% ownership.

CONCENTRATION

The operations process flowsheet was developed based on results from the extensive test work conducted on Kanyika mineralisation evaluating a range of beneficiation strategies. The concentrator incorporates conventional integrated crushing and grinding circuit and magnetic separation before using flotation and gravity concentration techniques to produce a pyrochlore concentrate (approximately +30% Nb_2O_5 and 1.0% Ta_2O_5). The process technique gives excellent results with mass yields less than 1% for over 75% recovery of niobium and tantalum. The process flow scheme is illustrated in the figure below.



Concentrator Flowsheet Schematic

The concentrator process scheme is comprised of established unit operations and equipment, but with a unique configuration. The magnetic separation circuit is akin to an iron ore beneficiation circuit and the flotation concentration circuit is a relatively conventional oxide flotation scheme with moderate complexity comparable to other niobium producers.

The flowsheet includes the following unit operations:

- primary crushing to -150mm using a conventional Jaw crusher;
- milling the crushed material in a semi-autogenous grinding – ball mill grinding circuit operating in closed circuit with Derrick screen classifiers. The mill circuit will target a P_{80} of 106 µm while minimising fines generation and maintaining a tight particle size distribution for optimum beneficiation;
- the milled product will be treated by magnetic separation to remove magnetite and gangue mineralisation; and
- the gravity and flotation plant will consist of gravity concentration to scalp coarse pyrochlore and flotation concentration to collect remaining pyrochlore in the form of an upgraded concentrate. The pyrochlore concentrate product is filtered, dried and packaged for shipment, while the tailings stream is thickened to immediately recover plant water and within the circuit, and the thickened paste (inert flotation residue) will be pumped to the tailings storage facility (TSF).

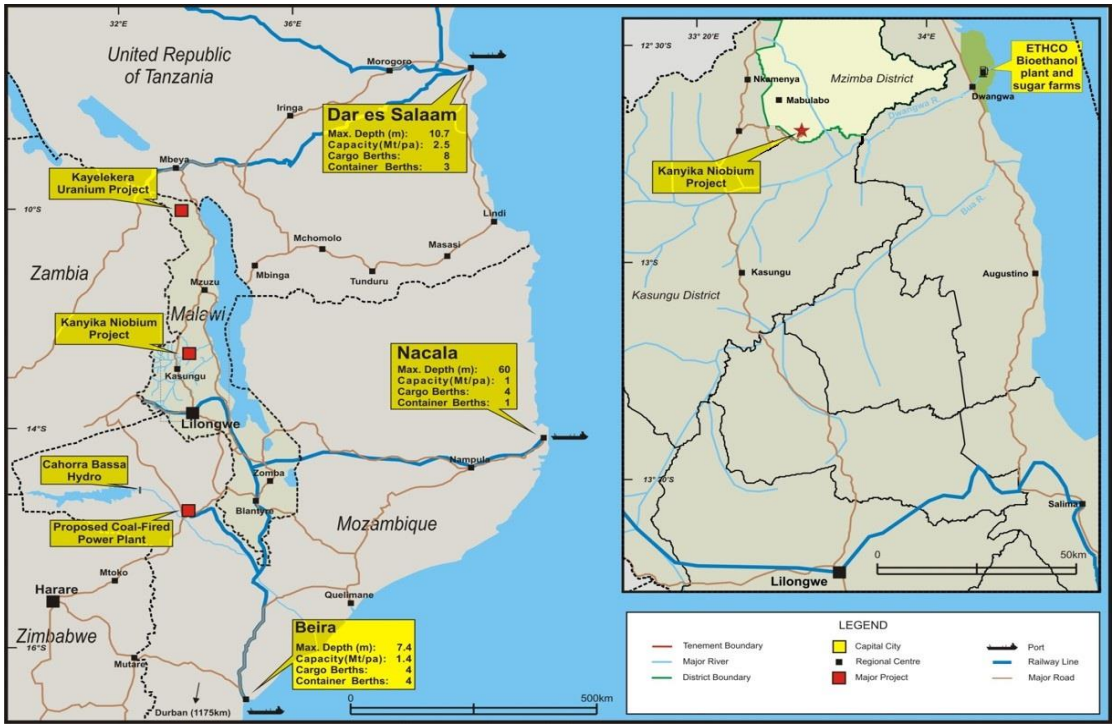
CONCENTRATOR – INTELLECTUAL PROPERTY

In developing the flow sheet for the concentrator process, various proprietary intellectual property was developed. The key areas of IP coverage are:

- The flotation scheme for beneficiating pyrochlore mineralisation. This was devised in the course of testing and optimisation work undertaken at GIRCU. The scheme was patented (Patent No. AP 5248) and is held by Globe's IP holding company.
- A second highly confidential application has been lodged for an alternative process that reduces the environmental footprint of the project. Details will be released in due course.

TRANSPORTATION OF CONCENTRATE

The operation has been configured to produce a concentrate that is to be packaged and then shipped in sea containers from site to a port on the east coast of Africa.



Transport Corridor Schematic

The transportation of unpackaged (bulk loaded) concentrate in small volumes is not cost effective, and higher risk compared to product packed and stored into sea containers. In addition, containerised materials are widely used and are easy to handle and pose little threat of containment loss (eliminates dust emanation). The mineral concentrate product is a radioactive NORM (Naturally Occurring Radioactive Material) material and will classify as a Class 7 for transportation purposes. The packaged and containerised product will have no occupational radiation exposure risk. Transportation of packaged concentrate will require licencing permits to be issued for cross border purposes.

WASTE MANAGEMENT

Management of mining and process waste is a critical part of the mine with several significant post-operational, environmental, social and legacy issues to be managed. The operation will generate a number of residue products and where possible the materials will be recycled within the operation or within the community. The main waste management strategies to be employed are:

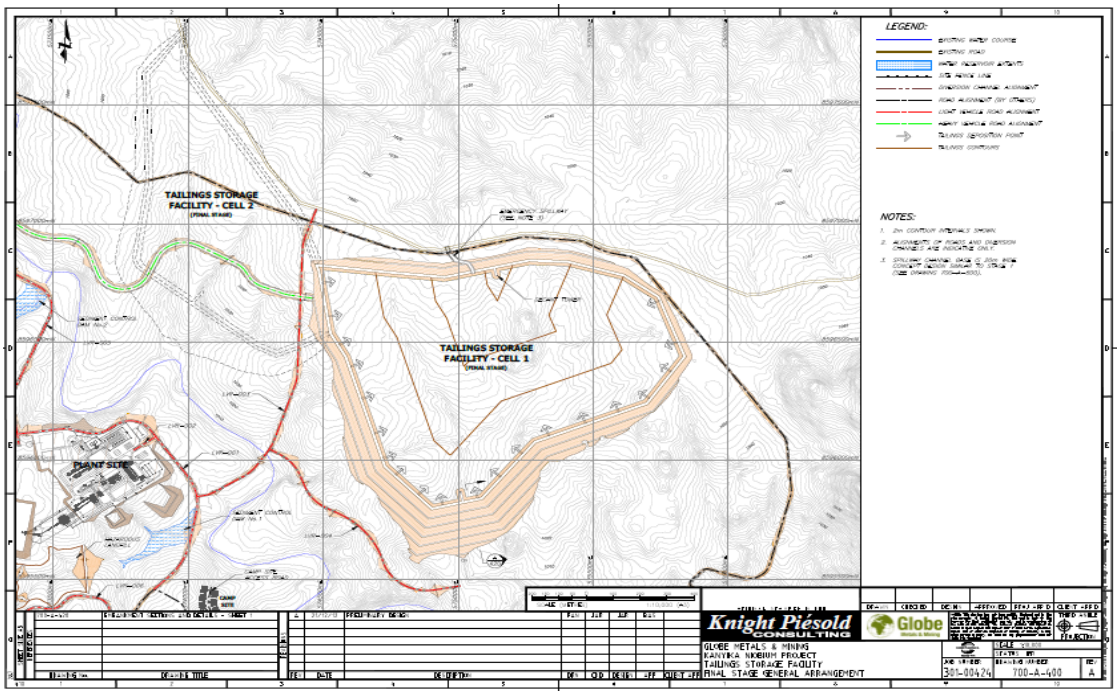
- The tailings storage facility (TSF) will comprise a conventional soil-lined (low permeability) impoundment formed with an embankment constructed from mine waste located in the East of the Milenje Valley and designed in compliance with the ANCOLD[3] and ICOLD[4] standards.
- The mine waste rock dump will contain approximately 53 million tonne of waste rock from operations. The waste rock has very low to negligible acid drainage potential and is not expected to provide a containment problem, however as best-practice run-off will be contained, and captured.
- Domestic, medical and other waste will be stored in a conventional landfill and medical and selected industrial wastes will be burnt according to Incineration of Waste (Directive 2000/76/EC).
- Recycling. Where possible materials from operations will be recycled.

The operations' TSF is a critical part of the mine with several post-operational and potential legacy issues. A detailed options study was completed during the feasibility period and several potential sites were evaluated before selection.

The operation will produce approximately 33.4 million tonnes of inert tailings over the operating mine life. The solids will be placed in a separate TSF located to the east of the mineralised body. The tailings will comprise flotation tailings, and minor contributions from other areas of the plant. The tailings will be combined and thickened in a thickener before pumping to the TSF for deposition. Process water will be reclaimed from the TSF and pumped back to the plant process water pond for re-use in the process. The tailings have been assessed as non-acid forming and acid drainage or secondary leaching from the tails will not occur. The general arrangement of the TSF is shown below. It should be noted TSF Cell1 is capable of storing the current life of operations tailings and that TSF Cell2 is a concept should the mine life be extended in the future.

[3] Australian National Committee on Large Dams

[4] International Commission on Large Dams



General Arrangement of the Tails Storage Facility

The TSF will be designed to survive a significant seismic event and the Company continues to evaluate the optimum TSF construction methodology. The embankment and starter dyke will be constructed using mine waste rock or borrowed material from within the TSF footprint area. The tailings area will discharge from the crest of the embankment to form a beach. The beach then becomes the foundation for a second perimeter dyke; this process continues as the embankment increases in height. The embankment has an overall downstream slope of 1:2.5 and an upstream slope of 1:1.5. The embankment will reach an ultimate overall height of 53 m constructed in four lifts.

The TSF has been designed in accordance with International Commission on Large Dams (ICOLD) and Australian National Committee on Large Dams (ANCOLD) design standards and guidelines for management and storage of mine tailings and complies with relevant Malawian regulations and standards. Site investigations and options studies indicate that the proposed location for the TSF is suitable. Engineering works within the basin and foundation areas will be required to prepare the facility for storage of tailings. Sufficient quantities of construction materials are anticipated to be available, predominantly from the open pit, but with the option to utilise borrow areas within the TSF basin area as required. To reduce embankment fill quantities the TSF embankments will be constructed using modified centreline methods. The TSF will be rehabilitated and capped with topsoil and revegetated to leave minimal long-term legacy issues.

WATER

The management of the water supply is a key operational and practical issue, governed by a number of important factors:

- the operations will be a "zero-discharge" site to be designed to contain all discharges for events up to a 1:100 ARI rainfall event. Precipitation levels at that level will ensure no environmental impact occurs due to the high level of dilution that will be experienced;
- significant water quantities used in processing will result in a negative water balance requiring a net input water supply to operations;
- the hydro-geology rock types of the Kanyika area is dominantly granite resulting in low productivity aquifers in the immediate area, precluding the use of groundwater, and limiting groundwater ingress into the mining pit for use elsewhere;
- there is indigenous uranium contamination of the groundwater in the area;
- downstream users of the Milenje River will be protected from any potential pollutants or disruption of supply during both the construction and operational phases.
- community social responsibility obligations will be undertaken to provide clean drinking water to various stakeholders especially those affected by the operations;
- minimisation of all ecological effects and provision of positive impacts; and
- facilitation of a responsible closure plan at the conclusion of operations.

The estimated overall water consumption is summarised below;

Overall Project Water Consumption

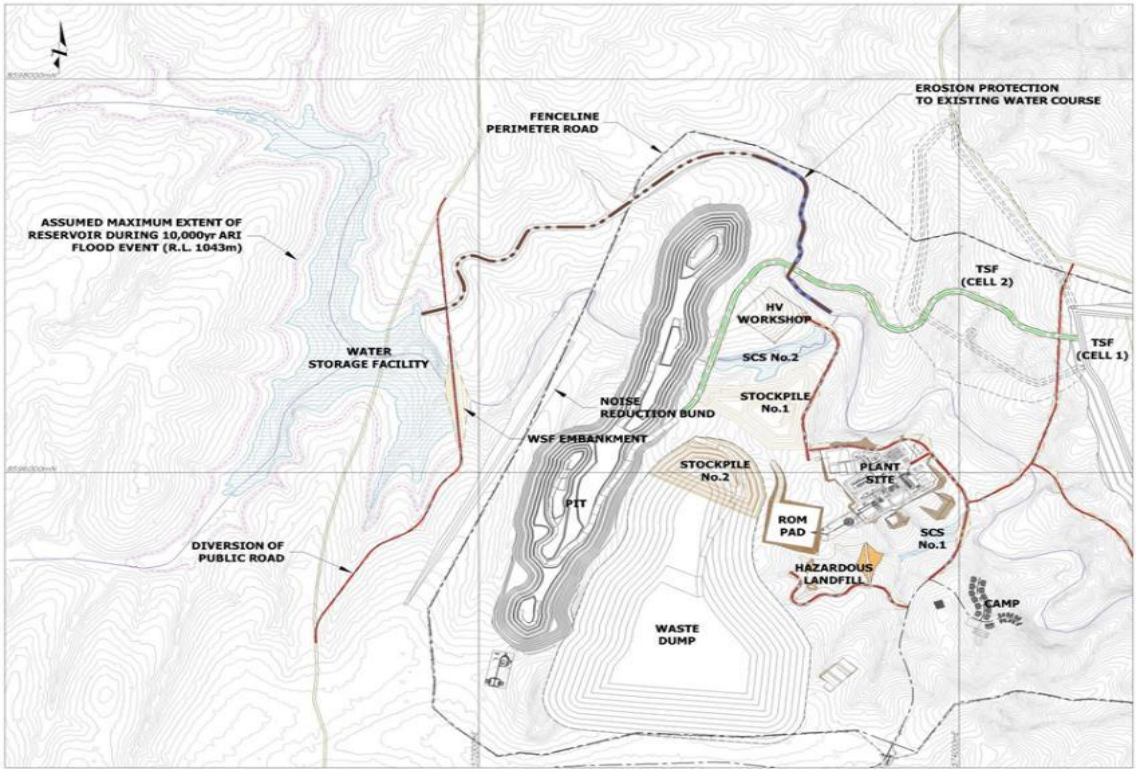
Area	***Consumption (m^3/a)***
Process	1,500,000
Roads Watering	290,000
Potable - CSR Targets	35,000
Plant potable and consumable	34,220
Camp domestic	8,900
Total	**1,868,000**

A series of hydrological and hydrogeological studies were carried out by specialist engineering contractors and consultants. The hydrogeological investigations have indicated that the Kanyika groundwater resource will be unable to provide sufficient water and a surface water impoundment or dam will be required, sized to meet the above demands, as well as losses through seepage and evaporation, for the whole of the dry season. The resulting capacity of the reservoir is 2.5 Mm^3 to spillway invert level.

The reservoir footprint is 58 ha at spillway invert level. The footprint will increase during the wet season and vary depending on the inflow from the Milenje. The diversion and dam are designed to contain flows and volumes of water resulting from an ARI[5] event. The existing Entandweni-Kanyika public road will be inundated by the reservoir and is to be rerouted over the crest of the new water storage facility (WSF) embankment. The WSF has been designed in accordance with International Commission on Large Dams (ICOLD) and Australian National

[5] Average recurrence interval

Committee on Large Dams (ANCOLD) design standards and guidelines for management and storage of water and complies with international best practice. The general arrangement of the dam is shown below.



Kanyika Water Storage Facility

FUEL, LUBRICANTS SUPPLY & DISTRIBUTION

Overall diesel fuel consumption will be of the order of 1.7 million litres per annum for mining operations and 0.6 million litres per annum used in ROM pad and light vehicle usage. Fuel will be contained within a custom bonded storage facility (refer below). The fuel will then be issued to contractors and used for on-site operations. A high standard of inventory management will be required.

Diesel and lubricants will be trucked into the mine site with custody transfer occurring at the main fuel depot and stores warehouse. The Company will be the registered importer under a specific Malawian import licence recipient and will transfer fuel to registered internal end users as required. One 1 ML tank will be installed at the mining contractor's facility, and diesel will be metered into bowsers and fuel trucks. The generator fuel will be metered to the power supply contractor's tanks. A refuelling truck will also be utilized to provide refuelling to stationary or fixed consumers.

ELECTRICAL POWER

Estimated electrical power demand for the operation is based on the current equipment list indicates an installed electrical load of approximately 10 MW with an operating annual power draw of 80,000 MWh/a and a load of 19.5 MW. The current design and operating strategy include the supply input of all power needs from the Malawian electrical grid.

A breakdown of the power demand by area is shown below.

Electrical Power Demand by Area

Area		*Installed Power (Duty) kW*	*Absorbed Power Draw kW*	*Utilisation %*	*Average Power Draw kW*	*Annual Power Draw MWh/a*
Area 000	Administration	800	526	45	500	373
Area 100	Mining	400	200	6	300	500
Area 200	Crushing	514	395	85	347	3,306
Area 210	Stockpile	52	42	91	38	333
Area 300	SABC	6,197	5,217	90	4,750	41,612
Area 400	Primary Beneficiation	2,097	1,275	87	1,129	9,890
Area 500	Pyrochlore concentration	1,365	981	87	867	7,597
Area 600	Concentrate Handling	75	42	86	31	271
Area 700	Tailings	814	355	83	317	2,776
Area 800	Reagents	679	350	80	247	2,162
Area 1000	Services	942	255	90	202	1,770
Area 1100	Water Supply	424	339	91	310	2,714
	Contingency				962	
Total		**14,358**			**10,000**	**73,033**

The Company has conducted a number of investigations to determine the optimum power supply model including the provision of an onsite power generation facility. The operations strategy is currently based on connection to the ESCOM transmission line to source power from the ESCOM grid and provide baseload power supply.

The Company has commenced discussions with third party contractors for regenerative power options as an alternative or supplementary system during development. These schemes are highly viable, and the Company is very confident a regenerative power solution, like solar with battery and diesel back-up, is highly probable.

WORKFORCE

The Company has undertaken to maximise the net benefit of the project to Malawi and a significant component of that undertaking will be to develop the human capital available with a structured human relations (HR) management approach.

Due to the need for skilled mining and processing labour, the operation will likely commence with a significant expatriate workforce where national skills are not available. A clear human resources objective is to reduce the expatriate component as logically as possible and replace selected labour with Malawian nationals in positions related to technology and management.

The overall workforce could potentially total up to 150 directly, 50 indirectly and a significant casual workforce. The workforce will be made up of the following components:

- up to 150 personnel engaged directly by the Company;
- up to 50 personnel employed by third party contractors or vendors; and
- an additional budget allowance has been made to maintain a general local workforce of local peoples as a mobile workforce for low-skilled or semi-skilled "general jobs". This is seen as necessary to maintain local participation requirements and to provide a pool of progressively trained and conditioned personnel to join the mine site workforce.

INDIRECT SOCIAL IMPACT

The Company has assessed that, using a total directly employed position of 400 people another 10,000 other jobs in Malawi will be generated by indirect association with the mine. In addition, another 30,000 people in the Kanyika community area, as defined in the Mines Act, will benefit from the Community Development Agreement royalty of 0.45%.

SOCIAL RESPONSIBILITY PROGRAMMES

The following programs and plans are developed for implementation:

"**Community Engagement Plan**"	is the programme of the kind described at section 300 of the Mining Act, and the plan that provides strategies to conduct awareness programs and grievance mechanisms.
"**Community Development Agreement**"	is the programme of the kind described at section 169 of the Mining Act, and the payment of a 0.45% royalty to local communities.
"**Feasibility Study**"	is the Globe Metals and Mining Limited Feasibility Report submitted to Government as defined by the Mines and Minerals Act (2018).
"**Mining Operations Plan**"	is the section relating to operations in the Feasibility Study.
"**Mine Site Plan**"	is the layout of the mine, plant and services in the Feasibility Study.
"**Rehabilitation and Closure Plan**"	is the programme of the kind described at section 272 of the Mining Act, as submitted to the Registrar and approved by the Government, and as may be amended or varied by agreement between the parties and the programs and plans as detailed in the Feasibility Study.

"**Resettlement Management Plan**"	is the programme of the kind described at section 168 of the Mining Act and the plan for the relocation of Project Affected Persons that reside or have assets in the Mining Area (and for the compensation of those persons for any losses incurred) as submitted to the Registrar and the Minister for Local Government and approved by the Government.
"**Employment and Training Plan**"	is the programme of the kind described at section 163 of the Mining Act, as submitted to the Registrar and approved by the Government, and as may be amended or varied by agreement between the parties.
"**Goods and Services Procurement Plan**"	is the programme of the kind described at section 164 of the Mining Act, as submitted to the Registrar and approved by the Government, as may be amended or varied by agreement between the parties.
"**Business Development Assistance Plan**"	is the programme of the kind described at section 165 of the Mining Act, as submitted to the Registrar and approved by the Government, and as may be amended or varied by agreement between the parties.
"**Development Agreement**"	is the contract between the Government of Malawi and Globe Metals and Mining Limited outlining the terms of engagement, the conduct and the rights between the parties and that grants Globe the right to maintain operations at Kanyika.
"**Shareholders Deed**"	is the terms of engagement and rights between the shareholders of Globe (UK) and the Government of Malawi for the Government of Malawi's free carry interest in the Kanyika Niobium Project.

KANYIKA DEVELOPMENT AGREEMENT

The Development Agreement remains unsigned at the date of this publication.

The Project Economics are dependent upon the execution of the Development Agreement with the Government of the Republic of Malawi for the KNP materially on the same terms and conditions as reflected in the draft Development Agreement tabled with the Malawi Government in November 2020. As at the date of this announcement, the Malawi Government has put forward no changes to the draft Development Agreement. Relevantly, the Malawi Government has verbally advised Globe that the Development Agreement will soon be executed; a sentiment it has expressed publicly and is reflected in journalist articles appearing in local Malawi newspapers.

The Development Agreement sets out the key terms and conditions under which Globe can engage in mining at KNP and the fiscal regime applicable to Globe and KNP.

The Development Agreement carries conditions regarding sustainable development and economic, social and environmental investment. Its aim is to ensure that, whilst Globe may generate a profit from its investment and know-how, the Republic of Malawi and its people benefit as well.

The key aspects of the draft Development Agreement are as follows:

- Globe has the right to mine niobium (Nb), tantalum (Ta), and deleterious uranium (U) and to establish and operate a Processing Facility to be located in the Mining Area;
- The Government of the Republic of Malawi to receive, at no cost, a non-diluting ten per cent (10%) equity interest in KNP.
- The Government of the Republic of Malawi is entitled to purchase, at Fair Market Value, a further a ten per cent (10%) equity interest in KNP, that is capable of being diluted in the event that the Government does not meet any call by the Company for additional equity funding.
- The Government of the Republic of Malawi to receive a royalty of 5% as prescribed for Minerals under the Taxation Act.
- The Kanyika Community to receive a royalty of 0.45% as prescribed under the Mines and Minerals Act (2018).
- Globe to be subject to the provisions of the Taxation Act, the Value Added Tax Act, the Customs & Excise Act and any other applicable Tax Laws except that Globe to be exempt from import duty and import excise and shall be zero rated for VAT on imports and capital goods, consumables and services; excepting that Globe will not be subject to any increases in applicable taxes during the Stability Period of 10 years or such other length of time as extended;
- Globe to maintain a ratio of indebtedness to net worth that is equal to or lower than 3:1 at all times
- Globe to expend its Investment Commitment of $200M substantially in the manner and on the terms set out in the Agreement;
- Globe to conduct all operations within the laws of Malawi and in accordance with International Standards
- Globe to maintain adequate production and mining records and to report this information to the Malawi Mines Minister on a monthly, quarterly and annual basis;
- Globe shall comply with the applicable Environmental Laws, and Atomic Energy Act and Regulations, and provide an environmental performance bond of US$5 million in the form of an irrevocable letter of credit or bank guarantee with a commercial bank in Malawi;
- Globe to be responsible for resettling of affected Malawi citizens in accordance with an approved Resettlement Policy Framework;
- Globe to be responsible for carrying out activities set out in an approved Social Responsibility Plan;
- The Government shall ensure after consultation with the relevant District Council and Commissioner for Lands that the area under the Kanyika Mineral Right, shall to the extent required, be and remain zoned for use or otherwise protected during the time that the Company holds the Kanyika Mineral Right so that the Operations may be carried out on such land in conformity with existing legislation and that any interference or interruption by the Government or any other Party be done in conformity with existing legislation;
- Globe to preferentially employ and train Malawian citizens for operations, and unskilled labour positions, and in the areas of financial, accounting, technical, administrative, supervisory, managerial and executive positions and other skilled positions (provided applicants have necessary skill and experience and are fit and proper);
- Globe to preferentially procure goods and service from local Malawi businesses provided that goods and services are at least comparable in quality, terms, delivery, service, quantity and price;

- Globe to indemnify and hold harmless the Government and its officers and agents from all losses and liabilities incurred as a direct consequence of death or injury to Persons or damage to property directly resulting from the conduct of the Company; and
- the Government undertakes that it shall not, by direct or indirect means, nationalize or expropriate, except pursuant to a public purpose and under the process of Law; and on a non-discriminatory basis; and upon prompt payment of just and adequate compensation based on Fair Market Value.

CLOSURE PLANNING AND REHABILITATION

The Company has scoped the plan and cost for sustainable closure of the project to ensure that every reasonable effort has been made to achieve rehabilitation closure objectives that will give effect to the following principles:

- safety and health of people, flora and faunas are safeguarded from hazards resulting from the decommissioned mining operations;
- environmental damage or residual environmental impacts are minimised to the extent that they are acceptable to all parties involved;
- the land is rehabilitated to achieve a condition approximating its natural state or suitable to be handed over as agricultural land (either grazing or crop cultivation);
- the physical and chemical stability of the remaining structures must be such that risk to the environment through naturally occurring forces is eliminated;
- mine closure is achieved efficiently, cost effectively, and in compliance with the law;
- the social impacts resulting from mine closure are managed in such a way that establishment of a socially stable community in line with the principles of sustainable development is facilitated; and
- the closure plan will be undertaken with community consultation.

The closure plan is at a sufficient stage of development given the current status and long life of the operation and will be updated to a more advanced study during the first five years of operations.

FURTHER TECHNICAL WORK PROGRAMS

Additional work programs are planned prior to construction and include;

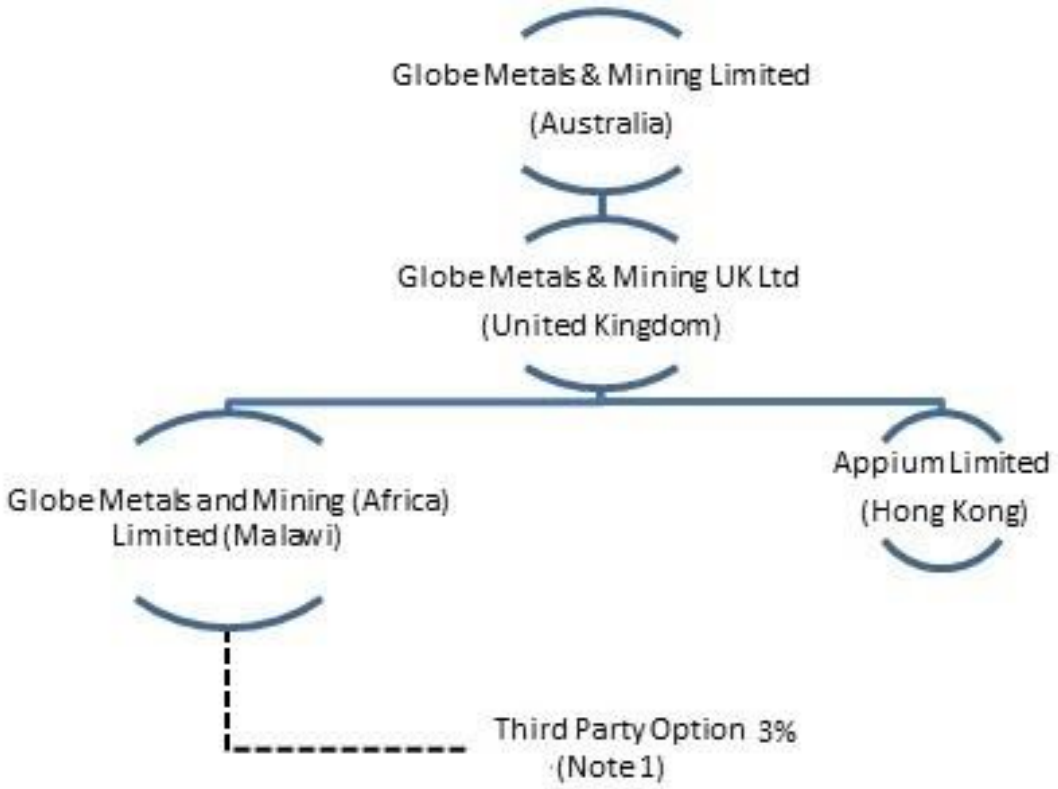
- Front End Engineering Design (FEED) and engineering works leading to updated quotations for construction,
- Studies for patentable technologies,
- Regenerative power as a supplementary power system as an alternative to grid power, and
- Studies for the equipment selection that will be needed to suit customer specification of products in sales contracts.

LOAN AGREEMENT

Globe Metals and Mining Limited has an intercompany loan agreement with its subsidiary Globe Metals and Mining (Africa) Limited (GMMA) to fund exploration and development programs. At June 2021 this loan totals approximately US$35M, (excluding accruable interest and costs), and is repayable upon production or divestment. It is expected that this loan will commence accruing interest on production.

CORPORATE STRUCTURE

Globe Mining and Metals Limited (Australia) currently owns 100% of Globe Metals and Mining (UK) Limited which owns Globe Metals and Mining (Africa) Ltd.



Note 1: The Company, GMMA, and a third party are parties to an agreement dated 11 November 2010 pursuant to which the third party will have a right to subscribe A$1m for 3% of GMMA's capital, which (dilutable) right is exercisable within 30 days of the date of the first commercial export sale of product by GMMA.

ENVIRONMENTAL CERTIFICATES

Project Environmental and Social Impact Assessments (ESIA) have been undertaken in accordance with the Malawian Environment Management Act (2016) (EMA), the EIA Guidelines (EAD, 1997) and the EIA Guidelines for Mining Projects (EAD, 2002).

For the road; the draft report and Terms of Reference for the EIA were submitted to the EAD in accordance with Section 24(2) of the EMA. EIA Certificate No. 41.7.4 is approved by the Minister responsible for Environmental Affairs.

For the operations; a Project Brief, compiled in accordance with Section 24(2) of the EMA, was submitted to the EAD. ESIA Certificate No. 43A.4.5 is approved by the Minister responsible for Environmental Affairs.

The documents committed the Company to the following:

- baseline monitoring of radiation, dust, noise, ground and surface water,
- specialist baseline and impact assessment studies,
- community consultation and feedback,
- national, regional and local authority consultation,
- input into site layout and location,
- collation of public issues and concerns,
- compilation of a Resettlement Policy Framework followed and relocation, and
- compilation of an environmental management plan for planning; construction, operational and decommissioning phases.

The Company will be obliged to comply with the Environmental Management Plan (Plan) that is defined as the plan submitted to the Minister of Environment and approved by Government.

IMPLEMENTATION SCHEDULE

The mine schedule is planning to commence shipment of salable product 30 months after project "decision to mine" is approved. To achieve this objective the mine will undergo a series of development phases. These phases include:

- Immediate initiatives include building organizational capacity.
  - Recruit engineering team to progress technical programs,
  - Recruit relevant support staff for engineering and pre-construction activities,
- Collation of approval documents to allow the Project Go / No-Go decision comprising:
  - Conclusion to Development Agreement with the Government of Malawi,
  - Conclusion to Community Development Agreement,
  - Community compensation and relocation,
  - Product sales agreements,
  - Project financing,
  - Select contracting strategy and identify construction partners,
  - The Government of Malawi providing authorization for the commencement of works and granting approval for material and goods movements,
  - Board "Decision to Mine" passed.
- Commence funds drawdown and project implementation:
  - Front End Engineering Design (FEED) and complete definition of the design, and supplement the technical detail to the feasibility including further relevant design issues to AACE[6] Class 2 (Bankable) technical design standards,
  - Select construction partners and proceed to AACE Class 1 engineering implementation.
- Early Works Programs (post community relocation):
  - Form Owner's Project team,
  - Establish office support base,
  - Construction of accommodation camps,
  - Construction of access roads and power supply,
  - Ordering of long lead equipment.

[6] Association for the Advancement of Cost Engineering "AACE International" practice 18R-97 dated March 2016:

- Execution of Construction Phase:
  - Construct and install power availability,
  - Construct process plant,
  - Commence preliminary mining works.
- Commence Commissioning
  - 3-month commissioning phase.
- Ramp-up and Production:
  - Target 12-month ramp up phase to nameplate production of 1.5 mtpa rates,
  - 23-year operational life under current ore reserves,
  - Prior to year 10 of operations, assess economic and commercial viability for mine cutback and access to deeper resources.
- Project Closure and return of the site back to the community.

The schedule for these phases and completion dates are summarized below. The execution of engineering design, procurement, transport and construction will take approximately 24 months from project approval, with production ramp-up completed from month 28.

Key Issues in Implementation Timetable

Task	*Proposed Date*
1. Ministerial Approval and Issue of Mining Licence	complete
2. Additional technical studies	2021 and 2022
3. Completion of Government Development Agreement	August 2021
4. Completion of Community Development Agreement	By end 2022
5. Completed product sales agreements and project financing	By end 2022
6. Board resolution “decision to mine”	To be notified
7. Affected community members provided notice to relocate (proposed)	middle 2022
8. Commence early works program (proposed)	Late 2022 & 2023
9. Commence construction site works (proposed)	2023, 2024
10. Commence commissioning, ramp up and production (proposed)	2025
11. Commence Mine Closure and Rehabilitation	2049

Study Participants

A listing of study participants or source materials can be found below:

Study area	*Participating Organisations*
Mineral Resource Evaluation	Quantitative Group (QG) / BMGS Pty Ltd
Environment (and Social Impact) Assessment	Synergistics Environmental Services (Synergistics), & Sub consultants
Mining and Inventory studies	Coffey Mining Perth / Orelogy Mining Consultants Perth
Pit Geotechnical	Mining One Perth / Coffey Mining (Perth and Accra)
Metallurgical Testwork	Ammtec - Perth SGS Perth & SGS Lakefield – Canada GIRCU – Guangzhou – China Srdjan Bulatovic and Associates (SB) - Canada Mintek – Johannesburg – South Africa IMO Metallurgy – Perth TSW Analytical – Perth Metalink International Co. Ltd., Nanjing – China Nagrom/Auralia – Perth
Pilot Plant	GIRCU – Guangzhou, China
Process Engineering	WOOD plc Perth (previously AMEC Foster Weller) Metix Pty Ltd Johannesburg
Hydrogeology	Jones and Wagener, MVB Johannesburg
Hydrology	Knight Piesold Perth and Johannesburg
Geotechnical	Jones and Wagener & Sub consultants Johannesburg
Geochemistry	Knight Piesold Perth and Johannesburg
Tailings Storage Facility *Hazardous Waste Storage*	Knight Piesold Perth and Johannesburg Knight Piesold Perth and Johannesburg
Infrastructure	Overflow Engineers Perth Infracon Engineers Lilongwe Beijing General Research Institute of Mining and Metallurgy (BGRIMM) RS Remote Solutions (Dubai)
Marketing	Pacific Ores Metals and Chemicals Hong Kong Roskill Information Services Orian Research
Capital & Operating Cost Estimates	WOOD plc (AMEC Foster Wheeler) Perth and Johannesburg Orelogy Mining Consultants And sub-contractors
Legal	Gilbert + Tobin, Perth Savjani & Co. Malawi TRM Legal (Tax and Risk management), Johannesburg
Mine closure and rehabilitation	Knight Piesold Johannesburg
Project Valuation	SRK Consulting Johannesburg

This announcement has been authorised for release by the Board of Globe Metals & Mining Limited.

For further information please contact:

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Competent Person Statements

The information in the report to which this statement is attached that relates **to Exploration Targets, Exploration Results, and Mineral Resources** is based on information compiled by Mr Alistair Stephens, a Competent Person who is a Fellow of 'The Australasian Institute of Mining and Metallurgy' included in a list posted on the ASX website from time to time. Mr Stephens is a full-time employee of Globe Metals and Mining Limited. Mr 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'. Mr Stephens consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in the report to which this statement is attached that relates to **Exploration Targets, Exploration Results, and Mineral Resources** is based on information compiled by Mr Andrew Bewsher, a Competent Person who is a Member of the 'Australian Institute of Geoscientists' included in a list posted on the ASX website from time to time. Mr Bewsher is a full-time employee of BMGS Pty Ltd. Mr Bewsher 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'. Mr Bewsher consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in the report to which this statement is attached that relates **Ore Reserves** is based on information compiled by Mr Alistair Stephens, a Competent Person who is a Fellow of 'The Australasian Institute of Mining and Metallurgy' included in a list posted on the ASX website from time to time. Mr Stephens is a full-time employee of Globe Metals and Mining Limited. Mr 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'. Mr Stephens consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

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Risks

Operational: The key operational risk will be the successful operation of the proposed operations that is in part mitigated to some extent in the engineering works undertaken, and in that the process largely uses well proven individual components but subject to variation.

Capital: The capital has been costed within Africa as at 2018 using mostly locally sourced suppliers or engineering databases. It is therefore relevant at the date of publication but needs review during the lump sum turn key request for quotation process.

Offtake: Contracts for niobium and tantalum for which binding agreements are not signed; this is critical given that the products provide all of the forecast revenue. The Company is pursuing offtake agreements that is also contingent on the Government of Malawi issuing export licenses.

Financing: Successful financing will rely on offtake agreements for at least part of the forecast pyrochlore concentrate production. The expected up front capital requirement is a major amount of funding for which there are no agreements in place.

Permitting: The Company has an incomplete development agreement with the Government of Malawi. Signing this document, that has not yet eventuated, will clear the way for all permitting. Given the work to date the Company does not see obtaining permitting as a key risk, however there is the potential for permitting time frames to be longer than expected.

Market volatility: Mineral commodities are subject to market price volatility that the Company is unable to control unless structured into offtake agreements that the Company does not have.

Cost control: The operating and capital costs are current at the time of publication and subject to variation since the estimate was prepared. In the case of Kanyika there are no equivalent processing operations to benchmark costs against, and, although costs have been accurately calculated from first principals and using established estimation techniques, there may be some uncertainty and may need to be re-estimated prior to project implementation. The costs presented here may vary from those that will be realized when the project enters production.

Environmental, Community, Safety, Political: The project will be subject to these risks but cannot quantify when where or how they will impact operations if at all.

No solicitation: Nothing in this document represents a solicitation for services or works to or from individuals, groups, businesses, or any Organisation.

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Author

Globe Metals and Mining Limited ABN33114400609.

Appendix A

About the Kanyika Niobium Project

The Kanyika Niobium Project is geographically located in central Malawi, approximately 55 kilometres northeast of the regional centre of Kasangu and is secured by Large-Scale Mining Licence No. LML0216/21 (refer Appendix B) which grants the Company security of tenure and the right to mine niobium (Nb), tantalum (Ta), and deleterious uranium (U).

Drilling programs totalling 33.8 kilometres of percussion and core drilling have defined the extent of mineralisation. Structured and progressive engineering studies have resulted in the current (JORC 2012) Mineral Resource Estimate (refer below) and given rise to significant improvements and simplifications in the process flowsheet, from that first imagined.

In addition, Globe has undertaken substantial metallurgical optimisation work and commissioned a pilot plant to demonstrate and further optimise metallurgical processes. Metallurgical optimisations studies have improved recoveries from 62% in 2012 to 75% today, through simple novel patented metallurgical processes.

The Kanyika operations will produce a pyrochlore mineral concentrate that contains both niobium and tantalum in commercially valuable volumes to be shipped to a refinery for advanced processing into high purity materials.

A Mineral Resource Estimate for the Kanyika Niobium Project under the 2012 JORC guidelines was reported to ASX on 11 July 2018, as follows:

Table 1: MRE for KNP using a 1,500 ppm Nb_2O_5 lower cut

Category	Million Tonnes	Nb_2O_5 ppm	Ta_2O_5 ppm
Measured	5.3	3,790	180
Indicated	47.0	2,860	135
Inferred	16.0	2,430	120
Total	**68.3**	**2,830**	**135**

Table 2: MRE for KNP using a 3,000 Nb_2O_5 lower cut

Category	Million Tonnes	Nb_2O_5 ppm	Ta_2O_5 ppm
Measured	3.4	4,790	220
Indicated	16.6	4,120	190
Inferred	2.8	4,110	190
Total	**22.8**	**4,220**	**190**

Mineral Resource Estimates

The information in this report that relates to Mineral Resources is extracted from the report titled "Kanyika Niobium Project – Updated JORC Resource Estimate" released to the Australian Securities Exchange (ASX) on 11 July 2018 and available to view at www.globemm.com and for which Competent Persons' consents were obtained. Each Competent Person's consent remains in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent.

The Company confirms that is not aware of any new information or data that materially affects the information included in the original ASX announcement released on 11 July 2018 and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the original ASX announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original ASX announcement.

Full details are contained in the ASX announcement released on 11 July 2018 titled "Kanyika Niobium Project – Updated JORC Resource Estimate" available to view at www.globemm.com

Appendix B

Mining Licence for the Kanyika Niobium Project

A copy of Large-Scale Mining Licence No. LML0216/21 is as follows:

MALAWI GOVERNMENT

Mines and Minerals Act
(Act No.8 of 2019)

Large-Scale Mining Licence No. LML0216/21

This Licence is granted this 13th day of August 2021 by the Government of Malawi, acting through the Minister of Mining
To
GLOBE METALS AND MINING (AFRICA) LIMITED
having its registered address at PRIVATE BAG A201, LILONGWE, MALAWI
who have duly accepted the terms and conditions attached.
This licence confers the licensee the exclusive right to prospect for and mine mineral(s) in the area as described overleaf and outlined in a plan Appendix A, for a term of TWENTY-FIVE years commencing on the above date with an option to extend the term in accordance with Section 154 of the Mines and Minerals Act.
Dated this 13th day of August, 2021

Hon. Rashid Abdul Gaffar
Minister of Mining

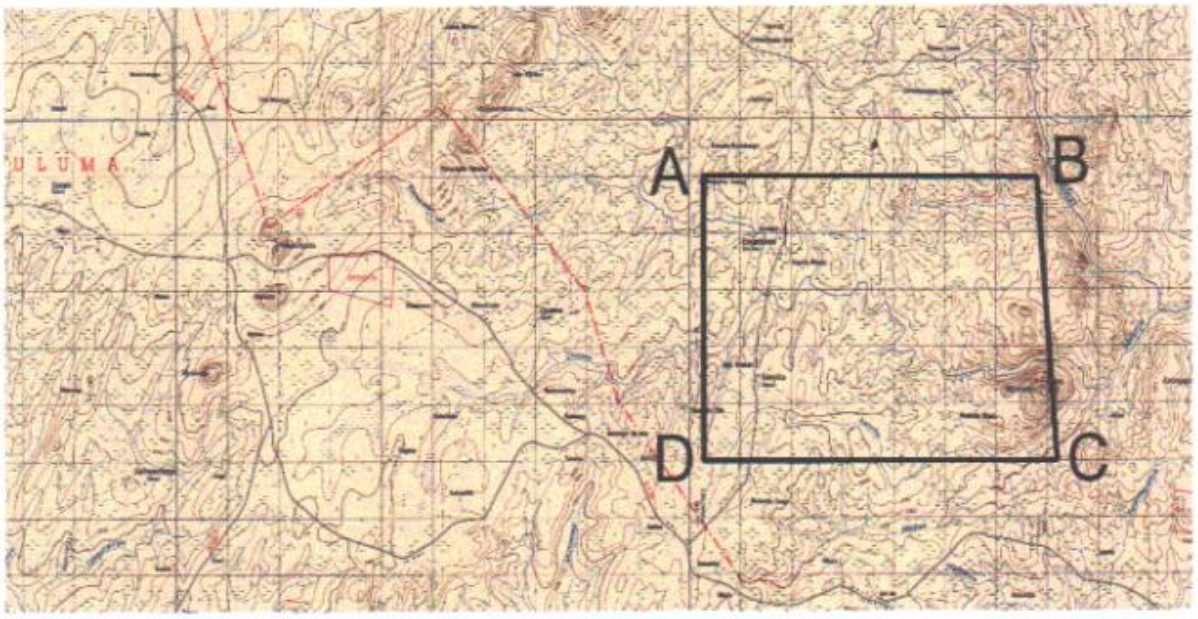
THE DIRECTOR DEPARTMENT OF MINES 13 AUG 2021 MINERALS RIGHTS SECTION P.O. BOX

The licence grants the licensee rights to mine and process **PYROCHLORE MINERAL CONCENTRATE CONTAINING NIOBIUM AND TANTALUM AND DELETERIOUS URANIUM** over an area of **33.42 Km² (square kilometres)** described by the following coordinates (Arc 1950/ UTM Zone 36S):

Licenced area: **MABULABO MAP SHEET No. 1233D1**

POINT	EASTING	NORTHING
A	570269	8599321
B	576784	8599281
C	577172	8594317
D	570269	8594321

THE DIRECTOR DEPARTMENT OF MINES 13 AUG 2021 MINERALS RIGHTS SECTION P.O. BOX 251, LILONGWE



Appendix C

JORC Code, 2012 Edition – Table 1 report – Kanyika Niobium Project

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	The sampling of drill cuttings has been carried out on Reverse Circulation (RC) and diamond (D) drilling. All RC drilling used hammers with 5 ¼ or 5" drill bits with samples collected at one metre intervals through a cyclone. The vast majority were dry (< 0.3% being wet) and very few of these wet samples being significantly mineralised. Individual 1m composite samples generated from RC drilling were homogenised by a cyclone on the rig. For drilling campaigns prior to 2010, samples were weighed and then split by a 3-tier riffle splitter at 87.5/12.5 ratio. For the 2010 drilling program samples were passed through a single stage riffle splitter several times until the resultant weight of the split sample was two kilograms. Prior to 2010, diamond drilling was carried out at HQ size, with only one hole reduced to NQ. In the 2012 program the definition drilling was conducted with NQ2 drill bits, with HQ3 drilling reserved for geotechnical and metallurgical drilling. The core was orientated below the weathered and transitional zones. Prior to logging all driller's core metreage markers were check for errors, core was re-pieced together; recovery was determined for runs between markers; metreage lines were drawn on the core; a continuous line was drawn along bottom-of-hole orientations and photographs of core were taken to facilitate future checking. The core was halved longitudinally by a diamond saw for sampling, which was generally on one metre intervals, although some sampling was at different intervals to account for geology.
	Include reference to measures taken to ensure sample representation and the appropriate calibration of any measurement tools or systems used.	Sampling was carried out under Company protocols and QAQC procedures as per industry best practice. See further details below.
	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.*	Total count scintillometer readings of the RC large sample bags were routinely taken and recorded in a standardised format, to provide an estimate pyrochlore content (by a relative ratio of uranium content) and prior to sample submission and analysis.
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.).*	All RC drilling used face sampling hammers with 5 ¼ or 5" drill bits and were collected at one metre intervals through a cyclone. Prior to 2010, diamond drilling was carried out at HQ size, with only one hole reduced to NQ. In the 2012 program the definition drilling was conducted with NQ2 drill bits, with HQ3 drilling reserved for geotechnical and metallurgical drilling. The core was orientated below the weathered and transitional zones.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	In general, the RC drill holes were kept dry. The total sample was weighed (before splitting), and the data generated, indicated acceptable sample recoveries below the weathered and transitional zones. With diamond core, prior to logging all driller's core metreage markers were check for errors, core was re-pieced together; recovery was determined for runs

Criteria	JORC Code explanation	Commentary
		between markers. Much of the core from the weathered and transitional zones (generally 20m to 30m down hole) is broken but is noted to result with poor recovery only occasionally.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Individual 1m composite samples generated from RC drilling were homogenised by a cyclone on the rig. Prior to 2010, samples were weighed and then split by a 3-tier riffle splitter at 87.5/12.5 ratio. For the 2010 drilling program samples were passed through a single stage riffle splitter several times until the resultant weight of the split sample was about two kilograms.
	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.	Sample recovery within the weathered zone at Kanyika was less than the fresh zone where excellent recoveries were possible. All sample material generated from RC drilling was weighed and investigated in terms of recoveries. It was noted that recovery in the fresh zone was good and was satisfactory in the weathered zone.
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 chips were geologically and geotechnically logged using the Company's geological logging legend and protocols. Suitable petrology and other laboratory-based mineralogical investigations have been undertaken to support Mineral Resource estimation, mining studies and metallurgical studies.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging of RC chips records lithology, mineralogy, texture, oxidation, colour and sample quality. The logging of the diamond core makes observations on the characteristics described above as well as structural measurements of features within the core and geotechnical discontinuities.
	The total length and percentage of the relevant intersections logged	All holes are logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	The core was halved longitudinally by a diamond saw for sampling, which was typically on one metre intervals, while some sampling was at different intervals to account for geology. A half core was taken for sampling.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC samples are collected through a cyclone and a three tiered (pre 2010) or single tiered splitter (2010). Most samples were kept dry. Wet and damp sample intervals are recorded on geological logs.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples were prepared at the Genalysis Laboratory Services in Johannesburg, South Africa. The entire sample pulverised to 85% passing -75 micron, and a sub-sample of approximately 150g retained. This pulp was air-freighted to Genalysis Perth Laboratory, and assays determined by ICP mass spectrometry following a sodium peroxide fusion.
	Quality control procedures adopted for all sub-sampling stages to maximise representation of samples.	The sampling procedures were reviewed by Quantitative Group and it was stated that there were no drilling or recovery factors that might have resulted in sampling biases for RC and diamond drilling. The sampling procedures that were set up and followed have provided samples that adequately represent the drill hole. The choice of (typical) 1 metre sample intervals for the diamond holes provides adequate resolution considering the style of mineralisation and the geometric shape of mineralisation.
	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.	Field duplicates were collected with results captured in the database.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate to give an indication of mineralisation given the particle size and the preference to keep the sample weight at a targeted 2-3kg mass.
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.*	Samples were prepared at Genalysis (Johannesburg) and analysed at the Genalysis Perth Laboratory. The analytical method used was ICP mass spectrometry following a sodium peroxide fusion. The pertinent elements analysed were Nb, Ta, U and Zr with each reported in elemental ppm. Difficulty in analysing Nb and Ta was noted and is probably due to the concentration of hydrofluoric acid in the final digestion solution and the stability of metal complexes with time. Variable concentrations will affect the ability of the aliquot to retain Nb and Ta for an extended period for some sample matrices, which will result in variable degrees of Nb and Ta precipitation in different samples.

Criteria	JORC Code explanation	Commentary
	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.	**Total count Scintillometer readings of the large RC bags were routinely taken and used as a field check for geological domains.**
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	**Standards, blanks and field duplicates have been routinely submitted on a ratio of one standard, one blank and one duplicate for every 20 drilled samples.** **Reference material CAN-1 and CAN-2 were prepared by Ore Research & Exploration Pty Ltd of Melbourne from two 125 kg bulk samples of representative mineralised alkali granitoid from Kanyika. Both standards were certified in a program with ten laboratories, for Nb, Ta, U, and Zr. CAN-1 is certified at 2,237 ppm Nb and CAN2 as 7,144 ppm Nb.**
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	**The Company has not undertaken independent assay verification of intersections by independent persons however they have reviewed the geological nature of each domain relative to assay information provided by the Company. Company employed persons have reviewed all relevant materials.** **Prior to undertaking the Mineral Resource Estimate, further validation was undertaken with several drill holes examined by Quantitative Group to check original data with that exported electronically from the database. A summary of the data checks undertaken is as follows:** • **Original sample submission sheets with sample numbers and sampled intervals were checked against those in the database. There were no problems identified;** • **Hand-written geological logging checked against database. There were no problems with the drill holes checked;** • **Original downhole survey records checked against database. In general, the difference between magnetic and grid azimuth (4.6°) was applied, although some readings have been 'smoothed' where the influence of magnetic minerals may have affected the readings. In all instances examined, these corrections are logical;** • **Updated weathering logging for all holes checked against database output, with no errors;** • **Drill hole collar locations checked in the field as described above, with no errors;** • **Bulk density determinations checked, and erroneous values removed as described above.** • **Original electronic files supplied by the assay laboratory checked against the database. Conversions of elemental assays by the laboratories to oxide values were also validated.** **The quality assurance data was analysed systematically, and check and balances generated with the laboratory. Re-assaying of batches of samples were undertaken where significant deviation from standards.** **The comprehensive quality control and quality assurance programme undertaken included the use standards or reference materials, blanks (silica sand) and duplicates inserted. The blanks and standards were supplied with the batches of samples. Some 10g of standard and blanks were being submitted. The laboratory was requested to rifle split coarse reject for a field duplicate in the case of DD samples. The standards were not crushed or milled as they were sufficiently fine grained. Blanks (washed silica sand) were introduced in each batch submitted to the laboratory to provide evidence for contamination in the crushing process and pulverisation stages. Some 10g of blank material was supplied for each blank sample included in the sample batch.** **Difficulty with finding chemically appropriate commercial standards led Globe to replace the field standards used initially in the 2007 campaign with two custom standards of Kanyika material.**

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
CAN-1 and CAN-2 standards were manufactured and certified by Ore Research & Exploration Pty Ltd in February 2008. CAN-1 is a low-grade reference material, and CAN-2 is a high-grade reference material. The two standards were initially provided to Acme for use as routine laboratory standards to be inserted into each batch at their Vancouver facility.

In subsequent drilling programs, CAN-1 and CAN-2 were routinely inserted as field standards. Comprehensive umpire assaying studies through independent laboratories were undertaken on both RC and diamond drill core material from the preceding drilling programs.
<table>
<tr><th rowspan="2">Standard</th><th rowspan="2">Constituent</th><th rowspan="2">Recommended value</th><th colspan="2">95% Confidence Interval</th><th colspan="2">Tolerence limits 1-α=0.99, ρ=0.95</th></tr>
<tr><th>Low</th><th>High</th><th>Low</th><th>High</th></tr>
<tr><td rowspan="4">CAN-1</td><td>Niobium, Nb (ppm)</td><td>2237</td><td>2162</td><td>2312</td><td>2208</td><td>2266</td></tr>
<tr><td>Tantalum, Ta (ppm)</td><td>136</td><td>127</td><td>146</td><td>133</td><td>139</td></tr>
<tr><td>Uranium, U (ppm)</td><td>79.6</td><td>76.8</td><td>82.3</td><td>77.9</td><td>81.2</td></tr>
<tr><td>Zirconium, Zr (ppm)</td><td>1658</td><td>1658</td><td>1752</td><td>1684</td><td>1725</td></tr>
<tr><td rowspan="4">CAN-2</td><td>Niobium, Nb (ppm)</td><td>7144</td><td>6891</td><td>7397</td><td>7034</td><td>7253</td></tr>
<tr><td>Tantalum, Ta (ppm)</td><td>428</td><td>412</td><td>443</td><td>422</td><td>433</td></tr>
<tr><td>Uranium, U (ppm)</td><td>335</td><td>329</td><td>341</td><td>329</td><td>342</td></tr>
<tr><td>Zirconium, Zr (ppm)</td><td>2178</td><td>2113</td><td>2242</td><td>2140</td><td>2215</td></tr>
</table>
For RC drill samples, field duplicates were produced during the splitting and included in the sample batch. For DD drill samples, laboratory duplicates were generated from the coarse rejects by the laboratory. Duplicates were introduced at intervals.

Genalysis and ACME labs are both accredited laboratories. The National Association of Testing Authorities Australia (NATA) has accredited GENALYSIS Laboratory Services Pty Ltd, following demonstration of its technical competence, to operate in accordance with ISO/IEC 17025 which includes the management requirements of ISO 9001:2000. This facility is accredited in the field of Chemical Testing for the tests, calibrations and measurements shown in the Scope of Accreditation issued by NATA.

In 1994, ACME began adapting its Quality Management System to an ISO 9000 model. ACME implemented a quality system compliant with the International Standards Organization (ISO) 9001 Model for Quality Assurance and ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories. On November 13, 1996, ACME became the first commercial geochemical analysis and assaying lab in North America to be accredited under ISO 9001. The laboratory has maintained its registration in good standing since.
</td></tr>
<tr><td></td><td>The use of twinned holes.</td><td>Due to the short history of exploration and high degree on the survey control of these drill holes, the use of twinned holes has not been prioritised. 18 drill holes have been drilled to scissor existing drill holes. These holes were designed to test down dip continuity.</td></tr>
<tr><td></td><td>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</td><td>All sampling, geological logging and assay data has been captured digitally using standard file structure protocols and is stored in the Globe Access database, managed by BMGS in Perth. Copies of the database are held by Globe and various approved consultants.</td></tr>
<tr><td></td><td>Discuss any adjustment to assay data.</td><td>No assay data was adjusted. Conversions were utilised to report concentrations of pertinent metals. Elements reported in ppm units were converted to their oxide/silicate equivalents.
Nb_2O_5 = Nb x 1.43053 | Ta_2O_5 = Ta x 1.221 | U_3O_8 = U x 1.17925 | $ZrSi0_4$ = Zr x 2.00942</td></tr>
<tr><td>Location of data points</td><td>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.</td><td>Drill hole set-outs were by GPS and then picked up by a registered survey company from Lilongwe (Digital Surveying) using differential GPS. All location data has been recorded in UTM (WGS84).</td></tr>
</table>

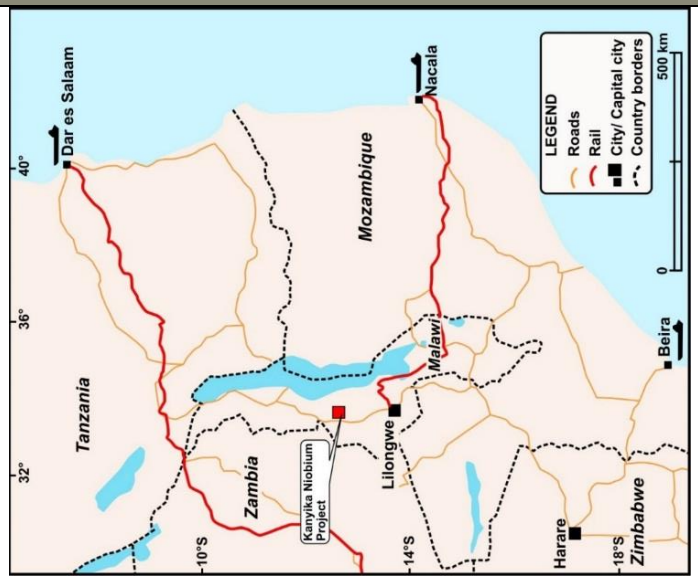
Criteria	JORC Code explanation	Commentary
		All the drill hole collars in the Kanyika project area have been accurately positioned using the prevailing industry standards. Independent checking of drill hole collar locations in the field was undertaken by Quantitative Group in 2010 for ten drill holes by using a hand-held GPS unit. The holes were spaced widely across the project, and all checks using the hand-held GPS unit were within 2 metres of the final surveyed position, with most less than 1 metre different. This is considered acceptable give the precision of the handheld GPS unit used for the checks. Downhole surveying was performed by Globe using an electronic single-shot Reflex instrument up to and including 2010. This device relies on magnetism to determine the drill hole azimuth, so it is affected by magnetic minerals. Because there are few magnetic minerals at Kanyika project, the azimuths should be quite comparable. Anomalous readings were removed or smoothed. For the 2012 drilling program, downhole surveys were completed on all holes using a stacked gyro/gamma system. Readings were taken every 5 metres. The magnetic declination applied is positive 4.62 degrees.
	Specification of the grid system used.	Grid projection is WGS 84 (Zone 36S) as at 30 June 2018.
	Quality and adequacy of topographic control.	The surveying of drill hole collars by Differential GPS formed part of the topographic control. Supporting this dataset were elevation spot heights determined from satellite remote sensing.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drill spacing in the main part of the deposit is typically on 50m spaced northing lines, with holes spaced at 40m or less along line with significant areas where the drilling has been on 20m centres on 25m spaced lines. There are areas with the 50m spaced drilling, and two small areas of 100m spaced drilling between some 50m spaced data. Refer Table A.
	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 spacing of drill holes within and between drill lines is sufficient to establish the degree of geological and grade continuity for this deposit.
	Whether sample compositing has been applied.	No compositing has been undertaken.
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.*	Four mineralised zones have been identified. These strike 020° and dip to the WNW at ~40°-80°. Most of the drill holes defining the mineralisation are inclined -55° to the east. 18 scissor holes were drilled to the west to test downhole continuity. Consequently, the orientation of the sampling relative to the deposit geometry limits bias.
	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.	This is not considered material. It is considered that drilling was appropriately oriented for the known strike and distribution of the mineralisation at Kanyika.
Sample security	*The measures taken to ensure sample security.*	Individual plastic bags containing samples were packed in large rice bags and sealed with cable ties. They were transported by four-wheel drive or 3-tonne hired trucks. Samples were delivered to Globe's Lilongwe office and then to the Department of Mines for inspection and export permits. After inspection the truck travelled to the airport where the samples were offloaded and weighed again at the secure premises of Manica Freight. The samples were then loaded onto the aircraft for transport to Johannesburg and collection by Genalysis. A Company representative was always on hand to oversee the packing, transportation and delivery to Manica Freight. Genalysis (Johannesburg) handled the arrangements for pulps to be delivered to Genalysis Perth.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	In 2010 Quantitative Group (QG) reviewed all the systems put in place by Globe to ensure representative samples are taken and then assayed as accurately as possible with maximum attention to quality, precision and security throughout the process. All the systems were implemented as described and were considered by QG to be of a good 'modern' industry standard. During a due diligence exercise, BMGS reviewed the data and database for the resource estimation. The review noted some spurious assays in legacy datasets but overall these had no significant effect on the resource estimation.

Section 2 Reporting of Exploration Results

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td rowspan="2">Mineral tenement and land tenure status</td><td>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 environmental settings.</td><td>All of the Kanyika drilling is situated within EPL0421/15. The Company's Mining Licence Application was lodged with the Malawi Ministry of Natural Resources, Energy and Mining on 5 December 2014 and covers part of the areas by EPL0188 (expired).
The coordinates of EPL 0421/15 (that are likely to change based on the Mines and Minerals Act 2018 for exploration tenement titles) are;
<table>
<tr><th>Point</th><th>Easting</th><th>Northing</th></tr>
<tr><td>A</td><td>507300</td><td>8603300</td></tr>
<tr><td>B</td><td>590500</td><td>8603300</td></tr>
<tr><td>C</td><td>590500</td><td>8595100</td></tr>
<tr><td>D</td><td>588500</td><td>8590000</td></tr>
<tr><td>E</td><td>588500</td><td>8581000</td></tr>
<tr><td>F</td><td>576900</td><td>8581000</td></tr>
<tr><td>G</td><td>576900</td><td>8599000</td></tr>
<tr><td>H</td><td>570300</td><td>8599000</td></tr>
</table>
The coordinates of the mining licence LML0216/21 are in ARC1950 grid reference;
<table>
<tr><th>Point</th><th>Easting</th><th>Northing</th></tr>
<tr><td>A</td><td>570269</td><td>8599321</td></tr>
<tr><td>B</td><td>576784</td><td>8599281</td></tr>
<tr><td>C</td><td>577172</td><td>8594317</td></tr>
<tr><td>D</td><td>570269</td><td>8594321</td></tr>
</table></td></tr>
<tr><td>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.</td><td>The exploration license is in good standing with the Department of Mines Lilongwe as at the date of this publication. The Mining Licence has a mining lease term of 25 from 13 August 2021 under the Mines and Minerals Act (2018) gazetted on 1 September 2019 (and known or referred to as the Mines and Minerals Act (No8 of 2019).</td></tr>
<tr><td>Exploration done by other parties</td><td>Acknowledgment and appraisal of exploration by other parties.</td><td>From 1966 to 1967, the area was mapped at a scale of 1:250,000 by the Geological Survey of Malawi. Following mapping no work was completed in the area until the UNDP conducted a major airborne radiometric and magnetic survey over most of Malawi, at 1km line spacing, between 1984 and 1985. This survey led to the identification of a uranium and uranium-thorium anomaly, measuring approximately 3km by 1km at Kanyika.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		A field program to investigate the Kanyika airborne radiometric anomaly was conducted by the Malawi Geological Survey in 1986. A total-count ground radiometric survey was completed over an area of 2 by 0.7km. Areas of high radiometric response correlated to foliated nepheline syenite. **A total of 91 soil samples and 21 rock chip samples were taken and analysed for Nb, Zn and Pb. Chemical analyses returned Zn and Pb results that were at or near background. Nb assays up to 1.20% in soils and 0.13% in rocks was detected, although there was a poor correlation with anomalous radiometric zones.** **The analytical suite did not include U, Zr, Ta or REEs due to limitations on available analytical equipment. Following acquisition of the project by Globe Metals and Mining (Africa) Limited, reconnaissance field programs were initiated in 2006. A total-count ground radiometric survey defined two distinct, 020° striking parallel zones, over 2.5km strike length. Soil and rock-chip sampling showed an associated +100ppm U_3O_8 soil anomaly (peak 482ppm U_3O_8) and coincident strong Ta and Nb. Rock-chip samples up to 0.29% U_3O_8, 7.33% Nb_2O_5 and 0.63% Ta_2O_5 were returned.**
Geology	***Deposit type, geological setting and style of mineralisation.***	**Kanyika is an intrusion-hosted Pyrochlore-Zircon mineralized deposit. It lies within the Malawi Province of the Mozambique Orogenic Belt. It is almost entirely underlain by Precambrian and Lower Palaeozoic Basement Complex, predominantly gneiss metamorphic rocks.** **Most of the rocks in the region are para-gneiss originating from variable protoliths including pelites, sandstones and limestones. Several granitoid bodies of variable size have intruded the gneiss basement and may have originated wholly or in part by anatexis. A few small concordant bodies of alkaline syenite rocks containing nepheline are also present, including the strike-extensive body which hosts the Kanyika Pyrochlore-Zircon mineralization.** **Airborne radiometric anomalies and follow-up geochemical sampling programs led to the discovery of the Kanyika deposit. With good surface exposure and abundant drill data, the local geology at Kanyika is well known. The deposit is hosted within a NNE striking, westerly dipping alkaline granitoid, which has broadly concordant contacts with enclosing biotite gneiss. The host unit outcrops over 3.5 km strike length, and averages 200m wide at surface in the south and 50m in the north.** **Niobium and tantalum mineralization occur as the mineral pyrochlore. The pyrochlore mineralization occurs only within the alkali granitoid, in disseminated form as well as in clustered aggregates forming centimeter wide bands. Within the resource area, four broad mineralisation zones are associated with 2 separate sheets of the alkali granitoid that contain disseminated, pale yellow pyrochlore grains. Each of the four broad mineralized zones appear to correlate broadly to footwall and hangingwall zones of the two granitoid sheets. Higher-grade shoots appear to occur generally at slightly more shallowly dipping orientations and thus have a broadly echelon distribution. Zircon mineralization is associated with pegmatite zones spatially associated with these higher-grade shoots and is commonly, but not always, associated with pyrochlore mineralization in the disseminated and higher-grade forms.**

Criteria	JORC Code explanation	Commentary
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 northing 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 ▪ hole length. *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.*	**Refer Table A (attached) for drill survey information** **Refer Table B (attached) for drill hole assay intercept information**
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.*	**There has been no exploration data included in this report. Only data relative to drilling and resource determination is stated.**
	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.	**There has been no aggregation of data.**
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	**Metal equivalents are not used.**
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *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').*	**Mineralisation widths in drill core have been modelled into true widths.**
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 drill hole collar locations and appropriate sectional views.*	**Location of Kanyika niobium project annotated with country boundaries (dashed line) major roads (brown line) railways (red line) and major cities, follows.**

Criteria	JORC Code explanation	Commentary
		 Refer Section 3, Figure 1 for a view of the mineralisation domains Refer Section 3, Figure 2 for a view of the mineralisation in plan section, long section and oblique section
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.*	Data is presented from drilling data as received from analytical laboratories.
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.*	Bulk samples have been recovered for metallurgical test work. The location of these pits is recorded in Table A and results incorporated into metallurgical test work outcomes. Mineralogical test work has been undertaken to understand the nature of mineralization, the size of mineral assemblages and the nature of the distribution and associations. Niobium, tantalum and uranium is discretely associated with the mineral pyrochlore and zirconium with zircon minerals (with the absence of uranium). Pyrochlore and zircon are not necessarily mutually associated but commonly occur together. The remaining common gangue mineral assemblages are feldspars and minor quartz, biotite and magnetite. Pyrochlore has a dominant size range from 0.02mm to 0.5mm while zircon typically ranges in size from 0.2mm to 2.5mm and up to 20cm. Metamictisation (crystalline structural degradation) of pyrochlore is constrained due to the relatively young age of the host rock. The mineralogical composition of the Kanyika mineralization is therefore relatively simple and lacks complexity of other mineral assemblages that could interfere in metallurgical processes. Mineralogical assessment of pyrochlore and zircon have also been undertaken in various recovery techniques during metallurgical test work programs. Table 1, Section 3 of this report elaborates on metallurgical test work outcomes; bulk density characteristics: geotechnical characteristics are discussed in the section on mining and groundwater in the section on environmental issues.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out 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.*	At this stage no significant exploration or mineral resource development works are planned within EPL0421. The Company has been granted an exploration licence EPL0421/15 that covers an area of 308 KM^2 to the east and north of the Kanyika project. Further exploration assessment is under consideration, the details of which will be released in due course. LML0216/21 has been granted as the Mining Licence for the Kanyika project.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• All survey, geotechnical, logging and sampling data once collected was entered into a temporary Excel database on the project site and validated. It was then uploaded to an internet Sharefile system to be accessed and downloaded to the Perth database, which at the time was a Datamine Fusion database. In recent times the dataset has been stored in a Microsoft Access database and managed by staff of BMGS. • There is limited authorization to make changes to the database to protect integrity. Computers in the site office were all networked and routinely backed up. In addition, backups were routinely made onto external hard drives. Multiple destination backups are made daily at the Globe server. • Drill hole files generated have been compared against historically equivalent datasets as part of the validation process.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Nil site visits have been conducted by Andrew Bewsher of BMGS, the Competent Person. • BMGS has only recently been involved in the project. During much of the drilling phase, Quantitative Group had a geologist provide independent oversight of the project. • Mr Michael Job, the Competent Person for the previous mineral resource estimation (JORC 2004) had undertaken site visits • Mr Alistair Stephens, the Competent Person for this mineral resource assessment (JORC 2012) has undertaken site visits.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• Consistent logging of the lithology has correlated well with resultant assay values. • RC and diamond drilling data has been used in the estimation. • No alternative interpretations have been generated. • Geological logging was utilised for identification of the mineralised units and which in-turn guided the determination of bulk density. • No known factors have been identified to influence grade and/ or geological continuity of the deposit.
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 total strike length of the Kanyika mineral resource extends 2440 metres. At its widest the breadth of the mineralised system is 135 m. The maximum depth extent is 160m.
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.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine*	• Drill holes were composited to 1m with an allowable minimum composite of 0.25m. Directional variography, pairwise relative variography, correlograms and experimental variograms were generated by Isatis. These determined the nugget is moderate for Nb_2O_5, Ta_2O_5 and U_3O_8, but generally slightly higher for $ZrSi0_4$. Ranges are generally in the order of 100-200m although $ZrSi0_4$ in high grade shoots is significantly shorter. • Grade estimation was completed via Ordinary Kriging (OK) for all of the mineral domains. Seven domains were created, based on variable grade distribution and orientation of mineralisation. • The Mineral Resource estimates compares favourably with previous estimates. • Block size was determined via a quantitative kriging neighbourhood analysis, using Datamine software. A series of checks are used to confirm the block size to be being geologically suitable. • No assumptions were noted when determining selective mining units.

Criteria	JORC Code explanation	Commentary
	drainage characterisation). • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• **Nil assumptions were noted regarding correlation between variables.** • **The geological interpretation was used to guide the estimation. Boundaries were designated as soft or hard by examining the average grade of the variable on either side of the boundary. If there is a pronounced change in the grade across the boundary then it is designated as a hard boundary. Otherwise a soft boundary is used.** • **The final estimate for the mineralised lodes and high-grade shoots does not use cut values. However, cut values were used for some of the mineralised waste domain estimated as there are some significant outliers at depth of the footwall.** • **Visual checks and a series of swath validation plots that spatially compare block grades to raw composite data was used as validation tools. In addition, global comparison of the model estimates against the raw and declustered drill hole sample statistics by domain were reviewed.** • **The block model consists of a non-regular block size with a primary block size of 10m x 25m x 10m and a minimum block size of 1m x 5m x 1m and then regularised into 5.0m x 12.5m x 2.5m sizes for mining modelling** • **Nil reconciliation data is available.** • **No financially significant by-products have been identified however, U_3O_8 and $ZiSi0_4$ could be considered co-existing and semi-collaborative accompanying elements respectively.** • **An assessment was made into the potential viability for the recovery of by-products other than niobium and tantalum. The economic assessment using metallurgical test work shows not significant value adding for the production and sale of by-products.** • **Nil deleterious elements have been identified and the resource is importantly low in antimony a material that is deleterious to some types of niobium products.** • **Raw data analysis supported with metallurgical testwork indicates they are no impacts of deleterious elements in the production of saleable products.**
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• **Tonnage has been estimation on a dry basis. Bulk density values are estimated based on the extensive collection of in-situ bulk density measurements.**
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• **The Mineral Resource Model is reported using a 1500 ppm Nb_2O_5 cut-off based on conservative commodity prices and costs: Nb_2O_5 at $US15/lb, Ta_2O_5 at $US60/lb, U_3O_8 at $US60/lb a 70% average recovery and at costs of recovery at US$85/tonne (includes open pit mining, processing to a concentrate and refining to bulk finished products). These input parameters have not been altered from the previous modelling and previous resource statement for consistency and that no significant changes in pricing and costs would affect the global position of the resource model.**
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*	• **A mining consultant was engaged to undertake a first pass assessment of a conceptual open pit using estimations for capital and operating costs for the determination and test of the likelihood of economic extraction. Scenarios were undertaken with mining costs of US$4.43 per (total) tonne mined inclusive of mobilisation and demobilisation, pre-production clearing and stripping, internal road establishment, load and haul, drill and blast, ore handling, dewatering, tailings waste overburden removal, overhead fixed costs and dayworks. Rock bulk density in the range of 2.3 to 2.7 tonne per cubic metre was used dependent on weathering type.** • **The initial design parameters are based on a mill throughput rate of 1Mtpa in the first year (to account for ramp-up**

Criteria	JORC Code explanation	Commentary
	assumptions made.	and commissioning) and 1.5Mtpa thereafter. Mining assumed a conventional open pit operation with mill feed material hauled to a ROM pad or stockpile and waste hauled to a waste rock dump. All material is to be mined on 2.5m flitches with a blasting bench height of 5.0m. A fleet selection for mine design parameters consisted of 50 tonne articulated trucks and excavators undertaken by a mining contractor with the owner conducting grade control, survey and mine planning functions. • The Company has undertaken extensive geotechnical testwork and uses geotechnical consultants determined parameters for pit wall design as 55 degree batters in the oxide zone, 60 degree batters in the transitional zone and 70 degree batters in fresh rock zone. • Only Measured and Indicated Resources have been used in the assessment of economic parameters and conversion to Ore Reserves. Inferred Resources have been excluded from the mining model. • A mining consultant was used to assess and determine mining dilution. Dilution of 4.3% and mineral zone and recovery of 97% have been incorporated into a mining block model based on the wide geometry of mineralisation that is up to 135m wide in areas. • Geotechnical consultants' recommendations have been incorporated into geotechnical characteristics used for mine design: the uniaxial compressive strength for oxide was assessed to be very weak, for transitional as weak and for fresh rock as strong. Rock Mass strength for oxide, transitional and fresh rock types are respectively, 29° / 53kPa; 43° / 245kPa; and 50° / 1716kPa • Based on the geotechnical assessment criteria, batter heights are assessed to be 10m and 20m and berm widths of 6m to 15m with inter-ramp slope angles of 40° to 55°
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.*	• Various metallurgical investigations were undertaken to establish the most appropriate process route for recovering niobium and tantalum from Kanyika project mineralisation. The Company determined that the most effective process route was to concentrate the pyrochlore mineral (bearing niobium and tantalum) by flotation. • Regarding beneficiation and concentration processes, extensive bench-scale test-work was undertaken on trench samples, intervals of drill core samples and also test pit samples. This work was supplemented with metallurgical pilot plant testing on a 40-tonne sample of mineralisation taken from test pits at different locations within the mineralised zone. • Metallurgical testing of the mineral concentration scheme has shown that milling to a p80 of 106 µm (which equates to a p100 of 150 µm) is typically required for pyrochlore mineral liberation and effective mineral flotation. Flotation testing has demonstrated the production of a pyrochlore concentrate with grade usually ranging from 25-35% Nb_2O_5 – typically 30% Nb_2O_5 and 1% Ta_2O_5 – with niobium and tantalum recoveries of approximately 75%. The mass yield to concentrate is typically 1%.
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*	• The Company has undertaken environmental studies and has certificates for the construction of road access to the project under EIA Certificate No. 41.7.4 and a certificate for the development of the Kanyika Project under Certificate No. 43A.4.5 issued under the Environment Management Act No. 23 of 1996. The project development has certain criteria for compliance that are expected to manageable and achievable. • The site plan includes road access upgrade, a location for the open pit mine, waste dumps of ex-mine material, a

Criteria	JORC Code explanation	Commentary
	advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	tailings storage facility for process plant waste, a processing plant (crusher, grinding circuit, process recovery plant) administration and accommodation buildings, dams for water, a power plant, ancillary plant and equipment. • Recent discussions with ESCOM the Malawian power generator and distributor indicate that connection of the site to grid power is almost certain. • As part of the Development Agreement with the Government of Malawi the Company has presented a Social Responsibility Plan, a local Business Development Plan, a Relocation Plan (of peoples impacted by potential development), and various programs for the management of Malawian Nationals to key management positions. The Development Agreement outlines the process of the relocation plan for local communities affected by the mine development, and the relocation of areas of cultural significance. • The Company has undertaken studies on heritage, visual assessments, air quality, noise, radiation, areas of historical and cultural significance, soils and land forms, flora and fauna, climatic studies and meteorological recordings, hydrology and hydrogeology, geochemistry, surface water, vibration impacts, community and public consultations, resettlement impacts and plans, employment opportunities, road safety, rehabilitation, and communicable disease programs. • The Company is assessing renewable energy initiatives for operations • The Company has undertaken a risk assessment analysis of the project and its environs
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.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	Extensive in-situ bulk density measurements were made during drilling campaigns. 619 density measurements across the deposit were used to determine the density for 11 separate domains (inclusive of oxide, transitional and unweathered material). Measurements were taken on <15cm long clean, solid, core billets using an electronic scale accurate to 0.1g. The mass of the dry core billet was measured, then the mass of the core billet suspended in water in the cage below the scale. The relative density was calculated by the formula: *RD = Md / (Md – Mw), where Md = weight in air and Mw = weight in water* All readings were recorded on paper by a geotechnician and entered into a spreadsheet with handwritten records filed and retained. The scale was checked once a day against calibration weights supplied by the manufacturer. In order to estimate in-situ dry bulk density using relative density measurements the material to be measured must be non-porous. In the case of a weathered or vugg bearing sample, the core was dip into wax prior to measurement. • Determinations were taken every 5-10 metres downhole. 15 cm lengths of core were used, with weights recorded dry and in water. Oxide and porous samples were coated in wax prior to weighing. Samples with outlier values were checked by an independent geologist and removed if appropriate. All discarded results corresponded to samples within the weathered domain. • Bulk density for oxide material is measured to average 2.5 tonne per cubic metre and 2.7 tonne per cubic metre for transitional and unweathered material types. • There are no assumptions for bulk density estimates.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Classification</td><td>• The basis for the classification of the Mineral Resources into varying confidence categories.
• Whether appropriate account has been taken of all relevant factors (ie 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).
• Whether the result appropriately reflects the Competent Person's view of the deposit.</td><td>• Resource classification as Measured, Indicated or Inferred is based on drill-hole density. The slope of regression is also used as a guide for determining the classification. Where the drilling is spaced equivalent o or less than 25m x 20m, the classification is Measured. An Indicated classification is based on 50m x 40m drill spacing or less. An Inferred classification is based on 100m drill spacing and down dip extensions. In some places, material has also been classified as Indicated where the drill spacing is at 100m spacing but only relates to one region along strike of 50m spaced drilling in the upper part of the model. This is justified by the fact that where there has been infill drilling (to 50m spaced sections in this area), the interpretation, tonnes and grades have only changed slightly compared to that estimated from the broader spaced drilling.
• Data integrity has been analysed and a high level of confidence has been placed on the dataset and resultant resource estimation.
• Mr. Andrew Bewsher and Mr. Alistair Stephens retain a high degree of confidence in the result of the resource estimation.
<table>
<tr><th></th><th>Million tonnes</th><th>Nb_2O_5 (ppm)</th><th>Ta_2O_5 (ppm)</th><th>$ZrSiO_4$ (ppm)</th></tr>
<tr><td>Measured</td><td>5.3</td><td>3,791</td><td>177</td><td>5,057</td></tr>
<tr><td>Indicated</td><td>47</td><td>2,860</td><td>135</td><td>4,784</td></tr>
<tr><td>Inferred</td><td>16</td><td>2,427</td><td>122</td><td>5,210</td></tr>
<tr><td>Total</td><td>68.3</td><td>2,832</td><td>135</td><td>4,905</td></tr>
</table>
</td></tr>
<tr><td>Audits or reviews</td><td>• The results of any audits or reviews of Mineral Resource estimates.</td><td>• Nil audits have been undertaken of the Kanyika deposit.
• Peer review by BMGS of previous resource estimates (by the previous JORC Code) result in no significant change to the resource estimate and find that the assumptions, assessment criteria and model outcomes are consistent.</td></tr>
<tr><td>Discussion of relative accuracy/ confidence</td><td>• 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.
• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.
• These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</td><td>• Visual checks and a series of swath validation plots that spatially compare block grades to raw composite data was used as validation tools. In addition, global comparison of the model estimates against the raw and declustered drill hole sample statistics by domain were reviewed.
• Bulk sample pits taken validate mineralisation grades and validate recovery assumptions for section of the mineralisation</td></tr>
</table>

Criteria	JORC Code explanation	Commentary

Figure 1: View of named Mineralisation Domains in Plan Section (left image) and an oblique view (right image) with drill traces in black.

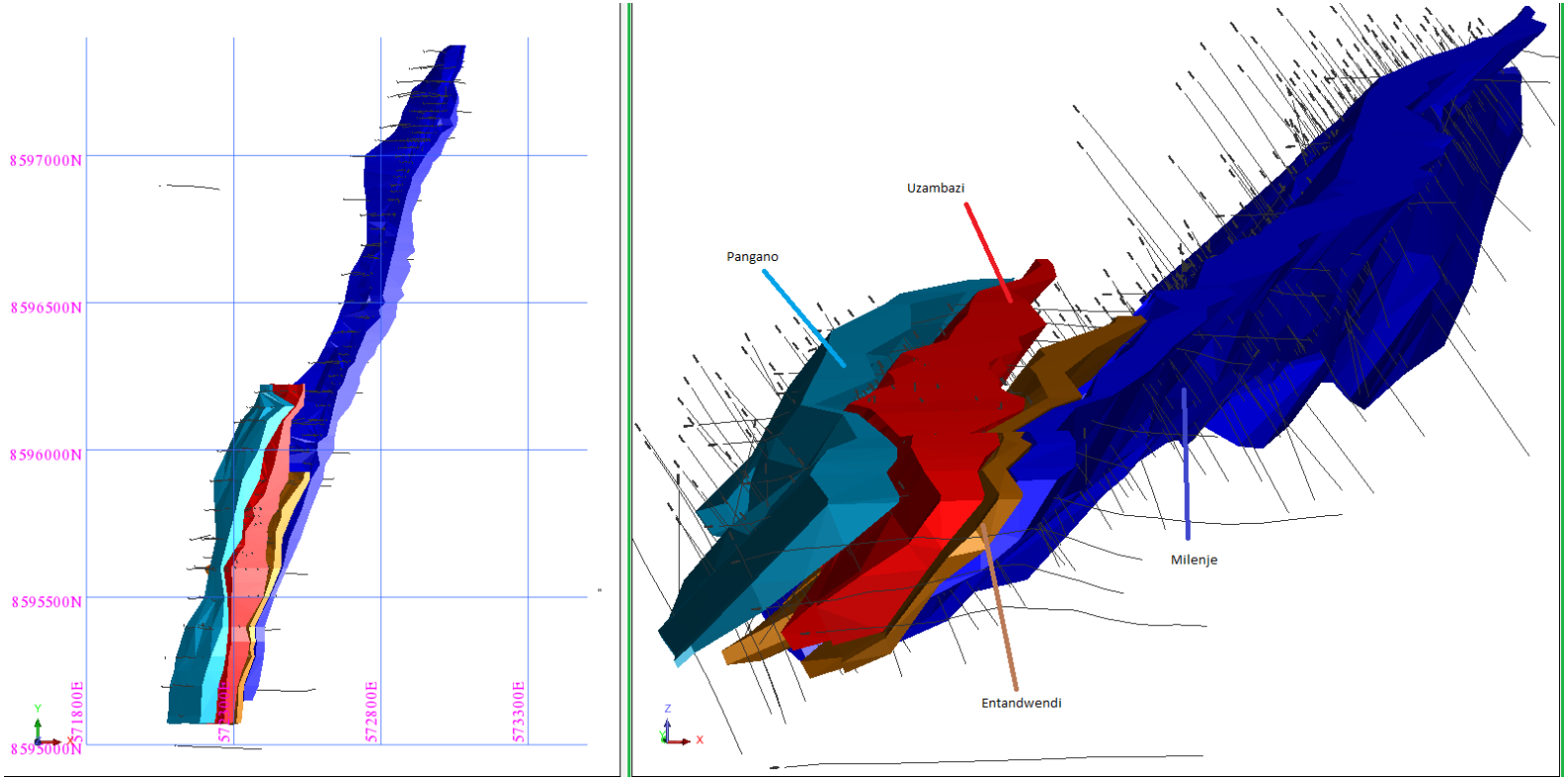
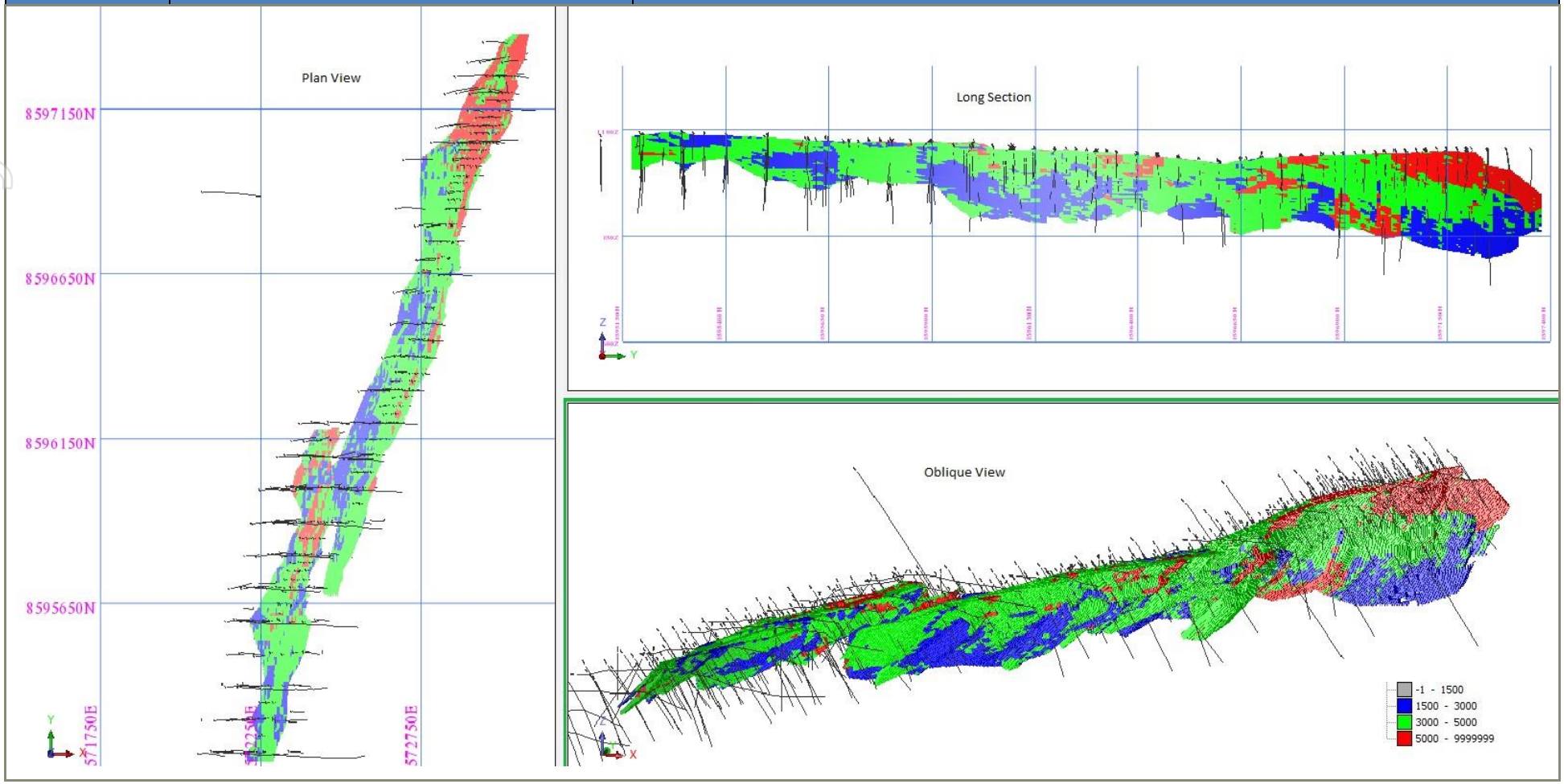


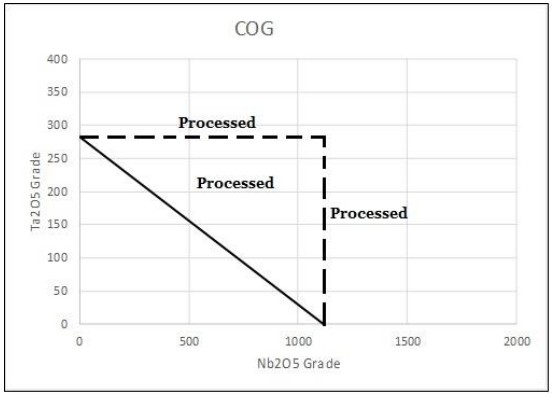
Figure 2: View in Plan Section (left image), Long Section (upper right image) and Oblique View (bottom right image) of block grade domains including drill traces (black traces). Legend annotates modelled grade block assays in parts per million (ppm) Nb2O5.

Criteria	JORC Code explanation	Commentary



1.1 Section 4 Estimation and Reporting of Ore Reserves

Criteria	JORC Code 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 Company has estimated a mineral resource based on the parameters in Section 3 and has undertaken details metallurgical programs (including a pilot plant), detail engineering studies and relevant and recent costing quotations that enable it to report a feasibility study. • The mineral resource statement is a global estimate of resources and therefore the Ore Reserve Statement tabled in this section is a subset of Mineral Resources.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Mr. Alistair Stephens is a Fellow of the Australasian Institute of Mining and Metallurgy, visited site and asserts to the qualification to Ore Reserve as a competent person. Mr Stephens has had more than 6 years' experience in this style of mineralisation and commodity and more than 30 years in the mining industry.
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 Company is satisfied that the project has undertaken studies and programs that are both relevant, recent and of sufficient quality to qualify the project to meet the criteria of a Feasibility Study and the Company has used; • Wood Engineering (previously named AMEC Foster Wheeler) to undertake detailed engineering design for process plant and associated infrastructural systems, • Coffey Mining to undertake geotechnical studies and assessments of the project, • Orelogy Mining Consultants to undertake a detailed mine design and mine schedule, • GIRCU, a reputable specialist metallurgical consultant company in China with specific commodity experience for the development of a flotation regime and pilot plant for the recovery regime, and subsequent registration of an Intellectual Property Patent for flotation, • Knight Piesold Consulting to undertake studies for waste rock characterisation and tailings dam waste storage design, • Jones and Wagner Consulting Civil Engineers for studies on hydrology and hydrogeology, • used Knight Piesold Consulting to outline the costs and time for a conceptual mine closure plan, and • The Company collected a bulk sample and pilot plant test work program to assess recovery regimes and flow sheet design under a continual process, • An ESIA has been completed by Synergistics Environmental Services and the Company has Environmental Licences Certificates that enable it to proceed with access and construction of the site, • The Company has undertaken a Request for Quotation (RFQ) exercise supervised by Wood plc and Orelogy Mining Consultants for capital and operating costs completed in late 2018. It should be noted that this estimation is typically valid for 12 months and therefore at the time of this publication is approaching a limitation on currency. This is in part offset with the low inflationary environment on material costs and the dominance of USD for estimations. • The Company has undertaken marketing assessment using independent market reports, independent companies and consultants for the pricing, supply and demand of niobium and tantalum commodities • The Company has undertaken a preliminary independent valuation (VALMIN 2015) by SRK Consulting (Johannesburg)

Criteria	JORC Code explanation	Commentary
Cut-off parameters	• **The basis of the cut-off grade(s) or quality parameters applied.**	**As the deposit contains multiple elements, no single element COG can be utilised, and a sliding COG dependent upon both grade items is used.** **The Block Value Formula as shown below.** $$Block\ Value = (Revenue\ Generated - Costs\ (Excluding\ Variable\ mining\ costs\ )$$ **or** $$Block\ Value = (Tonnes * grades * recoveries * price) - (\ Processing\ Cost, Concentrate\ costs, Selling\ Costs, Fixed\ costs\ )$$ **To identify ore and waste within the Kanyika deposit, the block value calculation was applied to all blocks within the block model on a block by block basis. If the block value returned is greater than zero, then the block is flagged as ore. This method was applied as:** • **Kanyika is multi element deposit, therefore a single COG value cannot be determined,** • **The cost of concentrate transport is dependent on the block grade for Nb_2O_5, hence the concentrate transport costs are variable dependent upon feed grade.** **Note:** 1. **the variable costs associated with mining each block is excluded from the above calculations as the variable mining costs are considered as "sunk costs" for COG purposes.** 2. **The optimisation process uses the variable mining costs to determine the shape of the ultimate pit shell, and therefore the blocks can be considered as mined to the pit exit and then the decision to process the block or not is applied.** **The two approximate break-even COG's as shown in the table above are represented by the dashed lines in the figure below, with mineralised material with grades above or to the right of these lines processed as ore. Any mineralised material with grades less than the dashed lines that have a combined grade greater than the solid black line is also considered as ore and processed. This is on the basis that, although below the break-even COG for each element individually, this material returns a positive cash-flow when the two elements are combined;** 

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). • The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. • The assumptions made regarding geotechnical parameters (eg 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 Resource Model was converted into a Mining (block) Model inclusive of allowances for ore loss and dilution. Thes approach to generating a Mining Model is as follows: 1. Convert the Resource Model to a "regularised" framework, which is a block model of a single block size. The regular block dimension is intended to reflect a size at which selective mining can be practically achieved. It is also limited to an increment of the Resource Model parent block size, that is (10 mE x 25 mN x 10 mRL). In the case of Kanyika this was determined to be a 5 mE x 12.5 mN x 2.5 mRL block size. This was based on the anticipated machinery size, and the mining methodology of blasting a 5 m high bench but then mining the ore on 2 x 2.5 m vertical intervals or "flitches". The Regular Model created contained ore parcels or "a percentage" within the regular blocks, to maintain the granularity of the sub-celled Resource Model. 2. Orebody dilution is the result of waste or sub-grade material being excavated with ore during the process of mining. Ore loss may result from a combination of: • Inaccuracy in locating the ore / waste boundary or excavating along that boundary, • Errors in ore block set-out or ore control (ore spotting) and • Ore being misdirected to the wrong destination or diluted below cut-off grade. In general, these effects occur along the ore / waste boundary. A dilution / ore loss allowance along the edge blocks in the regularised model was incorporated. This is achieved by: • Traversing the block model across strike and identifies the edge blocks (i.e. blocks with an ore percent and an adjacent block that is 100% waste). It also separately flags isolated blocks that have 100% waste blocks on both sides. • On a section by section basis, in a 5 mE x 2.5 mRL block an assumed 0.4 m "swapping thickness" was applied. This swapping thickness is an estimate based on ore body dip, equipment size and mining engineering experience. This equates to 8% barren waste (i.e. (0.4 m in section x 2.5m in depth) / (5 m in section x 2.5 m in depth)) being swapped into an ore percent, and 8% of the ore being swapped to the waste. This is achieved by reducing the contained metal of the ore percent by: (Ore percent – 8%)/Ore percent. This results in no change to the contained ore tonnes, but a reduction of grade due to the loss of contained metal. The dilution method was applied to all blocks on the ore / waste intersection, whereas block that contained 100% ore and had neighbouring ore blocks on the east and west were not diluted. Conversely blocks which contained 100% waste on both side (i.e. representing the ore-body with is less than 5 m width), had twice the amount of dilution applied to represent the dilution at both contact zones. • The model was then re-reported at the breakeven cut-off grade, which resulted in ore loss due to some material being diluted below cut-off grade. The results indicate a general dilution in the region of 4% and an oreloss of 8%.

Criteria	JORC Code explanation	Commentary

Geotechnical

The geotechnical data from which the geotechnical domains have been derived is based primarily on geotechnical logging of drill core. Geotechnical data was collected from drill core by Coffey Mining engineering geologist following industry accepted standards; ISRM/AS 1726. The geotechnical data quality was rated as generally high. The dominant sample direction (drillhole azimuth) is toward the east. Five drill holes have westerly azimuths, intersecting the west wall and one drill hole intersecting the north wall.

Domain	Design Sector	Weathering	BFA (°)	BW (m)	BH (m)	IRSA (crest to crest) (°)	IRSH (m)	OSH (m)	OSA (°)
All	All	Oxidised	55	5	10	40	20	180	49
		Transition	60	8.5	20	45	20		
Granitoid	North	Fresh	70	8.5	20	51.5	140		
	South								
Gneiss	West	Fresh							
	East1								
	East2	Fresh	70	8.5	20	51.5*Notes 2	70-120	-	-

Abbreviations:

BFA - Batter Face Angle; BW – Berm Width; BH – Batter Height; IRSA - Inter-Ramp Slope Angle; IRSH - Inter-Ramp Slope Height; OSH - Overall Slope Height; OSA - Overall Slope Angle

Notes:

1) **The eastern gneiss domain has been split into two design sectors (East 1 and East 2) to reflect the interaction with the changing dip of geology. East1 design sector is mostly characterised by steep westerly dipping geology whereas East 2 design sector is characterised by moderate westerly dipping geology.**
2) **The inter-ramp slope angle of East 2 design sector will be controlled by the dip of geology. The dip of geology ranges from 27° to 47°.**
3) **The slope design parameters recommended for the East Gneiss and West Gneiss fresh rock domains are steeper than those determined in the PFS. The increase in slope design parameter is due to a re-interpretation of the rock strength and discontinuity shear strength determined from the new geotechnical data and updates in the modelled geological surfaces.**
4) **The risk profile of the recommended slope design parameters will be addressed in the report; it is appropriate for a FS level of reliability.**
5) **The slope design satisfies the limiting constraints i.e. Static case - minimum factor of safety (FOS) of 1.3 and Dynamic case - minimum FOS of 1.0**

Criteria	JORC Code explanation	Commentary

6) The berm width design is based on Modified Ritchie's Criterion and the Martin-Piteau method to provide rock fall catch protection and to provide sufficient catch width to retain a bulked failure volume based on the interpreted controlling failure mechanism.
7) The inter-ramp slope angle for any given pit wall is measured from crest to crest between haul ramps legs
8) The overall slope angle is measured from the pit crest to the toe of the pit slope.
9) The batter slope design assumes batter faces are depressurised for groundwater. The stability of the overall/inter-ramp slope is sensitive to changes in the groundwater assumptions; a partly drained inter-ramp / overall slope has been assumed.
10) The stability analyses undertaken to determine the slope design parameters assume good blasting practices are adopted to minimise damage to pit slopes.
11) Slope design parameters have been determined for each domain and each weathering class.
12) For the transition/Fresh rock mass, the slope design is based on frequency distribution graphs of structure dip and cumulative frequency analyses for assessment of potential planar and wedge failure on foliation/contact/joints structures.
13) Diligent batter scaling will need to be employed every mining flitch to ensure that any developing instabilities are adequately addressed.

Design

Pit design parameters are in keeping with established mining practice and are detailed in the table below

Item			Unit	Value
Pit Slope Parameters				As per Geotechnical Recommendations
Haul Road Design	Width	Single Lane	[m]	12
		Dual Lane	[m]	16
	Gradient		[%]	10
	Minimum Radius of Turning Circle		[m]	5
Working Widths	Minimum Pit Base Width		[m]	20
	Minimum Pit Cutback Width		[m]	50

Dual lane pit ramps have been designed to suit the selected dump truck size. Roads will be designed to allow all-weather trafficability. This will include regular spreading and compaction of suitable crushed rock road base material. The minimum running width of pit ramps, exclusive of drains and bund, will be three times the operating width of the selected dump truck fleet of 3.7 m. The total width of the haul road, including bunds and drains, has been rounded to 16 m. Single lane pit ramps have been used where appropriate for the lower 30 to 50 vertical metres of the designs. Single lane pit ramps have been designed at a total width of 12 m with an increase in gradient to 1:8.

Criteria	JORC Code explanation	Commentary

Mine Scheduling

The mine schedule of each stage is based on the inventory as summarised below;

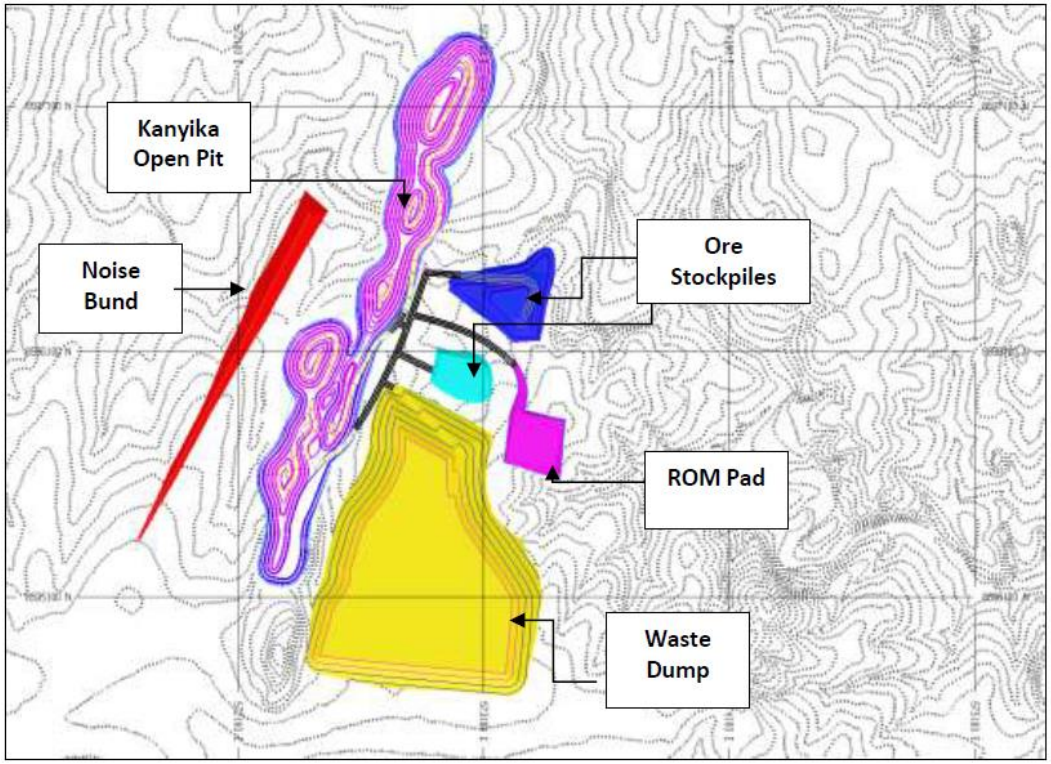
Stage	Total Material [Mt]	Waste [Mt]	Strip Ratio [w:o]	Mill Feed		
				Tonnes [Mt]	Nb_2O_5 Grade [ppm]	Ta_2O_5 Grade [ppm]
1	2.0	0.4	0.2	1.7	3,564	165
2	4.5	2.8	1.7	1.6	4,443	206
3	4.1	2.5	1.6	1.6	3,296	132
4	3.4	1.4	0.7	2.0	3,433	156
5	4.3	1.6	0.6	2.7	2,785	128
6	43.4	32.5	3.0	10.9	3,191	140
7	20.9	9.9	0.9	11.0	2,678	133
8	4.5	2.1	0.9	2.4	2,585	134
Total	87.1	53.2	1.6	33.8	3,048	141

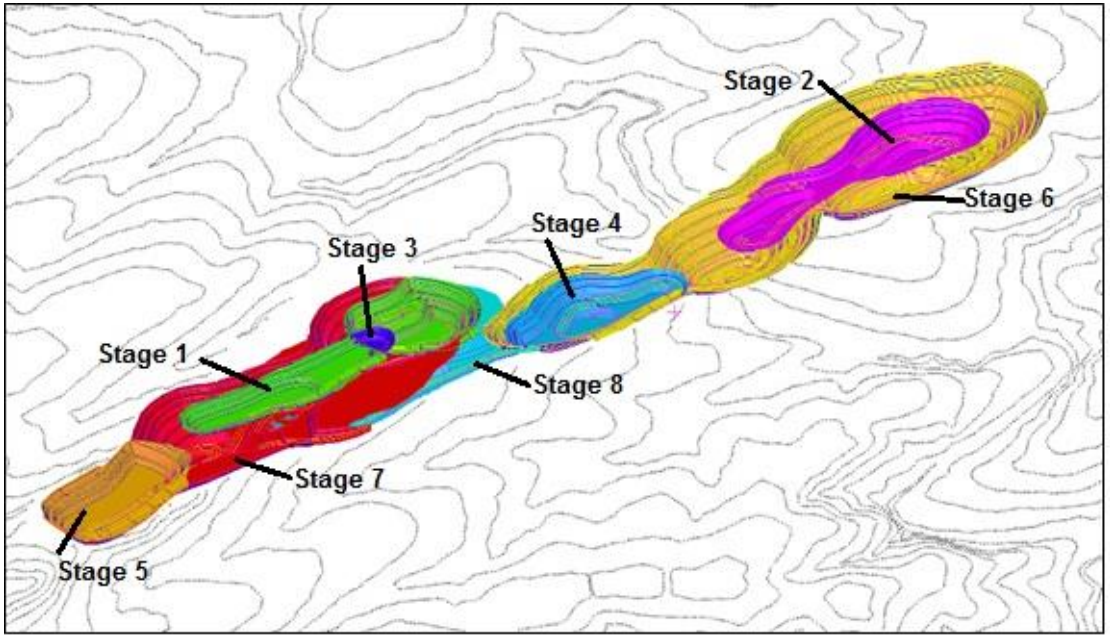
Waste Dumps

The waste dumps have been designed to the following criteria:

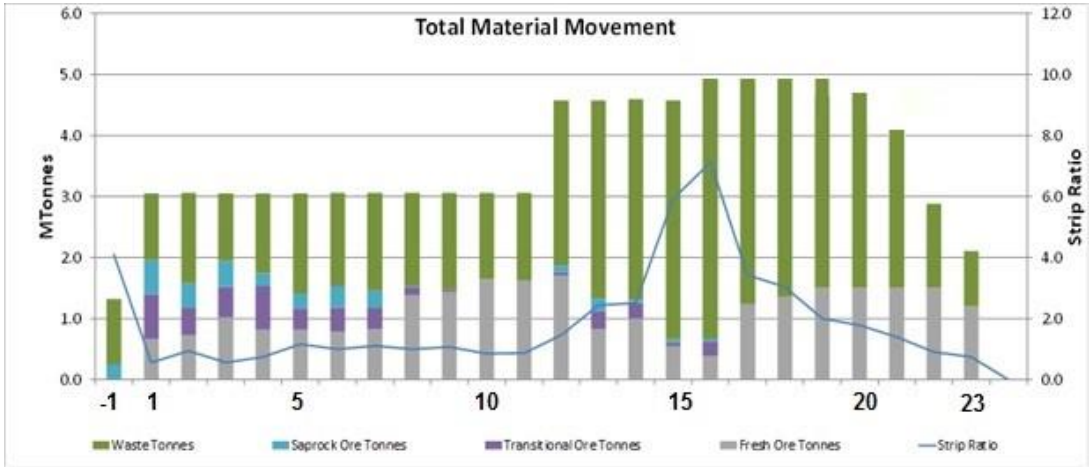
- **End dumping of waste by haul truck with minimal rehandling.**
- **Swell factor of 30% (after compaction by traffic of dump trucks),**
- **Maximum ex-pit dump height = 50m,**
- **Construction lift height for ex-pit dumps = 10m,**
- **Final ex-pit dump overall face slope = ~20°;**
- **Ramp width = 25.0m and**
- **Ramp grade = 1 in 10.**

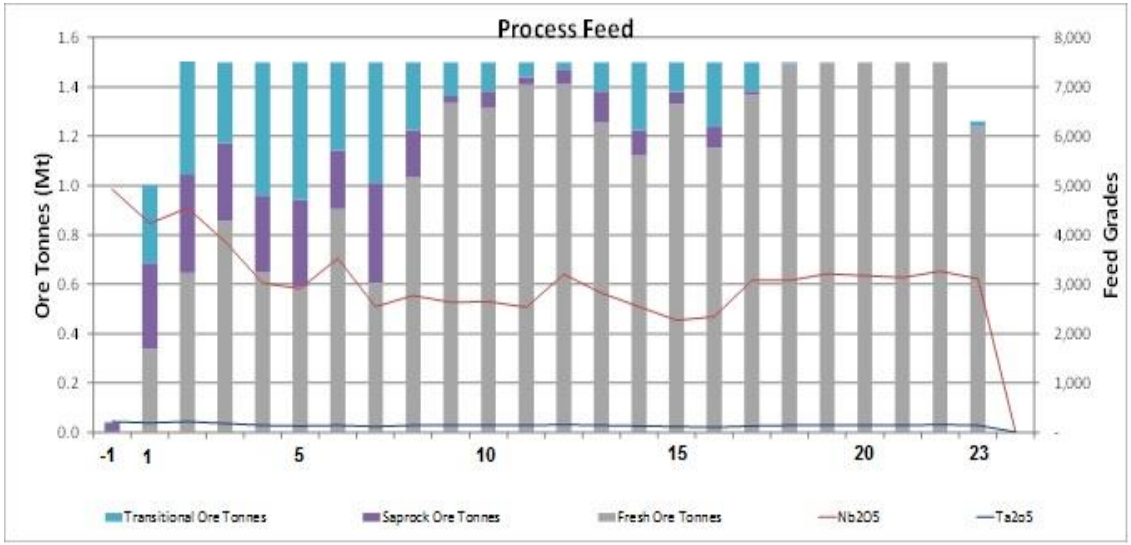
Approximately 20.7 million bcm of mine waste rock will be generated over the LOM. Based on a swell factor of 30%, after dump compaction, a WRD volume of approximately 27 million m^3 will be required to store the mine waste rock. Some mine waste rock will be used in the construction of the ROM pad, pit abandonment and acoustic bund and stockpiles platform. No waste backfilling into the pit has been considered at this stage due to any future potential expansion of the mine.

Criteria	JORC Code explanation	Commentary
		Mine layout **The mine site (only) layout if represented below.** 

Criteria	JORC Code explanation	Commentary
		Pit Sequencing **The mine design based on the eight stages of pit sequencing represented below:**  **Mining Rates and Material types**

Criteria	JORC Code explanation	Commentary
		Mining rates and material types and process feed rates and material types are represented below (x-axis annotation is conceptual):





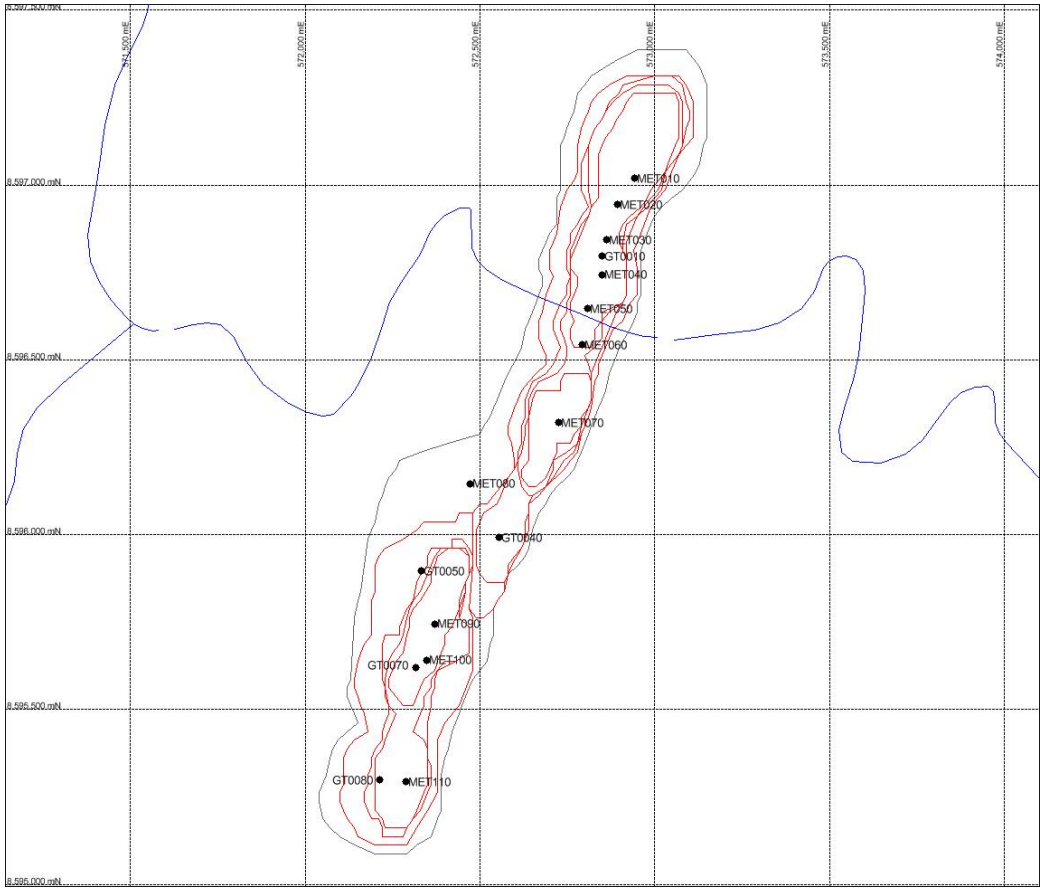
Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	• **The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.** • **Whether the metallurgical process is well-tested technology or novel in nature.** • **The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.** • **Any assumptions or allowances made for deleterious elements.** • **The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.** • **For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?**	**Initial variability test work was undertaken on drill core materials to enable an operating envelope to be quantified for the concentrator plant. This work has been undertaken in discrete modules, consisting of materials handling, comminution, desliming, magnetic separation, flotation and solid-liquid separation, which make up the elements of the Company's selected flowsheet for Kanyika.** **11 HQ diamond holes were drilled to access mineralisation that could be used for metallurgical and comminution testwork purposes. In addition, core from geotechnical holes could also be accessed to provide greater geometrical spread of the resource styles.** **The initial metallurgical drilling program penetrated to approximately 45 m depth from surface and were considered sufficient to describe the first 10 years of operation. Geotechnical holes drilled to penetrate deeper zones were utilised for metallurgical testwork on deeper mineralisation.** **Selected metallurgical holes were twinned or "tailed" to enable access to core down to the base of a notional 10-year pit shell. This was to allow potential differences in metallurgical and comminution behaviour between shallower fresh mineralisation and deeper zones to be understood. Follows are the locations of drill holes used for metallurgical testwork.**

Metallurgical Diamond Drill Hole Details

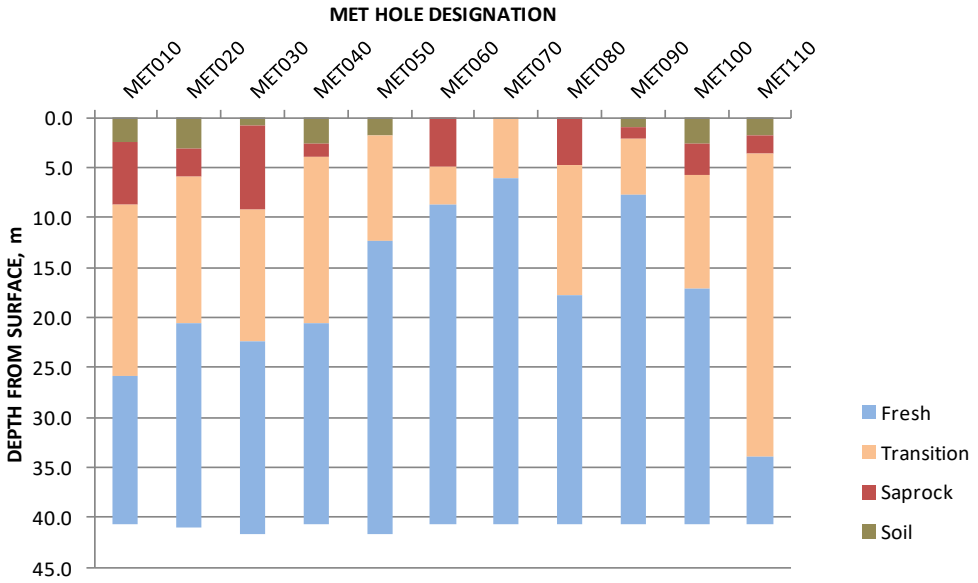
DD Hole	Hole	Ore	Location		Depth (m)	Objective	
Designation	Number	Location	Northing	Easting		Primary	Secondary
MET010	KADD033	Milenje	8596950	572890	86	Met	
MET020	KADD034	Milenje	8596850	572860	84	Met	
MET030	KADD035	Milenje	8596750	572845	42	Met	
MET040	KADD036	Milenje	8596650	572805	41	Met	
MET050	KADD037	Milenje	8596550	572790	65	Met	
MET060	KADD038	Milenje	8596300	572653	41	Met	
MET070	KADD040	Milenje South	8596150	572470	76	Met	
MET080	KADD041	Uzambazi	8595750	572370	41	Met	Resource
MET090	KADD042	Entandweni	8595650	572345	101	Met	
MET100	KADD043	Entandweni	8595300	572285	153	Met	
MET110	KADD044	Uzambazi	8595600	572304	41	Met	Resource
GT0010	KADD052	Milenje	8596800	572845	130	Geotech	Met
GT0040	KADD046	Chikoka	8596300	572653	111	Geotech	Met
GT0050	KADD049	Uzambazi	8595306	572210	150	Geotech	Met
GT0070 – initial	KADD045	Uzambazi	8595306	572210	42	Geotech	Met
GT0070 - twinned	KADD051	Uzambazi	8595600	572304	150	Geotech	Met
GT0080	KADD050	Uzambazi	8595306	572210	118	Geotech	Met

Criteria	JORC Code explanation	Commentary

Spatial Distribution of Metallurgical drill core test work follows in relation to a conceptual pit outline;



Criteria	JORC Code explanation	Commentary
		Material Type profiles for metallurgical test work drill holes follows;



Comminution

The following comminution parameters were quantified for comminution samples, which in turn dictated sample masses required for testing:

- **Grindability parameters – Bond rod mill work index, ball mill work index and abrasion index**
- **SAG milling amenability – SMC drop weight test**
- **Rock strength – unconfined compressive strength (UCS)**
- **True SG.**

For the purposes of providing comparative hardness depth, Fresh ore has been arbitrarily sub-classified as follows:

- **"Fresh Upper"** **From the upper boundary with Transition material to the base of the initial drill holes at around 40 m**
- **"Fresh Lower"** **Reflects hardness within the range 45 to 95 m, only limited sampling undertaken**
- **"Fresh Deeps"** **Reflects hardness at depths down to 118 m, only limited sampling undertaken.**

Criteria	JORC Code explanation	Commentary

Flotation

The philosophy adopted for sample compositing was similar to the comminution test work in that a measure of variability with oxidation type, with depth and down the length of the orebody, was the objective.

A total of 34 samples were selected from various sections of remaining drill cores (after comminution sample removal) to assess the impact of material variability on flotation. These selections generally corresponded with the fractions of drill cores selected to assess impact of material variability on comminution processes.

Sample Intervals Selected for Variability Flotation Testing

Ore Location	Hole Number	Hole Designation	Saprock (m)	Transition (m)	Fresh Upper (m)	Fresh Lower (m)	Deep (m)
Milenje	KADD033	MET010	2.46 - 11	11 - 30	30 - 40	45 - 75	
	KADD034	MET020	3.08 - 7.4	10 - 25	25 - 41.7		
	KADD035	MET030		10 - 28	28 - 42		
	KADD036	MET040	2.57 - 20	20 - 30	30 - 41		
	KADD037	MET050	2 - 10	10 - 21	21 - 42	45 - 65	
	KADD038	MET060		2 - 14	14 - 41		
Milenje South	KADD040	MET070	2 - 9	9 - 14	14 - 41		
Uzambazi	KADD041	MET080	2 - 4	4 - 8	18 - 41		
	KADD042	MET090		2 - 23	23 - 41	45 - 100	
	KADD043	MET100		6 - 18	19 - 41		100 - 152
	KADD044	MET110		4 - 27	27 - 41		
Chikoka	KADD046	GTO040		4 - 24			
Uzambazi	KADD050	GTO080					100 - 118

Of the metallurgical samples, the material was tested for quantitative mineralogy, locking and liberation characteristics, particle size distribution, moisture content, shear tests, compressibility, wall friction tests, angle of repose tests, dust extinction moisture, wind tunnel testing, rod mill work indices, ball mill work indices, bond abrasion indices, unconfined compressive strength tests, specific gravity tests, mineral rock competency drop weight index, attritioning batch variability tests, locked cycle tests, thickening, screening.

The flowsheet developed consists of appropriately sized crushing, SAG milling, Ball milling, screening and pre-flotation conditioning, rougher, cleaner and scavenger flotation.

The following outcomes for the flotation of a concentrate are reported from bench scale test work.

Kanyika grade-recovery results in bench-scale optimisation work.

Sample	Nb_2O_5 Recovery (%)	Concentrate Grade (% Nb_2O_5)
Millenje (T1)	77.3	32
Millenje (T2)	78.2	37
Millenje (T3)	80.6	36
Millenje (T4)	75.1	37
Uzambazi (T1)	78.1	27
Uzambazi (T2)	81.3	24
Uzambazi (T3)	35.3	27
Saprock (T1)	68	12
Saprock (T2)	67.7	15
Transition (T1)	81.6	30
Transition (T2)	78.8	35
Weighted Average (Sap-Trans-Deep)	75.8	28.5

Bulk Sample Pilot Plant

Bulk samples totalling 40 tonne was taken from four locations (refer Table 1) with locations, dimensions and assays reported below. The multi-element analysis for aggregated samples are tabled below.

Assays in %	Nb_2O_5	Ta_2O_5	ZrO_2	SiO_2	Fe_2O_3	Al_2O_3	P_2O_5	U_3O_8
Composite	0.42	0.027	0.39	52.42	1.19	21.30	0.081	0.0073
Surface	0.9	0.042	0.73	53.86	3.36	19.27	0.21	_
Deep	0.25	0.021	0.273	53.40	0.86	21.19	0.023	_

Criteria	JORC Code explanation	Commentary

The following outcomes for the flotation of a concentrate are reported from pilot plant program

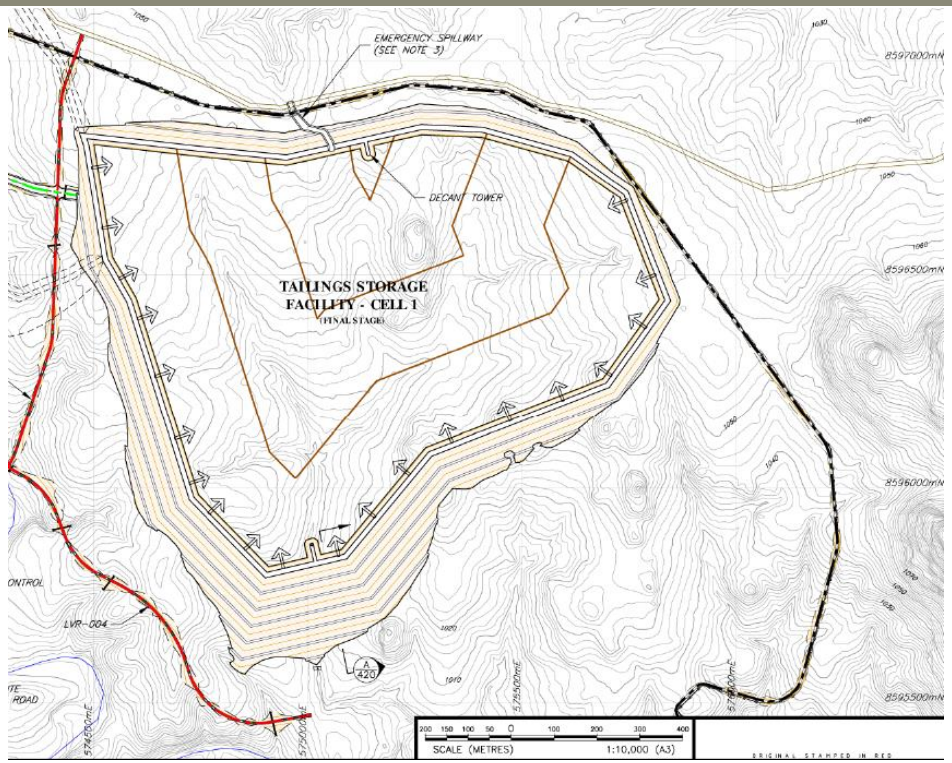
Summary of grade-recovery results from Kanyika pilot plant testing.

Sample	Grade (% Nb_2O_5)	Recovery (%)
Blended (2.8 deep:1 surface)	26	75.1
Surface	25	80.3
Deep	22.1	76.4

Additional test work is currently work in progress to assess the improvement in recovery and reduction in chemical product consumption to define an operational model and agents used for pyrochlore recovery.

Waste Characterisation and Tailings

Knight Piesold were engaged to assess tailings dam disposal. Geotechnical test work of Kanyika concentrator waste materials provided settling densities of 1.15 to 1.20 t/m³ in undrained (sub-aqueous) conditions and 1.15 to 1.40 t/m³ for drained and air dried (sub-aerial) conditions. For design purposes a settled density of 1.2t/m³ is used over the life of the project. Tailings settle rapidly typically within 1 hour of deposition with permeabilities of about $1x10^{-6}$ m/s giving rise to rapid release of underdrainage and supernatant. The tailings are non-acid forming with a negative Net Acid Producing Potential (NAPP) and Net Acid Generation (NAG) pH greater than 4.5 (and therefore no specific controls are needed for acid mine drainage). A low permeability soil liner has been designed to prevent ground water ingress of tailings supernatant product. The LOM TSF design will occupy an area of 210 hectares with staged construction with a double cell paddock geometry. Tailings will be deposited upslope off the embankment wall and supernatant water decanted from nested decant towers.

Criteria	JORC Code explanation	Commentary
		
Environmental	• **The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.**	**The Company has completed a baseline environmental impact study;** • **Project Environmental Impact Assessments (EIA) have been undertaken in accordance with Part V of the Malawian Environment Management Act (No. 23 of 1996), the EIA Guidelines (EAD, 1997) and the EIA Guidelines for Mining Projects (EAD, 2002).** • **Separate EIAs were prepared for the project access road and the (mine) project area.** • **A road access report was compiled, and the Terms of Reference for the EIA were submitted to the EAD in accordance with Section 24(2) of the Act. Comments were received from the EAD with the Final EIA Report was submitted to the EAD for consideration. An EIA Certificate No. 41.7.4 was approved by the Minister responsible for Environmental Affairs.** • **A Project Brief Report was compiled, and the Terms of Reference for the EIA were submitted to the EAD in accordance with Section 24(2) of the Act and accepted. The Final ESIA Report and Environmental Management Plan were submitted to the EAD for consideration and approved. EIA Certificate No. 41.7.4 was approved by the Minister responsible for Environmental Affairs.**

Criteria	JORC Code explanation	Commentary
		The documents committed the Company to the following exercises during implementation and operation (subject to the Development Agreement being signed): • **Baseline monitoring of radiation, dust, noise, ground and surface water,** • **Specialist baseline and impact assessment studies,** • **Community consultation and feedback,** • **National, regional and local authority consultation,** • **Input into site layout and location,** • **Collation of public issues and concerns,** • **Compilation of a Resettlement Policy Framework followed by a Community Relocation Plan,** • **Identification of mitigation,** • **Compilation of an environmental management plan for planning; construction, operational and decommissioning phases, and** • **A mine closure concept plan drafted and designed.** **Mining activities in Malawi are subject to the following Acts (current at the time of this report) that impact on the development and environmental compliance of the project:** • **Mines and Minerals Act 2018;** • **The Explosives Act (CAP 14:09);** • **Mines and Minerals (Uranium Mining and Milling) Regulations 2010** • **The Minerals Regulations, 1981;** • **Environmental Impact Assessment Guidelines for Mining Projects (2002); and** • **Occupational Safety, Health and Welfare Act (1997).** **All minerals are vested in the President on behalf of the people of Malawi. The Mines and Minerals Act along with the Minerals Regulations stipulate that all potential environmental impacts must be included in the applications for exploration and mining and that the mining proposal should include suggestions for addressing environmental problems, prevention of pollution from mining and mining treatment, and land rehabilitation. The Act states that an EIA must be submitted with each application for prescribed projects and refers to environmental requirements, stating that:** • **A mining licence application must include proposals for the prevention of pollution;** • **In deciding whether or not to grant a mineral right, the Minister will consider the need to conserve natural resources on the land in question, or neighbouring land; and** • **The Minister may require environmental impact studies to be carried out and a mineral right may include conditions related to prevention, limitation or treatment of pollution and the minimisation of the effects of mining on adjoining or neighbouring areas and their inhabitants, as well as rehabilitation post mining.**

Criteria	JORC Code explanation	Commentary
		The Explosives Act (CAP 14.09) governs all aspects of the storage, handling, mixing, preparation and use of explosives for blasting. All persons storing, preparing and using explosives must have a licence in terms of Section 6 (1) of this Act. **The Kanyika Project will require exclusive use of land and plans to resettle resident people in the area before fencing the area with a security fence for the duration of the project. As such the Company will comply with the provisions of relevant Acts to negotiate with stakeholders to secure access to the land. The process of land acquisition is compliant with the legislative requirements. The Kanyika Project area is currently classified as customary land.** **The Company has prepared a relocation plan to facilitate the re-settlement process. This process requires the Company to compensate the Government (that then is provided to the people) for land and the people displaced.** **Communities surrounding the project rely on rivers and community boreholes as the only water sources in the area. Although geochemical analyses of mine waste have indicated a limited potential for metal contamination from sources at the mine, the precautionary principle is applied where run-off from these areas is contained and prevented from entering the environment. This is also important in the containment of sediment loads that are detrimental to aquatic life as well as introducing a source of radioactivity into the environment. The monitoring of the impact of dewatering on the availability within community boreholes is also required and actions will need to be implemented to ensure that no member of the community is left without water.** **The Water Resources Act (Cap 72:03) makes provision for the control, conservation, apportionment and use of the water resources of Malawi and for purposes incidental thereto and connected therewith. The control of all public water is vested in the Minister, where control will be exercised in accordance with provisions of the Act. The following aspects are applicable to the Kanyika Project:** • **Ownership of all public water (groundwater and water found flowing on surface, in rivers, streams, lakes, springs, pans, swamps on private or public land) is vested in the President.** • **Public water may not be dammed, stored, abstracted, diverted or used without a valid water right, applied for and granted under the Act.** • **Application for the grant of a water right must be made to the Water Resources Board.** • **Provision is made for "interested persons" to object or provide comment on the granting or application of a water right.** • **A water right may be varied, suspended or revoked by the Minister.** • **Altering the flow of, and pollution of any public water resource constitutes an offence, unless authorised under the Act.**

Criteria	JORC Code explanation	Commentary
		As part of the infrastructure development for the project, the following changes and activities will be carried out to modify existing water resources. Mitigating activities are summarised below. • **Construction of a water storage facility to the west of the project – which will interrupt the flow of the Milenje River from the confluence of the Chimwa and Milenje Rivers to the junction with the Mthabua. Most of the affected area is within the resettlement zone but there are a small number of affected people between the fence and Mthabua. Globe will undertake the following mitigating strategies:** - **Maintenance of the water storage facility as a community resource including provision of irrigation facilities, fish stocking of the reservoir.** - **Reticulated potable water supply to downstream areas which are impacted by the project.** - **Reticulated potable water supply to community boreholes affected by dewatering operations within the pit.** • **Construction of the Milenje river diversion around the northern extension of the pit. This will have minimal impact on the amenity of the area but will be constructed to provide an on-going resource at the conclusion of the project.** • **Dewatering activities within the pit will create localised depletion of the aquifer and reduce flow to two community bores – a new reticulated system will be installed to maintain water supply to the users.** **The Company's Community Social Responsibility (CSR) programs will focus on projects with community benefit. Upon completion of the Development Agreement, the Company will commence implementation of a Social Management Plan and Local Business Development Plan to build on the existing Social Impact Assessment which will address the mitigation of issues identified, as well as document our intent to execute other beneficial social investments.** **Other (selective) Malawian Acts relevant to the project are:** • **Employment Act (2010)** • **Labour Relations Act** • **Workers Compensation Act**
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.**	• **The project has been designed on land available for development and suitable for plant and equipment.** • **The project is currently accessible via a gravel road that will require upgrading to a standard for use by heavy vehicles on a regular basis. This has been planned, designed and costed.** • **A 66kv power line has been installed by the power regulator from the M1 highway from Chataloma to Simlemba (and further) and a connection is possible within 5 kilometres of the project plant location. The Company has engaged with ESCOM, the local power supplier in Malawi, to provide enough power to operate the site plant. Discussions are progressing on the potential installation of a connecting powerline from the 132kV powerline near Nhotakotato to the mine site that could or would service other communities and industries. They have indicated support for the project and its importance as part of the power distribution development plan for Malawi. On confirmation of power being available, the Company will proceed with a plan for the installation of power to site. A study for the generation of power using diesel or heavy fuel oil on site, using leased equipment, has been undertaken as a back-up facility if ESCOM is unavailable to supply**

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>power. A study for the generation on site of regenerative power is under assessment. An alternative study is underway for the assessment of the supply of solar power from a solar farm near the mine licence area.
• A comprehensive study on water has been undertaken. Groundwater is limited, and the Company will install a water dam to the west (upstream) of the project to store and supply water for the process plant. A river division is designed and costed. In addition, the Company is assessing the installation of a dam to the east of the project (downstream) for additional storage capacity, as a risk mitigation in the event of uncontained spillage from the plant operations and waste storage facilities (upstream) and also as an option to produce regenerative power.
• A transportation logistics study has been completed including the upgrade of local roads, the importation of relevant chemicals and products. Except for one specialised reagent, all other projects input supplies can be sourced from within Africa. All saleable products will be exported from Malawi due to the lack of local industry and consumption: total saleable production totals less than 15,000 tonne per annum and can be shipped in sea containers by road, rail and ship.
• There is a shortage of relevant professional and relevant skilled labour for mining and processing in Malawi. Much, but not all, of the initial professional and mining specific skilled labour force will need to be sourced from other parts of Africa. The Company has committed to a program to train and skill key management, professional and skilled labour over time from Malawian Nationals. Semi-skilled and unskilled labour can be sourced from within the project areas and Malawi in general.
• Local labour can be sourced from communities and towns within the vicinity of the project
• Administration and relevant accommodation facilities will be constructed on site and is included in the engineering designs</td></tr>
<tr><td>Costs</td><td>• 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 source of exchange rates used in the study.
• 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.</td><td>• Wood plc (AMEC) Engineering undertook a Request for Quotation (RFQ) exercise finishing end 2018 for all capital and operating costs, based on an updated design for a comminution throughput parameter of 1.5mtpa.
• Orelogy undertook a request for quotation (RFQ) exercise for mining capital and operating costs based on a 2018 revised mine design.
• There are no deleterious elements detected in the mineralogy of the feed or the concentrate produced relative to niobium and tantalum final product specifications.
• Exchange rates are referenced with the Reserve Bank of Australia for major currencies using the average for 2017 and full year 2018, compared with the median in spread in interbank exchanges the Company uses for minor currencies or Westpac Bank market outlook reference materials as well as internet sites for foreign exchange rates. Australia dollars (A$), United States Dollars (USD), South Africa Rand (ZAR), Malawi Kwacha (MWK), China Yuan (CNY) and Euro (EUR) at the following rates (at June 2020);
<table>
<tr><th>Currency</th><th>Exchange</th><th>Reverse</th></tr>
<tr><td>USD:AUD</td><td>1.36</td><td>0.735</td></tr>
<tr><td>USD:EUR</td><td>0.86</td><td>1.157</td></tr>
<tr><td>USD:ZAR</td><td>13.8</td><td>0.073</td></tr>
<tr><td>USD:MWK</td><td>770</td><td>0.0013</td></tr>
<tr><td>USD:CNY</td><td>6.9</td><td>0.159</td></tr>
</table></td></tr>
</table>

Criteria	JORC Code explanation	Commentary

- **Transportation charges have been used based upon quotation estimates or charges that can be sourced from emblematic pricing**
- **A sales and marketing commissions of 0.5% of final product value has been attributed to the cost of sales base upon general guidance by the Reserve Bank of Malawi (confirmed by letter) as being acceptable commissions.**
- **The Company has a Development Agreement with the Government of Malawi that outlines royalties that have been incorporated into the financial model. These are 5% for the government and 0.45% for the local community as per government regulations. Costs of other Development Agreement initiatives (social, local or national business) are incorporated into the financial model for the project.**
- **Capital Costs (rounded) for development are tabled below with an anticipated schedule of works over a construction period of 24 months. Sustaining capital consists of US$2.8m per annum for plant and US$1.1m per annum (total US$24.2m) for tailings storage facility development, and an additional US$6.13m (total) in mine capital for stockpiling ore and waste dump rehabilitation, plus contingency, has been incorporated into the financial model (totals US$100 over the life of the operation).**

US$ million	Year -2	Year -1	Total
Mining and pre-development		10	10
Plant	55	100	155
Owners cost	3	3	6
EPCM*	7	7	14
Contingency	7	7	14
Refinery (EPCM + Owners + Contingency)	10	40	50
Total	81	172	250

Criteria	JORC Code explanation	Commentary

Operating costs for operations are tabled below. Commissioning is incorporated into year -1 of the schedule. In Year 1 of operation a rate of 1 mpta rates and then 1.5mtpa rates from year 2.

	LOM unit rate US$/T of ore	Year 1 US$M	Year 2 US$M	LOM AVG US$M	LOM Total US$M
Site Administration	3.75	4.9	4.9	4.9	118*
Mining	9.5	11.8	12.5	13.9	320**
Concentrator	15.1	15.3	20.9	22.5	516
Environmental**	1.5	1.5	1.5	1.5	48
Export*	7.9	8.4	14.4	9.4	215
Contingency					
Closure cost****					13.8
Total	37.75	41.9	54.2	52.2	715
Nb_2O_5 tonne		3,156	5,336	3,185	73,250
Ta_2O_5 tonne		133	230	140	3,240

*Includes termination costs at mine closure **Includes waste dump rehabilitation. ***covers annual monitoring plus environmental bond top up as per development agreement. ****incremental funds for rehabilitation after bond release

Selective units relevant to performance, cost and financial outcome calculations;

	Year 1	Yr 2 to 11	Yr 12 to 23	LOM (T)
Mining	3mtpa	3mpta	4.3mtpa	85.7mT
Mining waste ore ratio	0.56	0.93	2.73	1.54
Ore treated	1.0mt	1.5mtpa	1.5mtpa	33.8mT
Recovery niobium	74.5%	77.4%	76.6%	76.8%
Recovery tantalum	68.9%	71.3%	70.3%	70.7%
Concentrate produced tonne	10,400	118,400	131,000	260,000
Niobium produced	3,156	36,000	37,975	75,275
Tantalum produced	133	1,575	1,660	3,375

Criteria	JORC Code explanation	Commentary
		The outcomes above include some rounding of numbers and accounts for different recoveries associated with different ore types (oxide, transitional, fresh) **Qualification: Costs are strictly out of date since the previous costing exercise and require updating. In Africa the Company's position is that costs have not changed materially, and exchange rates have not made a material change to costs that are dominantly in USD.**
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.**	• **Mine planning has created a mining block model which incorporates dilution and recovery factors (as detailed above). The mine plan has brought forward high grade and deferred waste to produce the best cash flow outcome for the operation.** • **All niobium and tantalum products are assumed to be recovered at the recovery rates determined in test work and pilot plant programs and have been tested for variability factors. Product is to be packed and shipped from site in bulk bags** • **Product will be sold from the mine site as a concentrate. Transfer pricing: Concentrate pricing accounts for contained niobium pentoxide prices, assumed to be US$20/lb for 50% grade product and for tantalum pentoxide prices are assumed to be US$100/lb for 5% grade product.** • **Finished product costs are assumed to be US$55/Kg for niobium pentoxide and US$410/Kg tantalum products including tantalum K-salts. These are work in progress and require validating during marketing and sales negotiations.** • **All financials for capital costs, operating costs, and revenue from sales are in United States Dollars (annotated as USD or US$)** • **Costs of sales include transportation by sea container of all bulk packaged product to major port in China** • **Costs for sales and marketing, including transportation and a sales and marketing agent are included in the costs of sales** • **Corporate overheads are included in the cost model**
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.** • **For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.**	**Niobium and Tantalum are boutique specialty metal markets with limited transparency on pricing. The following provides an overview of the niobium and tantalum market.** **Niobium** **The steel industry is by far the largest consumer of niobium (as ferro-niobium), which is also known as standard-grade niobium. It is mainly used in advanced high strength microalloy, stainless and heat-resisting steels. These have a variety of applications such as gas pipelines, automotive components and construction. Ferro-niobium is added in the steel making process to improve mechanical and high temperature strength and toughness, as well as to enhance resistance to corrosion. Smaller but higher value uses include medical applications such as magnetic resonance imaging machines, which benefit from the superconductive properties of niobium, and the aerospace industry, which utilizes niobium-based superalloys. Niobium is now being used in rechargeable batteries to enhance recharge rates and is anticipated to be a significant consumption market from 2020.** **A major participant in the niobium market is Companhia Brasileira de Metalurgia e Mineração, a privately held Brazilian company that is a leading niobium producer and the sole company present in all niobium market**

Criteria	JORC Code explanation	Commentary
		segments (including the ferro-niobium, superalloy and superconductive segments). Other major competitors in the niobium market include Magres Niobec Mine and China Molydenum Catalao mine. **Niobium is listed as a strategic mineral by the EU and USA and the Boston's Massachusetts Institute of Technology (MIT) list it as one of the top ten minerals impacted by new technology. It is a strong metal, highly resistant to heat and wear. Due to its relevance in aerospace and defence, Niobium has few or no substitutes for the metal's essential use and is regarded as one of the most highly critical. Supplies are considered potentially at risk because only a few sources throughout the world produce the metal. Almost 90% of the world supply comes from Brazil and nearly all of that comes from only one mine (Araxa).** **Refractory metal alloys based on niobium find applications in the aerospace industries because of their high melting points and high temperature strengths. They are generally produced by powder metallurgy techniques due to their very high melting points. Niobium is the lightest refractory metal with a density close to nickel and exhibits good thermal conductivity. Niobium can be alloyed to improve high temperature strength and oxidation resistance.** **A new emerging market for niobium exists with the development of the Toshiba SCiB™ rechargeable battery that uses niobium and titanium (anode) as an ultra-rapid rechargeable lithium ion battery that provides high power density, long life, low fire risk. Toshiba claim this to be a "game changing" development and the use is proposed for applications that need high energy and rapid recharge like automobiles, buses, railroad cars, elevators and power plants, (refer Toshiba press release 3 October 2017: at** https://www.toshiba.co.jp/about/press/2017_10/pr0301.htm). **Tantalum** **The electronics industry is by far the largest tantalum consumer, using tantalum powder and wire in the manufacture of capacitors, which are used to store electrical energy in electric circuits. Technology has facilitated a shift toward the miniaturization of electronic equipment, which has driven the demand for tantalum-based capacitors in space-sensitive and high-end applications, including smartphones and storage devices. Superalloys are high-performance alloys that exhibit excellent mechanical strength, resistance to thermal creep deformation, strong surface stability and resistance to corrosion or oxidation. These properties make them well-suited for use in aerospace applications.** **The tantalum market is mainly comprised of companies that have a high degree of downstream vertical integration (i.e. processing and fabrication). Some of these competitors do not mine raw materials, and thus source their key inputs as concentrates. Major participants in the tantalum market include Global Advanced Minerals Pty Ltd, Advanced Metallurgical Group (Netherlands) CNMC NingXia Orient Group Co Ltd., ULBA Metallurgical Plant JSC, a Kazatomprom company in Kazakhstan, and H.C. Starck of Germany.**

Criteria	JORC Code explanation	Commentary
		One of the main uses of tantalum is in the production of electronic components. An oxide layer which forms on the surface of tantalum can act as an insulating (dielectric) layer. Because tantalum can be used to coat other metals with a very thin layer, a high capacitance can be achieved in a small volume. This makes tantalum capacitors attractive for portable electronics. **Tantalum causes no immune response and has found use in the production of surgical implants. It can replace bone, it can connect nerves as foil or wire, and as woven gauze it binds abdominal muscle. It is very resistant to corrosion and so is used in equipment for handling corrosive materials. It has also used as electrodes for neon lights, AC/DC rectifiers and in glass for special lenses. Tantalum alloys can be extremely strong and have been used for turbine blades, rocket nozzles and nose caps for supersonic aircraft. Tantalum is a speciality metal that is predicted to grow at 3.2% CAGR. Approximately 62% of global supply originates in Africa (DRC, Rwanda, Ethiopia).** **Products** **Tantalum and niobium are significant metals that render unique properties to the end products and have low substitutability. Resources of tantalum and niobium exist in abundance relative to current consumption and therefore, the risk of the geological availability of tantalum and niobium is typically low. The important factors that affect the supply and demand of these two metals can be summarised as:** • **Many geological occurrences of niobium are associated with complex mineralogy resulting in difficult metallurgical recovery processes and expensive capital and or metamictisation (crystalline structural degradation and destruction typically by uranium within the mineral lattice) rendering high grade deposits with poor recovery or unrecoverable. Secondary weathering of these also complicates metallurgical recovery processes. Careful selection on mineralogy is considered an extremely important metallurgical factor.** • **The installed capacity of niobium is not sufficient to meet the projected increases in its demand, and its price is therefore expected to increase at a steady pace.** • **The supply of tantalum is under stress and there is a shortage in supply because of the depletion of the stockpiles, the cessation of operations in Australia and irregular and uncertain artisanal mining in Africa. Tantalum refining bottlenecks are a key impediment to the tantalum supply chain.** • **New lithium mines across the globe, especially Australia, may also have tantalum concentrate by-products. An increase and possible oversupply of tantalum concentrates. It is possible that tantalum prices will come under backwardation pressure in the future but balanced with tempered reality due to unrealistic expectations of tantalum sales from lithium developers. The tantalum industry is refinery constrained and no significant impact to refinery product pricing is seen in the market at this stage.** • **The Commodity Supply Risk Index (Herfindahl-Hirschmann Index) for tantalum and niobium is 8,885 (out of a scale up to 10,000) and implies that tantalum and niobium have a high supply risk due to the political**

Criteria	JORC Code explanation	Commentary
		instability in the producing countries (eg central African tantalum artisanal mines) or for niobium a high centration of production to one country but with low political risk. • **The effectiveness and the performance of the substitute metals are found to be significantly poor and therefore, the lack of suitable substitutes increases the supply risk for tantalum and niobium. In some application niobium can be substituted for tantalum.** • **The supply of tantalum and niobium is largely dependent on the primary sources as the recycling rate of niobium is low at about 10-15% while the recycling rate of tantalum is about 20% (USGS, 2009).** • **The emerging technologies in the electronic industries, especially in transport, will drive additional market demand for both tantalum and niobium. By 2030 emerging technologies should increase the demand for tantalum by a factor of 2.55 and the demand for niobium is expected to increase by a factor of 3.0.** **Substitution** **Substitution of a metal with other metals in any one of its application sectors can have an impact on the supply of the metal. Supply stress in the case of tantalum and niobium can be reduced by substitution in select cases. Aluminium and ceramics are substitutes of tantalum in the ceramic industry. Niobium, platinum and titanium are used as substitutes for tantalum in corrosion-resistant equipment whereas zirconium, hafnium, iridium, molybdenum, rhenium, and tungsten are some substitute metals that can be used in the high temperature applications. Low alloy steels, molybdenum and vanadium are substitutes of niobium; titanium for tantalum in stainless steel; and ceramics, molybdenum, tantalum and tungsten in high-temperature applications. However, in each case the substitute is significantly poorer in quality.** **Recycling** **Recycling is a secondary source of tantalum and niobium. Data for the rate of recycling of niobium are not available but are estimated to be about 10%-15% while the recycling rate of tantalum is about 20% (USGS, 2009). Primary ores remain the largest source of tantalum and niobium supply at 80% and 85%-90%, respectively (USGS, 2009) and therefore recycling as a source of metal for both tantalum and niobium currently may have limited impacts.** **Economic Significance** **The availability of a metal that has high supply risk, and high economic importance is critical. In a study prepared for the European Commission (2017), tantalum and niobium are determined to be critical elements for the EU, and possibly Britain and the USA. The relative usage of niobium in Russia, India and China is significantly below the global average, and while not assessed in the European Commission, logic would determine that significant economic benefits and productivity could be realised by additional supply into these countries.**

Criteria	JORC Code explanation	Commentary
		Impact of Existing Technology **A comparison between notebooks manufactured in 2003 and 2005 showed a changing trend in the use of capacitors away from the use of tantalum MnO_2, tantalum polymer, and aluminium polymer capacitor technologies. The share of aluminium polymer capacitors had reduced from 14% in 2003 to 4% in 2005 while the share of tantalum MnO_2 capacitors in PC notebooks had decreased from about 39% in 2003 to 25% in 2005. The replacement by more efficient tantalum polymer and niobium oxide capacitors increased market share from 47% in 2003 to about 70% in 2005. New materials are always being used to either replace rare materials or substitute for a superior material. The history suggests that there will always be impacts from changes to and replacement of materials in existing technology.** **Impact of Emerging Technology** **The supply of raw materials needs to be capable in meeting demand for emerging technological innovations to have effect. A study commissioned by the German Federal Ministry of Economics and Technology (BMWi) in 2010 on the raw materials including tantalum and niobium were studied in the fields of emerging technologies in micro capacitors, medical technology and ferroalloys.** **The demand from emerging technologies in 2030 is estimated to change by a factor of 3 for niobium (circa 180,000 tonne per annum) and by a factor of approximately 2.55 for tantalum (circa 3000 tonne per annum). The projected increase in demand for tantalum and niobium due to emerging technologies highlights the importance of the need for a secure supply network and that restricts supply will have an impact on technological growth.** **The impact of both existing and emerging technologies on the demand for tantalum and niobium, further stresses the importance of a steady supply that must be able to meet their changing demand levels. Demand level fluctuates with technological innovations and changes, and therefore the availability of the raw materials should also be sufficiently elastic to satisfy the demand at the right time.** **Impact of emerging Market** **Niobium trials as an additive to aluminium has demonstrated a 30% reduction in weight for no loss of strength of aluminium metals. The material has sound castablilty, lower porosity, increased mechanical properties, and better homogeneity. Use of niobium in the aluminium industry could substantially increase demand.** **Supply Analysis** **The supply of niobium is constrained to three operating mines and with growth demands of CAGR of about 8-12%. Tantalum supply is highly diversified and low-cost supply from many alluvial mines in central Africa, however some of these Africa sources are designated as conflict minerals. Kanyika is low grade compared to other deposits but has two product revenue streams of niobium and tantalum, that help its competitiveness as well as higher recovery due to the mineralogical state of pyrochlore. Other niobium deposits are strategically interesting projects as sources of niobium, however some are in difficult legally and/or political situations and others are high capital costs. Tantalum concentrate supplies are likely to increase in volume and put downward pressure on price as new lithium mines look to market low grade tantalum concentrate by-products.**

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Economic</td><td>• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.
• NPV ranges and sensitivity to variations in the significant assumptions and inputs.</td><td>A detailed financial model and cash flow analysis has been prepared to assess the economic viability of the project. The Company believes that it has reasonable grounds for the assumptions contained in the financial model and cash flow analysis, and those assumptions present a balanced view of the potential value of the project. Certain assumptions or projections, particularly those underpinning revenue, are inherently difficult to make due to the complexity in the underlying drivers and the need to provide those projections over a life of mine of 23-year project life.

<u>Study Classification</u>
Under the AUSIMM publication “Cost Estimation Handbook” 2nd edition Monograph 27 published 2010, the project is considered to be classified as an estimation type AACE (“Association for the Advancement of Cost Engineering” practice 18R-97 dated March 2016) CLASS 3 with Front End Loading classification of FEL3 study status, Feasibility Study Phase 3 (definitive), with a cost estimation in the range of ±10% to ±15%. Classes of estimation in accordance with nomenclature to Monograph 27 are;

<table>
<tr><td>A1.1 Mineral Resource classification</td><td>Class 2: 7.8% Measured, 68.8% Indicated, 23.4% Inferred</td></tr>
<tr><td>A1.2 Geotechnical conditions</td><td>Class 2: Defined</td></tr>
<tr><td>A1.3 Hydrological conditions</td><td>Class 2: Defined</td></tr>
<tr><td>A1.4 Site Layout</td><td>Class 2: Detailed complete some optimising possible</td></tr>
<tr><td>A1.5 Mine design criteria</td><td>Class 2: Complete for year one and defined thereafter</td></tr>
<tr><td>A1.6 Waste dump design criteria</td><td>Class 2: Complete for year one and defined thereafter</td></tr>
<tr><td>A1.7 Mine Schedule</td><td>Class 2: Complete for year one and defined thereafter</td></tr>
<tr><td>A1.8 Mine Equipment</td><td>Class 2: Complete</td></tr>
<tr><td>A1.9 Mine Services</td><td>Class 2: - Complete</td></tr>
<tr><td>A1.10 Mine environmental compliance</td><td>Class 2: Complete</td></tr>
<tr><td>A1.11 Ore Reserve Classification</td><td>Class 2: Proved 15.1% and Probable 84.9% of total Reserves</td></tr>
<tr><td>A2.1 Equipment Quotes</td><td>Class 3: Multiple budgetary quotes – out of time</td></tr>
<tr><td>A2.2 Civil/Structural</td><td>Class 3: Calculated or detailed - Multiple quotes for supply costs – out of time</td></tr>
</table>
</td></tr>
</table>

Criteria	JORC Code explanation	Commentary	
		A2.3 Mechanical Piping	Class 3: Calculated or detailed - Multiple quotes for supply costs, benchmarked hours to install – out of time
		A2.4 Electrical/Instruments	Class 3: Calculated or detailed - Multiple quotes for supply costs, benchmarked hours to install
		A2.5 Information systems/control systems	Class 3: mix of calculated and multiple quotes
		A2.6 Labour Rates	Class 3: Budget prices and benchmarked
		A2.7 Labour productivity	Class 3: Calculated
		A2.8 Construction Equipment	Class 3: Calculated
		A3.1 Temporary Facilities	Class 3: Calculated
		A3.2 Construction Support	Class 3: Calculated for each component at Level 3
		A3.3 EPCM Services	Class 3: Calculated and benchmarked with details of persons and functions
		A4.1 Contingency	Class 3: Calculated as 10% of total costs
		A4.2 Commissioning	Class 3: Calculated
		A4.3 Preproduction	Class 3: Calculated
		A4.4 Corporate Costs	Class 3: Calculated
		A4.5 Provisions	Class 3: Calculated
		A4.6 Foreign Exchange	Class 3: Calculated by equipment and imported goods by origin
		B1.1 Baseline environmental reports:	Class 2: Complete
		B1.2 Environmental community reports	Class 3: Defined with constraints and issues identified
		B1.3 Project Scope Description	Class 3: Defined and subject to change
		B1.4 Integrated project execution plan	Class 3: Defined
		B1.5 Contracting Strategy – Implementation	Class 3: Defined and generally optimised

Criteria	JORC Code explanation	Commentary	
		B1.6 Project Master Schedule - implementation	Class 3: Defined and resourced
		B1.7 Project Master Schedule – commissioning and ramp-up	Class 3: Defined to level 4 and the critical path fully detailed
		B1.8 Work Breakdown structure	Class 3: Defined to level 4 list of deliverables
		B1.9 Project code of accounts	Class 3: Defined not to a cost report to level 4
		B1.10 Escalation strategy	Class 3: Defined and detailed to source currency
		B1.11 Foreign exchange strategy	Class 3: Defined multiple currency quotes
		B1.12 Contingency methodology	Class 3: Detailed calculation and risk analysis.
		B1.13 Accuracy	Class 3: Detailed analysis by benchmarking with prior practices
		B1.14 Basis of estimation methodology statement	Class 3: Complete
		B2.1 Block flow diagrams	Class 3: Complete subject to change
		B2.2 Process flow diagrams	Class 3: Complete subject to change
		B2.3 Piping and instrumentation diagrams	Class 3: Complete
		B2.4 Heat and material balances	Class 3: Complete
		B2.5 Design criteria	Class 3: Complete subject to change
		B2.6 Overall site plan	Class 3: Complete
		B2.7 Plot plans	Class 3: Complete
		B2.8 Process/mechanical equipment list	Class 3: 80% Complete Class 4: 20% in progress
		B2.9 Electrical equipment list	Class 3: Complete
		B2.10 Specification and datasheets	Class 3: Complete subject to change
		B2.11 General arrangement drawings by facility or area	Class 3: Complete

Criteria	JORC Code explanation	Commentary	
		B2.12 Mechanical/piping discipline drawings	Class 3: Complete
		B2.13 Civil/structural discipline drawings	Class 3: Complete
		B2.14 Electrical single line diagrams	Class 3: Complete
		B2.15 Electrical discipling drawings	Class 3: Started to optimise
		B2.16 Instrumentation and control discipline drawings	Class 3: Started to optimise
		B2.17 Process/system capacity simulations	Class 3: Complete
		B2.18 Communications and data capture systems	Class 3: Complete
		B2.19 Spare parts listing	Class 3: Complete subject to change
		B2.20 Environmental management	Class 3: Defined
		B2.21 Cash flow	Class 3: Detailed subject to change
		B2.22 Information systems	Class 3: Preliminary
		B2.23 Information systems plan as per PEP	Class 3: Preliminary
		B3.1 Project execution phase and procedures	Class 4: In progress
		B3.2 Operational readiness plan	Class 4: In progress
		B3.3 Permits and approvals	Class 3: approval document received and under negotiation
		B3.4 Baseline environmental conditions	Class 2: Complete
		B3.5 Health safety environmental and community standards and policies	Class 3: Declared Policy to suite
		B3.6 Communications and stakeholder liaison	Class 3: Active and in progress
		B3.7 Human resources strategy	Class 3: Defined
		B3.8 Financing plan and strategy	Class 3: Defined for implementation action
		B3.9 Marketing plan and strategy	Class 3: Defined for implementation action

Criteria	JORC Code explanation	Commentary	
		B3.10 Purchasing plan and strategy	**Class 3: Defined for implementation action**
		B3.11 Economic modelling	**Class 3: Defined – cash flow model with all cash flows (including finance and taxation), plus multiple scenario analysis and simulations**
		Closure Plan	**Desktop Evaluation: ±35% to ±100% and contingency of ±30% to ±75%**

SUMMARY

TERMINOLOGY USED TO DEFINE STUDY	FEASIBILITY STUDY – PHASE 3
Front End Engineering Loading Definition	**FEL3**
Study nomenclature (title)	**Feasibility Study – Phase 3**
AACE estimation type	**80% Class 3** **20% Class 4**
Capital cost accuracy	**80%: ±10% to ±15%** **20%: ±20% to ±25%**
Contingency range	**80% Drawing detail: ±10% to ±15%** **20% Class 4: ±20% to ±25%**
Level of definition	**±10% to ±15% drawing detail**
Quotation – supporting the estimates	**Multiple budgetary equipment quotes. Multiple material supply and construction quotes and rates checked with databases of engineering firms.**
Additional Comments	**Needs completed engineering and product sales agreements to proceed to FEL4 and Class 2 Bankable Feasibility Study for finance**

Criteria	JORC Code explanation	Commentary

Key inputs and assumptions to calculate a project valuation are outlined in this table.

- **Capital and operational costs estimations for plant property and equipment by Wood Plc**
- **Capital and operational costs estimations by Orelogy Mining Consultants for mining**
- **Price assumptions for product sales undertaken by Globe using independent pricing sources**
- **Corporate costs and general sales and administration costs estimated by Globe**
- **The cost of capital used in modelling is 8% and 10% and valuation on a pre-tax and post-tax assessment.**
- **Revenue of mineral concentrate from Malawi to the refinery is based on recovery and production factors associated with pyrochlore. Revenue from refinery sales is based on niobium pentoxide sales and a mix of tantalum pentoxide and tantalum k-salts.**
- **Minor revenue from uranium and zircon product.**
- **Mine Capital costs of plant property and equipment includes first fill, EPCM costs, and Owners' Costs.**
- **Rehabilitation costs estimated at US$30M at the end of the mine life and costed into the economic model (not escalated) – US$5M rehabilitation bond on construction completion.**
- **Operating, management, marketing and other costs input at unit rates as detailed in this report.**
- **Mine life of 23 years.**

The key outcomes of the financial model (number rounded) over a life of operations of 23 years are;

	US$ millions
Total Revenue	**5,620**
Operation Costs *	**1,550**
Gross Profit	**4,070**
Other	**(140)**
EBITDA	**3,930**

***excludes rehabilitation but includes bond contributions.**

VALMIN CODE 2015 Valuation Procedure

Effective 1 July 2016, it is a condition in the valuation of mineral assets or project valuations that the VALMIN Code (2015) (publication dated 30 January 2016) is used (effective 1 July 2016) for public reporting of technical assessments and valuations of mineral assets (prepared by the VALMIN Committee a joint committee for the AUSIMM and AIG). Under the VALMIN Code (2015), this report recognises consistency with Section 1 Introduction, Section 2 VALMIN Practitioners and complies with the following: Section 3 Code Principles of Competence, Materiality and Transparency and Section 4 of Reasonableness and Independence, Section 7 Technical Assessment, Section 8 Valuation, Section 9 Financial Modelling, Section 10 Risk and Opportunities, Section 11 Other, and Section 12 Declarations. Under Section 6, Commissioning a Public Report, the Company commissioned SRK Consulting (Johannesburg) to assist, prepare and report an independent valuation assessment. The Company complies with the methodology of Section 5, Public Reporting, and the Company

Criteria	JORC Code explanation	Commentary

referred SRK for a technical assessment and valuation report (out of currency). The Company makes special reference to section 5.4 that this report makes no reference or commentary to the securities or the nature of securities of the Company in relation to this report.

The Valuation ranges of the project as determined are summarised below;

US$ Millions	EBITDA
Capital cost[1]	250
Income approach NPV8% risked[2]	1018
Income approach NPV10% risked[2]	795
Income approach NPV12.5% risked[2]	594
As above NPV16.0% ([2] At MOZ risk rate)	407
Range of valuation US$M[3]	126 low
Market value by Sales US$M[4]	32.5 low
Market value by Capitalisation US$M[5]	287 avg
Market value by Resources US$M[6]	169 avg
Weighted average of valuations US$M	144 avg
IRR[7]	50%
Operating margin[7]	50%

[1]This refers to capital expenditure for installed plant property and equipment. Historic exploration and development capital of A$27.956 million (at 30 June 2019) capitalised under non-current assets of the Globe balance sheet are not included in the capital cost. *refer above for cautionary statement on the forecast of Profit valuation.

[2] Assigns a Moody's Rating of B3 comparable to the DRC, Zambia (Kenya, Uganda and Rwanda range 10.3% to 11.4% and Mozambique at 16.6%)

[3] Assigns a probability of values to account for risk and market variability

[4] Assigns value by comparing historic sales transactions for niobium projects per unit of niobium in ore resource

[5] Assigns value by comparing value with other company market capitalisations

[6] Assigns value by valuing resources (also called yard-stick discount factoring)

[7] After tax assumptions include 30% corporate tax plus 15% resources rent tax and 10% withholding tax

Criteria	JORC Code explanation	Commentary
		applicable to Malawi and broad assumptions on deductible depreciation rates **Profit after tax forecast is an estimate. Depreciation allowances in Malawi include a straight-line depreciation over the life of operations on non-saleable capital items and a 20% rate of diminishing value on saleable capital items as a broad approach to the Malawian Tax Act (2006). Globe's financial model does not include an accurate depreciation schedule as a pre-production model can only broadly estimate the depreciation rates on taxable income. This in no way would account for the detail amortisation and depreciation schedules that would be implemented during operations. A profit forecast is therefore not an accurate reflection of profit during operations..** **The project valuation is based upon the following key assumptions:** ○ **Sales Volumes: it is assumed that the following volumes of finished product >99% quality can be sold:** - **Nb_2O_5 3,250 tpa on average life of mine** - **Ta_2O_5 140 tpa on average life of mine** **Note: the projected sales of Nb_2O_5 represent less than 5% of global production.** ○ **Pricing: it is assumed that the finished product +99% quality can be sold at the following prices (CIF Chinese or European port) and discounted as a concentrate to market price in line with market practice.**
Social	• **The status of agreements with key stakeholders and matters leading to social licence to operate.**	**The following outlines selected Development Agreement conditions;** • **The Government has the right, but not the obligation, to acquire at no cost, either directly or through a nominee, a 10% free carry interest in the Company Globe Metals and Mining Limited (Africa) the Malawian subsidiary that holds the project mining licence. A shareholding requires a Shareholder's Agreement between the parties that is currently in draft form.** • **On issue of the mining licence, the Company then has 24 months from the completion of a credit approved term sheet to make a "decision to mine".** • **The Company must commence development within 18 months of the "decision to mine".** • **The Company can import and export consumables for operations duty free** • **The Company can have capital goods and services during development duty free.** • **The local training and development plan and will have various conditions and restrictions to management positions in number and duration** • **The environmental performance bond is US$5m** **The Company will;** ○ **Have a stability period in the fiscal regime for 10 years from the decision to mine** ○ **Will be subject to a resource rent tax of 15%** ○ **Subject to withholding tax of 10% on dividends paid to non-residents** • **The Company will pay a government royalty of 5% on concentrate product sales at the mine gate.** • **The Company will pay a community royalty of 0.45% on concentrate product sales at the mine gate.** • **The project will have a maximum debt to equity ratio of 75:25 for the purposes of thin capitalisation**

Criteria	JORC Code explanation	Commentary
		• The Company has protection from expropriation and nationalisation In anticipation of approval of the development agreement, the Company has the following plans drafted; • Employment and Training Plan (Section 163 of the Mines and Minerals Act, 2018) • Goods and Services Procurement Plan (Section 164 of the Mines and Minerals Act, 2018) • Business Development Assistance Plan (Section 165 of the Mines and Minerals Act, 2018) • Resettlement Management Plan (Section 168 of the Mines and Minerals Act, 2018) • Community Engagement Plan (Section 300 of the Mines and Minerals Act, 2018) • Environmental Management Plan
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • Any identified material naturally occurring risks. • The status of material legal agreements and marketing arrangements. • The status of governmental 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.	<u>Legal Action</u> The Company and the Government of Malawi are currently defending in the High Court of Malawi an action by the local community who allege that mining has commenced and claim the defence has breached their constitutional rights by preventing rights to land and lifestyle and a claim for compensation, damages and resettlement. At this stage, in discussion with the community, the Company has a high degree of confidence that the court proceedings will not continue and that a settlement with mutual benefit will be forthcoming. The issue of a mining licence primarily solves the community claim for action on development, relocation and resettlement. <u>Exploitation Pre-requisites</u> The exploitation of the deposit is dependent on: • A signed Mine Development Agreement with the Government of Malawi • A Community Development Agreement on royalty payments governed by the Mines Act • An agreement on compensation and resettlement of affected persons, • Product Sales contracts, • Project Funding, • Board approval for a “decision to mine”, • Contracts for construction, development, operations and supply of materials. <u>Risk</u> Globe’s activities, as in any business, are subject to risks which may impact upon Globe’s business and future financial performance, and there can be no guarantee that Globe will achieve its stated objectives. While some risks can be mitigated by the use of safeguards and appropriate systems and actions, some are outside the control of Globe and cannot be mitigated.

Criteria	JORC Code explanation	Commentary
		Existing shareholders in Globe and potential investors should review announcements made by Globe to ASX (at www.globemm.com or at www.asx.com.au under the code "GBE") in order to gain an appreciation of Globe's activities, operations, financial position, plans, prospects and opportunities. **This report does not make any opinion on securities however an investment in Globe's securities should be considered speculative. Securities carry no guarantee with respect to the payment of dividends, returns of capital or the market value of those Securities. There are specific risks which relate directly to Globe's business. In addition, there are other general risks, many of which are largely beyond the control of Globe and its Directors. The risks identified in this section, or other risk factors, may have a material impact on the financial performance of Globe or its or financial condition and the market price of Globe's securities.** **The following is not intended to be an exhaustive list of the risk factors to which Globe is exposed.** **1.2 Company specific** **(a) Limited history** **Globe has no operating history in terms of mining and refining and has limited historical performance. Further, Globe has operated at a loss since its incorporation. No assurance can be given that Globe will achieve profitability nor derive acceptable returns through the operation of the Kanyika Project. Achievement of Globe's objectives will depend on Globe's ability to successfully implement its strategy. There can be no assurance that Globe will be successful in implementing its strategy or that Globe will be able to anticipate or meet the needs of the market generally. If Globe is unable to implement its strategy, then there may be adverse effects on its results of operations or financial condition.** **(b) Reliance on Key Personnel** **Globe's ability to successfully execute its business strategy will depend substantially on the performance and expertise of its key personnel and their familiarisation with, and ability to operate, in the mining industry as well as technology and marketing in the niobium and tantalum commodity markets. The loss of services of one or more key personnel may have an adverse effect on Globe's business. Furthermore, if Globe is unable to attract, train and retain key individuals and other highly skilled employees and consultants, the results of its Company's operations or financial condition may be adversely affected.** **(c) Competitors and new market entrants** **Globe operates in a competitive global industry. There is always a risk that existing operators could expand or extend their operations, or new operators could enter the market, adversely affecting the results of Globe's operations or financial condition.** **(d) Uncertainty of future profitability** **The attainment of future profits is subject to multiple risks, including construction and mining risk, financing risk, product risk and Globe's ability to successfully operate. Further, Globe's future profitability will be impacted by its ability to successfully execute its strategy, economic conditions in the markets in**

Criteria	JORC Code explanation	Commentary
		which it operates, competitive factors and regulatory developments. Accordingly, the extent of any future profits are uncertain. Moreover, the level of profitability cannot be reliably predicted. **(e) Commodity prices and exchange rates** **If Globe achieves success leading to mineral production, the revenue it will derive through the sale exposes the potential income of Globe to commodity price and exchange rate risks. Commodity prices fluctuate and are affected by many factors beyond the control of Globe. Such factors include supply and demand fluctuations for commodity prices for niobium and tantalum, technological advancements, forward selling activities and other macro-economic factors.** **There can be no assurance that the existing level of metals prices will be maintained in the future. Any future declines in metals prices could adversely affect Globe's business prospects and financial condition. Furthermore, international prices of the majority of commodities are denominated in United States dollars, whereas the income and expenditure of Globe are and will be taken into account in Australian currency, exposing Globe to the fluctuations and volatility of the rate of exchange between the United States dollar and the Australian dollar as determined in international markets. In addition, as Globe's Kanyika Project is located in Malawi, capital and operating costs will be incurred in United States dollars and Malawi Kwacha. Accordingly, movements in the exchange rate between the Australian dollar and the United States dollar and between the United States dollar and the Malawi Kwacha will affect these costs. As such, movements in exchange rates may have an impact on Globe's financial position and performance.** **(f) Environment** **Although Globe intends on conducting all activities in an environmentally responsible manner, if it is responsible for environmental damage it may incur substantial costs for environmental rehabilitation, damage control and losses by third parties resulting from its operations, which may adversely effects the results of its operations or financial condition** **(g) Capital costs of construction of Facilities** **Globe's capital cost forecasts are based on the best available information at that time, independently sourced, and certain assumptions in respect of cost and timing of planned development of Facilities, receipt of design and development approvals and regulatory approvals, and the level of capital expenditure required to undertake planned development and maintenance of the assets. Any significant unforeseen increases in the capital costs or delays in receipt of approvals associated with Globe's planned activities may adversely impact its results of operations or financial condition.** **(h) Additional capital requirements** **Globe expects to have sufficient working capital to accelerate its business plan. If Globe incurs unexpected costs additional funding may be required. There is no certainty regarding the ability of Globe to raise sufficient funds to meet its needs into the future. Globe may need to raise additional capital from**

Criteria	JORC Code explanation	Commentary
		equity or debt sources due to unforeseen circumstances. There can be no assurance that Globe will be able to raise such capital on favourable terms or at all. If adequate funds are not available on acceptable terms Globe may not be able to develop its business and this may have an adverse impact on Globe's operations. **(i) Contractual disputes** **Globe's business model is dependent in part on contractual agreements with third parties. Whilst Globe will have various contractual rights in the event of non-compliance by a contracting party, no assurance can be given that all contracts to which Globe is a party will be fully performed by all contracting parties. Additionally, no assurance can be given that is a contracting party does not comply with any contractual provision, Globe will be successful in enforcing compliance. There are also counterparty insolvency, fraud, management failure, creditor, termination and operational risks. Should a third party contract fail, there is the potential for negative financial and brand damage for Globe.** **(j) Litigation risks** **Globe is exposed to possible litigation risks. Further, Globe may be involved in disputes with other parties (including but not limited to customers, third party providers, business partners or employees) in the future which may result in litigation. Any such claim or dispute if proven, may impact adversely on Globe's operations, financial performance and financial position. Globe is not currently engaged in any litigation.** **(k) Force majeure** **Globe's operations now or in the future may be adversely affected by risks outside the control of Globe including labour unrest, civil disorder, war, subversive activities or sabotage, fires, floods, explosions or other catastrophes, epidemics or quarantine restrictions.** **(l) Doing business outside of Australia** **Globe's Kanyika Project is located in Malawi. For operational reasons Globe may also establish operations in other jurisdictions. Wherever Globe sets up operations Globe is exposed to a range of multi-jurisdictional risks such as risks relating to currency exchange rates, labour practices, environmental matters, difficulty in enforcing contracts, changes to or uncertainty in the relevant legal and regulatory regime (including in relation to taxation and foreign investment and practices of government and regulatory authorities) and other issues in foreign jurisdictions in which Globe operates. Businesses that operate across multiple jurisdictions face additional complexities from the unique business requirements in each jurisdiction. Management experience will help to mitigate, but will not remove, this risk.** **(m) Change in regulatory requirements** **Globe is required to comply with laws, including the laws governing its operations, privacy, taxation and business practices in each jurisdiction in which it operates. Globe may be subject to other laws in jurisdictions in which it plans to operate, and the applicable laws may change from time to time. Globe's Kanyika Project is located in Malawi and is subject to the laws of Malawi. There is a risk that new laws**

Criteria	JORC Code explanation	Commentary
		and regulations in Malawi may be introduced or existing laws and regulations may be amended, or that the regulator may form a different view to its current view at a future date. Any failure or perceived failure by Globe to comply with laws, regulations, policies, legal obligations or industry standards may result in governmental enforcement actions and investigations, including fines and penalties, enforcement orders. Litigation and/or adverse publicity could cause suppliers, customers to lose trust in Globe, which could have an adverse effect on Globe's reputation and business. **(n) Mining Licence** **The Kanyika Project's mining licence in Malawi is subject to the laws and regulations of that jurisdiction. Globe must therefore comply with all requirements under the relevant laws (including mining legislation) of Malawi and comply with all licensing conditions. There is no assurance that the Government of Malawi will not make material changes to laws that impact the mining licence, or that approvals or renewals will be given as a matter of course or on similar economic terms. There is also additional risk that changes to government policy could occur that could materially and adversely affect Globe's rights and costs associated with holding its mining licence.** **(o) Community relations** **Globe's ability to undertake mining activities at the Kanyika Project will depend in part on its ability to maintain good relations with the relevant local communities in Malawi. Any failure to adequately manage community expectations in relation to land access, mining activity, employment opportunities, impact on environment and local businesses and any other expectations may lead to disputes, disruptions which may adversely impact Globe's results of operations or financial condition.** **(p) Sovereign risk** **Malawi is a developing country and Globe's operations in the country are subject to numerous risks associated with operating in a developing country. These include economic, social and political instability, changes of laws affecting foreign ownership, government participation, taxation, and repatriation of income or return of capital. These risks may adversely impact Globe's results of operations or financial condition.** **(q) Commodities superseded by new technology or changes in business practices** **Globe's business is based largely on the future sale of niobium and tantalum. Niobium is predominantly used in the manufacture of steels and tantalum in various chemical, medical and steel applications (refer marketing section). There is a risk that the demand for niobium or tantalum could decline or be displaced.** **(r) Protection and ownership of intellectual property** **Globe's financial performance may depend on its ability to safeguard and commercially exploit its intellectual property. Globe relies on patents to protect its proprietary intellectual property. A substantial part of Globe's commercial success will depend on its ability to maintain, establish, and protect its intellectual property and operate without infringing the proprietary rights of third parties.**

Criteria	JORC Code explanation	Commentary
		(s) Concentration of shareholding and liquidity **At the time of this publication, Globe's major shareholder holds approximately 53% of Globe's total issued share capital and is represented on the Board by Ms Alice Wong, Chairperson, and is in a position to exert significant influence over matters in relation to Globe, including the strategic direction, operations, funding, election of directors, the appointment of new management and matters submitted for a vote to Shareholders. There is a risk that the interests of the existing major shareholder may be different from the interests of current holders and potential investors in Globe.** **(t) No market sector diversification** **Globe's business is entirely exposed to the mining sector and specifically to the performance of the Kanyika Project in Malawi. Globe's results of operations or financial condition may be adversely affected if the Kanyika Project does not perform as planned or expected.** **1.3 Industry specific** **(a) Resource and Reserve Estimations** **Globe has made estimates of its resources and reserves based on relevant reporting codes, where required, and judgements based on knowledge, skills and industry experience. However, there is no guarantee that estimates will prove to be accurate. Actual mining results may materially differ from forecasts and estimates due to further findings and results not previously known or fluctuations in operating costs, exchange rates and metal prices.** **(b) Construction inherent risks** **If Globe is ultimately successful in obtaining the required funding achieving production at the Kanyika Project The building of the Facilities, involving specialist mining plant and infrastructure, involves significant risks and hazards which are inherent in construction, including, cost overrun, time overrun, engineering design defects, faulty workmanship, personal injury or death. Globe will engage specialists in relation to design, construction, equipment supply, installation, commissioning and operation of the facilities. There is a risk that one or more of these third-party contractors will not perform its contractual obligations properly or at all. Weather conditions are unpredictable and may also have a material adverse effect on construction of the facilities, including on the delivery of supplies, equipment and fuel. Should Globe experience a significant risk or hazard whilst building the facilities, Globe's results of operations or financial condition may be adversely impacted.** **(c) Mining inherent risks** **If Globe is ultimately successful in achieving production at the Kanyika Project, its operations will be subject to risks and hazards inherent in the mining industry. The development of mineral deposits**

Criteria	JORC Code explanation	Commentary
		involves significant risks, including environmental hazards, industrial accidents, metallurgical performance and variability, other processing problems, unusual or unexpected rock formations, structure collapses or slides, flooding, fires and interruption due to hazardous weather conditions or diseases. These risks could result in damage to, or destruction of, mineral properties, production facilities or other properties, personal injury or death, environmental damage, delays in mining, increased production costs, monetary losses and possible legal liability which would, were they to occur, likely impact Globe's business and financial performance. **(d) Insurance** **Globe seeks to maintain appropriate policies of insurance consistent with those customarily carried by organisations in its industry sector. Insurance of all risks associated with Globe's business may not always be available and where available, the cost may be prohibitive. Any increase in the cost of the insurance policies of Globe or the industry in which it operates could adversely affect Globe's business, financial condition and operational results. Globe's insurance coverage may also be inadequate to cover losses it sustains. Uninsured loss or a loss in excess of Globe's insured limits could adversely affect Globe's business, financial condition and operational results.** **1.4 General securities investment and market risks** **(a) Economic risk** **General economic conditions in Australia, Malawi and internationally, movements in rates of interest, inflation and currency exchange, variations in commodity prices, the global security situation and the possibility of terrorist disturbances, changes to government regulation, policy or legislation, changes which may occur to the taxation of companies as a result of changes in Australian, Malawian and foreign taxation laws may have an adverse effect on Globe's business activities and future financial performance, and its ability to fund its activities.** **(b) Market conditions** **Share market conditions may affect the value of Globe's quoted securities regardless of Globe's operating performance. Share market conditions are affected by many factors such as:** • **general economic outlook;** • **introduction of tax reform or other new legislation;** • **interest rate and inflation rate;** • **commodity price fluctuations;** • **changes in investor sentiment towards particular market sectors;** • **changes in financial outcomes estimated by securities analysts;** • **the demand for, and supply of, capital;** • **terrorism or other hostilities; and** • **other events or factors which may be beyond Globe's control.**

Criteria	JORC Code explanation	Commentary
		The market price of securities can fall as well as rise and may be subject to varied and unpredictable influences on the market for equities and in particular, resources stocks. Neither Globe nor the Directors warrant the future performance of Globe or any return on an investment in Globe.
		(c) Security investments **Investors should be aware that there are risks associated with any securities investment. Securities listed on the stock market, and in particular securities of mining and exploration companies have experienced extreme price and volume fluctuations that have often been unrelated to the operating performance of such companies. These factors may materially affect the market price of Globe's securities regardless of Globe's performance.**
		(d) Liquidity risks **There may be relatively few buyers and sellers of securities on ASX at any given time. This may affect the volatility of the market price of the securities and the prevailing market price at which holders are able to sell their securities. This may result in holders receiving a market price for their securities that is less or more than the price originally paid.**
		(e) Speculative Nature of Investment **The above list of risk factors ought not to be taken as exhaustive of the risks faced by Globe or by investors in Globe. The above factors, and others not specifically referred to above, may in the future materially affect the financial performance of Globe and the value of Globe's securities trading on ASX. Globe cannot, and does not, provide any guarantee with respect to the payment of dividends, returns of capital or the market value of its securities. Existing holders and potential investors should consider that an investment in Globe s speculative and should consult their professional advisers before making any decision.**
		(f) Community and Indigenous Title Risks **It is also possible that, in relation to tenements which the Company has an interest in or will in the future acquire such an interest, there may be areas over which legitimate law of native title rights of peoples exist. If native title rights do exist, the ability of the Company to gain access to tenements (through obtaining consent of any relevant landowner), or to progress from the exploration phase to the development and mining phases of operations may be affected. The Directors closely monitor the potential effect of native title rights involving tenements in which the Company has or may have an interest.**
		(g) Other **Other risk factors include those normally found in conducting business, including litigation through breach of agreements or in relation to employees (through personal injuries, industrial matters or otherwise) or any other cause, strikes, lockouts, loss of service of key**

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>management or operational personnel and other matters that may interfere with the Company's business or trade.</td></tr>
<tr><td>Classification</td><td>• 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).</td><td>Through technical studies and economic and commercial parameters presented in this table report, the Ore Reserves (exclusive of potential co-mingled products) have been determined as follows (overpage);

<table><tr><th></th><th>Million tonnes</th><th>Nb_2O_5 (ppm)</th><th>Ta_2O_5 (ppm)</th></tr><tr><td>Proved</td><td>5.1</td><td>3,680</td><td>171</td></tr><tr><td>Probable</td><td>28.7</td><td>2,935</td><td>136</td></tr><tr><td>Total</td><td>33.8</td><td>3,048</td><td>141</td></tr></table>
The classification is a sub-set of the total Mineral Resource Estimate tabled in Section 3. The proportion of ore reserve tonnes derived from mineral resource tonnes are;

<table><tr><th></th><th>From Measured</th><th>From Indicated</th><th>From Inferred</th><th>Total of Resource</th></tr><tr><td>To Proved</td><td>96%</td><td>0</td><td>0</td><td>7.5%</td></tr><tr><td>To Probable</td><td>0</td><td>61%</td><td>0</td><td>42%</td></tr><tr><td>Total</td><td></td><td></td><td>0</td><td>49.5%</td></tr></table></td></tr>
<tr><td>Audits or reviews</td><td>• The results of any audits or reviews of Ore Reserve estimates.</td><td>The Company has had the mining resource model and project operating and capital costs reviewed and compiled by independent professional firms and believes that this independence qualifies as satisfactory audits. SRK Consulting (Johannesburg) were engaged to provide and independent opinion of the feasibility study. There has been no independent review of the product marketing environment, but marketing material has been sourced by independent publications. A list of the companies participating in the feasibility study are listed below.

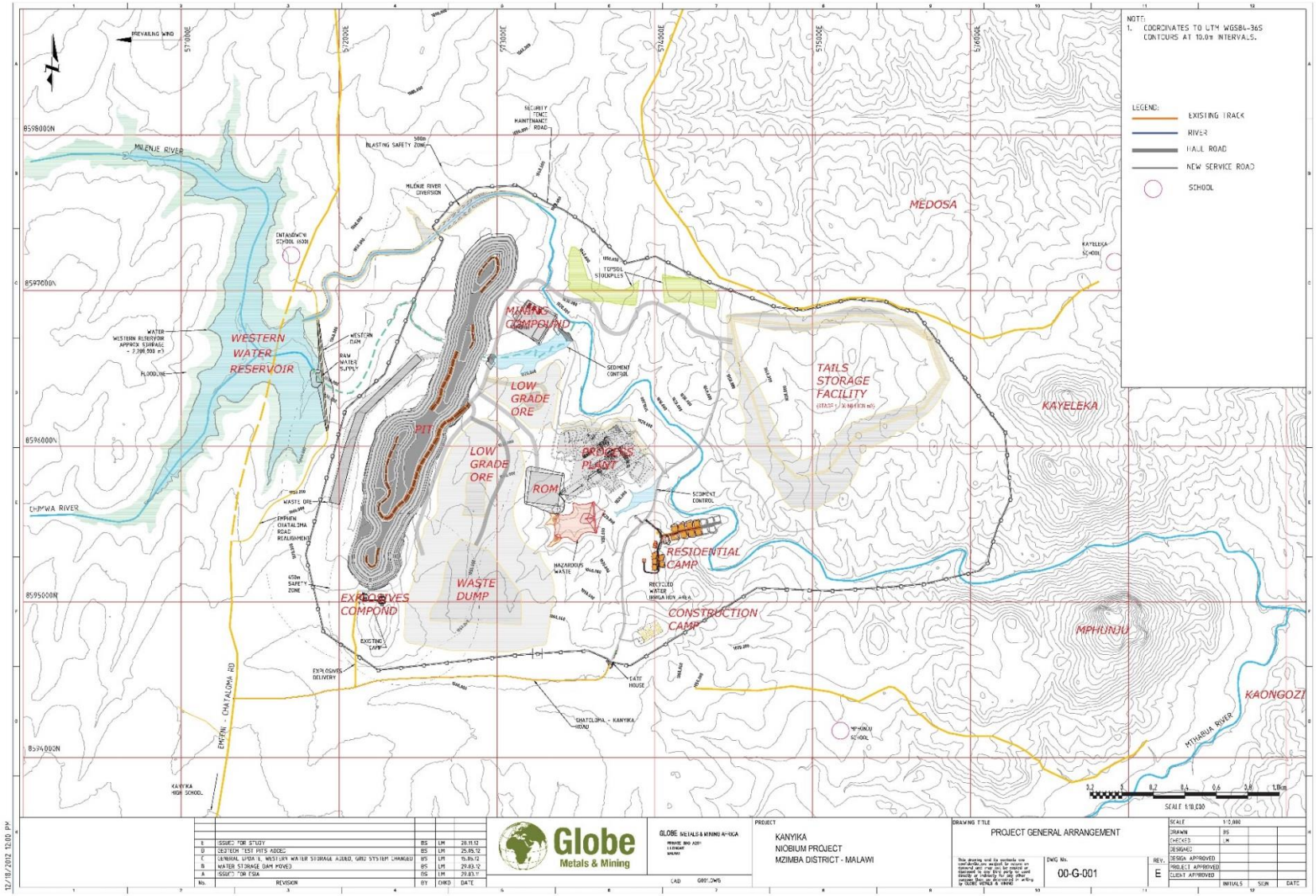
<table><tr><td>Mineral Resource Evaluation</td><td>Quantitative Group (QG) / BMGS Pty Ltd
specialist Perth based geological consultancy companies</td></tr><tr><td>Environment (and Social Impact) Assessment</td><td>Synergistics Environmental Services (Synergistics), & Sub consultants</td></tr><tr><td>Mining and Inventory studies</td><td>Coffey Mining Perth / Orelogy Mining Consultants Perth</td></tr><tr><td>Pit Geotechnical</td><td>Mining One Perth
Coffey Mining (Perth and Accra)</td></tr></table></td></tr>
</table>

Criteria	JORC Code explanation	Commentary	
		Metallurgical Test work	Ammtec Perth SGS Perth & SGS Lakefield Canada GIRCU – Guangzhou Srdjan Bulatovic and Associates (SB) - Canada Mintek – Johannesburg IMO Metallurgy and Metallurgist services Perth TSW Analytical Perth
		Process Engineering	WOOD plc Perth (AMEC Foster Wheeler) Metix Pty Ltd Johannesburg
		Hydrogeology	Jones and Wagener, MVB Johannesburg
		Hydrology	Knight Piesold Perth and Johannesburg
		Geotechnical	Jones and Wagener & Sub consultants Johannesburg
		Geochemistry	Knight Piesold Perth
		Tailings Storage Facility Hazardous Waste Storage	Knight Piesold Perth Knight Piesold Perth
		Offsite Infrastructure - Roads, Fences	Overflow Engineers Perth Romana Engineers Lilongwe
		Community Relocation Plan	Mzimba Dept. of Planning Romana Engineers (Infracon Infrastructure Consultants) Lilongwe Mlambe - Blantyre
		Market	Pacific Ores Metals and Chemicals Hong Kong Roskill Information Services Orian Research
		Legal	Gilbert and Tobin, Perth Savjani & Co. Malawi TRM Legal (Tax and Risk management)
		Mine closure and rehabilitation	Knight Piesold Johannesburg
		Capital & Operating Cost Estimates	Wood plc Perth (AMEC Foster Wheeler) Orelogy Mining Consultants Perth
		Independent valuation (VALMIN 2015)	SRK Consulting

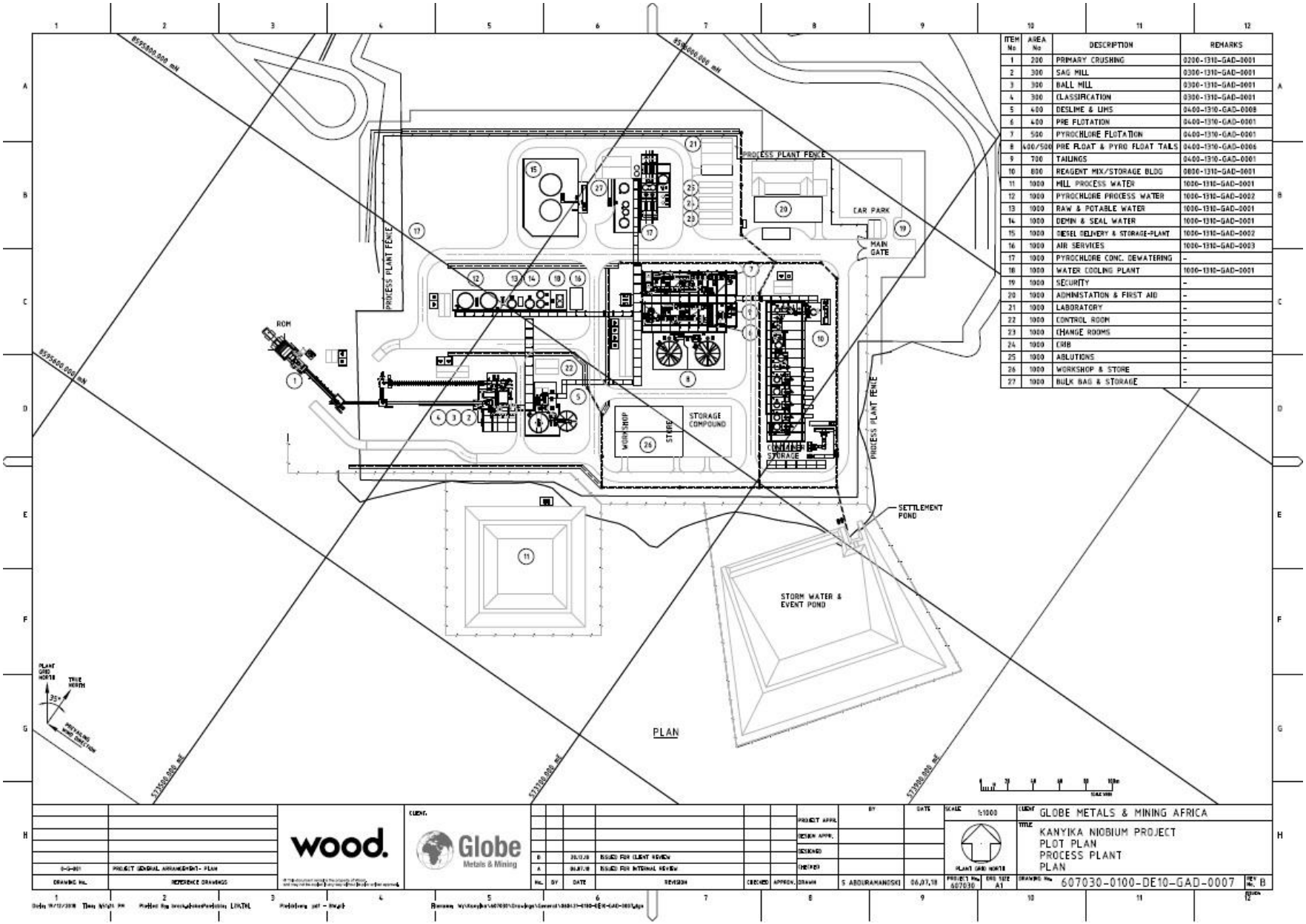
Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. • It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• Sufficient technical studies have been undertaken that justify the robustness of the resource and the mining and site (concentration) operational environment to qualify as a feasibility study. There are enough studies to determine the design and cost of refining concentrate to marketable products. The level of accuracy of capital costs and operating costs for most of the plant (80% at plus minus 15%) and parts of the plant (20% plus minus 25%) and revenue (plus minus 20%) are rational at this stage of the development phase to warrant a reasonable assurance of economic benefit from development. • The estimation of both capital equipment and installation, operating costs, product market and commodity pricings are relevant at the time of this publication. In general, an accuracy of Class 3 is justified though some estimates are better and some lower. • The reserve statement is determined to be of relevant accuracy in the current market. • Currency exposure in the feasibility study to base pricing is presented below. Capital for contingency, EPCM and Owners cost are all in USD.

Currency	Exchange rate	Capital splits
USD from AUD	1.3	22
USD from GBP	0.765	1
USD from Euro	0.864	2
USD from MKR	770	5
USD from ZAR	14	100
USD from USD	1	120

Kanyika Project site Layout



Kanyika Process Plant layout



ITEM No	AREA No	DESCRIPTION	REMARKS
1	200	PRIMARY CRUSHING	0200-1310-GAD-0001
2	300	SAG MILL	0300-1310-GAD-0001
3	300	BALL MILL	0300-1310-GAD-0001
4	300	CLASSIFICATION	0300-1310-GAD-0001
5	400	DESLIME & LIMS	0400-1310-GAD-0308
6	400	PRE FLOTATION	0400-1310-GAD-0301
7	500	PYROCHLORE FLOTATION	0400-1310-GAD-0301
8	400/500	PRE FLOAT & PYRO FLOAT TAILS	0400-1310-GAD-0306
9	700	TAILINGS	0400-1310-GAD-0301
10	800	REAGENT MIX/STORAGE BLDG	0800-1310-GAD-0001
11	1000	MILL PROCESS WATER	1000-1310-GAD-0001
12	1000	PYROCHLORE PROCESS WATER	1000-1310-GAD-0002
13	1000	RAW & POTABLE WATER	1000-1310-GAD-0001
14	1000	DEMIN & SEAL WATER	1000-1310-GAD-0001
15	1000	DIESEL DELIVERY & STORAGE-PLANT	1000-1310-GAD-0002
16	1000	AIR SERVICES	1000-1310-GAD-0003
17	1000	PYROCHLORE CONC. DEWATERING	-
18	1000	WATER COOLING PLANT	1000-1310-GAD-0001
19	1000	SECURITY	-
20	1000	ADMINISTATION & FIRST AID	-
21	1000	LABORATORY	-
22	1000	CONTROL ROOM	-
23	1000	CHANGE ROOMS	-
24	1000	CRIB	-
25	1000	ABLUTIONS	-
26	1000	WORKSHOP & STORE	-
27	1000	BULK BAG & STORAGE	-

Refinery Layout

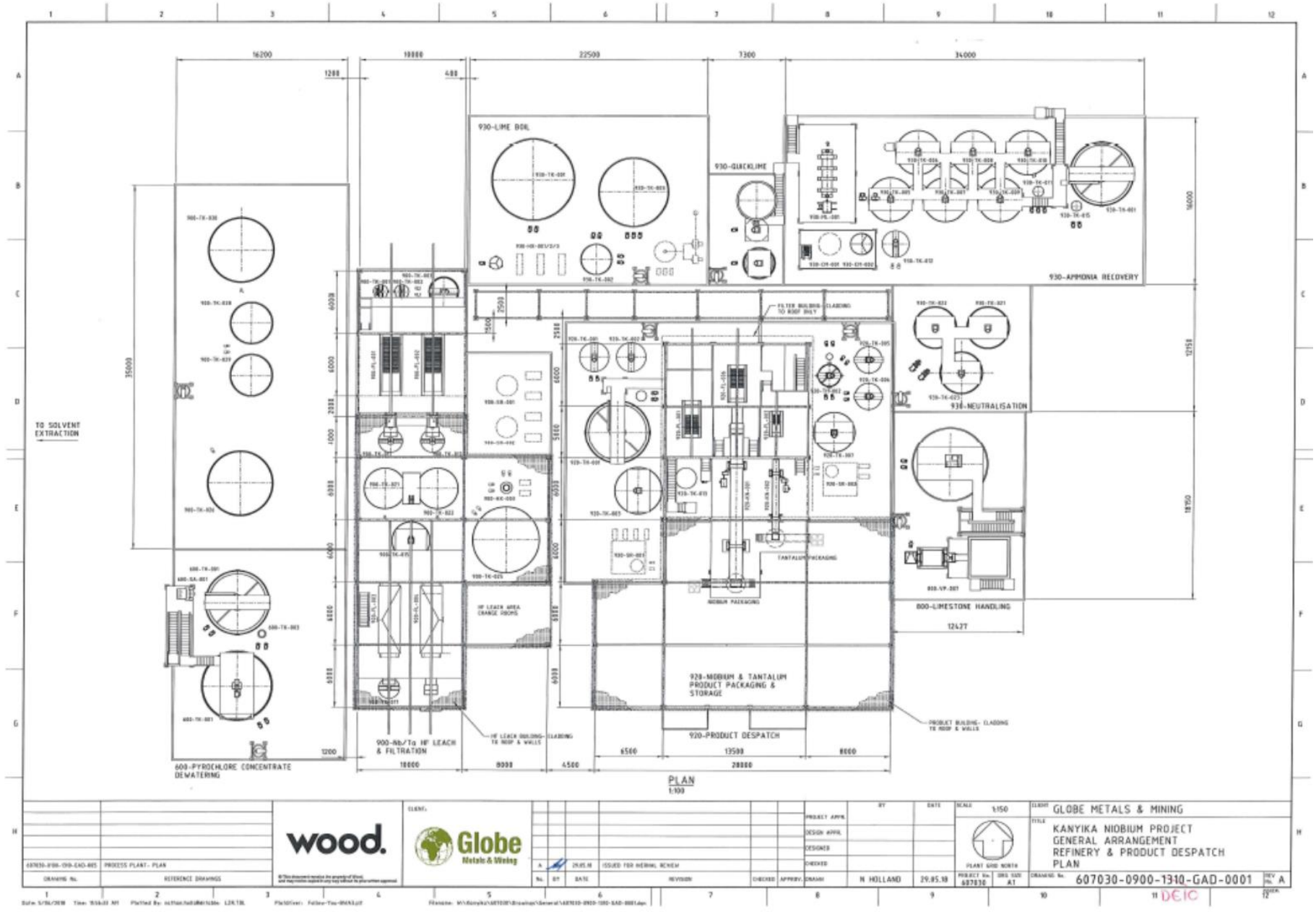


TABLE A: Drill Hole Survey Information

DD= Diamond drill hole | RC = Reverse Circulation | PE = Percussion| PEDD = percussion with diamond drill tail | Pit = bulk sample pit | TR = surface trench
Note that Pit samples are assayed as part of the metallurgical testwork and not recorded in Table B

Hole identification	Hole Type	Max depth (M)	Northing	Easting	Elevation	Grid type
KADD030	DD	62.70	8,596,199.0	572,657.1	1,052.03	UTM84-36S
KADD031	DD	55.10	8,595,799.9	572,397.2	1,072.16	UTM84-36S
KADD032	DD	122.40	8,595,801.6	572,353.0	1,066.64	UTM84-36S
KAPE002	PE	151.00	8,596,849.8	572,680.3	1,035.74	UTM84-36S
KAPEDD001	PEDD	378.00	8,597,249.0	572,862.2	1,046.99	UTM84-36S
KAPT1	PIT	3.35	8,597,050.0	572,960.0	1,045.02	UTM84-36S
KAPT2	PIT	2.73	8,597,050.0	572,970.0	1,044.31	UTM84-36S
KAPT3	PIT	1.30	8,597,050.0	572,980.0	1,043.54	UTM84-36S
KAPT4	PIT	3.65	8,597,050.0	572,990.0	1,042.72	UTM84-36S
KARC001	RC	103.00	8,596,004.4	572,335.9	1,049.01	UTM84-36S
KARC002	RC	81.00	8,596,300.6	572,678.6	1,043.03	UTM84-36S
KARC003	RC	48.00	8,596,401.5	572,758.9	1,040.99	UTM84-36S
KARC004	RC	102.00	8,596,096.7	572,420.7	1,058.98	UTM84-36S
KARC005	RC	102.00	8,596,000.7	572,388.7	1,062.50	UTM84-36S
KARC006	RC	114.00	8,595,899.6	572,354.9	1,065.36	UTM84-36S
KARC007	RC	97.00	8,595,900.2	572,366.9	1,066.93	UTM84-36S
KARC008	RC	102.00	8,596,094.8	572,437.1	1,060.55	UTM84-36S
KARC009	RC	120.00	8,595,998.0	572,394.3	1,063.53	UTM84-36S
KARC010	RC	90.00	8,595,801.4	572,356.0	1,066.91	UTM84-36S
KARC011	RC	126.00	8,595,803.0	572,439.5	1,070.19	UTM84-36S
KARC012	RC	120.00	8,595,900.2	572,532.4	1,066.98	UTM84-36S
KARC013	RC	87.00	8,595,898.7	572,471.2	1,069.27	UTM84-36S
KARC014	RC	126.00	8,595,699.7	572,425.1	1,069.20	UTM84-36S
KARC015	RC	106.00	8,595,700.2	572,398.8	1,069.81	UTM84-36S
KARC016	RC	122.00	8,595,801.7	572,470.6	1,068.84	UTM84-36S
KARC017	RC	95.00	8,595,710.4	572,295.9	1,061.32	UTM84-36S
KARC018	RC	126.00	8,595,200.1	572,228.6	1,080.50	UTM84-36S
KARC019	RC	74.00	8,595,200.3	572,342.9	1,084.83	UTM84-36S
KARC020	RC	72.00	8,595,900.4	572,635.4	1,048.19	UTM84-36S
KARC021	RC	120.00	8,595,999.9	572,494.0	1,063.70	UTM84-36S
KARC022	RC	120.00	8,596,301.3	572,713.0	1,046.97	UTM84-36S
KARC023	RC	63.00	8,596,500.5	572,780.1	1,031.47	UTM84-36S
KARC024	RC	36.00	8,596,600.2	572,796.1	1,019.50	UTM84-36S
KARC025	RC	144.00	8,596,300.7	572,641.5	1,041.19	UTM84-36S
KARC026	RC	106.00	8,596,199.7	572,631.1	1,047.48	UTM84-36S
KARC027	RC	102.00	8,596,200.0	572,466.8	1,047.69	UTM84-36S
KARC028	RC	84.00	8,596,200.1	572,415.7	1,043.39	UTM84-36S
KARC029	RC	150.00	8,596,100.2	572,373.2	1,045.90	UTM84-36S
KARC030	RC	144.00	8,595,899.5	572,291.3	1,049.83	UTM84-36S
KARC031	RC	145.00	8,595,800.2	572,279.8	1,053.24	UTM84-36S
KARC032	RC	112.00	8,595,700.1	572,236.4	1,052.45	UTM84-36S
KARC033	RC	138.00	8,595,599.2	572,221.8	1,055.46	UTM84-36S
KARC034	RC	128.00	8,595,403.3	572,185.9	1,060.17	UTM84-36S
KARC035	RC	135.00	8,595,199.8	572,148.7	1,066.37	UTM84-36S
KARC036	RC	165.00	8,596,001.1	572,288.8	1,044.35	UTM84-36S
KARC037	RC	82.00	8,596,400.2	572,716.7	1,037.76	UTM84-36S
KARC038	RC	72.00	8,596,498.5	572,745.4	1,030.30	UTM84-36S
KARC039	RC	90.00	8,596,749.7	572,815.0	1,030.86	UTM84-36S
KARC040	RC	136.00	8,596,750.9	572,773.5	1,029.47	UTM84-36S
KARC041	RC	148.00	8,596,850.1	572,882.6	1,038.66	UTM84-36S
KARC042	RC	90.00	8,596,949.9	572,899.8	1,042.33	UTM84-36S
KARC043	RC	84.00	8,596,948.6	572,859.9	1,041.30	UTM84-36S
KARC044	RC	80.00	8,597,049.7	572,951.2	1,045.62	UTM84-36S
KARC045	RC	100.00	8,597,049.7	572,908.0	1,047.15	UTM84-36S
KARC046	RC	102.00	8,596,849.1	572,835.2	1,035.93	UTM84-36S
KARC047	RC	123.00	8,596,650.7	572,839.8	1,027.06	UTM84-36S
KARC048	RC	66.00	8,593,997.0	572,145.1	1,074.48	UTM84-36S
KARC049	RC	75.00	8,593,796.1	572,040.0	1,077.18	UTM84-36S
KARC050	RC	120.00	8,595,198.0	572,243.0	1,082.10	UTM84-36S
KARC051	RC	156.00	8,595,701.0	572,376.0	1,070.64	UTM84-36S
KARC052	RC	138.00	8,596,198.9	572,550.4	1,048.40	UTM84-36S
KARC053	RC	30.00	8,596,597.4	572,804.5	1,019.54	UTM84-36S
KARC054	RC	132.00	8,596,592.5	572,748.1	1,020.70	UTM84-36S
KARC055	RC	102.00	8,597,150.8	572,979.1	1,052.69	UTM84-36S
KARC056	RC	140.00	8,597,049.7	572,859.7	1,044.86	UTM84-36S
KARC057	RC	126.00	8,596,661.3	572,765.4	1,021.33	UTM84-36S
KARC058	RC	72.00	8,596,664.3	572,810.7	1,027.44	UTM84-36S

Hole identification	Hole Type	Max depth (M)	Northing	Easting	Elevation	Grid type
KARC059	RC	162.00	8,596,948.5	572,919.9	1,041.77	UTM84-36S
KARC060	RC	60.00	8,596,749.8	572,836.3	1,033.24	UTM84-36S
KARC061	RC	80.00	8,596,101.4	572,599.4	1,052.74	UTM84-36S
KARC062	RC	66.00	8,596,000.4	572,577.9	1,055.67	UTM84-36S
KARC063	RC	134.00	8,596,500.1	572,699.7	1,029.24	UTM84-36S
KARC064	RC	127.00	8,596,399.9	572,675.3	1,036.36	UTM84-36S
KARC065	RC	72.00	8,596,102.1	572,599.5	1,052.75	UTM84-36S
KARC066	RC	162.00	8,595,999.9	572,477.8	1,065.34	UTM84-36S
KARC067	RC	168.00	8,596,100.2	572,330.5	1,041.38	UTM84-36S
KARC068	RC	110.00	8,595,602.1	572,173.6	1,052.03	UTM84-36S
KARC069	RC	162.00	8,595,201.2	572,101.6	1,063.47	UTM84-36S
KARC070	RC	168.00	8,595,900.0	572,415.1	1,071.57	UTM84-36S
KARC071	RC	72.00	8,595,600.1	572,425.9	1,073.39	UTM84-36S
KARC072	RC	160.00	8,595,799.9	572,394.7	1,072.41	UTM84-36S
KARC073	RC	162.00	8,595,685.3	572,325.9	1,070.76	UTM84-36S
KARC074	RC	90.00	8,595,500.9	572,388.0	1,082.97	UTM84-36S
KARC075	RC	90.00	8,595,400.8	572,359.9	1,083.89	UTM84-36S
KARC076	RC	72.00	8,595,322.2	572,349.6	1,087.15	UTM84-36S
KARC077	RC	156.00	8,595,300.6	572,249.7	1,080.02	UTM84-36S
KARC078	RC	120.00	8,595,400.0	572,259.8	1,075.92	UTM84-36S
KARC079	RC	168.00	8,595,500.5	572,284.5	1,071.37	UTM84-36S
KARC080	RC	168.00	8,595,500.2	572,190.0	1,057.09	UTM84-36S
KARC081	RC	86.00	8,597,249.5	573,041.1	1,046.03	UTM84-36S
KARC082	RC	81.00	8,597,200.3	573,011.1	1,050.46	UTM84-36S
KARC083	RC	51.00	8,597,149.1	573,001.2	1,051.63	UTM84-36S
KARC084	RC	101.00	8,597,150.1	572,960.3	1,052.88	UTM84-36S
KARC085	RC	121.00	8,597,149.9	572,939.6	1,052.37	UTM84-36S
KARC086	RC	41.00	8,597,098.8	572,981.0	1,048.29	UTM84-36S
KARC087	RC	86.00	8,597,100.4	572,940.3	1,050.75	UTM84-36S
KARC088	RC	106.00	8,597,100.2	572,919.8	1,050.40	UTM84-36S
KARC089	RC	51.00	8,597,049.3	572,942.0	1,046.21	UTM84-36S
KARC090	RC	61.00	8,597,049.3	572,930.3	1,046.77	UTM84-36S
KARC091	RC	116.00	8,597,049.8	572,885.2	1,047.22	UTM84-36S
KARC092	RC	45.00	8,596,999.9	572,919.9	1,044.32	UTM84-36S
KARC093	RC	101.00	8,596,999.7	572,879.1	1,044.85	UTM84-36S
KARC094	RC	126.00	8,596,999.8	572,858.6	1,044.00	UTM84-36S
KARC095	RC	56.00	8,596,949.6	572,879.8	1,042.24	UTM84-36S
KARC096	RC	35.00	8,596,899.6	572,879.7	1,040.13	UTM84-36S
KARC097	RC	51.00	8,596,899.8	572,859.7	1,039.45	UTM84-36S
KARC098	RC	90.00	8,596,899.6	572,839.6	1,038.71	UTM84-36S
KARC099	RC	41.00	8,596,849.8	572,864.4	1,037.89	UTM84-36S
KARC100	RC	61.00	8,596,850.0	572,844.3	1,036.66	UTM84-36S
KARC101	RC	41.00	8,596,800.1	572,854.8	1,035.91	UTM84-36S
KARC102	RC	71.00	8,596,799.6	572,834.8	1,034.33	UTM84-36S
KARC103	RC	36.00	8,596,748.5	572,857.3	1,035.08	UTM84-36S
KARC104	RC	121.00	8,596,749.8	572,795.5	1,028.73	UTM84-36S
KARC105	RC	41.00	8,596,699.1	572,840.2	1,031.50	UTM84-36S
KARC106	RC	61.00	8,596,703.9	572,821.8	1,030.89	UTM84-36S
KARC107	RC	96.00	8,596,698.6	572,800.6	1,027.82	UTM84-36S
KARC108	RC	36.00	8,596,649.5	572,827.2	1,027.18	UTM84-36S
KARC109	RC	126.00	8,597,200.0	572,949.8	1,052.45	UTM84-36S
KARC110	RC	91.00	8,597,249.1	573,001.6	1,048.89	UTM84-36S
KARC111	RC	121.00	8,596,698.1	572,779.5	1,025.29	UTM84-36S
KARC112	RC	141.00	8,597,250.3	572,961.1	1,050.80	UTM84-36S
KARC113	RC	41.00	8,596,549.1	572,789.7	1,026.01	UTM84-36S
KARC114	RC	73.00	8,596,549.5	572,769.5	1,026.65	UTM84-36S
KARC115	RC	36.00	8,596,448.9	572,779.4	1,035.87	UTM84-36S
KARC116	RC	26.00	8,596,398.0	572,775.9	1,041.06	UTM84-36S
KARC117	RC	66.00	8,596,399.8	572,737.9	1,039.34	UTM84-36S
KARC118	RC	56.00	8,596,348.5	572,737.7	1,043.66	UTM84-36S
KARC119	RC	71.00	8,596,348.4	572,720.1	1,043.38	UTM84-36S
KARC120	RC	46.00	8,596,299.2	572,720.6	1,047.04	UTM84-36S
KARC121	RC	76.00	8,596,298.0	572,700.4	1,047.01	UTM84-36S
KARC122	RC	41.00	8,596,250.3	572,693.9	1,051.41	UTM84-36S
KARC123	RC	61.00	8,596,250.5	572,672.9	1,049.54	UTM84-36S
KARC124	RC	106.00	8,596,249.5	572,630.2	1,044.37	UTM84-36S
KARC125	RC	101.00	8,596,200.0	572,610.1	1,047.55	UTM84-36S
KARC126	RC	66.00	8,596,199.0	572,651.8	1,051.51	UTM84-36S
KARC127	RC	46.00	8,596,198.0	572,674.6	1,051.81	UTM84-36S
KARC128	RC	24.00	8,596,149.2	572,651.4	1,051.70	UTM84-36S
KARC129	RC	48.00	8,596,150.4	572,630.1	1,053.09	UTM84-36S
KARC130	RC	26.00	8,596,100.0	572,620.3	1,051.60	UTM84-36S
KARC131	RC	66.00	8,596,100.0	572,580.9	1,054.05	UTM84-36S
KARC132	RC	21.00	8,596,049.9	572,601.2	1,053.72	UTM84-36S

Hole identification	Hole Type	Max depth (M)	Northing	Easting	Elevation	Grid type
KARC133	RC	46.00	8,596,049.5	572,580.3	1,055.62	UTM84-36S
KARC134	RC	51.00	8,595,999.8	572,559.0	1,057.51	UTM84-36S
KARC135	RC	81.00	8,595,999.8	572,538.4	1,059.89	UTM84-36S
KARC136	RC	26.00	8,595,952.2	572,565.3	1,060.14	UTM84-36S
KARC137	RC	54.00	8,595,954.1	572,546.0	1,060.70	UTM84-36S
KARC138	RC	36.00	8,595,799.7	572,416.0	1,070.82	UTM84-36S
KARC139	RC	71.00	8,595,801.0	572,376.9	1,071.90	UTM84-36S
KARC140	RC	46.00	8,595,748.0	572,379.7	1,072.21	UTM84-36S
KARC141	RC	56.00	8,595,699.3	572,348.0	1,071.05	UTM84-36S
KARC142	RC	61.00	8,595,649.5	572,336.4	1,075.39	UTM84-36S
KARC143	RC	81.00	8,595,648.6	572,315.5	1,072.66	UTM84-36S
KARC144	RC	66.00	8,595,748.5	572,362.6	1,069.53	UTM84-36S
KARC145	RC	71.00	8,595,399.6	572,280.0	1,078.51	UTM84-36S
KARC146	RC	56.00	8,595,349.5	572,293.1	1,087.32	UTM84-36S
KARC147	RC	91.00	8,595,349.6	572,271.7	1,081.23	UTM84-36S
KARC148	RC	51.00	8,595,301.8	572,293.3	1,085.50	UTM84-36S
KABH001D	RC	48.00	8,595,501.5	573,547.9	1,025.32	UTM84-36S
KABH001S	RC	28.00	8,595,500.3	573,542.8	1,025.30	UTM84-36S
KABH002D	RC	52.00	8,596,143.0	573,699.6	1,034.91	UTM84-36S
KABH002S	RC	30.00	8,596,147.6	573,699.2	1,034.36	UTM84-36S
KABH003D	RC	80.00	8,598,383.0	573,578.2	1,044.83	UTM84-36S
KABH003S	RC	40.00	8,598,379.3	573,575.4	1,044.72	UTM84-36S
KABH004D	RC	60.00	8,595,501.7	572,385.1	1,083.18	UTM84-36S
KABH004S	RC	30.00	8,595,500.8	572,445.4	1,063.29	UTM84-36S
KABH005D	RC	80.00	8,595,403.3	572,133.2	1,055.77	UTM84-36S
KABH005S	RC	20.00	8,595,405.5	572,197.5	1,060.95	UTM84-36S
KABH006D	RC	35.00	8,596,448.7	572,776.8	1,035.80	UTM84-36S
KABH006S	RC	10.00	8,596,444.6	572,789.9	1,035.62	UTM84-36S
KABH007D	RC	95.00	8,596,400.4	572,671.8	1,035.97	UTM84-36S
KABH007S	RC	45.00	8,596,401.6	572,692.7	1,036.78	UTM84-36S
KABH008S	RC	32.00	8,596,699.5	572,841.0	1,038.39	UTM84-36S
KABH009D	RC	50.00	8,596,130.9	574,300.2	1,019.13	UTM84-36S
KABH009S	RC	25.00	8,596,125.8	574,300.7	1,018.71	UTM84-36S
KABH010D	RC	60.00	8,596,075.3	575,057.8	1,011.88	UTM84-36S
KABH010S	RC	40.00	8,596,080.8	575,052.6	1,012.35	UTM84-36S
KABH011D	RC	80.00	8,595,985.3	575,473.7	1,031.83	UTM84-36S
KABH011S	RC	40.00	8,595,978.8	575,470.1	1,038.96	UTM84-36S
KADD001	DD	98.40	8,595,699.6	572,424.2	1,069.19	UTM84-36S
KADD002	DD	78.15	8,596,299.9	572,700.3	1,046.85	UTM84-36S
KADD003	DD	92.35	8,596,750.2	572,818.8	1,031.03	UTM84-36S
KADD004	DD	56.00	8,596,800.4	572,850.1	1,035.28	UTM84-36S
KADD006	DD	305.11	8,597,051.2	572,786.9	1,040.75	UTM84-36S
KADD007	DD	79.41	8,597,048.9	572,920.6	1,046.75	UTM84-36S
KADD008	DD	97.41	8,597,048.9	572,899.3	1,047.13	UTM84-36S
KADD009	DD	58.67	8,597,100.0	572,959.7	1,049.95	UTM84-36S
KADD010	DD	67.77	8,596,999.8	572,900.9	1,045.02	UTM84-36S
KADD011	DD	91.41	8,596,800.2	572,813.9	1,032.97	UTM84-36S
KADD012	DD	103.81	8,596,649.7	572,783.4	1,021.18	UTM84-36S
KADD013	DD	78.61	8,596,599.1	572,774.4	1,020.39	UTM84-36S
KADD014	DD	52.56	8,596,451.6	572,759.5	1,035.38	UTM84-36S
KADD015	DD	29.01	8,596,348.2	572,761.6	1,041.28	UTM84-36S
KADD016	DD	100.86	8,596,252.0	572,648.0	1,044.37	UTM84-36S
KADD017	DD	75.73	8,596,149.5	572,606.3	1,050.41	UTM84-36S
KADD018	DD	52.92	8,596,049.5	572,559.3	1,057.24	UTM84-36S
KADD019	DD	83.90	8,595,700.0	572,304.3	1,065.79	UTM84-36S
KADD020	DD	99.65	8,595,300.3	572,230.0	1,077.90	UTM84-36S
KADD021	DD	86.60	8,597,200.5	573,019.8	1,049.51	UTM84-36S
KADD022	DD	78.40	8,597,050.0	572,970.2	1,044.61	UTM84-36S
KADD023	DD	80.00	8,597,049.7	572,987.0	1,043.06	UTM84-36S
KADD024	DD	32.40	8,597,050.1	572,960.4	1,045.43	UTM84-36S
KADD025	DD	62.40	8,596,999.8	572,921.7	1,044.27	UTM84-36S
KADD026	DD	82.30	8,596,749.8	572,838.9	1,033.55	UTM84-36S
KADD027	DD	206.40	8,597,150.7	572,921.0	1,051.33	UTM84-36S
KADD028	DD	63.20	8,596,299.7	572,654.7	1,041.87	UTM84-36S
KADD029	DD	39.70	8,596,348.8	572,738.5	1,043.71	UTM84-36S
KARC149	RC	61.00	8,595,301.3	572,270.7	1,082.60	UTM84-36S
KARC150	RC	56.00	8,595,249.9	572,260.0	1,083.23	UTM84-36S
KARC151	RC	81.00	8,595,249.7	572,240.7	1,081.66	UTM84-36S
KARC152	RC	106.00	8,595,350.0	572,250.7	1,077.45	UTM84-36S
KARC153	RC	31.00	8,595,199.7	572,263.4	1,084.83	UTM84-36S
KARC154	RC	191.00	8,597,149.4	572,902.7	1,049.79	UTM84-36S
KARC155	RC	191.00	8,597,353.2	572,951.3	1,050.20	UTM84-36S
KARC156	RC	96.00	8,597,251.4	572,981.9	1,049.86	UTM84-36S
KARC157	RC	24.00	8,597,201.0	573,031.6	1,048.10	UTM84-36S

Hole identification	Hole Type	Max depth (M)	Northing	Easting	Elevation	Grid type
KARC158	RC	70.00	8,597,201.0	572,990.9	1,051.62	UTM84-36S
KARC159	RC	90.00	8,597,210.3	572,972.8	1,051.85	UTM84-36S
KARC160	RC	30.00	8,597,176.1	573,022.7	1,049.59	UTM84-36S
KARC161	RC	40.00	8,597,175.7	573,002.0	1,051.54	UTM84-36S
KARC162	RC	66.00	8,597,175.3	572,994.1	1,052.14	UTM84-36S
KARC163	RC	102.00	8,597,175.9	572,951.4	1,053.00	UTM84-36S
KARC164	RC	24.00	8,597,150.9	573,022.4	1,049.92	UTM84-36S
KARC165	RC	36.00	8,597,126.0	572,991.5	1,051.04	UTM84-36S
KARC166	RC	60.00	8,597,125.9	572,970.4	1,051.83	UTM84-36S
KARC167	RC	90.00	8,597,126.4	572,949.9	1,052.15	UTM84-36S
KARC168	RC	102.00	8,597,126.2	572,929.3	1,051.86	UTM84-36S
KARC169	RC	36.00	8,597,101.9	573,002.9	1,047.47	UTM84-36S
KARC170	RC	30.00	8,597,076.8	572,991.0	1,045.47	UTM84-36S
KARC171	RC	40.00	8,597,076.5	572,969.4	1,047.05	UTM84-36S
KARC172	RC	60.00	8,597,076.6	572,950.2	1,048.57	UTM84-36S
KARC173	RC	78.00	8,597,076.7	572,929.7	1,049.20	UTM84-36S
KARC174	RC	102.00	8,597,076.6	572,912.8	1,049.14	UTM84-36S
KARC175	RC	24.00	8,597,027.1	572,951.2	1,044.08	UTM84-36S
KARC176	RC	48.00	8,597,026.9	572,930.2	1,045.36	UTM84-36S
KARC177	RC	78.00	8,597,026.8	572,908.9	1,046.23	UTM84-36S
KARC178	TR	99.00	8,597,026.6	572,890.4	1,046.40	UTM84-36S
KARC179	RC	126.00	8,597,025.3	572,865.5	1,045.81	UTM84-36S
KARC180	RC	18.00	8,597,001.7	572,941.1	1,043.29	UTM84-36S
KARC181	RC	18.00	8,596,976.4	572,929.8	1,042.81	UTM84-36S
KARC182	RC	36.00	8,596,976.9	572,911.0	1,043.61	UTM84-36S
KARC183	RC	60.00	8,596,977.1	572,892.1	1,043.80	UTM84-36S
KARC184	RC	96.00	8,596,977.0	572,870.8	1,043.32	UTM84-36S
KARC185	RC	30.00	8,596,927.2	572,890.4	1,041.08	UTM84-36S
KARC186	RC	54.00	8,596,926.8	572,871.4	1,041.20	UTM84-36S
KARC187	RC	78.00	8,596,927.2	572,851.2	1,040.43	UTM84-36S
KARC188	RC	30.00	8,596,877.6	572,879.3	1,039.37	UTM84-36S
KARC189	RC	48.00	8,596,877.8	572,860.4	1,038.41	UTM84-36S
KARC190	RC	72.00	8,596,877.4	572,842.6	1,037.76	UTM84-36S
KARC191	RC	54.00	8,596,501.9	572,762.8	1,031.52	UTM84-36S
KARC192	RC	72.00	8,596,451.5	572,739.6	1,034.31	UTM84-36S
KARC193	RC	90.00	8,596,451.4	572,720.4	1,033.79	UTM84-36S
KARC194	RC	96.00	8,596,401.8	572,695.5	1,036.99	UTM84-36S
KARC195	RC	83.00	8,596,351.4	572,700.3	1,040.28	UTM84-36S
KARC196	RC	102.00	8,596,351.4	572,680.6	1,039.57	UTM84-36S
KARC197	RC	33.00	8,596,326.3	572,729.1	1,045.73	UTM84-36S
KARC198	RC	72.00	8,596,326.4	572,719.2	1,045.37	UTM84-36S
KARC199	RC	24.00	8,596,276.4	572,710.0	1,048.88	UTM84-36S
KARC200	RC	66.00	8,596,276.6	572,693.8	1,048.27	UTM84-36S
KARC201	RC	36.00	8,596,226.3	572,679.5	1,052.77	UTM84-36S
KARC202	RC	60.00	8,596,226.2	572,664.8	1,050.63	UTM84-36S
KARC203	RC	90.00	8,596,324.6	572,690.2	1,042.09	UTM84-36S
KARC204	RC	66.00	8,596,324.6	572,670.2	1,040.80	UTM84-36S
KARC205	RC	110.00	8,596,324.8	572,665.7	1,040.70	UTM84-36S
KARC206	RC	96.00	8,596,299.8	572,660.5	1,042.06	UTM84-36S
KARC207	RC	84.00	8,596,274.6	572,669.3	1,044.51	UTM84-36S
KARC208	RC	90.00	8,596,225.0	572,640.6	1,045.81	UTM84-36S
KARC209	RC	93.00	8,596,149.2	572,587.6	1,050.81	UTM84-36S
KARC210	RC	90.00	8,596,100.7	572,562.6	1,054.83	UTM84-36S
KARC211	RC	96.00	8,596,049.2	572,539.9	1,058.99	UTM84-36S
KARC212	RC	102.00	8,596,000.0	572,519.4	1,061.65	UTM84-36S
KARC213	RC	24.00	8,595,898.3	572,455.8	1,070.48	UTM84-36S
KARC214	RC	36.00	8,595,898.1	572,435.6	1,070.91	UTM84-36S
KARC215	RC	60.00	8,595,898.1	572,395.4	1,070.41	UTM84-36S
KARC216	RC	24.00	8,595,847.9	572,441.2	1,071.05	UTM84-36S
KARC217	RC	42.00	8,595,848.1	572,420.7	1,071.28	UTM84-36S
KARC218	RC	54.00	8,595,848.0	572,400.0	1,070.68	UTM84-36S
KARC219	RC	72.00	8,595,848.0	572,379.7	1,069.48	UTM84-36S
KARC220	RC	24.00	8,595,774.0	572,409.4	1,070.39	UTM84-36S
KARC221	RC	48.00	8,595,773.9	572,390.9	1,072.07	UTM84-36S
KARC222	RC	72.00	8,595,775.4	572,374.3	1,071.60	UTM84-36S
KARC223	RC	24.00	8,595,722.9	572,390.7	1,069.72	UTM84-36S
KARC224	RC	42.00	8,595,723.4	572,370.4	1,069.00	UTM84-36S
KARC225	RC	66.00	8,595,723.1	572,353.2	1,067.95	UTM84-36S
KARC226	RC	84.00	8,595,748.6	572,340.6	1,064.05	UTM84-36S
KARC227	RC	84.00	8,595,773.1	572,349.8	1,065.86	UTM84-36S
KARC228	RC	78.00	8,595,723.6	572,329.4	1,064.53	UTM84-36S
KARC229	RC	24.00	8,595,750.1	572,396.6	1,071.67	UTM84-36S
KARC230	RC	78.00	8,595,648.5	572,307.9	1,071.76	UTM84-36S
KARC231	RC	36.00	8,595,648.8	572,365.2	1,074.23	UTM84-36S

Hole identification	Hole Type	Max depth (M)	Northing	Easting	Elevation	Grid type
KARC232	RC	78.00	8,595,698.3	572,328.9	1,069.02	UTM84-36S
KARC233	RC	36.00	8,595,597.8	572,282.0	1,068.32	UTM84-36S
KARC234	RC	60.00	8,595,597.9	572,264.4	1,066.92	UTM84-36S
KARC235	RC	78.00	8,595,597.1	572,237.4	1,057.92	UTM84-36S
KARC236	RC	162.00	8,597,049.6	572,872.6	1,046.38	UTM84-36S
KARC237	RC	60.00	8,595,597.7	572,309.8	1,074.64	UTM84-36S
KARCSTH001	RC	103.00	8,598,896.2	572,999.1	1,076.74	UTM84-36S
KARCSTH002	RC	100.00	8,598,897.5	573,199.5	1,068.84	UTM84-36S
KARCSTH003	RC	100.00	8,598,898.3	573,398.2	1,066.87	UTM84-36S
KARCSTH004	RC	92.00	8,598,898.2	573,601.3	1,055.32	UTM84-36S
KARCSTH005	RC	106.00	8,598,897.3	573,779.1	1,054.30	UTM84-36S
KATR001	TR	357.14	8,596,006.5	572,342.1	1,049.72	UTM84-36S
KATR002	TR	98.63	8,596,399.7	572,702.9	1,037.32	UTM84-36S
KATR003	TR	459.00	8,595,199.6	572,126.2	1,064.69	UTM84-36S
KATR004	TR	76.00	8,596,499.9	572,753.0	1,030.57	UTM84-36S
KATR005	TR	101.50	8,596,299.2	572,660.4	1,042.08	UTM84-36S
KATR006	TR	85.85	8,596,448.8	572,735.6	1,034.27	UTM84-36S
KATR007	TR	339.00	8,595,896.1	572,298.3	1,050.62	UTM84-36S
KATR008	TR	281.00	8,596,101.5	572,361.9	1,044.83	UTM84-36S
KATR009	TR	153.00	8,596,197.7	572,589.5	1,047.64	UTM84-36S
KATR010	TR	162.70	8,596,655.3	572,751.6	1,021.07	UTM84-36S
KATR011	TR	153.60	8,597,054.6	572,900.3	1,047.71	UTM84-36S
KATR012	TR	198.00	8,595,801.6	572,283.7	1,053.62	UTM84-36S
KATR013	TR	243.78	8,595,702.2	572,199.2	1,049.54	UTM84-36S
KATR014	TR	102.00	8,596,849.4	572,836.3	1,036.20	UTM84-36S
KATR015	TR	362.70	8,595,596.8	572,198.7	1,053.85	UTM84-36S
KATR016	TR	280.00	8,595,395.2	572,188.0	1,060.94	UTM84-36S
KATR017	TR	78.00	8,597,150.5	573,033.8	1,048.45	UTM84-36S
KATR018	TR	301.80	8,593,999.7	571,981.4	1,071.60	UTM84-36S
KATR019	TR	302.00	8,594,199.5	572,000.1	1,065.47	UTM84-36S
KATR020	TR	296.50	8,593,799.6	571,950.4	1,076.79	UTM84-36S
KATR021	TR	291.83	8,594,995.3	572,110.4	1,076.07	UTM84-36S
KATR022	TR	263.38	8,594,798.3	572,091.0	1,075.31	UTM84-36S
KATR023	TR	286.00	8,594,700.5	572,109.6	1,073.61	UTM84-36S
KAWH001	RC	61.00	8,595,292.0	572,070.0	1,056.99	UTM84-36S
KADD050	DD	118.45	8,595,298.7	572,211.9	1,075.63	UTM84-36S

Bulk Sample Pit ID	Drill Hole in Centre of Pit	Centre of Pit Northing	Centre of Pit Easting	Surface Pit Elevation	Pit Corner at surface	Corner Surface Northing	Corner Surface Easting	Corner Pit Floor Northing	Corner Pit Floor Easting	Pit Floor Elevation
Northern Zone										
KAPTN001	KARC042	8596950	572902	1042.5	NW	8596956	572896	8596951	572901	1038
					NE	8596956	572908	8596951	572903	
					SE	8596944	572908	8596949	572903	
					SW	8596944	572896	8596949	572901	
KAPTN002	KARC099	8596850	572867	1038	NW	8596856	572861	8596851	572866	1034
					NE	8596856	572873	8596851	572868	
					SE	8596844	572873	8596849	572868	
					SW	8596844	572861	8596849	572866	
KAPTN003	KARC101	8596800	572857	1036	NW	8596806	572851	8596801	572856	1032
					NE	8596806	572863	8596801	572858	
					SE	8596794	572863	8596799	572858	
					SW	8596794	572851	8596799	572856	
Central Zone										
KAPTC001	KARC128	8596149	572654	1051	NW	8596155	572648	8596150	572653	1047
					NE	8596155	572660	8596150	572655	
					SE	8596143	572660	8596148	572655	
					SW	8596143	572648	8596148	572653	
KAPTC002	KARC115	8596449	572782	1036	NW	8596455	572776	8596450	572781	1032
					NE	8596455	572788	8596450	572783	
					SE	8596443	572788	8596448	572783	
					SW	8596443	572776	8596448	572781	
KAPTC003	KADD030	8596199	572660	1052	NW	8596205	572654	8596200	572659	1048
					NE	8596205	572666	8596200	572661	
					SE	8596193	572666	8596198	572661	
					SW	8596193	572654	8596198	572659	
Southern Zone										
KAPTS001	KARC144	8595749	572365	1070	NW	8595755	572359	8595750	572364	1066
					NE	8595755	572371	8595750	572366	
					SE	8595743	572371	8595748	572366	
					SW	8595743	572359	8595748	572364	
KAPTS002	KARC217	8595848	572423	1071	NW	8595854	572417	8595849	572422	1067
					NE	8595854	572429	8595849	572424	
					SE	8595842	572429	8595847	572424	
					SW	8595842	572417	8595847	572422	
KAPTS003	KARC213	8595898	572459	1070	NW	8595904	572453	8595899	572458	1066
					NE	8595904	572465	8595899	572460	
					SE	8595892	572465	8595897	572460	
					SW	8595892	572453	8595897	572458	

TABLE B: Assay Information for Drill Data by Domain Type

Entandweni 1500-3000ppm Nb_2O_5 domain						
Hole identification	**from**	**to**	**Nb2O5**	**Ta2O5**	**U3O8**	**ZrSiO4**
KABH004D	20	45	1572	88	81	26
KADD001	6	30	3476	213	50	6183
KADD020	84	93	5361	475	326	16260
KADD031	53	55	2277	39	68	936
KADD032	82	98	2564	96	57	2038
KARC007	91	97	2207	23	57	681
KARC011	97	126	2542	100	52	4064
KARC012	0	9	3173	149	47	6187
KARC014	5	29	4399	204	63	7519
KARC016	0	19	2640	112	53	4192
KARC030	118	133	4334	199	57	8730
KARC031	121	144	3569	156	49	6051
KARC033	106	138	3365	211	53	6018
KARC035	105	125	2383	145	91	4586
KARC050	44	52	1558	58	48	3745
KARC051	37	78	1423	73	29	3693
KARC070	72	82	1138	35	29	1317
KARC071	0	26	2870	128	80	3664
KARC072	58	75	1242	53	27	2757
KARC073	80	115	2140	58	52	1628
KARC074	11	27	2768	113	56	2993
KARC075	0	4	2873	44	89	1704
KARC076	0	8	3958	103	90	1865
KARC077	64	82	2108	137	88	5308
KARC078	63	74	4337	203	47	9559
KARC079	66	92	1814	127	84	5033
KARC138	33	36	1432	22	45	192
KARC139	68	71	1330	25	66	606
KARC142	55	61	3059	35	91	337
KARC143	76	81	3636	38	94	317
KARC144	65	66	227	3	0	221
KARC145	50	60	1268	57	46	1409
KARC146	41	56	2213	93	62	4004
KARC147	61	74	1257	56	26	3170
KARC148	45	51	1567	109	53	3009
KARC149	50	61	2232	105	64	5987
KARC150	44	56	1982	88	51	4280
KARC151	55	71	2810	150	82	6578
KARC152	79	84	3139	174	48	4256
KARC222	72	72	668	37	9	1762
KARC225	58	66	1390	21	45	176
KARC226	73	84	2361	112	45	4230
KARC227	80	84	3295	39	103	135
KARC228	72	78	1660	69	26	2623
KARC232	76	78	1996	95	34	3780
KARC254	76	88	2267	159	55	11
KARC255	8	24	2254	84	57	9
KARC260	88	122	2693	131	57	12
KARC261	104	121	2592	128	42	17
KARC264	13	46	2021	108	36	21
KARC265	18	35	2047	90	51	23
KARC269	35	63	2176	144	108	14
KARC271	69	83	1294	70	33	18
KARC272	34	52	2045	106	78	16
KARC274	14	30	2615	76	63	32
KARC275	21	32	3721	179	67	13
KARC277	82	94	2831	187	49	14
KARC278	97	149	2657	125	53	17
KARC295	143	163	2084	127	44	26
KARC296	39	53	1907	124	50	15
KARC298	105	111	3193	133	78	16
KARC302	85	97	2538	178	106	30
KATR007	219	243	4156	164	82	13415
KATR012	174	198	1925	70	58	7063
KATR013	236	244	3737	181	66	7184

Milenje 1500-3000ppm Nb_2O_5 domain						
Hole identification	**from**	**to**	**Nb2O5**	**Ta2O5**	**U3O8**	**ZrSiO4**
KABH004D	53	60	1527	77	101	16
KABH006D	0	35	4296	139	110	49
KABH007D	63	95	1061	43	30	36
KABH008S	0	32	2981	159	140	29
KADD001	55	90	2521	130	124	7973
KADD002	0	54	3700	163	117	3252
KADD003	0	66	4072	213	112	4403
KADD004	0	26	5386	189	194	1701
KADD006	117	206	1723	91	50	3604
KADD007	18	59	5000	183	172	5308
KADD008	35	85	5239	228	195	3039
KADD009	28	50	11354	684	433	8617
KADD010	11	56	7079	197	226	4379
KADD011	24	74	4613	204	110	5722
KADD012	4	86	3453	156	87	3886
KADD013	1	69	3155	135	75	3438
KADD014	3	44	4453	177	121	4569
KADD016	11	86	2340	130	68	2744
KADD017	12	54	2699	153	74	2428
KADD018	32	53	4867	252	105	7576
KADD021	54	87	4831	147	149	1640
KADD022	0	17	850	44	37	5705
KADD023	0	10	599	28	14	1494
KADD024	3	24	4203	249	152	11609
KADD025	0	32	3215	117	95	5099
KADD026	0	33	2970	149	143	2775
KADD027	78	117	3800	159	115	3733
KADD029	0	30	4327	224	128	9838
KADD030	0	45	4543	184	97	4598
KADD032	116	122	869	49	65	9529
KADD054	130	202	2415	121	58	25
KAPEDD001	178	250	2621	107	84	2799
KARC002	8	78	2773	124	72	4119
KARC003	0	42	3816	151	108	6428
KARC012	11	39	3434	165	79	5954
KARC014	54	90	2233	111	87	6943
KARC016	39	62	2417	116	62	3197
KARC019	0	29	2578	126	60	5253
KARC022	0	120	2696	108	67	4315
KARC023	0	28	2939	93	81	4430
KARC024	0	36	3108	121	97	7357
KARC025	27	97	1790	74	48	2599
KARC026	5	71	3255	147	82	4087
KARC030	135	144	3152	107	57	3892
KARC037	4	74	2405	90	42	2872
KARC038	8	56	2471	90	69	1962
KARC039	0	70	4494	225	138	4187
KARC040	57	133	1625	70	44	1811
KARC041	0	148	3081	157	114	5780
KARC042	0	24	5849	204	234	7023
KARC043	23	68	3264	117	95	3526
KARC044	7	27	5907	230	193	14454
KARC045	27	75	5275	224	208	5334
KARC046	19	75	3862	158	91	4460
KARC047	0	123	3030	154	96	6652
KARC050	65	84	1392	75	44	2435
KARC052	70	120	1659	75	66	4193
KARC053	0	29	3619	145	157	4007
KARC054	20	104	2639	117	53	3424
KARC055	31	52	4844	315	213	16755
KARC056	58	140	2940	137	59	4486
KARC057	15	124	1862	82	44	3214
KARC058	0	50	3197	112	84	3028
KARC059	0	162	2581	132	85	3677
KARC060	0	36	6024	221	221	3270
KARC061	67	80	2239	24	66	736
KARC062	0	26	4213	166	109	5707
KARC063	61	107	1756	106	72	3346
KARC064	46	101	2756	127	56	4134
KARC065	8	38	3759	152	67	4972
KARC066	75	126	1674	86	67	6569
KARC070	97	117	1388	76	70	7203
KARC071	31	45	2695	113	94	4246
KARC072	90	122	1044	63	51	2680
KARC074	30	46	2329	98	87	3009
KARC075	6	42	1994	89	43	2949
KARC076	18	45	1482	79	38	2906
KARC078	79	91	1810	104	78	5749
KARC079	108	111	1661	71	189	100041
KARC082	25	31	12042	688	378	9971
KARC083	16	22	4176	294	208	18975
KARC084	46	68	8471	642	464	16396

Milenje 1500-3000ppm Nb_2O_5 domain						
KARC085	64	94	7696	393	275	5592
KARC086	13	34	2377	159	94	7239
KARC087	42	61	4449	172	149	2174
KARC088	52	90	4072	160	133	3133
KARC089	12	40	6140	264	218	4526
KARC090	14	54	5107	256	202	6253
KARC091	43	104	3931	146	100	4043
KARC092	0	35	3438	130	111	3614
KARC093	31	88	3016	113	78	3069
KARC094	41	119	3854	164	86	5965
KARC095	7	46	3362	124	123	4107
KARC096	0	23	3908	149	127	4072
KARC097	11	44	3131	128	86	4124
KARC098	21	66	4076	195	95	6922
KARC099	0	28	5327	221	207	6812
KARC100	10	45	3125	128	77	4854
KARC101	0	19	5509	228	188	14878
KARC102	8	48	3872	133	109	4786
KARC103	0	12	954	74	174	12402
KARC104	24	96	3288	153	74	4253
KARC105	0	21	1586	109	215	9152
KARC106	0	49	4012	202	148	5699
KARC107	8	83	3711	168	113	5507
KARC108	0	14	3521	164	130	4616
KARC109	71	99	5402	278	200	4979
KARC110	55	59	3662	152	105	7053
KARC111	29	108	2826	127	67	3213
KARC112	74	105	2554	84	77	1763
KARC113	0	27	4310	192	134	4737
KARC114	0	56	2139	114	75	3953
KARC115	0	29	5538	207	147	4909
KARC116	0	18	3860	183	150	6230
KARC117	0	62	3709	159	99	4651
KARC118	0	31	6040	407	200	8964
KARC119	0	64	3257	137	88	4688
KARC120	0	13	2674	115	76	10592
KARC121	0	52	3090	136	96	5302
KARC122	0	19	2669	123	63	4206
KARC123	0	50	5735	221	151	5435
KARC124	26	94	2338	133	64	3379
KARC125	30	83	1234	76	34	2382
KARC126	0	52	3960	183	89	4634
KARC127	0	26	2492	122	61	3311
KARC128	0	17	6156	259	146	5245
KARC129	0	36	3039	147	59	4513
KARC130	0	10	4244	207	99	4563
KARC131	29	59	2654	138	74	3789
KARC132	0	14	2843	136	69	4181
KARC133	12	39	2589	108	79	3536
KARC134	0	45	2702	126	54	3824
KARC135	19	75	3105	162	71	4487
KARC136	4	17	2414	117	60	2980
KARC137	23	43	2905	142	65	3178
KARC145	66	71	1603	103	70	3742
KARC147	77	86	1235	81	46	1957
KARC152	91	103	2013	89	77	4222
KARC154	83	177	3739	167	86	5120
KARC155	147	191	2863	140	95	3141
KARC156	63	81	6230	159	178	1306
KARC157	8	11	1866	112	53	7185
KARC158	44	60	6208	410	232	8346
KARC159	51	78	3698	190	142	6759
KARC160	2	8	3335	245	142	11603
KARC161	24	29	4656	296	168	17081
KARC162	36	51	6787	491	306	28265
KARC163	60	82	3877	142	119	1953
KARC164	0	7	2332	147	87	4218
KARC165	15	34	2576	156	88	8625
KARC166	27	51	4881	297	177	13156
KARC167	46	69	11218	556	389	7661
KARC168	62	87	4697	203	169	4027
KARC169	12	19	2804	202	116	7278
KARC170	0	16	11719	870	466	14145
KARC171	8	28	3447	192	118	6786
KARC172	18	49	4133	185	130	6338
KARC173	34	68	3396	146	131	6010
KARC174	41	88	5363	242	198	2223
KARC175	0	12	2701	110	74	5907
KARC176	3	42	7872	360	268	4306
KARC177	21	70	4104	141	143	2550
KARC178	32	91	3631	138	105	3764
KARC179	42	118	3596	156	75	4723
KARC180	0	16	3855	171	136	7091
KARC181	0	7	2385	80	71	4733

Milenje 1500-3000ppm Nb_2O_5 domain						
KARC182	0	32	4711	192	162	4673
KARC183	7	50	4593	172	181	4379
KARC184	20	83	3158	127	87	4367
KARC185	0	23	3536	126	130	3822
KARC186	4	45	3023	120	102	3406
KARC187	16	69	2649	114	68	3367
KARC188	0	22	4364	186	153	2590
KARC189	3	35	3427	140	103	4528
KARC190	17	58	3352	147	78	5131
KARC191	7	46	3067	127	73	4494
KARC192	17	59	2715	125	65	3850
KARC193	31	70	2368	98	55	2511
KARC194	20	93	2497	91	71	2613
KARC195	4	76	3801	183	74	4713
KARC196	22	95	3916	213	92	4617
KARC197	0	22	4799	249	154	4514
KARC198	0	64	3322	155	92	5791
KARC199	0	13	2794	123	68	4869
KARC200	0	55	2944	132	106	5418
KARC201	0	26	3747	165	83	3791
KARC202	0	50	4097	178	103	5308
KARC203	3	84	3505	162	85	5118
KARC204	19	66	2754	153	51	4852
KARC205	23	102	3240	176	75	4901
KARC206	22	89	3680	207	80	6460
KARC207	0	76	3054	148	73	4860
KARC208	7	76	2372	125	69	3530
KARC209	37	88	2123	120	70	4045
KARC210	48	79	2035	100	76	3482
KARC211	48	86	2246	117	59	3834
KARC212	36	91	2861	149	74	3579
KARC236	52	124	3997	179	96	4209
KARC239	114	162	3347	87	105	50
KARC241	105	177	3427	142	93	40
KARC244	79	168	3631	159	101	25
KARC248	46	158	3470	172	106	23
KARC249	29	88	2453	126	53	20
KARC250	58	98	1626	109	47	18
KARC252	67	154	2362	142	99	27
KARC255	26	59	2657	138	32	9
KARC264	62	111	2450	160	100	11
KARC265	41	79	2570	135	69	17
KARC268	112	152	1099	45	35	32
KARC269	66	80	1926	125	110	11
KARC270	102	153	1277	57	51	24
KARC271	99	100	87	4	3	5
KARC273	85	92	2398	106	86	37
KARC274	32	59	3076	193	60	17
KARC275	35	64	2314	145	85	20
KARC277	101	108	1919	140	112	28
KARC278	156	170	4071	239	50	9
KARC285	117	158	2370	133	40	16
KARC288	139	157	3445	108	88	25
KARC290	77	127	2529	124	110	18
KARC292	165	180	2283	129	45	16
KARC294	162	197	2042	136	53	7
KARC295	174	200	2571	192	119	12
KARC297	128	135	2614	160	59	25
KARC298	121	140	2504	129	37	14
KARC299	66	118	2688	94	68	23
KARD240	167	242	2540	148	82	42
KARD243	183	267	1623	72	57	32
KARD246	144	228	2646	146	102	27
KARD251	82	141	1751	98	69	25
KARD279	99	149	1486	73	53	31
KARD286	160	184	1144	46	27	11
KARD300	72	119	1237	66	35	32
KARD301	66	118	1789	98	55	17
KATR001	217	271	2695	73	72	3935
KATR002	19	91	3070	138	101	8368
KATR003	202	244	3545	239	137	8910
KATR004	31	72	2216	94	95	3803
KATR005	28	74	7992	277	245	15437
KATR006	25	80	3782	125	116	8670
KATR007	249	283	4570	187	86	9399
KATR008	250	271	4044	156	90	5016
KATR009	47	112	3956	156	91	8900
KATR010	40	97	3384	151	122	11594
KATR011	68	97	4138	253	164	12985
KATR014	21	62	3554	145	160	26973

Uzambazi 1500-3000ppm Nb_2O_5 domain						
Hole identification	**from**	**to**	**Nb2O5**	**Ta2O5**	**U3O8**	**ZrSiO4**
KABH004D	0	13	1374	75	22	27
KADD019	15	84	2006	120	56	2824
KADD020	21	75	2910	161	57	5290
KADD031	0	44	2974	101	69	3062
KADD032	0	74	2766	157	80	5217
KARC001	93	103	2988	123	48	6578
KARC007	29	73	1935	92	59	3453
KARC008	19	49	1665	78	81	1710
KARC009	28	90	1718	83	66	6237
KARC010	0	13	1965	111	65	2855
KARC011	0	85	2422	92	53	4008
KARC013	0	20	3403	180	148	4146
KARC015	0	18	1740	69	37	2727
KARC015	18	104	2274	106	56	4396
KARC021	62	120	1892	51	48	3636
KARC027	31	45	1641	85	46	1201
KARC028	81	84	1869	42	45	538
KARC029	67	140	3156	120	56	3915
KARC033	51	100	2269	140	94	4676
KARC035	79	95	1782	107	91	5944
KARC036	133	161	2493	156	123	13703
KARC050	15	38	3546	158	68	5980
KARC051	0	21	1964	59	41	4008
KARC066	0	1	4436	124	117	21760
KARC067	98	165	2644	136	87	3899
KARC068	93	108	2756	47	70	7157
KARC070	0	41	3239	123	59	3557
KARC072	0	48	3554	119	74	3256
KARC073	0	72	3468	172	56	6442
KARC074	0	8	2010	105	30	4490
KARC077	9	61	3695	153	73	5236
KARC078	11	57	2607	146	65	5088
KARC079	0	51	2243	109	60	5146
KARC138	0	21	2501	77	66	2619
KARC139	0	62	3030	161	58	4694
KARC140	0	31	3484	144	70	4952
KARC141	0	56	3415	143	67	4409
KARC142	0	50	2920	119	63	4581
KARC143	0	66	2939	157	47	7459
KARC144	0	55	4167	178	72	6981
KARC145	0	33	2922	154	79	4152
KARC146	0	31	3495	161	83	4967
KARC147	0	58	2897	135	61	4601
KARC148	0	39	2068	76	52	2979
KARC149	0	43	3359	145	76	5936
KARC150	2	38	3641	173	67	5720
KARC151	15	54	4211	217	83	6341
KARC152	11	76	3681	202	68	7621
KARC153	0	24	2006	87	51	3656
KARC213	0	17	3257	152	117	2015
KARC214	0	26	3173	85	84	1762
KARC215	18	55	5061	222	100	7949
KARC216	0	9	2058	54	57	2205
KARC217	0	37	3803	110	97	3555
KARC218	0	54	3176	146	59	3927
KARC219	10	62	3571	191	80	5245
KARC220	0	11	2322	84	72	6042
KARC221	0	44	3164	114	76	6357
KARC222	0	60	3792	174	72	5862
KARC223	0	10	2488	96	70	15214
KARC224	0	41	3647	124	92	5634
KARC225	0	53	3319	149	58	4384
KARC226	0	67	4156	248	86	6063
KARC227	7	77	3854	208	85	4753
KARC228	0	64	2768	164	64	4206
KARC229	0	9	2912	109	70	3805
KARC230	0	72	3403	203	72	5927
KARC231	0	36	2552	49	71	1395
KARC232	0	70	4112	237	74	7446
KARC233	0	36	3625	175	63	9933
KARC234	13	60	3890	228	65	5675
KARC235	36	78	2100	128	67	3552
KARC237	0	60	2752	155	50	5017
KARC254	43	70	2373	144	70	14
KARC255	0	5	4516	159	108	12
KARC260	49	78	2103	115	58	17
KARC261	21	93	2061	124	99	16
KARC263	29	87	1768	125	87	14
KARC268	0	38	2760	128	64	14
KARC269	0	17	3418	194	58	16

Uzambazi 1500-3000ppm Nb_2O_5 domain						
KARC270	0	7	2715	114	59	35
KARC271	0	39	2328	105	81	12
KARC272	0	26	2439	136	48	25
KARC274	0	6	2001	46	49	15
KARC276	55	85	1949	98	63	13
KARC278	17	92	2046	131	71	10
KARC283	78	147	2674	113	69	17
KARC284	50	116	9617	248	298	44
KARC285	6	13	5059	373	226	17
KARC287	125	140	2692	128	82	12
KARC288	45	123	2127	87	61	16
KARC291	58	88	2416	86	62	29
KARC296	0	29	1849	69	48	12
KARC302	36	80	1771	116	70	21
KARD286	100	147	3024	146	50	28
KATR001	101	141	4641	160	129	3961
KATR007	110	178	4010	152	125	7060
KATR008	103	130	3617	154	78	7785
KATR012	71	159	4270	146	115	15472
KATR013	123	207	3555	155	87	11260

Pangano 1500-3000ppm Nb_2O_5 domain						
Hole identification	**from**	**to**	**Nb2O5**	**Ta2O5**	**U3O8**	**ZrSiO4**
KADD019	0	6.16	3,071	182	112	7,206
KADD020	0	9.32	2,371	133	97	7,506
KARC001	15.04	45.03	2,870	113	97	6,524
KARC004	0	102	2,181	96	61	2,554
KARC005	0	72.43	2,705	125	89	3,663
KARC006	0	30.82	2,165	88	55	2,255
KARC007	0	8	2,806	135	85	4,203
KARC008	0	13.96	1,949	107	71	5,129
KARC017	0	32.83	1,567	77	60	5,800
KARC029	16.17	38.82	2,929	112	77	4,814
KARC030	12.07	39.14	3,304	122	84	3,254
KARC031	6	30.04	3,197	117	90	2,762
KARC032	19.98	37.05	1,762	81	63	4,854
KARC033	17.05	24.07	1,739	86	65	3,516
KARC034	22.96	36	1,800	82	72	7,914
KARC035	7	40	2,240	90	57	1,881
KARC036	47.32	65.09	2,725	130	93	3,971
KARC067	57.06	74.25	2,491	112	78	7,948
KARC069	38.78	67.8	1,843	85	61	4,438
KARC077	0	2	2,084	108	65	6,386
KARC078	0	3	1,789	95	71	7,094
KARC080	37.88	52.66	2,126	104	83	5,723
KARC151	0	4	2,511	135	85	12,837
KARC152	0	3.95	1,102	65	47	2,960
KARC235	0	8	2,304	119	65	4,190
KARC253	68.1	74.09	1,622	88	58	12
KARC254	0	16.01	1,643	84	57	20
KARC256	52.99	60.04	1,426	80	49	10
KARC257	34.07	56.06	1,572	89	55	16
KARC259	28.02	43.02	2,084	106	80	20
KARC260	9.99	19.01	2,554	126	67	22
KARC261	0	19.28	3,031	151	103	27
KARC276	0	19	3,662	153	92	38
KARC283	24.11	67.04	2,573	104	84	18
KARC284	18.47	44.35	2,305	142	75	14
KARC287	59.06	81.05	2,286	95	86	21
KARC288	0	19.67	5,566	246	163	29
KARC291	0	39.94	2,234	97	77	24
KARC292	54.06	73.09	2,197	109	62	18
KARC294	68.18	89.18	1,884	105	69	15
KARC295	36.06	54.06	2,866	159	111	16
KARC298	0	11	2,272	97	57	23
KARC302	0	12	1,332	79	61	14
KARD282	70.3	90.88	3,145	121	108	17
KARD286	20.5	50.01	1,810	78	53	23
KARD289	57.29	85.54	2,214	104	77	19
KATR001	22.76	56.65	6,585	348	271	35,785
KATR003	37.87	100.71	3,359	167	154	33,753
KATR007	7.53	75.65	3,714	153	116	9,011
KATR008	39.11	94.79	4,568	231	164	20,603
KATR012	4.69	41.22	3,645	152	114	18,511
KATR013	65.82	112.8	3,315	143	130	29,407

Bulk sample assay information				
Pit	Name of sample	Type/Interval	Analysis result in %	
			Nb_2O_5	ZrO_2
KPTN001	KPTN001－N1－02	Bulk Pit	0.3297	0.287
KPTN001	KPTN001－N1－08	Bulk Pit	0.3415	0.297
KPTN001	KPTN001－N1－14	Bulk Pit	1.2355	0.86
KPTN001	KPTN001－N1－21	Bulk Pit	1.0343	1.449
KPTN001	KPTN001－N1－29	Bulk Pit	1.366	0.685
KPTN002	KPTN002－N2－03	Bulk Pit	0.6909	0.822
KPTN002	KPTN002－N2－10	Bulk Pit	0.7020	0.64
KPTN002	KPTN002－N2－13	Bulk Pit	0.6073	0.534
KPTC001	KPTC001－C－01	Bulk Pit	0.215	0.179
KPTC001	KPTC001－C－06	Bulk Pit	0.2411	0.2
KPTC001	KPTC001－C－14	Bulk Pit	0.2276	0.196
KPTC001	KPTC001－C－22	Bulk Pit	0.2294	0.117
KPTC001	KPTC001－C－28	Bulk Pit	0.2377	0.134
KPTC001	KPTC001－C－36	Bulk Pit	0.2261	0.127
KPTC001	KPTC001－C－46	Bulk Pit	0.2184	0.098
KPTS001	KPTS001－S1－04	Bulk Pit	0.274	0.365
KPTS001	KPTS001－S1－13	Bulk Pit	0.2433	0.239
KPTS001	KPTS001－S1－26	Bulk Pit	0.2788	0.284
KPTS001	KPTS001－S1－34	Bulk Pit	0.2534	0.27
KPTS001	KPTS001－S1－44	Bulk Pit	0.25	0.368

Table C: Relevant Environmental Legislation for Kanyika Project

	Legislation	Administrating Department	Requirements	Project Requirements/Compliance measures
Environmental Impact Assessment	Environment Management Act (No. 23 of 1996)	Environment Affairs	ESIA process documented.	Company must endeavour to promote a clean environment and ensure the protection, management, conservation and sustainable use of natural resources in Malawi. Mine must conduct an EIA process in terms of this Act to get environmental approval.
			Provides for listed activities for which an ESIA is required.	Listed activities to be assessed in the ESIA
			Environmental approval required before licence can be issued under other legislation.	Environmental approval is approved.
	ESIA Guidelines of 1997	Environment Affairs	ESIA process documented including public consultation process	Cognisance has been given to the requirements of the guideline in the ESIA process.
	EIA Guidelines for Mining of 2002	Environment Affairs	ESIA process documented. Guideline on report contents	Cognisance has been given to the requirements of the guideline in the ESIA process.
	Mines and Minerals Act (2018).	Mines	Mining Licence application to be accompanied by a statement indicating the impact on the environment.	The ESIA has been undertaken to ensure compliance with the requirements of the Act.
Waste	Environment Management Act (2016)	Environment Affairs: Waste	Regulation 30(1) No disposal site or plant for chemical waste shall be licensed under the regulations unless an environmental Impact assessment has been carried out in accordance with the provisions of this Act.	The KNP must apply for a waste licence for any waste disposal activities and/or waste disposal infrastructure, such as the on-site incinerator and waste dump. EIA to be undertaken for such sites in support of the waste licence.
	Environment Management Act (2016)	Environment Affairs: Waste	Regulation 35 importation of Chemicals. A license is required from the directorate for the importation of any chemicals.	The KNP will require the importation of small volumes of sulphuric acid for part of the pre-flotation process.
	Environment Management Act (2016)	Environment Affairs	A licence is required to handle, store, transport, or destroy waste or to generate waste or operate a waste disposal site.	Licence to be applied for by KNP
Water	CAP 72.03 Water Resources Act (1969)	Works, Supplies and Water Development	Governs water rights, water abstraction, pollution control, building of dams and water resource planning and development. Permit required for River Diversion and Dam.	The KNP will need to apply for a water right for the abstraction of groundwater and surface water, the construction of a dam, altering the flow of a public water resource.
	Water Resources (Water Pollution Control) Regulations	Water	Effluent Discharge Permits required for discharge of any polluted water into any natural resource.	The KNP will need to apply for a discharge permit for discharging polluted water into a water resource.
Biodiversity	The Malawian Forestry Act (Act No. 11 of 1997)	Forestry	The Malawian Forestry Act (Act No. 11 of 1997) prohibits construction in areas that are protected by the Act (e.g. Forest Reserves). Furthermore, section 46(a) states that "no person shall cut, take, fell, destroy, uproot, collect or remove forest products from a forest reserve, customary land, public land, or protected forest area.	The KNP will need to apply for authorisation for the removal of trees and clearance of vegetation to establish the KNP site and access routes.
	Cap 64:01 Plant Protection Act		Aim to prevent the introduction of alien weeds, invertebrate and microbial pests and provide for the eradication of pests, diseases and weeds that are destructive to plants and other habitats. The Acts further prevent the importation, culturing, distribution, selling and exportation of any plant forms and growth media such as rooting compost and soil without an official permit issued	A permit will be required to remove trees and clear vegetation. A management plan must be put in place to control alien weeds, pests and diseases, as well as authorisation to remove and store soil in topsoil stockpiles.

Legislation		Administrating Department	Requirements	Project Requirements/Compliance measures
			by the National Plant Protection Services.	
Air Quality	Environment Management Act (2016)	Environment Affairs	Licence is required to emit any gas or gaseous substance into the environment.	The KNP will require a permit for gaseous emissions as the three main air pollution activities are, diesel generators and vehicle emissions.
Radiation	Malawi Atomic Energy Draft Bill, 2009.	Atomic Energy Regulatory Authority	A licence is required for the mining and processing of radioactive materials.	The KNP will need to apply for a licence and provide all relevant information to the authority to be allowed to conduct mining operations.
			A radioactive waste management plan is to be in place for each stage of mining before mining can start.	The KNP will need to set up a radioactive waste management plan to ensure safety standards are in place prior to commencing mining.
Heritage	Monuments and Relics Act Cap 29.01	Department of Antiquities	No person shall without consent from the Minister carry out any mining project so as to cause damage to any relic or monument. Excavation permit is required to remove any relic or grave.	There are numerous sites of cultural significance on the KNP site. These sites will need to be preserved or an excavation permit will need to be applied for to move and/or remove any relics and graves.
Mining	Explosives Act Cap 14.09 and Regulations	Mines	Licences required for storage, possession, use and manufacturing of explosives. Blasting licences required.	The mine will need to apply for a licence to store, possess, and handle explosives. It will be necessary to apply for a blasting licence to carry out blasting activities. Licence to be applied for by KNP.
Resettlement	Town and Country Planning Act Cap 23.01	Ministry of Lands, Physical Planning & Survey	Controls acquisition of land and compensation due to use of land.	Act is of relevance in the calculation of compensation.
	The Malawi National Land Policy of 2002	Ministry of Lands, Physical Planning & Survey	Specifies the requirements for the payment of compensation, regulates the dispensation of customary land.	It will be necessary to resettle and compensate people living within the project area and buffer zones, along with potentially affected people from the road upgrade.
	Mines and Minerals Act (2018)	Ministry of Mines	According to this Act, the company must negotiate the acquisition and must pay fair market value for the land. The value of any permanent improvements that increase the productive capacity, utility or amenity of the land, and any appreciation of the land value.	Direct negotiation and payment to affected persons within the mine relocation area.
	Cap 66:05 Fisheries Conservation Management Act		The Act provides for the regulation, conservation and management of the fisheries of Malawi. The Act makes provisions for the degradation of spawning grounds by siltation and changing flow regimes and the identification and monitoring of pollution sources.	The project will negatively impact of surface water resources which can lead to the degradation of spawning grounds, siltation and the changing of flow regimes in certain watercourses due to mine infrastructure and dam. It will be necessary to monitor all pollution sources to comply with the Act.
Roads	Cap 69:12 Public Roads Act		The Public Roads Act provides for the management of road projects in such a way that the different stakeholders involved, especially the local communities, are not adversely affected by the road projects. The Act also requires the processing of land acquisition, resettlement, and compensation issues in accordance with the provisions of the Land Act, for proper implementation of public roads projects.	The project will need to follow the provisions of the Act to ensure compliance and the correct implementation of the public roads project.

Table D: Specialist Studies for the Kanyika Project

DISCIPLINE	STUDY APPROACH
Heritage	Desktop study involving a survey of available literature (The Heritage Atlas Database, The Environmental Potential Atlas. Review of satellite imagery and topocadastral maps. Field survey and interview of local inhabitants to identify heritage sites within the KNP area including graves and burial grounds, archaeological sites and historical sites. Documentation of the site description, locality (including mapping), assessment of the site significance and recommendations for further management of the site.
Visual Assessment	Site assessment to obtain an overview of the baseline visual environment at the KNP. Creation of a digital elevation model for the study area using GIS using ArcGIS 3D Analyst software. Insertion of project elevation data and inserting into elevation model. Identification of sensitive visual receptors. Viewshed analysis and determination of lines of sight from visual receptors.
Air Quality	Review of National and International Policy and Regulatory Requirements. Baseline characterisation of the air quality including collation of local fallout and PM10 dust levels. Collation of hourly average meteorological data the on-site weather station. Identification of sensitive receptor sites. Compilation of an emissions inventory for the proposed KNP project i.e. identification of air pollution sources. Dispersion modelling using the Atmospheric Dispersion Modelling System (ADMS) developed by the Cambridge Research Consultants (CERC). Prediction of highest hourly, daily and annual average ground level concentrations (particulates, SO_2, SO_3, NO_2 and Diesel Particulate Matter) for an area of 20 km by 20 km from the proposed mine pit. Prediction of dust fallout levels. Comparison of concentrations with international health screening guidelines.
Noise	Review of national and international noise standards and guidelines relevant to the project. Baseline noise sampling at key receptor points in the dry season and in the wet season. Estimation of sound power levels (noise emissions) from noise sources at the proposed project. Calculation of noise propagation using the Concawe Method (SANS 10357, 2004). Determination of the predicted noise impacts of the project. Comparison of ambient noise levels with the IFC noise guidelines for residential areas.
Radiation	Baseline radiological survey including: Measurement of terrestrial external radiation; Radioanalysis of radioactivity in soils and sediment; Radon gas exhalation from soil surface; Radon gas monitoring; Radioactivity in surface and groundwater. Assessment of applicable legislation and standards. Identification of sources of airborne radioactivity related to the Kanyika. Modelling of the potential dispersion of and airborne concentrations of radioactive dust and radon; Modelling of dispersion of and the potential deposition of dust in the environment due to the KNP. Determination of the potential public dose and exposure. Prospective assessment of worker radiation doses.
Soils and Land Capability	Review of available information (including proposed general arrangement drawing, satellite imagery) and development of reconnaissance sampling strategy. Soil sampling (auguring) over the project area using a reconnaissance grid. Soil analysis for chemical characteristics, soil fertility, nutrients, CEC and soil organic matter. Assessment of soil erosion and compaction characteristics. Soil characterisation and classification. Mapping of soil forms and families using the Taxonomic Soil Classification System of Mac Vicar *et al* (1991). Mapping of soils in terms of soil groups. Classification of soils in terms of land capability classes using the Canadian Land Inventory System and the Chamber of Mines Classification System. Prediction of potential impacts of mining activities on soils and land capability. Development of a working plan and utilisation guide for soils.
Hydrogeology	Desktop review of exploration borehole data. Hydrocensus of community boreholes in the vicinity of the Kanyika (14 boreholes). Drilling of hydrogeological boreholes (21 boreholes) to investigate hydrogeological conditions. Aquifer testing using hydrogeological boreholes. Numerical groundwater modelling (FEFLOW).
Geochemistry	Ground and surface water monitoring. Geochemical sampling and analysis of 2 tailings samples (saprock and primary ore) and 3 rock core samples (low grade ore, saprolite material and country rock). The samples were subjected to: Mineralogy analysis by XRD and XRF; Whole rock analysis by aqua regia digest and ICP analysis; Distilled water leach and ICP analysis; Acid-Base-Accounting; and net acid generating test. Determination of pollution potential of waste sources at the mine.
Surface Water	Collation of baseline surface water quality data. Desktop study of available information and pertinent legislation. Collation of rainfall data (Malawian Department of Climate Change and Meteorological Services for hydrological calculations and water balance modelling. Calculation of peak flood flows for a 1 in 100 year recurrence interval. Calculation of flood lines using the River CAD Professional river analysis software program. Determination of mean annual run-off and dry weather flows using the Pitman synthetic streamflow generation model. Development of a conceptual water management program for the KNP based on the general arrangement drawing. Development of a project water balance to determine the water-make and to determine the water requirements. Assessment of potential impacts on surface water.
Vibrations	Desktop review of pertinent legislation, policies and guidelines. Desktop review of the impact of flyrock, ground vibration and air shock that may result from the project. Recommendations for mitigation and monitoring