ASX and Media Release

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Updated Ranobe Mineral Resources and Ore Reserves estimates

Key Points

- Ranobe Mineral Resources estimate updated to incorporate available 2018/19 drilling program results.
- Estimated Ranobe Mineral Resources have almost doubled to 2,580Mt at an average heavy mineral grade of 4.3%.
- Ranobe Ore Reserves estimate has increased to 904Mt at an average heavy mineral grade of 6.1% - a 45% increase in contained heavy mineral.
- The 2018/19 drill program revealed further significant additional mineralisation at depth in the lower sandy unit, however, the mineralogy work required to include this geological domain in a Mineral Resources estimate has not yet been completed due to the suspension of on-ground activities.

African mineral sands producer, Base Resources Limited (ASX / AIM: BSE) (**Base Resources**) announces an update to the estimated Ranobe Mineral Resources (**2021 Ranobe Mineral Resources**) and Ore Reserves (**2021 Ranobe Ore Reserves**) at its 100% owned Toliara Project in Madagascar.

Table 1: 2021 Ranobe Mineral Resources estimate compared with the 2019 Ranobe Mineral Resources estimate.

						Mineral Assemblage as % of HM					
Category	Tonnes (Mt)	HM (Mt)	HM (%)	SL (%)	OS (%)	ILM (%)	RUT (%)	LEUC (%)	ZIR (%)	MON (%)	GARN (%)
2021 Ranobe Mineral Resources (as at 27 September 2021)											
Measured	597	36	6.1	4.3	0.2	74	1.0	1.0	5.9	1.9	2.2
Indicated	793	35	4.4	7.1	0.5	71	1.0	1.0	5.9	2.0	3.6
Inferred	1,190	39	3.3	9.7	0.6	69	1.0	1.0	5.8	2.0	4.3
Total	**2,580**	**111**	**4.3**	**7.7**	**0.4**	**71**	**1.0**	**1.0**	**5.9**	**2.0**	**3.4**
2019 Ranobe Mineral Resources* (as at 23 January 2019)											
Measured	419	28	6.6	4	0	75	2	-	6	-	-
Indicated	375	18	4.9	8	1	72	2	-	6	-	-
Inferred	499	20	3.9	7	1	70	2	-	5	-	-
Total	**1,293**	**66**	**5.1**	**6**	**0**	**72**	**2**	**-**	**6**	**-**	**-**

Table subject to rounding differences. Mineral Resources are reported inclusive of Ore Reserves.

**Rutile reported is rutile + leucoxene mineral species.*

The Ranobe Mineral Resources estimate has been updated to incorporate results from the 29,753m aircore drilling program completed over 2018 and 2019 which focused on defining the western and vertical extents of mineralisation for the Ranobe deposit, as well as high definition infill drilling for detailed mining planning over the first four years of mining (see Figure 1). Approximately 70% of drill samples from the 2018/19 drilling program have been assayed and results incorporated into the 2021 Ranobe Mineral Resources estimate. The remaining 30% of drill samples are awaiting dispatch in Toliara and will be assayed following the lifting of the on-the-ground suspension of activities by the Government of Madagascar. Significant mineralisation was discovered at depth in the lower sandy unit (**LSU**) (see Figure 2), however, the mineralogy required to include this geological domain in a Ranobe Mineral Resources estimate has not yet been completed due to the on-the-ground suspension.[1]

The 2021 Ranobe Mineral Resources are estimated to be 2,580 million tonnes (**Mt**) at an average heavy mineral (**HM**) grade of 4.3% for 111Mt of contained HM. The 2021 Ranobe Mineral Resources estimate represents an increase of 1,287Mt and 45Mt (or 68%) of contained HM compared with the previously announced Ranobe Mineral Resources estimate as at 23 January 2019 (**2019 Ranobe Mineral Resources**).

The 2021 Ranobe Mineral Resources estimated heavy mineral contains 2.0% monazite, which, given the grade and size of the deposit, represents a significant potential source of Rare Earth Oxides (**REO**) that will be investigated in future studies. Analysis of monazite produced from a bulk sample collected in 2018 indicated that 55% of the monazite comprised REO of which approximately 73% was cerium oxide (CeO_2) and lanthanum oxide (La_2O_3), 24% was neodymium oxide (Nd_2O_3) and praseodymium oxide (Pr_6O_{11}), 0.1% was dysprosium oxide (Dy_2O_3) and 0.02% was terbium oxide (Tb_4O_7).

Table 2: 2021 Ranobe Ore Reserves estimate compared with the 2019 Ranobe Ore Reserves estimate.

						Mineral Assemblage as % of HM			
Category	Tonnes (Mt)	HM (Mt)	HM (%)	SL (%)	OS (%)	ILM (%)	RUT (%)	LEUC^ (%)	ZIR (%)
2021 Ranobe Ore Reserves (as at 27 September 2021)									
Proved	433	30	6.9	3.8	0.1	75	1.0	1.0	6.0
Probable	472	25	5.3	3.9	0.2	72	1.0	1.0	5.8
Total	**904**	**55**	**6.1**	**3.8**	**0.1**	**73**	**1.0**	**1.0**	**5.9**
2019 Ranobe Ore Reserves (as at 27 November 2019)									
Proved	347	24	7.0	3.8	0.1	75	1.0	1.0	5.9
Probable	239	14	5.8	4.2	0.2	73	1.3	0.8	5.7
Total	**586**	**38**	**6.5**	**3.9**	**0.1**	**74**	**1.1**	**0.9**	**5.9**

Table subject to rounding differences.
^Recovered Leucoxene will be split between Rutile and Chloride Ilmenite depending on product specification requirements.

The 2021 Ranobe Ore Reserves are estimated to be 904Mt at an average HM grade of 6.1% for 55Mt of contained HM. The 2021 Ranobe Ore Reserves estimate represents an increase of 318Mt of ore and 17Mt (or 45%) of contained HM tonnes compared with the previously reported Ranobe Ore Reserves estimate as at 27 November 2019. No estimated monazite or garnet is incorporated in the 2021 Ranobe Ore Reserves because the existing mining tenure (*Permis D'Exploitation* 37242) (**PDE 37242**) does not currently provide the right to exploit them. For the term of PDE 37242, only the holder of that tenure, Base Resources' wholly-owned subsidiary, Base Toliara, can be granted the right to exploit these products, subject to satisfying all applicable criteria.

The 2021 Ranobe Mineral Resources and Ore Reserves estimates are reported in accordance with the JORC Code. Further information about both estimates is set out in the sections below and includes the information prescribed by the ASX Listing Rules. For both the 2021 Ranobe Mineral Resources and Ore Reserves estimates, the information provided should be read in conjunction with the explanatory information provided for the purposes of Sections 1 to 3 of Table 1 of the JORC Code, included as Appendix 1 to this announcement. For the 2021 Ranobe Ore Reserves estimate, the information provided should also be read in conjunction with the explanatory information provided for the purposes of Section 4 of Table 1 of the JORC Code.

A glossary of key terms used in this announcement is contained on pages 43 to 44.

[1] For further details about the results of the drill samples from the 2018/19 drilling program that have been assayed, refer to Base Resources' market announcement "Toliara Project drill assays reveal significant high-grade mineralisation" released on 21 January 202, which is available at https://baseresources.com.au/investors/announcements/.

Further information about the 2021 Ranobe Mineral Resources estimate

The Toliara Project is located on the 125.4 km^2 Mining Lease (*Permis D'Exploitation*) 37242, approximately 40 kilometres north of the regional town of Toliara in south-west Madagascar and approximately 15 kilometres inland from the coast (see Figure 3). The Toliara Project comprises a single continuous body of mineralisation known as the Ranobe deposit.

Drilling programs were conducted on the Ranobe deposit in 2001, 2003, 2005 and 2012 by the previous owners and in 2018 and 2019 by Base Resources (see Figure 1).

Mineral Resources estimation work previously carried out on the Ranobe deposit is as follows:

- 2004 by Ticor Pty Ltd;
- 2006 by Exxaro Resources Ltd;
- 2010 by Geocraft Consulting for Madagascar Resources NL;
- 2012 by McDonald Speijers and Associates for World Titanium Resources Limited;
- 2016 by World Titanium Resources Limited (**WTR**) Competent Person, Ian Ransome;
- 2017 by Base Resources Competent Person, Scott Carruthers; and
- 2019 by IHC Robbins for Base Resources.

The unconsolidated aeolian Quaternary sediments comprising the deposit overlie Eocene age limestone which in turn overlie Mesozoic limestone, marl and sandstone. The Ranobe deposit comprises three primary mineralised units; the upper sand unit (**USU**), intermediate clay sand unit (**ICSU**) and the LSU. Two secondary mineralised units which are subsets of the USU, the surficial silt unit (**SSU**) and the upper silty sand unit (**USSU**), are also present in limited parts of the deposit (see Figure 2 for stylised cross sections).

The USU is a well sorted fine-grained unconsolidated aeolian sediment containing approximately 4% slime or clay (**SL**) and approximately 5% HM, mainly ilmenite, zircon and rutile, and low oversize (**OS**), which on average is less than 1%. The ICSU is a thin unit primarily consisting of high slime content with a dark red to orange brown sandy clay and clayey sand material and typically averages 3% HM and 25% SL. It is interpreted to have been deposited in a low energy lagoonal environment. The LSU is orange brown to yellow brown medium grained quartz sand with variable mineralisation and moderately low slimes content. The LSU onlaps the limestone (**LST**) basement and, much like the USU unit, its thickness increases to the west with the 2018/2019 drilling proving this notion. The base of the LSU unit has the facies indicators of a shallow marine strand facies depositional environment, although this has not been tested extensively.

The geological interpretation for the Ranobe deposit considered the data in the drill logs, assay results, and the results of pilot plant-scale test work conducted on trial mining pits. Six geological domains have been identified - the five mineralised units (SSU, USU, USSU, ICSU, LSU) and the LST. Geostatistical contact analysis shows clear step changes in grade distributions across the interpreted geological contacts, giving confidence in the geological interpretation.

The right to mine the Ranobe deposit was granted to the prior owners under PDE 37242, which was reissued on 23 October 2017. PDE 37242 has a term of 40 years from 21 March 2012 (the date of the original grant of PDE 37242) and provides the right to carry out mining operations for the production of ilmenite, rutile, leucoxene and zircon and is renewable in units of 20 years. Accordingly, PDE 37242 does not presently provide the right to produce a monazite or REO.

The environment and land use are described as semi-arid with subsistence agriculture (seasonal farming and grazing) and forestry (including charcoal production).

A total of 1,581 drill holes were used for the 2021 Ranobe Mineral Resources estimate. The estimate has a more robust geological interpretation than the 2019 Ranobe Mineral Resources estimate as a result of additional drilling data and completion of wireframing, giving rise to improved boundary and block resolution and geological contact control. Consistency and quality of the mineral assemblage data has improved due to the increased density of Minmod composite sample coverage that now encompasses the entire resource, refer Figure 4.

In brief, Minmod is tailored to specific deposits and relies on a development stage where detailed assessment by QEMSCAN, XRF, XRD, wet chemistry and SEM of samples representative of the deposit spatially and of the range of HM grades present has been carried out so that a database of the deposit's heavy minerals and their chemistry may be developed. Once developed, composite samples from the deposit are fractionated magnetically, the fractions assayed by XRF and mineralogy derived from an error minimisation algorithm that varies the amount of minerals in the database and compares theoretical oxide levels to those from the assays. Composites were generated on roughly a 400 x 400m square grid, and from nominal 6m intervals downhole.

Drill hole collars were surveyed using DGPS for 2003, 2005, 2012, 2018 and 2019 drilling to establish horizontal and vertical control to UTM zone 38S, WGS 84. The 2001 and some of the later 2019 drill collars were surveyed by GPS. All collars were levelled to the LIDAR digital terrain surface to ensure consistency. All collar positions were deemed satisfactory and fit for purpose for the geological interpretation and interpolation processes.

Drilling was completed by the reverse circulation, air core (**RCAC**) method for all five drilling programs conducted to date, all carried out by Wallis Drilling. RCAC drilling was used to obtain 1 to 3m samples from which approximately 10 – 30kg was collected. Samples were dried, riffle split and submitted for assay. Three laboratories were used, and all followed the same assay procedure which conformed to AS4350.2-1999. All labs produced three assays: HM% (via sink float using tetrabromoethane), SL% (screened at 63µm) and OS% (screened at 1mm). This is described in the relevant section of Table 1 of the JORC Code included as Appendix 1 to this announcement.

Sampling and assaying were subjected to quality control processes by WTR and further by Base Resources with the submission of blind field duplicates and standards. The Base Resources QA/QC data for drilling undertaken in 2018 and 2019 was assessed and the HM, SL and OS duplicates/replicates were all subjected to log scatter plot, cumulative probability plot and general statistical investigation. The rate of submission for field duplicates was 1 in 32, for lab duplicates it was 1 in 19 and for standards it was 1 in 48. Analysis of the duplicate assays shows very high reproducibility for HM, giving confidence that the sampling process is producing highly representative samples.

Standard samples were prepared and submitted in 2018 and early 2019 for the generation of Certified Reference Material (**CRM**) with known mean and standard deviation for internal QA/QC. Unfortunately, the standard deviation generated from the CRM analyses was not considered tight enough to use as a QA/QC control; and a commercially available CRM was purchased and utilised for the later 2019 sample analysis.

Analysis of the drill sample variography for HM indicates for the USU a strike direction of NNW/SSE with strong grade relationships to 2,000m along strike and 600m across strike. The downhole relationship extends beyond 10m. The dominant drill spacing is 200m along strike and 100m across, with a dominant sampling interval of 1.5m. The drill spacing and sample interval are significantly closer than the variogram ranges and are therefore appropriate for resource estimation purposes.

Drill hole, collar and assay data are captured digitally and managed in a Microsoft Access database. Sufficient quality control has been undertaken to satisfy the Competent Person that the assay data is sound and may be used for resource estimation.

The topographic digital elevation model was initially captured by South Mapping Corporation in 2007 and then extended in 2019 and the survey data merged. The LIDAR data points were captured using an aircraft mounted 70 kHz laser which classified the data points into ground and non-ground points. The relative accuracy of this survey method is 15cm RMS in the vertical and 30cm RMS horizontal. The drill holes take their level from the LIDAR surface DEM. The coordinate system used is UTM zone 38 south (WGS 84).

Model cell dimensions of 50m x 100m x 1.5m in the XYZ orientations were used, in accordance with standard practice of taking half the distance between holes of the dominant drill hole spacing of 200m north-south and 100m east-west.

Interpolation was undertaken using various sized search ellipses to populate the model with primary grade fields (HM, SL and OS). Ordinary Kriging was used for primary assay fields. Mineralogy was interpolated by nearest neighbour.

The bulk density (**BD**) applied to the 2021 Ranobe Mineral Resources model was a component-based algorithm: BD = 1.61 + (0.01 x HM). Given the generally low slime levels and based on the experience of the Competent Person, this was considered appropriate.

The model was validated visually (by displaying wireframes, drill holes and model cells simultaneously and stepping through the model), statistically (by plotting distributions of model and drill hole grades together) and graphically (by preparing swathe plots or plots of drill hole and model grades by northing). Generally, the grade interpolation performed well for each of the domains and each of the primary assay grades.

The Mineral Resource classifications under the JORC Code for the Ranobe deposit have taken into consideration the drill hole spacing in plan view, as well the sample support within domains, the size, weighting and distribution of the mineral assemblage composites and the variography.

The Ranobe deposit has been assigned Mineral Resource classifications of Measured, Indicated and Inferred under the JORC Code. The criteria used to support those classifications were:

- regular drill hole spacing that defined the geology and HM mineralisation distribution and trends;
- domain controlled variography for HM that supported the drill spacing for each of the classifications; and
- the distribution of mineral assemblage composites having adequately identified the various mineralogical domains as well as the variability within those domains.

The drill pattern is not regular, but in general, Measured category material has a drill spacing of 100 x 200m and has Minmod mineral assemblage. Material in the Indicated category typically has hole spacing at 200 x 400m and Minmod mineralogy. Where line spacing is greater than 400m, but less than 1,600m, and/or limited mineralogical information is available, material is classified as Inferred. The drilling pattern and resource classification for the USU is shown in Figure 1.

The 2021 Ranobe Mineral Resources estimate is reported above a cut-off grade of 1.5% HM on the basis of likely economic cut-off grade.

Given the unconsolidated nature of the sediments, the low water table and Base Resource's dry mining expertise, the proposed mining method is dry mining by dozer. Processing could be achieved via standard mineral sands methods: spiral concentration, and magnetic and electrostatic separation. The physical properties of the heavy minerals at the Ranobe deposit are, from metallurgical test work, similar to other deposits being mined today.

Further information about the 2021 Ranobe Ore Reserves estimate

The 2021 Ranobe Ore Reserves estimate was restricted to the Measured and Indicated Resource categories of the SSU and USU from the 2021 Ranobe Mineral Resources estimate.

The Modifying Factors applied to the 2021 Ranobe Mineral Resources estimate for the 2021 Ranobe Ore Reserves estimate were derived from the Toliara Project Definitive Feasibility Study completed in 2019 (**2019 DFS**), the outcomes of the which were released on 12 December 2019. These material Modifying Factors (summarised in Tables 3-6 below) were operating costs, product recoveries and yields, product prices and throughput constraints. The source of data for the Modifying Factors was the project's financial model as it existed at the time of optimisation, which incorporated relevant developments since the 2019 DFS, such as updated product prices (compared to the 2019 DFS) reflecting the improved outlook at the time. Year 2 operating costs (FY2024) were selected as they were considered most representative of the forecast operating costs in the early years of operations, and allowed detailed Stage 1 mine scheduling (which occurs later in the process) to be completed to a high level of accuracy. The year 2 operating costs assume a 2% royalty is payable to the Government of Madagascar on product sales, being the royalty payable under the current Mining Code. This is less than the 4% royalty assumed for the purposes of the updated Toliara Project Definitive Feasibility Study (**DFS2**), the outcomes of which were released today, which reflects the royalty rate proposed in a recent draft revision to the Mining Code. However, application of a 4% royalty does not result in any portion of the 2021 Ranobe Ore Reserves estimate not being economically mineable.

The mean operating year 4-6 product prices (FY2026-FY2028) were assumed for the purposes of the 2021 Ranobe Ore Reserves estimate and were Base Resources' own internal price forecasts for each product for those years at the time of optimisation. Base Resources' internal price forecast is derived from its internal supply and demand analysis. In relation to forecast demand for each product, TZMI's five-year forecast demand outlook is utilised, before transitioning to a steady annual growth rate, generally consistent with global GDP growth forecasts, but adjusted for product specific considerations, where applicable. In relation to forecast supply, over the short term, Base Resources' supply forecast is generally aligned with TZMI's five-year outlook for existing producers, but Base Resources forms its own view on the anticipated timing of new brownfield and greenfield projects coming into production. Base Resources' medium to long term supply forecast is based on the Company's internal view of future production from existing operations, as well as new brownfield and greenfield projects. The product prices selected were considered more representative of long-term forecasts than those forecast for operating year 2.

The reference point for the 2021 Ranobe Ore Reserves estimate is the ore delivered to the static grizzly of the DMU (refer Figure 9).

The estimation methodology for the 2021 Ranobe Ore Reserves estimate used an economic derived cut-off. MaxiPit (a Datamine product which performs Lerch-Grossman pit optimisations) was used to do this. It determines, on a model cell by model cell basis, whether material is ore or waste. The output of this process is a set of nested potential pit shells at 1% decrements of revenue from

100% that are incrementally smaller and higher grade. These were assessed at a high level and a subset was selected for high level scheduling to allow comparison of financial and production metrics to select the most optimum pit shell for detailed scheduling. The 74% of revenue pit shell was selected to form the basis of the 2021 Ranobe Ore Reserves estimate on the basis of maximising NPV and balancing other strategic objectives.

The 2021 Ranobe Ore Reserve estimate tonnes have formed the basis of DFS2. DFS2 factored in, among other things, an increased mining and processing rate from the commencement of Stage 2 in operating year 4.25, when a second dry mining unit (**DMU**) and Wet Concentration Plant (**WCP**) are planned to be commissioned. Whilst the outcomes of both the 2019 DFS and DFS2 demonstrate that the Toliara Project is financially robust, the outcomes of DFS2, were superior to the 2019 DFS. The Competent Persons have reviewed the DFS2 financial outputs to satisfy themselves that the 2021 Ranobe Ore Reserve estimate is economically mineable and that any differences between the Modifying Factors used (in the pit optimisation process) and the assumptions ultimately used in the DFS2 have no adverse impact on the estimate.

The mining activity cycle commences with scrub clearing, followed by the removal of topsoil. Topsoil is either directly placed onto rehabilitation areas or stockpiled for later rehabilitation, with the aim to preserve seed viability by minimising time in stockpile. Mining is based on conventional DMU, using Caterpillar D11T dozers operating in approximately 100m by 200m rectangular blocks to feed ore to the DMU where it is slurried and screened. It is non-selective and there is no ore/waste discrimination. However, sub-economic material that cannot be selectively left in the void is included as planned dilution in the ore feed for Stage 1. Due to an insignificant volume of dilution and mining losses in Stage 1, no global dilution factor has been applied for Stage 2 where detailed design has not yet been undertaken. Mining recovery of 100% was assumed after consideration of mining shape design, planning and scheduling. The entire mining cycle is expected to take three to four years from initial clearing to final rehabilitation. The mine site layout at commencement of operations is shown in Figure 5. The mine path derived from the 2021 Ranobe Ore Reserves estimate is shown in Figure 6.

Ore is pumped from the DMU to the WCP where it is processed via a desliming circuit and spirals, typical of many mineral sands operations, to produce a heavy mineral concentrate (**HMC**). Course tailings (quartz sand) separated by the WCP is pumped initially to an out of pit storage facility and later to the mining pit void where a moveable tails stacker de-waters the slurry. Flocculated clay tailings (fine tailings) from the WCP thickener are pumped to the evaporation ponds, formed during the deposition of the course tailings, to a depth of approximately 1.5 metres where they dry to form a clay layer approximately 0.4m thick. The desiccated fine tails are then worked by dozer into the coarse tails to make a nominal two metres thick water retention surface layer, graded into final landform and topsoil replaced ready for rehabilitation. The course and fine tailings schedules from the Ranobe Ore Reserves are shown in Figures 7 and 8. The DMU process flow is depicted in Figure 9.

The HMC is further processed in the Mineral Separation Plant (**MSP**), primarily using magnetic and electrostatic separators, with secondary gravity separation to produce ilmenite, rutile and zircon.

In early 2018, three bulk samples from the Ranobe deposit were excavated (low grade - 4.8% HM, medium grade – 8.2% HM and high grade – 10.5% HM) to represent a range of ore grades on which to base the WCP design. Base Resources' resource mineralogy methodology, MinMod, was adapted for the Ranobe deposit and used to estimate WCP performance during the test work to ensure consistency between Resource definition and process design selection. The selected three stage spiral wet gravity circuit was tested on the three bulk samples by Mineral Technologies in Brisbane. The test work results were modelled using industry proven programs to determine the flowsheet design, mass balance and resultant performance metrics. HMC samples were produced from these bulk samples for further confirmatory MSP test work and market sample generation. Pilot tests on oversize removal, fines removal and fines thickening were also undertaken to verify design. The three stage WCP flowsheet is shown in Figure 10.

In 2013, previous owners, WTR, generated bulk HMC samples from two test pits which were used for the 2019 DFS and DFS2 MSP design test work and to estimate recoveries. A comprehensive and iterative series of tests were completed to establish flowsheets for each MSP stage consistent with the design intent:

- Feed preparation – removal of coarse and fine quartz using wet gravity.
- Ilmenite circuit – produce three ilmenite products and generate a non-magnetic stream through magnetic and electrostatic separation.
- Wet non-magnetic circuit – remove residual quartz to enable efficient rutile separation via wet gravity separation.
- Rutile circuit – produce a rutile product and a non-conductor zircon stream using electrostatic separation.
- Wet zircon circuit – remove alumina silicates with wet gravity separation.

- Dry zircon circuit – remove iron and titanium contaminants to produce a standard zircon product through a combination of electrostatic and magnetic separation.

The MSP flowsheet is shown in Figure 11.

Processing recoveries are summarised in Table 3.

Due to the high level of confidence in the Modifying Factors, the classification of Ore Reserves into Proved and Probable generally followed the Mineral Resources estimate classification, i.e. Measured Mineral Resources convert to Proved Ore Reserves and Indicated Mineral Resources convert to Probable Ore Reserves. The only exception to this is for material found in the lowest 1.5 metres of blocks scheduled for mining in Stage 2 where detailed design has not yet been undertaken to provide confidence in the level of the pit floor. As a result, this material has been classified as Probable Ore Reserves notwithstanding its Mineral Resources estimate classification of Measured. Inferred Mineral Resources are excluded from the Ranobe Ore Reserves estimate.

The right to mine the Ranobe deposit is provided by PDE 37242, a mining lease under Malagasy law. PDE 37242 was granted on 23 October 2017 and is valid for a period of 40 years from 21 March 2012 (the date of grant of the original PDE 37242) and may be renewed in 20-year increments thereafter. On-ground activities at the Toliara Project are currently suspended by the Government of Madagascar, pending fiscal terms for the Toliara Project being agreed. Discussions are ongoing with the Government of Madagascar about fiscal terms. In addition, before construction of the Toliara Project and subsequent mining operations can commence, surface rights need to be secured, which requires completion of the land acquisition process.

The Company holds a valid *Permis Environnemental* (Environment Permit No 55-15/MEEMF/ONE/DG/PE) and approved *Plan de Gestion Environnementale* (**PGE**) (Environmental Management Plan). More detailed environmental management plans and specific work instructions addressing construction, operational and decommissioning matters are required to be prepared and submitted three months prior to the commencement of each stage.

The Toliara Project requires significant infrastructure which does not presently exist, primarily the product haulage road, bridge and the export facility. These are within the scope of project development and the costs were included in the capital expenditure estimates for the 2019 DFS and DFS2.

Table 3: Assumed mineral recoveries

Description	Units	Value
HM grade of HMC	%	91.0
Ilmenite recovery in WCP	%	94.9
Rutile recovery in WCP	%	92.3
Leucoxene recovery in WCP	%	75.0
Zircon recovery in WCP	%	97.2
Ilmenite recovery in MSP	%	94.4
Rutile recovery in MSP	%	54.1
Leucoxene recovery in MSP	%	23.3
Zircon recovery in MSP	%	79.4
Other HM recovery in WCP	%	79.0

Table 4: Assumed operating costs

Description	Units	Value
Surface costs		
Clearing & topsoil removal	USD/ha	4,976
Rehabilitation	USD/ha	23,103
Mining costs		
Overburden removal cost (if applicable)	USD/BCM	0.98
Mining unit	USD/t mined	1.00
Oversize handling	USD/t o/s generated	0.58
WCP costs		

Description	Units	Value
Fine tails handling cost (HM%<5%)	USD/t tails generated	1.10
Fine tails handling cost (HM%>5%, <9%)	USD/t tails generated	0.44
Fine tails handling cost (HM%>9%)	USD/t tails generated	0.29
WCP cost	USD/t feed in	0.64
Tailings cost	USD/t mined	0.08
Miscellaneous costs		
Royalty - percentage of sales price	%	2.00*
Overhead cost	USD/t mined	1.71
MSP costs		
Transport cost to MSP	USD/t moved	0.13
MSP cost ilmenite	USD/t feed in	13.38
MSP cost other HM	USD/t feed in	18.04
Shipping and Storage		
Transport cost to port facilities	USD/t moved	3.45
Wharf cost all products	USD/t moved	8.91

*Royalty rate used in the 2019 DFS.

Table 5: Process throughput rates (used to limit assumed feed rate during optimisation)

Description	Units	Rate
Maximum DMU throughput	tonnes per hour (Ore)	1,750
Maximum process rougher feed throughput	tonnes per hour (RHF)	Not constrained
Maximum process tails throughput	tonnes per hour (Tails)	Not constrained
Maximum process thickener throughput	tonnes per hour (Slimes)	Not constrained
Maximum process HMC throughput	tonnes per hour (HMC)	150
Availability and Utilisation	%	82.2%

Table 6: Assumed Product prices (FOB)

Description	Units	Price
Chloride Ilmenite revenue	USD/t	257
Sulphate Ilmenite revenue	USD/t	168
Slag Ilmenite revenue	USD/t	177
Rutile revenue	USD/t	1,250
Zircon revenue	USD/t	1,200

Competent Persons' Statements

The information in this announcement that relates to Mineral Resources and Ore Reserves is based on, and fairly represents, information and supporting documentation prepared by the Competent Persons named in the table below. Each Competent Person:

- is a Member of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists;
- has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the JORC Code and as a qualified person for the purposes of the AIM Rules for Companies; and
- consents to the inclusion in this statement of matters based on their information in the form and context in which the relevant information appears.

Mr. Scott Carruthers is employed by Base Resources, holds equity securities in Base Resources, and is entitled to participate in Base Resources' long-term incentive plan and receive equity securities under that plan. Details about that plan are included in Base Resources' 2021 Annual Report. Mr. Ian Reudavey is employed by Base Toliara, a wholly-owned subsidiary of Base Resources, does not presently hold equity securities in Base Resources and is not entitled to participate in Base Resources' long-term incentive plan.

Name	Estimate(s)	Employer
Ian Reudavey	Ranobe Mineral Resources	Base Toliara, full-time employee
Scott Carruthers	Ranobe Ore Reserves	Base Resources, full-time employee
Chris Sykes	Ranobe Ore Reserves	IHC Robbins, consultant mining engineer to Base Resources

Forward looking statements

Certain statements in or in connection with this announcement contain or comprise forward looking statements.

By their nature, forward looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future and may be outside Base Resources' control. Accordingly, results could differ materially from those set out in the forward-looking statements as a result of, among other factors, changes in economic and market conditions, success of business and operating initiatives, changes in the regulatory environment and other government actions, fluctuations in product prices and exchange rates and business and operational risk management. Subject to any continuing obligations under applicable law or relevant stock exchange listing rules, Base Resources undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this announcement or to reflect the occurrence of unanticipated events.

No representation or warranty, express or implied, is made as to the fairness, accuracy or completeness of the information contained in this announcement (or any associated presentation, information or matters). To the maximum extent permitted by law, Base Resources and its related bodies corporate and affiliates, and their respective directors, officers, employees, agents and advisers, disclaim any liability (including, without limitation, any liability arising from fault, negligence or negligent misstatement) for any direct or indirect loss or damage arising from any use or reliance on this announcement or its contents, including any error or omission from, or otherwise in connection with, it.

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Figure 1: Drill hole locations and 2021 Ranobe Mineral Resources estimate outline

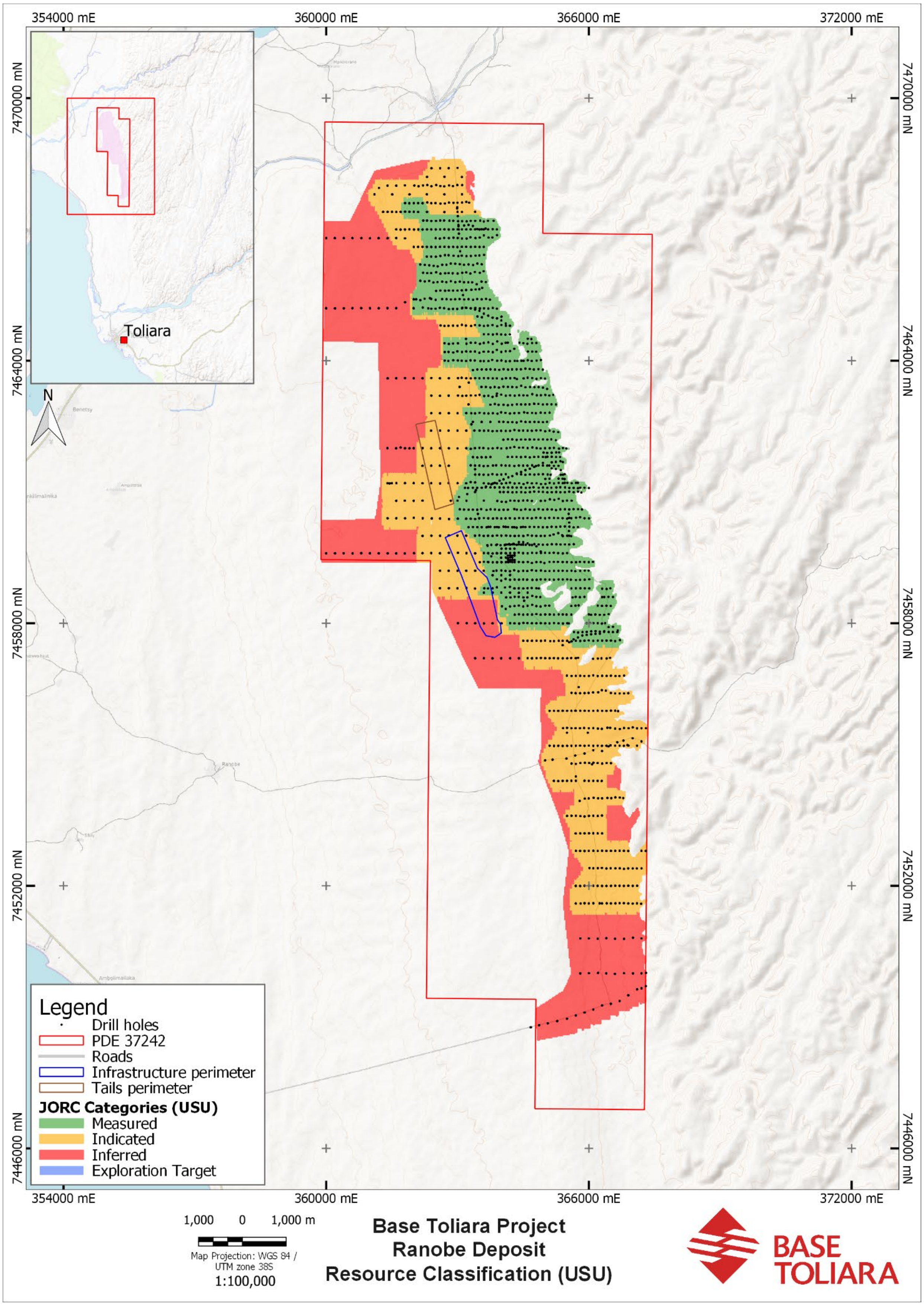
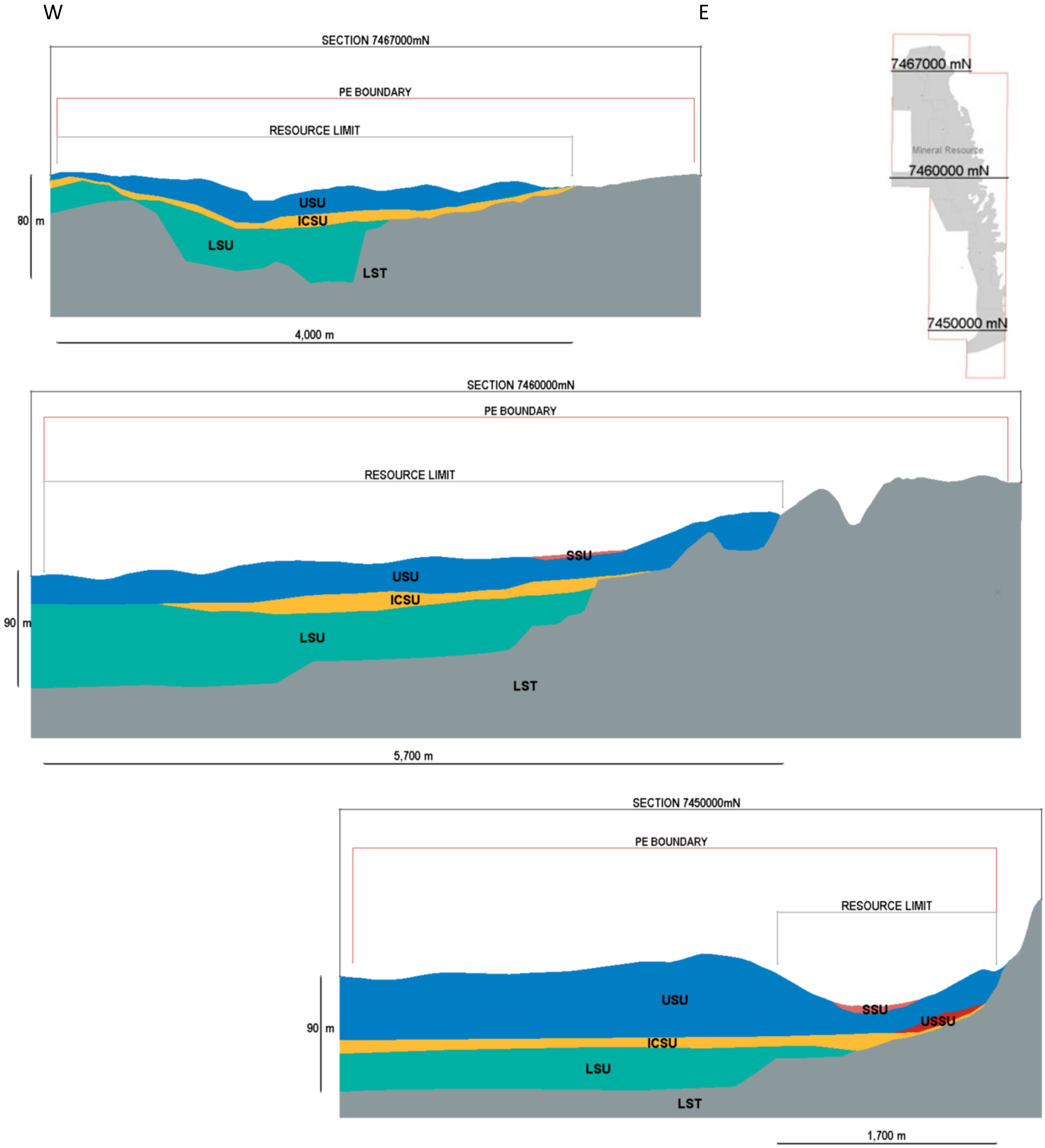


Figure 2: Stylised cross sections



Notes: Sections plotted with 10 x vertical exaggeration looking North (L is West, R is East), PE Boundary = Mining Lease, geology interpretation from drill logs

SSU = Surficial Silt Unit
USU = Upper Sandy Unit
USSU = Upper Silty Sand Unit (excluded from Ore Reserves estimate)
ICSU = Intermediate Clay Sand Unit (excluded from Ore Reserves estimate)
LSU = Lower Sandy Unit (excluded from Mineral Resources and Ore Reserves estimate)
LST = Limestone (excluded from Mineral Resources and Ore Reserves estimate)

Figure 3: Toliara Project location

Figure 4: Location of mineralogy composite samples

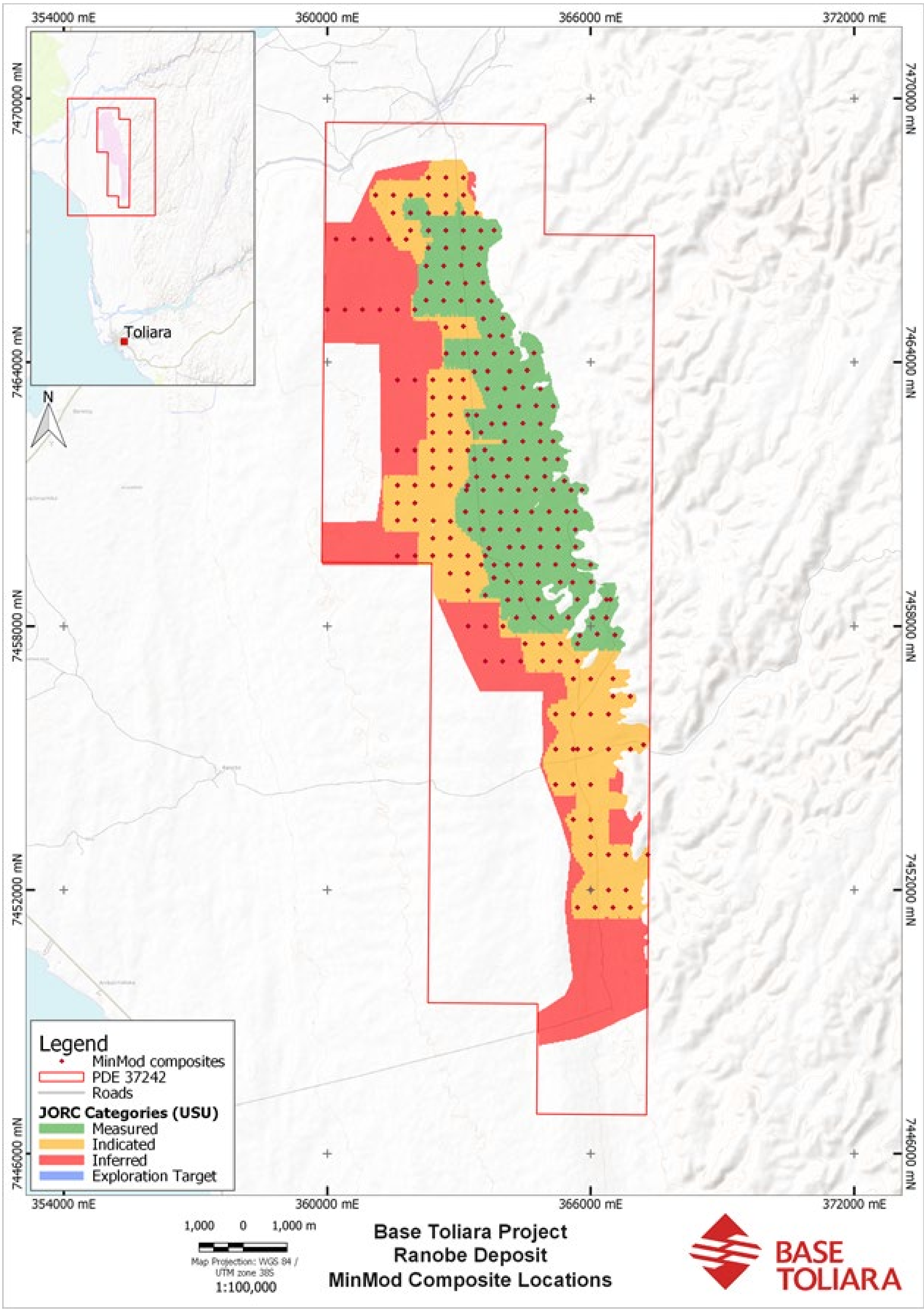


Figure 5: Mine layout at commencement of operations

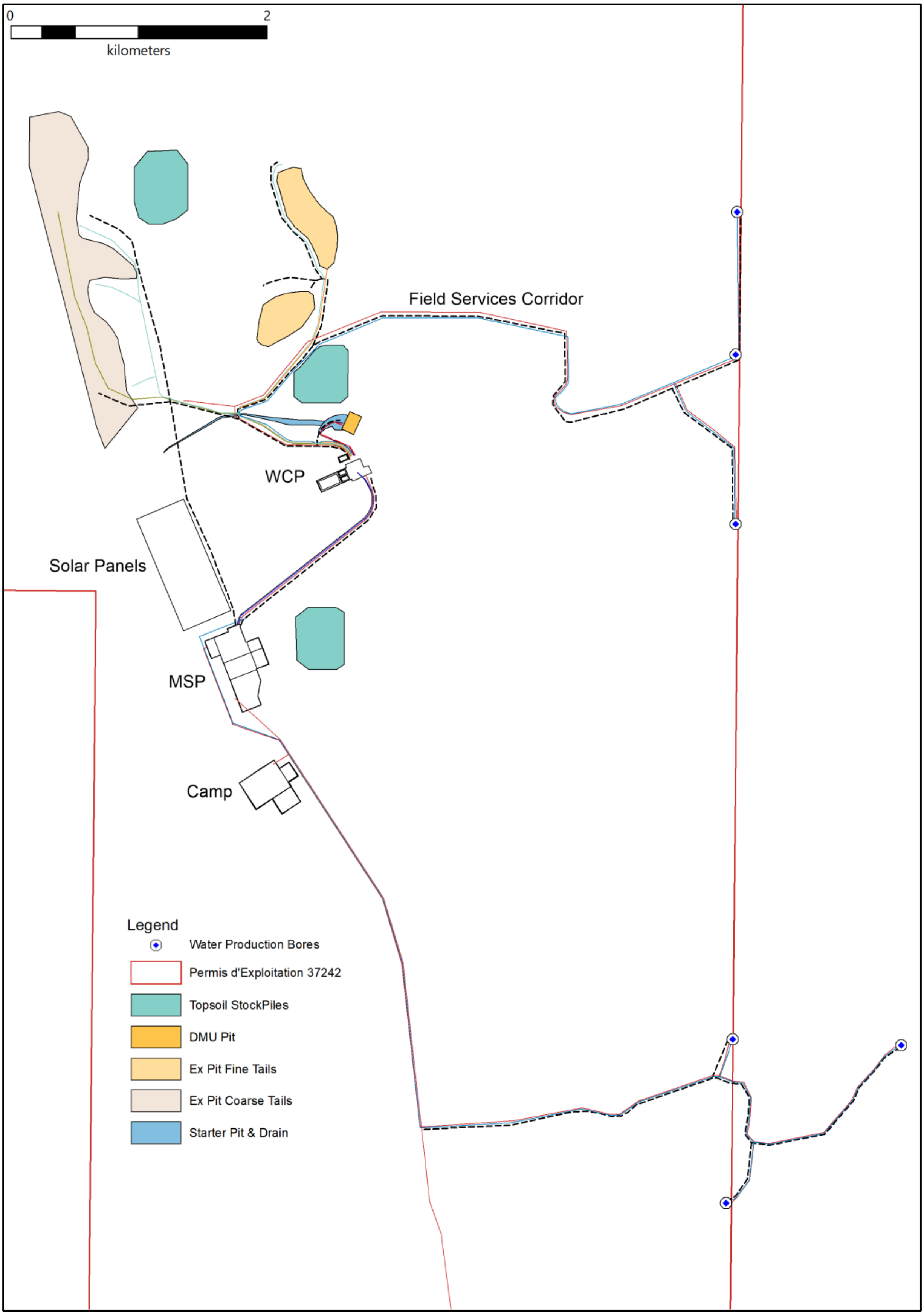


Figure 6: Mine path schedule

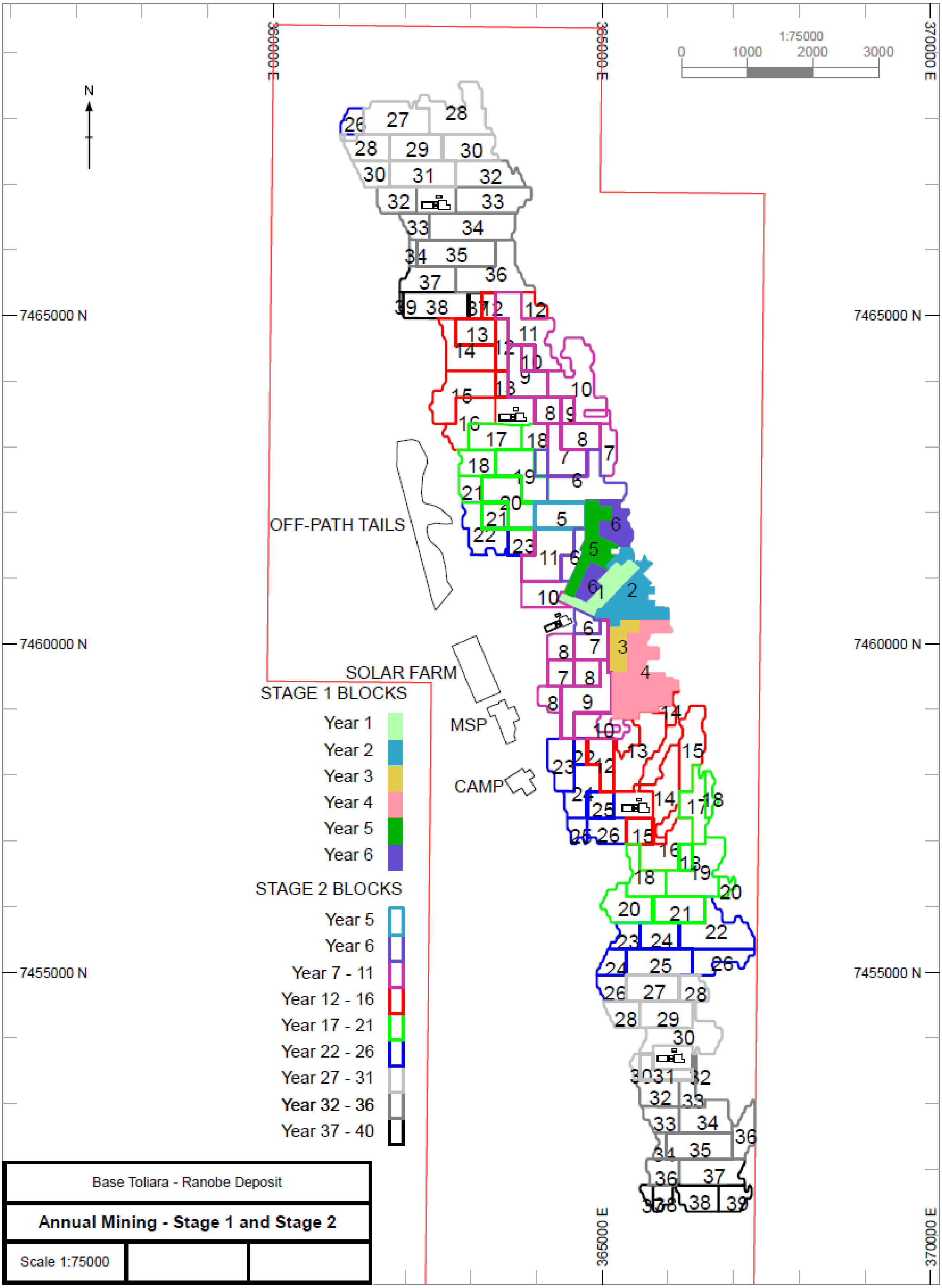


Figure 7: Coarse tails schedule

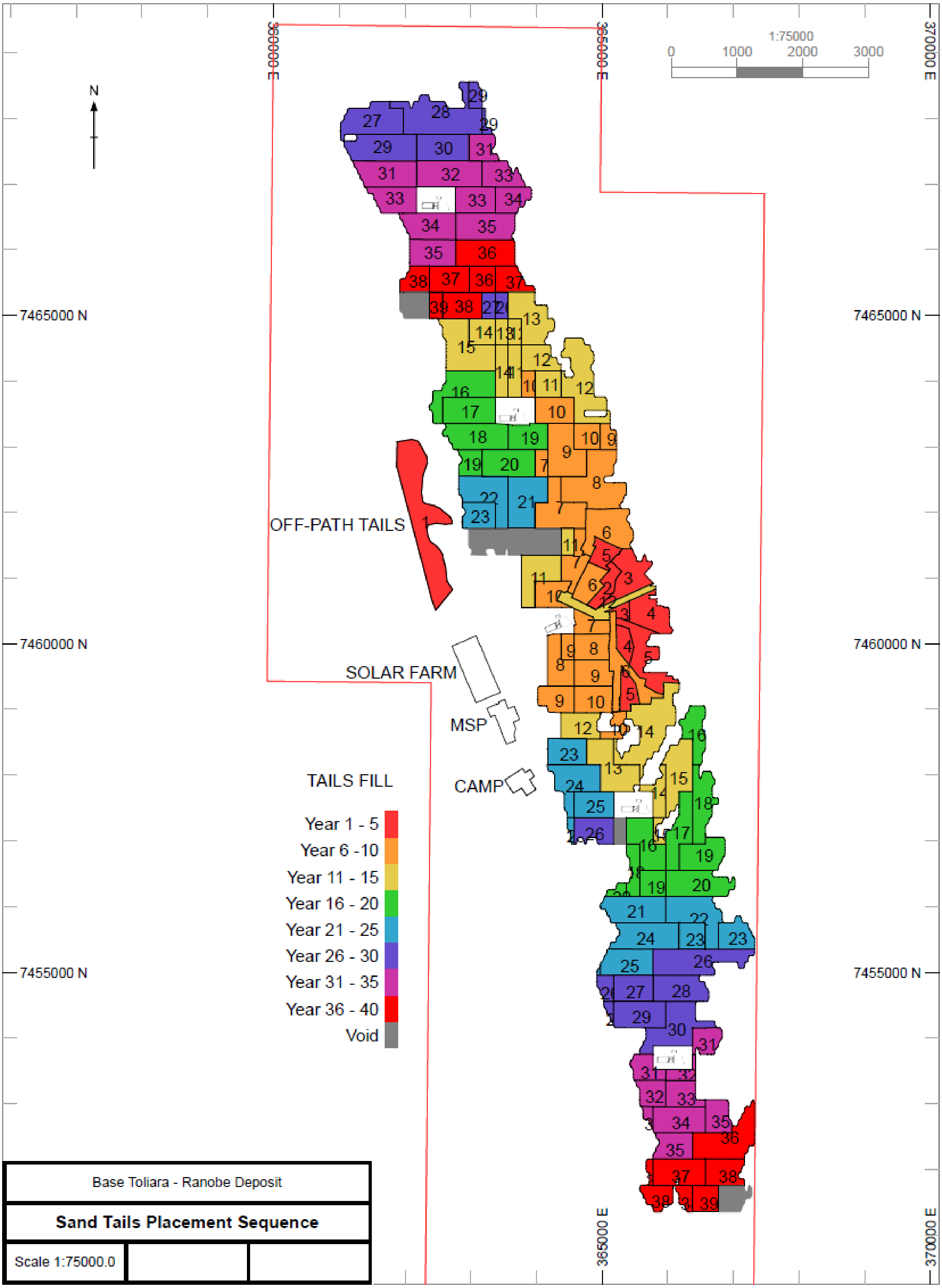


Figure 8: Fine tails schedule

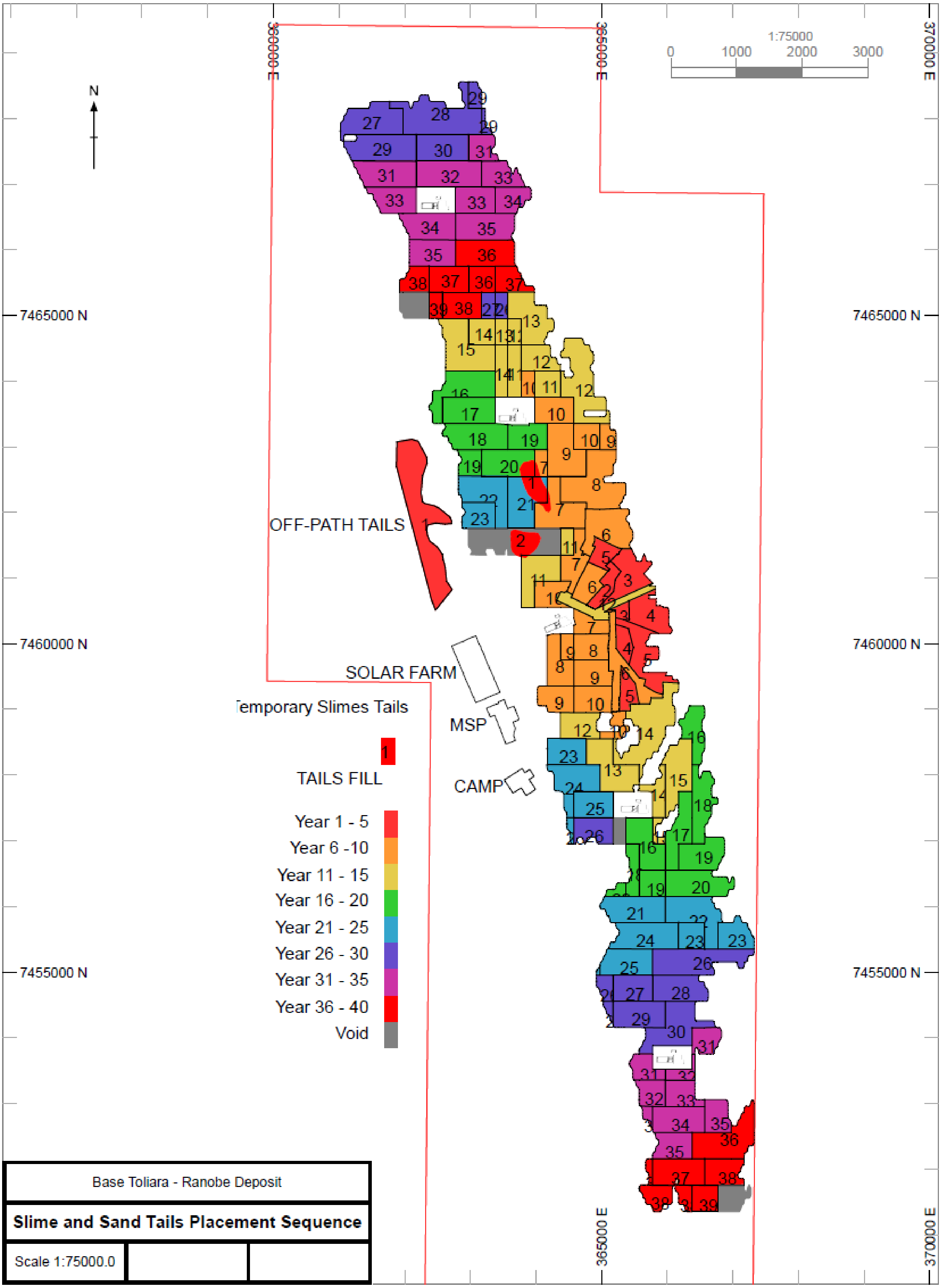


Figure 9: DMU process flow design

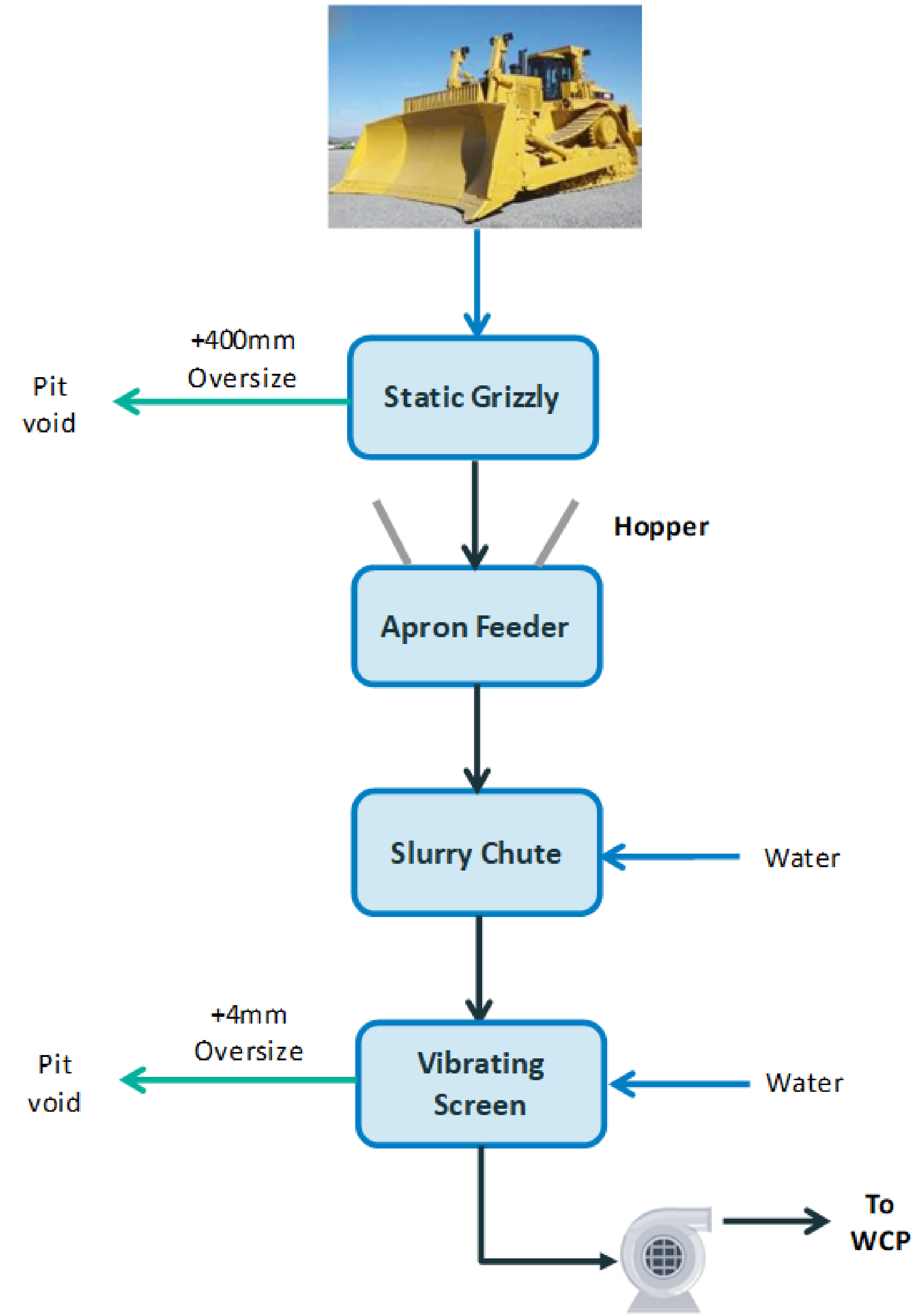


Figure 10: DFS2 WCP process flow design

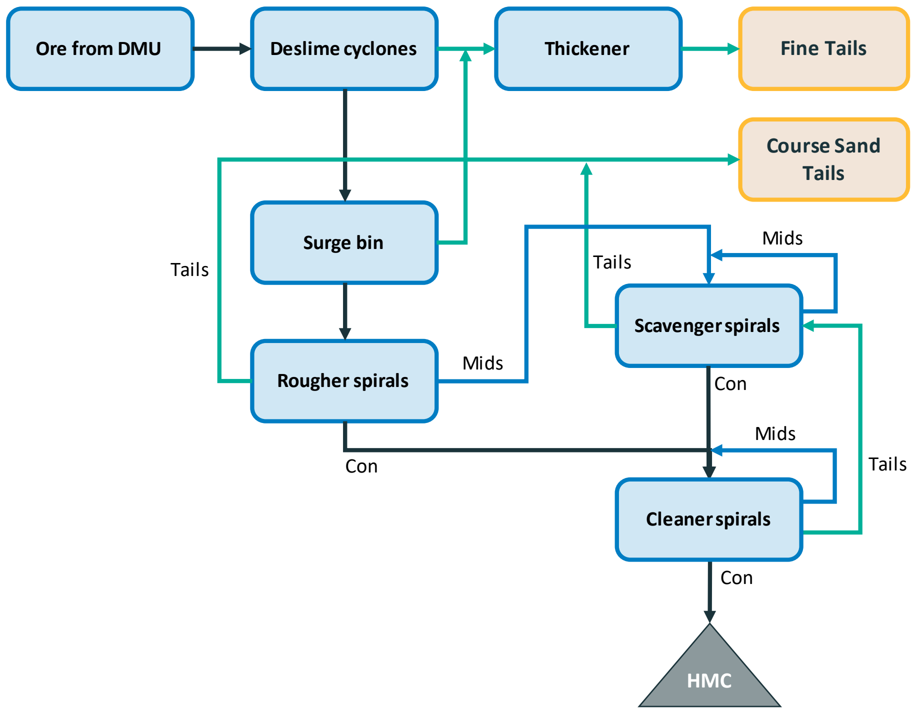
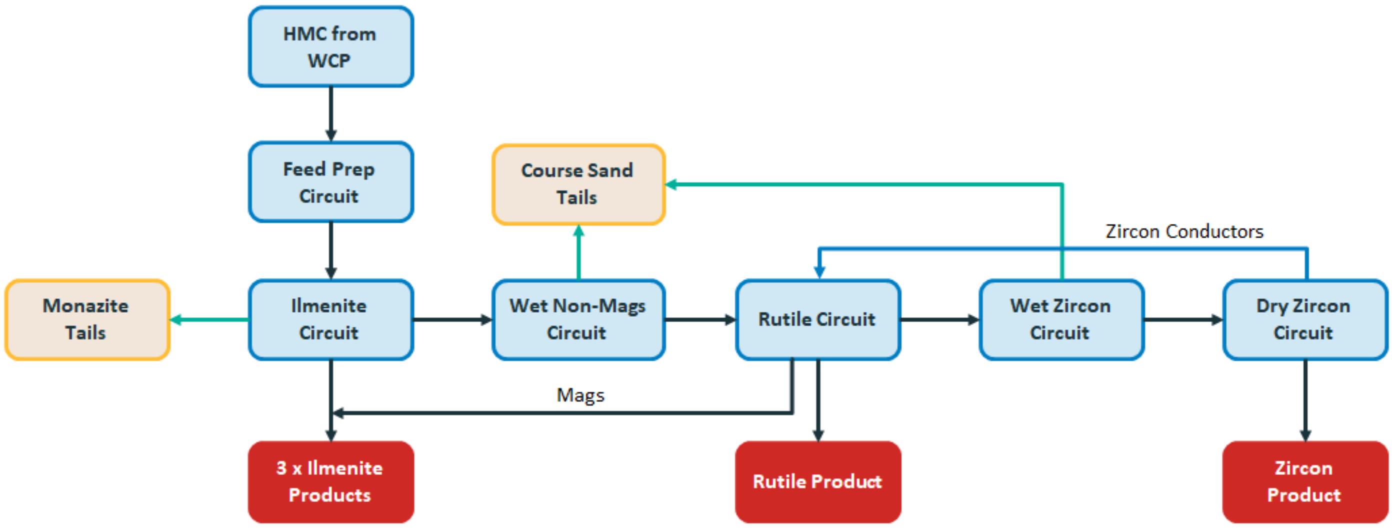


Figure 11: DFS2 MSP process flow design



Appendix 1

JORC Code, 2012 Edition

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	Explanation	Comment
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.* *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* *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 1m samples from which 3kg was pulverised to produce a 30g 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.*	Industry standard reverse circulation aircore drilling was used to obtain 1 to 3m samples from which 0.5 to 1.0kg was riffle split to produce a sub-sample for HM analysis utilizing heavy liquid separation. All holes were drilled vertically. All holes were sampled over a consistent 1 - 3m interval. All holes were drilled using a reverse circulation Wallis Drill setup to collect the complete sample with a basic cyclone separation of drill returns by means of a swivel outlet feeding buckets or sample bags. No sample splitting was performed on the drill site for earlier drill programs, however sample splitting was carried out for the 2018 and 2019 drilling program. Samples were analysed by industry standard techniques of screening, desliming and TBE heavy liquid separation.
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 holes were drilled vertically. All drilling was undertaken using an air pressured reverse circulation air core Wallis Mantis drill. Drill rod diameter is NQ (76mm outer diameter), with 3m rod lengths fitted with a face discharge drill bit.

Criteria	Explanation	Comment
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.* *Measures taken to maximise sample recovery and ensure representative nature of the samples.* *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 size is monitored by the rig geologist and logged quantitatively. Samples are weighed as part of sample preparation process, with 92% of samples reporting between 3 and 7kg mass Wallis Mantis drill rig uses face discharge bits, at low air pressures (105 - 140kPa) and low rotation speeds (45-65RPM) to maximize recovery. There is no correlation between recovery and grade resulting in no sample bias.
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.* *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* *The total length and percentage of the relevant intersections logged.*	All samples were visually checked and logged on site by rig geologist and logged for lithotype, grain size, sorting, colour, competence, moisture content. A small subsample was taken for each drill interval and manually panned for estimation of HM and clay content.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.* *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	The calico sample bags from site were air dried before sub-sampling. Any material that was bound together by clay was manually attritioned prior to splitting so it would pass through the splitter. The material was split using a 25mm single tier riffle to produce a sample for submission of approximately 0.5 to 1.0kg in a small calico sample bag. For one sample in every 20, an additional two 1kg calico bagged samples were taken for checking purposes. These are referred to as the B and C samples, the primary sample being designated as the A sample. Results of field duplicates confirm the sampling process is generating representative results.

Criteria	Explanation	Comment
	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. *Whether sample sizes are appropriate to the grain size of the material being sampled.*	The sample preparation technique, sample size and riffle aperture used is considered appropriate for mineral sands.
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.* *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.* *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.*	2001 drill samples were dispatched to Western Geochem Labs in Perth, Australia. The A samples were sent to IMP Laboratory in Boksburg, South Africa in 2003, ACT Laboratory in Pretoria, South Africa in 2005 and 2012, and to Bureau Veritas, South Africa (**BV**) in 2018 and 2019. For all laboratories the separation of HM was by tetrabromoethane (**TBE**) at density 2.95g/cc. All samples were: • Dried, weighed • Sample riffle split to produce 400g A sample • Sample screened +1mm, oversize weighed • Sample screened -63µm, oversize weighed • TBE for heavy media separation • TBE Floats weighed • TBE Sinks weighed The BV analytical procedure conforms to AS4350.2-1999; Australian Standards Heavy mineral sand concentrates - Physical testing using TBE. Quality control procedures: • Regular checks of analyses as received • Check against estimates from field logging • Submission of B and C samples to a second laboratory • Submission of randomly inserted control samples at a rate on about 1 in 50 • Replicate sample analyses

Criteria	Explanation	Comment
		• Extra samples taken irregularly in high grade areas
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* *Discuss any adjustment to assay data.*	Assay data was compared with geology logs of panned HM grades for out of range assay produced by site geologist. Replicate assaying undertaken 2003 and 2005 drilling and sample assaying undertaken independently by Ticor/Kumba Resources. 2012 drilling, logging and sampling undertaken by independent site geologist. 2018 and 2019 drilling, logging and sampling undertaken by Base Resources company geologists under supervision of the competent person. Twinned holes completed in 2018 and 2019 by Base Resources. Validation of the drill database was undertaken independently by IHC Robbins.
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resources estimation.* *Specification of the grid system used.* *Quality and adequacy of topographic control.*	2003, 2005, 2012, 2018 and 2019 drill hole collars were surveyed using DGPS. 2001 drill collars were surveyed by GPS. Topographic data was derived from ground controlled LIDAR survey undertaken by Southern Mapping SA in 2007 and 2019. All drill holes are vertical, down hole surveys were deemed inappropriate. Grid system used throughout the program UTM Grid, Zone 38S, WGS84. All drill collars were adjusted to the LIDAR topographic surface using a MapInfo routine to increase ensure consistency, accuracy and precision for mineral resource or ore reserve estimation.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.* *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resources and Ore Reserves estimation procedure(s) and classifications applied.* *Whether sample compositing has been applied.*	Three basic drill patterns used: • 100mE spacing along line with 200mN between lines with 50m hole offset • 100mE spacing along line with 400mN between lines • 200mE spacing along line with 800mN between lines Variography demonstrates that drill spacing of 100mE x 200mN is sufficient to classify as Measured Resource and 100mE x 400mN is sufficient to classify as Indicated Resource.

Criteria	Explanation	Comment
		No sample compositing has been applied.
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.* *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.*	All drill holes were drilled vertically and have essentially achieved unbiased sampling of the sub-horizontal stratigraphy of the dunal deposit. Drill line were drilled north - south, east - west within 20 degrees of the deposit anisotropy. No bias to drill grid sampling has been introduced.
Sample security	*The measures taken to ensure sample security.*	All samples were placed in calico bags and grouped in rice bags by drill hole. The samples bags were labelled by both marker and aluminium tags for drill hole number and sample depth. The samples were delivered to the laboratory sealed with cable ties and with a shipment form.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	Audits and reviews or the sampling data and techniques have been carried out by: • Ticor 2004 • Kumba Resources 2006 • Exxaro 2007 • McDonald Speijers and Associates 2012 • World Titanium Resources 2016 • IHC Robbins 2018 All review and audits considered the sampling and analysis to be of good quality and suitable for resource estimation.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	Explanation	Comment
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	The Ranobe deposit is located wholly within Mining Lease PDE (Permis D'Exploitation) 37242, which is held by Base Toliara, Base Resources' wholly owned Malagasy subsidiary. In October 2017, Mining Lease PE 37242 merged with Mining Lease PE 39130 and Exploration Licence PR 3315 to form a single tenure giving complete coverage of the deposit. Mining Lease PE 37242 presently provides Base Toliara with the right to exploit ilmenite, rutile, leucoxene and zircon, but not garnet, monazite or REO.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	1999 - 2002 Discovered during reconnaissance exploration by Madagascar Resources NL. 120 RC aircore holes for 3,068m demonstrated both grade and scale potential for economic development. 2003 - 2009 Ticor/Kumba Resources (Exxaro) joint venture. 689 RC aircore holes for 15,559m and Pre-Feasibility Study completed which confirmed the economic potential of the deposit. 2012 - 2016 WTR. 361 RC aircore holes for 8,088m and Feasibility Study completed which developed a plan for construction, mining and mineral export.
Geology	*Deposit type, geological setting and style of mineralisation.*	The heavy mineral sand deposit is located on the southwest coast of Madagascar within the Mesozoic Morondava Basin along the eastern margin of a coastal plain juxtaposed to an Eocene limestone scarp. The coastal plain is underlain by limestone and overlain by a sequence of progressively shallowing beach and lagoon unconsolidated clastic sediments and subaerial dunes which successively overstep and on-lap the basement limestone scarp in the east. The deposit is hosted within a stabilized mega-dune system which is arrested along the basement scarp slope and extends for approximately 20 km north northwest south southeast. The entire dune unit is mineralized by an assemblage of ilmenite, zircon, rutile and monazite concentrated within the unit by aeolian winnowing. The unit generally thickens westwards away from the scarp slope from 3m to 60m. The deposit anisotropy parallels the scarp slope, with higher HM grades concentrated along the mega-dune crest line.

Criteria	Explanation	Comment
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.*	Madagascar Resource NL drilled: • 2001 - 121 RC aircore holes for 3,074 metres Ticor/Kumba Resources (Exxaro) drilled: • 2003 - 400 RC aircore holes for 9,424 metres • 2005 - 288 RC aircore holes for 6,135 metres WTR drilled: • 2012 - 363 RC aircore holes for 8,087 metres Base Resources has drilled: • 2018 - 78 RC aircore holes for 3,617 metres • 2019 - 692 RC aircore holes for 26,136 metres All holes were drilled vertically. RC holes average 29 metres deep for the project. Base Resources drilling has an average depth of 39 metres as the programs looked to also target deeper mineralisation in the Lower Sand Unit. See drill hole location plan in Figure 1. Exploration Results are not being reported at this time.
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.* *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.* *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	Exploration results are not being reported at this time. No metal equivalent values were used. No aggregation of short length samples was used as samples were consistently sampled at 1 - 3m intervals.

Criteria	Explanation	Comment
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').*	The deposit is flat lying and intersected by vertical holes, hence the intercept length is equivalent to the mineralisation thickness.
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.*	For a plan of the 2021 Ranobe Mineral Resources estimate - see Figure 1 and Figure 4. For stylised sections - see Figure 2.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Exploration results are not being reported at this time.
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.*	Exploration results are not being reported at this time.
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.*	Future work will consist of extending the drilling to the western extents of the deposit to further determine the lateral extents of both the USU and LSU mineralisation.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	Explanation	Comment
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.*	The original drill data derived by Madagascar Resources, Ticor/Kumba Resources (Exxaro), WTR, and Base Resources drill data has been independently reviewed and validated by IHC Robbins. Data review included: • Checks of data by visually inspecting on screen (to identify translation of samples) • Cross checking of laboratory analysis certificates with from/to assay data • Validation of reported assay data against field estimates • Cross checking lithology logging and geological interpretation with oversize, slimes and HM content • Visual and statistical comparison was undertaken to check the validity of results An Access database is updated and maintained by Base Resources, which has been reviewed by IHC Robbins. Validation checks of the drill database include: • Assay comparison for out of range values • Sample gaps • Overlapping sample intervals Collar coordinate verification including collar elevations normalized to LIDAR digital terrain model.
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.*	Multiple site visits have been undertaken by Ian Reudavey, the Competent Person, in his role as Geology Superintendent for Base Toliara. The planning and supervision of the Base Resources drilling program, and training and mentoring for the Malagasy geologists has been carried out by the Competent Person in conjunction with other company personnel and independent consultants.
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 previous geological interpretation for the Ranobe deposit was undertaken by WTR in 2012 and the data utilised by IHC Robbins in 2018, which also validated the geological interpretation using all logging data, sampling data, and observations from a site visit.

Criteria	Explanation	Comment
	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.*	The current geological interpretation expanded on the previous work using new drill data and first-hand experience from drilling observations. Current data spacing and quality is sufficient to confirm or indicate geological and grade continuity. Interpretation of modelling domains was restricted to the main mineralised zones using HM sinks, oversize material, slimes, and lithological logging (including colour changes). There is a high degree of confidence in the geological interpretation of the SSU, USU, USSU and ICSU units (aeolian and shallow marine sediments). The extent of the USU mineralisation was determined by a combination of LIDAR and drill hole data, with no assumptions made. The geological interpretation of the LSU along the western boundary of the Ranobe deposit has a moderate degree of confidence, given that drill spacing is broader and variations in mineral assemblage are apparent. The LSU has been excluded from 2021 Ranobe Mineral Resources estimate and report at this point in time on the basis of limited mineralogical data for this unit. Only the aeolian USU (and its internal SSU and USSU subsets) and the shallow marine / subaerial ICSU have been considered for 2021 Ranobe Mineral Resources estimate and report. The primary factor controlling grade and geology continuity is mega-dune morphology. The limestone morphology also impacts sand deposition and concentration and continuity of grade along the eastern extents of the Ranobe deposit and in the central part of the deposit where numerous limestone pinnacles occur. Dune morphology and grade trends have been used with cross-sectional data to define search ellipsoid orientation in populating the resource model.
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 resource extends for 20km north - south and averages 3km wide east-west. The average depth of mineralization from the surface to the 1.5% HM cut-off is 20m with a range of 2m to 36m.
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*	CAE mining software Datamine Studio RM was used to estimate the mineral resources. A combination of ordinary kriging (OK), inverse distance weighting (IDW) and nearest neighbour (NN) was used to interpolate grades and values into the block model. Part of the rationale for using both IDW

Criteria	Explanation	Comment
	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 (e.g. sulphur for acid mine 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.*	and OK to interpolate grade is to provide an effective interpolation method for both close spaced (in the higher grade core of the deposit) and wide spaced drilling (in the lower grade margins of the deposit). NN techniques were used to interpolate index values and non-numeric sample identification into the block model. Appropriate and industry standard search ellipses were used to search for data for the interpolation and suitable limitations on the number of samples and the impact of those samples was maintained. An inverse distance weighting of three was used so as not to over smooth the grade interpolations. Hard domain boundaries were used and these were defined by the geological wireframes that were interpreted. Topographic surface was created from LIDAR data. The 2021 Ranobe Mineral Resources estimate was modelled to key geological boundaries and then reported at a cut-off grade of 1.5 HM (no minimum thickness). The average parent cell size used for the interpolation was approximately half the standard drill hole width and a half of the standard drill hole section line spacing. The average drill hole spacing for the Ranobe deposit was 100m east-west and 200m north-south and with a 1.5m samples and so the selected parent cell size was 50 x 100 x 1.5m (where the Z or vertical direction of the cell was nominated to be the same distance as the sample length). Six Mineral Resources estimates have been undertaken previously; Ticor 2004, Exxaro 2006, Milne 2010, MacDonald Speijers and Associates 2012, WTR (Ransome) 2016, and IHC Robbins 2019. The current resource model has been reviewed against these previous estimates. No assumptions have been made regarding recovery of by-products. No deleterious elements or non-grade variables are present. All resource blocks are assumed to be mined from the surface with no overburden. Mineral assemblages show little statistical variation over the deposit, and correlate well with HM content. Drill hole declustering was not used during the interpolation because of the regular nature of sample spacing.

Criteria	Explanation	Comment
		Sample distributions were reviewed, and no extreme outliers were identified either high or low that necessitated any grade cutting or capping. Validation of grade interpolations were done visually In CAE Studio RM (Datamine) software by loading model and drill hole files and annotating and colouring and using filtering to check for the appropriateness of interpolations. Statistical distributions were prepared for model zones from drill hole and model files to compare the effectiveness of the interpolation. Along strike distributions of section line averages (swath plots) for drill holes and models were also prepared for comparison purposes.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages were estimated on an assumed dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The cut-off grade of 1.5% HM used for reporting the Mineral Resources estimates is based on parameters developed during feasibility studies for the deposit.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	A dry mining method using dozer traps and slurry pumping has been assumed for the deposit based on the results of the 2019 DFS. The deposit is planned to be mined from surface with no minimum dimensions. The mining parameters are well understood given the project has been subject to the 2019 DFS and DFS2.
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.*	Test work completed by Ticor/Kumba Resource 2004 Pre-Feasibility Study. Test work undertaken by AML 2007 and 2009. Test work completed by Exxaro 2009 Feasibility Study. Process design by TZMI 2012 Definitive Engineering Study. Test work at Mineral Technologies and IHC Robbins 2018, Base Resources Pre-Feasibility Study. Process design by IHC Robbins 2019, Base Resources 2019 DFS.

Criteria	Explanation	Comment
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 greenfield project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Base Toliara holds a valid Permis Environnementale (Environment Permit No 55-15/MEEMF/ONE/DG/PE) and an approved Plan de Gestion Environnementale (PGE). The PGE (or Environmental Management Plan) was approved by Government of Madagascar in June 2015. As required by the PGE, baseline monitoring programs have been established. Sand tailings will be initially placed in an off-path tailings storage facility, and then progressively backfilled in the mining void as space becomes available.
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.*	The bulk density used for the Ranobe deposit is one that has been utilised by previous consultants and is based on a simple linear algorithm originally developed by John Baxter (1977). BD = 1.61 + (0.01 x HM). Experience with these styles of ore bodies suggests that this algorithm is appropriate for calculating the in-situ dry bulk density for the USU (which forms the majority of the resource), and likely to be conservative for the SSU, USSU and ICSU given these units contain elevated silt and/or some clay.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.* *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* *Whether the result appropriately reflects the Competent Person's view of the deposit.*	The resource classification for the Ranobe deposit was based on the following criteria: drill hole spacing, variography and the distribution and influence of mineral assemblage composite samples. Material lying beneath an infrastructure perimeter encompassing the proposed camp, workshop and processing plant, solar farm and sand tails storage facility was excluded from the Mineral Resources estimate. The classification of the Measured, Indicated, and Inferred Resources was supported by the uncomplicated geology, continuity of mineralisation, confidence in the drill hole data and all the supporting criteria as noted above. The Competent Person considers that the result appropriately reflects a reasonable view of the deposit categorisation.

Criteria	Explanation	Comment
Audits or reviews.	*The results of any audits or reviews of Mineral Resource estimates.*	An audit and review on the previous Mineral Resources estimate carried out by WTR was completed during the due diligence assessment prior to the project acquisition by Base Resources, which concluded the WTR Mineral Resources estimate was sound. An audit and review undertaken by SRK on the 2019 Ranobe Mineral Resources estimate concluded the estimate was sound. Key recommendations from the SRK audit were implemented in this estimate. A similar audit and review was undertaken by SRK for this 2021 Ranobe Mineral Resources estimate. Key points are: • Database validated and deemed acceptable • Methods and process used are appropriate • QA/QC checks highlight a potential issue with the reliability of slimes analysis (noting the USU has low Slimes grades – hence minor impact) • Density for ICSU not appropriate (conservative) due to increased slimes • Potential bias between drilling programs, but difficult to quantify given limited data • ICSU sequence in eastern area often not fully drilled or has insufficient MinMod data to support meaningful grade interpolation • Potential mixing of grade populations at the lower USU contact
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should*	No statistical or geo-statistical review of the accuracy of the resource estimate has been undertaken. Variography was undertaken to determine the drill hole support of the selected JORC classification. Validation of the model vs drill hole grades by direct observation and comparison of the results on screen, swathe plot and population distribution analysis were favourable. The Mineral Resources estimate is a global estimate for the entire known extent of the Ranobe deposit within PDE 37242. There has been no production to date.

Criteria	Explanation	Comment
	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.*	

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section)

Criteria	Explanation	Comment
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 2021 Ranobe Ore Reserves estimate is based entirely on the Measured and Indicated portion of the 2021 Ranobe Mineral Resources estimate. 2021 Ranobe Mineral Resources estimate is reported inclusive of the 2021 Ranobe Ore Reserves Estimate.
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.*	Scott Carruthers (Joint Competent Person) has visited the site on several occasions.
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 Toliara Project 2019 DFS and the DFS2 support the 2021 Ranobe Ore Reserves estimate. Modifying factors accurate to the study level have been applied. The resulting mine plan is technically achievable and economically viable.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied.*	A value model was developed that assigns mining and processing recoveries, costs, and revenue to the geological model. This value model follows the entire mining process from initial land clearing to final rehabilitation. There is no ore/waste definition due to the mining method selected.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.*	Mineral Resources are converted to Ore Reserves by open pit optimisation software (Datamine MaxiPit) to provide a guide for detailed design and scheduling. The software uses the Lerch-Grossman algorithm to generate a series of nested pit shells. A subset of the shells were preliminarily scheduled to test HMC production profiles, final production requirements, and financial investment decisions. The preferred pit shell was selected for more detailed mine planning and scheduling. The initial mining area (Stage 1) was selected based on its high grade and location. Detailed mining shapes based on rectangular dozing push profiles to a centrally located DMU were developed. Mining shapes that were identified as too small (less than nominal 150kt) and inefficient to direct feed (greater

Criteria	Explanation	Comment
	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.*	than 100m away) a DMU by dozer mining, were marked for auxiliary mining using truck and excavator, where the material would be hauled to feed an existing DMU. Only material identified as SSU and USU was included in the 2021 Ranobe Ore Reserves estimate (and DFS2). There is no ore/waste discrimination and sub-economic SSU/USU. Material that cannot be selectively left in the void is included as planned dilution in the ore feed for Stage 1. No global dilution factor has been applied. Pit slopes for the Stage 1 mining shapes have been assumed at 33 degrees, with a maximum target of a 100m dozing distance. Where possible, the mining locations and sequence was developed to avoid uphill dozing. For the purposes of scheduling the ore for Stage 2, mining shapes have been assumed as rectangular sides up to a maximum size of 200m by 400m for the remainder of the LOM schedule. A mining recovery factor of 98% was applied when using the Lerch-Grossman algorithm to undertake economic evaluation and the generation of the pit shells. Following more detailed mining shape design, planning and scheduling, a mining recovery factor of 100% was applied in the 2021 Ranobe Ore Reserves estimate. Mining recovery also makes provision for a 0.25m topsoil profile.
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.*	The ore will be processed via screens, thickeners and spirals as in almost every other mineral sand operation to produce HMC. The HMC will be processed using magnetic and conductor separators to produce ilmenite and rutile products. The remaining material will be further processed using classifiers, wet tables and cleaned with conductor separators to produce zircon and recover some more rutile. This is a typical process for mineral sands. The plant design is based on the results of metallurgical test work conducted as part of the PFS, DFS and utilised for DFS2. WCP recovery is assumed to be: ilmenite - 94.9%, rutile - 92.3%, zircon - 97.2% and leucoxene - 75.0%. MSP recovery is assumed to be: ilmenite – 94.4%, rutile – 54.1%, zircon - 79.4% and leucoxene – 23.3%. Leucoxene will ultimately report to rutile and chloride ilmenite products at 25.7% and 74.3% respectively.

Criteria	Explanation	Comment
	For minerals that are defined by a specification, has the ore reserves estimation been based on the appropriate mineralogy to meet the specifications?	Due to the expected variation in ilmenite product split to satisfy market demands, a single overall ilmenite recovery (of the combined three ilmenite recoveries) has been used rather than separate ilmenite product recovery. The 2021 Ranobe Mineral Resources estimate, upon which the 2021 Ranobe Ore Reserves estimate is based, incorporates 1,942 individual drill holes and 22,736 individual drill samples.
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 holds a valid Permis Environnemental (Environment Permit No 55-15/MEEMF/ONE/DG/PE) and approved Plan de Gestion Environnementale (Environmental Management Plan). More detailed environmental management plans and specific work instructions addressing construction, operational and decommissioning matters are required to be prepared and submitted three months prior to the commencement of each stage. As required by the PGE, base-line monitoring programs have been established and will continue through the construction, operational and decommissioning phases. There will be two tailings streams: coarse (sand) and fine (thickened clay). The coarse tails will be clean sand having been washed in the WCP. The fine tails will be flocculated and thickened prior to pumping to solar drying areas. Sand tails will be pumped initially to an ex-pit tailings storage facility until sufficient mining void is established, after which appropriate in-pit tails deposition assumptions have been applied. Fine tails will be dried and mixed with coarse tails, prior to return of topsoil.
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 Toliara Project mine site is approximately 40km due north of the existing port of Toliara and approximately 15km inland from the coastline. The Ranobe deposit lies west of the north-south limestone escarpment running parallel with the coast at an elevation of between 80m and 160m above current sea level. Existing transport links are via a bituminised road to within 15km of the proposed mine site with only minor dirt tracks leading to the mine site. Existing infrastructure at site is limited and designed to support an exploration camp only. There is no power or water distributed in the area. The development of the Toliara Project will incorporate all the infrastructure required to support the mining, concentration, separation, haulage and shipment of approximately 1,033ktpa of ilmenite, zircon and rutile products. Temporary infrastructure will be required to support the early construction activities.

Criteria	Explanation	Comment
		The 2019 DFS and DFS2 estimate the costs for the development of all infrastructure items.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.* *The methodology used to estimate operating costs.* *Allowances made for the content of deleterious elements.* *The 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.*	The mine planning underpinning the 2021 Ranobe Ore Reserves estimate was conducted using capital and operating costs derived from the 2019 DFS, which are suitable for block model coding, strategic planning and mine design. All costs have been estimated in US Dollars. The 2019 DFS capital cost was estimated at US$442m (+10%/-15%) based on preliminary engineering and budget quotes from vendors, following an extensive budget quotation request process on major contract packages to establish unit rates that reflect the market conditions in Madagascar for all earthworks, concrete, SMP and buildings contractors. The 2019 DFS estimated operating costs have been derived from experience gained operating the Company's Kwale mineral sands mine in Kenya, incorporating local Malagasy cost inputs where appropriate. With the benefit of this experience, operating cost were modelled using a bottom up approach which considered the equipment being used, manning schedules and work rosters, and local supplier quotes for inputs such as product haulage, power, diesel and HFO prices. General and administration operating costs were derived from the 2019 DFS manning schedules, labour work rosters, and other administration-related fixed costs such as communications, IT, consultants, recruitment, annual tenement costs and the like. DFS2 financial outcomes were superior to the 2019 DFS outcomes. Therefore, DFS2 estimated capital costs and operating costs will not result in any portion of the 2021 Ranobe Ore Reserves not being economically mineable. The fiscal terms applicable to the Toliara Project have not yet been agreed with the Government of Madagascar. A royalty of 4% of sales revenue payable to Government of Madagascar has been assumed for DFS2, on the basis that it is consistent with the rate proposed in a recent draft revision to the Malagasy Mining Code. While, at the time of determining modifying factors for pit optimisation, a 2% royalty rate was assumed, an increase in royalty rate to 4% will not result in any portion of the 2021 Ranobe Ore Reserves not being economically mineable. There are no additional treatment or refining charges applied, and minerals are sold as finished products.
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.*	Revenue is a function of block modelled grade and mineral assemblage, which is then comprehensively modelled through the mining, wet and dry separation processes to estimate final products which is expected to be delivered to a customer at a forecast price.

Criteria	Explanation	Comment
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	During the evaluation of the resource model, various pit shells were generated using a range of 1 or 2% revenue decrements from the original 100% of revenue using the MaxiPit Software. A subset of these pit shells (71% to 80%) was selected for high level scheduling and financial modelling to identify a pit shell (74%) that met production requirements and an acceptable EBITDA and return on investment. This pit shell provided the basis for more detailed mine planning and scheduling. The mine planning underpinning the 2021 Ranobe Ore Reserves was conducted using preliminary product pricing that was suitable for block model coding, strategic planning and mine design. In the final financial analysis, revenue from ore deliveries were then recalculated using Base Resources' anticipated product pricing at the time of optimisation and sales product mix and shipping schedules from the 2019 DFS. The 2021 Ranobe Ore Reserves are feasible and economic under both TZMI's and Base Resources' pricing schedules, as well as DFS2 product pricing. Prices for products used in the pit optimisation were the mean prices from operating years 4-6 of the 2019 DFS and are as follows (US$/t FOB): Ilmenite – chloride $257, Ilmenite – sulphate $168, Ilmenite – slag $177, Rutile $1,250, Zircon $1,200.
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.*	Demand for mineral sands products has historically been closely linked to growth in global GDP, which has grown at close to 3% per annum. Base Resources performs its own internal assessment of the market and also subscribes to the various market outlook and commentaries provided by TZMI. The 2019 DFS covers the supply and demand outlook for all products and highlights future supply deficits that in turn provide support for the development of the Toliara Project. Base Resources has existing customers for ilmenite, rutile and zircon products from its Kwale mineral sands mine in Kenya. Product samples produced from Toliara Project PFS and DFS test work indicates the product quality will meet customer requirements and have been assessed as such by potential customers. Contracts and agreements pertaining to Base Resources are confidential.
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	Financial modelling was completed by Base Resources using parameters developed during DFS2.

Criteria	Explanation	Comment
		The DFS2 NPV of US$1.0 billion is reported on a post-tax, pre-debt, real basis using a 10% discount rate.[2] Sensitivity to changes in capital costs, operating costs, product recoveries, product prices, discount rate etc are shown in DFS2.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate.*	Base Resources is working closely with local communities, government and other key stakeholders to ensure all agreements will be in place to allow construction, mining and processing to commence. The Company operates a comprehensive Stakeholder Engagement Plan in concert with a Community Development Plan. Close liaison with stakeholders will be maintained through the operation by a series of liaison committees representing those affected by the mine's presence. This is discussed in detail in DFS2.
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.*	All naturally occurring risks are assumed to have adequate prospects for control and mitigation. The right to mine the Ranobe deposit is provided by Mining Lease (Permis d'Exploitation) 37242, a mining lease under Malagasy law. In October 2017 Mining Lease PDE 37242 merged with Mining Lease PDE 39130 and Exploration Licence PR 3315 to form a single tenure giving complete coverage of the deposit. PDE 37242 is valid for a period of 40 years from 21 March 2012 (the date of grant of the original PDE 37242) and may be renewed in 20-year increments thereafter. Before the Toliara Project construction and subsequent mining operations can commence, surface rights need to be secured, which requires completion of the land acquisition process. The Company holds a valid Permis Environnemental (Environment Permit No 55-15/MEEMF/ONE/DG/PE) and approved Plan de Gestion Environnementale (Environmental Management Plan). More detailed environmental management plans and specific work instructions addressing construction, operational and decommissioning matters are to be prepared and submitted three months prior to the commencement of each stage. Fiscal terms applicable to the Toliara Project are yet to be agreed with the Government of Madagascar and on-ground activities are currently suspended by the Government pending those terms being agreed. The Competent Persons consider there are reasonable grounds for the Toliara Project to obtain the remaining approvals required and agree acceptable fiscal terms.

[2] For further details about DFS2, refer to Base Resources' market announcement 'DFS2 enhances scale and economics of the Toliara Project' dated 27 September 2021. Base Resources confirms that all the material assumptions underpinning the forecast financial information disclosed in this announcement continue to apply and have not materially changed.

Criteria	Explanation	Comment
		Marketing arrangements are commercially sensitive but detailed test work suggests that the expected product specifications are within marketable ranges.
Classification	*The basis for the classification of the Ore Reserves into varying confidence categories.* *Whether the result appropriately reflects the Competent Person's view of the deposit.* *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	Measured Mineral Resources are converted to Proved Ore Reserves and Indicated Mineral Resources are converted to Probable Ore Reserves. The only exception to this is for material found in the lowest 1.5m of blocks scheduled for mining in Stage 2 where detailed design has not yet been undertaken to provide confidence in the level of the pit floor and as a result this material is classified as Probable Ore Reserves regardless of its Mineral Resources estimate classification as Measured. Approximately 20Mt of Probable Ore Reserves have been derived from Measured Mineral Resources. Inferred Mineral Resources are not included in the Ore Reserves estimate. The results reflect the views that both Competent Persons have of the deposit.
Audits or reviews	*The results of any audits or reviews of Ore Reserves estimates.*	No external audit of the 2021 Ranobe Ore Reserves estimate has been undertaken.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserves 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 Reserves 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.*	Mining and processing methods selected are typical for mineral sands and have been demonstrated in various other mineral sand operations, they are considered a low risk of impacting the 2021 Ranobe Ore Reserves estimate. The Mineral Resource estimate and therefore the 2021 Ranobe Ore Reserves estimate are global estimates of the entire known extent of the Ranobe deposit within the Mining Lease. No production data is available against which the 2021 Ranobe Ore Reserves estimates may be reconciled. Stress testing of operating cash flow shows this remains positive well beyond the stated accuracy of the cost estimates. Detailed mine design has been undertaken for Stage 1. As additional resource definition drilling, processing test work and other key project parameters and costs are updated, the mine design will be updated accordingly. The MSP and mining throughputs are based on detailed assessment of market capacity to absorb the mine production, and the impact of the additional production on expected pricing. This gives confidence that the product price expectations are realistic. The metallurgical test work has been conducted with those throughputs in mind, giving confidence that the recovery estimates are accurate.

Criteria	Explanation	Comment
		The 2021 Ranobe Mineral Resources estimate used as the basis for the 2021 Ranobe Ore Reserves estimate was made in accordance with JORC Code, and only Measured and Indicated categories have been considered. Generally, there is a high level of confidence in the technical and economic aspects of modifying factors. The confidence in social and government related modifying factors is moderate to high. Overall, the confidence in the 2021 Ranobe Ore Reserves estimate is high.

Glossary

Assemblage	The relative proportion of heavy mineral components including ilmenite, rutile, zircon and leucoxene.
Base Toliara	Base Resources’ wholly owned Malagasy incorporated subsidiary, Base Toliara SARL.
Competent Person	The JORC Code requires that a Competent Person be a Member or Fellow of The Australasian Institute of Mining and Metallurgy, of the Australian Institute of Geoscientists, or of a ‘Recognised Professional Organisation’. A Competent Person must have a minimum of five years’ experience working with the style of mineralisation or type of deposit under consideration and relevant to the activity which that person is undertaking.
Cut-off grade	The lowest grade of mineralised material that is thought to be economically mineable and available. Typically used by Base Resources to define which material is reported in a Mineral Resource estimate.
DEM	Digital Elevation Model, a representation of the bare ground (bare earth) topographic surface of the Earth excluding trees, buildings, and any other surface objects.
GARN	Garnet, a valuable heavy mineral.
Grade	A physical or chemical measurement of the characteristics of the material of interest. In this context, the grade is always a percentage and the characteristics are heavy mineral, oversize, slime and the various product minerals (ilmenite, rutile etc).
Heavy mineral	In mineral sands, minerals with a specific gravity greater than 2.85 t/m^3.
ILM	Ilmenite, a valuable heavy mineral.
Indicated Resource or Indicated	An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.
Inferred Resource or Inferred	An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.
Inverse distance weighting	A statistical interpolation method whereby the influence of data points within a defined neighbourhood around an interpolated point decreases as a function of distance.
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 Edition, as published by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia.
LIDAR survey	LIDAR is a remote sensing technology that measures distance by illuminating a target with a laser and analysing the reflected light to produce a Digital Terrain Model.
Measured Resources or Measured	A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.
Mineral Resources	Mineral Resources are a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.
Minmod	A company developed mineralogy modelling technique, it comprises an XRF analysis of the magnetic and non-magnetic fractions of each composite or sample, the results from which are then back-calculated to determine in-ground mineralogy.
MON	Monazite, a valuable heavy mineral that contains rare earth elements
NQ	Specification of drilling rods (and bits) with an outer diameter of 76mm

Ordinary Kriging	A statistical interpolation method to predict the value at a given point by computing a weighted average of the known values in the neighbourhood of the point
Ore Reserves	Ore Reserves are the economically mineable part of Measured and/or Indicated Mineral Resources.
OS	Oversize material (>1mm).
Probable Reserve or Probable	A Probable Ore Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.
Proved Reserve or Proved	A Proved Ore Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.
QEMSCAN	Is an acronym for Quantitative Evaluation of Materials by Scanning Electron Microscopy, an integrated automated mineralogy and petrography solution providing quantitative analysis of minerals and rocks.
QQ plot	Quantile quantile plot. Used to graphically compare data distributions.
REO	Rare earth oxides.
RL	Reduced Level is denoted as 'RL'. National survey departments of each country determine RL's of significantly important locations or points. RL is used to describe the relative vertical position of drill collars.
RMS	Root Mean Square Error used in processing of survey data, it is an average but assuming that the error follows a normal distribution it will correspond to the percentile 68% in one-dimensional distributions (e.g. vertical error) and percentile 63% for bidimensional distributions (e.g. horizontal error).
RTK	Real time kinematic DGPS uses a base station GPS at a known point that communicates via radio with a roving unit so that the random position error introduced by the satellite owners may be corrected in real time.
RUT	Rutile, a valuable heavy mineral.
SEM, SEM EDX	A Scanning Electron Microscope is a type of electron microscope that produces images of a sample or minerals by scanning the surface with a focused beam of electrons. EDX is short for energy dispersive X-ray and is commonly used in conjunction with SEM.
SL	Slimes, being a waste product from the processing of mineral sands. Defined at Ranobe as material <63µm
TBE	Tetrabromoethane, a high density liquid (2.94 – 2.98) used for sink-float analysis of drill samples.
Variography	A geostatistical method that investigates the spatial variability and dependence of grade within a deposit. This may also include a directional analysis.
XRF analysis	A spectroscopic method used to determine the chemical composition of a material through analysis of secondary X-ray emissions, generated by excitation of a sample with primary X-rays that are characteristic of a particular element.
ZIR	Zircon, a valuable heavy mineral.

----- ENDS -----

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This release has been authorised by the Board of Base Resources.

About Base Resources
Base Resources is an Australian based, African focused, mineral sands producer and developer with a track record of project delivery and operational performance. The Company operates the established Kwale Operations in Kenya and is developing the Toliara Project in Madagascar. Base Resources is an ASX and AIM listed company. Further details about Base Resources are available at www.baseresources.com.au.