

## ASX ANNOUNCEMENT

3 December 2020

### MARAO AND MARRUCA EXPLORATION LICENCES GRANTED - INITIAL WORK PROGRAM TO COMMENCE AT MARAO

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#### Key Highlights

- Final grant of Exploration Licences Marao and Marruca received
- The addition of Marao and Marruca to MRG's exploration portfolio more than doubles MRG's wholly owned Mozambican entities
- Marao and Marruca are situated 30km from and on strike in the same paleo dune system as the world class Corridor Sands Operation (7054 C, Dingsheng Minerals, S.A), which contains +2.7 Billion tons of Heavy Mineral Sand (HMS) in Resource, with grades >7% Total Heavy Minerals (THM)
- Very limited historic exploration was reported from within Marao tenement from shallow depth auger drilling
- No historic exploration has been reported from Marruca
- At Marao and Marruca, MRG will apply its highly cost effective HMS exploration model developed at Corridor Central and Corridor South, which led to the discovery of Koko Massava JORC Resource of 1.4BT @ 5.2% THM (refer ASX Announcement 22 April 2020) and promising pre-MRE discoveries at Nhacutse, Poiombo, Bungane and Zulene prospects
- Exploration will commence immediately at Marao involving approximately 370 hand auger drillholes at 1,000m by 500m spaced drilling focused on the projected ancient coastline linked to Corridor Sands deposit
- Infill hand auger and aircore drilling on higher priority targets will follow
- The Paleo sand dunes within the licences are adjacent to paleo coast/strand deposits towards the south, indicating the possibility of high grade strandline deposits at depth
- Community relation meetings will be initiated immediately, a new field camp will be set up and exploration drilling will commence immediately thereafter
- MRG is funded to commence the Marao drilling program

MRG Metals Limited ("MRG" or "the Company") (ASX Code: MRQ) is pleased to announce the final grant of Exploration Licences 6842L (**Marao**) and 6846L (**Marruca**), on which MRG has now conducted a technical review of available information. The stratigraphy and geographic distribution of sediments that hosts the heavy mineral (HM) is a critical element for the economic assessment of any deposit. The information gained in the technical review, together with MRG's working knowledge

from the exploration in Corridor Central (6620L) and Corridor South (6621L) licences, has been used to develop a work program for the Marao and Marruca Projects to immediately commence at Marao.

MRG would like to thank INAMI for processing and granting the two licences in a COVID 19 restricted work environment. The 7423 L (Linhuane) application with INAMI remains under review, however given the granting of the Marao and Marruca licences, the Company remains optimistic of approval being received in the coming months.

**MRG Metals Chairman, Mr Andrew Van Der Zwan said:** *“Whilst 2020 has been an extremely difficult year world wide due to COVID, the team at MRG has progressed throughout and has achieved so much during these trying times.*

*To date this year, the Corridor Central and Corridor south reconnaissance drilling programs have resulted in multiple high targets resulting in a maiden MRE at Koko Massava of 1.4BT at 5.2% and more recently, multiple 50-100MT potential zones at Nhacutse and Poiombo.*

*Following this success we now plan to utilise the same low cost techniques at our new licences, Marao and Marruca.*

*As we round off this year like no other, we are thrilled to report that following the recent granting of the licences, we plan to commence an auger drilling as soon as Community engagement is completed. The new assets are strategically located along the highly prospective ancient coastline which provides MRG with further exploration upside.*

*Prior to the drilling commencing, MRG will continue to receive Lab assay results from the completed programs at Corridor Central which will help identify the follow up Aircore programs for 2021.”*

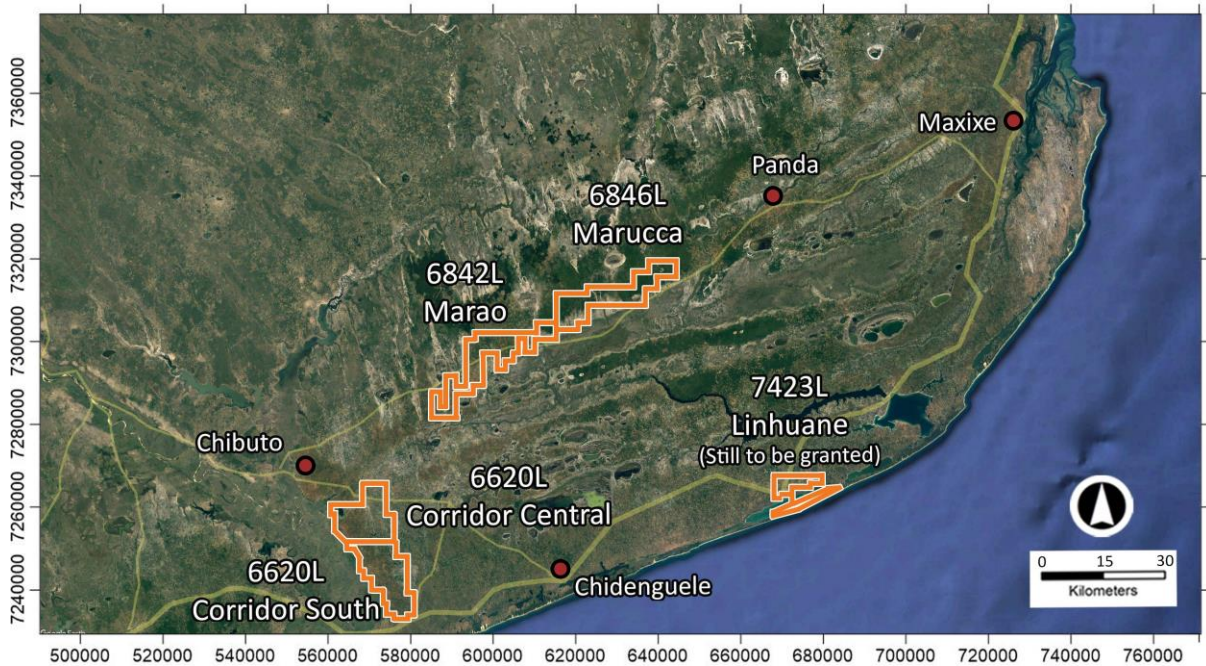
#### **Locality of Marao and Marruca**

Marao and Marruca are contiguous licences situated approximately 35km north-northeast of MRG’s Corridor Central and Corridor South licences (Figure 1). The two new licences have a combined area of 385.39 km<sup>2</sup>, which more than doubles the current exploration licence area of MRG’s Corridor Projects. The location of MRG’s licences and those of other large explorers in the area can be seen in Figure 2.

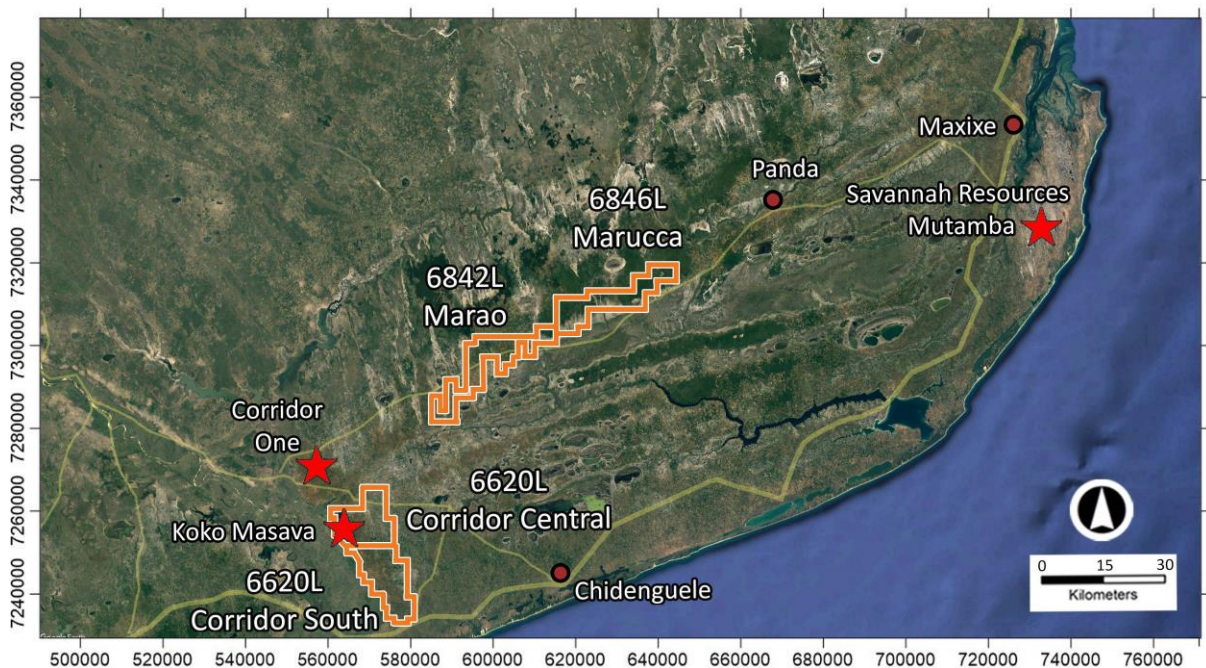
The Marao and Marruca licences are ideally located, situated on a paleo coastline / paleo dune system with a strike length of approximately 72km along this particular paleo system (Figures 3) which hosts the world class Corridor Sands / Corridor 1 deposit (currently transitioning into production by Chinese company Dingsheng Minerals) to the west (Figures 2 and 3). The Corridor Sands deposit is situated approximately 30km southwest of Marao and was initially a Southern Mining project, later owned by Western Mining Corporation, which was subsequently acquired by



BHP. Corridor Sands has a resource in excess of 2.7 Billion tons, at a THM grade of >7% and contained ilmenite in excess of 100 million tons.



**Figure 1:** Map of the location of the Marao (6842L) and Marruca (6846L) in relation to other MRG Licences.



**Figure 2:** Map of the locality of the Marao (6842L) and Marruca (6846L) licences in relation to other large HMS projects in the area.

### Upcoming Marao and Marruca Work Program

The heavy mineral mineralised zones in the paleo aeolian dunes have been shown to have relatively large widths, strike and thicknesses in this area from the vast amount of exploration done by MRG at the Corridor Central and Corridor South projects, as well as information available from the Corridor Sands project. The strike of the mineralisation from the MRG deposits and Corridor Sands is several kilometers along the paleo dune system strike, thus SW-NE, and the width is generally in the >1km range in the NW-SE direction.

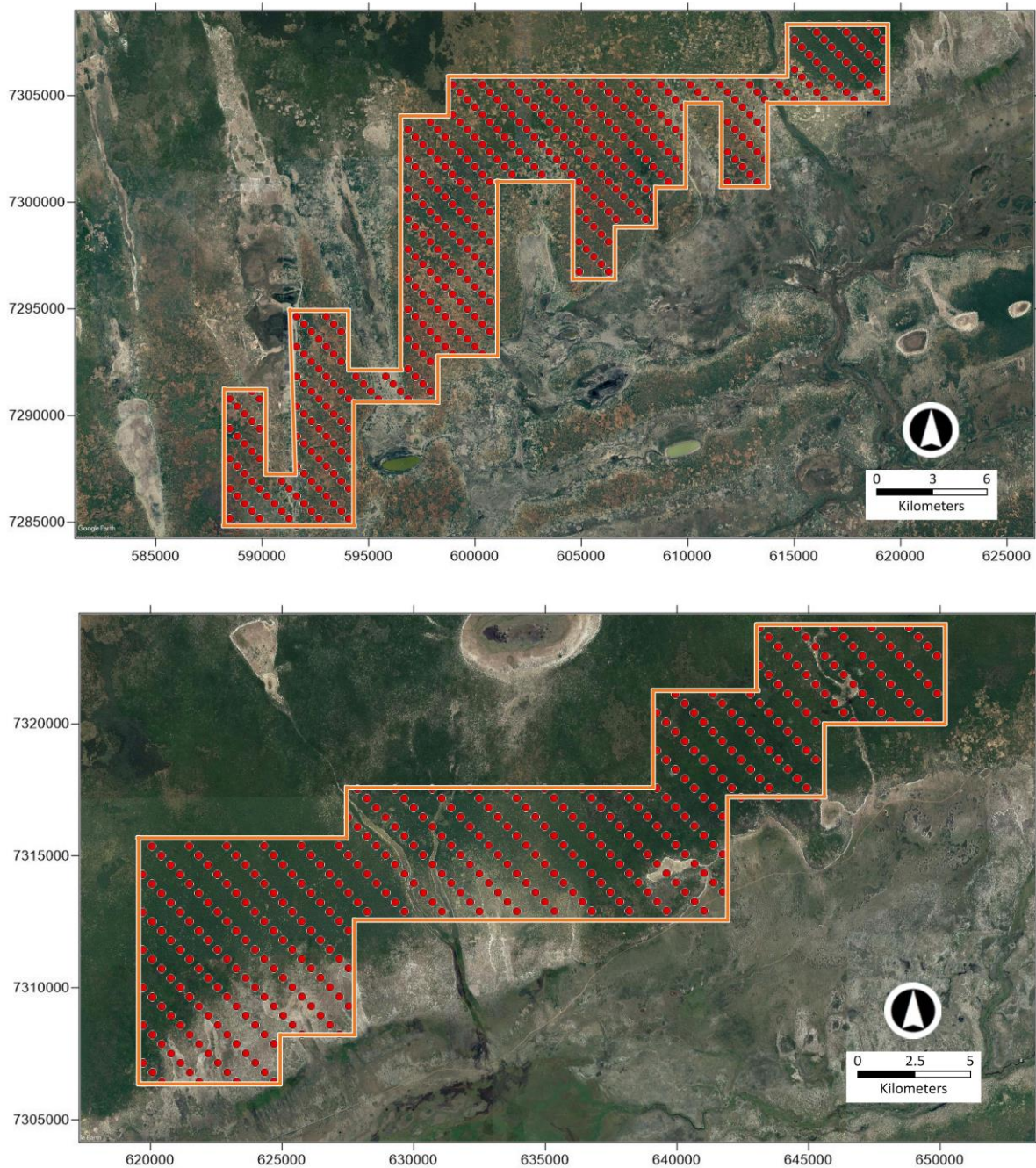
A drill spacing as a first phase at 1km inter-line on strike and 500m inter-drillhole on the lines is therefore seen as a realistic spacing to explore the deposits (Figure 3). The exploration plan therefore takes this into account, with the work program as follows (Table 1 summarises the work program and current time frames):

- Community meetings for both Marao and Marruca and the setup of a field camp should be completed in December 2020
- The first phase of exploration will start at Marao in January 2021 as it is in closer economic radius to Koko Massava and is also closer to the known Corridor Sands project. First phase exploration will be conducted via hand auger drilling, this technique has been utilised extremely successfully in the other MRG licences, including the resource work on the Koko Massava Deposit (refer ASX Announcement 22 April 2020) and supplies excellent samples from close to surface for analysis. Drilling will commence in the southwest of the Marao licence, at 1km spaced lines and 500m spaced drill sites on lines, drill lines will be orientated perpendicular to the paleo dune direction, thus NNW-SSE, with drilling to depth in the 10.5 – 12m range depending on water table (hand auger is not effective under the water table), the drilling limit of the hand auger equipment, drilling is expected to take 8 months to complete and c 340 auger holes are planned for Marao (Figure 3);
- Higher grade THM areas intersected during phase 1 auger drilling will be followed up by closer spaced auger drilling, as well as aircore drilling to test the depth extent of mineralisation. From Corridor Sands it is known that mineralisation can be continuously mineralised from surface to a depth of 100m;
- Phase 1 hand auger drilling will continue in Marruca license later in 2021 on completion of phase 1 drilling at Marao (same spacing etc. as in Marao, also c 340 drillholes planned), but is not expected to be completed in Marruca by year end (Figure 3).



**Table 1:** Summary of Marao and Marruca work program with associated expected timing.

<b>Proposed Exploration Plan - Marao (end 2020 and 2021)</b>		
<b>Activity</b>	<b>Duration</b>	<b>Timing</b>
Community meetings, setup of new field camp	3 Weeks	December 2020
Hand Auger reconnaissance drilling of 370 drillholes - spacing of 1,000m by 500m to cover licence, generate higher grade mineralized targets for follow-up exploration; drilling to depth in the 10.5 – 12m range (depending on water table)	8 Months	January 2021 to August 2021
Closer spaced hand auger drilling and reconnaissance Aircore drilling on targets	4 Months	September 2021 to December 2021
Tenement Payments, administration and exploration	Ongoing	Ongoing
<b>Proposed Exploration Plan - Marruca (end 2020 and 2021)</b>		
<b>Activity</b>	<b>Duration</b>	<b>Timing</b>
Community meetings, setup of new field camp	3 Weeks	December 2020
Hand Auger reconnaissance drilling of 370 drillholes - spacing of 1,000m by 500m to cover licence, generate higher grade mineralized targets for follow-up exploration; drilling to depth in the 10.5 – 12m range (depending on water table)	4 Months	September 2021 to December 2021
Closer spaced hand auger drilling and reconnaissance Aircore drilling on targets	2 Months	November 2021 to December 2021
Tenement Payments, administration and exploration	Ongoing	Ongoing



**Figure3:** Maps showing desktop planned first phase hand held auger drillhole positions on the Marao (6842L, top image) and Marruca (6648L, bottom image).

### **Generalised coastal genesis and heavy mineral concentration**

The processes and source of material that form coastal heavy-mineral sands placer deposits originates inland. Heavy mineral bearing metamorphic and igneous rocks weather and erode to sand, silt, clay, and heavy minerals in fluvial systems. These heavy minerals generally occur in very low concentrations in the rocks, but they are chemically and physically resistant to weathering and have comparatively high specific gravity.

The fluvial systems carries the material to the coast, where it is deposited in a variety of coastal environments, such as deltas, the beach face or foreshore, the nearshore, barrier islands, dunes and tidal lagoons, as well as deposits on the coastal plain. The sediments are reworked by waves, tides, longshore currents and wind. The mineral grains are thus sorted on the basis of differences in size and density, with the finest-grained, most dense heavy minerals the most effectively sorted and upgraded. Heavy minerals accumulation therefore takes place, forming laminated or lens-shaped, heavy-mineral-rich sedimentary packages that can be several meters and even as much as tens of meters thick. Most economic placer deposits of heavy-mineral sands are Paleogene, Neogene, and Quaternary in age; some are modern coastal deposits.

Other processes that then have a significant impact on the genesis / further upgrading of the heavy mineral coastal deposits are:

- Strong and sustained wave action is needed to move sand from offshore to onshore and to then sort and concentrate the heavy minerals along the coast
- The geomorphology of a coastline is a very strong controlling factor in the formation of heavy mineral deposits as the shape of the coastline has to results in strong longshore currents that further sorts and concentrated heavy minerals along the coast
- Wind action plays an important role as it can further concentrate and sort heavy minerals in dunes behind the beach - these dunes can be 100m high as in the case in parts of the east coast of Mozambique and South Africa
- Sea level changes, specifically slow regression (lowering of the sea level / apparent lowering of the sea level due to localised faulting), preserves coastal developed heavy mineral sand deposits

The generalised size of the heavy mineral deposits is in the order the kilometer scale with thicknesses of economic deposits in the meter scale, sometimes tens of metres.

Weathering of the heavy minerals and the associated upgrading of the Titanium Dioxide (TiO<sub>2</sub>) content of ilmenite takes place after their deposition in the coastal plain. Weathering is by groundwaters, humic acids, and other fluids. This weathering enhances the TiO<sub>2</sub> content of ilmenite by the leaching of iron from ilmenite, upgrading the TiO<sub>2</sub> content of the ilmenite, forming a mineral range from slightly higher content TiO<sub>2</sub> Ilmenite, to leucosene to pseudo Rutile.



## Genesis of paleo coastlines and heavy mineral placer deposits in southern Mozambique

Extensive HM exploration along the southern coast of Mozambique has resulted in the discovery and subsequent definition of significant large HMS deposits including Dingsheng Minerals' Corridor Sands, MRG's Koko Massava project in Corridor Central and Savannah Resources & Rio Tinto's Mutamba Project. The work, in combination with lithostratigraphic work on the different placer deposit styles, has greatly advanced the understanding of the genesis of the HM placer deposits in this region.

The general deposition model is as per the generalised coastal development section holds true, with the large perennial rivers (Limpopo, Zambezi) sourcing the material inland from high grade metamorphic basement terrains and depositing it at the paleo Limpopo river mouth. Coastal processes, specifically longshore currents and aeolian reworking of the coastal deposits, resulted in very large scale placer HM deposits, with the heavy minerals transported from inland winnowed to produce heavy mineral concentrations in high paleo-aeolian sand dunes. With regression of the ocean linked to structural Rift Valley related uplift, the paleo-aeolian sand dunes were preserved from marine erosion.

The coastal region of southern Mozambique forms part of the Mozambique basin, which has an onshore area of about 270 000 km<sup>2</sup>, a long axis of about 1200 km and is up to 400-km wide. The basin is characterised by a complex succession of Cretaceous to Quaternary age sedimentary rocks (Figure 3; Table 2) and unconsolidated sand deposits which rest unconformably on Karoo Supergroup sedimentary and volcanic rocks.

The present coastal plain of the Mozambique basin is an extensive zone of low-lying, unconsolidated Quaternary to Recent sediments, separated from the Indian Ocean by older stable paleo dunes and presently active dunes. The active dune cordon can be up to 2 km in width and over 100 m above sea level (ASL) in many places. MRG's Marao and Marruca project areas are dominated by Quaternary deposits, subdivided into Pleistocene deposits such as the Internal Dunes, Fluvial Terraces, Coastal Sandstones (or 'Beach Rock') and Lacustrine Limestones and Holocene deposits such as flood plain deposits of a sandy-clayey or mud composition. All litho-stratigraphic units (including code) that are portrayed in the geological maps (scale 1:250 000 in Figure 2, 3 and 4) are summarised in Table 2.

The majority of the HM deposits in the area are found within the large stable paleo dunes, as well as the recent active dunes closer to the coast. Several paleo coastlines and dune systems can clearly be seen in Google Earth and in the geological map (Figure 3), with the Marao and Marruca licences situated on the same paleo system of the Corridor Sands Project. These dunes are composed of reddish, brownish and yellowish aeolian sands consolidated by vegetation and are located inland, generally not far from the present shoreline, but are not part of the present active dune system. The morphological pattern, comprising alternating longitudinal dunes and elongated lakes, has preserved the orientation of the original paleo dune system. The elongated hills are not derived from dune migration, but rather from consecutive dune formation along a migrating shoreline. This is confirmed

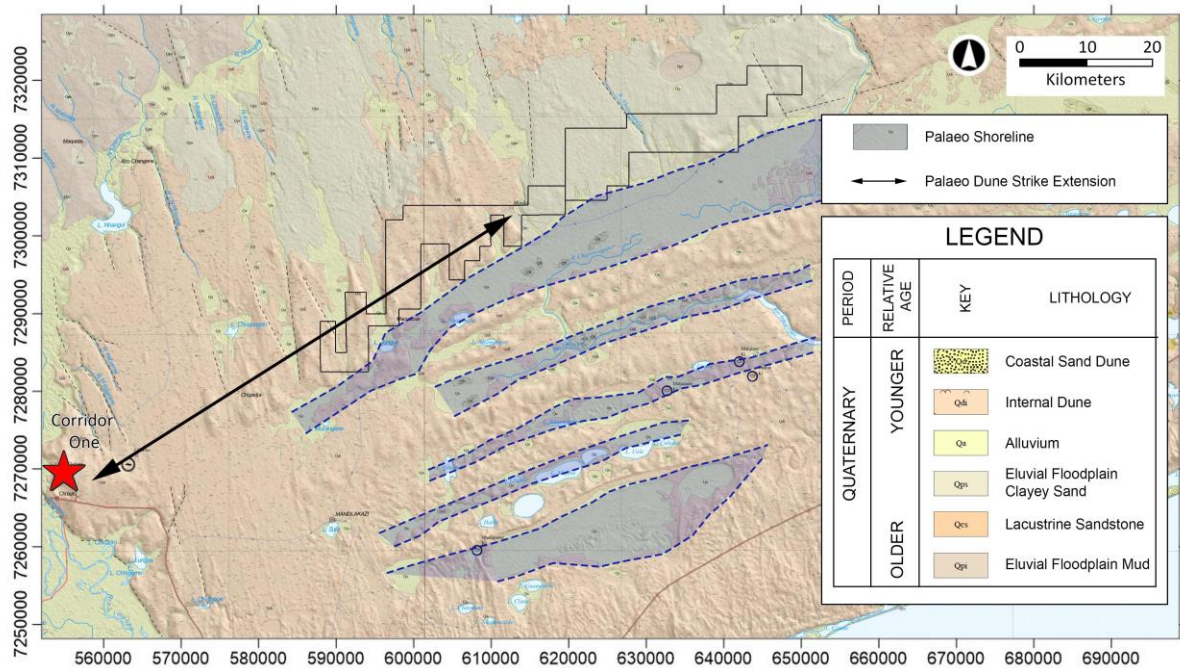


by the existence of many small lakes and lagoons with salty water, which means that these intra-dune depressions are regarded as abandoned sea channels.

From information available on the Corridor Sands, the mineralisation extends to the surface with no overburden. Two discreet mineralised HM bodies are present, with HM concentrations of 6 to 10% HM over widths of more than 2 km and thicknesses of 20 to 100m. This information has been utilised in MRG's exploration planning.

The higher TiO<sub>2</sub> content and associated higher grade Valuable Heavy Minerals (VHM) found in MRG's Corridor Central and Corridor South licences (refer ASX Announcement 31 July 2020 on original results and ASX Announcement 31 August 2020 on Duplicate results) is related to in-situ weathering of the ilmenite within the paleo-dunes and resulting upgrading of the ilmenite to high titanium ilmenite and Leucoxene. The upgrading of the VHM content has the potential to have a significant impact on the economics of deposits, mineralogical studies of samples as tool in understanding the mineral assemblage and VHM content is critical in any HMS exploration project.

The Marao and Marruca licences are in close proximity to a paleo coastline in the south, evidenced by raised beach sediments / coastal sandstone ('beach rock') (Figure 4, Qll rock type on the geological plan and in Table 2) towards the south of the licences. The possibility of the paleo-dunes being thinner within these licences and typically high THM grade beach placer deposits (strandline deposits) being present within drilling depths in the licences will therefore need to be investigated. Strandlines represent tabular zones of concentrated heavy mineral accumulations that are preserved by gradual marine regression that leaves the strandline above the level of marine erosion.



**Figure 4:** Map indicating the paleo dune and paleo coastline relationship with Marao (6842L) and Marruca, with the licences on the same paleo dune system as the Corridor Sands Project.

**Table 2:** Lithostratigraphic units and codes as presented in the accompanying geological map.

Period	Group/Formation/Member	Code
Quaternary	Coastal Sand Dune	Qd
	Internal Dune	Qdi
	Alluvium	Qa
	Alluvial Mud of Fluvial-Marine origin	Qst
	Pebble-bearing debris “Mantos de Cascalheiras”	Qp
	Eluvial Floodplain Clayey Sand	Qps
	Lacustrine Limestone	Qcs
	Raised beach sediment/ Coastal Sandstone	Qll
	Colluvium	Qc
	Eluvial Floodplain Mud	Qpi
	Fluvial Terraces	Qt
	Aeolian Sand	Qe

### **Historic work on Marao and Marruca**

Very limited regional exploration drilling by Rio Tinto resulted in 25 widely spaced (generally 1km spaced on drill lines, but drill line orientations random / according to easy access) hand auger holes being drilled within the Marao licence (refer ASX Announcement 14 May 2018), no historic work has taken place on the Marruca licence.

### **Competent Persons' Statement**

The information in this report, as it relates to Mozambique Exploration Results is based on information compiled and/or reviewed by Mr JN Badenhorst, who is a member of the South African Council for Natural Scientific Professions (SACNASP) and the Geological Society of South Africa (GSSA). Mr Badenhorst is a contracted employee of the Company and has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Badenhorst consents to the inclusion in this report of the matters based on the information in the form and context in which they appear.

-ENDS-

**Authorised by the Board of MRG Metals Ltd.**

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