



FACT SHEET



KIMBERLEY
MINERAL SANDS

LOGISTICS

AUGUST 2023

Thunderbird Mineral Sands Project

Kimberley Mineral Sands (KMS) operates the Thunderbird Mineral Sands Project (Thunderbird), which is located mid-way between Derby and Broome in the Kimberley region of Western Australia and is one of the largest and highest-grade zircon mineral sands deposits in the world.

Thunderbird is being developed by Kimberley Mineral Sands Pty Ltd (KMS), a joint venture company equally owned by Sheffield Resources Pty Ltd and YGH Australia Investments Pty Ltd (Yansteel).

As at August 2023, commissioning is underway with first product shipments anticipated in early 2024.

Project Approvals

In August 2018, the WA Minister for Environment issued Ministerial Statement Number 1080 for Thunderbird (MS1080). This environmental approval followed a Public Environmental Review for the development of Thunderbird in 2017.

MS1080 allows Thunderbird to be developed and included the approval of bulk mineral sand products to be shipped from the Port of Derby and packaged products to be shipped from the Port of Broome.

In 2022 export options were reviewed due to changes in the mineral sands products that Thunderbird will produce following Yansteel's investment.

Subsequently, a variation to MS1080 was sought to export bulk mineral sands products via the Port of Broome, whilst still maintaining flexibility to use the Port of Derby as previously approved. This was approved in November 2022 under section 45C(1)(a) of the Environmental Protection Act 1986 (WA).

Changes in Logistics due to Port of Broome Export Approvals

The approval to export bulk mineral sands product from the Port of Broome results in increased trucking activity from the mine site to Broome via the heavy haulage route of Broome Road and Gubinge Road.

It is important to note the MS1080 amendment allows **less than 50** round trips per day from the mine site to the Port of Broome. However, it is anticipated that there will only be approximately **26 round trips** per day in the first five years.

Road Train Approvals & Management Plan

A community consultation process was conducted in May and June consisting of one-on-one interviews with 21 key stakeholders, an online residents' survey which 269 people completed and four focus groups with a total of 42 attendees.

The consultation informed a Traffic Impact Assessment and Management Plan which have been submitted to Main Roads WA as part of the permit process to use PBS 60m road trains to transport the product from Thunderbird.

Outcomes from the consultation process are available on our website.

The Traffic Impact Assessment and Management Plan have been developed by specialised traffic engineers and our logistics contractor.



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How will the product be transported?

The mineral sands products will be loaded into sealed rotainers and onto road trains for transport to a storage area near the Port of Broome.

The rotainers will be offloaded at the storage area until a vessel is in port, then will be loaded onto double road trains to be taken onto the wharf.

At the wharf, a mobile harbour crane will lift the rotainers off the trailer and lower into the hull of the ship, then rotate to empty the product. This method is used at other ports in Australia and is known to minimise any dust emissions.

What volume of road trains will travel between the mine and Broome each day?

The environmental approval permits **less than 50 round trips** per day. However, in the first five years of the project, it is anticipated there will only be approximately **26 round trips** per day.

How many ships will there be and how long do they take to load?

The environmental approval permits export of up to 1,600,000 tonnes per year. It is anticipated that around 34 ships per year will be loaded in Broome, averaging 40,000 tonnes per ship.

This equates to **2 or 3 ships** per month, with each one taking around **4 to 6 days** to load with current port handling capacity.

When a ship is being loaded, there will be up to **160 double road train** round trips per day between the storage area and the wharf.



Why change from Derby to Broome?

The original approvals allowed export of bulk mineral sand products from the Port of Derby and packaged products from the Port of Broome.

Since the formation of the Joint Venture with Yansteel, export options were reviewed due to the change in the mineral sands products that Thunderbird will produce.

As a result, a variation to MS1080 was sought and approved for export of bulk mineral sands products from the Port of Broome.

Exporting bulk product from the Port of Broome means the product can be directly loaded onto the ship for the final destination, whereas transshipping (unloading from one vessel onto another vessel in deeper water) is required at Derby.

It also means the recent investment by the Kimberley Ports Authority to optimise the shipping channel and purchase of a mobile harbour crane in Broome can be fully utilised.

The most attractive logistics solution for Thunderbird may change over the expected 36-year mine life and as new infrastructure is developed, particularly in relation to Port of Derby.

Therefore it is important to have flexibility and approval to export bulk mineral sands products from both the Ports of Derby and Broome.



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What kind of road trains will be used?

Logistics Contractor Campbell Transport is proposing to use Performance Based Standard (PBS) 60 metre road trains to transport the product from Thunderbird to the storage area near the port.

PBS 60m road trains have many additional safety mechanisms compared to the standard 53.5m triple and quad road trains which are currently allowed to use Broome Road, Gubinge Road and Port Drive without further permits.

Informed by community consultation, a Traffic Impact Assessment and a Management Plan have been submitted to Main Roads with a permit application to use the PBS 60m road trains.

Will the roads be upgraded to accommodate the new road trains?

The road to the Port of Broome are public and the responsibility of the State Government.

Great Northern Highway, Broome Road, Gubinge Road and Port Drive are classified as being suitable for RAV10 heavy vehicles, including triples and quad road trains.

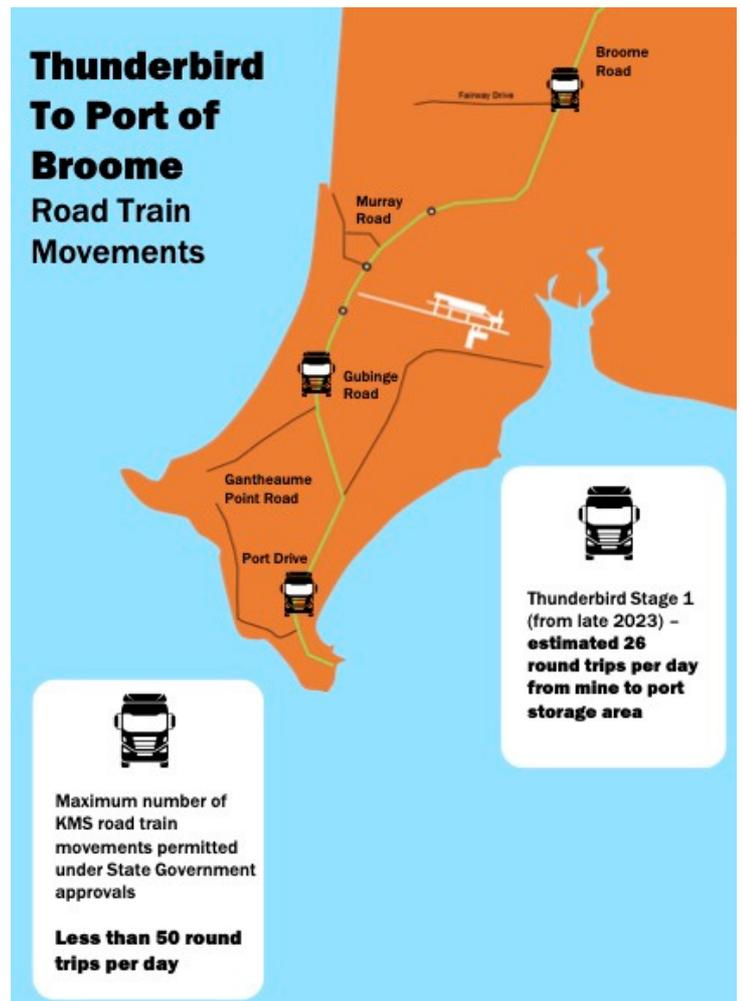
In developing the Traffic Impact Assessment and Management Plan, we will work with the relevant authorities and our contractors to identify and address any road safety concerns raised by stakeholders and the community. Main Roads WA has also undertaken a recent road safety audit.

Will access to Entrance Point and the slipway or boat ramps be affected?

Access to the areas inside the Port boundary is the responsibility of the Kimberley Port Authority, however it is not anticipated that access to Entrance Point or the boat ramps will be affected during shiplading, much like when a live export boat is being loaded with cattle currently.



Map showing proposed transport route from Thunderbird to Broome along the heavy haulage route.



How will increased shipping affect Roebuck Bay Marine Park and other recreational port users?

Based on the 2021/22 annual total vessels at the Port of Broome of 1,094, the increase in vessels associated with Thunderbird from 2024 (i.e. 34 ships) will be approximately 3%.

As there will be no construction impacts associated with the use of the Port of Broome to export Thunderbird product (existing Port infrastructure will be utilised), there are not anticipated to be any significant impacts on the Roebuck Bay Marine Park and other neighbouring areas of environmental significance.

How will the trucking affect air quality and noise levels and how will it be managed?

We've undertaken baseline noise and air quality modelling in Broome. However we don't expect a material change in air quality because the product will be transported in sealed rotainers. This means there are no significant dust impacts anticipated.

In relation to noise levels, a Traffic Impact Assessment and Management Plan is being developed following community consultation.

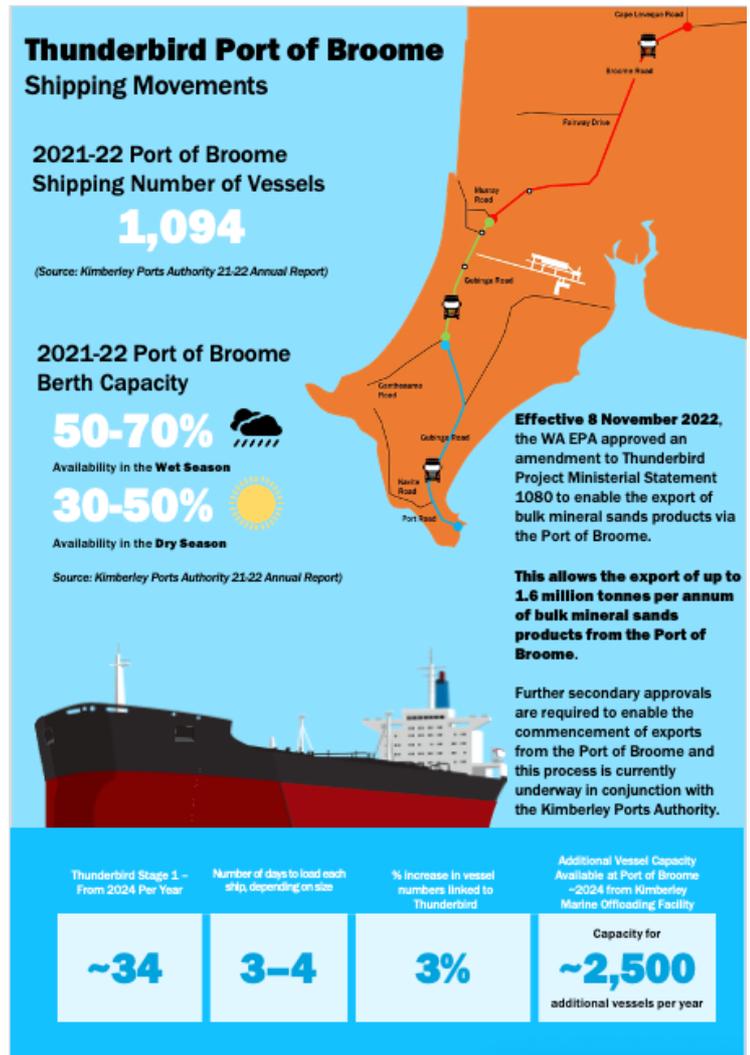
These plans will include implementing safety and noise management measures specific to the Broome haulage routes.

Examples of measures being considered include avoiding the use of engine brakes when trucks travel along Gubinge Road and Port Drive in Broome, reducing speeds to below signposted limits at night (10pm to 7am) to keep noise levels within acceptable limits (as set by relevant government authorities) and reducing truck movements at different times.

This will also include undertaking ongoing noise modelling to ensure that actual noise levels during operations are proactively managed and that the management measures are operating effectively on an ongoing basis.

This also means noise management measures can be assessed and changed over time, where necessary.

More FAQs are available on our website.



Radiation in Mineral Sands Products

Radiation occurs in our natural environment, and we encounter it every day through the food we eat, in building materials, items we commonly use and in activities such as air travel and medical procedures.

Radiation levels in Thunderbird mineral sands products are low and are similar to other naturally occurring sources. The specific radioactive concentrations of the mineral sands are monitored.

At this level, the products are not classified as 'radioactive' for the purposes of transport and no special containerisation or placarding is required.

Given the insoluble nature of the naturally occurring radioactive material in mineral sand products, specialised management is not required.