

EXECUTIVE SUMMARY: ENVIRONMENTAL IMPACT ASSESSMENT REPORT EXTENSION OF TORMIN MINE, WEST COAST, SOUTH AFRICA

DMR Reference Number: WC 30/5/1/2/2/162 & 163 MR

1 INTRODUCTION

Mineral Sand Resources (Pty) Ltd (MSR) owns and operates the Tormin Mineral Sands Mine (Tormin Mine) on the West Coast of South Africa, near Lutzville. The mine holds two Mining Rights (MR162 and MR163), covering an area of 119.9 ha, and an approved Environmental Management Programme (EMPr) to mine Valuable Heavy Minerals (VHM) on beaches below the high-water mark adjacent to Farm Geelwal Karoo 262.

MSR proposes to extend mining operations at Tormin Mine in terms of Section 102 of the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA), into the following areas (the “project”) (Figure 2, Figure 3 and Figure 4):

- Ten beaches adjacent to Remainder of Graauw Duinen 152, and Portions of Farm Klipvley Karoo Kop 153, along a stretch of coastline north of Tormin Mine comprising 43.7 ha mining and ~6 ha for haul road widening;
- Inland “strand line” mining area on the Farm Geelwal Karoo 262, inland of the existing processing plant comprising 75 ha for mining; and
- An infrastructure / plant expansion area of 64 ha adjacent to the existing processing plant to accommodate additional processing plants, stockpile areas, industrial yards, parking and laydown areas.

SRK Consulting (South Africa) (Pty) Ltd (SRK) was appointed by MSR to undertake the Scoping and Environmental Impact Reporting (S&EIR, also referred to as EIA) process in terms of the National Environmental Management Act 107 of 1998 (NEMA). The EIA process was undertaken in accordance with Section 23 of the EIA Regulations, 2014 (GN R982, as amended by GN R326).

See page 18 for details on how you can participate in the process.



2 GOVERNANCE FRAMEWORK

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities which may not commence without an EA issued by the competent authority, in this case, the DMR. The EIA

Regulations, 2014 (Government Notice (GN) R982)¹, promulgated in terms of NEMA, govern the process, methodologies and requirements for the undertaking of EIAs in support of EA applications. The EIA Regulations are accompanied by Listing Notices (LN) 1-3 that list activities that require EA.

The EIA Regulations, 2014, lays out two alternative authorisation processes. Depending on the type of activity that is proposed, either a Basic Assessment (BA) process or an S&EIR process is required to obtain EA. LN 1 lists activities that require a BA process, while LN 2 lists activities that require S&EIR. LN 3 lists activities in certain sensitive geographic areas that require a BA.

SRK has determined that the proposed project triggers activities listed in terms of LN 1, LN 2 and LN 3 of the EIA Regulations, 2014, requiring an EIA. The equivalent activities in terms of the EIA Regulations, 2014, are included in Table 1.

Table 1: Listed activities triggered by the project

No	Description
LN1 (requiring BA)	
9	Development of infrastructure exceeding 1 000 m in length for bulk transportation of water
10	Development of infrastructure exceeding 1 000 m in length for bulk transportation of effluent, process water or slimes
12	The development of dams, infrastructure or structures with a physical footprint of more than 100 square metres within 32 metres of a watercourse
17	Development in the sea or littoral active zone in respect of embankments, rock revetments or stabilising structures
19	Depositing or excavating of material from a watercourse
19A	Depositing or excavating of material from the seashore or the littoral active zone
24	Development of a road wider than 8 m.
25	The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput of more than 2000 but less than 15 000 cubic metres

¹ As amended by GN R327, GN R325 and GN R324 on 7 April 2017.

No	Description
28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or game farming on or after 01 April 1998 and where such development will occur outside an urban area and the land to be developed is bigger than 1 hectare
LN2 (requiring S&EIR)	
14	Development of a structure on or along the sea bed
15	Clearance of more than 20 ha of indigenous vegetation
17	Any activity that requires a mining right
19	The removal and disposal of minerals contemplated in terms of section 20 of the MPRDA
26	Development in the sea or littoral active zone
LN3 (requiring BA in the sensitive areas)	
4	Development of a road wider than 4 m in areas containing indigenous vegetation.
12	Clearance of more than 300 m ² of indigenous vegetation in sensitive areas

Consequently, the proponent is obliged to apply for EA for the project. Since activities listed under Regulation GN R984 apply to the project, an S&EIR process is required. In addition to EA, various other key authorisations, permits or licences might be required before the project may proceed (see Table 2).

Table 2: Key authorisations, permits and licences

Application	Authority
Waste Management Licence	DMR
Heritage Application	Heritage Western Cape
Water Use Authorisation	Department of Water and Sanitation (DWS) ²

3 ENVIRONMENTAL PROCESS

The EIA Regulations, 2014 define the detailed approach to the S&EIR process, which consists of two phases: the Scoping Phase (completed in June 2018) and the Impact Assessment Phase (the current phase) (see Figure 1).

The Scoping Phase was completed in June 2018 and the Final Scoping Report was accepted by the DMR on 28 June 2018. The Impact Assessment Phase is being undertaken in accordance with the Plan of Study for EIA, included in the Scoping Report accepted by the DMR.

The key objectives of the Impact Assessment Phase are to:

- Inform Interested and Affected Parties (IAPs) about the proposed project and the EIA process followed;

² The proposed widening of the northern haul road and the access road to Beach 1 triggers water use activities in terms of section 21 (c) and (i) of the National Water Act 36 of 1998. MSR will apply for Water Use Authorisation from the DWS prior to the widening of these roads.

- Obtain comments from IAPs (including the relevant authorities and the public) and ensure that all issues, concerns and queries raised are fully documented and addressed in the EIA Report;
- Identify and assess potential significant impacts associated with the proposed development;
- Formulate mitigation measures to avoid and/or minimise impacts and enhance benefits of the project; and
- Produce a Final EIA Report which will provide all the necessary information for the DMR to decide whether (and under what conditions) to authorise the proposed project.

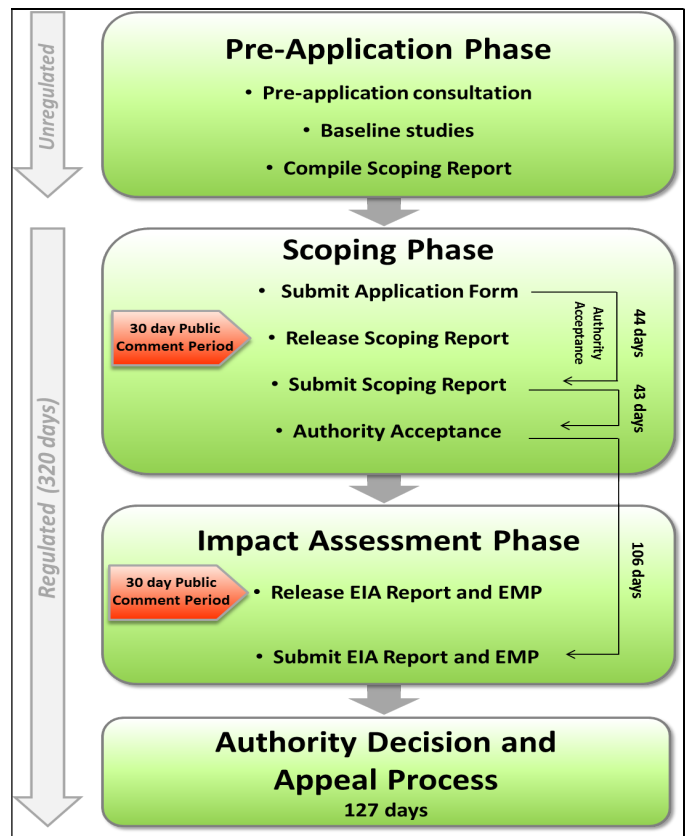


Figure 1: S&EIR Process

***Note:** EMP = Environmental Management Programme

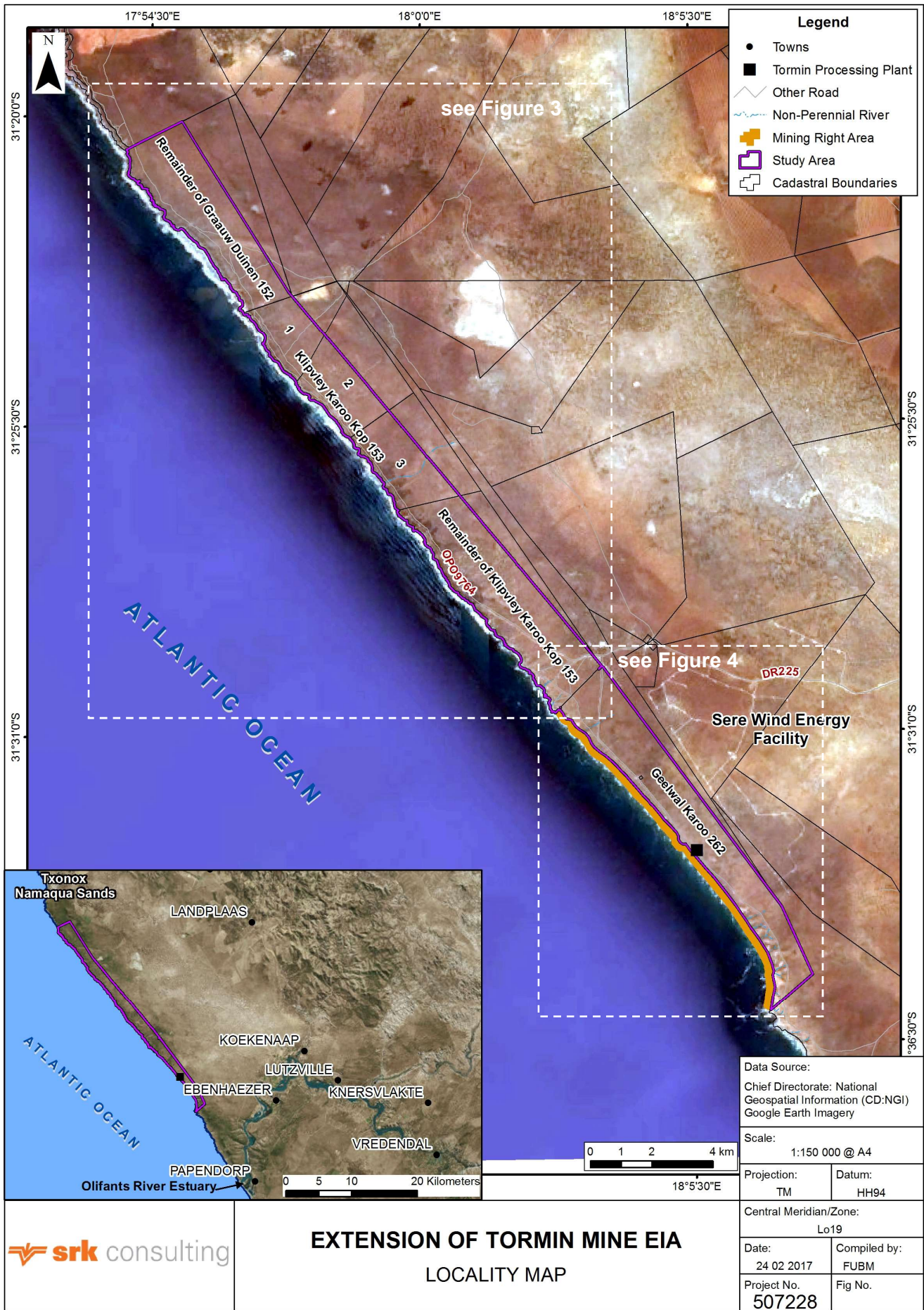
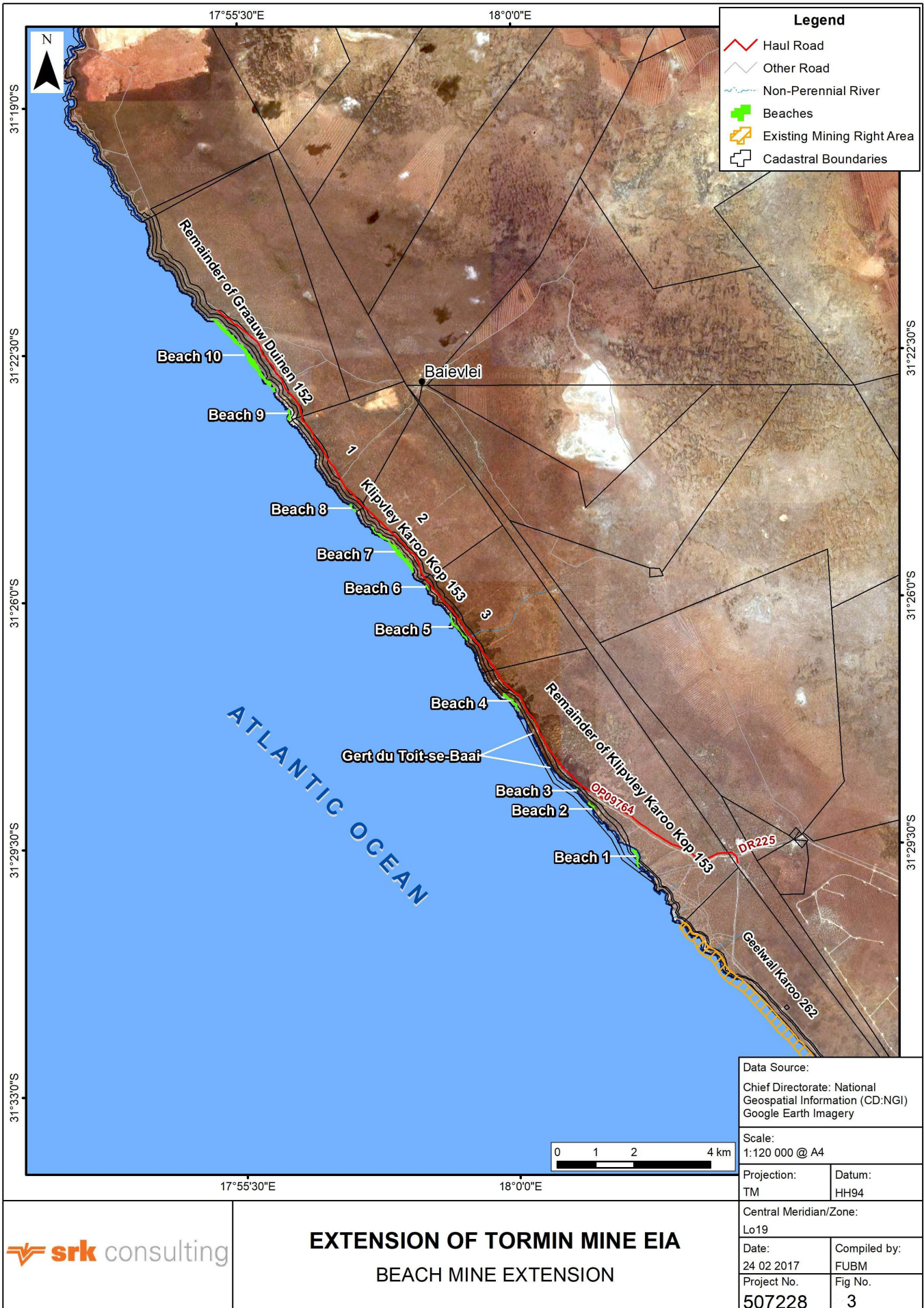


Figure 2: Locality Map

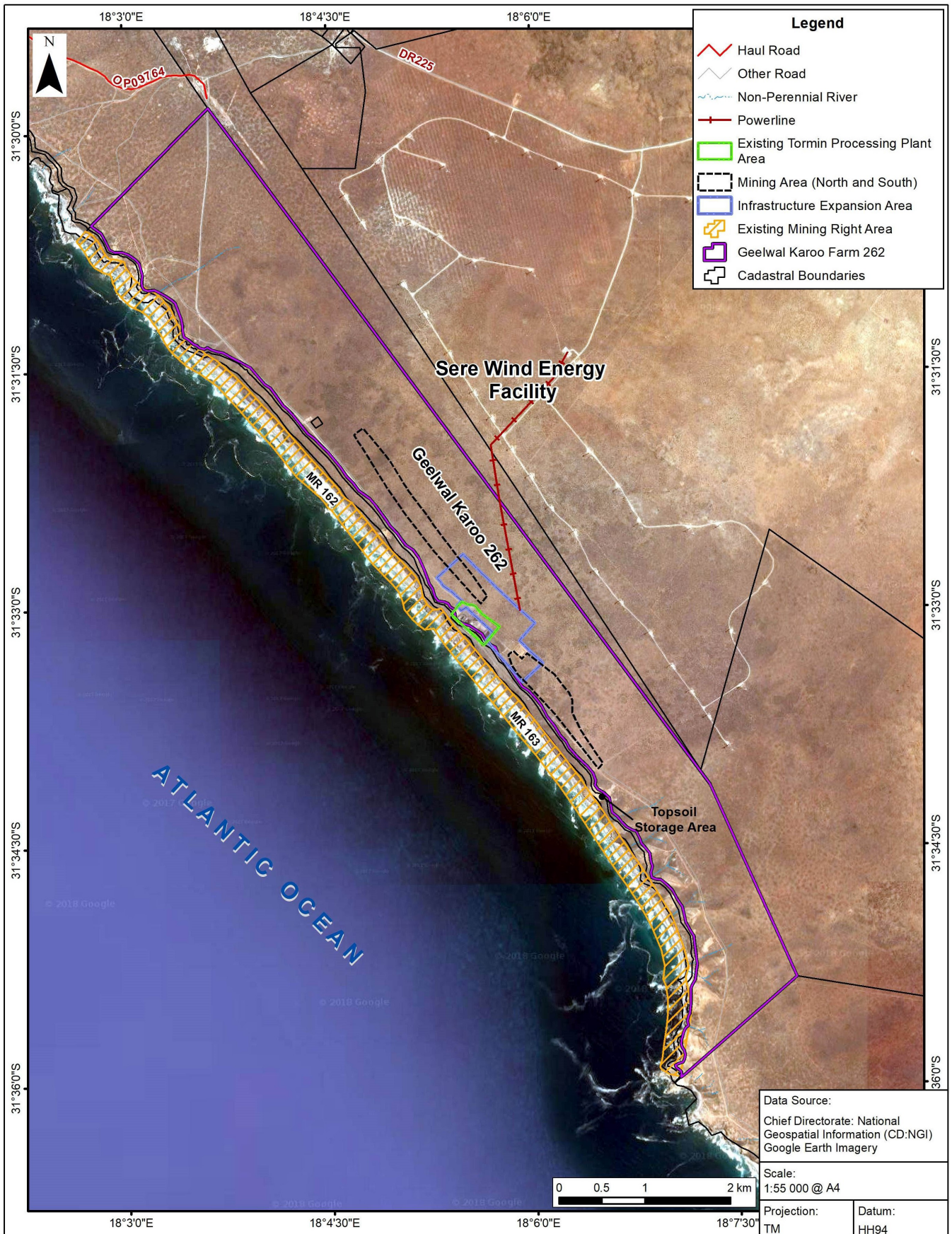


EXTENSION OF TORMIN MINE EIA
BEACH MINE EXTENSION

Data Source: Chief Directorate: National Geospatial Information (CD:NGI) Google Earth Imagery	
Scale: 1:120 000 @ A4	
Projection: TM	Datum: HH94
Central Meridian/Zone: Lo19	
Date: 24 02 2017	Compiled by: FUBM
Project No. 507228	Fig No. 3

Path: G:\New Proj\507228_Tormin EIA\8GIS\GISPROJ\MXD\Addendices\507228_Fig2_TorminEIAs_BeachMineExtension_A4L_20170224.mxd Revision: A Date: 14 05 2018

Figure 3: Beach mine extension



EXTENSION OF TORMIN MINE EIA
 INLAND MINING AREA (NORTH AND SOUTH),
 INFRASTRUCTURE EXPANSION AREA AND POWERLINE

Path: \\ctn-svr01\vol1\Root\Proj\New Proj\507228_Tormin EIA\8GIS\GISPROJ\MXD\Addendices\507228_Fig11_TorminEIA_MiningAreas_A4L_20170224.mxd

Revision: A Date: 14 05 2018

Figure 4: Inland mining and infrastructure / plant expansion area

4 DESCRIPTION OF THE SITE AND ENVIRONMENT

Tormin Mine is located on Farm Geelwal Karoo 262 on the West Coast of South Africa, north of the Olifants River Estuary and approximately 25 km west of Lutzville. Eskom's Sere wind energy facility is located on the ridgeline inland of Tormin Mine.

Access to the Mine is from Koekenaap via Robeiland and De Punt, or from Koekenaap via Kommandokraal and Schaapvlei (DR225). The gravel road extending the length of Farm Geelwal Karoo 262 is maintained by the Mine and provides access to the processing plant. The public (gravel) road OP09764 (see Figure 2) provides access to the coastline north of Tormin Mine. This road is used by farmers and visitors to the coastline. The coastline is used by campers and other recreational users.

The coastline of Farm Geelwal Karoo 262 consists of wide beaches separated by rugged rocky promontories. Steep dunes and rocky cliffs (between 30 and 50 m above mean sea level) are a feature of the area. The coastal platform is almost flat before rising to a ridgeline along the western boundary of Farm Geelwal Karoo 262.

The coastline to the north of Tormin Mine is characterised by a rocky shoreline with isolated beaches in small bays. The character of the coastline changes further north, as longer beaches and primary dune systems become more prominent. The vertical change from the high-water mark to the inland zone is less abrupt: the topography rises gently to a ridgeline ~ 5 km inland.

Areas along the coast have been disturbed from historical and current mining and/or prospecting activities, as well as by people accessing the coastline on a network of informal beach access roads.

The predominant vegetation type of the region is Namaqualand Strandveld (Figure 5). Plant diversity of this vegetation type is relatively low but has a rich component of annual and perennial flora. Namaqualand Seashore vegetation occurs along the coast on slightly sloping beaches and coastal rocky formations (Figure 6). The vegetation of the area consists of low coastal shrub up to 1 m high, typical of much of the West Coast.



Figure 5: Namaqualand Strandveld vegetation on the coastal platform



Figure 6: Namaqualand Seashore vegetation along the coast

The majority of the area under application falls within Critical Biodiversity Areas (CBAs). These areas have been designated as CBAs to promote coastal resource protection and to maintain ecological processes associated with the coastal strip, especially the ability of fauna to move along the coast. Although CBAs confer no rights and have no official conservation status in law, they provide an indication of ecological status (biodiversity).

The beaches are used by shoreline birds for foraging, rest or breeding as well as by mammals such as seals, the Cape Clawless Otter and Black-Backed Jackal. The dunes and rocky formations / cliffs are important reptile habitats and several relatively rare species - restricted to the West Coast - occur within this habitat. The coastal plain is an important habitat for a wide range of faunal species.

The study area lies in the Olifants-Doorn Water Management Area. With the exception of the Olifants River, ~19 km south-east of Tormin Mine and beyond the study area, all of the rivers and wetlands in the area are minor ephemeral systems. Wetlands in the area comprise mainly pans or "depressions".

The bulk of archaeological sites (mainly Later Stone Age middens) lie within 500 m of the coast. Inland of the coast, archaeological sites are quite scarce, limited to scatters in deflation hollows. Evidence of historic occupation is prolific in areas of rocky outcrops with shelters or overhangs or any place with potential for providing a water source.

5 PROJECT AND PROCESS DESCRIPTION

MSR proposes to extend mining operations to ensure the ongoing operation of Tormin Mine. The proposed project consists of the following key activities (see Figures 2 to 4):

- **Mine VHM deposits on ten discrete beaches** (Figure 3 and Figure 7) along a stretch of coastline north of Tormin Mine:
 - Mining will be undertaken using hydraulic excavators, slurry pumps and other ancillary equipment to position and load the ore into a mobile Primary Beach Concentrator for

processing. Dump trucks will haul the processed ore up the beach access roads to the haul road and then onward to the secondary (current) processing plant;

- Beach mining will be conducted along the beaches between the low-water mark of the sea and the toe of the dunes / cliffs with a 10 m buffer. Mining will progress along each beach depending on tidal movements and mine schedule grade requirements;
- Mining will be to an average depth of 6 m. Where the VHM deposit is shallow or poorly developed, mining will take place where tides allow. Where thick VHM deposits are found near the low water mark, a sand berm, wave breaker (ditch in the sand), or similar will be constructed on the seaward side of the deposit, providing temporary safety protection from the incoming tide whilst ensuring the mining process is efficient and minimising the need to return to the same area following tide retreat. Once the deposit has been mined, wave action will quickly return the beach to its former condition in a short period of time (and partly replenish VHM deposits). In some instances, a bulldozer will reshape the beach to the original profile where mining occurs above the high-water mark;



Figure 7: Target Beach 6

- MSR proposes to utilise existing gravel roads from the Tormin Mine entrance (off the DR2225) to the beaches to serve as haul roads for dump trucks. This includes public road OP9764 adjacent to the coast and informal beach access roads. MSR will **widen and grade the haul roads** as required;
- **Mine a 75 ha inland VHM deposit** in an area 100 – 300 m wide and ~4.8 km long inland (east) of the existing processing plant, but seaward of the Sere wind energy facility (Figure 4 and Figure 8). Strip mining of the inland strand line will be undertaken progressively:
 - Vegetation and topsoil (to a depth of approximately 30 cm) will be stripped by

bulldozers and stored in stockpiles in designated areas or - where mine sequencing allows - placed directly over tailings backfilled to the preceding mine void. Topsoil from the initial box cut will be stored in the existing topsoil storage area;

- Overburden will be removed to a depth of 2-25 m (depending on resource depth) and will immediately be backfilled into an adjacent previously mined-out area or temporarily stored in the designated infrastructure buffer areas;
- A 15 m wide haul road on the western side of the proposed mining areas, and ramps, will provide access into the pit for mining vehicles and plant / equipment. The haul roads between the mining areas and the infrastructure / plant expansion area will be located within the proposed mining areas or infrastructure / plant expansion area footprints;
- Excavators will mine the mineralised sand layer (ore) up to a maximum depth of 30 m (average of 10 m). The ore will be loaded into dump trucks and transported to the new ROM stockpile area in the infrastructure / plant expansion area;
- The ROM ore will be processed in an upgraded Primary Concentrator located in the infrastructure / plant expansion area;
- Tailings will be returned (pumped) to the mine void as backfill and then covered with stockpiled overburden and topsoil material; and
- Rehabilitation will be undertaken as soon as the mining path allows. Once an area has been mined and backfilled, the backfilled material will be re-profiled to create the desired landform. The backfill material will be reseeded (if required) and the final rehabilitated area demarcated as a No-Go area;
- **Construct additional processing plants** in the infrastructure / plant expansion area:
 - A **Mineral Separation Plant (MSP)** to further beneficiate the concentrates produced and increase overall mineral recovery; and
 - A **Tailings Disposal Plant (TSP)**; and
- **Install a 22 kV powerline** from the Sere wind energy facility to an electrical substation in the infrastructure / plant expansion area.



Figure 8: View across the inland strand line

6 ALTERNATIVES

Appendix 3 Section 3 (h)(i) of the EIA Regulations, 2014, requires that all S&EIR processes must identify and describe feasible and reasonable alternatives. Numerous alternatives were identified and considered during the early feasibility and design phases of the project, including:

Location Alternatives for Mine Areas: MSR owns Farm Geelwal Karoo 262, the property on which the Tormin Mine and the inland strand line is located. The locations of the VHM beach deposits and inland deposits are fixed, which dictates possible mining locations. MSR is applying for extension into areas in immediate proximity to existing operations, infrastructure and facilities at Tormin Mine to take advantage of such infrastructure and facilities and maximise operational efficiency. Location / site alternatives for the mine sites have thus not been considered for assessment. However, specialists considered the location of new mining and infrastructure footprints within the extension areas, considering environmental constraints identified during their site visits. The specialists did not identify any specific areas of high sensitivity within the proposed mining and infrastructure footprints that should be designated as “exclusion zones”.

Location Alternatives for the MSP: Based on capital costs, operating costs and hauling costs, MSR identified Tormin Mine as the most feasible location for the MSP and no location alternatives are considered for the MSP.

Location Alternatives for Access Road to Beach 1: MSR proposes to utilise existing informal gravel roads to access the target beaches. After discussions with the freshwater ecologist, MSR identified an alternative beach access road to Beach 1 to reduce the potential impact on a drainage line.

Activity Alternatives: The purpose of the project is to expand existing mining operations north along the coastline and inland of the processing plant to ensure the ongoing operation of Tormin Mine. No other activity alternatives (other than the No-Go alternative) are considered acceptable or viable by the proponent, and activity alternatives (other than the No-Go alternative) are not considered further in the EIA process.

Layout Alternatives for the Infrastructure / Plant Expansion Area: MSR proposed a layout design for the infrastructure / plant expansion area that extended close to the eastern (fenced) boundary of Farm Geelwal Karoo 262. On advice of the terrestrial ecology specialist, MSR revised the layout of the infrastructure / plant expansion area to increase the ecological corridor between the infrastructure / plant expansion area and the eastern fenceline. The revised layout will also reduce the overall disturbance footprint as the Infrastructure Buffer Area North and South will now be located partly over areas to be mined. This layout design has been selected for assessment and no other design alternatives were assessed.

Alternatives for Transporting Ore to the Processing Plant: MSR does not consider conveyors and pipelines to be feasible, as these alternatives will require significant capital outlay and the infrastructure will significantly increase the disturbance footprint. The use of dump trucks is considered to be the only feasible alternative.

Technology Alternatives Enabling Beach Mining:

MSR considered the use of dredging techniques and machinery; or geofabric socks to enable beach mining. The high energy environment during most high tides does not allow for safe mining. Mining will therefore focus on the use of mobile excavators during lower tides.

Power Supply Alternatives:

MSR considered installing additional generator sets or photovoltaic panels to generate the required electricity on site. However, a connection to the Eskom network is MSR’s preferred alternative.

Fresh Water Supply Alternatives:

MSR initially considered seawater desalination as the only viable option for freshwater supply as trucking of water was not considered to be feasible due to cost, the Lower Olifants River Water User Association canal has insufficient unallocated water available for Tormin Mine and no aquifers were identified. However, with changes to the MSP (wash circuit not required), limited additional freshwater will be required (for domestic purposes) and MSR will continue to truck water from Lutzville.

The No-Go alternative is considered in the EIA in accordance with the requirements of the EIA Regulations, 2014. The No-Go alternative implies no change in the sites’ status quo. The No-Go alternative will have major implications for the sustainability of Tormin Mine and will probably entail the closure of the Mine.

7 STAKEHOLDER ENGAGEMENT

Stakeholder engagement is a key component of the S&EIR process and is being undertaken in accordance with Chapter 6 of the EIA Regulations, 2014. The key stakeholder engagement activities during the Impact Assessment Phase are summarised in Table 3 below.

Relevant local, provincial and national authorities, conservation bodies, local forums and surrounding landowners and occupants have been directly notified of the S&EIR process and the release of the Scoping Report for comment.

Table 3: Stakeholder Engagement during Scoping

Activity	Date
Release EIA Report to registered IAPs	14 - 17 September 2018
Public Comment Period	18 September – 18 October 2018
Public Open Day	3 October 2018
Compile Issues and Responses Summary and finalise EIA Report	18 – 25 October 2018
Submit Final EIA Report to DMR	30 October 2018

Key comments and concerns raised by stakeholders to date, based on the information provided in the prior EIA process and the Scoping Report released for the current EIA process are as follows:

- A Section 102 application process is the incorrect procedure to apply for an extension of Tormin Mine, and may potentially not be submitted while the Prospecting application is still under review;
- Authorisation should not be granted to MSR as they are not in compliance with their existing authorisations / approvals (relating to inter alia mining area, process and transportation) and must undertake a Section 24G rectification process;
- Road transport has a significant impact on other road users and the existing road network; rail must be investigated;
- It is not clear how MSR obtained the required prospecting data to determine the resource and financial viability of the proposed mine extension;
- Insufficient information has been provided for the proposed beach access roads and beach mining areas;
- Impacts related to seawater in tailings and cliff stability must be investigated;
- The removal of beach sand may result in beach, cliff and dune erosion, and setback lines should be stipulated;
- The extension of Tormin Mine will restrict public access to the coast, affecting the tourism value of this stretch of coastline; and
- The project may compromise the ecological functioning and integrity of the CBA and rehabilitation is very difficult; a biodiversity offset may be required.



8 ASSESSMENT OF POTENTIAL IMPACTS

Specialist studies were undertaken to investigate key potential direct, indirect and cumulative impacts, as follows:

- Soil and Land Capability Impact Assessment;
- Air Quality Impact Assessment;
- Groundwater Impact Assessment;
- Marine Ecology Impact Assessment;
- Freshwater Ecology Impact Assessment;
- Terrestrial Ecology Impact Assessment;
- Heritage Impact Assessment;
- Traffic Impact Assessment; and
- Geotechnical Impact Assessment.

Specialist input, rather than a full specialist study, was provided for noise, visual and socio-economic aspects.

For all potentially significant impacts, the significance of the anticipated impact was rated without and with recommended mitigation measures. These impacts are presented in Table 4.

The significance of potential impacts of the proposed project was determined in order to assist decision-makers. Relevant observations with regard to the overall impact ratings, assuming mitigation measures are effectively implemented, are:

- The predicted impacts on *soil and land capability* are rated as *insignificant to medium* during construction, *very low to low* during operations, and *insignificant* during closure. Land capability impacts are low because of the affected areas' very low grazing capacity and the change in land use will not cause any loss to agricultural production in the area.
- The predicted *air quality* impacts, mainly associated with the generation of Particulate Matter (dust) emissions and the resulting health and nuisance effects, are rated as *insignificant to very low* during construction, *very low to medium* during operations and *insignificant to very low* during closure. Residents along DR2225 are likely to be most affected from increased transport of product.
- The predicted *noise* impacts are rated as *insignificant* during construction, *low* during operations and *insignificant* during closure. Beach mining is likely to

increase noise and vibration levels to visitors to the coast and increased product hauling is likely to increase noise and vibration levels to residents along the DR2225.

- The predicted impacts on *groundwater* are rated as *insignificant* during construction, *insignificant to low* during operations, and *insignificant* during closure. Impacts on groundwater are low because the likelihood of groundwater occurring in the area is low and there are no downgradient water users in the area.
- The predicted impacts on *marine ecology* are rated as *insignificant to medium* during construction and closure as beach access road construction and closure could have a medium-rated impact on marine life but increased turbidity in the water column is likely to be insignificant. The predicted impacts on *marine ecology* are rated as *insignificant to medium* during operations because, although beach mining will severely alter the beaches, beach faunal communities are able to recover relatively rapidly and these communities are not considered to be unique to the region. The most significant impacts from beach mining (medium rating) are changes to macrofaunal community structure and disturbance / mortality of marine life.
- The predicted impacts on *freshwater ecology* are rated as *very low* during construction, *low* during operations, and *insignificant* during closure as neither of the two watercourses (drainage lines) that may be affected by the Tormin Mine extension are of significant conservation importance.
- The predicted impacts on *terrestrial ecology* are rated as *medium* during construction, *very low to medium* during operations, and *insignificant* during closure. CBAs and ESAs will be affected by the Tormin Mine extension, but vegetation diversity in the study area is moderate with a relatively low abundance of species of conservation concern. There is relatively high faunal diversity, with the confirmed presence of numerous West-Coast endemics and species of conservation concern.
- The predicted *socio-economic* benefits are rated as *low to medium* during construction, *medium to high* during operations and *very low* during closure. Adverse socio-economic impacts are rated as *insignificant* during construction, *very low* during

- operations and *insignificant* during closure.
- The predicted *archaeological* impacts are rated as *low* during construction and *very low* to *low* during operations, but only if the mitigation measures are implemented and if archaeological resources are identified and preserved. The predicted *palaeontological benefits* are rated as *very low* to *high* during construction and operations, but only if the mitigation measures are implemented and if exposed fossils are identified and preserved. There are no predicted heritage impacts during closure.
- The predicted *visual* impact is rated as *very low* during construction, *very low* to *low* during operations and *very low* during closure. Visual impacts are low because the proposed activities will be visible to a limited number of receptors.
- The predicted *traffic* impact is rated as *very low* during construction, *insignificant* to *low* during operations and *insignificant* during closure.

- The predicted *geotechnical* impact is rated as *very low* during operations as the cliff stability analysis indicates that the infrastructure / plant expansion area, inland mining and beach mining are unlikely to adversely affect the dunes / cliffs.

Table 4 below summarises:

- The impacts assessed in the EIA;
- Their significance before and following the implementation of essential mitigation measures, on which the significance rating is based; and
- The key (non-standard essential) mitigation measures.

Impact Significance Ratings Legend:

Rating	+ve	-ve
Insignificant	I	I
Very Low	VL	VL
Low	L	L
Medium	M	M
High	H	H
Very High	VH	VH

Table 4: Summary of Impacts

ID #	Impact	Significance rating		Key selected non-standard mitigation/optimisation measures
		Without	With	
CONSTRUCTION PHASE IMPACTS				
LC Impacts on Soil and Land Capability				
LC 1	Soil compaction caused by construction traffic	Medium	Medium	<ul style="list-style-type: none"> • Restrict construction activities to the project footprint areas. • Restrict vehicle movements to haul roads and construction areas and prohibit vehicle parking or storage of construction materials outside these areas.
LC 2	Loss of fertile topsoil	Medium	Low	<ul style="list-style-type: none"> • Strip the topsoil layer of the infrastructure / plant expansion area prior to construction and stockpile the topsoil in a demarcated area. • Locate all topsoil stockpiles in areas where they will not have to be relocated prior to replacement for final rehabilitation.
LC 3	Soil chemical pollution from construction activities	Very Low	Insignificant	<ul style="list-style-type: none"> • Use appropriately sized drip trays for all refuelling, repairs or when vehicles are parked. • Ensure hazardous materials are stored in suitable hazardous material storage facilities constructed from impermeable materials.
LC 4	Loss of land capability	Low	Low	<ul style="list-style-type: none"> • Rehabilitate disturbed areas incrementally and as soon as possible, not necessarily waiting until completion of the Construction Phase.
LC 5	Loss of soil ecosystem services	Medium	Low	<ul style="list-style-type: none"> • Use conserved topsoil as soon as possible to maintain soil nutrient cycles. • Rehabilitate disturbed areas incrementally and as soon as possible, not necessarily waiting until completion of the Construction Phase.
A Impacts on Air Quality				
A 1	Impaired human health from increased pollutant concentrations associated with construction activities	Low	Very Low	<ul style="list-style-type: none"> • Reduce airborne dust through e.g.: <ul style="list-style-type: none"> ○ Dampening dust-generating areas, roads and stockpiles with seawater; and ○ Utilise screens in high dust-generating areas. • Use high quality diesel for construction vehicles / equipment. • Maintain all generators, vehicles, and other equipment in good working order to minimise exhaust fumes.
A 2	Increased dustfall from construction activities	Very Low	Insignificant	
N Noise Impacts				
N 1	Increased noise and vibration levels during construction	Very Low	Insignificant	<ul style="list-style-type: none"> • Maintain all generators, vehicles and equipment in good working order. • Respond rapidly to complaints and take appropriate corrective action.
G Impacts on Groundwater				
G 1	Groundwater contamination during construction of the infrastructure / plant expansion area	Very Low	Insignificant	<ul style="list-style-type: none"> • Store hazardous liquids in above ground containers in bunded. • Clean up hydrocarbon spills immediately. • Collect and dispose of polluted soil at a licensed waste disposal facility.

ID #	Impact	Significance rating		Key selected non-standard mitigation/optimisation measures
		Without	With	
M E	Impacts on Marine Ecology			
M E 1	Disturbance and/or mortality of marine life during construction of beach access roads	Low	Very Low	<ul style="list-style-type: none"> Ensure that a 10 m buffer zone from the toe of the dune/cliffs remains undisturbed outside of the construction footprint. Prohibit vehicle maintenance and refuelling on the beach. Park vehicles / plant / machinery on beach access roads rather than on the beach when not in use.
M E 2	Mortality of marine fauna caused by construction waste	High	Medium	<ul style="list-style-type: none"> Inform all staff about sensitive marine species and the responsible disposal of construction waste. Do not dispose of any waste in the marine environment.
M E 3	Increased turbidity in the water column during construction of beach access roads	Insignificant	Insignificant	<ul style="list-style-type: none"> No mitigation is required.
FE	Impacts on Freshwater Ecology			
FE 1	Destabilisation of watercourses caused by road widening and increased vehicle movements during construction	Low	Very Low	<ul style="list-style-type: none"> Utilise the alternative access road to Beach 1. Plan for the management of water runoff during infrequent but potentially destructive storms. Allow for the dissipation of runoff into the surrounding veld from multiple side drains, rather than for the concentration of flows along or off the road in major channels. Install pipe culverts or similar at the road crossing points to allow for the uninterrupted flow of water under / across the road.
TE	Impacts on Terrestrial Ecology			
TE 1	Loss of vegetation and plant species of conservation concern (SCC) during construction	Medium	Medium	<ul style="list-style-type: none"> Appoint a suitably qualified specialist to undertake a preconstruction walk-through to identify SCC and protected species and oversee the rescue and relocation of these species. Obtain a permit from CapeNature for the removal / destruction of SCC. Erect wind screens along beach access roads in areas of mobile sands to limit and contain wind-blown sand.
TE 2	Disturbance to terrestrial fauna and loss of habitat during construction	Medium	Medium	<ul style="list-style-type: none"> Appoint a suitably qualified specialist to undertake a preconstruction walk-through to demarcate and clear burrows. Prohibit trapping, collecting and hunting of fauna. Flush any faunal species within the construction footprint towards more suitable habitat within the surrounding areas. Do not leave trenches open for extended periods.
TE 3	Disturbance to avifauna and loss of habitat during construction	Medium	Medium	<ul style="list-style-type: none"> Check for nests during the preconstruction walk-through. Keep the construction site clear of litter and especially plastic, twine and string.
S	Socio-Economic Impacts			
S1	Investment in and contribution to the economy	Medium	Medium	<ul style="list-style-type: none"> Procure goods and services from local, provincial or South African suppliers as far as possible, with an emphasis on BEE suppliers.
S2	Increased employment, income and skills development	Low	Low	<ul style="list-style-type: none"> Maximise use of local skills and resources through preferential employment of locals where practicable. Provide ancillary training to workers on maximising the use of income and training to further future economic prospects, potentially through projects initiated as part of a social upliftment programme.
S3	Reduced access to the coast	Insignificant	Insignificant	<ul style="list-style-type: none"> Install appropriate signage and information regarding coastal access. Restrict construction activities to the development footprint.
S4	Possible decline of tourism	Insignificant	Insignificant	<ul style="list-style-type: none"> Install appropriate screening of construction sites in line with the scenic nature of the area.
H 1	Heritage Impacts			
H 1	Loss of archaeological resources during road widening	Low	Low	<ul style="list-style-type: none"> Limit clearance and the footprint of construction activities to what is essential. Alert personnel to possibility of finding archaeological resources and follow "Finds Procedure".
H 2	Loss of archaeological resources during construction of infrastructure / plant expansion area	Low	Low	<ul style="list-style-type: none"> Appoint an archaeologist to monitor construction activities and sample affected archaeological resources as required.
H 3	Loss of fossil bones during road widening	Low	Medium	<ul style="list-style-type: none"> Alert personnel to possibility of finding rare fossil bones / shells and follow "Fossil Finds Procedure".
H 4	Loss of fossil shells during road widening	Very Low	Very Low	<ul style="list-style-type: none"> Cease construction on (chance) discovery of fossil bones / shells and protect fossils from further damage.
H 5	Loss of fossil bones during construction of infrastructure / plant expansion area	High	High	<ul style="list-style-type: none"> Send information and photographs to a palaeontologist for assessment and to determine preservation, collection and record keeping procedures.

ID #	Impact	Significance rating		Key selected non-standard mitigation/optimisation measures
		Without	With	
V Visual Impacts				
V 1	Altered sense of place and visual intrusion caused by construction activities	Very Low	Very Low	<ul style="list-style-type: none"> Avoid excavation, handling and transport of materials which may generate dust under high wind conditions. Keep construction sites tidy and all activities, material and machinery contained within an area that is as small as possible. Rehabilitate disturbed areas incrementally and as soon as possible, not necessarily waiting until completion of the Construction Phase. Minimise the use of night-lighting. No high mast or spot-light security lighting or up-lighting allowed.
V 2	Altered sense of place from increased traffic during construction	Very Low	Very Low	<ul style="list-style-type: none"> Restrict construction deliveries to Mondays to Saturdays between the hours of 08h00 and 17h00. Maintain all vehicles in good working order.
T Traffic Impacts				
T 1	Increased nuisance on existing road users and surrounding residents from construction traffic and road widening	Very Low	Very Low	<ul style="list-style-type: none"> Restrict construction deliveries to Mondays to Saturdays between the hours of 08h00 and 17h00. Use appropriate road signage, in accordance with the South African Traffic Safety Manual, providing flagmen, barriers etc. at the various access points where necessary to inform other road users of construction activities. Maintain and repair roads damaged by construction vehicles, in consultation with relevant road authorities. Schedule road widening of OP9764 during “off season” (low visitor) periods.
G T Geotechnical Impact				
No impacts identified.				
OPERATIONAL PHASE IMPACTS				
LC Impacts on Soil and Land Capability				
LC 6	Soil erosion caused by operational activities	High	Very Low	<ul style="list-style-type: none"> Implement drainage control measures and culverts to manage the natural flow of surface runoff around the infrastructure / plant expansion area. Use conserved topsoil as soon as possible or vegetate topsoil stockpiles if the topsoil cannot be used immediately.
LC 7	Soil compaction caused by hauling and stockpiles	Medium	Low	<ul style="list-style-type: none"> Restrict hauling to designated haul roads. Do not stockpile topsoil higher than 4 m.
LC 8	Soil chemical pollution from operational activities	Medium	Low	<ul style="list-style-type: none"> Ensure hazardous materials are stored in suitable hazardous material storage facilities constructed from impermeable materials. Design processing areas to effectively manage and dispose of contaminated storm water and process water.
LC 9	Loss of land capability	Medium	Low	<ul style="list-style-type: none"> Undertake concurrent rehabilitation to prevent stockpiled topsoil from losing its inherent fertility.
A Air Quality Impacts				
A 3	Impaired human health from increased pollutant concentrations associated with mining and processing activities	Low	Very Low	<ul style="list-style-type: none"> Reduce airborne dust through dampening roads with water (control efficiency of minimum 75%). Partially enclose MSP product stockpiles (control efficiency of minimum 70%). Use high quality diesel for construction vehicles. Maintain all generators, vehicles, vessels and other equipment in good working order to minimise exhaust fumes.
A 4	Increased dustfall associated with mining and processing activities	Very Low	Very Low	
A 5	Impaired human health from increased pollutant concentrations associated with increased product truck movements	High	Medium	
A 6	Increased dustfall associated with increased product truck movements	Low	Low	
N Noise Impacts				
N 2	Increased noise and vibration levels during operations	Medium	Low	<ul style="list-style-type: none"> Avoid beach mining near “tourist” beaches (e.g. Gert du Toit-se-Baai), during peak holiday season (Easter and Christmas holidays). Limit hauling operations from the northern beaches to Mondays to Fridays during Easter and Christmas holidays. Limit product transport from Tormin Mine along DR2225 to Mondays to Saturdays between the hours of 07h00 and 17h00.

ID #	Impact	Significance rating		Key selected non-standard mitigation/optimisation measures
		Without	With	
G Impacts on Groundwater				
G 2	Groundwater contamination during inland mining	Medium	Low	<ul style="list-style-type: none"> Discontinue (inland) mining if groundwater is intersected. Undertake a geophysical survey south-east of the infrastructure / plant area to determine groundwater flow and install four boreholes in this zone for aquifer characteristic testing. Install monitoring boreholes up and down gradient of the mining area and analyse data regularly, taking corrective action as and if required. Produce a numerical groundwater model prior to mining and update the model biannually based on groundwater monitoring results.
G 3	Groundwater contamination from the infrastructure / expansion area	Medium	Very Low	<ul style="list-style-type: none"> Inspect vehicles and equipment for oil/fuel leaks. Store hazardous liquids in above ground containers in bunded areas or on drip trays.
G 4	Groundwater contamination from pipeline spills	Medium	Insignificant	<ul style="list-style-type: none"> Ensure pipelines are accessible along the entire length. Implement measures to detect, contain and fix pipeline leaks within 48 hours.
M E Impacts on Marine Ecology				
M E 4	Shoreline erosion and altered beach profiles caused by beach mining	High	Low	<ul style="list-style-type: none"> Enforce a 10 m buffer zone from the toe of the sand dunes and cliffs towards the sea in which no mining or disturbance may take place. Take weekly photographs of beach mining areas (dunes and cliffs) and cease work if deviations are recorded (until mitigation measures are implemented).
M E 5	Changes in macrofaunal community structure caused by beach mining	High	Medium	
M E 6	Disturbance and/or mortality of marine life caused by beach mining	High	Medium	<ul style="list-style-type: none"> Enforce a 10 m buffer zone from the toe of sand dunes and cliffs towards the sea in which no mining may take place. Actively backfill mined beaches and profile the mining area to resemble the natural beach profile. Prohibit vehicle maintenance and refuelling on the beach. Park vehicles / plant / machinery on beach access roads rather than on the beach when not in use.
M E 7	Smothering of reefs and macrofauna caused by increased sedimentation from beach mining	Low	Very Low	<ul style="list-style-type: none"> Prohibit mining closer than 10 m to rocky shore habitats. Actively backfill mined beaches and profile the mining area to resemble the natural beach profile.
M E 8	Increased turbidity in the water column caused by beach mining	Insignificant	Insignificant	<ul style="list-style-type: none"> No mitigation is required.
FE Impacts on Freshwater Ecology				
FE 2	Destabilisation of watercourses caused by increased vehicle movements during operations	Medium	Low	<ul style="list-style-type: none"> Utilise the alternative access road to Beach 1. Allow for the dissipation of runoff into the surrounding veld from multiple side drains. Install multiple culverts or other appropriate structures at Watercourse 2 to convey water runoff under / across the road. Implement measures (adjusting the routing of flows, dissipating runoff and/or establishing vegetation) to address erosion nick-points. Undertake monthly auditing of access roads to assess erosion with a photographic record. Compile a stormwater management plan.
T E Impacts on Terrestrial Ecology				
T E 4	Loss of vegetation, plant SCC and ecological connectivity during inland mining	High	Medium	<ul style="list-style-type: none"> Appoint a suitably qualified specialist to undertake a pre-mining walk-through to identify SCC and protected species within the mining footprint and oversee the rescue and relocation of these species. Obtain a permit from CapeNature for the removal / destruction of SCC. Only clear vegetation when a new area is to be mined. Remove the vegetation and soil simultaneously and, where possible, immediately place this material in an area prepared for rehabilitation to reduce the duration of topsoil storage.
T E 5	Disturbance to the coastal environment and loss of ecological connectivity during beach mining	Medium	Low	<ul style="list-style-type: none"> Enforce a 10 m buffer zone from the toe of the sand dunes and cliffs towards the sea in which no mining or disturbance may take place. Take weekly photographs of beach mining areas (dunes and cliffs) and cease work if deviations are recorded (until mitigation measures are implemented).
T E 6	Disturbance to fauna and loss of habitat during mining	High	Medium	<ul style="list-style-type: none"> Rehabilitate disturbed areas incrementally as new mining blocks are opened and previous blocks are closed. Prohibit unnecessary driving at night. Prohibit trapping, collecting and hunting of fauna.

ID #	Impact	Significance rating		Key selected non-standard mitigation/optimisation measures
		Without	With	
				<ul style="list-style-type: none"> Flush any faunal species within the mining footprint towards more suitable habitat within the surrounding areas. Do not leave trenches open for extended periods.
TE7	Disturbance to avifauna and loss of habitat during mining	Medium	Low	<ul style="list-style-type: none"> Undertake avifaunal monitoring of the powerline route. Install bird flight diverters along the length of the powerline. Insulate the pylons and other exposed infrastructure. Prohibit trapping and hunting of avifauna and egg collecting. Undertake counts at regular roosting sites.
TE8	Increased erosion during mining	Medium	Low	<ul style="list-style-type: none"> Enforce a 10 m buffer zone from the toe of the sand dunes and cliffs towards the sea in which no mining or disturbance may take place. Take weekly photographs of beach mining areas (dunes and cliffs) and cease work if deviations are recorded (until mitigation measures are implemented). Only clear vegetation in the inland mining areas when a new block is to be mined. Remove the vegetation and soil simultaneously and, where possible, immediately place this material in an area prepared for rehabilitation to reduce the duration of topsoil storage. Erect wind screens along beach access roads in areas of mobile sands to limit and contain wind-blown sand.
TE9	Proliferation of alien and invasive species during mining	Low	Very Low	<ul style="list-style-type: none"> Compile an Alien Plant Management Plan. Undertake regular monitoring for alien plants. Conduct regular alien clearing using the best-practice methods for the species concerned. Avoid using herbicides as far as possible.
S	Socio-Economic Impacts			
S5	Investment in and contribution to the economy	Medium	High	<ul style="list-style-type: none"> Establish and support Corporate Social Investment projects and / or networks that provide training and support for small and medium enterprises in the local municipality. Procure goods and services from local, provincial or South African suppliers as far as possible, with an emphasis on BEE suppliers. Procure ancillary services for goods purchased overseas from South African companies as far as possible.
S6	Increased employment, income and skills development	Medium	Medium	<ul style="list-style-type: none"> Maximise use of local skills and resources where practicable. Provide ancillary training to workers on maximising the use of income and training to further future economic prospects.
S7	Reduced access to the coast	Very Low	Very Low	<ul style="list-style-type: none"> Implement management measures (e.g. road signs, speed limits, etc.) to ensure that the public is still able to safely use OP9764. Avoid beach mining near “tourist” beaches (e.g. Gert du Toit-se-Baai), during peak holiday season (Easter and Christmas holidays).
S8	Possible decline of tourism	Very Low	Very Low	
H	Heritage Impacts			
H6	Loss of maritime archaeological resources during beach mining	Low	Very Low	<ul style="list-style-type: none"> Alert machine operators to possibility of finding shipwreck material. Establish protocol if any shipwreck material is found, including reporting the find/s to SAHRA. Maritime archaeologist to assess the material (if any identified). Collect / excavate any exposed maritime archaeological resources using appropriate methods to record provenance.
H7	Loss of archaeological resources during strand line mining	Medium	Low	<ul style="list-style-type: none"> Monitor mining for archaeological resources. Initially this will need to be semi-permanent until it can be established if any resources are present or not. Alert personnel to possibility of finding archaeological resources. Collect any archaeological resources that are exposed using appropriate methods to record provenance.
H8	Loss of fossil bones during beach mining	High	High	<ul style="list-style-type: none"> Identify and appoint a stand-by palaeontologist. Alert personnel to possibility of finding rare fossil bones / marine shelly beds. Cease mining on (chance) discovery of fossil bones / large exposure of shell beds. Palaeontologist to assess information and establish suitable response. Record and sample exposed fossiliferous sections in earthworks.
H9	Loss of fossil shells during beach mining	Very Low	Very Low	
H10	Loss of fossil bones during strand line mining	High	High	
H11	Loss of fossil shells during strand line mining	Medium	Medium	
V	Visual Impacts			
V3	Altered sense of place and visual intrusion caused by mining activities and associated infrastructure	Low	Very Low	<ul style="list-style-type: none"> Progressively and continually rehabilitate mined out areas and project components. Avoid beach mining near “tourist” beaches (e.g. Gert du Toit-se-Baai), during peak holiday season (Easter and Christmas holidays). Restrict infrastructure along the coast to the north of Tormin Mine as far as possible.
V4	Altered sense of place from increased traffic during	Medium	Low	<ul style="list-style-type: none"> Limit hauling operations from the northern beaches to Mondays to Fridays during Easter and Christmas holidays.

ID #	Impact	Significance rating		Key selected non-standard mitigation/optimisation measures
		Without	With	
	operations			<ul style="list-style-type: none"> Limit product transport from Tormin Mine along DR2225 to Mondays to Saturdays between the hours of 07h00 and 17h00.
V5	Altered sense of place and visual quality caused by light pollution at night	Low	Very Low	<ul style="list-style-type: none"> Limit lighting only to essential activities and facilities. Direct lighting inwards and downwards towards activities and facilities to avoid light spillage and trespass.
T	Traffic Impacts			
T2	Reduced traffic capacity on haul roads	Low	Very Low	<ul style="list-style-type: none"> Use appropriate road signage, in accordance with the South African Traffic Safety Manual, providing flagmen, barriers etc. at the various access points where necessary to inform other road users of hauling activities. Investigate and respond to complaints about traffic.
T3	Reduced traffic capacity on the regional road network	Insignificant	Insignificant	<ul style="list-style-type: none"> No mitigation is required.
T4	Compromised road surface integrity of the haul roads	Low	Very Low	<ul style="list-style-type: none"> Maintain and repair roads damaged by trucks, in consultation with relevant road authorities.
T5	Compromised road surface integrity of the regional road network	Medium	Low	<ul style="list-style-type: none"> Seal DR2225, in consultation with relevant road authorities. Maintain and repair damage caused by trucks on DR2225, in consultation with relevant road authorities.
G	Geotechnical Impacts			
GT1	Cliff failure caused by the construction of the infrastructure / expansion area	Very Low	Very Low	<ul style="list-style-type: none"> Set and maintain a minimum buffer zone of 143 m between the infrastructure / plant expansion area and the cliff. Monitor cliff geometry changes and adapt the expansion plan, if required, accordingly to maintain the buffer zone. Monitor additional loading within the infrastructure / plant expansion area.
GT2	Cliff / dune failure caused by beach mining	Very Low	Very Low	<ul style="list-style-type: none"> Set and maintain beach mining limits according to the mine bench toe, assuming that the bench will form a 35° natural repose angle slope. Delineate the mining limits (buffer zones) on mine plans and on the beaches.
GT3	Cliff failure caused by inland mining	Very Low	Very Low	<ul style="list-style-type: none"> Set and maintain a minimum buffer zone of 220 m between inland mining and the cliff. Restrict the mining depth to 30 m and the mining extent to within the planned inland mine boundaries. Monitor cliff geometry changes and adapt the mining plan, if required, accordingly to maintain the buffer zone.
CLOSURE PHASE IMPACTS				
LC	Soil and Land Capability Impacts			
LC10	Soil compaction caused by closure activities	Very Low	Insignificant	<ul style="list-style-type: none"> Restrict closure activities to the project footprint areas.
LC11	Soil chemical pollution from closure activities	Very Low	Insignificant	<ul style="list-style-type: none"> Use appropriately sized drip trays for all refuelling, repairs done on vehicles / machinery or when vehicles are parked. Ensure hazardous materials are stored in suitable hazardous material storage facilities.
A	Air Quality Impacts			
A7	Impaired human health from increased pollutant concentrations associated with closure activities	Low	Very Low	<ul style="list-style-type: none"> Reduce airborne dust through e.g.: <ul style="list-style-type: none"> Dampening dust-generating areas, roads and stockpiles with water; and Utilise screens in high dust-generating areas. Use high quality diesel for vehicles / equipment.
A8	Increased dustfall associated with closure activities	Very Low	Insignificant	<ul style="list-style-type: none"> Maintain all generators, vehicles, vessels and other equipment in good working order to minimise exhaust fumes.
N	Noise Impacts			
N3	Increased noise and vibration levels during closure	Very Low	Insignificant	<ul style="list-style-type: none"> Maintain all generators, vehicles, vessels and other equipment in good working order to minimise excess noise. Respond rapidly to complaints and take appropriate corrective action.
G	Impacts on Groundwater			
G5	Groundwater contamination during closure of the infrastructure / plant expansion area	Insignificant	Insignificant	<ul style="list-style-type: none"> Remove all hazardous materials from site and dispose at a licensed waste disposal facility. Do not bury any materials on site. Collect and dispose of polluted soil at a licensed waste disposal facility.
M	Impacts on Marine Ecology			
ME9	Disturbance and/or mortality of marine life during closure of beach access roads	Low	Very Low	<ul style="list-style-type: none"> Ensure that a 10 m buffer zone from the toe of the dune/cliffs remains undisturbed outside of the closure footprint. Prohibit vehicle maintenance and refuelling on the beach. Park vehicles / plant / machinery on beach access roads rather than on the beach when not in use.
M	Mortality of marine fauna	High	Medium	<ul style="list-style-type: none"> Inform all staff about sensitive marine species and the responsible

ID #	Impact	Significance rating		Key selected non-standard mitigation/optimisation measures
		Without	With	
E10	caused by waste			<ul style="list-style-type: none"> disposal of waste. Do not dispose of any waste in the marine environment.
ME11	Increased turbidity in the water column during rehabilitation of beach access roads	Insignificant	Insignificant	<ul style="list-style-type: none"> No mitigation is required.
FE	Impacts on Freshwater Ecology			
FE3	Destabilisation of watercourses caused by increased vehicle movements during closure	Very Low	Insignificant	<ul style="list-style-type: none"> Rehabilitate eroded areas (e.g. eroded channels, dongas). Plan for the management of water runoff during infrequent but potentially destructive storms. Remove or shape graded vegetation and soils along the road edges.
TE	Impacts on Terrestrial Ecology			
TE10	Disturbance to terrestrial fauna during closure	Very Low	Insignificant	<ul style="list-style-type: none"> Prohibit the indiscriminate movement of vehicles and staff through vegetation outside of the affected footprint. Prohibit trapping, collecting and hunting of fauna. Do not leave trenches open for extended periods. Keep the site clear of litter and especially plastic, twine and string.
TE11	Disturbance to avifauna during closure	Very Low	Insignificant	
S	Socio-Economic Impacts			
S9	Investment in and contribution to the economy	Very Low	Very Low	<ul style="list-style-type: none"> Procure goods and services from local, provincial or South African suppliers as far as possible, with an emphasis on BEE suppliers.
S10	Increased employment, income and skills development	Very Low	Very Low	<ul style="list-style-type: none"> Maximise use of local skills and resources through preferential employment of locals where practicable. Provide ancillary training to workers on maximising the use of income and training to further future economic prospects.
S11	Reduced access to the coast	Insignificant	Insignificant	<ul style="list-style-type: none"> Restrict closure / closure activities to the affected footprint. Install appropriate signage and information regarding coastal access.
S12	Possible decline of tourism	Insignificant	Insignificant	
H	Heritage Impacts			
No impacts identified.				
V	Visual Impacts			
V6	Altered sense of place and visual intrusion caused by closure and rehabilitation activities	Very Low	Very Low	<ul style="list-style-type: none"> Use dark green or black (non-glossy) wind screens. Remove rehabilitation wind screens as soon as vegetation is viable.
T	Traffic Impacts			
T6	Increased nuisance on existing road users and surrounding residents from closure traffic	Insignificant	Insignificant	<ul style="list-style-type: none"> Restrict traffic along DR2225 to Mondays to Saturdays between the hours of 07h00 and 17h00. Use appropriate road signage, in accordance with the South African Traffic Safety Manual, providing flagmen, barriers etc. at the various access points where necessary to inform other road users of closure activities. Maintain and repair roads damaged by large vehicles, in consultation with relevant road authorities. Investigate and respond to complaints about traffic.
GT	Geotechnical Impacts			
No impacts identified.				

9 CONCLUSIONS AND WAY FORWARD

This Draft EIA Report has identified and assessed the potential biophysical and socio-economic impacts associated with the proposed extension of Tormin Mine.

SRK believes that sufficient information is available for DMR to take a decision regarding authorisation of the project.

The Tormin Mine extension project will result in unavoidable adverse environmental impacts. None of these adverse impacts are considered unacceptably significant and all can be managed to tolerable levels through the effective implementation of the recommended mitigation measures.

In addition, the project will directly and indirectly benefit the local and regional economy.

Working on the assumption that MSR is committed to ensuring that beach mining, inland mining and the associated processing activities are undertaken to high standards, achieved through implementation of the recommended mitigation measures and ongoing monitoring of performance, SRK believes and the EIA Report demonstrates that through effective implementation of the stipulated mitigation measures, the adverse impacts of this project can be reduced to levels compliant with national (and international) standards or guidelines.

The fundamental decision is whether to allow the development, which brings economic benefits and is generally consistent with development policies for the area, but which may have limited biophysical impacts.

SRK believes that the specialist studies have shown that the Tormin Mine extension project is generally acceptable. The EIA has also assisted in the identification of essential mitigation measures that will mitigate the impacts associated with these components to within tolerable limits.

In conclusion SRK is of the opinion that on purely 'environmental' grounds (i.e. the project's potential socio-economic and biophysical implications) the application as it is currently articulated should be approved, provided the essential mitigation measures are implemented. Ultimately, however, the DMR will need to consider whether the project benefits outweigh the potential impacts.

HOW YOU CAN YOU PARTICIPATE IN THE EIA PROCESS

The Draft EIA Report is not a final report and can be amended based on comments received from stakeholders. Stakeholders' comments on the EIA Report will assist the DMR in making a decision regarding the application. The public is therefore urged to submit comment. Once stakeholders have commented on the information presented in the EIA Report, the Final EIA Report will be prepared and submitted to the DMR for approval. Once a decision is taken by authorities, this decision will be communicated to all registered IAPs.

REVIEW THE REPORT

Copies of the complete report are available for public review at the following locations:

- Lutzville Public Library;
- Vredendal Public Library;
- SRK's Cape Town office; and
- SRK's website: www.srk.co.za – click on the 'Library' and 'Public Documents' links.

ATTEND A MEETING

A **Public Open Day** will be held where the project will be discussed:

- Venue: Lutzville Hotel
- Date: 3 October 2018
- Time: 15h00 – 18h00

IAPs are invited to attend the Open Day **anytime** between the above times, and are requested to **confirm their intention to attend** the Open Day with the SRK contact person.

IAPs are invited to comment, and/or to register on the project database. IAPs should refer to the DMR reference number, and must provide their comments together with their name, contact details (preferred method of notification, e.g. email), and an indication of any direct business, financial, personal or other interest which they have in the application, to the contact person below, by **18 October 2018**.

REGISTER OR PROVIDE YOUR COMMENT

Register or send written comment to:

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