

Timeframes for activities that require EIA (require environmental authorisation before commencement)

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- Awarding of contracts (finalised in the last quarter of 2015)
- Operations to commence after environmental authorisation is issued (October 2016)
- Decommissioning and closure (dependent on the diamond resource to be mined - estimated at 10-15yrs)

Project description (cont...)

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Mining methodologies

Land based operations and activities	• Open cast strip mining
Surf zone mining	• Shore based pumping operations
Beach mining	• Cofferdams/ sea wall development - reduce the velocity of water in the mining area (rock boulders or sand bags) • Beach accretion

Land based operations and activities

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Associated structures and infrastructure (refer to Infrastructure and Layout Plan)

- ❑ Existing roads (transportation of ore to beneficiation and Final Recovery Plant)
 - Secondary roads from Springbok to Kleinsee, Port Nolloth to Kleinsee and Garies to Koingnaas. 60 km tar road links Koingnaas and Kleinsee.
 - 40 km gravel road connects Kleinsee to Komaggas. Access to the SBR mining area is via gravel roads only.
 - Main haul roads running from the various mining areas to the treatment plants and are well constructed and maintained.
 - construction of new roads

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- ❑ Existing workshops, administration and other buildings (Koingnaas bulk sample plant and on-site administration offices -Mitchell's Bay)
- ❑ Existing sewage plant - registered with Department of Water & Sanitation (DWS). Effluent was used for irrigation and sludge excavated from the ponds was deposited in a fenced -off area
- ❑ Existing waste facilities (four waste dumps located KNR;22 waste permits issued)
 - Medical waste disposed off site, used oil collected and recycled by Oilkol
 - Asbestos fibre sheeting, other hazardous waste e.g. lubricants from the dragline, oil contaminated with chlorinated hydrocarbons, electrical cleaning solvent, chemicals and fluorescent tubes(Vissershok - Cape Town)




Water supply
- lack of permanently flowing rivers (sub-surface water: local Somnaas Noup aquifer. Three boreholes equipped, only two were being used).

Electricity
- Eskom (from national power grid via Upington, Aggeneys and Springbok to a sub-station at Gromis, near Kleinzee).




Surf zone, beach and off shore channel mining




Shore based pumping operations

- ❑ Confined to small bays, - small-scale, diver-assisted suction equipment. - two to four divers, their assistants, and a tractor-driven classifier.
- ❑ The divers operate on surface-supplied air, and guide the distal end of the suction hose into the gravel deposits, which are sucked up and delivered directly to the classifier.
- ❑ Submerged target gravels mined by two diver-guided 20 cm suction hoses which feed to a tractor modified to drive a centripetal pump and rotary classifier.

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Shore based pumping operations (cont...)

- ❑ The classifier, positioned in the intertidal area, sorts the pumped material and extracts the size fraction of interest.
- ❑ Diamond-bearing gravel is bagged and transported, on a daily basis, to the nearest processing facility for diamond extraction. Large-sized fraction tailings (+25 mm) are accumulated around the classifier and the fine tailings (-2 mm) are returned directly to the sea as a sediment slurry.
 - These fines may form turbid plumes in the nearshore but are generally rapidly dissipated by wave action.
- ❑ The oversize tailing heaps which accumulate around the classifier are dispersed during the high tide, or mechanically redistributed over the beach at the end of mining operations. Care is taken to deposit oversized tailing below the High Water Mark (HWM) to allow natural redistribution by wave action.

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Associated structures and infrastructure

- ❑ Access roads (existing access roads)
 - Equipment is located as close to the sea as possible in the supratidal and intertidal regions.
- ❑ Equipment storage area
 - Topography of the bays targeted enables the storage of classifiers and hoses above HWM on site.
 - Storage areas are usually restricted to an area of <5 m² and damage to strandveld vegetation is therefore limited.

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Sea wall development - Cofferdams

- ❑ Constructed to allow beach mining to be conducted effectively, without disturbance by sea water flows.
- ❑ Consists of pushing material out onto the surf zone and then mining behind the wall.
- ❑ Material required - either sandbags or rock boulders
 - Rock boulders - obtained from land
 - Sandbags - most suited for use where wave energy is low e.g. lagoons and lakes, or in areas where they are infrequently exposed to wave action. Also typically used for short term periods e.g. for emergency measures or applications above the typical high water mark
 - Generally not used on rocky areas due to risk of puncturing the bags

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Sea wall development - Cofferdams (cont...)


- ❑ **Rock berms**
 - Rock is typically used to construct revetments and breakwaters, the structure usually consists of an outer layer of large armour rock while under-layers typically consist of progressively smaller material.
 - A berm is usually constructed seaward from the shore by end-tipping the core material from trucks.
 - Once a sufficient section of core is built, it is covered with the larger armour layer while an excavator is used to dress the slope to the correct profile. The berm can be extended in phases as far offshore as conditions allow

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Beach accretion

Beach accretion with sand


- ❑ Massive sand berms, or sea walls, typically up to 7 m, above mean sea level (AMSL) and 20 - 30 m wide can be constructed with earthmoving machinery in order to accrete the beach and protect the mining excavation.
 - Large sand volumes required to construct and maintain the sea walls because sand is constantly eroded from the sea wall by wave action.
 - The rate of erosion and replenishment increases as the walls are built further into the sea.

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Beach accretion (cont.)


Beach accretion with sand

- ❑ Dredgers or hydraulic mining with slurry pumps can be used to strip overburden sand and discharge the slurry onto the beach where wave action distributes the sand along the coast.
 - Rate of accretion is dependent on the dredging rate
- ❑ Conveyors can also be used to move sand, and coarser material, from further inland onto the beach. The front of the conveyor is moved or extended seaward as the accretion occurs. Method is effective if the source of sand is a large stockpile or dump.


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Associated structures and infrastructure

- ❑ Stockpiling areas
- ❑ Existing network of roads from main arterial road
- ❑ Excavators
- ❑ Rotary pump unit for extraction; classifiers; compressors and diver support equipment and four wheel drives
- ❑ Heavy machinery including hydraulic excavators, bulldozers or front-end loaders

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- ❑ For each site, the best option will be selected based upon the following:
 - duration of mining
 - the quantity and characteristics of available construction materials (rock, sand and clay)
 - possible phasing of the mining to facilitate recovery of diamonds at an early stage
 - the need to minimise seepage into the mining area
 - costs of protective measures

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Potential environmental impacts

Surrounding beach and reef (from beach) mining

Activities of beach mining are likely to result in sediment and nutrient inputs to the reef, which may impact on the reef's health and the surrounding marine environment. The potential for impacts on the reef is likely to be high, particularly if the mining is not managed properly.

➤ Specialist studies

- Previous studies (Outcomes of beach mining activities)- Pisces Report
- Marine baseline studies (Pisces Environmental Services) - July 2015
- Studies on coastal protection for beach mining (WSP Group) - July 2015



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Triggered listed activities in terms of:

- Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), as amended;
- National Environmental Management Act, Act No. 107 of 1998 (NEMA), as amended;
- National Water Act, Act No. 36 of 1998 (NWA);
- National Environmental Management Waste Act, Act No. 59 of 2008 (NEMWA), as amended;
- National Environmental Management: Integrated Coastal Management Act (24 of 2008), as amended;

Environmental impact assessment process

Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
	(VI)	Development of a development setback line within the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), as amended, in front of a development setback line, including: <ul style="list-style-type: none"> (i) construction of a development setback line; (ii) construction of a development setback line; (iii) construction of a development setback line; (iv) construction of a development setback line; (v) construction of a development setback line; (vi) construction of a development setback line; (vii) construction of a development setback line; (viii) construction of a development setback line; (ix) construction of a development setback line; (x) construction of a development setback line;

Environmental impact assessment process

Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Env. Notice No. 2013 of 9 Jan 2014	Listing Notice 1, Activity No. 19 (I)	The building or depositing of any material of more than 5m ³ into, or the dredging, excavation, removal or moving of soil, sand, silt, gravel or a pile of rock of more than 5m ³ from: <ul style="list-style-type: none"> (i) a watercourse; (ii) the seabed;

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
First Notice: NEMA/013 of 4 Nov 2013	Listing Notice 1, Activity No. 23	The development of (a) a road for which an environmental authorisation was obtained for the road; (b) a road in a border of activity 9 in Classification Notice 501 of 2006 or activity 18 in Classification Notice 545 of 2010; or (c) a road with a capacity wider than 7.5 metres, or wider for other than a vehicle that is wider than 3 metres, not exceeding 100 metres in length, designed and intended to carry 10 or more motor vehicles at any one time.

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Classification Notice 545 of 2010	Listing Notice 1, Activity No. 23	The widening of a road for which a licence, permit or other authorisation of access by more than 1 motor vehicle; (b) where the widening exceeds a width of more than 7.5 metres; or (c) a road with a capacity wider than 7.5 metres, or wider for other than a vehicle that is wider than 3 metres, not exceeding 100 metres in length, designed and intended to carry 10 or more motor vehicles at any one time.

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
First Notice: NEMA/013 of 4 Nov 2013	Listing Notice 1, Activity No. 14	The development of facilities or infrastructure for the storage, or for the storage and handling, of a flammable good, where each storage facility in individual units has a combined capacity of 50 cubic metres or more but not exceeding 500 cubic metres.

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
1011/2014 1012/2014	1. Activity No. 10	The development and/or the operation of infrastructure exceeding 1000 metres in length for the bulk transportation of average diameter process water with a maximum water temperature of 20°C and a maximum discharge to surface waters with an average discharge of 0.25 litres per second (l/s) with a peak discharge of 120 litres per second or more.

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
1011/2014 1012/2014	1. Activity No. 10	The development of infrastructure exceeding 1000 metres in length for the bulk transportation of average diameter process water with a maximum water temperature of 20°C and a maximum discharge to surface waters of 0.25 litres per second (l/s) with a peak discharge of 120 litres per second or more.

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
1011/2014 1012/2014	1. Activity No. 10	The development of infrastructure exceeding 1000 metres in length for the bulk transportation of average diameter process water with a maximum water temperature of 20°C and a maximum discharge to surface waters of 0.25 litres per second (l/s) with a peak discharge of 120 litres per second or more.

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Envf Notice No. 8993 of 4 Dec 2013	Listing Notice 2 Activity No. 4 (a) (4)(a)	The development of a road wider than 4 metres with a reserve less than 13.5 metres (a) in the Northern Cape Province (b) arterial urban streets (c) critical biodiversity areas as identified in state-mark biodiversity plans adopted by the competent authority in environmental plans

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Envf Notice No. 8994 of 4 Dec 2013	Listing Notice 2 Activity No. 4 (a) (4)(a)	The development of an area of 300 square metres for use for intensive vegetation clearing (a) in the Northern Cape Province (b) in a critical biodiversity area as identified in state-mark biodiversity plans adopted by the competent authority (c) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (d) in a critical biodiversity area as identified in state-mark biodiversity plans adopted by the competent authority (e) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (f) in a critical biodiversity area as identified in state-mark biodiversity plans adopted by the competent authority (g) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (h) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (i) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (j) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (k) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (l) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (m) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (n) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (o) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (p) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (q) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (r) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (s) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (t) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (u) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (v) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (w) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (x) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (y) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more (z) within the defined exclusion zone for 100 metres around trees with a diameter of 200 mm or more

Environmental impact assessment process
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Envf Notice No. 8984 of 4 Dec 2013	Listing Notice 2 Activity No. 14 (b) (14)	The development and related operation of (a) air traffic stations, or (b) any other structures or infrastructure on, below or along the sea bed, including (c) development of facilities for extraction of structures for mineral and petroleum or (d) the development of temporary structures or infrastructure where such structures will be removed within a period of the competence of a management unit where biological resources will not be cleared

Environmental impact assessment process cont.
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Env Notice No. R004 of 4 Dec 2014	Listing Notice 7, Activity No. 17	Any activity including the operation of the facility which requires a mining right as contemplated in Section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No.28 of 2002), including associated infrastructure, structures and equipment, directly related to the operation of a surface resource, including activities for which an assumption has been made in terms of section 16(1) of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

Environmental impact assessment process cont.
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No.107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Env Notice No. R004 of 4 Dec 2014	Listing Notice 7, Activity No. 17	Any activity including the operation of that facility associated with the primary purposes of a development, including mining, extraction, structure, classifying, processing, crushing, screening and conveying, not including the smelting, refining, casting, coating or any other use of the material of source in which the activity is to be used.

Environmental impact assessment process cont.
 Triggered listed activities as per National Environmental Management Act, 1998 (Act No. 107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Env Notice No. R004 of 4 Dec 2014	Listing Notice 2, Activity No. 22	The reclamation of an island or parts of the sea.

Environmental impact assessment process cont.

Triggered listed activities as per National Environmental Management Act, 1998 (Act No. 107 of 1998)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of listed activity as per legislation
Casey Notice No. 2 594 of 4 24/02/2014	Listing Notice 2 Activity No. 25	Development (i) in the sea (ii) in front of a development setback in respect of (a) fresh water structures and extending the development of structures within existing parks or facilities that will not impact the development potential of the park or facilities

Environmental impact assessment process cont.

Provisions of the National Environmental Management Act: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) as amended

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
Casey Notice No. 2 594 of 4 24/02/2014	Listing Notice 2 Activity No. 25	Development (i) in the sea (ii) in front of a development setback in respect of (a) fresh water structures and extending the development of structures within existing parks or facilities that will not impact the development potential of the park or facilities

Environmental impact assessment process cont.

Provisions of the National Environmental Management Act: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) as amended

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
Casey Notice No. 2 594 of 4 24/02/2014	Listing Notice 2 Activity No. 25	Development (i) in the sea (ii) in front of a development setback in respect of (a) fresh water structures and extending the development of structures within existing parks or facilities that will not impact the development potential of the park or facilities

Environmental impact assessment process cont.
Provisions of the National Environmental Management Act: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) as amended

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
Env. Notice No. 01 of 21 Feb 2012	Category A	<p>(1) A coastal (lease or) coastal concession (the permit to lease of sub-section (1)(a)(ii) here) subject to section 24, be awarded by the Minister or other:</p> <p>(a) as specified by a notice; or</p> <p>(b) if the Minister or other in any specific case, through a prescribed body, awards:</p> <p>(i) a concession for a (leased) (lease) coastal concession, as prescribed by notice in the prescribed manner;</p> <p>(ii) a coastal (lease or) coastal concession (the permit to lease of sub-section (1)(a)(ii) here) if the Minister or other is satisfied that it is in the public interest to do so; or</p> <p>(iii) a coastal (lease or) coastal concession (the permit to lease of sub-section (1)(a)(ii) here) if the Minister or other is satisfied that it is in the public interest to do so.</p>

Environmental impact assessment process cont.
Provisions of the National Environmental Management Act: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) as amended

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
	Category A	<p>(1) A coastal (lease or) coastal concession (the permit to lease of sub-section (1)(a)(ii) here) subject to section 24, be awarded by the Minister or other:</p> <p>(a) as specified by a notice; or</p> <p>(b) if the Minister or other in any specific case, through a prescribed body, awards:</p> <p>(i) a concession for a (leased) (lease) coastal concession, as prescribed by notice in the prescribed manner;</p> <p>(ii) a coastal (lease or) coastal concession (the permit to lease of sub-section (1)(a)(ii) here) if the Minister or other is satisfied that it is in the public interest to do so; or</p> <p>(iii) a coastal (lease or) coastal concession (the permit to lease of sub-section (1)(a)(ii) here) if the Minister or other is satisfied that it is in the public interest to do so.</p>

Environmental impact assessment process cont.
Provisions of the National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
Env. Notice No. 011 of 29 Nov 2012	Category A	<p>The disposal of inert waste to land in excess of 25 tons and not exceeding 25 000 tons including the disposal of bulk air air for the purposes of recycling and building, which has been authorised by an appropriate authority.</p>

Environmental impact assessment process cont.
 Provisions of the National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
Notice No. 121 of 29 (2011)	Category A 11	The disposal of domestic waste generated on premises in areas not serviced by the municipal service where the waste disposed exceeds 500kg per month.

Environmental impact assessment process cont.
 Provisions of the National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
	Category A 10	The disposal of general waste in excess of 100 kg per day or the accumulation of a possibly average daily amount of 200kg.

Environmental impact assessment process cont.
 Provisions of the National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
Notice No. 121 of 29 (2011)	Category B 8	The disposal of general waste to land covering an area in excess of 200m ² and with a total capacity exceeding 25 000 kg.

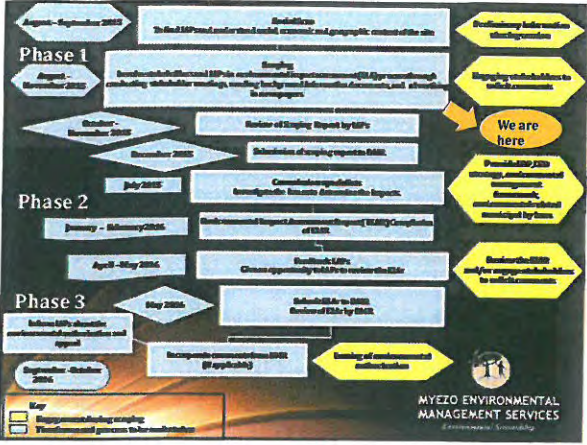
Environmental impact assessment process cont.
 Provisions of the National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008)

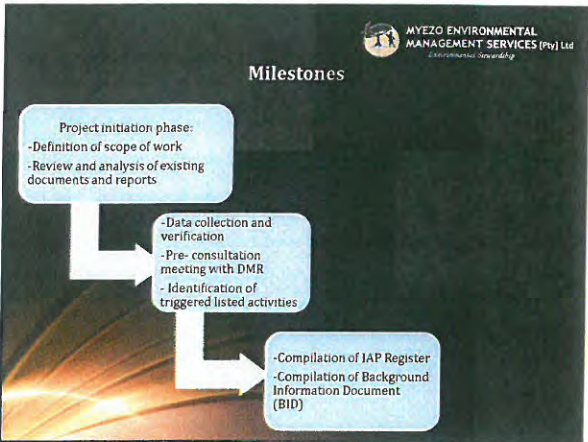
Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation
Env. Notice No. 111 of 23 Feb 2013	Category C 4	The storage of general waste at a facility that has the capacity to store in excess of 100m ³ of general waste at any one time, excluding the storage of waste in skips or temporary storages of such waste.

Environmental impact assessment process cont.
 Provisions of the National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008)

Number and date of relevant notice:	Activity No (s) (in terms of the relevant notice):	Description of activity as per legislation









Tasks	Time frames
Project initiation	Feb - March 2015
Data collection and verification	March - August 2015
Competent Authority (pre consultation meeting)	March 2015
Stakeholder authority meetings	September 2015
Phase 1- Public Participation Process (Distribution of Background Information document to stakeholders and interested and affected parties (IAPs)	September 2015
Submission of application form and receipt of acknowledgement to DMR	October 2015

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Tasks	Time frames
Phase 2- Public Participation Process (review of Scoping Report by stakeholders and interested and affected parties (IAPs)) - 30 days	October - November 2015
Submission of Scoping Report to DMR	December 2015
Authority review (43 days)	December 2015 - February 2016
Phase 3 - Public Participation Process (review of Environmental Impact Assessment Report) - 30 days	March - April 2016
Receipt of environmental authorisation	September 2016
Notification of environmental authorisation to stakeholders and IAPs	September 2016
Appeal period	September - October 2016






Outcomes of stakeholder meetings with DAFF and DENC (14 & 15 September 2015)

- Potential conflict with marine aquaculture activities: e.g. abalone ranching, kelp harvesting and other right holders along the coastal area.
- Impacts of mining on marine aquaculture activities and other coastal users including impacts of turbidity, impacts on stock and harvesting rates of aquaculture, impacts on sea water abstraction points for aquaculture activities.
- ❖ All marine aquaculture businesses and concession holders, within the project area will be notified of the project and included in the IAP register. The impacts of mining (both negative and positive) on the marine aquaculture activities will be assessed during the EIA.


Outcomes of stakeholder meetings with DAFF and DENC (14 & 15 September 2015) (cont....)


- ❑ The need for creation of public access to the coast
- ❖ Discussions are currently underway with Sanparks and Transhex has submitted a Section 11 application to relinquish 80-90% of their rights.

- ❑ Impacts on water quality including sea water quality
- ❖ It was recommended that hydrology and geohydrology studies be undertaken


Outcomes of stakeholder meetings with DAFF and DENC (14 & 15 September 2015) (cont...)


- ❑ Impacts on benthic flora communities
- ❖ Previous research undertaken by Andrea Pulfrich (Pisces Report (2004)) was utilised, marine baseline studies by Andrea Pulfrich were also undertaken in July 2015.

- ❑ Need for the development of an Estuarine Management Plan for the affected estuaries i.e. Buffelsriver, Swartlintjeesriver.
- ❖ It was recommended that the Estuary Management Plan for Orange River can be used as a guideline.



Outcomes of stakeholder meetings with DAFF and DENC (14 & 15 September 2015) (cont...)


- ❑ Impacts on heritage sites
- ❖ Heritage studies previously undertaken by Transhex for Sea Concession 7a will be used.

- ❑ Northern Cape Nature Conservation Act and National Environmental Biodiversity Act should be observed with regards to identified critical biodiversity areas and clearance of vegetation in these areas.
- ❑ Rehabilitation measures should be implemented
- ❖ Naturally assisted rehabilitation measures will be utilise



Outcomes of stakeholder meetings with DAFF and DENC (14 & 15 September 2015) (cont...)

- Draft reclamation of land from the sea Regulations to be provided by DENC
- Clarify issue with regards to discharge permits with DEA (Oceans and Coast)


Discussion Session

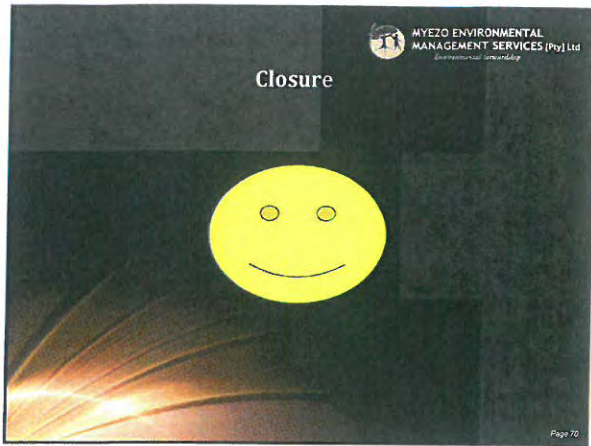


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Way forward

- Incorporation of issues/concerns raised (minutes to be distributed to all attendees)
- Submission of application form
- Continuation of EIA process

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Appendix h-5.3.4: DEA

West Coast
Resources



MYEZO ENVIRONMENTAL MANAGEMENT SERVICES

Environmental Stewardship

WEST COAST RESOURCES – NAMAQUALAND MINES – ENVIRONMENTAL IMPACT ASSESSMENT

*PROCEEDINGS OF THE MEETING FOR ENVIRONMENTAL IMPACT ASSESSMENT OVER THE EXISTING MINING
RIGHT AREAS FOR KOINGNAAS RIGHT, SAMSON'S BAK RIGHT AND NAMAQUALAND PROSPECTING RIGHT,
NAMAQUALAND MINES, IN NORTHERN CAPE: MONITORING PROTOCOL DEVELOPMENT DISCUSSIONS*

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WEST COAST RESOURCES – NAMAQUALAND MINES - ENVIRONMENTAL IMPACT ASSESSMENT

PROCEEDINGS OF THE MEETING FOR ENVIRONMENTAL IMPACT ASSESSMENT OVER THE EXISTING MINING RIGHT AREAS FOR KOINGNAAS RIGHT, SAMSON'S BAK RIGHT AND NAMAQUALAND PROSPECTING RIGHT, NAMAQUALAND MINES, IN NORTHERN CAPE: MONITORING PROTOCOL DEVELOPMENT DISCUSSIONS

**Document Name: WNE-PI-Meetings-Proceedings of the Meeting held with Department of Environmental
Affairs (Oceans & Coast)**

Myezo Ref: WNE 2015/02/M

Date: 24 May 2016

Venue: Department of Environmental Affairs (Oceans & Coast), Cape Town

1. Welcome and Introduction

Ms Funani Ditinti (FD) as the chairperson representing the Department of Environmental Affairs (DEA), welcomed all the meeting attendees, and introductions were done as outlined in the attendance register, incorporated as Attachment 1.

2. Attendance and Apologies

A list of attendees is provided as Attachment 1. Apologies were made on behalf of Mr Lindelani Mudau (LM) of Department of Environmental Affairs and Dr Allan Boyd (DEA: Head of Research)

3. Objectives of the meeting

The objectives of the meeting were presented as follows:

- Get insight into the proposed monitoring approach and sites to be monitored and factored variables
- Provide suggested input and incorporate some of the monitoring the department is currently engaged and determine if there could be shared data and which tested parameters/variables are common and could be assessed solely under one study to avoid duplication of effort
- Propose system of continual reporting and sharing of data
- Discuss any other suggested collaborations and foreseen synergies

4.1. Background

Bertus Cilliers (BC) of West Coast Resources (Pty) Ltd (WCR) gave a background on WCR and some of the involved shareholders. The background provided is similar to the background in the presentation (Attachment 2) and the one provided in the meeting that was held in September 2015 and as such is not repeated in these minutes.

BC emphasized on the activities that would require environmental authorization like the construction of coffer dams. An Environmental Impact Assessment (EIA) would be undertaken prior to these activities being undertaken. A series of A3 to A1 maps were used to illustrate locality. BC further stated that the current licence allows for mining up to the low water mark. BC indicated that they would typically only build about two coffer dams per year, and the dams would extend to about 100 – 200m offshore. BC also stated that marine baseline studies had been undertaken by Andrea Pulfrich and engineering studies for the design of structures had been done by WSP Group.

The beaches would be mined through:

- temporary accretion of the beach in the immediate vicinity of the mining target, using overburden material available on the beach or from adjacent onland mining sites; or
- Construction of a rock berm or coffer dam using non-native rocks and boulders sourced from rock stockpiles near Koingnaas.

The open sand beaches are characterised by natural high energy wave action and large volumes of sand are moved from the beach to deeper water during winter storms and brought back onshore during milder weather conditions. Beaches has been shown to replenish themselves as experienced in similar coastal environments and proven by previous specialist studies such as at the mouth of the Olifants River (Study done by Dr Andrea Pulfrich). As part of this specialist investigation, Trans Hex had been engaged in a monitoring programme and eight beaches had been sampled. Council of Scientific and Industrial Research (CSIR) studies had also been undertaken and it had been noted that benthic communities recover after approximately five years.

The stretch (size) of each of the beaches along the coast to be mined are about 300 m for 68/69 to 600 m at Mitchell's Bay. The coffer dams extend out into the sea, a distance of about 200m.

The environmental process was also outlined and Babalwa Fatyi (BF) gave a background on the project and indicated that WCR had existing converted mining rights and prospecting rights over Namaqualand Mines, including the Koingnaas Right (KNR), Samson's Bak Right (SBR) and Namaqualand Prospecting Right (NPR). She indicated that WCR wants to continue with mining on the areas covered by these rights, with immediate target being the Koingnaas and Michell's Bay areas by 2015 for the areas that will not trigger new listed

activities. However, for the activities that trigger listed activities an EIA would need to be undertaken before the commencement of activities.

4.2. Presentation

The presentation that was delivered at the meetings provided as Attachment 2.

1. Discussion and Presentation

Before the discussion, background was provided, as a reminder on WCR, since the previous meeting was held in September 2015, it was important to bring all stakeholders on the same wavelength regarding the project.

The proposed activities were also outlined as well as the proposed activities, and what are the potential impacts of the proposed activities

A overview of the key stakeholders and interested parties and their respective perspective concerning the project were provided. It was then discussed how the approach to monitoring should be tackled looking at the monitoring methodology and approach to identifying – control sites, actual monitoring sites and what will be monitored and anticipated timeframes.

DEA had in the previous meeting of September 2015, recommended that there should be partnership with regards to co-ordination of monitoring programmes to promote contribution to the understanding of the coastline. DEA (Oceans and Coast) conducts a lot of research and work along the coast, and any collected data will contribute in the comprehensive data manipulation to ascertain various trends under various treatments and variables.

The meeting then discussed of any other suggested collaborations and foreseen synergies.

While acknowledging that the purpose of the meeting was to try to find synergies and avoid duplication of effort in monitoring intervention along the concerned coastline. DEA (FD) emphasized there were institutional arrangements and governmental protocols that would have to be followed. It was appreciated that WCR would be willing to share their monitoring that so that the trends could be analyzed and understood. The selection of the sites would then be key so that for data analysis there is consistent assessment of trends and variables are the same and seasonal variations are also considered the same way in WCR selected sites and ongoing monitoring.

DEA expressed a concern that the development of a monitoring protocol should not be agreed at that meeting without the formal signed agreement from the head of research and the EIA divisional heads since this might create precedence and can be misunderstood as a collaboration partnership which other stakeholders would expect DEA to provide for all other projects. It should be clear that the input by the research team is part of

input as part of the EIA process and any team collaborations or WCR working together with DEA in sharing data over monitored sites, should be done under a formal agreement. The existing data that is not readily available to the public should also be shared under a formal agreement.

The research team represented by Maya Pfaff (MP) and Toufiek Samaai (TS) expressed an interest in ensuring that the project does not impact on the reef sedimentation. TS is an independent scientist to DEA and at instances where it is institutionally accepted, can be able to share collected data to achieve the same course of understanding the impact of mining along this coastline. He can independently seek wisdom and share knowledge with other researchers as well.

Dr Andrea Pulfrich confirmed that the impact of sedimentation on the reefs will be assessed and the monitoring of the recovery of benthic organisms will be assessed. The site selection of monitoring has been done and this was detailed in the Presentation in Slides 68-73.

The monitoring study will consider both physical and biological parameters at reference sites some distance from the mining sites and at sites targeted for cofferdam mining or beach accretion

It will be conducted on an annual basis starting a minimum of two years prior to that in which mining commences, and continuing until all impacted communities have recovered to acceptable levels as defined in the monitoring program requirements outlined

MP indicated that proper baseline is key and a need to establish natural variability can be established through seasonal surveys. It was requested that during monitoring that is done by WCR monitoring site should be shared so that when DEA goes to undertake their studies especially at Mitchell's Bay, the monitoring can look at the same specific rock or site that was monitored previously. DEA has done rocky shore monitoring and now will extend this to subtidal areas. Sediment movement can also be monitored areas prior to mining and during or after cessation of mining.

AP indicated that the amount of sand that is pumped into the beaches and the duration will be recorded and then monitoring would have to observe how far is the sand moving. BC indicated that Bathymetry was done for some of the sites but the mathematical modelling did not pick up the bathymetry outside the bay. The alternative option for mining Rooiwal bay will be looked at by WSP. Sand movement in the Rooiwal Bay area due to the planned mining activities will be looked at.

BC highlighted that the numerical modelling seems to be complex mainly due to the very irregular bathymetry in the Rooiwal area, which tends to create complicated wave breaking and resulting current

patterns. The groyne / breakwater will be looked at to see if it would assist in preventing sand moving out of the bay. The findings would have to be looked at from feasibility perspective to see if the significant effort/cost this option would bring would not only provide marginal gain.

BC offered that WCR have a survey tool where they fly over the sites and this tool gives volumetric data and can show the exact areas that were previously monitored and changes over time and this can be shared with DEA. The impact of mining in beaches has not been looked at yet by MP but is interested in Dr Andrea's findings about the recovery of communities after mining disturbances and wanted to confirm if this was international knowledge and AP confirmed this.

2. Way forward

- Baseline monitoring will be commenced soon
- DEA through MP can share the objectives of DEA's monitoring in terms of where it is and the sites that were already visited and the format of data sets so that the WCR monitoring can also align their monitoring with these formats for easy sharing and manipulation of data.
- The institutional and formal approvals from DEA for data sharing must be done

3. The Closure

- FD thanked all attendees and the meeting was closed.

Attachment 1: Attendance Register



WEST COAST RESOURCES-KOINGNAAS AND SAMSONS BAK COMPLEXES-ENVIRONMENTAL IMPACT ASSESSMENT

ATTENDANCE REGISTER FOR A FOLLOW UP STAKEHOLDER MEETING HELD WITH THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS, ABOUT THE SCOPING REPORT AND ENVIRONMENTAL IMPACT ASSESSMENT, AS WELL AS AN APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN SUPPORT OF A MINING RIGHT HELD BY WEST COAST RESOURCES (PTY) LTD, OVER THE KOINGNAAS AND SAMSONS BAK COMPLEXES

Document Name: WKSCE-PI-Meetings-Attendance Register

24 May 2016.

Myezo Ref No: WKSCE 2015/02/A
DMR Ref No: NC0043-MR/102 and NC0044-MR/102

First Name	Last Name	Company	Position	Tel	Fax	Mobile	E-mail	Address1	Address2	City	Code	Signature
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Attachment 2: Slide Presentation



MYEZO ENVIRONMENTAL MANAGEMENT SERVICES

Environmental Stewardship

WEST COAST RESOURCES-KOINGNAAS AND SAMSONS BAK COMPLEXES-ENVIRONMENTAL IMPACT ASSESSMENT
STAKEHOLDER CONSULTATION PRESENTATION ABOUT THE SCOPING REPORT AND ENVIRONMENTAL IMPACT
ASSESSMENT, AS WELL AS AN APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN SUPPORT OF A MINING
RIGHT HELD BY WEST COAST RESOURCES (PTY) LTD OVER THE KOINGNAAS AND SAMSONS BAK COMPLEXES

Document Name: WKSCE-PI-Meetings-Presentation (DEA-Oceans and Coasts)

Date: 24 May 2016



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The purpose of the meeting

- Get insight into the proposed monitoring approach and sites to be monitored and factored variables
- Provide suggested input and incorporate some of the monitoring the department is currently engaged and determine if there could be shared data and which tested parameters/variables are common and could be assessed solely under one study to avoid duplication of effort
- Propose system of continual reporting and sharing of data
- Discuss any other suggested collaborations and foreseen synergies



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Environmental Stewardship

Preliminary discussion points

Background for reminder - WCR, Proposed activities, and what are the potential impacts of the proposed activities

Who are key stakeholders and interested parties and what is their perspective

Monitoring methodology – control sites, actual monitoring sites and what will be monitored and anticipated timeframes

Discuss any other suggested collaborations and foreseen synergies

Way forward

Closure



Abbreviations

- ADTs: Articulated Dump Trucks
- DMS: Dense Media Separator
- EA: Environmental Authorisation
- KFR: Kleinzee Final Recovery
- KNC: Koingaas Complex
- RAC: RE:CM and Calible Limited
- SBC: Samsons Bak Complex
- THO: Trans Hex Operations (Pty) Ltd
- WCR: West Coast Resources (Pty) Ltd



Background on the proposed mining operations

- WCR is owned by THO, RAC, Government of South Africa, Dika Investment Holdings (Pty) Ltd and Namaqualand Diamond Trust Fund
- Trans Hex oversees and manages operations of WCR
- WCR is re-establishing diamond mining in Koingaas area under the existing EA of July 2012



.....Continuation

- WCR has existing converted mining rights and prospecting rights over the area
- The mining rights comprise of existing rights, covering KNC and SBC

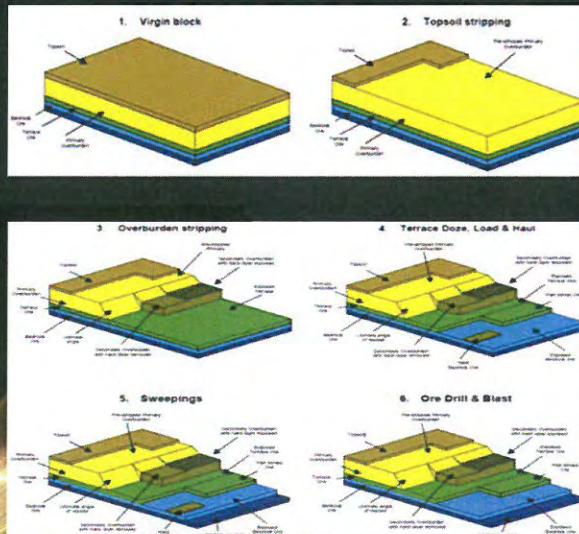
Map of the Koingnaas mining right area



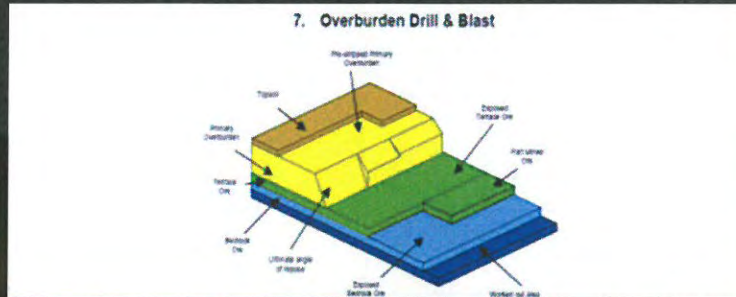
Adjacent farms



Open cast mining methods



....Continuation



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Surf zone mining

- Small scale operation that has been ongoing in the KNC and SBC
- Approved under the current authorizations
- Undertaken by diver-operated suction hoses
- Hoses feed diamondiferous gravels to shore-based pumping units comprising a tractor, modified to drive acentripetal pump and a rotary classifier

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Beach mining

- Beach mining operations of mineralized gravel deposits has been on-going for many years
- These gravel deposits are found in various places between the LWM and HWM along the coast
- WCR are currently continuing with these approved activities above the LWM on a limited scale
- Illustration 2 and 3, provides an example of typical beach mining operations

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Typical beach mining operations



Page 13

Typical beach mining operations



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Processing Infrastructure

- Koignaas Mine will start with construction of a new 200 tph screening and scrubbing plant at Michell's Bay
- The plant will feed the -12+1.6 mm fraction to the existing 50 tph Michell's Bay DMS plant
- Concentrate from the DMS will be treated through the KFR at Kleinzee
- A second 200 tph screening plant may be deployed if required
- Additional mobile scalping screens and Finlay type screens may also be required and will be deployed as necessary

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....Continuation

- Infrastructure layout plan
- Existing and proposed future slimes dam locations

Page 16



....Continuation

- At beach mining sites, ADT's will transport the gravel to a nearby scalping and screening plant, fed by seawater
- At the scalping and screening plant, the gravel may be fed directly to the feeding screen or stockpiled and fed by front-end loader to the screen
- Sand and seawater will be released back to the sea

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Rehabilitation

- Conducted concurrent to mining activities
- Generally carried out by:
 - back-dumping into mined-out areas,
 - flattening steep-sided overburden dumps and dangerous benches, and
 - covering the resulting surface with topsoil
 - various soil treatments, seeding and netting are carried out in some cases

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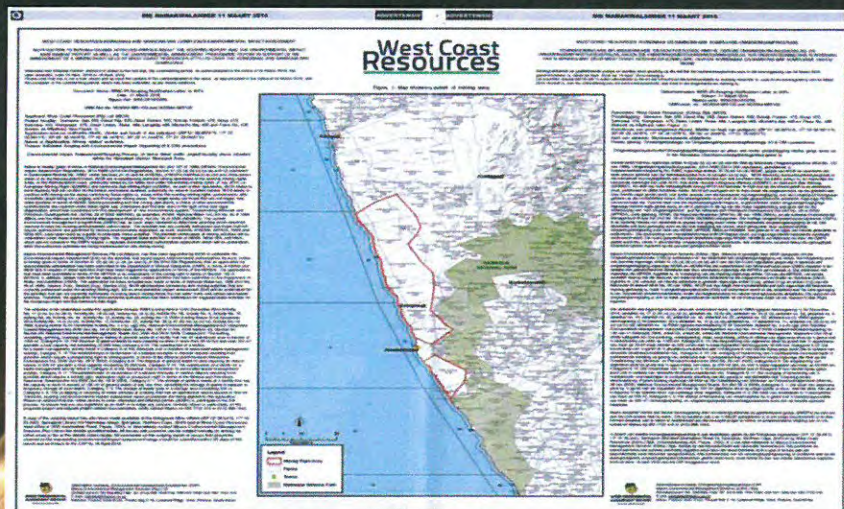
Regional infrastructure

- KNC and SBC mining areas are accessed via existing public roads
- The three most used are secondary roads from Springbok to Kleinsee, Port Nolloth to Kleinsee and Garies to Koingnaas
- The District Municipality maintains these roads
- A 60 km tar road links Koingnaas and Kleinsee
- Most of the roads in these towns are tarred
- A 40 km gravel road connects Kleinsee to Komaggas

Existing mine infrastructure

- Most infrastructure requirements are already in place in Koingnaas
- Infrastructure at each mine site and processing operation comprises of:
 - electric power supply
 - roads
 - potable, fresh and seawater supplies
 - fuel supply and storage
 - workshops

Listed and specified activities



Triggering activities associated with mining

Beach- and offshore channel mining

- Beach and offshore channel mining operations of mineralized gravel deposits between the low and high water marks
- Historic results will be particularly on the extensions of high-grade fluvial channels crossing the surf-zone to deeper water environments
- Areas targeted for mining are shown in Figure d-1

Triggering activities associated with mining

Beach- and offshore channel mining

- Figure d-2, d-3, d-4, show the location of the surf zone, beach and offshore channel resource areas
- The mine block representation can be viewed in Appendix 5: Figures d-11 to Figures d-18, which illustrates scheduled mine blocks

Figure d-2:

Location of surf-zone, beach and offshore channel resource areas



Figure d-3:
Location of surf-zone, beach and offshore channel resource

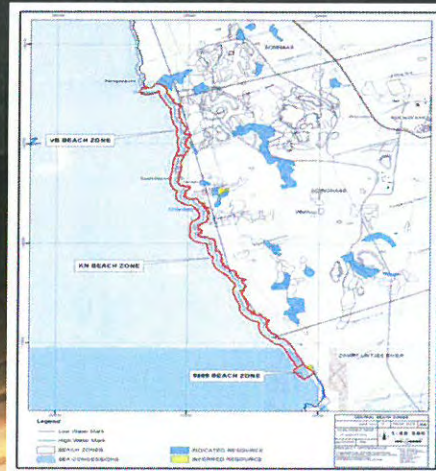


Figure d-4:
Location of surf-zone, beach and offshore channel resource areas



Approaches

Two types of approaches are as follows.:

- Temporary accretion of the beach in the immediate vicinity of the mining target, using overburden material available on the beach or from adjacent onland mining sites; or
- Construction of a rock berm or coffer dam using non-native rocks and boulders sourced from rock stockpiles near Koingnaas

68/69 design

- Rock berms or coffer dams are the only feasible alternative to effectively reclaiming a mining area located beyond the LWM
- Procedure for construction of a protective rock berm:
 - a rock berm is built by progressively end-tipping rock- and boulder core material from trucks perpendicular to the oncoming waves and shoreline. Dozers and excavators subsequently shape the profile and dress the slope with a suitable armour layer of larger rocks
 - The berms extend from above the storm HWM into the surf zone until the seaward extent of the mining block is reached and a shore-parallel berm is constructed linking the two shore-perpendicular berms

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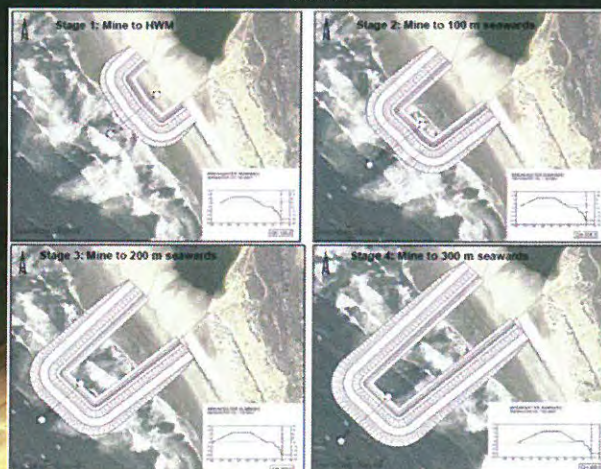
...Continuation

- Once the berm is in place and the mining block is enclosed, overburden stripping and gravel extraction can be undertaken using conventional open-cast mining approaches
- Once the area has been mined out, the rock berm would be progressively extended offshore to enclose the next mining block, potentially enabling mining up to 300 m seawards of the LWM

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Figure d-5:

Proposed phased rock berm construction at Koingnaas 68/69, Somnaas and Langklip Central



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Estimated rock volumes required for the various construction phases

Construction phase	Material requirements (m ³)
Stage 1	65 000
Stage 2	135 000
Stage 3	216 000
Stage 4	356 000

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Mitchell's Bay (Rooiwal Bay) design

- Small protected bay located north of the Spoeg River
- The mouth of the bay is some 700 m across
- The bay hosts a narrow sandy beach backed by steep soil cliff and a shallow reef in the mouth
- An irregular, deep, channel reaching at least 20 m depth is present in the northern part of the bay and a second depression occurs in the southern part of the bay
- One of the proposed mining approaches implemented to access the diamond deposits on the seabed and adjacent beaches, involves accretion of the beach using overburden sands stripped from adjacent mine block LKB-04 on-land

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.....Continuation

- Mining of the accreted area would liberate further material that can be placed into the sea to gain additional accretion
- Three stages of beach accretion are being considered, with the shoreline moving seawards by 150 m during each successive stage (Figure d-6) Sand volumes required for each stage comprised 1.3 million, 2.5 million and 5.9 million cubic metres, respectively for 150 m, 300 m and 450 m accretion

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