mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT: Vendicom (Pty) Ltd

TEL NO: 0839415826

FAX NO:

POSTAL ADDRESS:

PHYSICAL ADDRESS: 90 Twin Palm Street Rhino Ridge, The Wilds Security Estate, Pretorious Park. 0081
FILE REFERENCE NUMBER SAMRAD:

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1. IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

2. Objective of the basic assessment process

The objective of the basic assessment process is to, through a consultative process—

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:

  (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
  (ii) the degree to which these impacts—
    (aa) can be reversed;
    (bb) may cause irreplaceable loss of resources; and
    (cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
  (i) identify and motivate a preferred site, activity and technology alternative;
  (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
  (iii) identify residual risks that need to be managed and monitored.

PART A

SCOPE OF ASSSSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

i) Details of the EAP

Name of The Practitioner: Eric Egbe Igbinigie

Tel No.: 073 137 2383

Fax No. : 086 572 8327

e-mail address: eric@assuredts.co.za

ii) Expertise of the EAP.

(1) **The qualifications of the EAP**
(with evidence). Highiest qualification of EAP attached

(2) **Summary of the EAP's past experience**.
(In carrying out the Environmental Impact Assessment Procedure) Curriculum Vitae of EAP is attached.

b) Location of the overall Activity.

Farm Name:	Farm 1163
Application area (Ha)	5ha
Magisterial district:	East London
Distance and direction from nearest town	50km to the NE
21 digit Surveyor General Code for each farm portion	C02300000000116300000

c) Locality map
(show nearest town, scale not smaller than 1:250000). Refer to Figure 1 in Appendix 2.

d) Description of the scope of the proposed overall activity.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site

Refer to Figure 2 in Appendix 2.

(i) Listed and specified activities

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. for mining**,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**Aerial extent of the Activity** **Ha or m²**	**LISTED ACTIVITY** **Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE** ***(GNR 544, GNR 545 or GNR 546)***
Removal and stockpiling of sand material . Infrastructure including storage facilities and offices	up to 5ha	X	GNR 327 No. 21. Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002; MPRDA).
Decommissioning of the mining site once mining is complete.	up to 5ha	X	GNR 327 No. 22. The decommissioning of any activity requiring (i) a closure certificate in terms of Section 43 of the MPRDA.
Vegetation clearing and stockpiling	up to 5ha	X	GNR 327 No. 27. The clearing

			of 1ha or more, but less than 20ha of indigenous vegetation
Development of a new access road	1 400m2	X	GNR 327 No.24. The developme nt of a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres

(ii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to be prospected/mined and for a linear activity, a description of the route of the activity)

Site - Extent of farm 1163 and current activity on site is animal grazing.

Site establishment - Clearing and removal of vegetation, stockpiling of topsoil and fencing of mine site. Development of a road not wider than 8m for easy access to mine site. This road will not be paved but maintained as dirt road.

Mining process – The dry sand mining process for the sand minerals will include the use of front-end loaders to excavate sands. The excavated sand will be transferred to a hopper and conveyed into a 100tph head feed modular plant (Primary Concentrator Plant - PCP) to produce Heavy Mineral Concentrate (HMC). The modular PCP will include trash screen, gravity spirals with ancillary conveyor belts, pumps, sumps and solids/liquid separation units. The plant is designed and configured for classification, concentration, separation and recovery of metals and minerals concentrate in wet mode. Water (40m3/hr) will be utilised at the PCP to produce HMC (product) of approximately 100tph. The generated HMC will comprise of heavy minerals including Zircon, Ilmenite and Rutile in a concentrate mix.

Excavation depth will not exceed 30m.

The modular plant will operate on a day shift of 12hrs.
The HMC product will stockpiled onsite to dry and trucked offsite by the buyer (Traxis) for further processing at the East London Industral Development Zone.

Employees: An estimated 20 persons will be employed on site during construction and 22 persons during operation.

Site Infrastructure will include:
1. Drilling site
2. Dry mining site
3. Paddock
4. Mobile ablution facilities
5. 6m or 12m Product torage containers
6. Security Access Offices
7. Access roads between drilling, mining, plant, offices and provincial roads
8. Spares storage facility (6m/12m containerised)
9.Mobile administrative offices
10. Diesel Generator
11. 500 m3 tank with two suction pumps
12. 50 m3 clarifier tank
13. Primary Concentration Plan
14. Security fense

Source of Power - 20 cubes of diesel will be stored on site to generate electricity by the use of a Diesel Generator

Source of water - Water will be abstracted from boreholes

Waste - No chemical will be used in the process and mine waste (water and sand mix) will be sent to a paddock to settle from where it will be used for rehabilitation.

Rehabilitation - The mine and rehabilitation will happen concurrently and an estimated R500 000.00 has been earmarked for this process.

Duration of Construction - Approximately 12 weeks

Duration of operations - approximately 24 months

e) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)	Section 27	Application for a mining permit (Section 27 of the MPRDA).
National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 as amended	GNR 327 Listing notice 1 Activity 21,22,24 and 27	Application for Environmental Authorisation to mine and remove natural vegetation cover including a new haul road. Decommissioning & mine closure when mining is complete
National Water Act (Act 36 of 1998)	Section 21 of the National Water Act.	No water source will be impacted by the proposed mining activity. However, water will be abstracted from the Tyolumnqa river for domestic use and for dust suppression.
Mine Health and Safety Act (Act No. 29 of 1996).		This Act will be applicable during the mining phase of the project and necessary measures should be taken to ensure compliance.
Conservation of Agricultural Resources Act (No. 43 of 1983)		If any declared weed and/or invader species listed in terms of this Act is present on site, it must be removed.
National Environmental Management: Waste Act (59 of 2008)		The applicant must ensure that all activities associated with the quarry address waste related matters in compliance with the requirements of the Act.
National Heritage Resources Act (Act No. 25 of 1999).		No heritage resources will be affected by mining

f) Need and desirability of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

There is a huge demand for heavy minerals in the industry. The proposed mining activity will also contribute to the diversification of activities on the property to include job creation direclty related to the mine as well as downstream job creation for the mine's service providers. Establishment of the mine will result in other positive economic spin-offs in the carea as well. The applicant propose the establishment of an agreement with the local community regarding compensation and benefits from the mining activity.

g) Motivation for the overall preferred site, activities and technology alternative.

Mineral sand is a scarce commodity in the local area. The geology of the area mostly consists of quaternary sand. Limited sites (including this one) are available where mineral sand can be mined.

The proposed site was identified as the preferred alternative due to the following reasons:

- The site offers the mineral sought.
- The proposed mining area was defined not to include any sensitive ecosystem including wetlands and/or natural riparian ecosystems.
- The site is easilly accessible.
- Minimal overburben removal or stockpiling will be required.
- Minimal rehabilitation will be required after site closure (only removal of all equipment from site and levelling out of slopes then replacement of topsoil and monitoring).
- The mining area can be reached by an existing gravel access road. Only a short (350m) new road needs to be constructed to connect the site to the exisitng road.
- The open cast mining of the area (using an excavator and front end loader) was identified as the most effective method. Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with open cast mining, is deemed to be of low significance.
- No residual waste as a result of the mining activity will be produced that needs to be treated on site.

  Any general waste that may be produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site. As maintenance and servicing of the equipment will be done at an off-site workshop the amount of hazardous waste to be produced at the site will be minimal and would only be as a result of accidental leakage. Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous waste handling contractor to be disposed of at a registered hazardous waste handling site.

h) Full description of the process followed to reach the proposed preferred alternatives within the site.

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Property or location alternative:

The current preferred location (Figure 1 and 2) is the only site alternative assessed due to the following reasons:

- The site offers the mineral sought after.
- Sites available for mining are limited in the local area.
- The mining area can be accessed by an existing road. A short 350m near haul road will be required to link the existing road to the mining site.
    - The local community have indicated that they have no objection to the proposed mining site.

Design or layout alternative:

One layout alternative was considered for the proposed mining site.

The site entails a mining area (including stockpile area) of 5 ha and has the following coordinates:

Corner point A: -33.225362; 27.560863
Corner point B: -33.226045; 27.562838
Corner point C: -33.228013; 27.561598
Corner point D: -33.227325; 27.559632

Technology alternative:

The preferred dry mining method (using an excavator, front end loaders and haul trucks) is a proven mining method for this type of mineral and for a small scale mining. This mining method is also considered to have a low environmental impact if managed correctly.

An alternative Wet Mining process will invovle the flooding of the mine pit and use of a dredger for the mining process. Wet Mining is water intensive and usually considerd in a large scale mining application. It also carries hugh financial implications and not advisable for a small mining applications. As such, the Wet Mining process will not be considered any further as an alternative.

No other mining method are feasible.

The No-Go alternative:

This refers to the current status quo and the risks and impacts associated with it. The current land use of the proposed site is rural grazing land. Should the project not be implemented the area will not be disturbed by the proposed mining operations and there could be less damage to the environment.

Disadvantages of the no-go option are that there might not be any job creation or benefits to the local community from the mining activity.

Advantages of the no-go option are a reduced risk of potential environmental degradation (i.e. soil erosion, etc.).

The No-Go alternative is assessed further in the impact assessment process.

ii) Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must

include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

Refer to Appendix 1 for proof of the public participation process (PPP) followed as well as an Issues and Response Table.

Stakeholders and I&AP's were informed of the project by means letters of notification and Background Information Documents (BIDs).

A pre-assessment public meeting was held on the on the 29th of May to introduce the EAP to the local community. Minutes of meeting and attendance register are included in Appendix 1.

Munites of meeting held with the various Authorities are also included in Appendix 1.

Site notices were displaced at strategic points within the local community and near the mining site and an advert was published in the (Go! Express) on the 4th of July 2019 and again on the 1st of August 2019.

A public meeting was held on the 12th of July 2019 at the Dyam Dyam Community Hall. Proof of the public meeting including attendance register and minutes are available in Appendix 1.

The draft BAR was made available to all I&APs and stakeholders for comment for a period of 30 days (from the 1st of June to the 1st of July 2019). Due to request from I&AP, the public review period was further extended for 15 days and would laspe on the 16th of August. All comments received from the I&APs are documented in the Issues and Response Trail contained in Appendix 1.

iii) Summary of issues raised by I&Aps

(Complete the table summarising comments and issues raised, and reaction to those responses)

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES					
Landowner/s	**X**				
Department of Rural Development and Land Reform		26 July 2019	The Department through property managemnt Directorate confirmed that the farm 1163 East London registration division is a registered state land under the control of the Department held vide title deed number T438/1938-KWT. In terms of the Department processes any activity such as mining the applicant has to submit the following; - Draft Serveyor General Diagram of the area to be mined - Copy of Minng Works Programme - Business plan and evaluation report with projected monthly rentals to be paid to community escalating by 10%		Appendix 7

			annually. - Commitment to assist the community to have legal entity banking account where rentals will be paid. - Profile of the company and projects that have been done and completed sucessfully to date. Please refer to the attached letter from Department of Rural Development and Land Reform		
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties	**X**				
Phozi Community , Nqinisa Community and Dyam-Dyam Community	X	12 July 2019	Community memebers were present during the Public Participation meeting held on the 12th July. Please refer to the minutes and attendance registers in Appendix 1.	Refer to minutes of meeting with Community Member of 29th of May 2019 and Public meeting minutes of 12th of July 2019.	Appendix 1
Chalum (Pty) Ltd - Guiseppe Olivieri (gv.olivieri@gmail.com) Chalumna Estate Shareblock (Pty) Ltd - Sean McCormick	X	17 July 2019	The basis of my objection to the project is the negative impact that dust pollution would have on the Tyolomnqa River, the estuary and wetlands. The predominant wind in the area is from the westand inevitably dust will deposit in the already stressed estuary. I am not aware of any studies undertaken in the BAR in this respect.	Please refer to the draft BAR for further details. A copy of the report is available at the East London Central Library, located at Gladstone Street, East London CBD. The report can also be downloaded from the website at www.lugaju.co.za/blog. Click the "BAR-Tyolomnqa (Keiskamma) Farm 1163" link on the right-hand side of the page	
Municipal councillor	**X**				

Municipality	**X**				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Department of Water and Sanitation -Ms Sedibana (sedibanal@dws.gov.za)	X	24 June 2019	Geohydrological study and borehole pump test results requested should borehole be planned for water abstraction.	Please refer to attached meeting minutes	Appendix 1
Buffalo City Metropolitan Municipality - Integrated Environmental Management Unit Ms Nomthandazo Hanise (TandiH@Buffalocity.gov.za)		03 July 2019		Awaiting comments	
Amathole District Municipality- Vuyokazi Mlozana (vuyokazi@amathole.gov.za) 043 701 4000 (option 5)		28 June 2019		Awaiting comments	
Department of Roads and Public Works.		22 July 2019		Awaiting Commenrs	
Communities					
Mr Ntungu	X	29 May 2019	Is the community going to get ATS and Lugaju Innovations' contact details in order for them to raise their concerns?.	It was explained that after the meeting the community committee will have a chance to take ATS and Lugaju Innovations' contact details. Dr Zuma further explained that the public participation notices that will be displayed at public places will contain the company's contact details	
Mr Rhini	X	29 May 2019	Is the public participation going to be held at all the three communities that are	The panel chairing the meeting explained that the public participation meeting is for	

			going to be affected by this project?	all the communities and it would be ideal to hold it at one venue to avoid confusion. It was further explained that there are 2 types of mining that Vendicom will do, a small scale mining and large scale mining. He explained that this meeting will only focus on the small scale mining and the public participation will only take place at one venue, then when it's time to focus on the large scale mining the meeting will take place in all the communities.	
Mr Asanda Mbande	X	09 July 2019	The date on which the Public Participation Process will be held is inconvenient for residents who have 9 to 5 jobs as they will miss the meeting. The caller was not happy and he further stated that their opinions on the proposed mining project will not be considered as they are automatically excluded from the meeting	The caller was made aware of Interested and Affeted Parties who, in cases where they cannot attend the meetings, can still register as Interested and Affected Parties and make known their concerns relating to the proposed project.	
Committee Members Representatives of Dyam Dyam, Phozi and Kenene Ndileka (Chairman) Venu Siseko (Vice Charman) Hute Nomawethu (Secretary) Mayile Sibusiso (Vice Secretary) Sogcwayi Mfisi (Treasurer)	X	29th May and 12th July 2019		Committee Reps were present during the preassessment meeting of 29th May and the Public participation meeting of 12th July. Please refer to the minutes and attendance registers in Appendix 1.	Appendix 1
Dept. Land Affairs					
Mzwandile Vaaiboom (MzwandileV@buffalocity.gov.za)	X			Awaiting comments	
Traditional Leaders					

Dept. Environmental Affairs					
Mr. Casoojee (Riyadh.Casoojee@dedea.gov.za) Mr Nondlebe	X	28 June 2019		Please refer to attached meeting minutes	Appendix 1
Other Competent Authorities affected					
Department of Mineral Resources - Ms Diedre Watkins (diedre.watkins@dmr.gov.za	X	09 July 2019	Requested for Soil Assessment and Rehabilitation Plan to be included in the specialist studies.	Please refer to attached DMR meeting minutes in Appendix 1.	Appendix 1
Department of Rural Development and Land Reforms	X			Awaiting comments	
Eastern Cape Provincial Heritage Resource Agency - Mr Sello Mokhanya 043 745 0888	X			Heritage report submitted and awaiting comments	
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					
King Fisher Estate - Chris Faul (chris@realvision.co.za) Pam Faul (pam@realvision.co.za)		18 July 2019	Environmental impact to kiwani and tyolomnqa estuaary. Control of waste water .Noise pollution, Air pollution, water pollution. Impact on grazing and	Please refer to the draft BAR for further details. A copy of the report is available at the East London Central Library, located at Gladstone Street, East London CBD. The	

		farming.	report can also be downloaded from the website at www.lugaju.co.za/blog. Click the "BAR-Tyolomnqa (Keiskamma) Farm 1163" link on the right-hand side of the page.	
Lighter Filler Rentals CC Tony Stone 0437818463 (klipstone1942@gmail.com)	17 July 2019	Lighter Filler Rentals CC, owner of the property known Stone's Cottages, of which I am a member have a direct interest in the proposal, which may or may not directly affect myenterprise. My initial reaction to the proposal is an emphatic NO, but with more detailed and accurate information, both short term and long term, confirming that the proposed EIA study is accurate and that the terms and conditions will be monitored, ahead of those occasions when the mistakes are made and the solution then is "I'm Sorry". I will be pleased to be appraised of future meetings, with a view to input into the way forward in order that I may maintain my property's interest for the future of members of Lighter Filler Rentals CC.	Noted with thanks.	
Kayser's Beach Ratepayers Association - Joe Surkont (joe@surkont.co.za)	16 July 2019	Our Interest is in the protection of the river, wetland and estuary adjacent to the planned mining activities.	All surface water bodies in the prosimity of the planned activity were considered and measure determine to safeguard these natural environment. Please refer to the Surface Water Assessment and the Biodiversity Assessment reports.	
Monzula (Pty) Ltd - Ntsika Tetani	23 July 2019	Business Lease out plan and equipment for duration of mining project. Mentoring from the mine (skills transfer) on how to start/ operate a mine	Noted	
Di McIntyre	21 july	We live permanently at Chalumna	Thank you for showing interest on the	

(diane.mcintyre@uct.ac.za)	2019	Estates, which is geographically the closest community to the proposed mining site. We will be significantly affected by the noise, dust and other consequences of the proposed mining activity. We are currently reviewing all documentation related to the proposed mine and will provide a detailed submission on our concerns before the 1 August deadline. At this point, we would like register our grave concern that required processes for notifying and consulting affected parties have not been followed. Given our proximity to the proposed mining site, we should have received a hand-delivered letter, but have received no communication from you. We insist on being directly notified about any meetings or developments around this proposed mine. It has come to our attention that Vendicom is not legally registered to operate as a company. We request that you immediately provide proof of valid, current CIPC registration with a complete list of directors and a SARS Tax Complaince Certificate for Vendicom for the current fiscal year.	proposed project. Kindly note that measures to mitigate noise, dust and other consequences that may be associated with construction and operation phases of the proposed project have been covered on the Basic Assessment Reports (BAR) found on the following website: www.lugaju.co.za/blog We acknowledge the receipt of the completed registration and comment form. All Registered Interested and Affected Parties will be notified of opportunities arising from the proposed project. For verification of the validity of the company that is intending to undertake the proposed project (Vendicom (Pty) Ltd), please see below the company registration number: 2014/164101/07.	
Chalumna Estate Shareblock (Pty) Ltd - Sean McCormick (smccormick@cirruspmc.co.za) 0768195039	12 July 2019	1. There seems to be insufficient planning and mitigation in place to protect the ecosystems and the proposed activity will put the ecosystems at severe risks. 2. The open sand mining operation is in close proximity (+-700m) from the Tyolomnqa estuary. the estuary is already	1. The planing and mitigation protocol adopted are as defined by the NEMA EIA Regulations. The identified listed activities triggered a Basic Assessment to be implemented. In total six (6) specialist studies were undertaken and includes Biodiversity, Geohydrology, Geotechnology, Heritage, Surface Water	

		under stress from siltation from farming activities up river. The estuary is an important ecosystem as it is a nursery for coastal fisheries, including species such as the white steerbraas. The mining activity will impact the river negatively increasing the risk of siltation including the risks of spills from slimes that the activity will require. 3. The Basic Assessment Report States that the proposed project will be beneficial through employment. This is false as the activity is not labour intensive and required machines only. 4. The planned activities do not allow for management of waste from the mining activities. 5. The space applied for is too small to justify the economics of such activity. The project is thus being opposed.	and, Soil Assessment and Rehabilitation. These studies inclued impacts and mitigation measures which were included in the Basic Assessment Report and EMPr. 2. The closest point (Coordinate A) of the site boundary is 1.4km from the Tyolomnqa River and not +-700m. The regulation prescribes a maximum distance of 500m radius from the edge of any development to a wetland and 30m radius to a river. The mining activities are restricted to the 5ha boundary prescribed and no water abstraction and or mining activity will take place at the Tyolomnqa River. Please refer to the Surface water assessment for further details regarding Surface Water impacts. 3. As indicated above, six specialist studies were undertaken for the completion of the BAR and the focus of these studies were not only on job creation. In all studies undertaken both beneficial and negative impacts were assessed with and without the implementation of mitigation measures. Also, the proposed mining activities is not labour intensive as only 20 and 22 persons will be employed during construction and operation phases, respectively. 4. The planned mining activities includes the management of wastes including domestic wastes and sewage. No actual mine waste is generated from this planned mine activities. The mined earth material	

			will be rehabilitated and returned to the void. Please refer to the EMPr which is contained in the BAR. A summary of the proposed mining process is contained in the attached BID. 5. The 5ha land space being applied for is the maximum allowable land space for a Mining Permit application, which is applicable to the current proposed mine. A prefeasiblity had already been conducted to determine the economic potential of the proposed mining activity and was considered to be economically viable, hence the current mining permit aplication.	
Leigh Steyn (leightorrance@hotmail.com)			Awaiting comments	

iv) The Environmental attributes associated with the alternatives.(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

(its current geographical, physical, biological, socio- economic, and cultural character).

Geology:

The project covers an area of palaeo-dunes inland from the present-day coastal dunes of the Hamburg Nature Reserve, stretching southwest along the coastline from the Tyolumnqa River to Wesley.

The paleodunes form a rounded ridge which rises up to 110m above sea level, and stands separated from the inland area by low valleys. The paleodune ridges consists of accreted palaeobeach dunes which were subjected to marine, Aeolian and surficial processes. As a consequence sections of the dunes are partially cemented with carbonate precipitates, while the remainder consists of sand and clay, with subordinate calcrete nodules.

The internal structure of these dunes is similar to other dunes being exploited along the South African coast line. The internal layering of the dunes consist of foresets poor in heavy minerals with a few thin HM lags, separating thinner sets with a high HM concentration. This difference is due to the effect of increased and decreased sediment load into the area of deposition, where the winnowing effect of Aeolian processes would be reduced or increased, respectively.

The area is underlain by Permian sediments which form the basement. These sediments have been characterized as calcareous sandstone deposits of marine origin, and together with Jurassic dolerite form the rocky outcrops along the coastline.

The Quaternary cover sequence within which the mineralization has been noted comprise a series of Aeolian, paralic and marine sediments deposited during various shoreline regressions. The Quaternary sediments at Tyolumnqa can be divided into two formations: an older sandstone and clay unit, partially cemented by calcrete, which appears to be Aeolian in origin; and a second much younger series of Aeolian beach dune deposits along the present shoreline. The older sediments in the cover sequence are tentatively correlated with the Pleistocene Nahoon Formation, while the youngest dune deposits are present day in age and are currently actively forming.

Vegetation:

According to SANBI (Mucina & Rutherford, 2019) the proposed mining site is located on Hamburg Dune Thicket which forms part of the Albany Thicket biome. This type of vegetation occurs on gently to moderately undulating landscapes and dissected hilltop slopes and is always located within 15km to the coast. Short grasslands punctuates by scattered bush clumps or solitary Acacia natalitia dominate the landscape.

SANBI has not classified Hamburg Dune Thicket but the STEP classification does not allocate any sensitivities to the vegetation unit. Protected Southern Coastal Forest occur to the south-east of the site along the coastline but will not be affected by the proposed mining development.

Biodiversity:

The proposed mining site is allocated a CBA 1 sensitivity area for which the following management goals have been set:

- Maintain biodiversity in as natural state as possible. Manage for no biodiversity loss.

A site visit has confirmed that the area consist of degraded grassland with scattered trees and has a low biodiversity value.

Surface hydrology and Geohydrology:

No dams were found within the site hence they are excluded. The main rivers identified are the Tyolumnqa River located 1.5km to the east and the Kiwane River located 1.8km to the west of the site. A small unnamed non-perennial stream are located immediately south of the proposed mining site.

The Nanaga aquifer occurs as a narrow strip of dunes adjacent to the coastline and can comprise sufficient water saturated permeable material to produce significant volumes of water in boreholes and wells. The thickness of the Nanaga Formation is governed by surface relief and is often up to 150 m thick. The aquifer is recharged directly from precipitation as well as from lateral inflow from inland groundwater moving towards and discharging into the ocean. DWAF (2004) investigated the Nanaga aquifer as part of the Albany Coast Situation Assessment Study and determined that the Nanaga aquifer can be considered an aquitard which stores a significant volume of water but does not transmit water at an economic rate due to its relatively low permeability. The explanation of the 1:500 000 General Hydrogeological Map of Port Elizabeth 3324 (Toerien and Hill, 1989), however, describes the Algoa Group aquifer (including the Nanaga and Alexandria formations) as "a unique intergranular aquifer, where water seeps rapidly through the highly porous material until it comes into contact with the underlying impervious pre-Algoa Group rocks". Regardless of the site-specific permeability, it is anticipated that the groundwater within the Algoa Group rocks/sediments will be located within the dune above the contact between the fossilised dune sand and underlying low permeability Karoo rocks.

Protected areas:

The following protected areas are located near the proposed mining site and shown in Figure 3.7:

Name of reserve Distance from site
Hamburg Nature Reserve - Distance from site = 0,84km to the south
East London Coast Nature Reserve- Distance from site = 5,35km to the east
Christmas Rock and Gxulu River Mouth MPA - Distance from site = 10,60km to the east

Topography:

The site occur on a gently sloping undulating landscape close to the coast (1.2km to the south) at an altitude of between 100-120 meters above sea level. The site is located on the "low hill" section on this undulating landscape.

Local climate:

East London, the town nearest to the project site (approx. 50km eastwards) normally receives about 593mm of rain per year, with most rainfall occurring during summer. East London receives the lowest rainfall (16mm) in July and the highest (79mm) in March. Average midday temperatures for East London range from 20°C in July to 26°C in February. The region is the coldest during July when the temperature drops to 9.3°C on average during the night.

(b) Description of the current land uses.

The mining site is located on unimproved grassland. The proposed access road from the existing gravel road will also be located on unimproved grassland. The are is currently used as communal grazing land. No other land use will be impacted.

(c) Description of specific environmental features and infrastructure on the site.

Existing infrastructure within 2km of the proposed mining area consist of two small villages namely of Phozi (1.4km) and Dyam Dyam (2km) and the existing access road to the site. The Tyolumqa River is located 1.5km to the east. The R72 is approximately 4km away from the proposed mining area.

The impact of the proposed mining area on the infrastructural features of the surrounding area is deemed to be of low significance as the impact of the mining activities will mostly be concentrated within the 5ha footprint area of the mine. The existing gravel road (that runs from the R72) will be impacted by haul trucks, but Hthe Client have indicated that they will maintain this road.

The river will be declared and managed as a no-go area to ensure protection.

Only minor stormwater management will likely be required on site (likely just for the haul road).

Most cattle & goats are herded to vegetated areas outside the proposed mining site where there is sufficient grass cover.

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

Refer to Figure 3 under Appendix 2 Maps.

v) Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

The following impacts were identified for each phase of mining (namely Planning & Design, Construction, Mining and Decommissioning):

Planning & Design

- Compliance with relevant environmental legislation and policy
- Design of the mine site
- Socio-economic

Mining

- Compliance with relevant environmental legislation and policy
- Visual intrusion associated with mining activities
- Sanitation facilities
- Demarcation of mining site
- Storm water and erosion
- Spillages of hazardous substances
- Dust control
- Noise
- Waste management
- Socio-economic
- Loss of natural vegetation
- Materials handling

- Mine dewatering

Decommissioning & closure

- Final rehabilitation and decommissioning
- Closure

NO-GO

- Socio-economic benefits
- Lower risk of environmental degradation due to the mineral sand mining activities

Refer to Appendix 3 for a detailed impacts table. The significance rating was determined using the methodology as explained under vi) below "Methodology Used in Determining and Ranking the Significance". The impact rating was determined for each impact prior to bringing the proposed mitigation measures into consideration as well as after implementing the proposed mitigations.

vi) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

This section details the methodology that was used when determining the significance of potential environmental impacts.

General Impact Assessment

A general impact assessment was conducted based on site visits and information relating to the planning and design, construction, operation and decommissioning/closure of the proposed sand mine.

Specialist Impact Assessments

The following specialist studies were conducted during the EIA for the proposed mineral sand mine:

- Desktop Ecological Impact Assessment
- Heritage and Archaeological Assessment.
- Desktop Geotechnical Assessment
- Desktop Geohydrolocal Assessment
- Soil Assessment and Rehabilitation plan
- Surface water hydrology

Methodology for Assessing Impacts and Alternatives

Identified impacts will be assessed against the following criteria:

- Temporal scale
- Spatial scale
- Risk or likelihood
- Degree of confidence or certainty
- Severity or benefits
- Significance

The relationship of the issue to the temporal scale, spatial scale and the severity are combined to describe the overall importance rating, namely the significance of the assessed impact.

See Table 1 attached for detailed ratings tables.

vii) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

Positive Impacts:

- The site offers the mineral sought.
- The footprint of the mining area is only 5 ha.
- All mining activities can be contained within the boundaries of the mine area and the proposed excavation of mineral sand does not produce any residual waste.
- The proposed footprint area contain heavily impacted vegetation consiting moslty of grassland with scattered trees.
- Overburden will be removed and stockpiled for rehabilitation.
- Minor rehabilitation will be required after closure and decommissioning of the site (just levelling of slopes and replacing topsoil).
- The mining area can be reached by an existing access road. A short 350m new haul road will be required to link the existing road to the site.
- The proposed mining area will not have to compete with other land uses as all the activities can be contained within the boundaries of the site.
- The operation of the mine will create limited employment opportunities and may bring some socio-economic benefit to the local community.
- The proposed mine area will contribute to the upgrading/maintenance of infrastructure in and around the local area and indirectly contribute to the economy of the area.

Negative Impacts:

- Due to the remote location of the mining area very little negative impacts on the community could be identified that were deemed to be of significance. The dust and noise impacts that may emanate from the mining area during the operational phase could have a negative impact on the surrounding community if the mitigation measures proposed in this document are not implemented and managed on-site.
- Negative impacts with regard to the environment include potential contamination of the area due to accidental spillage of hydrocarbon products.
    - The mining area will be located within 1.4km of the banks of the Tyolomnqa River. The applicant will NOT have to apply for a Water Use Licence from DWS as per impact on the Tyolomnqa River.

viii) The possible mitigation measures that could be applied and the level of risk.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

Planning & Design Phase

Compliance with relevant environmental legislation and policy:

- All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy.
- These should include (but are not restricted to): MPRDA, NEMA, NWA, Local and District Spatial Development Frameworks, Eastern Cape Biodiversity Conservation Plan (ECBCP), Local Municipal bylaws.

Risk will be reduced from HIGH NEGATIVE to LOW NEGATIVE

Design of the mine site:

- The site must be designed to avoid sediment loss to the surrounding environment, especially the surrounding rivers and streams.

Risk will remain LOW NEGATIVE

Socio-economic:

- The proponent must ensure that an agreement (regarding community benefits) is reached between the developer, the current land users and the municipality prior to any construction or mining activity taking place on site.

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Loss of Natural vegetation:

- The proposed access road footprint should be kept as small as possible and be provided with suitable stormwater management features (if necessary), that will prevent additional erosion within the terrestrial a habitats.
- Mining must only occur within the approved footprint.
- Vegetate the berm and other surfaces that were laid bare as a result of construction with a locally indigenous grass species where practicable, as soon as possible;

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Water use:

- Apply for an Abstraction License from DWS prior to commencemnt of any activities on site
- Monthly monitoring of boreholes regarding water levels and water quality

Mining phase

Compliance with relevant environmental legislation and policy:

- The proponent must ensure that mining is compliant with the relevant legislation and policy.
- These should include (but are not restricted to): MPRDA, NWA, NEMA, Local and District Spatial Development Frameworks, Eastern Cape Biodiversity Conservation Plan (ECBCP), Local Municipal bylaws.

Risk will be reduced from HIGH NEGATIVE to LOW NEGATIVE

Visual intrusion associated with mining activities:

- Mining activities should only take place during normal work hours (7am to 5pm).
- Mining activities must be limited to the designated area and not encroach into surrounding areas.

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Sanitation facilities:

- Sanitation facilities must only be located within the mining footprints.
- The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Demarcation of mining site:

- The boundaries of the mining site must be adequately demarcated/fenced to restrict mining and other activities. All plant, equipment and other materials must remain within the demarcated boundaries during mining activities.
- Ablution facilities must be located atwithin the mining site.

Risk will be reduced from HIGH NEGATIVE to LOW NEGATIVE

Storm water:

- Surface water draining must be designed in such a way as to avoid sedimentation of the surrounding environmrnts, expecially rivers and streams.

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Spillages of hazardous substances:

- All oils, fuel and other maintenance equipment and supplies must be stored in a secure area
- Vehicles must be maintained to an acceptable standard to prevent any fuel, oil or lubricant leaks etc).
- Spill kits must be kept on-site and maintained.
- All hazardous material must be stored within the mining site within a bunded area.

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Dust control:

- Excavations must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas.
- A speed limit of 40km/h must not be exceeded on dirt roads.
- Any complaints or claims emanating from the lack of dust control must be attended to immediately.
- Use of shade cloth where necessary, to reduce wind speeds and reduce travel distance of dust;

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Noise:

- Mining activity and movement of heavy machinery should be limited to normal working hours (7 AM to 5 PM).
- Ensure there is a facility for nearby residents to make complaints. These must be addressed and recorded.

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Waste management:

- Sufficient waste containers must be available.
- No waste must be buried or burned on site.
- Waste must be collected on a regular basis and disposed of at a licensed landfill site

Risk will be reduced from MODERATE NEGATIVE to LOW NEGATIVE

Socio-economic:

- No mitigation required

Risk will remain BENEFICIAL

Materials handling:

- Reduced tipping and drop heights where practicable;
- Regular clean-up at loading areas and on paved surfaces to prevent entrainment by wind or vehicles;
- Use of shade cloth where necessary, to reduce wind speeds and reduce travel distance of dust;
- Covering of exposed areas with coarsely crushed rock or aggregate material where practicable;
- Continuous dust and fine particulate monitoring should be implemented to monitor compliance with the NAAQS

Mine dewatering

- Store the dewatered water in PCDs and ensure that the dams will have enough storage volume;
- If that is not possible, re-introduce treated water into the streams after ensuring that they meet the required standards as per the WUL or river quality objectives;
- Supply equal volumes and better-quality water to affected user if proven that there is an impact on specific users;
- Monitoring of groundwater water levels and groundwater inflow rates; and
- Update numerical model annually

Decommissioning & closure

Final rehabilitation and decommissioning:

- Any remaining sand stockpiles must be removed or levelled.
- Stockpiled topsoil must be spread ofer impacted areas. Topsoil layer must be at least 50cm thick after spreading.
- Site clean-up must be done.
- Waste material of any description must be removed entirely from the mining area and disposed of at a registered landfill site.
- No waste may be burned or buried on site.
- Mined out areas must be profiled and stabilised (if necessary).
- The post rehabilitation topography should result in the same slope as prior to mining.
- Weeds/alien plants growing on site must be manually removed and deposited at a registered landfill site.
- All equipment and other items used during the mining period must be removed from site.
- At closure the haul road must be left in a good and non-eroded state.
- The closed site must pose no safety risks.
- Rehabilitation must be completed in such a manner that the land can be optimally used post-mining.
- Final rehabilitation must be completed within a period specified by the Regional Manager.

Risk will be reduced from HIGH NEGATIVE to LOW NEGATIVE

Closure:

- Closure must comply with the MPRDA (Act 28 of 2002), NEMA (Act 107 of 1998) and the NEMA Regulations (2014) requirements for mine closure.
- A closure plan must be compiled using the guidelines described in Appendix 5 of the NEMA Regulations (2014) and submitted to DMR.
- A closure certificate must be obtained from the Minister of Mineral Resources.

Risk will be reduced from HIGH NEGATIVE to LOW NEGATIVE

NO-GO phase

Socio-economic benefits:

- No mitigation required

Risk will remain MODERATE NEGATIVE

Lower risk of environmental degradation due to the mineral sand mining activities:

- No mitigation required

Risk will remain MODERATE BENEFICIAL

ix) Motivation where no alternative sites were considered.

The site contains the required minerals. No other land is available for mining.

x) Statement motivating the alternative development location within the overall site. **(Provide a statement motivating the final site layout that is proposed)**

The open cast mining of the proposed site has been identified as the most cost effective mining method. The proposed method will not produce any residual waste that has to be disposed of. Due to the small nature of the proposed mining activity as well as the remote location, the potential impact on the surrounding environment is deemed to be of low significance. It is proposed that all mining related infrastructure will be contained within the boundary of the mining area. The proposed footprint area contain impacted natural vegetation (grasses with scattered trees). Overburden (soil and no rock formation) will be removed and stockpiled for rehabilitation. Subsequently no major rehabilitation will be required after closure and decommissioning of the site except landscaping and topsoil return. A short 350m new haul road linkintg the site to the existing access road will be required. Water will be abstracted from a combination from borehole source using two extraction pumps into a 500m3 water tank storage. In addition, a 50m3 clarifier will be use for processing and returing process water. Depending on the outcome consultations with the Department of Water and Sanitation, a Water Use Licence may be required.

i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. **(Including (i) a description of all environmental issues and risks that erer identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)**

During the impact assessment process the following potential impacts were identified of each main activity in each phase. An initial significance rating was determined (see Table 1 of Appendix 4) for each potential

impact should the mitigation measures proposed in this document not be implemented on-site. The impact assessment process then continued in identifying mitigation measures to address the impact that the proposed mining activity may have on the surrounding environment.

The significance rating was again determined for each impact using the methodology as explained uin Table 1. The impact ratings listed below was determined for each impact after bringing the proposed mitigation measures into consideration and therefore represents the final layout/activity proposal.

Planning & Design Phase

Compliance with relevant environmental legislation and policy:
Risk was reduced to LOW NEGATIVE

Design of the mine site:
Risk remains LOW NEGATIVE

Socio-economic:
Risk was reduced to LOW NEGATIVE

Loss of natural vegetation:
Risk was reduced to LOW NEGATIVE

Mining phase

Compliance with relevant environmental legislation and policy:
Risk was reduced to LOW NEGATIVE

Visual intrusion associated with mining activities:
Risk was reduced to LOW NEGATIVE

Sanitation facilities:
Risk was reduced to LOW NEGATIVE

Demarcation of mining site:
Risk was reduced to LOW NEGATIVE

Storm water and erosion:
Risk remains LOW NEGATIVE

Spillages of hazardous substances:
Risk was reduced to LOW NEGATIVE

Dust control:
Risk was reduced to LOW NEGATIVE

Noise:
Risk was reduced to LOW NEGATIVE

Waste management:
Risk was reduced to LOW NEGATIVE

Socio-economic:
Risk remains BEBEFICIAL

Decommissioning & closure

Final rehabilitation and decommissioning:
Risk was reduced to LOW NEGATIVE

Materials handing
Risk was reduced to LOW NEGATIVE

Mine dewatering
Risk was reduced to LOW NEGATIVE

Closure:
Risk was reduced to LOW NEGATIVE

NO-GO phase

Socio-economic benefits:
Risk remains MODERATE NEGATIVE

Lower risk of environmental degradation due to the sand mining activities:
Risk remains MODERATE BENEFICIAL

j) Assessment of each identified potentially significant impact and risk

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. For mining**,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	**SIGNIFICANCE** if not mitigated	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	**SIGNIFICANCE** if mitigated
Refer to Appendix 4						

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked **Appendix**

k) Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Ecological Report	The mining footprint must be surveyed and demarcated prior to commencement of construction of mining infrastructure. No construction activities must be allowed outside the demarcated footprint. Where vegetation has been cleared, site rehabilitation in terms of soil stabilisation and vegetation must be undertaken. All areas that will be impacted by construction of mining infrastructure must be surveyed and demarcated by a suitably qualified specialist prior to vegetation and topsoil removal in order to locate and rescue any species of conservation concern within the area and relocate them. The contractor's staff must not poach or trap wild animals. The contractor's staff must not harvest any natural vegetation. All temporarily impacted areas must be rehabilitated with indigenous vegetation as soon as construction in the particular area or phase of work is complete, i.e. rehabilitation is on-going throughout construction. Restoration must be conducted as per the approved Rehabilitation Management Plan. Only topsoil from the development site, which has been appropriately stored, must be used for rehabilitation. A Stormwater Management Plan must be developed to manage surface water movement during all phases of the project.	X	Appendix 4

	The approved Alien Vegetation Management Plan must be implemented during the construction phase to reduce the establishment and spread of undesirable alien plant species. The mining footprint must be surveyed and demarcated prior to commencement of construction of mining infrastructure. No construction activities must be allowed outside the demarcated footprint. Where vegetation has been cleared, site rehabilitation in terms of soil stabilisation and vegetation must be undertaken. All areas that will be impacted during mining must be surveyed and demarcated by a suitably qualified specialist prior to vegetation and topsoil removal in order to locate and rescue any species of conservation concern within the area and relocate them. The mining staff must not poach or trap wild animals. The mining staff must not harvest any natural vegetation. All cleared areas must be continuously rehabilitated with indigenous vegetation post-establishment. The site will be considered as rehabilitated when 75% or more of the impacted areas are covered by primary growth (grasses and/or scrubs) A Stormwater Management Plan must be developed to manage surface water movement during all phases of the project. he approved Alien Vegetation Management Plan must be implemented during mining to reduce the establishment and spread of undesirable alien plant species.		
Archaeological Assessment	The study has identified no significant impacts to archaeological resources that will need to be mitigated prior to, proposed mining activities commencing. The impact significance of the proposed mine on important archaeological heritage is assessed as LOW and therefore there are no objections to the proposed project proceeding. The following are recommended: 1. No archaeological mitigation is required prior to, proposed mining activities commencing. 2. No archaeological monitoring is required during mining operations.		Appendix 4

	3. Upgrading of the access road at Dyam-Dyam village to the mine area, must avoid the graveyard at the entrance to the road. 4. The Environmental Control Officer (ECO) must be briefed by the archaeologist prior, to mining operations commencing. 5. If any unmarked human remains are uncovered or exposed during mining operations, these must immediately be reported to the contracted archaeologist (Mr Jonathan Kaplan 082 321 0172), and the Eastern Cape Provincial Heritage Resources Authority (Att: Mr Sello Mokhanya 043 745 0888). 6. A copy of this report must be submitted to the Phozi, Dyam-Dyam and Ngqinisa Village Community Steering Committee members, for comment. 7. The above recommendations must be included in the Environmental Management Plan (EMP) for the proposed project.		
Palaeontological study	One person in the staff must be identified and appointed as responsible for the implementation of the attached protocol in instances of accidental fossil discovery and must report to the ECO or site agent. If the ECO or site agent is not present on site, then the responsible person on site should follow the protocol correctly in order to not jeopardize the conservation and well-being of the fossil material. Once a workman notices possible fossil material, he/she should report this to the ECO or site agent.Procedure to follow if it is likely that the material identified is a fossil: - The ECO or site agent must ensure that all work ceases immediately in the vicinity of the area where the fossil or fossils have been found; - The ECO or site agent must inform SAHRA of the find immediately. This information must include photographs of the findings and GPS co-ordinates; - The ECO or site agent must compile a Preliminary Report and fill	X	Appendix 4

	in the attached Fossil Discoveries: Preliminary Record Form within 24 hours without removing the fossil from its original position. The Preliminary Report records basic information about the find including: - The date - A description of the discovery - A description of the fossil and its context (e.g. position and depth of find) - Where and how the find has been stored - Photographs to accompany the preliminary report (the more the better): - A scale must be used - Photos of location from several angles - Photos of vertical section should be provided - Digital images of hole showing vertical section (side); - Digital images of fossil or fossils. Upon receipt of this Preliminary Report, SAHRA will inform the ECO or site agent whether or not a rescue excavation or rescue collection by a palaeontologist is necessary. Exposed finds must be stabilised where they are unstable and the site capped, e.g. with a plastic sheet or sand bags. This protection should allow for the later excavation of the finds with due scientific care and diligence. SAHRA can advise on the most appropriate method for stabilisation. - If the find cannot be stabilised, the fossil may be collect with extreme care by the ECO or the site agent and put aside and protected until SAHRA advises on further action. Finds collected in this way must be safely and securely stored in tissue paper		

	and an appropriate box. Care must be taken to remove the all fossil material and any breakage of fossil material must be avoided at all costs. No work may continue in the vicinity of the find until SAHRA has indicated, in writing, that it is appropriate to proceed.		
Geotechnical study	Wet suppression should be applied sparingly to ensure the absence of visible dust. Wet suppression is about 50% effective on unpaved roads, but chemical binders such as Dustex or Dust-A-Side may also be used. Other surface measures should include tarring or paving or the use of chemicals such as calcium or magnesium chloride. These chemicals are environmentally friendly and attracts moisture from the atmosphere, by acting as an adsorbant, during periods of high humidity and also serve to reduce the evaporation rate of water during hot periods; Enforce low vehicle speeds on unpaved areas (< 40 km/h); Use of shade cloth where necessary, to reduce wind speeds and reduce travel distance of dust; and Vegetate the berm and other surfaces that were laid bare as a result of construction with a locally indigenous grass species where practicable, as soon as possible. Contractors are to maintain construction vehicles in good condition Sediment trapping berms Stormwater management plans Dry season construction Monthly monitoring of the boreholes regarding water levels and water quality Efficiency will be applied to reduce wastage and unnecessary fuel consumption; Carbon offsets will be considered if required; Concurrent best practice rehabilitation and vegetation monitoring will be applied to allow for the restoration of some the carbon sink functionality within the mining right area.	X	Appendix 4

	Avoid blasting under windy conditions as far as practicable Enforcement of a 40 km/hour speed restriction on unpaved haul roads; Reduced tipping and drop heights where practicable; Regular clean-up at loading areas and on paved surfaces to prevent entrainment by wind or vehicles; Use of shade cloth where necessary, to reduce wind speeds and reduce travel distance of dust; Covering of exposed areas with coarsely crushed rock or aggregate material where practicable; Maintaining all vehicles in good condition always; Continuous dust and fine particulate monitoring should be implemented to monitor compliance with the NAAQS Sediment trapping berms Stormwater management plans Implement Integrated Wastewater Management Plan Aquatic biomonitoring Store the dewatered water in PCDs and ensure that the dams will have enough storage volume; If that is not possible, re-introduce treated water into the streams after ensuring that they meet the required standards as per the WUL or river quality objectives; Supply equal volumes and better-quality water to affected user if proven that there is an impact on specific users; Monitoring of groundwater water levels and groundwater inflow rates; and Update numerical model annually		
Geohydrological Study	- It is anticipated that the groundwater within the Algoa Group rocks/sediments will be located within the dune above the contact between the fossilised dune sand and underlying low permeability Karoo rocks. - The proposed mine site is located in the recharge area of the aquifer. The aquifer is recharged directly from precipitation as well as from lateral inflow from inland groundwater moving towards and	X	Appendix 4

	discharging into the ocean. - The groundwater forms a mound beneath the high dunes as these are areas of recharge from vertical percolation directly from rainfall. Sami (2004) calculated recharge into the fossil dunes of the Nanaga Formation at around 3.6 % of MAP. - Given expected groundwater mounding within the dune (due to the direct vertical recharge over the dune), it is anticipated that the groundwater occurs at around 75 MAMSL which is around 40 to 50 metres below the proposed mining site. This estimate is however, uncertain and not based on any hydrogeological data from the localised area. It is anticipated that the groundwater level will be very dynamic and respond quickly to rainfall events, meaning that during wet conditions the groundwater level could rise significantly and move within the 30 m depth of the mine. - DWAF (2004) identified that the Nanaga aquifer drains via springs at the coastline that emerge at the contact with underlying low permeability formations. - Groundwater discharge from the Nanaga aquifer will support the groundwater dependant coastal forest found in the protected Hamberg Nature Reserve.		
Soil Assessment and Rehabilitation plan	Currently underway and to be oncluded in the final BAR.		
Surface water hydrology	Currently underway and to be oncluded in the final BAR.		

Attach copies of Specialist Reports as appendices

l) Environmental impact statement

(i) Summary of the key findings of the environmental impact assessment;

The key findings of the environmental impact assessment are the following:

The project entails the opencast extraction of mineral sand from an area located on impacted grassy thornveld. Overburden will be removed and stockpiled for used durinmg rehabilitation of the mining area.

The planned mining method would be dry mining with a gravity separation plant and a dry separation plant to generate the final products. The process will not include underground mining and or blasting etc.

The existing road to the mine area can be used to gain access to the site. A short 350m new haul road will be required to link the existing road to the mining site.

Site infrastructures will include:
1. Drilling site
2. Dry mining site
3. Paddock
4. Mobile ablution facilities
5. 6m or 12m Product torage containers
6. Security Access Offices
7. Access roads between drilling, mining, plant, offices and provincial roads
8. Spares storage facility (6m/12m containerised)
9.Mobile administrative offices
10. Diesel Generator
11. 500 m3 tank with two suction pumps
12. 50 m3 clarifier tank
13. Primary Concentration Plan
14. Security fense

Installation of security fence around the processing operations area;
ROM feed hopper;
Conveyor to feed trash screen;
Horizontal vibrating trash screen with integrated underpan sump pump, i.e. to remove +1mm trash;
Gravity spirals with integrated launders as per MTs simulation;

Primary HMC classification unit (gravity cyclone or SWECO screen) to remove the +200microns gangue as per the testworks recommendation;
Final THM concentrate dewatering unit and storage drums; and
Tailings Dewatering screen and conveyor to temporary stockpile.
HMC concentrate storage area.
Offices, Security and Ablution facilities.
Water Borehole installation for domestic water and process water use.
Process water holding and recovery area.
It is intended that electricity supply will be sourced from a diesel generator as there is

currently no industry grade supply of electricity to the project area.
For general waste disposal the option of use of licenced Municipal facilities as against the construction of onsite landfill site will be investigated and suitable option adopted.

Access routes and site clearance.

The proposed mining area will not be visible from any public areas or roads and will therefore only have a visual impact on the immediate surrounding area.

Minimal storm water management will be require as surface water will percolate into the permeable sand.

Waste management needs to be implemented on the site in order to minimise the potential of pollution.

(ii) Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers .Attach as **Appendix**

Refer to Figure 4 in Appendix 2

(iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

Positive impacts associated with the project include:

- Job creation for 20 during construction and 22 permanent staff during operation.
- Additional job creating can be achieved downstream by the provision of mine services including, accommodation, security, laundary and tailoring, and catering services etc.
- The proposed mine has the potential to contribute to the upgrading/ maintenance of infrastructure in and around the local area and indirectly contribute the economy of the area.

Negative impacts associated with the project include:

- The mining activities to cause noise and dust issues for the surrounding community. But this is easily mitigated.
- Negative impacts with regards to the biophysical environment include potential contamination of the area due to spillage of hydrocarbon products.

m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

All impacts with proposed mitigations as listed in Appendix 4 must be included into the EMPr

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

All impacts with proposed mitigations as listed in Appendix 4 should be considdered for inclusion into the authorisation.

o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

The assumptions made in this document related to the assessment and mitigation measures proposed, stem from site specific information gathered from the applicant, local community, site inspections and background information gathering.

p) Reasoned opinion as to whether the proposed activity should or should not be authorised

i) Reasons why the activity should be authorized or not.

Should the mitigation measures and monitoring programmes proposed in this document be implemented on site, no fatal flaws could be identified that were deemed so severe as to prevent the activity from continuing.

ii) Conditions that must be included in the authorisation

All impacts with proposed mitigations as listed in Appendix 4 should be considdered for inclusion into the authorisation.

q) Period for which the Environmental Authorisation is required.

The applicant requests the Environmental Authorisation to be valid for a five year period.

r) Undertaking

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

The undertaking to meet the requirement as provided at the end of the EMPr is applicable to this section as well as the EMPr.

s) Financial Provision

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

i) Explain how the aforesaid amount was derived.

A Financial Provision for the mine operation and calculation for rehabilitation has been submitted with the DMR and is appended.

ii) Confirm that this amount can be provided for from operating expenditure.

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The mining operation will be self-funded through income generated by sales of the minerals mined. The Applicant will provide DMR with this amount specified in the Financial Provision on finalisation of the Mining Permit.

t) Specific Information required by the competent Authority

i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). the EIA report must include the:-

(1) Impact on the socio-economic conditions of any directly affected person. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an **Appendix** .

The typical heavy mineral assemblage from historical work and similar deposits consists of zircon, ilmenite, monazite, apatite, magnetite and a variety of other minerals which include inter alia rutile, titano-magnetite, maghemite, and leucoxene. These are source minerals for of zirconium, titanium, iron and phosphate.

The work initially completed by Vendicom on the Tyolumnqa and Hamburg permit areas showed that the surficial sediments of interest is significantly thinner than suggested by previous workers. The most important result of this is that the mining method will in all likelihood be dry surface mining, which

negates the massive environmental and financial impacts of dredge mining.

(2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. **(**Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(*i*)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

According to the Heritage Assessemnt conducted and included here as Appendix 5 - Specialist Volume, no archaeological mitigation is required prior to the proposed mining activities commencing as no archaeological resources were recorded in the footprint area of the proposed mining area. In addition, no impact on archaeological resources is anticipated during construction and operation.

u) Other matters required in terms of sections 24(4)(a) and (b) of the Act.

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as **Appendix 4)**.

Motivation for altenatives, or the lack thereoff is provided in the beginning of this report (Section i)

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme.

a) **Details of the EAP,** (Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

EAP details are shown in Part A, section(a) of the Basic Assessment Report

b) **Description of the Aspects of the Activity** (Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

The aspects of the activity that are covered by the draft environmental management programme have been described and included in Part A, section (1)(h)

c) Composite Map

(Provide a map (**Attached as an Appendix**) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

As mentioned under Part A, section (1)(L)(ii) this map has been compiled and is attached as Appendix 3 to this document.

d) **Description of Impact management objectives including management statements**

i) **Determination of closure objectives.** (ensure that the closure objectives are informed by the type of environment described)

The decommissioning will involve removal of all machinery/equipment from site. The small excavation sides will be profiled to a 1:3 gradient. All material stockpiles will be removed from the site or levelled. Topsoil will be spreaded onto all impacted areas. Tposoil will have a minimal thickness of 50cm. No seeding are anticipated.

The applicant will comply with the minimum closure objectives as prescribed by DMR and detailed below.

Rehabilitation:

- Mining areas must be levelled out daily.
- No erosion rills must be allowed to develop.
- Weed/alien vegetation clearing must take place continuously during mining (if required).

Final rehabilitation and closure:

- Any remaining sand stockpiles must be removed or levelled.
- Site clean-up must be done.
- No erosion must be allowed on the mine site or haul road.
- Waste material of any description, including receptacles, scrap, rubble, etc. must be removed from the mining area and disposed of at a registered landfill site. It will not be permitted to be buried or burned on site.
- Mined out areas must be stabilised and profiled (if necessary).
- Stockpiled topsoil must be used as reccemnded above.

- The post rehabilitation topography should result in the same slope as prior to mining.
- Weeds/alien plants growing on site must be manually removed and deposited at a registered landfill site.
- All equipment and other items used during the mining period must be removed from site.
- At closure the internal haul road must be left in a good and non-eroded state (as it was prior to mining activities).
- The closed site must pose no safety risks.
- Rehabilitation must be completed in such a manner that the land can be optimally used post-mining.
- Final rehabilitation must be completed within a period specified by the Regional Manager.
- Closure must comply with the MPRDA (Act 28 of 2002), NEMA (Act 107 of 1998) and the NEMA Regulations (2014) requirements for mine closure.
- A closure plan must be compiled using the guidelines described in Appendix 5 of the NEMA Regulations (2014) and submitted to DMR.
- A closure certificate must be obtained from the Minister of Mineral Resources.

ii) **Volumes and rate of water use required for the operation.**

A minimum of 100 m3 per hour of borehole water will be abstracted, using two extraction pumps, to process 100 tons of earth material. The borewater will be pumped into a 500m3 water tank storage facility. A 50m3 water clarifier tank will be used to recycled process water.

A water use licence will be applied for and consultations with the Department of Water and Sanitation and application process is currently underway.

iii) **Has a water use licence has been applied for?**

iv) Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITIES **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. For mining**,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**PHASE** (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	**SIZE AND SCALE of disturbance** (volumes, tonnages and hectares or m²)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:- .. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Planning and Design	Planning and Design	5ha	All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy. These should include (but are not restricted to): MPRDA, NWA, NEMA, Local and District Spatial Development Frameworks, Eastern Cape Biodiversity Conservation Plan (ECBCP), Local Municipal bylaws. The site must be designed to	NWA; MPRDA; NEMA, etc.	Prior to commencement of mining activities and during mining

			avoid impacting the surrounding natural environment. The proponent must ensure that an agreement (regarding community benefits) is reached between the developer, the current land users (community), and the municipality prior to any mining activity taking place on site.		
Excavation	Mining	5ha	All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy. These should include (but are not restricted to): MPRDA, NWA, NEMA, Local and District Spatial Development Frameworks, Eastern Cape Biodiversity Conservation Plan (ECBCP), Local Municipal bylaws. Mining activities should only take place during normal work hours (7am to 5pm). Mining activities must be limited to the designated area and not encroach into surrounding areas. Sanitation facilities must NOT	Health & Safety Act NWA NEMA Regulations MPRDA NEM: AQA	For the duration of mining

			be located within 50m of any water resources or water drainage areas. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution. The boundaries of the mining site must be adequately demarcated to restrict mining and other activities. All plant, equipment and other materials must remain within the demarcated boundaries. Any erosion rills that develop should immediately be scarified and monitored. If necessary cross drains/ side drains must be used on the haul road. All oils, fuel and other maintenance equipment and supplies must be stored in a secure bunded area with a compacted surface. Spill kits must be kept on-site and maintained. All hazardous material must be stored more that 50m away from		

			any water course in a bunded area. Vehicles must be maintained to an acceptable standard to prevent any fuel, oil or lubricant leaks etc). Mining activities should only take place during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. A speed limit of 40km/h must not be exceeded on dirt roads. Any complaints or claims emanating from dust issues must be attended to immediately. During windy periods un-surfaced and un-vegetated areas should be dampened down if necessary. Movement of heavy machinery should be limited to normal working hours (7 AM to 5 PM). Ensure there is a facility for nearby residents to make complaints. These must be addressed and recorded.		

			Sufficient waste containers must be available. No waste must be buried or burned on site. Waste must be collected on a regular basis and disposed of at a licensed landfill site. All water bodies (rives, streams, drainage areas) must be avoided Littering and contamination of water sources during mining must be prevented at all times. Emergency plans (and spill kits etc.) must be in place in case of spillages of diesel and hydraulic fluids. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised. Any remaining sand stockpiles must be removed or levelled after mining. Site clean-up must be done. Waste material of any description, including receptacles, scrap, rubble and		

			tyres, will be removed entirely from the mining area and disposed of at a registered landfill site. It will not be permitted to be buried or burned on the site. Mined out areas must be stabilised, profiled and stockpiled topsoil returned. topsoil layer must be 50cm and thicker when placed back into the impoacted areas. The post rehabilitation topography should result in the same slope as prior to mining. Weeds/alien plants growing on site must be manually removed and deposited at a registered landfill site. All equipment and other items used during the mining period must be removed from site. At closure the internal haul road must be left in a good and non-eroded state. Rehabilitation must be completed in such a manner that		

			the land can be optimally used post-mining. Final rehabilitation shall be completed within a period specified by the Regional Manager. Closure must comply with the MPRDA (Act 28 of 2002), NEMA (Act 107 of 1998) and the NEMA Regulations (2014) requirements for mine closure. The closed site must pose no safety risks. A closure plan must be compiled using the guidelines described in Appendix 5 of the NEMA Regulations (2014) and submitted to DMR. A closure certificate must be obtained from the Minister of Mineral Resources. a Water use license must be obtained for water use prior to commencement of any mining activity		

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph ();

ACTIVITY (whether listed or not listed). **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)**	**MITIGATION TYPE** **(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)** **E.g.** • **Modify through alternative method.** • **Control through noise control** • **Control through management and monitoring** • **Remedy through rehabilitation..**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.**
Refer to Appendix 5					

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

ACTIVITY whether listed or not listed. **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)**	**MITIGATION TYPE** **(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)** **E.g.** • **Modify through alternative method.** • **Control through noise control** • **Control through management and monitoring** **Remedy through rehabilitation..**	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Refer to Appendix 6				

i) Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

Upon cessation of the mining activities the area will be rehabilitated. The excavation site will be profiled to a 1:3 gradient and topsoil replaced.

All waste materials and other materials will be removed from site. The applicant will comply with the minimum closure objectives as prescribed by DMR.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

The Draft Basic Assessment Report, includes all the environmental objectives in relation to closure and was made available for perusal of I&AP's and stakeholders. No comments were received. The mining project was also discussed with the relevant I&APs during the public meeting.

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

The requested rehabilitation plan is explained below. Upon closure of the mine all machinery and equipment will be removed. The excavation site will be profiled to 1:3 to ensure safety and prevent erosion and all topsoil will be replaced. No permanent structures will remain upon closure of the site. The rehabilitated area will include the entire mining site.

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

The decommissioning phase will entail the rehabilitation of the mining site. Upon cessation of the mining activities, the area will be fully rehabilitated.

The rehabilitation of the mining area will comply with the minimum closure objectives as prescribed by DMR and detailed below, and therefore is deemed to be compatible:

Rehabilitation

- Mining areas must be levelled out daily.
- No erosion rills must be allowed to develop.
- Weed/alien vegetation clearing must take place continuously during mining (if required).

Final rehabilitation and closure

- The affected rehabilitation area will include the entire mining area as indicated in the Regulation
- Any remaining sand stockpiles must be removed or levelled.
- Topsoil stockpiled must be returned an place on the rehabilitaion areas. Thickness must not be less that 50cm. no planting of vegetation is anticipated.
- Site clean-up must be done.
- Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the mining area and disposed of at a registered landfill site. It will not be permitted to be buried or burned on the site.

- Mined out areas must be stabilised and profiled (if necessary).
- The post rehabilitation topography should result in the same slope as prior to mining.
- Weeds/alien plants growing on site must be manually removed and deposited at a registered landfill site.
- All equipment and other items used during the mining period must be removed from site.
- At closure the internal haul road must be left in a good and non-eroded state (as it was prior to mining activities).
- The closed site must pose no safety risks.
- Rehabilitation must be completed in such a manner that the land can be optimally used post-mining.
- Final rehabilitation must be completed within a period specified by the Regional Manager.
- Closure must comply with the MPRDA (Act 28 of 2002), NEMA (Act 107 of 1998) and the NEMA Regulations (2014) requirements for mine closure.
- A closure plan must be compiled using the guidelines described in Appendix 5 of the NEMA Regulations (2014) and submitted to DMR.
- A closure certificate must be obtained from the Minister of Mineral Resources

(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

A Financial Provision for the mine operation and calculation for rehabilitation has been submitted with the DMR and is appended. A financial provision

(f) Confirm that the financial provision will be provided as determined.

Herewith I, the person, whose name is stated below confirm that I am the person authorised to act as representative of the applicant.

I herewith confirm that the company will provide the amount that will be determined by the Regional Manager in accordance with the prescribed guidelines.

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

g) Monitoring of Impact Management Actions
h) Monitoring and reporting frequency
i) Responsible persons
j) Time period for implementing impact management actions
k) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Excavation (mining)	Visual intrusion Mining activities could result in a negative impact on the aesthetic value of the study area and immediate surrounds.	Monitoring that mining activities only limited to the designated area and not encroach into surrounding areas.	Role and responsibility: Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Annual audits by an independent person with the relevant environmental expertise.	To be implemented throughout the operational phase. Annual audits.
Excavation (mining)	Inappropriate siting and servicing of sanitation facilities could result in contamination of surface and ground water.	Monitoring that sanitation facilities are in a suitable position and regularly maintained.	Role and responsibility: Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Annual audits by an independent person with the relevant environmental expertise	To be implemented throughout the operational phase. Annual audits.
Excavation (mining)	Encroachment of	Monitoring that boundaries stay	Role and responsibility:	To be implemented

	mining activities onto areas outside the mining footprint could result in unnecessary environmental disturbance.	clearly demarcated and no mining activities encroach into the surrounding areas.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Annual audits by an independent person with the relevant environmental expertise	throughout the operational phase. Annual audits.
Excavation (mining)	Inadequate stormwater and erosion control could result in soil erosion and impact surface water quality.	Monitoring that erosion rills don't develop and monitoring of stormwater on the haul road.	Role and responsibility: Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Annual audits by an independent person with the relevant environmental expertise	To be implemented throughout the operational phase. Annual audits.
Excavation (mining)	Spillage of any hazardous substances such as fuel, chemicals, etc. could result in ground and surface water contamination.	Monitoring of hazardous substances, vehicle maintenance and spill kits.	Role and responsibility: Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Annual audits by an independent person with the relevant environmental expertise	To be implemented throughout the operational phase. Annual audits.
Excavation (mining)	Dust (generated from mining activities and from vehicles traveling on dirt roads) could	Monitoring of dust and complaints related to dust.	Role and responsibility: Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.	To be implemented throughout the operational phase. Annual audits.

	be a nuisance during windy conditions.		Annual audits by an independent person with the relevant environmental expertise	
Excavation (mining)	Mining activities and movement of heavy vehicles could result in an increase in ambient noise levels on site and on surrounding properties.	Monitoring of noise and complaints relating to noise.	Role and responsibility: Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Annual audits by an independent person with the relevant environmental expertise	To be implemented throughout the operational phase. Annual audits.
Excavation (mining)	Littering on site may attract vermin, detract from the visual appeal of the area and pollute the surrounding areas.	Monitoring and management of waste on site.	Role and responsibility: Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Annual audits by an independent person with the relevant environmental expertise	To be implemented throughout the operational phase. Annual audits.
Decommissioning/closure	Failure to decommission and rehabilitate the mining site properly could result in soil erosion, storm water issues, safety risks and invasion of alien plant	Monitoring of decommissioning/rehabilitation activities.	Role and responsibility: Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Annual audits by an independent person with the relevant environmental expertise	To be implemented throughout the operational phase. Annual audits.

	species.			
Decommissioning/closure	Failure to comply with the closure requirements could result in unnecessary environmental degradation and failure to obtain a closure certificate from DMR.	Monitoring of effective mine closure.	Annual audits by an independent person with the relevant environmental expertise	To be implemented throughout the operational phase. Annual audits.

l) Indicate the frequency of the submission of the performance assessment/ environmental audit report.

In terms of the National Environmental Management Act (Act 107 of 1998; NEMA) and its amendment, section 24 P (3) (b), the holder of a mining permit must submit an audit report annually to the Minister responsible for mineral resources.

An annual audit will be conducted by an independent competent person (with the relevant environmental expertise) and the audit report submitted to DMR.

m) Environmental Awareness Plan

(1) Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

Once mining of the proposed area starts, a copy of the Environmental Management Programme report will be handed to the site manager during the site establishment meeting. Issues such as fire principals and hazardous waste handling will be discussed.

An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct with regards to the environment.

Site owner and site manager must also familiarise themselves with the Mine Health and Safey Act (1996) and ensure compliance with the Act.

(2) Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

The site manager must ensure that he/she understands the EMPr document and its requirements and commitments before any mining takes place. The site manager must continuously monitor compliance with the EMPr. An independent person with the relevant environmental experience must audit compliance with the EMPr at least annually.

All the mitigation measures listed in the Impact Assessment and EMPr must be adhered to in order to prevent environmental degradation.

The following list represents the basic steps towards environmental awareness, which all mining employees should consider when carrying out their tasks.

Site Management:

- Stay within boundaries of site – do not enter adjacent properties.
- Keep tools and material securely stored offsite.
- Use toilets provided – report full or leaking toilets.

Erosion:

- Report any erosion.
- Check that no equipment is causing hydrocarbon spills.

Waste Management:

- Take care of your own waste.
- Place waste in containers and always close lid.
- Don't burn waste.
- Pick-up any litter.

Hazardous Waste Management (Petrol, Oil, Diesel, Grease):
- Never mix general waste with hazardous waste.
- Use only sealed, non-leaking containers.
- Keep all containers closed and store only in approved areas.
- Stop leaks and spills, if safe.
- Immediately report the spill to the site manager/supervision.
- Locate spill kit/supplies and use to clean-up, if safe.
- Place spill clean-up waste in proper containers.
- Label containers and move to approved storage area to be disposed at a registered landfill site.

Discoveries:
- Includes – Archaeological finds, Cultural artefacts, Contaminated water, Pipes, Containers, Tanks and drums, any buried structures.
- Stop work immediately.
- Notify site manager/supervisor .

Air Quality:
- Wear protection when working in very dusty areas.

Implement dust control measures:
- Water roads and work areas during excessively windy days (if required).
- Obey speed limit.

Driving and Noise:
- Use only approved access roads.
- Respect speed limits.
- Only use turn-around areas – no crisscrossing through undisturbed areas.
- Avoid causing unnecessary loud noises.
- Report or repair noisy vehicles.

Vegetation and Animal life:
- Do not remove any plants or trees without approval of the site manager.
- Do not collect fire wood.
- Do not catch, kill, harm, sell or play with any animal, reptile, bird or amphibian on site.
- Report any animal trapped in the work area.
- Do not set snares or raid nests for eggs or young.

Fire Management:
- Do not light any fires on site.
- Put cigarette butts in a rubbish bin.
- Do not smoke near any fuel or chemicals.
- Know the position of firefighting equipment.
- Report all fires.
- Don't burn waste or vegetation.

n) Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually).

The applicant undertakes to annually review and update (if necessary) the financial provision calculation, for review and approval by DMR.

2) UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports ☒

b) the inclusion of comments and inputs from stakeholders and I&APs ; ☒

c) the inclusion of inputs and recommendations from the specialist reports where relevant; ☒and

d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. parties are correctly reflected herein. ☒

Eric Egbe Igbinigie

Signature of the environmental assessment practitioner:

Assured Turnkey Solutions

Name of company:

30th June 2019

Date:

-END-