



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: Tewie Wessels Familie Trust

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FILE REFERENCE NUMBER SAMRAD: FS30/5/1/3/2/10189MP

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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 ASSESSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

i) Details of the EAP

Name of The Practitioner: Turn180 Environmental Consultants (Mr. Louis De Villiers)

Tel No.: 072 967 7962

Fax No. :

e-mail address: louis@turn180.co.za

ii) Expertise of the EAP.

(1) The qualifications of the EAP

(with evidence). B.sc. Environmental Geography degree from the University of the Free State

(2) Summary of the EAP's past experience.

(In carrying out the Environmental Impact Assessment Procedure) Please Note that the projects listed below was conducted by the EAP with another consultancy (i.e. Eko Environmental) and he has since changed companies.

Relevant past projects involved with:

- Obtaining mining authorizations for the establishment of a borrow pit on the farm Sydenham 422 outside Bloemfontein for the mining of gravel used to upgrade the N6 road,
- Obtaining mining permit for Tau-Pele Construction on communal land outside Indwe, Eastern Cape, which will be used to blast, excavate and crush dolerite,
- Obtaining mining permit for African Mobile Crushers for mining and crushing of dolerite on the farm Koonap Poort 277/1, Adelaide, Eastern Cape,
- Obtaining mining permit for African Mobile Crushers for mining and crushing of dolerite on the farm Plooyfontein 93/1, Hanover, Northern Cape.
- Obtaining a mining permit for Rhino Crushers to establish a commercial borrow pit on the farm Roodewal 292/RE, Bloemfontein

b) Location of the overall Activity.

(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)

Activities authorised in terms of the NEMA listed activities under the 2014 EIA Regulations are the following:

- GN 983, Activity 21: The establishment of a sand mine for which a mining permit must be applied for in terms of Section 27 of the MPRDA (Act 28 of 2002).

Note that sand mining activities were previously undertaken on the area under a previous permit, therefore the area was previously disturbed.

The main activities will be:

- No roads will be cleared to gain access to the mining area, the existing road is in good condition and will be utilised.
- Stripping of topsoil for the removal of sand.
- Storing of topsoil next to the excavation.
- Excavating sand from the mining area.
- Pumping sand from the river with a dredge and a submersible pump.
- Loading of sand on tipper trucks supplied by clients.

1.1.1 Plan of the main activities with dimensions

- The topsoil will be removed from an area of 4800m² and will be stockpiled in this area.
- The sand from the excavation area will be excavated and loaded onto trucks and removed from the site.
- Sand will be pumped from the Caledon River, into a settling pond with a dredge and a submersible pump. The sand in the settling pond will then be removed and loaded onto trucks.
- Once all available sand has been removed from an area in the river the excavation will move to another area until the previously mined area has been repaired naturally.

1.1.2 Description of construction, operational, and decommissioning phases:

Construction phase:

- The clearing of vegetation and topsoil to prepare for sand excavation.
- The proposed mining area should be fenced off / clearly demarcated to prevent the operation exceeding the footprint.
- Arrival of the equipment on site. The previous mining permit holder had equipment on site which he will remove and the new applicant will bring equipment to the site to be used by him during mining activities (Refer to letter in Appendix 6).
- Maintenance of access road.
- There will be no new permanent buildings or structures constructed. There is an existing structure on the mining area which was constructed previously. This structure will remain on site and used by the new applicant.
- Fuel will be kept inside a bunded area that can contain 110% of the volume of the fuel. Lubricants will be kept in a bunded oil store and spares will be kept on site.

Potential impacts identified related with the Construction phase:

- a) Stripping of topsoil and vegetation and the loss thereof.
- b) Generation of dust and noise.
- c) Pollution and degradation of the adjacent watercourses.
- d) Potential erosion as a result of the clearance of vegetation.

Operational phase:

- a) Excavation of sand from the demarcated mining area.
- b) Loading of excavated sand on trucks supplied by clients.
- c) Mining shall only take place within the approved demarcated mining area.
- d) Pumping of sand from the river, using a dredge and a submerged pump, to a settling pond.
- e) Excess water from the settling pond will be diverted back to the river.
- f) Sand which settled at the bottom of the pond will be removed and loaded on trucks supplied by clients.
- g) Topsoil will be removed from all areas where physical disturbance of the surface will occur.
- h) The topsoil removed must be stored on site and outside the 1:50 year floodline within the boundary of the mining area.
- i) Topsoil shall be kept separate from overburden and shall not be used for building or maintenance.
- j) The stored topsoil shall be protected from being blown away or being eroded.
- k) Overburden rocks shall be placed the excavation or stored adjacent to the excavation to be used as backfill material once the sand has been excavated.
- l) There will be approximately 5 permanent employees on site, including skilled and unskilled employees.
- m) The following equipment will be used:
 - 1 x Excavator (Only to be used 1 day per month)
 - 1 x Loader
 - 1 x Dumper
 - 1 x Tractor
 - 1 x Dredge with pumpClients will take Trucks to the mining area to be loaded.
- n) There will be no permanent buildings or structures constructed.
- o) Fuel will be kept inside a bunded area that can contain 110% of the volume of the fuel. Lubricants will be kept in a bunded oil store and spares will be kept on site.
- p) Any waste generated on site will be managed appropriately and according to best practices.

Potential impacts identified related with the Operational phase:

- a) Stripping of topsoil and vegetation.
- b) Generation of dust and noise.
- c) Alteration of the landscape/topography.
- d) Pollution and degradation of watercourses.
- e) Dumping of waste.
- f) Impact on the quality and quantity of surface and groundwater.
- g) Possible destabilization of stream bed and banks.
- h) Possible disruption of sediment supply and channel form.
- i) Alteration of riverine vegetation.

Decommissioning phase:

- a) All the equipment will be removed from the site.
- b) Any residual waste will be collected and removed from site. General waste will be disposed of at the authorised landfill site in the area, while recyclable waste (e.g. scrap metal) will be recycled

as far possible. Any potential hazardous material left on site will be managed appropriately and disposed of at an authorised hazardous waste facility.

- c) The mined areas will naturally rehabilitate themselves as excavation occurs inside the river.
- d) Available topsoil will be used to cover exposed areas to be rehabilitated for the establishment of vegetation.
- e) The bank of the Caledon River will remain intact and will be rehabilitated where necessary.
- f) Completing rehabilitation and apply for closure.
- h) The area will be fenced off in order to provide a safe environment and to prevent easy access to the site.

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 COMPLY 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)
National Environmental Management Act (Act 107 of 1998) 2014 Regulations	Department of Environmental Affairs	Notified of project as I&AP
National Water Act (Act 36 of 1998)	Department of water and sanitation	Notified as I&AP and water use license applied for.
Conservation of Agriculture Resources Act (Act 43 of 1993)	Department of Agriculture, Forestry and Fisheries	Notified of the project
National Heritage Resources Act (Act 25 of 1999)	South African Heritage Resource Agency	Phase 1 HIA conducted
Occupational Health and Safety Act and Regulations (Act 85 of 1993)	Department of Labour	None (Implemented by contractor on site)
Minerals and Petroleum Resources Development Act (Act 28 of 2002)	Department of Mineral Resources	Environmental Authorization and mining permit applied for

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).

The proposed mining activities will provide sand for construction purposes in the region. This will result in direct and indirect job opportunities in the area.

Direct job opportunities will be created for approximately 5 local people employed directly at the mining operation. This will have a positive impact on the local economy directly related to these individuals and their families.

The mined sand is used for construction in the region which results in jobs indirectly associated with the mining operation.

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

1 Preferred site:

This site is preferred as it was disturbed during previous mining activities. The site is also located in an area which is easily accessible for vehicles and equipment.

Furthermore, the farm on which the proposed mining area is located is the property of the applicant. This will make it more economically feasible for the applicant.

The identified excavation area is also the area with the largest volumes of sand to be excavated due to the topography and accessibility of the sand.

2 Activities:

The specific sand mined for can only be excavated from rivers/watercourses. Construction, especially plastering, cannot occur without this specific river sand.

3 Technology alternative:

Sand is excavated from banks of the river and inside the active channel of the watercourse, therefore sand has to be pumped and has to be excavated using an excavator.

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.

a) Preferred site:

This site is preferred as it was disturbed during previous mining activities. The site is also located in an area which is easily accessible for vehicles and equipment.

Furthermore, the farm on which the proposed mining area is located is the property of the applicant. This will make it more economically feasible for the applicant.

The identified excavation area is also the area with the largest volumes of sand to be excavated due to the topography and accessibility of the sand.

b) Activities:

The specific sand mined for can only be excavated and/or pumped from rivers/watercourses. Construction, especially plastering, cannot occur without this specific river sand.

c) Design and layout:

The site was designed in a specific manner to allow for free flowing of traffic from trucks inside the mining area.

d) Technology alternative:

Sand is excavated from banks of the river and inside the active channel of the watercourse, therefore sand has to be pumped and has to be excavated using an excavator.

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.

The following measures were implemented to ensure that the public is notified:

- Two site notices were placed at the entrance to the site,
- An advert was placed in the local english and afrikaans newspapers,
- Written notifications were sent to all authorities,
- Written notifications were sent to the adjacent landowners.
- Written consent was received from the landowner of the farm.

The following authorities were notified of the project by written notifications and background information documents (BID):

- Thabo Mufutsanyane District Municipality
- Mantsopa Local Municipality - Municipal Manager
- Mantsopa Local Municipality - Ward 2 ward councillor
- South African Heritage Resource Agency
- Department of Water and Sanitation
- Department of Agriculture
- Department of Economic Samall Business Development, Tourism and Environmental Affairs
- Department of Rural Development and Land Reform

The following adjacent landowners were notified in writing:

- Mr. John Askevold - owner of the farm Alphen 938,
- Mr. Manong Emanuel Lesoma - Member at Lesotho Department of Water Affairs
- Mr. Rafael Rammatshele - Owner of the farm Glen Alphen 74/1

No comments were received regarding the proposed project at the date of this report.

Refer to Appendix 4 for the Public Consultation Process.

The above mentioned was conducted in regards to the application for the first mine permit and Environmental Authorisation. In regards to this amendment, new site notices will be placed at the entrance to the site, new adverts will be placed in local newspapers and new written notifications will be sent to all I&AP.

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		Date	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.
List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Comments Received			
<u>AFFECTED PARTIES</u>					
Landowner/s	X				
Tewie Wessels Familie Trust	X	3/05/2016	No issues raised. The landowner is also the applicant for the mining permit.	N/A	
Lawful occupier/s of the land					
Same as above					
Landowners or lawful occupiers on adjacent properties		X			
Mr. Johan Askevold	X	23/05/2016	No issues raised	N/A	
Mr. Rafael Rammatshele	X	31/05/2016	No issues raised	N/A	
Mr. M. E. Lesoma	X	24/05/2016	No issues raised	N/A	
Municipal councillor	X	24/05/2016	No issues raised	N/A	
Municipality	X	24/05/2016	No issues raised	N/A	
Organs of state (Responsible for					

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 proposed mining area is located in the Ca35 land type which mainly consists of mudstone and sandstone of the Tarkastad Subgroup with dolerite sills and dykes in places.

Soils has a plinthic cathena with indifferentiated, upland duplex and margalitic soils common. More specific to the site the soil is alluvial sand which will be mined.

- Topography:

The site is located at an altitude between 1446 m - 1454 m. The site is located on the side slope of a hill.

- Vegetation:

The proposed site is located in the Eastern Free State Clay Grassland vegetation type. This is an endangered biome. Vegetation within the proposed mining area have been extensively degraded by previous mining and human activities to such a degree that the vegetation at some parts have been completely transformed.

An ecological and biodiversity study was done and the findings are attached to this report in Appendix 3.

- Animals:

It is considered highly unlikely that mammals of concern would occur at the site due to human presence on, and close to, the site and the degraded state of the site.

An ecological and biodiversity study was done and the findings are attached to this report in Appendix 3.

- Climate:

The area is located within a summer rainfall region with an average mean annual precipitation of 700 mm (Mucina & Rutherford, 2006).

(b) Description of the current land uses.

The proposed mining area is located on land which was previously used for sand mining and the associated activities. The site can be used for grazing of livestock, however, the land is very disturbed.

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

The Caledon River is located on the mining area as sand will be mined from the river.

Furthermore, the infrastructure on site is that associated with mining activities as there has been previous mining activities undertaken on the site.

A water use license application for the mining of sand inside the river was submitted to the Department of Water and Sanitation (1 November 2016).

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

Refer to Appendix 1

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).

Refer to impact assessment in Appendix 5

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).

Refer to the Impact Assessment in Appendix 5.

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)

Note:

No alternative sites were identified for the project (refer to section ix for motivation)

The advantages and disadvantages of establishing the mining area on the proposed site are as follows:

* Advantages:

- The proposed area has previously been used for the mining of sand and is therefore disturbed.
- This specific area is located in a position where the river is accessible.
- The establishment of the mining area on the proposed area will result in the creation of jobs for local residents. This includes direct and indirect employment opportunities.
- The proposed site has been previously disturbed by mining activities, over grazing and other human activities. The ecological status of the site is therefore very degraded.
- There are no neighbouring houses located in close proximity to the mining area.

* Disadvantages:

- Mining will be done in the river which might have an impact on the water in the river.
- Mining activities will result in a change in land use until the site is rehabilitated. This will prevent the landowner to use the land for grazing for his animals.

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).

No comments were received from the I&APs regarding the impact of the mine on the environment. However, the following mitigation measures will be implemented in order to minimize potential impacts on the environment:

- Surface and groundwater quality and quantity:
 - * Storm water management measures will be implemented to divert clean storm water around the mining area.
 - * Comply with all conditions of the National Water Act (Act 36 of 1998).
 - * A water use license in terms of Section 21(c) and (i) was be applied for.
 - * Any spill of potentially hazardous substances (e.g. oil, grease, etc.) should be cleaned and the spill managed immediately.
 - * Storm water mitigation measures will be implemented to ensure that clean run-off water is not contaminated by any activities related to the proposed project
- Ambient Air Quality:
 - * A dust monitoring system will be implemented to monitor dust emissions from the operation.
 - * If dust becomes problematic, further management of the dust must be implemented.
 - * The speed of trucks and other vehicles on the access road should be limited to 40 km/hour to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.
- Noise Levels:
 - * Machines should be equipped with silencers.
 - * Machines should be maintained in a good condition to prevent excessive noise.
 - * No blasting or drilling will be done on the site.
 - * Mining will only occur during normal working hours.
- Waste:
 - * Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be disposed and stored in a suitable container at a collecting point and collected on a regular basis and disposed of at an authorized waste disposal facility in the area. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the site.
 - * Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste for general and hazardous waste.
 - * Spills of any product such as paint, oil, cleaning agents etc. should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing it at a recognised facility.
 - * All used oils, grease or hydraulic fluids, paints, thinners etc. that cannot be re-used shall be placed in a hazardous waste container for disposal at a suitable waste disposal facility.
 - * Temporary toilet facilities must be made available on site during construction, operational and decommissioning phase.
 - * Sewage from these toilets should be managed appropriately and not be disposed of on site or the surrounding environment to cause water or other pollution.
- Loss Of Vegetation:
 - * It is not anticipated that the vegetation on adjacent property will be influenced due to the proposed mining activities as these activities will be carried out on a specific site (i.e. the mining area).
 - * In addition, no open fires will be allowed on site as the site will be treated as a fire-free zone.

- * Mining inside the river area will not exceed the mining boundaries and the dredge is stationary. This will limit the impact on riverine vegetation.
- * A permit must be obtained to transplant protected / red data species to other areas where it will not be disturbed. However, it is not anticipated that there are any of these species which will be disturbed.

- Loss of animals:

- * No animals will be harmed or killed on the proposed mining site. This includes fish in the Caledon River.
- * Mining inside the river area will not exceed the mining boundaries and the dredge is stationary. This will limit the impact on the habitat of fish.
- * Mining on the immediate bank of the river will also have a minimal impact on the habitat of fish.

- Soil loss:

- * Topsoil will be removed and stockpiled, if available, to preserve the soil for re-use during rehabilitation.
- * Topsoil will not be used for filling or construction purposes.

- Safety:

- * No employee at the proposed mining area will be allowed to wander on adjacent land without consent from that landowner.
- * No animals in the surrounding area to the mining area will be injured or killed.
- * Employees at the mine will cook food and eat at home and will not be allowed to gather food from the environment surrounding the proposed mining site.
- * Employees will be transported to and from work before and after every shift to ensure that no one trespasses on adjacent property.
- * No employee will be permitted to stay at the mine if it is not during his shift. Employees not working, should be transported to their homes.
- * No blasting will be done at the mine.

- Archaeology and Palaeontology:

A Phase 1 Heritage Impact Assessment (HIA) was done on the site. No artefacts of archaeological and/or palaeontological significance were identified on the terrain. Both the archaeological and palaeontological site rating is General Protection C.

Although no artefacts were recorded on the site the following measures should be implemented:

- * Should any artefacts be unearthed on the site the mining should cease and a specialist and the SAHRA should be contacted to investigate the finding.

Refer to the Phase 1 HIA in Appendix 3

ix) Motivation where no alternative sites were considered.

The proposed site has already been disturbed due to previous mining activities which occurred on it.

Furthermore, the mining area applied for is located in an area which has easy access to the river where the excavation and loading of the sand will occur.

The mining area is located on the land which is owned by the applicant for the mining permit which reduces any land rental costs.

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

The layout of the site will be established in such a manner to have an open void (i.e. excavation area) and stockpiles. Trucks will enter the site and the sand will be loaded onto the trucks from the stockpile area.

It should be noted that the site has been used previously for the same mining activities. The previously disturbed areas will therefore be used for the site layout.

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 were 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.)

An impact assessment was compiled for the impacts on the site. During the operation on site, risk assessments and further impact assessments will be carried out to identify, assess and rank the impacts and risks that the activity will have on the site.

The impacts identified were the following:

- Impact on geology and soil:

loss of sand and topsoil,

- Land use and capability:

Land cannot be used for grazing when mining activities occur,

- Loss/damage of flora and fauna:

Vegetation will be removed and the habitat of certain animal species on site will be damaged. The Eastern Free State dry grassland is endangered. However, the vegetation has previously been disturbed by mining activities.

When pumping the sand from the river, the mining boundaries will not be exceeded and the dredge will remain stationary, which will limit the disturbance to the fish habitat and riverine vegetation.

Excavation on the river bank will have minimal impact on the fish habitat.

- Impact on surface- and groundwater:

Spillages of hazardous waste, littering or effluent spills may cause contamination of water,

- Air quality:

Dust generation may cause higher dust levels in the area which will pollute the area,

- Noise levels:

Excavation and loading and hauling of sand will have an impact on the ambient noise levels,

- Aesthetics:

The mining activities may have an impact on the aesthetic of the residents in the area.

- Impact on cultural and heritage resources/sites:

There may be an impact on artefacts on the uncovering thereof,

- Socio-economic conditions:

There will be a positive impact on the socio-economic condition of the residents of the area with more employment opportunities created.

(ii) Extent to which the risks/impacts can be avoided or minimized by mitigation measures:

-Impact on soil and geology:

The loss of soil cannot be avoided as the material will be sold commercially for construction purposes.

However, topsoil loss can be avoided if soil is stockpiled correctly to avoid erosion on the site. If topsoil is stockpiled and not used for other purposes, the impact will be avoided.

- Land use and capability:

The land use of the mining area will change and grazing of animals will not be possible on large areas of the site. However, the impact will be temporary as the site will be rehabilitated to the original land use (i.e. agriculture) at the end of the project. It should also be noted that the site was previously disturbed and not used for grazing.

- Loss/damage of flora and fauna:

Vegetation will be lost during the clearing of the site. However, the impact will be temporary as the site will be revegetated during rehabilitation.

Due to the degraded state of the site and the presence of people on the site, it is not expected that there are many animals on the proposed site. However, any existing animal habitats may be disturbed/damaged and animals present on site will leave the site. They will return after rehabilitation of the site.

- Impact on surface- and groundwater:

With the implementation of the correct mitigation measures and best practices for the storage and handling of hazardous substances and the maintenance of vehicles and machinery, the impact on soil- and groundwater can be avoided.

- Air quality:

It is likely that there might be dust emissions from the use of the gravel access road. There will not be any emissions from the excavation and loading of the soil as the soil will be damp/wet during this time. If dust becomes a problem, dust control measures will be implemented.

- Noise levels:

Noise will be generated at the mining site as a result of the mining activities (i.e. excavation, and loading). The impact can be minimized by mitigation, but cannot be avoided. Regular servicing of vehicles and machinery and working at daytime hours will minimize the impact and possible disturbance to adjacent landowners.

- Aesthetics:

The mining area will not be visible to houses of adjacent landowners or any person using a major road and will therefore not have a negative aesthetic impact on adjacent landowners. However, the site must always be kept clean and neat by correct waste disposal measures and housekeeping.

- Impact on cultural and heritage resources/sites:

It is not expected that there will be any impact on the cultural or historic sites/artefacts as no sites were identified. Impacts on any possible artefacts can be avoided if they are identified early enough. Should any artefacts be uncovered the mining should cease and a specialist and SAHRA should be contacted to investigate. Refer to the Phase 1 HIA in Appendix 3.

- Socio-economic conditions:

There will be a positive impact on the socio-economic condition of the residents in the area with more job opportunities created.

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
Excavation of sand	Dust (Air Pollution), Noise, Surface disturbance, Impact on the flow of the river, Loss of sand, Loss of topsoil, Possible surface- and groundwater contamination, Loss of	Water, Vegetation, Soil, Air	Commissioning, Operational, Rehabilitation	Medium	Noise control measures, Dust control measures, Stockpiling of topsoil, Maintenance of vehicles and machinery to prevent petrochemical spills,	Low

	vegetation					
Loading and hauling	Soil compaction, Dust, Vegetation loss, Loss of topsoil, Noise,	Soil, Vegetation, Air	Commissioning, Operational, Rehabilitation	Medium	Vehicle maintenance, Noise control measures, Dust control measures, Maintaining and using access roads,	Low
Stockpiles	Alien vegetation, Loss of topsoil, Erosion, Runoff and sedimentation of river, Soil contamination, dust emissions	Soil, Air, Water.	Commissioning, Operational, Rehabilitation	Medium	Stockpiling of topsoil in the correct manner, Erosion control measures (i.e. berms and trenches), Control and removal of alien species, Cleaning and prevention of all spills on stockpiles	Low
Ablution facilities	Ground- and surface water contamination, Soil contamination,	Soil, Water	Commissioning, Operational, Rehabilitation	Medium	Establishment and management of temporary chemical toilets	Low
Pumping of sand from river	Destabilization of stream bed and banks, Disruption of sediment supply and channel form, Alteration of riverine vegetation,	Soil, Water, Vegetation	Operational	Medium	Sand pumping will not exceed mining boundaries, dredge will remain stationary.	Low

	Impact on quality and quantity of surface water, Pollution and degradation of watercourse.					
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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.
Heritage Impact Assessment	No artefacts were identified. Recommendations are made that if any artefacts are unearthed / excavated the mining should stop and a specialist and SAHRA should be contacted to investigate. Refer to Appendix 3.	X	
Ecological report and wetland delineation	Due to sand being mobilised as a result of vegetation clearance measures should be implemented to prevent soil from entering the river and thereby causing sedimentation of the river. These measures include berms and cut-off trenches. Weed control must be implemented continually to prevent weeds from establish. Monitoring of the mining area should also be done. To limit erosion within the river which will occur as a result of excavation on the bed of the river the sand mining should not occur within the active zone of the river. Refer to Appendix 3.	X	

Attach copies of Specialist Reports as appendices

l) Environmental impact statement

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

The correct storage and handling of hazardous substances and hazardous waste is very important as this may cause contamination of ground and soil- and groundwater.

Due to the proposed site being located within a river it is very crucial that runoff is diverted around the site correctly, that topsoil is stockpiled correctly in order to be preserved and to prevent erosion.

Any indigenous vegetation will be protected and not disturbed unnecessarily.

(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 Appendix 1

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

The advantages and disadvantages of establishing the mine on the proposed area are as follows:

*** Advantages:**

- The river at the proposed mining area is easily accessible for machinery and vehicles,
- The establishment of the mine on the proposed area will result in the creation of jobs for local residents.
- The proposed site has been previously disturbed by mining activities, over grazing and other human activities. The ecological status of the site is therefore very degraded.
- There are no residents residing in close proximity to the proposed mining area.

*** Disadvantages:**

- A part of the proposed site is located in the Caledon River. However, due to the nature of the activity this cannot be changed,
- Mining activities will result in a change in land use until the site is rehabilitated. This will prevent the landowner to use the land for grazing for their animals.

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.

- Surface and groundwater quality and quantity:

- * Storm water management measures will be implemented to divert clean storm water around the site.
 - * Comply with all conditions of the National Water Act (Act 36 of 1998).
 - * A water use license application will be submitted to the Department of Water and Sanitation for the impeding and the diverting the flow of the watercourse.
 - * Any spill of potentially hazardous substances (e.g. oil, grease, etc.) should be cleaned and the spill managed immediately.
 - * Storm water mitigation measures will be implemented to ensure that clean run-off water is not contaminated by any activities related to the proposed project
- Ambient Air Quality:**

- * A dust monitoring system will be implemented to monitor dust emissions from the operation and the access road.
- * If dust becomes problematic, further management of the dust must be implemented.
- * The speed of trucks and other vehicles on the access road should be limited to 40 km/hour to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.
- Noise Levels:
 - * Vehicles should be equipped with silencers.
 - * Vehicles should be maintained in a road worthy condition.
 - * No blasting will be done on the site
 - * No work that may increase noise levels, will be done after normal working hours.
- Waste:
 - * Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be disposed and stored in a suitable container at a collecting point and collected on a regular basis and disposed of at an authorized waste disposal facility in the area. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the site.
 - * Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste for general and hazardous waste.
 - * Spills of any product such as paint, oil, cleaning agents etc. should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing it at a recognised facility.
 - * All used oils, grease or hydraulic fluids, paints, thinners etc. that cannot be re-used shall be placed in a hazardous waste container for disposal at a suitable waste disposal facility.
 - * Temporary toilet facilities must be made available on site during construction, operational and decommissioning phase.
 - * Sewage from these toilets should be managed appropriately and not be disposed of on site or the surrounding environment to cause water or other pollution.
- Loss Of Vegetation:
 - * It is not anticipated that the vegetation on adjacent property will be influenced due to the proposed mining activities as these activities will be carried out on a specific site.
 - * In addition, no open fires will be allowed on site as the site will be treated as a fire-free zone.
 - * Mining inside the river area will not exceed the mining boundaries and the dredge is stationary. This will limit the impact on riverine vegetation.
 - * If necessary a permit must be obtained to transplant protected / red data species to other areas where it will not be disturbed.
- Soil loss
 - * Topsoil will be removed and stockpiled to preserve the soil for re-use during rehabilitation.
 - * Topsoil will not be used for filling or construction.
- Safety:
 - * No employee at the proposed quarry will be allowed to wander on adjacent land to the mining area.
 - * No animals in the surrounding area to the mining area will be injured or killed.
 - * Employees at the mine will cook food and eat at home and will not be allowed to gather food from the environment surrounding the proposed mining site.
 - * Employees will be transported to and from work before and after every shift to ensure that no one trespasses on adjacent property.
 - * No employee will be permitted to stay at the mining area if it is not during his shift. Employees not working, should be transported to their homes in town.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

- Indigenous vegetation, if present on site, will be protected at all costs. No indigenous vegetation will be removed if it is not necessary,
- If any artefacts are uncovered which might have an archaeological or palaeontological significance the mining operation should cease and a specialist and SAHRA should be notified to conduct the necessary studies.

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

(Which relate to the assessment and mitigation measures proposed)

No assumptions, uncertainties and gaps in knowledge.

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.

The proposed activity should be authorized due to the following reasons:

- The proposed site has been disturbed by previous mining activities and the ecological status of the site is very low,
- The mining will provide numerous individuals from the local community with direct and indirect jobs and an income.
- The mining of sand in the area will create a lower price of product to be used by local residents,

ii) Conditions that must be included in the authorisation

- People from the local community must be employed at the mine,
- An application for a water use license of a water use was submitted (1 November 2016) to the Department of Water and Sanitation for the impeding and diverting of the flow of a watercourse.

q) Period for which the Environmental Authorisation is required.

The full validity of a mining permit term (i.e. 2 years) after which it will be renewed annually if necessary.

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.

I confirm that the undertaking is provided.

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.

R109 788.57

The aforesaid amount was determined by the quantum calculation.

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 amount will be provided for in the form of a financial guarantee given by the applicant to the DMR.

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 only persons directly affected by the mining of the sand is the landowner of the farm, who is also the applicant for the mining permit. Downstream water users can also be impacted on.

Furthermore, there will be a positive impact on local residents in the area. Impact on the local residents are the following:

-Positive:

Local residents will be employed at the mine. They will earn an income for their services. Furthermore, there will be an indirect positive impact on businesses and local residents as the sand can be used for infrastructure construction and development.

-Negative:

Although highly unlikely, the adjacent landowners may be impacted on by higher noise levels from the operation.

There might be a safety risk for adjacent landowners with more people in the area.

(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)(j)(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).

A Phase 1 Heritage Impact Assessment (HIA) was done on the site. No artefacts of archaeological and/or palaeontological significance were identified on the terrain. Both the archaeological and palaeontological site rating is General Protection C.

Although no artefacts were recorded on the site the following measures should be implemented:

* Should any artefacts be unearthed on the site the mining should cease and a specialist and the SAHRA should be contacted to investigate the finding.

Refer to the Phase 1 HIA in Appendix 3

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**).

Refer to the motivation in Section a.3.h.1 of this report.

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).

Details included in Part A, Section 1(a).

- 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).

Details 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)

Attached in Appendix 1

- 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 site will be rehabilitated to fit the end landuse as determined by the landowner (i.e. community). The land as used for agricultural purposes, in particular the grazing of livestock.

The area inside the river where the excavation occurs will rehabilitate naturally as a result of sedimentation of the river.

The banks of the river will be repaired and sloped to be safe and the area will be revegetated and all infrastructure and material will be removed.

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

No water will be used at the mining operation. However, a license was submitted for a Section 21(c) and (i) water use (1 November 2016).

- 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	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>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.)</p>	<p>(of operation in which activity will take place.</p> <p>State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).</p>	<p>(volumes, tonnages and hectares or m²)</p>	<p>(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)</p>	<p>(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)</p>	<p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-</p> <p>..</p> <p>Upon cessation of the individual activity or.</p> <p>Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p>
Excavation	Operational Rehabilitation	1.1 ha	The recommendations will prevent and manage any spills of hazardous substances.		
Stockpiles	Operational Rehabilitation	3000 T/month	<p>Recommendations will prevent and manage spills of hazardous substances.</p> <p>Recommendations will limit or prevent erosion from occurring and divert clean water around stockpiles.</p>		
Loading and hauling	Operational	3000 T/month	<p>Recommendations will prevent and manage spills of hazardous substances.</p> <p>Vehicles will be serviced to prevent spillage,</p>		

			A speed limit of 40 km/h will be enforced to reduce dust emissions.		
Pumping of sand from river	Operational	3000 T/month	Mining boundaries will not be exceeded. Dredge will remain stationary.		

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. <ul style="list-style-type: none"> • 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.
Excavation	Dust (air pollution), Noise, Surface disturbance, Soil loss, Loss of sand, Surface- and ground water contamination, Loss of vegetation	Geology Soil Water Vegetation Air	Commissioning, Operational, Rehabilitation	Noise control measures, Dust control measures, Stockpiling of topsoil, Maintenance of vehicles and machinery to prevent petrochemical spills,	Noise and dust levels according to standards, No surface erosion, No soil loss, No contamination of ground- or surface water. Minimal spillages.
Stockpiles	Alien vegetation, Loss of topsoil, Erosion, Soil contamination	Soil	Commissioning, Operational, Rehabilitation	Stockpiling of topsoil in the correct manner, Erosion control measures (i.e. berms and trenches), Control and removal of alien species, Cleaning and prevention of all	Minimal alien vegetation on site, No loss of soil, No erosion trenches, No contamination, No/minimal spillages.

				spills on stockpiles	
Loading, hauling and transport	Soil compaction, Dust, Vegetation loss, Noise,	Soil, Vegetation, Air	Commissioning, Operational, Rehabilitation	Vehicle maintenance, Noise control measures, Dust control measures, Maintaining and using access roads,	No compaction other than roads, Noise and dust levels according to standards,
Ablution facilities	Ground- and surface water contamination, Soil contamination,	Soil, Water	Commissioning, Operational, Rehabilitation	Establishment and management of temporary chemical toilets	No effluent from chemical toilets, Toilets serviced regularly, No soil contamination.
Pumping of sand from river	Destabilization of stream bed and banks, Disruption of sediment supply and channel form, Alteration of riverine vegetation, Impact on quality and quantity of surface water, Pollution and degradation of watercourse.	Soil, Water, Vegetation	Operational	Sand pumping will not exceed mining boundaries, dredge will remain stationary.	No impact on quality and quantity of surface water. No contamination of surface water.

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).

<p>ACTIVITY whether listed or not listed.</p> <p>(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.).</p>	<p>POTENTIAL IMPACT</p> <p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)</p>	<p>MITIGATION TYPE</p> <p>(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)</p> <p>E.g.</p> <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring <p>Remedy through rehabilitation..</p>	<p>TIME PERIOD FOR IMPLEMENTATION</p> <p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-..</p> <p>Upon cessation of the individual activity</p> <p>or.</p> <p>Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p>COMPLIANCE WITH STANDARDS</p> <p>(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)</p>
<p>Excavation</p>	<p>Dust (air pollution), Noise, Surface disturbance, Soil loss, Loss of dolerite, Surface- and ground water contamination, Loss of vegetation</p>	<p>Noise control measures, Dust control measures, Stockpiling of topsoil, Maintenance of vehicles and machinery to prevent petrochemical spills,</p>	<p>Before excavation occurs</p>	<p>Dust fallout measures will be taken, Health test will be done on employees, Spills will be cleaned and waste management sufficient to prevent pollution or contamination, No areas outside mining area will be disturbed, The area will be rehabilitated.</p>
<p>Stockpiles</p>	<p>Alien vegetation, Loss of topsoil,</p>	<p>Stockpiling of topsoil in the correct manner,</p>	<p>Commencement of stockpiling</p>	<p>Alien vegetation will be controlled,</p>

	Erosion, Soil contamination	Erosion control measures (i.e. berms and trenches), Control and removal of alien species, Cleaning and prevention of all spills on stockpiles		Spills and waste will be cleaned and managed appropriately to avoid contamination/pollution. Soil will be preserved.
Loading, hauling and transport	Soil compaction, Dust, Vegetation loss, Noise,	Vehicle maintenance, Noise control measures, Dust control measures, Maintaining and using access roads,	Throughout the project	Dust fallout measures will be implemented, Noise levels will comply to the of the OHS Act and medicals will be taken on employees.
Ablution facilities	Ground- and surface water contamination, Soil contamination,	Establishment and management of temporary chemical toilets	Throughout the project	Ground and surface water will comply to standards of DWS.
Pumping of sand from river.	Destabilization of stream bed and banks, Disruption of sediment supply and channel form, Alteration of riverine vegetation, Impact on quality and quantity of surface water, Pollution and degradation of watercourse.	Sand pumping will not exceed mining boundaries, dredge will remain stationary.	Throughout the project	Surface water contamination tests (testing for Hydrocarbons) will be done every six months.

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.

All infrastructure will be removed from the mining site and compacted surfaces will be ripped. The Excavation inside the river will be backfilled naturally by the river. If available, the disturbed areas on the banks will be covered with topsoil and re-vegetated by use of hydro-seeding to ensure the re-growth of vegetation to support grazing.

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

The mining area will be used for agriculture (i.e. grazing).

(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.

Refer to Appendix 1

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

The rehabilitation plan and objectives for closure indicates that the area will be used for agriculture after closure.

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

The financial provision was calculated and included in Appendix 6.

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

The applicant will provide financial guarantee of the amount as indicated in the quantum calculations.

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	Noise, Surface disturbance, Soil loss, Loss of sand, Surface- and ground water contamination, Loss of vegetation	Complaints register on site, Surface and groundwater test results if borehole is available,	Mine supervisor	Annually
Stockpiles	Alien vegetation, Loss of topsoil, Erosion, Soil contamination	Stockpile monitoring reports, Spill report documents	Mine supervisor	Quarterly
Loading, hauling and transport	Soil compaction, Dust, Vegetation loss, Noise,	Health test data and dust fallout results available, Clearance registers	Mine supervisor	Quarterly
Ablution facilities	Ground- and surface water contamination, Soil contamination,	Disposal certificates	Mine supervisor	Weekly
Waste management	Pollution, Surface- and	Disposal certificates	Mine supervisor	Monthly

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

Annually

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.

- Toolbox talks before any activities occur,
- Weekly meetings
- Induction given to employees with employment
- Signage

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

Once risks are identified and assessed, employees will be made aware of risks associated with the activities on site. Employees will be made aware of how to manage certain pollutants and dangerous goods, waste and effluent to minimize the risks on site.

n) Specific information required by the Competent Authority

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

An annual performance assessment will be undertaken.

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.

Signature of the environmental assessment practitioner:

Name of company:

Date:

-END-